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Femtosecond Laser Cataract Surgery

The eye is a complex organ that sends nerve impulses to the brain when stimulated by reflected light rays. The brain can then process these impulses and create the perception of vision.

The lens of the eye is a clear structure that stretches and contracts and allows us to focus on objects at various distances. With aging, however, cataracts, one of the most common eye ailments, can develop. These are dead cells that accumulate in the lens capsule, causing the lens to gradually become cloudy. As these spots increase in size, vision is no longer clear and sharp. The opaque areas on the lens make people feel as if they are now seeing everything through a fog-covered window.

In the United States, 75% of people over age 60 have some sign of cataracts. In most individuals any vision loss from cataracts can be corrected by surgery, which is a common, safe, and effective way of replacing the clouded lens. In fact, cataract surgery is the most commonly performed surgical procedure in the United States and is considered by many doctors to be the most effective surgical procedure in all of medicine. The American Academy of Ophthalmology estimates that 1.6 million cataract operations are performed each year in the United States.

Cataract surgery, called phacoemulsification, involves removing all or part of the damaged natural crystalline lens and replacing it with an intraocular lens implant to provide vision correction, often eliminating the need for eyeglasses or contacts. Cataract removal, which is done freehand with a surgical blade, will improve vision in more than 95% of cases if the eye is normal except for the cataract.

While surgical results have been outstanding, cataract surgery has now been improved with the introduction of femtosecond laser technology. The device has already been used successfully in ophthalmology, particularly for LASIK (Laser In-Situ Keratomileusis) refractive surgery.

A femtosecond is one quadrillionth of a second. This is the super-fast amount of time that numerous laser pulses of near infrared light are used by a surgeon in this new cataract procedure. The femtosecond laser helps make a perfect circular hole in the lens capsule, splits the lens into sections, and then softens and breaks up the cataract. The damaged lens is removed using ultrasound and an intraocular lens is then implanted.

Unlike a surgical blade that cuts, a femtosecond laser separates tissue by ablating and cleaving it. The novel FDA-approved bladeless cataract procedure is now revolutionizing surgery by making it more predictable and accurate, allowing surgeons to make smaller, more precise incisions. It also requires less energy time inside the eye, causes less inflammation, and offers more stability when implanting a new lens.

The combination of precision and simplification that is possible with femtosecond laser represents a major advance for cataract surgery.

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From the desk of Executive Editor

Editorial

Ozurdex: New hope in the management of macular oedema

OZURDEX®, initially approved by the U.S. Food and Drug Administration (FDA) in 2009 as the first drug therapy for the treatment of macular edema following retinal vein occlusion (RVO), received FDA approval for the treatment of non-infectious ocular inflammation, or uveitis, affecting the posterior segment of the eye in 2010.

OZURDEX® is a biodegradable implant that delivers an extended release of the corticosteroid dexamethasone via intravitreal injection. The recommended dose is dexamethasone 0.7 mg in a solid polymer drug delivery system NOVADUR®.

Diabetic macular edema (DME) results from the exuding and accumulation of extracellular liquid and proteins in the macula1 following structural changes to the endothelium of the retinal blood vessels that lead to the rupture of the hematoretinal barrier and thus to an increase in vascular permeability. The pathological neo-angiogenesis at the basis of such alterations is provoked by the increase in cytokines (like interleukin-6 and -8), prostaglandins, and vascular endothelial growth factor (VEGF) 2. Laser photocoagulation, considered for a long time as the main treatment option for DME, may lead to paracentral deficits of the visual field and reduced color vision and sensitivity to contrast. For these reasons, intravitreal therapies with anti-VEGF have been considered as an efficient treatment strategy for patients affected by DME, with drugs such as pegaptanib, ranibizumab and bevacizumab being principally used.3 However, not all patients respond favorably to intravitreal anti-VEGF treatment. Steroids reduce inflammatory mediators through a more widespread action that blocks VEGFs, inflammatory cytokines, and prostaglandins.4

There are lots of studies going on to validate the rationale for using OZURDEX in diabetic macular oedema. Pacella E et al., published an article in 2013.5 They wanted to share their initial experiences where they tried to evaluate the efficacy and safety of Ozurdex in patients with persistent diabetic macular edema (DME) over a 6-month follow-up period. They found that the slow-release intravitreal dexamethasone implant, Ozurdex, produced significant improvements in best-corrected visual acuity and central macular thickness from the third day of implant in DME sufferers, and this improvement was sustained until the third month.

It has also been tried in refractory pseudophakic cystoid macular oedema. Brynskov T et al., published a case report in 2013.6 It should be mentioned here that cystoid macular edema occurs in many retinal disorders including diabetic maculopathy, retinal vein occlusion, uveitis, and pseudophakic cystoid macular edema (PCME) following cataract surgery. It is generally accepted that inflammation plays a dominant role in PCME. When refractory to topical nonsteroidal anti-inflammatory drugs or topical corticosteroids, these conditions have long posed a challenge to clinicians as available therapies have yielded mixed results.7 In PCME, intravitreal corticosteroids have the advantage of being a potent anti-inflammatory agent, while there is no need to consider the common side effect of cataract formation. They reported a 59-year-old male who had experienced metamorphopsia for approximately 4 years and had been diagnosed

with PCME 15 months earlier. Since the time of the diagnosis, the condition had been refractory to both subtenon triamcinolone acetonide and a total of five injections with intravitreal ranibizumab. After the last injection with ranibizumab, central subfield mean thickness was 640 ?m, and the best corrected visual acuity was 78 Early Treatment Diabetic Retinopathy Study letters. Following an intravitreal injection with a dexamethasone implant, the macular edema resolved at the next follow-up. The macular edema returned 187 days after the first injection and was treated with another intravitreal dexamethasone implant. Again, the macular edema subsided completely, and best corrected visual acuity improved to 84 Early Treatment Diabetic Retinopathy Study letters, a condition which was maintained through an additional 189 days of follow-up. They concluded with the comments that they were encouraged by the optimal response experienced with intravitreal sustained release dexamethasone implants in their patient whose longstanding PCME had been refractory to previous treatments with both subtenon triamcinolone and intravitreal ranibizumab. In this case, the condition appeared to be fully reversible once inflammation was controlled, but the need for monitoring and repeated injections remains an issue of concern.

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References:

1. Richter B, Kohner E. Medical interventions for diabetic retinopathy. In: Wardnold R, Smeeth L, Henshaw K, editors. Evidence-Based Ophthalmology. London; UK: BMJ Books; 2004:331-340.
2. Rechtman E, Harris A, Garzozi HJ, Ciulla TA. Pharmacologic therapies for diabetic retinopathy and diabetic macular edema. Clin Ophthalmol. 2007;1:383-391
3. Zucchiatti I, Lattanzio R, Queques G, et al. Intravitreal dexamethasone implant in patients with persistent diabetic macular edema. Ophthalmologica. 2012;228:117-122.
4. Funatsu H, Noma H, Mimura T, et al. Association of vitreous inflammatory factors with diabetic macular edema. Ophthalmology. 2009;116:73-79
5. Pacella E, Vestri AR, Muscella R. Preliminary results of an intravitreal dexamethasone implant (Ozurdex®) in patients with persistent diabetic macular edema. Clinical Ophthalmology 2013:7 1423-1428
6. Brynskov T, Laugesen CS. Longstanding refractory pseudophakic cystoid macular edema resolved using intravitreal 0.7 mg dexamethasone implants Clinical Ophthalmology 2013;7:1171-1174

Awardee Paper : Firoza Jalil Memorial Award-2013

Profile of Low Vision in Bangladesh: A Hospital Based Study

Inamur Rahman Chowdhury

Abstract:

Aims: *The purpose of the study was to describe the characteristics, frequencies and causes of low vision of patients attended in low vision department of National Institute of Ophthalmology and Hospital (NIO&H).*

Methods: *This was a retrospective study. Information was obtained from the records of 294 patients who had attended the Low Vision Department of NIO&H from January 2011 to December 2011. The data was collected from the low vision records with respect to: age, gender, occupation, residence, visual acuity, causes of low vision, the type of low vision devices (LVDs) prescribed and whether benefited or not from LVDs. Frequency distribution tables were used to present the data.*

Results: *The most common leading causes of low vision in this study were Diabetic Retinopathy, Retinitis pigmentosa, Macular disorders, Optic Atrophy, Glaucoma, Corneal disorder and post-operative Cataract complications. 73.95 % of the patients benefited from the low vision services. Spectacles, hand held and stand magnifiers were prescribed as devices for low vision.*

Conclusion: *Any patient with some residual vision must be referred to low vision clinic for the possibility of enhancement of visual potential through LVDs. With appropriate training in their use, counseling, medical and social support; LVDs can make a significant change in the quality of life of affected individuals.*

Introduction:

Blindness and low vision are major causes of morbidity and have profound effects on the quality of life for many people; they inhibit mobility and economic well-being of the individuals affected as well as their families.[1] People with low vision have residual vision with some light perception, but their vision does not lend itself to improvement by standard spectacles or medical or surgical treatment. Such persons have the potential for enhancement of functional vision if they receive appropriate low vision care services.[2]

Globally in 2002 more than 161 million people were visually impaired, of whom 124 million people had low vision and 37 million were blind. However, refractive error as a cause of visual impairment was not included, which implies that the actual global magnitude is greater.[3] Data based on the 2002 global population show a reduction in the number of people who are visually impaired from the effects of infectious diseases, but an increase in the number of people who are visually impaired from conditions related to age.[3]

World-wide for each blind person, on an average of 3.4 people have low vision, with country and regional variation ranging from 2.4 to 5.5. 3 In Africa it is estimated there are 6.8 million blind people, 20 million with low vision.4 Low vision services have suffered from neglect in organized

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The World Health Organization (WHO) defines 'a person who needs low vision care as 'someone who has an impairment of visual functioning even after treatment and/ or standard refractive correction, and has a visual acuity of less than 6/18 to light perception, or a visual field less than 10 degrees from the point of fixation,' but who uses, or is potentially able to use, vision for the planning and/ or execution of a task.6

According to The Bangladesh National Blindness and Low Vision Survey 2000, indicated that the prevalence of Low Vision is 0.56% of total population of 30 and above age group. The main causes of low vision, as per above definition, were: retinal diseases (38.4%); corneal diseases (21.5%); glaucoma (15.4%); and optic atrophy (10.8%). Based on the prevalence of 0.56% for low vision, it is estimated that approximately 250,000 adults in Bangladesh are in need of low vision service.7 Given this situation, there is a great need for comprehensive low-vision rehabilitation services in Bangladesh and other developing countries. Low vision services are an integral part of the clinical examination, education and rehabilitation. Several types of low vision devices (LVDs) are available in various strengths and formats.

To plan appropriate and effective low-vision services, we need reliable and up-to-date information on low-vision patients in Bangladesh. Such information is not readily available. To obtain this information, a retrospective study of patient records was done in a tertiary eye hospital, National Institute of Ophthalmology and Hospital (NIO&H) in Bangladesh.

Aims:

The purpose of the study was to describe the characteristics, frequencies and causes of low vision of patients attended in low vision department of National Institute of Ophthalmology and Hospital (NIO&H).

Methods:

This was a retrospective study. Information was obtained from the records of 294 patients who had attended the Low Vision Department of NIO&H from January 2011 to December 2011. The data was collected from the low vision records with respect to: age, gender, occupation, residence, visual acuity, causes of low vision, the type of low vision devices (LVDs) prescribed and whether benefited or not from LVDssion . Data were entered in SPSS program. Frequency distribution tables were used to present the data.

Results:

Table -1: Demographic characteristics of the patients referred to the low vision department:

Category	Numbers	Percentages
Age:		
<15 yrs	19	6.46
15-30 yrs	53	18.03
30-45 yrs	67	22.79
45-60 yrs	71	24.15
>60 yrs	84	28.57
Gender:		
Male	189	64.29
Female	105	35.71
Occupation:		
Students	70	23.81
Working subjects	126	42.86
Jobless	98	33.33
Residence:		
Urban	170	57.82
Rural	124	42.18

The biographical characteristics of the patients are summarized in Table: 1.The mean age of the patients was 43.5 years, and their ages ranged between 10 and 87 years with the vast majority adults. Only 6.46% were children (<15 years). The male to female ratio was 1.4:1. Out of 294 patients 70 (23.81%) were students and 42.86% were working subjects. 57.82% of the patients came from urban area and 42.18% from rural area.

With regards to the main presenting complaint, 197 (67.0%) patients complained of both poor distance and near vision indicating that both distance and near vision were of equal importance to them. 48 (16.3%) patients said their major problem was with distance vision, while 49 (16.67%) reported that their main complaint was poor near vision.

Among the participants with low vision, 105 (35.7%) had a best corrected visual acuity of <6/18 to 6/60 in the better eye, and a further 65 (22.1%) had a best corrected visual acuity of <6/60 to 3/60 in the better eye. The remaining 124 (42.2%) participants were <3/60 in the better eye.

Table -2: causes of low vision

Causes	Numbers	Percentages
Diabetic retinopathy	63	21.42
Macular disorders	55	18.71
Pathological Myopia	41	13.95
Retinitis pigmentosa	39	13.27
Glaucoma	32	10.88
Corneal disorder	23	7.82
Optic atrophy	18	6.12
Other retinal disorder	12	4.08
Cataract complications	11	3.75

The most commonly leading causes of low vision are recorded in Table 2.

Table 3: Vision enhancement by low vision devices:

Device	Numbers	Percentages
Distance Vision		
Spectacles	220	89.80
No correction	25	10.20
Near Vision		
Spectacle	75	30.49
Hand/Stand magnifier	140	56.91
No correction	31	12.60
Benefit	176	73.95
Did not benefit	62	26.05

Of those people whose vision improved with low vision services Table 3 shows different types of LVDs prescribed to the patients.

Discussion:

In this study there were more low vision males than females. This may be because more males attended the clinic than females; this is similar to results from a study for low vision at Pakistan, in which 73.8% were males, 26.2% females.9 There was also an increased of low vision with increasing age, this is because the main causes of low vision are age-related.3,8 In this study 33.33% of the subjects are not working due to problems of disability from low vision or due to aging. The students represent 23.81%. This indicates that integral and special education should be included as a national program.

In this study, the major causes of low vision (Table 2) can be compared to the findings of other studies. In USA 1 in 28 Americans aged older than 40 years is affected by low vision or blindness due to Macular degeneration, Diabetic retinopathy, Cataracts, and Glaucoma.10 In England and Wales the main causes of low vision were Macular degeneration (56%), glaucoma (10.2%), Diabetic retinopathy (7.4%), Hereditary retinal disorders (2%), and Optic atrophy (1.9%).11 In Malaysia the main causes being Cataract and Aphakia (18.2%), Retinitis pigmentosa (10.5%), Diabetic retinopathy (7.3%), and Age-related macular degeneration (7.3%).12 In Iran Age-related macular degenerations (19.9%), Congenital diseases (17.5%), Retinitis pigmentosa (16%), Diabetic retinopathy (12.4%), and Cataract (7.3%).13 In India Cataract (21.4%), Glaucoma (14%), Diabetic retinopathy (13%), and Retinitis pigmentosa (10.7%).14 In this study Diabetic Retinopathy (23.47%) was the commonest cause then Retinitis Pigmentosa (21.77%). In general all causes of low vision in this study are not showing great differences from common causes in the world. In general all causes of low vision in this study are not showing great differences from common causes in the world.

The results of this study show that LVDs are an effective means of improving visual performance. 73.95% of subjects benefit from the low vision services. In this study the percentage of the subjects benefited from LVDs was lower than the study of Sudan where 82.37% of patients were benefited from low vision services.15 The reason for this difference may be that the low vision department of NIO&H is not well equipped. Here only spectacles, hand and stand magnifier are used as LVDs. If advanced optical, non-optical and high tech low vision devices like telescope, closed-circuit television, large print computers or low vision enhancement system would be prescribed the subjects might be benefited more.

Conclusion:

Low vision department of NIO&H must be strengthened by advanced optical, non-optical and high tech low vision devices. Inclusion of intraocular low vision aid, a recent advance in low vision rehabilitation would improve the quality of life of the patients with low vision.

However, this analysis, strongly suggests that more attention needs to be given to the issue of low vision, in view of its importance as a cause of disability and its potential for remedial measures. This is of great socio-economic and public health significance.

More data should be collected by prospective study on low vision to support proper planning for national programs. More extensive multi-centre research on the characteristics of low vision patients as well as the determinants of utilization of low vision services is necessary to provide more data that would be useful for future planning and delivery of services.

In future effective quantitative and qualitative evaluation will be carried that measure consumer satisfaction and the cost, cost effectiveness, and define clear outcome measures.

References

1. Minto. H and Awan. H: Guide lines for setting-up a low vision programme for children. Community Eye Health J 2001; 14: 60-61.
2. Pararajasegaram. R: Low Vision Care: The Need to Maximize Visual Potential; Community Eye Health J 2004; 17: 1-2.
3. WHO. (2004): Magnitude and causes of visual impairment. WHO media centre. Internet. (http://whqlibdoc.who.int/fact_sheet/2004/FS_282.pdf)
4. Bedr. A: Causes and current service delivery, INGDO 'Workshop for Vision 2020 in Africa' Addis Ababa, Ethiopia; 2005;6:27-29.
5. Pollard. T, Simpson. J, Lamoureux. E, et al. Barriers to Accessing Low Vision Services; Ophthal Physio Opt 2003; 23:321-327.
6. The Management of Low Vision in Children. Report of a WHO Consultation: Bangkok, July 1992. 1993; World Health Organization Geneva. WHO/PBL/93.27 6. The Management of Low Vision in Children. Report of a WHO Consultation: Bangkok, July 1992. 1993; World Health Organization Geneva. WHO/PBL/93.27
7. National Eye Care Plan. For Implementation of vision 2020 in Bangladesh. 2005.
8. Fletcher. D.: Low Vision, The physician's Role in rehabilitation and referral. Journal of the American Geriatrics Society, 1994;49: 50-53.
9. Shad. M and Daud K. M: Causes of low vision amongst low vision patients attending the low vision clinic at (KIOMS), Peshawar, Pakistan. Visual Impairment Research, 2004;6:89-97
10. Gohdes. D, Balamurugan. A, Larsen. B et al. Age-Related Eye Diseases: An Emerging Challenge for Public Health Professionals. Prev chronic Dis, 2005;2:A17.
11. Bunce. C and Wormald. R: Leading Causes of Certification for Blindness and Partial Sight in England and Wales. BMC public health, 2006; 6:58.
12. Omer. R, Mohidin. N and Mohammed. Z: Trend of low vision patients attending a low vision clinic in Kuala Lumpur, Malaysia. International vision rehabilitation symposium, Hong Kong SAR, China (Free paper); 2004 May 27-28.
13. Riazi. A and Parhizgar. S: Causes of Low Vision and Preferences for Different Types of Visual Aids, A Pilot Study. Visual Impair Res. Taylor and Francis: (2-3); 2005; 2-3:85-89.
14. Peter. H and Vijaya. G: Survey of Visual Impairment in An Indian Tertiary Eye Hospital, Indian J Ophth: 45; 189-193. Cited in Community Eye Health J 2003;16:14.
15. Ali. A and Khalil. L: Causes and vision enhancement of low vision patients at Makkah Eye Complex, Khartoum, Khartoum Medical Journal (2009) Vol. 02, No. 02, pp. 206 - 211.

Awardee Paper : Mobara Ali Memorial Award-2013

Effects of Travoprost on Central Corneal Thickness

Iftekhar Md. Munir

Abstract:

Purpose: *To observe the effects of travoprost on central corneal thickness (CCT)*

Methods: *A total of 70 eyes of 35 patients with glaucoma or ocular hypertension submitted to monotherapy with travoprost 0.004%, during 6 months follow-up period. Measurements were performed at the initial diagnosis and at the end of follow-up. All the measurements were carried out by Goldmann applanation tonometer for intraocular pressure and ultrasonic pachymetry for CCT*

Results. *A statistically significant reduction of CCT was observed (p <o.oo1). The reduction of CCT was 15.73 + 3.25 micro-meter*

Conclusions: *Topical therapy of travoprost is associated with significant reduction of CCT*

Key Words: *central corneal thickness, Travoprost*

Introduction

Glaucoma is one of the leading causes of irreversible blindness in the world, and intraocular pressure (IOP) is considered the main risk factor for this disease. Topical application of antiglaucoma medications has been the primary mode of glaucoma treatment for the last century. However, long-term local treatment with antiglaucoma medications is always associated with adverse effects, some of which affect the corneal tissue. (1-4)

Prostaglandin analogue (latanoprost 0.005%, travoprost 0.004%, and birnatoprost 0.03%) have proved to be effective ocular hypotensive drugs, which reduce IOP by enhancing aqueous humor through the uveoscleral pathway to the suprachoroidal space and to the episcleral veins. Although the exact cellular mechanism for this effect is not clarified, it is well known that these drugs can reduce collagens in the tissues of the uveoscleral outflow pathway and increase the production of matrix metalloproteinases (MMPs). (5.6) The cornea is mainly composed of collagen fibers. prostaglandin analogues seem to affect the corneal stromal structure by decreasing the extracellular matrices.(7) Most of the recent studies have showed that prostaglandin analogues could decrease the central corneal thickness (CCT) values. (8-11).

Purpose: The purpose of this study was observe the effects of travoprost on corneal thickness in patients with an initial diagnosis of glaucoma or ocular hypertension (OHT) taking these medications as the first-line therapy.

Materials and Methods

This study was conducted at the Department of glaucoma of National Institute of Ophthalmology from 1st May 2012 to 31st October 2012.Total 35 patients (70eyes) of POAG NTG & HTN are included in this study. Primary open-angle glaucoma was defined as open angle detected by gonioscopy, an IOP equal to or greater than 21 mm Hg (Goldmann applanation tonomer), and a typical glaucomatous optic nerve defect and/or glaucomatous visual field defect demonstrated in at least 2 consecutive reliable examinations. Normal tension glaucoma was defined as open angle detected by gonioscopy, maximum IOP less than 21 mm Hg (Goldmann applanation tonomer), and a typical glaucomatous optic nerve defect associated with a typical glaucomatous visual field defect demonstrated

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in at least 2 consecutive reliable examinations. OHT was defined as open angle detected by gonioscopy, an IOP greater than 21 mm Hg (Goldmann applanation tonomer), and normal optic nerve head and normal visual field demonstrated in at least 2 consecutive reliable examinations.

Exclusion criteria were: previous ocular treatment with any of the drugs, corneal diseases, dry eye, history of trauma, intraocular surgery, contact lens use, presence of ocular infections, and secondary glaucoma.

Each enrolled patient was assigned to travoprost 0.004% once daily. All IOP measurements were carried out by Goldmann applanation tonometer and ultrasonic pachymetry for CCT measurements. The follow-up period of all patients was 6 months. Measurements were performed at the initial diagnosis and at the end of follow-up.

RESULTS

TABLE 1.The Distribution of Patients for Travoprost

	No of patient	(%)
POAG	19	54.28
NTG	5	14.28
OHT	11	31.42

NTG, normal tension glaucoma; POAG primary open-angle glaucoma; OHT, ocularhypertension.

TABLE2. Demographics of the Patients

	Travoprost
Age (yrs)	50.55± 11.37
Sex (male/female)	21/14
Initial IOP (mm Hg)	22.91 ±3.74

TABLE:.3The values of Pre- and Post treatment CCT

Pre treatment CCT (micremeter)	Post treatment CC T (micro-meter)
555.50 ± 15.74	539.77 ±15.40

TABLE4. the Comparison of Reduction of CC T fromPre treatment to Post treatment

Pre treatment CC T(micremeter)	Post treatment CCT (micremeter)	The Reduction of CCT From Pre treatment to Post treatment (micro-meter)
555.50 ± 15.74	539.77 ± 15.40	15.73 ± 3.25

The distribution of diagnoses of the patients is shown in Table I.

Demographics of the Patients is shown in (Table 2).

CCT values from pretreatment to post treatment are shown in

Table 3.

Table 4 shows the reduction of CCT from pretreatment to post treatment.

Discussion:

MMPs are a group of enzymes responsible for the degradation of extracellular matrix compounds and basal membrane, including collagen types I, II, III, IV, fibronectin, and laminin.(I7.18) The MMP family includes about 20 types of enzymes, which may be found in the anterior segment of the eye, including corneal epithelium, stroma and endothelium, conjunctiva, lacrimal film, aqueous humor, trabecular mesh- work, ciliary muscle cells, and lens.(5,6,11,19,20)

Previous studies showed that MMPs played an important role in the healing process of corneal epithelium and stroma. Maedaet al (21) reported that MMP-2and MMP-9 activities were enhanced in the stromal tissue after refractive surgeries.

Garrana et al (23) demonstrated that MMP-2 expression was increased in corneal epithelial cells in patients with recurrent corneal erosion. Abnormal expression of active forms of MMPs was found in

thinner and ulcerated corneas after thermal and alkalis burns.(24) After stromal healing, it is possible that the opacity reduction of the new scar tissue occurs because of the remodeling of collagen fibers, which, in turn, may result from the activity ofMMP-2 and MMP-3 from the stromal fibroblasts.(25)

Travoprost is a isopropyle ester of prostaglandin analogues family and have a similar action.(12) The lOP reduction obtained with prostaglandin analogues may be related to the activation of MMPs.(5, 6,20)

Considering the fact that the cornea is mainly composed of collagen fibers, it is reasonable to hypothesize a possible influence of topical prostaglandin analogues on CCT. Viestenz et al (26) demon- strated a reduction of CCT in patients under treatment with topical prostaglandin F2-alpha, when compared with topical carbonic anhydrase inhibitors. Sen et al (9) found a percent CCT reduction rate of 1.9:+ 2.4% and 2.8:+ 1.8% in a 24-month period use of travoprost and bimatoprost, respectively. Hatanaka et alii also reported that topical therapy with prostaglandin analogues was associated with CCT reduction over a period of at least 8 weeks. This study found that the equivalent CCT thinning in patients receiving travoprost (15.73 + 3.25 micro-meter

Ehlers et al (27) had found 5 mm Hg change in lOP for 70 micro-meter of CCT variation. Doughty and Zaman, (28) in their meta- analysis, had reported the relationship as 2.5 mm Hg lOP change per 50 micro-meter CCT variation. In this study, Travoprost decreased CCT values at around 15 micro-meter accounting for 1.07 and 0.75 mm Hg falsely lower lOP values according to Ehlers and Doughty lOP correction formulas, respectively(27.28) However, change of cornea stromal properties might minimize the potential influence of CCT on lOP. Thus, lOP correcting formulas might not be so accurate for prostaglandin analogues that change the corneal matrix architecture.(9)

Limitations of this study are insufficient number of patients and short duration of time. Further large sample research is needed to clarify the relevance of Travoprost effect on CCT. It is important to consider that the small amount of corneal thinning, although statistically significant, may not be clinically significant and may not influence the lOP measurements. Nevertheless, clinicians must pay attention to longitudinal CCT variations that may arise throughout the follow-up period for proper lOP targeting.

References:

1. Gordon MO, J.A. Beiser, J.D. Brandt, D.K. Heuer, E.J. Higginbotham, C.A Johnson et al. and Ocular Hypertension Treatment Study, Baseline factors that predict the onset of primary open angle glaucoma, Arch Ophthalmol 120:714, 2002
2. Anderson DR, Drance SM, Schulzer M; Collaborative Normal-Tension Glaucoma Study Group. Natural history of normal-tension glaucoma. Ophthalmology 108(2):247, 2001
3. Sommer AE, Tielsch JM, Katz J et al: Relationship between intraocular pressure and primary open angle glaucoma among white and black Americans. The Baltimore Eye Survery Arch Ophthalmol 109: 1090,1991
4. Quigley HA, Enger C, Katz J: Risk factors for the development of glaucomatous visual field loss in ocular hypertension Arch Ophthalmol 112:644, 1994
5. Gaton DD, Sagara T, Lindsey JD, et aJ. Increased matrix metalloproteinase 1,2 and 3 in the monkey uveoscleral outflow pathway following topical prostaglandin F 2a-isopropyl ester treatment. Arch Ophthalmol. 2001; 119:1165-1170.
6. Zhong Y, Gao J, Ye W, et aJ. Effect of latanoprost acid and pilocarpine on cultured rabbit ciliary muscle cells. Ophthalmic Res. 2007; 39:232-240.
7. Wu KY, Wang HZ, Hong SJ. Effect of latanoprost on cultured porcine stromal cells. Curr Eye Res. 2005; 30:871- 879.
8. Harasymowycz P, Papamatheakis D, Ennis M, et al. Relationship between travoprost and central corneal thickness in ocular hypertension and open-angle glaucoma. Cornea. 2007; 26:34-41.
9. Sen E, NaIcacioglu P, Yazici A, et aJ. Comparison of the effects of latanoprost and bimatoprost on central corneal thickness. J Glaucoma.2008; 17:398-402.
10. Arcieri ES,Pier~e Fi!ho PTp, Waka.matsu TH, et aL The effects of prostaglandin anaJogues on the blood aqueous barrier and corneal thickness of phakic patients with primary open-angle glaucoma and ocular hypertension. Eye. 2008; 22: 179-183.
11. Hatanaka M, Vessani RM, Elias IR, et aJ. The effect of prostaglandin analogs and prostamide on central corneal thickness. J Ocular Pharmacal Ther.2009; 25:51-53.
12. Bafa M, Georgopoulos G, Mihas C, et aJ. The effect of prostaglandin analogues on central corneal thickness of patients with chronic open-angle glaucoma: a 2-year study on 129 eyes. Acta Ophthalmol. 2009 [epub ahead of print] doi: O.llll/j.1755-3768.2009.0173I.x, PMID: 19878123.
13. Zhong Y, Chen L, Cheng Y, et al. Correlation between blue-on-yellow perimetry and GDx VCC measurements in primary open angle glaucoma.Jpn J Ophthalmol. 2009; 53:574-579.
14. Choi J, Jeong J, Hyun-soo Cho H, et aJ. Effect of nocturnal blood pressure reduction on circadian f luctuation of mean ocular perfusion pressure: a risk factor for normal tension glaucoma. Invest Ophthalmol Vis Sei. 2006; 47:831-836.
15. Kass MA, Heuer DK, Higginbotham EJ, et aJ. The Ocular Hypertension Treatment Study: a randomized trial determines that topical ocular hypotensive medication delays or prevents the onset of primary open-angle glaucoma. Arch Ophthalmol. 2002; 120:701-713.
16. Fogagnolo P, Capizzi F, Orzalesi N, et aJ. Can mean central corneal thickness and its 24-hour fluctuation influence fluctuation of intraocular pressure? J Glaucoma. 2009 [epub ahead of print] PMID: 1966 1818.
17. Wossner JF1. Matrix metalloproteinases and their inhibitors in connective tissue remodeling. FASEB J. 1991; 5:2145-2154.
18. Nagase H, Woessner JFJ. Matrix metalloproteinases. J Bioi Chem. 1999; 274:21491-21494.
19. Ocklind A. Effect oflatanoprost on the extracellular matrix of the ciliary muscle: a study on cultured cells and tissue secti s. E ~P Ey Res. 1998; 67:179-191.

20. Weinreb RN, Kashiwagi K, Kashiwagi F, et aJ. P °ttagla illS increase matrix metalloproteinase release from human ciliary smooth muscle cells. Invest Ophthalmol Vis Sci. 1997; 38:2772-2780.

21. Maeda M, Vanlandingham BD, Ye H, et al. Immunoconfocallocalization of gelatinase B expressed by migrating intrastromal epi epithelial cells after deep annuJar excimer keratectomy. Curr Eye Res. 1998; 17:836-843.

22. Chang JH, Kook MC, Lee JH, et al. Effects of synthetic inhibitor of metalloproteinase and cyc1osporine A on corneal haze after excimer laser photorefractive keratectomy in rabbits. Exp Eye Res. 1998; 66:348-396.

23. Garrana RM, Zieske JD, Assouline M. Matrix metalloproteinases in epithelia from human recurrent corneal erosion. Invest Ophthalmol Vis Sei. 999; 40:1266-1270.

24. Wagoner MD. Chemical injuries of the eye: current concepts in pathophysiology and therapy. Surv Ophthalmol. 1997; 41:275-313.

25. Fini ME, Girard MT. Expression of collagenolytic/gelatinolytic etalloproteinases by normal cornea. Invest Ophthalmol Vis Sei. 1990; 31: J779--1788.

26. Viestenz A, Martus P, Schlotzer-Schrehardt U, et al. Impact of prostaglandin-F (2alpha)-analogues and carbonic anhydrase inhibitors on central corneal hickness---a cross-sectional study on 403 eyes. Klin Monatsb/ Augenheilkd. 2004; 221:753-756.

27. Ehlers N, Bramsen T, Sperling S. Applanation tonometry and central corneal thickness. Acta Ophthalmol. 1975; 53:34-43.

28. Doughty MJ, Zaman ML. Human corneal thickness and its impact on intraocular pressure measures: a review and meta-analysis approach. Surv Ophthalmol. 2000; 44:367-408.

Primary Angle Closure Glaucoma in Chittagong, Bangladesh - Modes of Presentation and Management Patterns at a Tertiary Eye Care Centre.

M. A. Karim

Purpose: *The purpose of the current study is to describe clinical manifestations, management and its outcome of patients who were diagnosed with Primary Angle Closure Glaucoma at the Glaucoma Department of the Chittagong Eye Infirmary and Training Complex, Bangladesh.*

Method: *A hospital based observational case series study. Study period was from 1st January 2011 to 30th June 2011. All cases were diagnosed by a single consultant and were diagnosed based on clinical presentations, ophthalmic examination (including gonioscopy). Detail history taking and ocular examinations were done that included stit lamp biomicroscopy, applanation tonometry, gonioscopy and fundoscopy. Management detail was recorded. Patients were followed up after one week, 1 month, 3 months of initial visit. Examination and investigation findings were documented as much as possible.*

Result: *A total number of 84 patients with PACG were included. Majority of patients (93%) were between ages of 30 to 70 years. Females predominated with a total of 75%. Symptoms were experienced by 73% of patients whilst the remaining 27% did not have any complaints. Majority of patients were from rural areas (71%). 79% of patients had an acute presentation with symptoms appearing within the week of presentation. 49% of patients had a visual acuity of < 6/60. 24% were hypermetropic and 13% myopic in the affected eye. 82% of patients had closed angles in the affected eye. 73% were given both medical and laser treatment whilst, 6% required surgical treatment.*

Conclusion: *PACG is a leading cause of blindness in East Asian countries and due to the high prevalence in this region there is great interest in the natural history of the disease. In Bangladesh, the trends are similar to other Asian countries and hence sharing and integrating of information can help us for better management of this disease. There is now considerable optimism that screening and prophylactic treatment for PAC and PACG may be a viable method of preventing blindness in very large numbers of people in Asia.*

Keywords: *PACG(Primary angle closure glaucoma), closed angle, laser peripheral iridectomy, trabeculectomy*

Introduction:

Glaucoma is the leading cause of irreversible blindness worldwide.1 Primary angle closure/glaucoma (PAC/G) is more predominant in China and Mongolia than among Caucasians and Africans. Primary angle-closure glaucoma (PACG) is a major form of glaucoma in Asia, compared to Africa and Europe, especially in populations of Chinese and Mongoloid descent. [2-4] Prevalence studies in southern India found that the prevalence of PACG in Indians is also high5,6 and almost similar to that reported in Mongolians. Primary angle-closure glaucoma is sight-threatening in a short time period versus vision loss in POAG. Almost half of PACG patients were blind in one or both eyes in Andhra Pradesh,5 and PACG accounted for most of the glaucoma blindness in Singapore.[4]

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A significant proportion at risk is the adult population and since PACG is a more blinding disease than POAG7,8 it has significant implications in causing a burden to the society. This study was done in Chittagong, Bangladesh to present some of the patterns of this blinding disease which can be treated and prevented from causing severe visual consequences.

Method:

This is a hospital based observational case series study. Study period: 1st January 2011 to 30th June 2011. In this period, all newly diagnosed cases of PACG were included in the study. All cases were diagnosed by a single consultant and were diagnosed based on clinical presentations, ophthalmic examination (including gonioscopy).

Detailed history taking and ocular examinations were done that included stit lamp biomicroscopy, applanation tonometry, gonioscopy and fundoscopy. Data about medications, glaucoma surgery and post operative follow up were included. Management detail was recorded. Patients were followed up after one week, 1 month, 3 months of initial visit. Examination and investigation findings were documented as much as possible.

Data analysis was done by SPSS V-13.

Results:

A total number of 84 patients with PACG were included. Majority of patients (93%) were between ages of 30 to 70 years. Females predominated with a total of 75%.

Figure1
Age groupdistribution

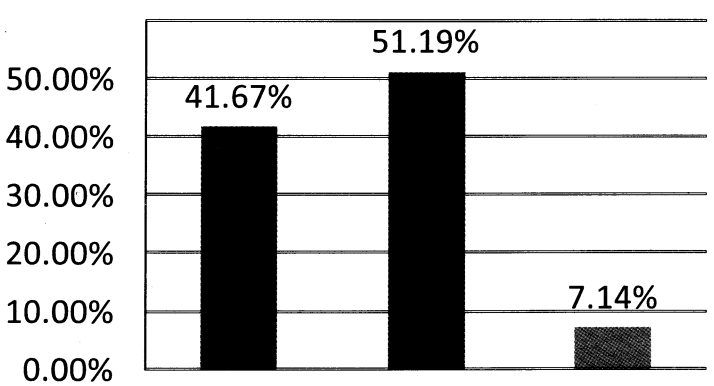
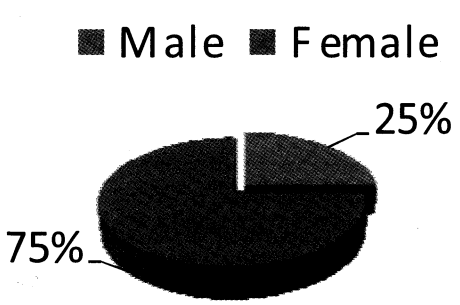


Figure2
Gender distribution



Symptoms were experienced by 73% of patients whilst the remaining 27% did not have any complaints. 79% of patients had an acute presentation with symptoms appearing within the week of presentation.

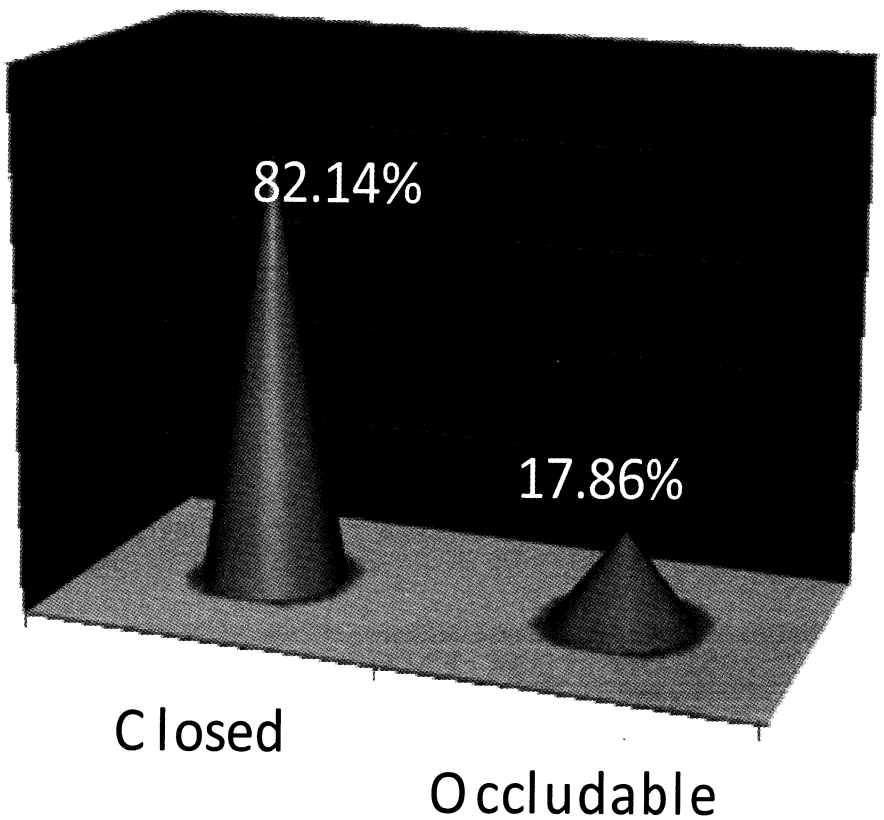
Majority of patients were from rural areas (71%) and majority were of a low socioeconomic status (69%). Almost 80% of patients had never had treatment previously.

Refraction showed 24% cases were hypermetropic, 13% myopic and 31% were emetropic in the affected eye. In 32% cases in the affected eye refraction was not possible due to hazy media. In the fellow eye 30% cases were hypermetropic, 12% cases were myopic, 56% cases were emetropic and in 2% cases refraction was not possible due to hazy media.

Among all 49% of patients presented with significant decrease in vision (<6/60) in the affected eye and 74% having good vision in the fellow eye.

Gonioscopy revealed 82% of patients in the affected eye have closed angles and 18% cases have occuludable angle. In the fellow eyes 68% cases having occuludable angles and 32% cases with closed angle.

Figure-3 Gonioscopy of the affected Eye



After evaluation, 58% of patients were diagnosed with PACG in the affected eye and 16% in the fellow eye. 84% of the fellow eyes had primary angle closure.

The patients were effectively treated in both the fellow and affected eyes with medications, Laser and surgery. In the affected eye, 73% patient required both Laser and medication, 21% needs only Laser surgery and only 6% needed initial surgery to control intraocular pressure. In the fellow eye, 51% patient required both Laser and medication, 47% needs only Laser surgery and only 2% needed initial surgery to control intraocular pressure.

Improvement of visual acuity was seen in those who had moderate loss of vision in the affected eye. There was an increase in vision in the fellow eye.

Discussion

Tuberculosis primarilyaffects the lungs, although it may Asians account for almost half of the glaucoma population in the world, with the number of people suffering with glaucoma nearing 70 million.9,10 Primary angle-closure glaucoma (PACG) is significant in this region especially in populations of Chinese and Mongoloid descent. 3,4,11 The high prevalence shown from Indian studies5,12 gives an indication of the numbers in Bangladesh since there is similar ethnicity and origins.

Ethnic background is one of the major factors determining susceptibility to primary angle-closure (PAC). Among people aged 40 years and over, the prevalence of PAC (the number of cases present at one point in time) ranges from 0.1% in Europeans,13 through 1.4% in East Asians3,14 and up to 5% in Greenland Inuit.15

Visual compromise due to PACG usually increases after age 40.1,2 93% of our patients were between 30-70 years; hence we do have some cases less than 30yrs which should be noted. Female gender is recognised as a major predisposing factor toward development of PAC. The prevalence of occludable drainage angles, PAC and PACG, all tend to be higher in women than men.3,16 This trend is also seen in our study which shows 75% of our patients being of the female gender. Also in Bangladesh, marginalization of women and their access to health care, poverty issues and low literacy rates of women further compounds the problem if PACG in women.

Shallow anterior chamber is a predisposing factor for angle-closure. With increasing age, the depth of the anterior chamber reduces and trends show that it is shallower in women than men.17 Ethnic groups where there is high prevalence of PAC tend to have shallower anterior chambers.17 Anterior chamber depth is determined by the position of the lens within the globe. Diagnosis of PACG is verified by gonioscopy, but this is not routinely available in many parts of Asia. So this poses a problem.

Refractive status, axial length, anterior chamber depth and lens thickness are usually associated. Hypermetropes have shallower anterior chambers than myopes and hence angle-closure is typically associated with hypermetropia. Our study shows a predominance of hypermetropia over myopia.

By alleviating papillary block, laser peripheral iridotomy (LPI) is an effective treatment of PACG. It is safe and effective as prophylaxis against acute attackes18-20 and widens the angle.21 LPI is useful in the early stages of the disease. As our study shows, most of the patients we encounter in our clinic live in rural areas; are of low socioeconomic status and have barriers in accessing health care. When they arrive at us for treatment they already have established PACG with glaucomatous optic neuropathy and visual field damage, hence LPI is not satisfactory as long-term therapy.21,22 In a Singapore study, as many as 90% of PACG eyes treated by LPI required further medication to control intraocular pressure, and 50% eventually required surgery.22 LPI alone may be dangerous for patients and they risk the chance of having further glaucomatous visual damage. In Bangladesh, also follow up is a problem with patients. Hence, surgery is usually a better form of long-term treatment of PACG. Selecting which patients need conservative treatment versus surgical treatment is a challenge since various factors need to be taken into consideration. The ability to decide and allocate the specific management protocols to our patients will allow us to follow up patients appropriately and to advocate early and appropriate treatment in selected individuals at risk for further visual loss. In our study majority of our patients were managed medically and with laser. 6% of patients had to have primary surgery done in the affected eye and 2.4% of patients needed to have primary surgery in the fellow eye.

In many parts of Asia and including Bangladesh, where there is limited access to lasers, many ophthalmologists resort to surgery as the definitive form of treatment of PACG. There is a lack of consensus on the best approach to the surgical management of PACG, as well as a paucity of information on the long-term results of surgery in this condition. The surgical options are diverse, including surgical peripheral iridectomy, filtering surgery, lens extraction, combined lens extraction and filtering surgery, angle-widening procedures such as goniosynechialysis, and angle-widening procedures combined with lens extraction. In our study our surgical procedures included trabeculectomy with mitomycin-c and also combined cataract extraction with trabeculectomy.

Conclusion:

Over the last decade, the understanding of the epidemiology and management of primary angle-closure has advanced considerably. PACG is a leading cause of blindness in East Asian countries and due to the high prevalence in this region there is great interest in the natural history of the disease. In Bangladesh, the trends are similar to other Asian countries and hence sharing and integrating of information can help us better manage this disease. There is now considerable optimism that screening and prophylactic treatment for PAC and PACG may be a viable method of preventing blindness in very large numbers of people in

References:

1. Resnikoff S, Pascolini D, Etya'ale D, et al. Global data on visual impairment in the year 2002. Bull World Health Organ 2004;82:844-51.
2. Congdon N, Wang F, Tielsch JM. Issues in the epidemiology and population based screening of primary angle-closure glaucoma. Surv Ophthalmol 1992;36:411-23.
3. Foster PJ, Baasanhu J, Alsbirk PH, et al. Glaucoma in Mongolia- a population-based survey in Hovsgol Province, Northern Mongolia. Arch Ophthalmol 1996;114:1235-41.
4. Foster PJ, Oen FT, Machin D, et al. The prevalence of glaucoma in Chinese residents of Singapore: a cross-sectional population survey of the Tanjong Pagar district. Arch Ophthalmol 2000;118: 1105-11.
5. Dandona L, Dandona R, Mandal P, et al. Angle closure glaucoma in an urban population in Southern India. The Andhra Pradesh Eye Disease Study. Ophthalmology 2000;107:1710-6.
6. Jacob A, Thomas R, Koshi SP, et al. Prevalence of primary glaucoma in an urban south Indian population. Indian J Ophthalmol 1998;46:81-6.
7. Foster PJ, Johnson GJ. Glaucoma in China: how big is the problem? Br J Ophthalmol. 2001;85:1277-1282.
8. Foster PJ. The epidemiology of primary angle closure and associated glaucomatous optic Neuropathy. Sem Ophthalmol.2002;17:50-58.
9. Quigley HA. Number of people with glaucoma worldwide. Br J Ophthalmol 1996;80:389-893.
10. Thylefors B, Negrel AD, Pararajasegaram R, et al. Global data on blindness. Bull World Health Organ 1995;73:115-21.
11. Congdon N, Wang F, Tielsch JM. Issues in the epidemiology and population based screening of primary angle-closure glaucoma.Surv Ophthalmol 1992;36:411-23.
12. Jacob A, Thomas R, Koshi SP, et al. Prevalence of primary glaucoma in an urban south Indian population. Indian J Ophthalmol 1998;46:81-6.
13. Hollows FC, Graham PA. Intraocular pressure, glaucoma and glaucoma suspects in a defined population. Br J Ophthalmol 1966; 50: 570-586.
14. Hu Z, Zhao ZL, Dong FT. [An epidemiological investigation of glaucoma in Beijing and Shunyi county]. [Chinese]. Chung-Hua Yen Ko Tsa Chih [Chinese Journal of Ophthalmology].1989; 25: 115-118.
15. Clemmesen V, Alsbirk PH. Primary angleclosure glaucoma (a.c.g.) in Greenland. Acta Ophthalmol 1971; 49: 47-58.
16. Salmon JF, Mermoud A, Ivey A, Swanevelder SA, Hoffman M. The prevalence of primary angle-closure glaucoma and open angle glaucoma in Mamre, Western Cape, South Africa. Arch Ophthalmol 1993; 111: 1263-1269.
17. Foster PJ, Alsbirk PH, Baasanhu J, Munkhbayar D, Uranchimeg D, Johnson GJ. Anterior chamber depth in Mongolians. Variation with age, sex and method of measurement. Am J Ophthalmol 1997; 124: 53-60.
18. Wilensky JT. Narrow angles accompanied by slit-lamp and gonioscopic evidence of risk are indications for prophylactic laser iridectomy. Surv Ophthalmol 1996;41:31-2.
19. Ritch R. Definitive signs and gonioscopic visualization of appositional angle closure are indications for prophylactic laser iridectomy. Surv Ophthalmol 1996;41:33-6.
20. Ang LP, Aung T, Chew PT. Acute primary angle closure in an Asian population: long-term outcome of the fellow eye after prophylactic laser peripheral iridotomy. Ophthalmology 2000;107:2092-6.
21. Nolan WP, Foster PJ, Devereux JG, et al. YAG laser iridotomy treatment for primary angle-closure in East Asian eyes. Br J Ophthalmol 2000;84:1255-9.
22. Alsagoff Z, Aung T, Ang LPK, et al. Long-term clinical course of primary angle-closure glaucoma in an Asian population. Ophthalmology 2000;107:2300-4.

Medulloepithelioma- with Secondary Glaucoma, A Case Report

Shams Mohammed Noman[1], Md. Feroz Khan[2], Zulfikar Hassan[3]

Abstract:

Background : *To report a rare case of Medulloepithelioma that presented with secondary glaucoma.*

Method : *After taking history from the patient, ocular and systemic examinations were done. A boy of 8 years came with the complaints of gradual dimness of vision right eye for 2 years. He also complaints of sectoral redness and occasional pain in the right eye for last 1 year. He developed sudden decrease of vision as well as painful right eye for the last 10 days. Ocular examinations revealed visual acuity in the right eye was 6/60, sentinel vessels over one sector, mass in front and behind iris that touched the lens, ectropion uvae in the same that sector. IOP was raised in that eye. Mass was seen in the indirect ophthalmoscopic examination. No abnormalities found in the systemic examination. Histopathology done after enucleation.*

Result : *B scan showed a echogenic shadow looked like a mass. Ribbons and cords of tumous cells of ciliary body origin, lack of differentiation, multi layered nucleus, round/oval cells were ascertained on histopathology suggestive of mudulloepithelioma.*

Conclusion : *Ciliary body tumour in a young age group is very rare but present with some typical features. Detailed ocular examinations and investigations are mandatory to diagnose such case. Histopathology confirms the diagnosis.*

Introduction

Intraocular medulloepithelioma is a rare primary intraocular neoplasm derived from neuroectoderm. This type of tumor characteristically arises from the nonpigmented epithelium of the ciliary body. On rare occasions, medulloepithelioma also arises from the iris, retina, or optic disc. The tumors range from benign proliferations to malignant neoplasms with unequivocal invasive capacity but limited metastatic potential. Medulloepithelioma is uncommon, but its precise incidence is unknown. Based on relative prevalence data from multiple clinical and pathological case series, however, its incidence can be estimated at approximately one thirtieth to one fiftieth that of retinoblastoma. This would correspond to a cumulative lifetime incidence of approximately 1 case per 450,000-1,000,000 persons. Intraocular medulloepithelioma is usually a congenital or infantile tumor,[1] but juvenile- and even adult-onset cases have been reported. The average age of the affected individual at diagnosis is about 5 years in most series. Medulloepithelioma affects all ethnic groups and both sexes equally. It does not appear to be transmitted genetically. No known risk factors exist for this tumor.

Case History

Baby Masud of 8 years came to CEITC with the complaints of gradual dimness of vision & occasional pain in his right eye for the last 1 year. According to his parents statement, they have been observing a white mass in the right side of the right eye for the last 2 month which is gradually increasing in size. They have also observed continuous redness of the right side of the right eye for the last 1 year. Suddenly he developed severe painful right eye with sudden decrease of vision for the last 10 days. On examination his visual acuity of right eye was 6/60 pinhole no improvement & of left eye was 6/6. His intraocular pressure was 30mmhg in right eye & 12mmhg in the left eye. Slit lamp examination revealed sectoral vascular engorgement in the temporal side of the right eye (sentinel vessels) &

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redishwhite mass in front and behind the iris that touched the mild cataractous lens from the back, ectropion uvae in the same that sector. There was moderate chronic inflammation in the anterior & posterior chamber. Indirect ophthalmoscopic examination revealed a cystic mass behind the right side of the lens (Ciliary body mass). B scan showed a echogenic shadow looked like a mass. No other abnormality is found in the retina of the right eye. On examination of the left eye revealed no abnormality. No hepatic or lymphatic enlargement was found on systemic examination. The patient was diagnosed as Ciliary body mass (medulloepithelioma or dictyoma). It had a malignant potentiality, enucleation of the right eye with cutting of 10mm of optic nerve was done. Tissue sent for histopathology. Histopathology revealed Ribbons and cords of tumour cells of ciliary body origin, lack of differentiation, multi layered nucleaus, round/oval cells were ascertained on histopathology suggestive of medulloepithelioma.

Fig-1 : Redness of right eye

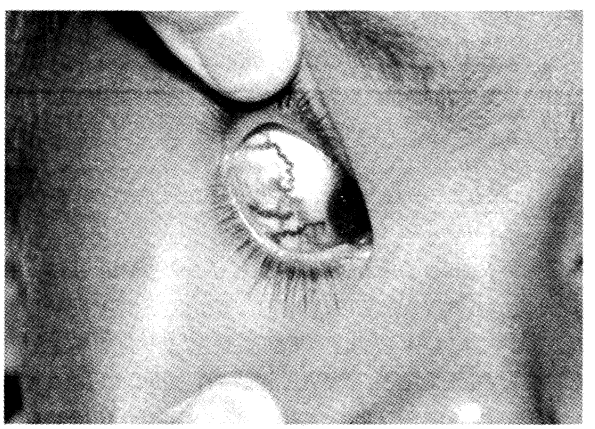

Fig-2: Sentinel vessels

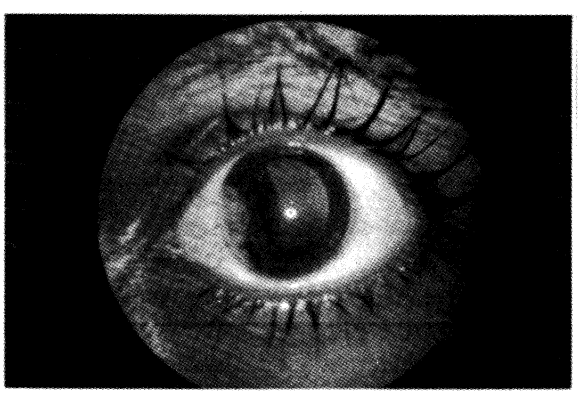

Fig-3 : Mass in front of the iris

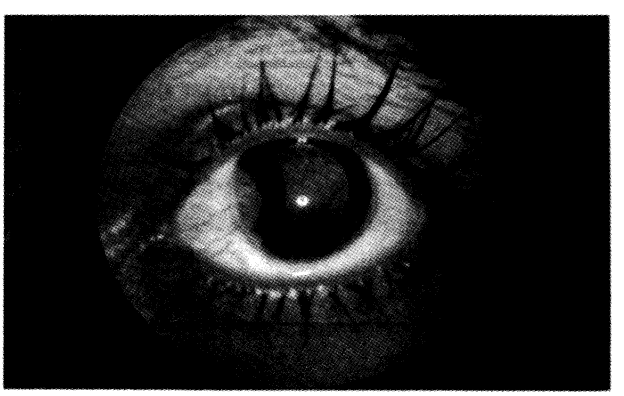

Fig-4 : Mass in front & back of the iris

Discussion

Ciliary body medulloepithelioma is usually an amelanotic, fleshy mass with an intralesional cystic component, it can occur as a pigmented solid tumor that may resemble a melanoma or a neoplasm of the pigment epithelium[2]. It is the commonest ciliary body neoplasm in childhood. Grinker coined this term "medulloepithelioma" in 1931 as it best describes the cellular derivation of this neoplasm from the undifferentiated medullary epithelium of the embryonic retinal epithelium destined to form the nonpigmented ciliary body epithelium during the later years of life. It is most commonly found at the ciliary body. It can be benign or malignant like in this case and may exhibit teratoid features.

This case highlights the extent at which a diagnosis was delayed, when a ciliary body medulloepithelioma in a eight-year-old child masquerades as a chronic uveitis, cataract, and secondary glaucoma.

The usual presenting symptoms of medulloepithelioma are a red eye, change in color of the iris, visible mass in the iris, and (in adults and some older children) visual impairment.[1] Medulloepithelioma of the ciliary body typically appears as a tan to white lesion of the extreme peripheral fundus. Because of its peripheral location, the tumor may be detectable only by binocular indirect ophthalmoscopy with scleral depression during ophthalmic examination under anesthesia. A tumor of this type frequently appears intrinsically cystic or has prominent neuroepithelial cysts on its surface.[1] [3]

In this case patient presented with localized red eye due to engorged sectoral blood vessels, ectropion uvae that changed the colour of the iris, redish white fleshy mass in front & behind the iris. The mass was causing cronic uveitis followed by secondary glaucoma & touching the lens that caused cataract. Indirect ophthalmoscopy revealed that cystic mass with scleral depression. An intraocular medulloepithelioma that involves the iris usually appears as a tan to pink mass that replaces the peripheral iris and fills the angle. In our case that pink mass encroached over the iris & close the angle almost 1200 that was revealed on gonioscopic examination. A common complication of medulloepitheliomas of the ciliary body is development of neovascular glaucoma.[4] In some cases, glaucoma of this type develops even when the tumor is limited in extent. In other cases, non-neovascular angle closure develops in response to the ciliary body tumor.[5] In our case raised intraocular pressure was due to combined effects of both gradual angle closure & chronic uveitis. No neovascularization was observed over the iris or in the angle. In exceptional cases, intraocular medulloepithelioma arises from the retina or optic disc. All reported cases of this type have occurred in children younger than 7 years. Because of this, such tumors have uniformly been misdiagnosed clinically as retinoblastoma. But in our case no abnormality was seen in the retina & optic nerve that excluded the possibility of retinoblastoma. But as the tumor was in the extreme periphery that touched the lens & encroached over & behind the iris that indicated the tumor as ciliary body origin.

Although iridocyclectomy and episcleral plaque radiotherapy have both been employed in some cases of iridociliary or ciliary body medulloepithelioma, such treatments have frequently failed to eradicate the tumor. In fact, local failure of such treatments appears to be almost the rule in medulloepitheliomas judged to be malignant by histopathological criteria. Eyes that have an extremely large intraocular tumor at presentation, those that are blind and painful as a result of tumor-related complications, and most eyes that develop local recurrence of medulloepithelioma after primary attempted resection or plaque radiotherapy eventually require enucleation[6]. In our case patient developed intractable uveitis with refractory glaucuma followed by severe painful eye. Before tumor invasion in to the sclera & to prevent periocular tumor invasion, enucleation of the right eye was done & specimen was sent for histopathology.

The characteristic histopathological feature of intraocular medulloepithelioma is a structural arrangement of cells that closely resembles that of neural medullary epithelium. The degree of cellular differentiation differs widely from case to case. Many well-differentiated medulloepitheliomas contain prominent rosettes and cystic spaces filled with hyaluronic acid. Medulloepitheliomas that contain heterotopic elements such as hyaline cartilage, striated muscle, or brain are referred to as teratoid medulloepitheliomas. Those that do not contain such elements are termed nonteratoid medulloepitheliomas. About two thirds of intraocular medulloepitheliomas are categorized as malignant pathologically, [1] [2] largely on the basis of invasiveness and extraocular extension of the tumor, especially if associated with numerous mitotic figures and undifferentiated cells.

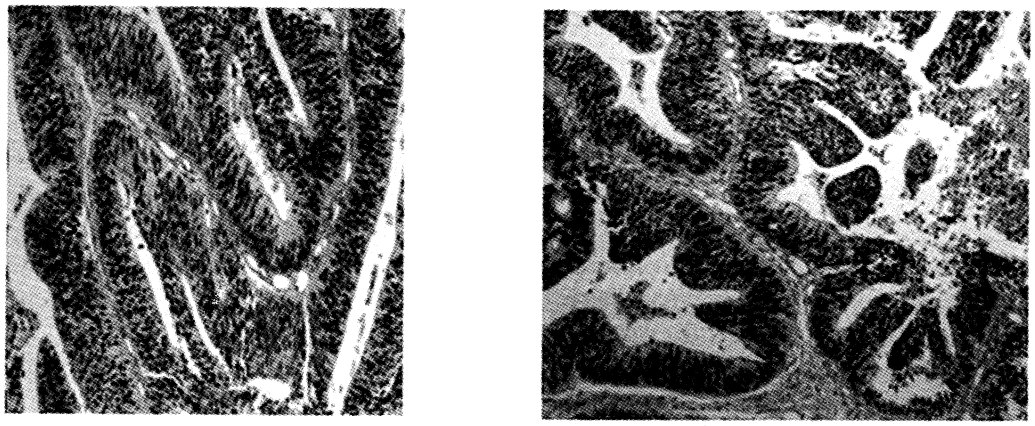

Fig-5 : Histopathological slide of Ciliary body tumor

In our case histopathology of the mass from the enucleated eye showed ribbons and cords of tumous cells of ciliary body origin. There was lack of differentiation but no mitototic figure. Central cystic space field by fluid (hyaluronic acid). Multi layered nucleus, round/oval cells without heterotopic elements suggestive of non teratogenic mudulloepithelioma.

Surgical removal of the tumor provides a definitive histological diagnosis[7]. The decision for enucleation is usually based on a large tumor size, a painful eye with poor visual potential, and a strong clinical suspicion of malignancy for instance rapid tumor growth as in our case. As ciliary body medulloepitheliomas are generally locally invasive, complete excision is curative and associated with a good survival prognosis. In our case, the delayed diagnosis might have contributed to the local scleral invasion of the tumor, thereby necessitating adjuvant chemotherapy after enucleation.

Conclusion :

Medulloepithelioma, even in its benign varieties, tends to be a relentlessly progressive tumor. This can lead ultimately to destruction of the eye, profound visual loss, and even trans-scleral tumor extension. As long as the tumor is still contained within the eye at the time of enucleation, survival generally is assured. Detailed ocular examinations and investigations are mandatory to diagnose such case.

References:

1. Canning CR, McCartney CE, Hungerford J. Medulloepithelioma (diktyoma). Br J Ophthalmol. 1988;72:764-7.
2. Jerry A. Shields, MD; Ralph C. Eagle, Jr, MD; Carol L. Shields, MD; Arun D. Singh, MD; Johane Robitaille, MD; Pigmented Medulloepithelioma of the Ciliary Body; Arch Ophthalmol. 2002;120(2):207-210.
3. Gupta NK, Simon JW, Walton DS, Augsburger JJ. Bilateral ectopia lentis as a presenting feature of medulloepithelioma. J AAPOS. 2001;5:255-7.
4. Singh A, Singh AD, Shields CL, Shields JA. Iris neovascularization in children as a manifestation of underlying medulloepithelioma. J Pediatr Ophthalmol Strabismus. 2001;38:224-8.
5. Katsushima H, Suzuki J, Adachi J, et al. Non-rubeotic angle-closure glaucoma associated with ciliary medulloepithelioma. Jpn J Ophthalmol. 1996;40:244-50.
6. Medulloepithelioma; Medtextfree, January 20, 2011 in Ophthalmology.
7. Jocelyn Chua, Wisam J. Muen, Ashwin Reddy, and John Brookes; The Masquerades of a Childhood Ciliary Body Medulloepithelioma:

   A Case of Chronic Uveitis, Cataract, and Secondary Glaucoma; Ophthalmological Medicine; Volume 2012 (2012).

Efficacy of occlusion therapy for the management of Amblyopia in children above 9 years.

Sharif Ahmed

Abstract:

Purpose: *To evaluate the effect of occlusion therapy in amblyopic children above 9 years.*

Method: *Type of study is prospective.*

Place of study: *Pediatric Ophthalmology Department, National Institute of Ophthalmology and Hospital, Sher-e-Bangla Nagar ,Dhaka.*

Period of study: *January 2005 to December 2006.*

Technique of sampling: *Purposive and consecutive sampling. A total of 30 patients were included in the study. The pediatric patients with suspicious refractive error had a complete ocular examination and orthoptic look up prior to treatment. Cycloplegic refraction was done to have best corrected visual acuity (BCVA) in all children in both eyes.*

All children were advised to undergo occlusion of the better eye with eye pad and adhesive patch was applied, for at least 80% of the waking hours/day; that was termed as full time occlusion (FTO) after Brar Gagandeep et all (2006). Children were followed up monthly to document improvement and record compliance.

Result: *Mean log MAR V/A at baseline lavel in >9-12 yrs age group patients were 0.98±0.17and in >12-15 yrs groups patients were 0.97±0.09. After 3 months occlusion therapy mean log MAR V/A were 0.63±0.29 (SD) and 0.67±0.22 (SD) in >9-12yrs and >12-15yrs age group patients respectively. After 6 months occlusion therapy mean log MAR V/A were 0.64±0.28 (SD) and 0.68±0.21 (SD) in >9-12 yrs and >12-15 yrs age group respectively.*

Conclusion: *Analytical results of the current study shows that the visual acuity, (V/A) improves significantly from baseline status after occlusion, even in elderly children (>9years). The improvement of V/A is better if occlusion therapy is started at an earlier age. So this study concludes and recommends that occlusion therapy should be practiced at random in elderly children above 9 years; but a good number of cases show a decrease of V/A in next months. So, further study with more patients and longer period of follow-up will give better outcome.*

Key words: *Occlusion therapy and amblyopia, elderly children (>9years).*

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Introduction

Amblyopia is reduced corrected visual acuity without the evidence of organic eye diseases. It is caused by abnormal visual experience during a sensitive period of visual development in early childhood (Dorey et al, 2001)1. Amblyopia is the commonest childhood vision disorder with a prevalence of 1% to 5% (Attebo et al, 1998)2. It carries increased lifetime risk of serious vision loss. The visual system is highly sensitive to deprivation, this lead to the concept of a visual sensitive period, ending at approximately 6 to 7 years which if interrupted by any obstacle such as blurred vision and/or strabismus results in amblyopia. Amblyopia is found in association with refractive error or strabismus or infantile cataract.

The clinical upshot of the study was the belief that amblyopia should be both identified and treated in early childhood. The critical notion has influenced health service management in many countries. Occlusion of the non amblyopic eye is the most commonly used treatment for children with amblyopia (Catford, 1967)3.

Methods:

Types of study is prospective. Place of study is pediatric ophthalmology department, National Institute of Ophthalmology and Hospital, Sher-e-Banglanagar, Dhaka. Period of study is January 2005 to December 2006. Sampling: A total 30 patients were included in the study. Technique of sampling: Purposive and consecutive sampling. The pediatric patients with suspicious refractive error had complete ocular examination and orthoptic look up prior to treatment.

A cycloplegic refraction carried out using Atropine eye drops (1%) for younger than 10 years or Cyclopentolate (1%) drops for older than 10 years in the first visit, Best corrected visual acuity (BCVA) was measured in all children. A difference 1 line or more on snellen's visual acuity chart was treated as diagnostic criteria for amblyopia. A difference of the two eyes exceeding 1.5 diaptre (D) was considered anisometropia (after Brar Gagandeep et al 2006)4.

All children were advised to undergo occlusion of the better eye with eye pad and adhesive patch was applied, for at least 80% of the waking hours/day; that was termed as full time occlusion (FTO) after Brar Gagandeep et al (2006). Children were followed up monthly to document improvement and record compliance. The patients were instructed to maintain a daily diary detailing the number of hours of occlusion achieved each day. At each follow up visit the examiner used the same method to access BCVA. The treatment was continued till there would be no further improvement for at least three consecutive visits or attainment of visual acuity equal to that of the initially dominant eye. There after maintenance patching 6 hours/day was done 3 months to prevent recurrence. After completion of maintenance patching, children were advised to have follow up at 3 to 6 monthly interval to record V/A. At every visit V/A of the dominant eye was also checked.

Result

Patients over 9 years of age were included in the study purposively and were grouped into >9-12 years age group and >12-15 years age group. Out of 30 cases 17 (56.67%) were between the age >9-12 years; 13 (43.33%) were above 12 years. Out of 30 cases 17 (56.67%) were male and rest 13 (43.34%) were female. Mean log MAR V/A in >9-12 yrs age group patients were 0.98±0.17; Mean log MAR V/A in >12-15 yrs groups patients were 0.97±0.09 and on average of 30 cases Mean Baseline V/A were 0.97±0.17 (SD). After 3 months occlusion therapy mean log MAR V/A were 0.63±0.29 (SD) and 0.67±0.22 (SD) in >9-12yrs and >12-15yrs age group patients respectively.

After 6 months occlusion therapy mean log MAR V/A were 0.64±0.28 (SD) and 0.68±0.21 (SD) in >9-12 yrs and >12-15 yrs age group respectively.

Rate of improvement of V/A (at least one snellen) after 6 months of occlusion was assessed and compared among two groups. In the patients of >9-12 yrs age, improvements was 66.66% cases, in >12-15 yrs improvement was 62.50% cases. Compliance was calculated from patients diary and statement out of 30 cases, 15 (50%) cases had good compliance, 12 (40%) cases showed average compliance and 3 (10%) cases showed very poor compliance resulted with poor visual outcome.

It is not yet clearly known whether the visual improvement in older amblyopes remain so after occlusion is discontinued (Oliver et al, 1986)5. In our series, all children received maintenance patching for further 3 months following completion of FTO. Only

1 of 8 showed reduction of vision during maintenance therapy. After stopping of maintenance occlusion, the status of vision is not observed and that was beyond the protocol of the current study due to time constraint.

Conclusion: Analytical results of the current study shows that the visual acuity, (V/A) improves significantly from baseline status after occlusion, even in elderly children (>9years). The improvement of V/A is better if occlusion therapy is started at an earlier age. So this study concludes and recommends that occlusion therapy should be practiced at random in elderly children above 9 years; but a good number of cases show a decrease of V/A in next months. So, further study with more patients and longer period of follow-up will give better outcome.

References:

1. Dorey SE, Adam GG, Lee JP, Slopper JJ, Additional therapeutic Resarch. Br. J. Opthamol 2011 Mar; 55 (3), 310-3.
2. Attebo K, Mitchell P, Cumming R, Smith W, Jolly N, Sparkes, Prevalance and causes of amblyopia in adult population. Opthalmology, 1998;105: 154-159.
3. Catford GV, Amblyopic occlusion. The result of treatment. Traus Opthalmol Sac UK 1967; 87.179-93.
4. Brar Gagandeep S, Supratik B, Sushmita K, Suristhi R, Efficacy of occlusion therapy for the Management of amblyopia in older children, Year- 2006. Vol- 54, Issue-4. P-257-260.
5. Oliver M, Newman R, Chaimovitch Y, Gottesman N, Shimshoni M, Compliance and Results of tratment for Amblyopia in children more than 8 years old. Am J. Opthalmol, 1986; 102. 340-5.

Discrepancy of concentration of drug in antibiotic eye drop and questionable sterility: High time to give proper attention.

Talukder AK, Zakia S[1], Ishrat J[3], Rahman M B[3]

Abstract:

Purpose: *The study was conducted to evaluate the discrepancy of concentration of same type of antibiotic in different commercially available eye drops in Bangladesh and to evaluate the sterility status of the eye drop.*

Methods: *All the samples were collected from the authorized medical promotion officer of respected pharmaceutical industry & drop were counted by them for better acceptance & to avoid adulteration. Information supplied by the pharmaceutical industries were collected and analyzed. Concentration of drugs in Chloramphenicol, Moxifloxacin, Ciprofloxacin, Gentamycin, Tobramycin & Lomifloxacin were analyzed.*

Result: *The volume of the drops was found different in the different vials of same type of ingredient of different pharmaceutical industries & hence the concentration was also different amount. The drop size is different due to different size of pore / tip of drop vial. Having the same concentration of ingredient per ml in the vial, the user is getting it in different amount / concentration. Even, the volume of drop was found different in the different drug vials of the same pharmaceutical industry.*

Conclusion: *To maintain proper dose of antibiotic, either drop size of all the antibiotic eye drop of different pharmaceuticals industry should be equal or concentration of antibiotic per ml should be changed considering the drop size produced by the vial tip. Soft container is necessary to instill drop properly. Sterilized air protected vial cap or sealed cap with tip should be used to protect contamination.*

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Introduction

Antibiotic eye drop is prepared with the antibiotic ingredient to perform bactericidal or bacteriostatic action, with or with out preservative base, on the basis of tolerance of the eye considering the pH of the tear fluid, with an aim to be comfort for the consumer & facilitate absorption of drugs. Benzal konium chloride is mostly used as preservative (Samar K.B). The concentration of the antibiotic ingredient is designed to be sufficient to kill or resist the bacteria. Different pharmaceutical industries are producing antibiotic eye drops with different ingredients. The diameter of the tip of the drug vial is different as prepared by the different pharmaceutical industries, which leads to discrepancy of the drop size in different drop vial. Even, the diameter of the tip of the drug vial of the same pharmaceutical industry is different. The concentration of drugs per ml in the vial declares as the same, but the amount of fluid per drop used by the consumer is quite different, hence obviously the consumer is getting the drug inadequately / improperly. There might be misuse of drug even. The proper analysis about the concentration of drug per drop is very much necessary to identify the discrepancy and actual need concentration of drug in eye drops.

About the opening of the vial, there is no instruction available in the information sheet supplied with the drug vial. Soft container, micro drop, ideal volume of drop, multiple drop loss in single pressure & some other attractive words hit our tympanic membrane, but the reality is different.

Vials of few pharmaceutical industries having sealed tip with open cap, sometimes the cap is just with closed tip or sometimes in dislodged & lying condition in another place within the vial cover as in unprotected condition. The cover is not air tight. Easy entrance of air undoubtedly might lead contamination. When the tip is punched with the unprotected cap, the sterility is obviously questionable. The size of the opening tip might be different in different vial, might be due to pressure of punching the tip. The softness of the vials prepared by different pharmaceutical industries is not the same.

Little information about drop and tear fluid: The tear film normally contains only 7 to 10 micro liters (Khurana, Brown, R H et al). If an eye drop is

instilled, the tear film can momentarily hold as much as 30 micro liter before the subject blinks. The remainder of the eye drop spills out into the check. Rapid blinking quickly restores the normal tear volume by pumping the excess in to the nasolacrimal system. It is estimated that 80% of an eye drop drains via this route, where it can be systemically absorbed. With larger eye drops, more medicament passes into the nasolacrimal sac, increasing absorption and the risk of toxicity (Brown, R H et al). From a biopharmaceutical and toxicological point of view, it has been suggested that the decrease in drop size would reduce the rate of medicament loss through drainage, the incidence of systemic toxic effects, and, in addition, the cost of therapy (Sklubalova Z et al.).

The above two references give us some clue about the ideal volume of eye drop, 30 µl or a bit more. If one ml contains 30 drops, then the volume of drop will be 33µl. So, we can say, 30 drops / ml might be an ideal drop size.

Key word: Antibiotic eye drop, volume of drop, concentration of drug, sterility

Materials and Methods

Study type: Qualitative study.

Sample collection: All the samples were collected from the authorized Medical promotion officers (MPO) of pharmaceutical industry, who are commonly attended to me, drop were counted by them, for better acceptance & to avoid adulteration. Information about some queries was collected on request from the pharmaceutical industry authority. At least 2 samples of each drug were collected; one opened for counting drops & another one is kept preserved for documentation. The preserved vial was sealed with micropore and signed by athorized MPO. Concentration of drugs in Chloramphenicol, Moxifloxacin, Ciprofloxacin, Gentamycin, Tobramycin & Lomifloxacin were analyzed. All the amount of fluid in each vial were dropped & counted. The number of drops in each ml and volume of each drop was calculated. The amount of antibiotic ingredient in each drop was also calculated.

Study period: September, 2010 to August, 2012

Result and Analysis

Among the Chloramphenicol eye drops, in the drops of Aristovision, Opsosaline, Drug International & Square pharmaceutical industries found 250 - 277 µg/ drop, and in the Ibn Sina & Beximco 227 µg per drop, where as standard estimated concentration of drug is 166 µg / drop (Table-1)

Among the Moxifloxacin eye drops, in the drops of Popular, Asiatic, Aristovision, Opsosaline & Square found 192 - 263 µg / drop, and in the Ibn Sina pharmaceutical industries 166 µg per drop, where as standard estimated concentration of drug is 166 µg / drop (Table-2).

Among the Ciprofloxacin eye drops, in the drops of Ibn Sina, Square, Popular, Drug International & Opsosaline ltd. found 120 - 142 µg / drop, and in the Aristovision 103 µg / drop, where as standard estimated concentration of drug is 100 µg / drop (Table-3).

Among the Gentamycin eye drops, in the drops of Opsosaline ltd. found 157 µg / drop, and in the Nipa 100 µg per drop & Square pharmaceutical industries 107 µg / drop, where as standard estimated concentration of drug is 100 µg / drop (Table-4).

Among the Tobramycin eye drops, in the drops of Opsosaline & Gaco pharmaceutical industries found 100 µg / drop, Aristovision 107 µg / drop & Ibn Sina 142 µg / drop, where as standard estimated concentration of drug is 100 µg / drop (Table-5).

Among the Lomifloxacin eye drops, in the drops of Ibn Sina & Aristovision found 107 µg / drop, Square 111 µg / drop, in the drops of Popular, Beximco & Incepta 120 - 150, where as standard estimated concentration of drug is 100 µg / drop (Table-6).

Table

Table - 1: Showing information Chloramphenicol eye drop available in market

Sl. no	Commercial name of drug with name of Pharma. Industries	Drug volume in vial	No. of drops	Drop /ml	Vol /drop * ~~n+~~	Drug conc. /ml	Drug conc. /drop * ~~i+~~	Standard conc. /drop (estmated)
1	SQ Mycetin eye drop (Square)	10 ml	205	20	50	5 mg	250	
2	Opsophenicol eye drop (Opso)	10 ml	190	19	52	5 mg	263	
3	Aristophen eye drop (Aristo)	10 ml	183	18	55	5 mg	277	166
4	Cloram eye drop (Ibn Sina)	10 ml	220	22	45	5 mg	**227**	
5	Ocutrex eye drop (Beximco)	10 ml	222	22	45	5 mg	**227**	
6	Ophthacol eye drop (Drug Int)	10 ml	190	19	52	5 mg	263	

Table - 2: Showing information of Moxifloxacin eye drop available in market

Sl. No	Commercial name of drug with name of Pharma.Industries	Drug volume in vial	No. of drops	Drop /ml	Vol/ drop * ~~n+~~	Drug conc. /ml	Drug conc. /drop * ~~i+~~	Standard conc. /drop (estmated)
1	Iventi drop (Square)	5 ml	98	19	52	5 mg	263	
2	Flomox eye drop (Opsosal)	5 ml	128	25	40	5 mg	200	
3	Optimox eye drop (Arist)	5 ml	126	25	40	5 mg	200	388" ~~5~~
4	Floromox eye drop (Ibn)	5 ml	150	30	33	5 mg	**166**	
5	Moxibac eye drop (Popul)	5 ml	130	26	38	5 mg	192	
6	Floximox eye drop (Asiatic)	5 ml	133	26	38	5 mg	192	

Table - 3: Showing information about Ciprofloxacin eye drop available in market

Sl. no	Commercial name of drug with name of Pharma. Industries	Drug volume in vial	No. of drops	Drop /ml	Vol /drop * ~~n+~~	Drug conc. /ml	Drug conc. /drop * ~~i+~~	Standard conc. /drop (estmated)
1	Ciprocin eye drop (Square)	5 ml	120	24	41	3 mg	125	
2	Ciproxy eye drop (Opso)	10 ml	228	22	45	3 mg	136	
3	Aprocin eye drop (Aristo)	10 ml	290	29	34	3 mg	**103**	322" ~~5~~
4	Bactin eye drop (Ibn Sina)	5 ml	128	25	40	3 mg	120	
5	Ciprozid eye drop (Drug Int)	10 ml	210	21	47	3 mg	142	
6	Civox- A eye drop (Popular)	5 ml	120	24	41	3mg	125	

Table - 4: Showing information about Gentamycin eye drop available in market

Sl. no	Commercial name of drug with name of Pharma. Industries	Drug volume in vial	No. of drops	Drop /ml	Vol /drop * ~~n+~~	Drug conc. /ml	Drug conc. /drop * ~~i+~~	Standard conc. /drop (estmated)
1	Genacyn eye drop (Square)	10 ml	288	28	35	3 mg	**107**	322" ~~1~~
2	Gentin eye drop (Opsos)	10 ml	196	19	52	3 mg	157	
3	Gisin eye drop (Nipa)	10 ml	307	30	33	3 mg	**100**	

Table - 5: Showing information about Tobramycin eye drop available in market

Sl. no	Commercial name of drug with name of Pharma. Industries	Drug volume in vial	No. of drops	Drop /ml	Vol /drop * ~~n+~~	Drug conc. /ml	Drug conc. /drop * ~~i+~~	Standard conc. /drop (estmated)
1	Tobracin eye drop (Opso)	5 ml	154	30	33	3 mg	**100**	322" ~~1~~
2	T-mycin eye drop (Aristo)	5 ml	145	28	35	3 mg	**107**	
3	Tomycin eye drop (Ibn Sin)	5 ml	108	21	47	3 mg	142	
4	Tobirax eye drop (Gaco)	5 ml	154	30	33	3 mg	**100**	

Table - 6: Showing information of Lomifloxacin eye drop available in market

Sl. No	Commercial name of drug with name of Pharma. Industries	Drug volume in vial	No. of drops	Drop /ml	Vol /drop * ~~n+~~	Drug conc. /ml	Drug conc. /drop * ~~i+~~	Standard conc. /drop (estmated)
1	Mexlo eye drop (Square)	5 ml	136	27	37	3 mg	**111**	322" ~~1~~
2	Lomeflox eye drop (Aristo)	5 ml	140	28	35	3 mg	**107**	
3	Contra eye drop (Beximco)	5 ml	120	24	41	3 mg	125	
4	Lomequin eye drop (Incep)	5 ml	103	20	45	3 mg	150	
5	Lyflox eye drop (Ibn Sina)	5 ml	144	28	35	3 mg	**107**	
6	Lomibac eye drop (Popul)	5 ml	128	25	40	3 mg	120	

Discussion

Among the antibiotic eye drops, in the study group, the drop number / ml ranges from 18 to 30 and the difference of drug concentration was about 100 µg / drop. Even in the same pharmaceutical industry the number of drops / ml differs in different types of antibiotic eye drops (Square-9, Opsosaline- 11, Aristovision-10, Ibn Sina-9).

The discrepancy of the drop size & drug concentration obviously hampers the proper treatment & causes wastage of drugs. It must be eliminated. The quality of the drug container should be soft & standard to instill ideal volume of eye drop & prevent multiple drop loss in single pressure.

Conclusion

To maintain proper dose of antibiotic, either drop size of all the antibiotic eye drop of different pharmaceuticals industry should be equal or concentration of antibiotic per ml should be changed considering the drop size produced by the vial tip. Sterilized air protected vial cap or sealed cap with tip should be used to protect contamination.

References:

1. Samar K. Bashak, Essential of ophthalmology, current Book International. 60, Lenin Saranee, Kolkata-700013, 4th Ed; 2007: 55
2. Khurana A.K, Khurana I, Anatomy and Physiology of Eye, CBS Publications & Distributors, 4596/1-A, 11 Darya Ganj,New Delhi, 2 nd Ed; 2007:380
3. Brown, R H et al., Am J Ophthal., 99, April 1985, 460-464
4. Sklubalova Z et al., DDIP, 32, 2006, 197-205

The epidemiology of patients attending emergency services in a tertiary center during an extended holiday period

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Abstract:

Purpose

To describe the epidemiology of patients attending the emergency services of a tertiary care eye imstitution in Bangladesh during an extended holiday period with a focus on ocular trauma cases.

Methods

A retrospective cross-sectional survey was conducted on 2 extended holidays over a 3 month period (August 2012 to October 2012) on all patients seen at the ophthalmic unit at the emergency service of the Islamia Ispahani Eye Institute & Hospital.

Results

A total of 417 patients were seen during the period specified, averaging 35 patients per day. 71.8% of the total patients were male and 28.2% female. 76.2% were treated as outpatients with medical management. 22.3% of the patients presented with ocular trauma. 96.8% of them required surgical intervention, of which 78.3% required minor surgical interventions. 17 cases (18.3%) underwent major surgical intervention. 11 of the cases (78.6%) achieved our primary outcome measure, potentially saving the eye.

Conclusions

Keeping emergency services operational during an extended holiday period is of paramount importance in view of prompt and potentially eye-salvaging surgery especially in cases of ocular trauma, where a delay in intervention could prove fatal for the outcome of the injured eye.

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Ocular trauma is an important cause of preventable blindness worldwide1. A similar may be inferenced for Bangladesh. Unfortunately, it tends to slip under the radar and is frequently misdiagnosed, mistreated and intervention is often delayed, partly due to delayed presentation.

This is painfully magnified during any extended holiday period, when most specialized instituions are heavily understaffed or closed, and as such, patients struggle to find appropiate care. However, Ispanhani Islamia Eye Institute and Hospital kept emergency surgical services operational during the holiday period in 2012, and the statistics have been both informative and enlightening.

The epidemiology of ocular trauma has been well-described in the United States2-8, Europe9-10, Australia11-12 and among Asian countries13 such as India14 and Singapore15. However little data is available on the status of ocular trauma in Bangladesh. In this article, we review the findings revealed from our pilot venture of emergency services operation during the below-mentioned extended holiday periods.

Methods

Study population

This study was a retrospective cross-sectional survey involving all patients presenting to the emergency services of Ispahani Islamia Eye Institute and Hospital during the extended holiday periods between August 2012 and October, 2012 (extending from 15th to 21st August and 24th to 28th October, corresponding to the Eid ul Fitr and Eid ul Azha respectively). Islamia Ispahani Eye Institute and Hospital is one of the largest tertiary care specialized ophthalmology hospitals in Bangladesh and sees a wide variety of cases from the entire the country.

System context

A team comprising junior doctors, fellows, anaesthetists, cardiologists and a senior consultant, together with the operation theatre staff and relevant laboratory personnel for the provision of necessary investigations, was at hand to maintain the emergency care system.

The basic outline of the management process of emergency patients is shown in figure 1. The junior doctor (resident medical officer) was the person of first contact with patients. However, when the case was complicated or surgical, the fellow on call from the relevant subspecialty (e.g. cornea) was called to see the patient. If surgery was required, the rest of the team on call was mobilized. Clearance for surgery was given by the cardiologist and in case of children an anaesthetic consultant. Children remained a significant proportion of trauma victims, and surgeries were also performed under general anaesthesia during both holiday periods. Finally, consultants of all subspecialties were also available on call, and came in to see patients, both indoor and outdoor as required, when informed by the resident. (Figure 1)

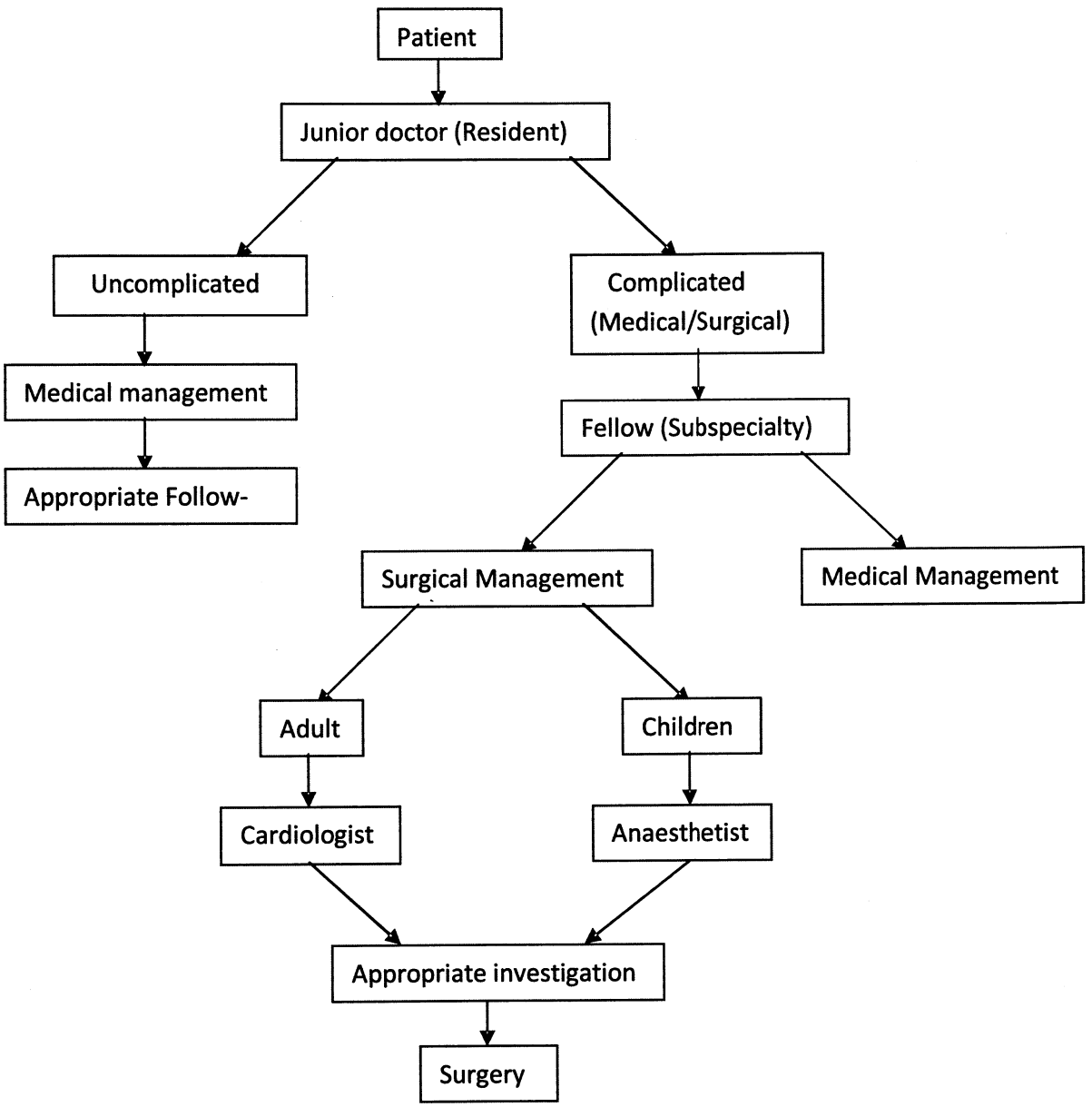

Figure 1: Outline of management process of emergency patients

Data collection, definition and analysis

Data was collected retrospectively, from hospital outpatient records and inpatient documentation. Data collection focused on patient demographics, clinical diagnosis and subsequent management of the injury and outcome of major ocular trauma.

Ocular trauma was defined as any injury or foreign body affecting the eye or adnexae. Patients were categorized into two classes: those needing medical management only and those requiring intervention. Those requiring intervention were then further classified as major and minor depending on the nature of the intervention. Outpatient procedures were designated as minor; those requiring in-patient admission were defined as major.

The primary outcome measure among patients who underwent surgery was taken as salvaging the affected eye. All of the major surgical interventions involved various degrees of corneal repair, and have been sub-classified into Categories A and B, based on the nature of surgery. Category A indicated more extensive surgery involving the posterior chamber (i.e. vitrectomy/ intravitreal injection etc), whereas Category B was limited primarily to repair of the corneal injury and anterior chamber manoeuvres.

Basic statistical analysis of the data was done.

Results

A total of 417 patients were seen during the study period, of which 299 (71.8%) were male, and 118 (28.2%) were female. (Table 1) The daily patient average was approximately 35 (Tables 2 & 3). However, a significant drop was noticed on the actual day of the celebration (20.08.12 and 27.10.12). 6 of the patients presenting during the holiday period had presented for routine surgical follow-up for prior procedures.

The age of the patients ranged from 14 days to 84 years with a mean age of 30 years (Table 4). 131 patients (31.41%) were between the ages of 15-30 years, comprising the major age group. 88 patients (21.13%) were below the age of 5 years. The odds ratio of the risk of exposure to trauma in case of males vs females was 1.7.

Medical treatment combined with subsequent follow-up, sufficed to adequately manage 318 (76.2%) of the patients coming to the emergency department (figure 6). Of 417 patients seen, 93 patients (22.3%) presented with ocular trauma (Table 5). Among them, 3% were managed medically, while 96.8% required surgical intervention. 73 cases (78.3%) required minor surgical interventions, while 17 cases (18.3%) underwent major surgical intervention. The majority of the trauma cases presented with superficial corneal foreign body, resulting in 62 cases of foreign body removal (66.7% of surgical interventions). All of the 17 surgeries involved repair of penetrating ocular trauma. Of these, 10 cases (59%) were Category A and the rest (41%) were Category B. 12 cases (71%) were done under local anaethesia and 5 cases (29%) under general anaethesia. 82.3% of the 17 patients requiring surgical intervention were male, with an average age of 23.7 years. 4 of the 14 male patients were children under the age of 15 years (Table 6).

Of the 14 cases presenting for follow-up after surgery, 11 of the cases (78.6%) achieved our primary outcome measure, i.e., 11 eyes were saved. The rest (21.4%) unfortunately developed life-threatening complications and could not be salvaged. 3 patients failed to present for follow-up and as such had to be excluded from considerations of final outcome. The vision in 3 cases are N/A (not applicable) as they were too young to accurately interpret visual charts. (Table 7). 3 patients failed to present for follow-up and as such had to be excluded from considerations of final outcome.

Discussion

The operation of emergency ophthalmology services during an extended holiday period is not a routine undertaking in a country like Bangladesh, where many tertiary care level hospitals are compelled to reduce the quality and availability of their services due to being severely under-staffed. However, we found in our study that there remains a significant patient load despite the holidays, the majority (76.2%) of which did not require admission and could be managed medically. This underscores the importance of keeping emergency services operational, even at a basic level, as even the availability of timely medical management could play a role is reducing the for more complicated medical procedures warranted by a mandatory delay in presentation owing to non-operational hospital services.

A total of 417 patients were seen, showing a significant male preponderance. An average of 35 patients was seen on all days of the holiday period, with a fall in patient number on the actual day the holiday was celebrated. The odds ratio of the risk of exposure to trauma in case of males vs females was 1.7. This is likely to be occupational and warrants further studies with regard to demographic statistics.

The majority of patients (76.2%) were managed medically, with 22.3% presenting as cases of ocular trauma requiring either no, minor or major intervention. 1.4% presented as routine follow-up for previous surgical procedures.

93 patients (22.3%) presented with ocular trauma, the majority (96.8%) of whom required surgical intervention. The predominant presentation among trauma cases was superficial corneal body resulting in the bulk (66.7%) of the surgical interventions performed during the period.

Of the total of 17 surgeries performed, 10 cases (59%) were Category A and the rest (41%) were Category B. 12 cases (71%) were done under local anaethesia and 5 cases (29%) under general anaethesia. Our study confirmed the universal pattern that ocular trauma occurred in young adult males, with the majority (82.3%) of the 17 patients requiring surgical intervention being male, with an average age of 23.7 years. 4 of the 14 male patients were children under the age of 15 years. (Table 7).

11 cases (78.6%) achieved the primary outcome measure, petentially saving the eye. The rest (21.4%) showed a poor prognosis and could not be salvaged.

Considering the demographic data of patients who underwent surgery (table 7), patients 1 to 7 presented during the period extending from 15th to 21st August. Of these cases, one injury (patient no 4) had a prior retinal detachment complicating the current corneal injury, but defaulted follow-up and subsequent intervention, possibly resulting in the poor visual outcome of hand movement only. Poor vision in patient no 2 was due to the presence of a central corneal scar following repair. Patient no.2 had an accompanying full thickness lid injury that was repaired by an oculoplastic surgeon the day after the primary corneal surgery.

Patient numbers 8 to 14 presented during the holiday period extending from and 24th to 28th October. Patient no.12 had an injury too severe to consider restoration of vision by further intervention, but the other cases had coexisting ocular injuries that if treated carried a hope for improvement of final visual outcome. Patient no.10 is on continuing follow-up, and developed total hyphaema in the postsurgical period. Patient no.11 had a coexisting vitreous haemorrhage. Patient nos. 5, 6 and 9 had severe injuries at presentation, and eye could not be salvaged. Patient no.6 presented with tractional retinal detachment following ocular trauma, developing a painful blind eye and has been advised evisceration. Patient no.9 underwent evisceration during the study period, as he presented with coexisting endophthalmitis and the eye could not be saved.

The important role of general anaethesia as part of the surgical team cannot be understated. In addition to the 5 surgical procedures, a further 3 outpatient procedures (foreign body removals) were performed under general anaesthesia., with durations ranging from 5 minutes (for a foreign body removal) up to 2 hrs (for repair of a large sclero-corneal injury), depending on the severity of the injury.

Study limitations

Due to the retrospective nature of the study, numerical breakdowns and demographic data could not be made available for the diagnoses of outpatient cases discharged on medical management. Some of the patients from the latter holiday period are still under on-going follow up and their final visual outcome could not be assessed at the time of publication.

Conclusion

This was an initial undertaking by Islamia Ispahani Eye Institute and Hospital at assessing the patient response and feasibility of the operation of emergency services during an extended holiday period, with the potential for further development and the eventual offer of better services in the future. Despite its relative success, we concede to minor shortcomings and recognize the need for the appraisal of the problems that arose. That said, it is important to note that the patient load was certainly not an un-manageable one, and could definitely be managed by an appropriately adjusted holiday roster. This alone should be incentive enough for the nation-wide undertaking of similar operations by other institutions as well.

Although the number of cases requiring surgical intervention seems very few on the surface, the fact is that such injuries require appropriate, prompt and efficient treatment. The outlook for cases of trauma with a delay in diagnosis is very bleak. The remarkable accomplishment of this pilot project was that the emergency services were combined with the availability of an effective group of people who were well-equipped to promptly handle the situation whenever it arose.

The purpose of this paper was to demonstrate this urgent, unmet need. Although the right to sight is a fundamental human right and a part of our Vision 2020 goals, emergency ocular services are few and far between, and we hope that this initiative serves as a tentative model for future experiment or development. The importance of timely intervention for potentially salvageable eyes cannot be understated; such an intervention can only be made if the patient is able to present on time to an appropriate institution, highlighting the importance of the operation and further development of the availability of emergency services during the holiday period.

References:

1. Thylefors B. Epidemiological patterns of ocular trauma. Aust NZ J Ophthalmol 1992;20:95-8.
2. Glynn RJ, Seddon JM, Berlin BM. The incidence of eye injuries in New England adults. Arch Ophthalmol 1988;106:785-9.
3. Karlson TA, Klein BEK. The incidence of acute hospitaltreated eye injuries. Arch Ophthalmol 1986;106:785-9.
4. Katz J, Tielsch JM. Lifetime prevalence of ocular injuries from the Baltimore Eye Survey. Arch Ophthalmol1993;111:1564-8.
5. Schein OD, Hibberd PL, Shingleton BJ, et al. The spectrum and burden of ocular injury. Ophthalmology 1988;95:300-5.
6. Zagelbaum BM, Tostanoski JR, Kerner DJ, Hersh PS. Urban eye trauma: a one-year prospective study. Ophthalmology 1993;100:851-6.
7. Klopfer J, Tielsch JM, Vitale S, et al. Ocular trauma in the United States: eye injuries resulting in hospitalization, 1984 through 1987. Arch Ophthalmol 1992;110:838-42.
8. Tielsch JM, Parver L, Shankar B. Time trends in the incidence of hospitalized ocular trauma. Arch Ophthalmol 1989;107:519-23.
9. Blomdahl S, Norell S. Perforating eye injury in the Stockholm population. Acta Ophthalmol 1984;62:378-90.
10. Desai P, MacEwen CJ, Baines P, Minassian DC. Incidence of cases of ocular trauma admitted to hospital and incidence of blinding outcome. Br J Ophthalmol 1996;80:592-6
11. Fong LP. Eye injuries in Victoria, Australia. Med J Aust 1995;162:64-8.
12. McCarty CA, Fu CL, Taylor HR. Epidemiology of ocular trauma in Australia. Ophthalmology 1999;106:1847-52.
13. Verma N, Verma A, Jacob G, Demok S. Profile of ocular trauma in Papua New Guinea. Aust NZ J Ophthalmol1997;25:151-5.
14.. Gothwal VK, Adolph S, Jalali S, Naduvilath TJ. Demography and prognostic factors of ocular injuries in South India. Aust N Z J Ophthalmol 1999;27:318-25.
15. Voon LW, See J, Wong TY. The Epidemiology Of Ocular Trauma In Singapore: Perspective From The Emergency Service Of A Large Tertiary Hospital. Eye 2001;15:75-81.

Vogt-Koyanagi-Harada Disease with Unilateral Ocular Involvement: A Case Report

Sabrina Rahmatullah[1], Tariq Reza Ali[2], Nazmun Nahar[3], Shafiqur Rahman[4], Mustafizur Rahman[5]

Abstract:

Aim:

To report a case of Vogt-Koyanagi-Harada disease with unilateral ocular involvement..

Method:

The patient was evaluated with clinical, ophthalmological and investigational reports. His response following corticosteroid administration was evaluated.

Result:

The patient had characteristic clinical findings of VKH involving only one eye. This includes multiple subretinal yellow lesions, exudative retinal detachment, disc oedema, multiple pin point hyper fluorescent spots with pooling of dye in FFA, serous retinal detachment in OCT, increased choroidal thickness with retinal detachment in B-Scan and systemic association like tinnitus and head ache. The patient received pulse dose of cortico steroid treatment and was evaluated with better clinical feature and visual acuity..

Conclusion:

The clinical and investigational report of the patient was typical of VKH disease except for the unilateral involvement. It is important for the ophthalmologists to recognize unilateral VKH disease, even though

It is a rare clinical variant of the disease.

Key words: *Uniocular VKH, Serous RD, FFA, OCT*

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Introduction

Vogt- Koyanagi- Harada disease is a bilateral, granulomatous uveitis usually associated with various systemic changes including meningismus, vitiligo, poliosis , tinnitus . It is an auto immune disorder directed against melanocytes. The characteristic ocular manifestations are bilateral granulomatous uveitis, exudative retinal detachment and disc hyperemia. The recent international

VKH diagnostic criteria define VKH as bilateral uveitis without a history of trauma or ocular surgery . In this case report, we describe the clinical feature of a unilateral VKH disease.

Case Report

A 27 year old male student hailing from Rangpur, presented with sudden painless dimness of vision of left eye for 15 days. It was associated with head ache and tinnitus of left ear for 1 month. There was no history of neck stiffness, vitiligo , trauma or previous ocular surgery. On examination his BCVA on left eye for distance was Counting finger 1 meter and for near N18 which was not improved with pin hole or refraction. The BCVA of opposite eye for distance was 6/6 and for near N6. The slit lamp examination of right eye was within normal limit .The left eye had fine keratic precipitates over endothelium of cornea, according to Standardization of Uveitis Nomenclature (SUN) Working Group Grading system, anterior chamber had cells 2+, flare 1+ and anterior vitreous had cells 1+. Intraocular pressure of both eye revealed normal, 12 mmHg. Fundoscopy of right eye was normal, but left eye had hyperemia of optic disc with blurred margin, multiple dome shaped elevation with subretinal yellow exudates in posterior pole, resembling serous retinal detachment with tortuous blood vessels.

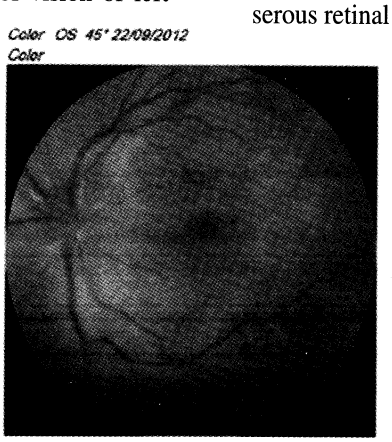

Fig 1: CFP of LE shows- Hyperemic optic disc with blurred margin, multiple dome shaped elevation of serous retinal detachment with subretinal yellow exudates and tortuous blood vessels

Fluorescein angiography of left eye revealed multiple pin point hyperfluorescent leakage at the level of retinal pigment epithelium in the early phase and pooling of dye at the site of serous retinal detachment in the late phase .

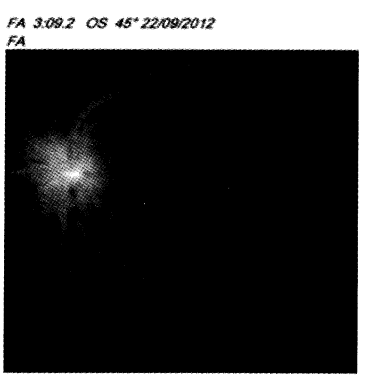

Fig 2: FFA of LE shows- Multiple pin point hyperfluorescent spots with pooling of dye in subretinal space and staining of optic disc in late phase

OCT findings of left eye showed loss of foveal contour due to presence of subretinal fluid causing pushing effect and resulting in serous retinal detachment.

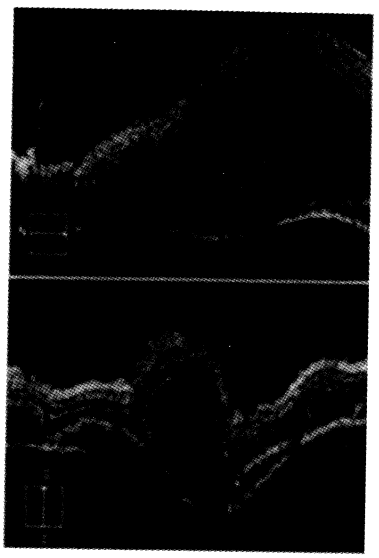

Fig 3: OCT of LE shows serous retinal detachment

The B-scan ultrasonography measured increased choroidal thickness of 2.5 mm and retinal detachment in left eye and normal choroidal thickness of 1 mm in right eye. The patient was diagnosed with unilateral VKH and was admitted in Islamia Eye Hospital.

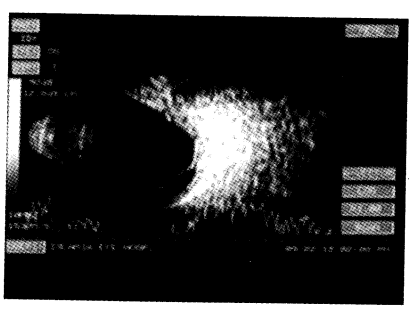

Fig 4: B-scan of LE shows- Retinal detachment

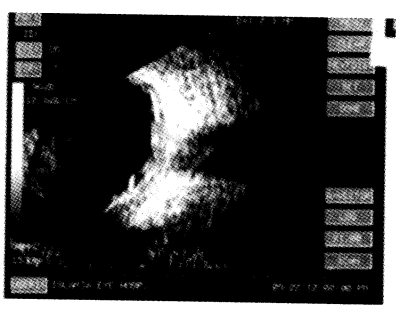

Fig 5: B-scan of LE showing- Increased choroidal thicknesst

He was treated with pulse dose of Methyl prednisolone , i.e. 1gm Intravenous methylprednisolone for 3 consecutive days and his vision improved to 6/36 and with pin hole to 6/24. After 3 days he was prescribed with oral corticosteroid 70 mg (1mg/kg body weight/day) along with tablet calcium , anti ulcerant and loteprednol , homatropin eye drop in left eye. After 15 days he was reviewed again with blood sugar, blood pressure and intraocular pressure. His BCVA of left eye improved to 6/18 , anterior chamber had trace amount of cells and flare and anterior vitreous had 1 + cells and reduced amount of subretinal fluid. 1 month later the patient came with 6/12 visual acuity, clear anterior chamber and trace amount of vitreous cells and no serous retinal detachment. In his next follow-up after 1 month, if we find no further inflammation in anterior chamber and vitreous, we plan to taper the cortico steroid dose 10mg monthly. This would be continued for 6-12months.

Discussion

The revised diagnostic criteria proposed by the First International Workshop on Vogt-Koyanagi-Harada disease1 were as follows: 1) Bilateral ocular involvement including diffuse choroiditis, focal area of sub retinal fluid or bullous serous retinal detachment and / or disc hyperemia or oedema in early stage, and sun set glow fundus or sugiura's sign, nummular chorioretinal depigmented scar or retinal pigmented epithelial clumping ,recurrent or chronic anterior uveitis in late manifestation of the disease, 2) Neurological or auditory findings, 3) Integumentary findings with no history of penetrating ocular injury or surgery . Our patient met all the diagnostic criteria of VKH with the exception that the ocular involvement was uniocular. The absence of dermatologic manifestations was not surprising as these may not become evident until later in the disease process.

The differential diagnosis of the disease includes Posterior Scleritis, Sympathetic Ophthalmia. A diagnostic possibility of Posterior Scleritis was not fully excluded as the patient had uniocular involvemen with signs of uveitis, disc oedema and serous retinal detachment. B-Scan Ultrasonography revealed increased choroidal thickening but no retro bulbar oedema and the patient had no complaints of pain on ocular movement or tenderness or any other signs of scleritis . Kouda et al. reposted a patient with an initial diagnosis of unilateral posterior scleritis who later developed bilateral VKH disease2. He suggested that some cases of VKH disease might show severe serous retinal detachment unilaterally.

Our patient gave no history of ocular injury or surgery, so Sympathetic Ophthalmia was excluded.

Usui et al. reported 3 cases of presumed VKH disease with unilateral involvement 3 .Forster et al. reported a case of 7 year old boy with unilateral VKH disease 4. And Agrawal et al. reported 2 cases of unilateral VKH [5].

The reason for intraocular inflammation restricted to one eye is not clear. Forster et al. reported that even though one eye is involved initially,the fellow eye becomes affected after approximately 1 month 4. Usui et al. stated that his presumed 3 cases of VKH disease were followed for 5-16 years with systemic, clinical, ophthalmologic and laboratory investigations with no intraocular inflammation in the fellow eye3. Therefore a long term follow up is required to understand the condition of the fellow eye.

Early bilateral involvement with minimal inflammation in the other eye is a possibility in our case, because our patient didn't have Indocyanine Green Angiography (ICG) at the initial examination. Cimino et al. reported that ICG angiography is more sensitive than routine fundus examination and Fluorescein fundus angiography for detecting choroidal inflammation [6].

It is plausible that systemic corticosteroid treatment was started before the disease could develop in the fellow eye and that administration of cortico steroid prevented the development of the ocular inflammation in the fellow eye[3].

Our case revealed that clinical and extraocular manifestation can be typical of VKH disease, except for the unilateral involvement. It is important for the Ophthalmologists to recognize unilateral VKH disease even though it is a rare clinical variant of the disease and this variant should also be managed with systemic cortico steroids similar to VKH with bilateral ocular involvement[3].

References:

1. Rao P. Kumar, Rao Narsing A, et al. Vogt-Koyanagi-Harada Disease. Retina 2006;1:1827-1837.
2. Kouda N, Sasaki H, Harada S, Yamada Y, Takashashi N, Sasaki K, et al.Early manifestation of Vogt Koyanagi Harada disease as unilateral posterior scleritis. Jpn J Ophthalmol 2002;46:590-593.
3. Usui Y, Goto H, Sakai J, Takeuchi M, Usui M, Rao NA, et al. Presumed Vogt Koyanagi Harada disease with unilateral ocular involvement: Report of 3 cases. Graefes Arch Clin Exp Ophthalmol 2009;247:1127-1132.
4. Forster DJ, Green RL, Rao NA, et al. Unilateral manifestation of Vogt-Koyanagi- Harada syndrome in a 7 year old child. Am J Ophthalmol 1991;111:380-382.
5. Agarwal A, Biswas J, et al. Unilateral Vogt-Koyanagi-Harada disease: Report of 2 cases. Mid East African J Ophthalmol 2011;18:82-84.
6. Cimino L, Auer C, Herbort CP, et al. Sensitivity of indocyanine green angiography for the follow-up of the active inflammatory choriocapillaropathies. Ocul Immunol Inflamm 2000;8:275-283.

Thinking Beyond Iop in Glaucoma: Two Case Reports

Zakia Wadud[1], Farzana Sohel[2], Syeda Shahanara Arju[3], Arifur Rahman[4]

Abstract:

Introduction:

Glaucoma is a well-established complication following corneal transplant procedures. In addition, corneal surgeries that alter the corneal thickness and curvature represent a challenge for IOP measurement and establishment of a diagnosis of glaucoma.

Observation:

Case 1: A young male presented with decrease of vision following LASIK. IOP in his affected eye was low. He had advanced field loss on Humphrey visual field analysis. He was on topical steroid since he had LASIK.

Case 2: A middle-aged female came for routine ophthalmic examination. She had undergone descemet stripping endothelial keratoplasty (DSEK) on both eyes for Fuch's endothelial dystrophy. IOP was high in both eyes. Visual fields were normal in both eyes. She was on two antiglaucoma medications.

Discussion:

Diagnosis of glaucoma is often erroneously made or excluded on the basis of IOP findings. We present two cases who pose diagnostic dilemma. These two cases are being reported to highlight the fact that recording IOP by GAT is often inaccurate in these cases.

Conclusion:

IOP is only one of the components of glaucoma diagnosis. Clinicians should not rely solely on IOP measurements for the diagnosis of glaucoma. Thorough and meticulous examination of the optic disc, nerve fiber and visual fields can prevent irreversible visual loss.

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Case Report:

Case 1:

A 23 year old male presented with the complaint of decrease of vision in the left eye (LE) for four months. He had undergone LASIK in both eyes for myopic refractive error five months back. He was on topical steroids in the LE since undergoing the LASIK procedure.

On examination, right eye (RE) was normal. In the LE unaided VA was CF 3m, improving to 6/12 with pinhole. There was central corneal edema. The rest of the anterior segment was normal. Optic disc examination revealed 0.4:1 cupping with healthy NRR and 0.9:1 cupping with bipolar notching in RE and LE respectively. IOP was 15mmHg in RE and 12mmHg in LE. Humphrey visual field analysis revealed normal visual fields in the RE and biarcuate scotoma with fixation threat in the LE. He was started on a combination of topical timolol and brimonidine combination twice daily in the LE.

After three weeks, his unaided VA was restored to 6/18, improving to 6/12 with pinhole. The corneal edema was resolved and IOP was 14mmHg in the RE and 8mmHg in the LE.

Case 2:

A 70 year old female presented for routine ophthalmic examination. She was diagnosed as a case of Fuch's endothelial dystrophy. She had first undergone endothelial keratoplasty with phacoemulsification on her LE in 2007 and in her RE in 2009. Due to subsequent failure of the graft in her LE she underwent descemet stripping endothelial keratoplasty (DSEK) twice again. When seen, she was on topical steroids, timolol and brimonidine combination and brinzolamide eye drops in both eyes.

On examination, her unaided VA was 6/12 and 6/18, improving to 6/9 and 6/12 with pinhole in her RE and LE respectively. Anterior segment findings were essentially normal with open angles on gonioscopy in both eyes. Optic disc examination revealed 0.5:1 cupping with healthy NRR in both eyes. IOP was 21 mmHg and 20 mmHg in RE and LE respectively. Humphrey visual field analysis revealed normal visual fields in both eyes. Central corneal thickness was 660 μm in both eyes. As her optic discs and fields were both normal she was advised to stop antiglaucoma medications. In view of her failed grafts in her LE she chose to continue medication in her LE but to discontinue it in her RE.

Discussion

LASIK surgery for myopia is a common refractive surgical procedure. DSEK has become a popular technique for the treatment of corneal endothelial dysfunction. Both of these procedures alter the biomechanical signature of the cornea, posing additional challenges in the diagnosis of glaucoma and intraocular pressure monitoring in this group of patients. The measurement of intraocular pressure (IOP) in patients with corneal abnormalities is problematic because of the effect of corneal thickness and curvature on measurement techniques1. Glaucoma or ocular hypertension may coexist in patients with structurally abnormal corneas such as Fuch's endothelial dystrophy and in patients who have undergone penetrating keratoplasty or refractive surgery[2].

In general, post-keratoplasty glaucoma is defined on the basis of elevated IOP, with or without associated visual field loss or optic nerve changes[2,3]. In most studies, IOP is used as the main criteria because the structural and functional changes are difficult to assess both pre and post operatively. Our second case was diagnosed as having glaucoma on the basis of IOP only.

Intraocular pressure (IOP) elevation is reported to be a common complication after DSEK[4,5]. It can occur both early and late in the postoperative period following corneal transplantation. Possible causes of increased IOP after DSEK include steroid use, retained viscoelastics, inflammation, peripheral anterior synechia (PAS), damage to the trabecular meshwork, and distortion of the angle[6,7].

In the absence of angle distortion, prolonged use of steroid is an important cause of late IOP elevation following DSEK. The use of topical steroids to prevent graft rejection poses a dilemma. In one study it has been shown that the risk of elevated IOP increases with duration of topical steroid use1, whereas other studies suggest that prolonged topical steroid use may significantly reduce the risk of graft rejection[8,9]. Prolonged use of topical steroid may be the cause of ocular hypertension in the second case.

Refractive surgery patients are often moderate-to-high myopic, who may have a higher predisposition

to the development of primary open angle glaucoma (POAG), pigmentary glaucoma, and steroid-induced glaucoma. Post-LASIK corneal haze may be due to diffuse lamellar keratitis (DLK) or fluid collection in the flap interface secondary to increased IOP from steroid drops. Erroneously diagnosing these patients as having DLK, and then treating them with more steroids would worsen the situation. In our first case use of prolonged topical steroids was aimed at treating DLK.

In clinical use, GAT remains a gold standard for measurement of IOP. It is, however, calibrated for a mean corneal thickness of 520 ?m and is known to be influenced by a number of factors including central corneal thickness (CCT)[10.11] corneal hydration and corneal curvature. GAT tends to underestimate IOP in eyes with thin CCT and overestimate IOP in eyes with thick CCT.

Even after corneal edema has resolved, the cornea is much thicker after DSEK than a normal cornea, because of the addition of the thickness of the donor graft. The average corneal thickness of the cornea following DSEK is reported to be 690 ± 77 ?m[12].

Similarly, the measurement of IOP after corneal refractive surgery may not be accurate because of changes in central corneal thickness. Corneal ablative procedures decrease CCT and alter biomechanical properties of the cornea resulting in spuriously low IOP measurement7. No reliable nomograms to estimate the effects of refractive surgery on corneal dynamics and IOP exist. Tonometers, less likely to be influenced by corneal properties, may be a better option. However, tonometry is only part of the diagnostic workup. Clinicians cannot rely solely on IOP. Glaucoma is a diagnosis made on careful optic disc exam, nerve fiber exam and visual fields and imaging studies.

Lack of awareness that GAT readings can be artificially altered in post-LASIK eyes or elevated in post-keratoplasty eyes can lead to misdiagnosis and inappropriate treatment resulting in irreversible loss of vision or overtreatment.

References:

1. Doughty MJ, Zaman ML. Human corneal thickness and its impact on intraocular pressure measures: a review and meta-analysis approach. Surv Ophthalmol. 2000; 44:367-408.
2. Ayyala RS. Penetrating keratoplasty and glaucoma. Surv Ophthalmol. 2000; 45:91-105.
3. Brandt JD, Lim MC, O'Day DG. Glaucoma after penetrating keratoplasty. In: Krachmer JH, Mannis MJ, Holland EJ, eds. Cornea. 2nd ed. vol. 2. Philadelphia, PA: Elsevier Mosby; 2005:1575-9.)
4. Y uki K, Shimmura S, Shiba D, Tsubota K. Trabeculotomy for the treatment of glaucoma after Descemet stripping endothelial keratoplasty. Br J Ophthalmol. 2008; 92:1299-300.
5. Vajaranant TS, Price MO, Price FW, Gao W, Wilensky JT, Edward DP. Visual acuity and intraocular pressure after Descemet's stripping endothelial keratoplasty in eyes with and without preexisting glaucoma. Ophthalmology. 2009; 116:1644-50.
6. Naoki Ozeki, Kenya Yuki,et al. Intraocular pressure elevation after Descemet's stripping endothelial keratoplasty. Japanese Journal of Ophthalmology. Published online: 30 May 2012
7. Ammar M. Al-Mahmood, Samar A. Al-Swailem, and Deepak P. Edward. Review Article Glaucoma and Corneal Transplant Procedures. Journal of Ophthalmology. Volume 2012.
8. Allan BD, Terry MA, Price FW Jr, et al. Corneal transplant rejection rate and severity after endothelial keratoplasty. Cornea. 2007; 26:1039-42.
9. Nguyen NX, Seitz B, Martus P, et al. Long-term topical steroid treatment improves graft survival following normal-risk penetrating keratoplasty. Am J Ophthalmol. 2007; 144:318-9.
10. Brandt JD. Corneal thickness in glaucoma screening, diagnosis, and management. Curr Opin Ophthalmol. 2004; 15:85-89.
11. Garway-Heath D, Kotecha A, Lerner F, et al. Measurement of intraocular pressure. In: Weinreb R, Brandt JD, Garway-Heath D, et al, eds. Intraocular Pressure. The Hague: Kugler Publications; 2007.
12. M. O. Price and F. W. Price, "Descemet's stripping with endothelial keratoplasty. Comparative outcomes with microkeratome-dissected and manually dissected donor tissue," Ophthalmology. Vol. 113, no. 11, pp. 1936-1942, 2 006.

Pseudotumor Cerebri in Children: A Case Report

Tanuja Tanzin[1], Asma ferdousi[2]

Pseudo tumor cerebri (PTC),also known as Idiopathic intracranial hypertension (IIH) is traditionally a disease of middle-aged, obese women and presents with symptoms of raised ICP, such as headache, pulsatile tinnitus, transitory visual obscurations and diplopia. It also occurs in children and adolescents.

The aim of the present paper is to report a case of idiopathic intracranial hypertension occurring among paediatric patients in terms of clinical presentation, associated ophthalmological abnormalities, radiological findings and prognosis of the disease following treatment.

Introduction:

Pseudo tumor cerebri is a perplexing syndrome of increased intracranial pressure (ICP) with-out space occupying lesion1. More than 100 years after its original description by Quinckne,it is still a poorly understood condition.The neuroimaging shows normal ventricles and often an empty sella2. Although this condition is known as 'benign intracranial hypertension'(BIH) it is not truly benign in that there is the potential for permanent visual loss. The papilloedema and visual deficits associated with IIH are an ophthalmologic emergency and require prompt evaluation and treatment3-6.

The exact pathophysiological mechanism for IIH is still unknown. Suggested mechanisms have included increased CSF production, decreased CSF absorption at the level of the arach-noid granulations, or increased cerebral venous pressur7-10.

IIH is common in adults, particularly obese young women, but also occurs in children and adolescents. Clinical presentation in the paediatric population may be different from those seen among adult patients11.

Patients more often present with symptoms reflecting generalized increased ICP. Common initial complaints include headache and visual disturbances including diplopia or blurred vi-sion12-14.

We report a unique case of Pseudotumor cerebri which presented with left sided oculomotor nerve palsy with sparing of papillary fibres along with right abducent nerve palsy and empty sella which responded with oral acetazolamide.

Case Report:

A 12 years old girl hailing from Karnaphuli,Chittagong was admitted into Chittagong General Hospital with the complaints of fever,vomiting and severe headache for six days.Over the next three days she developed double vision and mild drooping of the left upper lid.She was treated for fever,vomiting and headache by the local physician with oral ciprofloxacin. Few days later as her condition deteriorated, she got admitted into Hospital for further man-agement.

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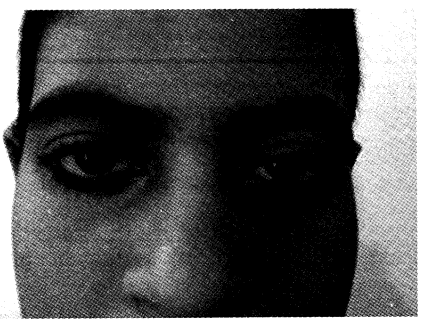
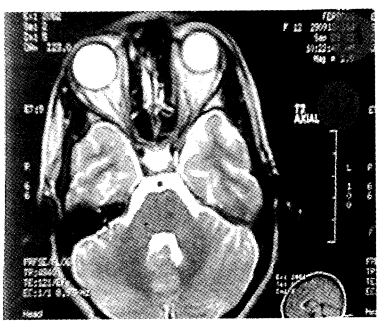
On query, there was no other complaints like aural discharge, known congenital heart disease or head injury. After admission she was treated with oral Azithromycin and was referred to the ophthalmologist to evaluate her eye problems.

On examination, patient was conscious and alert; vitals were normal. The patient's body mass index was 20.28 for her weight and height. Blood pressure was 90/70, taken in left upper limb in supine position with appropriate sized cuff. Both of her tympanic membranes were intact, and there was no evidence of bulging or discharge. She did not have neck rigidity and Kernig and Brudzinski signs were negative. Manual muscle testing in all extremities was 5/5, and deep-tendon reflexes were all 2/4. Babinski reflexes were downward bilaterally. Sensation was intact to pain and soft touch. Her cerebellar function was intact, as was gait. Findings of an examination of her lungs, heart, and abdomen were benign.

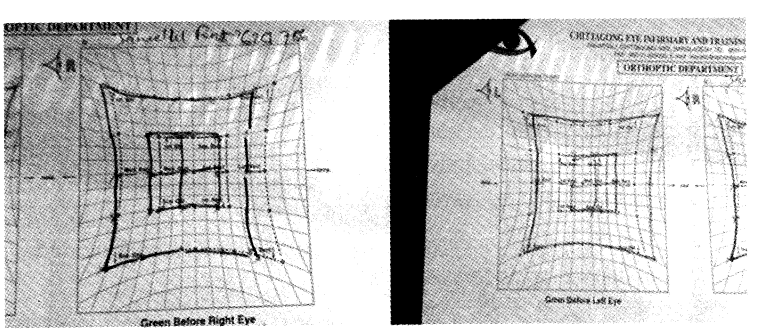


Front view,showing mild ptosis Left eye

MRI of Brain showing Empty Sella



Fundus Photo showing paplledema Left eye



Hess Test showing Right lateral rectus palsy

Complete blood count and ESR were normal for her age. The other causes of PTC eg. VDRL, viral, bacterial were excluded on clinical ground.

Immediately, MRI of brain was done which reported normal ventricles with empty sella. The CSF pressure could not be measured as facilities did not permit.

Based on the history, clinical presentation and radiological findings we diagnosed the case as paediatric Pseudo tumour cerebri or Idiopathic Intracranial Hypertension. We started the treatment initially with Acetazolamide (1 tab tds) orally. Immediately after treatment her symptoms started to improve.

She was then discharged with above mentioned medications and advices with referral knowl-edge.

On 10th day follow up, her visual acuity was 6/6 for eyes, no headache but diplopia persisted. Fundus examination revealed mild papilledema with blur optic disc margins. At this point the dose of Acetazolamide was reduced (1 tab bd).

After 1 month, the visual acuity remains same and diplopia was absent. Fundus showed nor-mal findings with clear optic disc margins. Oral acetazolamide was stopped thereafter.

Discussion:

Children can present with typical symptoms and signs of IIH. Female are commonly affected than males, with age prevalence for those above 10 years. Recent study proves that idiopathic intracranial hypertension differs from younger children than in older ones, without sex predi-lection15,16. Genizi et al. showed a wide-scale meta-analysis of childhood-onset idiopathic intracranial hypertension and revealed that the female/male ratio in children younger than age 11 years seems to be fairly equal, with a relatively low rate of obesity, contrasting to a major-ity of females in the group of adolescents at high risk to become obese.

Unilateral or bilateral lateral rectus palsy is a non localizing sign of increased intracranial pressure.There has been few reported case of oculomotor nerve palsy being associated with PTC. Visual acuity can be saved only if proper early management is done.

Takanashi et al. has reported that there is an increased incidence of intracranial hypertension and ESS, and there are several manifestations that result such as headaches, vision distur-bances and papilledema. Takanashi , in his retrospective review of 354 patients with T1 weighted MRI, made a diagnosis of ESS and showed that Reduction in ICP is necessary and contributes to more favorable outcomes for better treatment. Here in our case the MRI re-ported Empty Sella Syndrome . It is interesting to note that when an empty sella is seen in the context of IIH, successful treatment of the condition has been reported to result in resolution of the empty sella,with the pituitary region a larger more normal size17.

According to Mayo Clinic, Pseudotumor cerebri treatment typically begins with medications to control the symptoms. Weight loss is recommended for obese individuals. Acetazolamide can lower pressure by reducing CSF production. Other agents similar to Acetazolamide, such as Neptazane (methazolamide), may produce fewer side effects but may not be as effective. Diuretics, such as Lasix, may also be prescribed. Steroids (prednisone or dexamethasone) have been used to protect the optic nerve but have limited long term use and may produce significant side effects.

Hisham et al showed out of ten patients, nine patients recovered completely on medical ther-apy and repeated lumbar tap. One patient had a high intracranial pressure resistant to conser-vative methods and necessitated an insertion of a thecoperitoneal shunt. In our case the pa-tient recovered completely only with actazolamide orally.

Maira et al. has suggested that CSF shunt creation (either lumboperitoneal, ventriculoperito-neal, or ventriculoatrial) is the most effective means. In Maira's study, the shunt creation re-sulted in complete resolution of headache and papilledema, as well as improvement in vision in all patients except one. Indications for surgery include severe headaches, papilledema and visual disturbances.

PTC has a rare, known association with members of the fluoroquinolone family of drugs. It was first reported with nalidixic acid , the prototype drug of quinolone antibiotics. In 1966, a nine-year-old girl, hospitalized after an automobile injury resulting in multiple fractures, de-veloped minimal papilledema while receiving nalidixic acid for a urinary tract infection; papilledema disappeared when the drug was discontinued.

Here in our case the patient was treated with tab.Ciprofloxacin 500 mg bd for 2 days, which was discontinued after hospitalization.So the probability cannot be neglected as we could not rule out the

the rarity of ciprofloxacin-induced PTC, patients and physicians should be aware of this possibility as it is a widely used drug.

Conclusions:

Idiopathic intracranial hypertension occurs among children as it occurs among adults. An ad-ditional rare clinical presentation that is unilateral partial oculomotor nerve palsy with sparing of papillary fibres can also present in children. The present case is unique due to rare associa-tion of transient partial occulomotor palsy with pseudo tumour cerebri. Some etiology like menarche,oral ciprofloxacin for development of PTC cannot be excluded.CSF study should be done here. More advanced investigations could done here to exclude other etiology. It is interesting to note that when an empty sella is seen in the context of IIH, successful treatment of the condition can be done. Visual acuity can be saved only if proper early management is done.

Abbreviations:

IIH- Idiopathic Intracranial Hypertension

BIH- Benign Intracranial Hypertension

ESS- Empty Sella Syndrome

PTC- Pseudo Tumour Cerebri

VDRL- Veneral Disease Research laboratory

References:

1. Fredman DI.Pseudtumor cerebri.Neurol Clin N Am 2004;22:99
2. Kanski JJ,Clinical Ophthalmology.Idiopathic Intracranial Hyperten-sion. 6th. Philadelphia, USA:Elsevier:2006.
3. Babikian P, Corbett J, Bell W. Idiopathic intracranial hypertension in children: the Iowa experience. J Child Neurol. 1994;9:144-149. [PubMed]
4. Cinciripini GS, Donahue S, Borchert MS. Idiopathic intracranial hypertension in prepubertal pediatric patients: characteristics, treatment, and outcome. Am J Ophthal-mol. 1999;127:178. [PubMed]
5. Distelmaier F, Sengler U, Messing-Juenger M, et al. Pseudo tumor cerebri as an important differential diagnosis of papilloedema in children. Brain Dev. 2006;28:190-195. [PubMed]
6. Wall M. Idiopathic intracranial hypertension. Neurol Clin. 1991;9:73-95. [PubMed]
7. Alperin N, Lee SH, Mazda M, et al. Evidence for the importance of extra cranial venous flow in patients with idiopathic intracranial hypertension (IIH) Acta Neurochir. 2005;95:129-132. (Suppl)
8. Higgins JN, Tipper G, Varley G, et al. Transverse sinus stenosis in benign intracranial hy-pertension demonstrated on CT venography. Br J Neurosurg. 2005;19:137-140. [PubMed]
9. Owler BK, Parker G, Halmagyi GM, et al. Cranial venous outflow obstruction and pseudo tumor cerebri syndrome. Adv Tech Stand Neurosurg. 2005;30:107-174. [PubMed]
10. Rajpal S, Niemann DB, Turk AS. Transverse venous sinus stent placement as treatment for benign intracranial hypertension in a young male: case report and review of the literature. J Neurosurg. 2005;102:342-346. (Suppl) [PubMed]
11. Hisham A, Aboul Enein, Amr F. Abo Khair. Idiopathic Intracranial Hypertension in Chil-dren: Clinical Presentations and Management. Middle East Afr J Ophthalmol. 2008 Jul-Dec; 15(3): 113-116.
12. Lessell S. Pediatric pseudo tumor cerebri (idiopathic intracranial hypertension) Surv Oph-thalmol.1992;37:155. [PubMed]
13. Soler D, Cox T, Bullock P, et al. Diagnosis and mangagement of benign intracranial hy-pertension. Arch Dis Child. 1998. pp. 78-89.
14. Wraige E, Chandler C, Pohl KR. Idiopathic intracranial hypertension: is papilloedema inevitable? Arch Dis Child. 2002;87:223. [PMC free article] [PubMed]
15. Cinciripini GS, Donahue S, Borchert MS. Idiopathic intracranial hypertension in prepu-bertal pediatric patients: characteristics, treatment, and outcome. Am J Ophthal-mol. 1999;127:178. [PubMed]
16. Stiebel-Kalish H, Kalish Y, Lusky M, et al. Puberty as a risk factor for less favorable vis-ual outcome in idiopathic intracranial hypertension. Am J Ophthalmol. 2006;142:279-283. [PubMed]
17. Zagardo MT,Call WS,Kelman SE et al.Reversible empty sella in Idiopathic Intracranial Hypertension :an indicator of successful therapy:AJNR Am J Neuroradiol.17(10):1953-6

Community Based Refractive Error Study in 5-15 years old Bangladeshi Children.

Shawkat Ara Shakoor

Abstract

Purpose: *To assess the magnitude and distribution of refractive error in children of Bangladesh in community settings to plan an effective vision testing program for children in Bangladesh.*

Methods: *A household survey was carried out in the Dhaka city and Kishoregonj district of Bangladesh in the year 2011-12 with a view to identify the children aged 5-15 years with refractive error. Screening, questionnaire administration, Vision testing and refraction of the children using Snellen E chart and retinoscopy by trained interviewers and ophthalmologist at household.*

Result: *In total 1620 households were randomly selected for the survey and eligible respondent was found in 1578 households with the response rates in urban, rural and overall was 95.60%, 99.30%, and 97.40% respectively. Among the 1578 respondents 49% were from rural area and 51% from urban area. Mean (±SD) age of the sample was 9.2 ± 2.7 years. Forty eight percent (763) of the sample were male and 815 (51.6%) were female. The study found only 11.9% children are either not attending school or irregularly attending. The overall all prevalence of myopia in children aged 5-15 years was 3.4% (95% CI: 2.4% - 4.7%) while in the urban children the prevalence was 5.6% (95% CI 4.0%-7.9%) and for rural children tit was 0.4% (95% CI0.1% - 1.3%). Some factors such as exposure to TV viewing and longer study time were higher in children with myopia. The use of visual media and number of it has a increasing effect on myopia. Ten children were identified with low vision and the causes were Retinitis Pigmentosa, corneal scar, Maculopathy, strabismic amblyopia and there is no significant relation of low vision with consanguineous marriage. The prevalence of myopia is also increasing with the increase of wealth index.*

Conclusions: *School eye sight testing should be undertaken as a national program. To further clarify the determinants of the myopia and investigate the causes of urban rural difference, a low vision survey among the nationally representative sample of school going children should be undertaken*

Keywords *Refractive Error, community, CI, Household, Eye sight testing*

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Background:

Refractive errors are common in children and it can place a substantial burden on the individual. School age children constitute a particularly vulnerable group, because uncorrected refractive error may have a dramatic impact on learning capability and educational potential. Blindness due to refractive error can hinder education, personality development and career opportunity. Uncorrected refractive errors are an important cause of visual impairment in children and adults. Most refractive errors are easily treated by appropriate refractive correction. The type and magnitude of refractive error varies from region to region and with age.

Refractive errors, one of the five priority areas of VISION 2020, was selected because they are very common and can be corrected with appropriate pair of glasses that are cheap, effective and associated with a huge functional improvement. There are estimated to be 2.3 billion people world-wide who have refractive errors of one or other variant. In the majority of these individuals vision can be restored with suitable spectacles. Only 1.8 billion have access to eye care services and affordable correction. 500 million people, mostly in developing countries have uncorrected refractive errors leading to severe visual impairment and blindness [Patel, 2001].

Myopia is common in South East Asia and relatively uncommon in African children. Myopia is also common in older children and hypermetropia in younger children1

Refractive errors in children aged 5 to 15 years are an important public health problem. There is scarcity of reliable data on the prevalence and type of refractive errors in children in Bangladesh as previous studies were done mostly in school based small sample. Khan found 8.6% prevalence of refractive error among the rural children of Bangladesh. There was no significant difference of prevalence in male and female. Prevalence of myopia was more (4.2%) than hypermetropia (2.4%) 2. Mannaf et al showed in their study 3.2% and 13.4% prevalence of myopia in rural and urban children of Bangladesh respectively 3. The refractive error prevalence study in urban school children by Sharif MA showed a prevalence of 6.5%. The prevalence increased with age, at 5-7 years prevalence as 3.8%, while at 14-15 years it was 7.78%($p<.001$). No significant difference of refractive error boys and girls ($p<.05$) was noted. 4. In another study Shakoor examined 1911 urban school students of 9-13 years age and revealed overall, corrected and uncorrected refractive error of 9.2%, 6.4% and 2.8% respectively. Prevalence of uncorrected myopia was 2.7% and of hypermetropia 0.1%. Prevalence of myopia increased with age, from 0.4% at 9 years to 4.4% at 12 years. Prevalence was higher in children of affluent parents. Overall spectacle coverage was 70% which was lower in the less affluent school children5 . In 2007 Shakoor again in her study of refractive error in urban and rural school children observed the overall prevalence of corrected, uncorrected and total refractive errors to be 4.3% [95%CI, 3.5 - 5.1], 8.9% [95% CI, 7.7 - 10.1] and 13.15%[95% CI, 11 - 15.30] respectively. In our study we found Prevalence of corrected, uncorrected and total refractive is more in urban school children (8.27%; 11.6%; 19.9%) than the rural children in the school (0.09%, 5.9%, 6%). We found the overall prevalence of uncorrected myopia to be higher in female sample (9.5%) than males (8.2%).6

Purpose:

To assess the magnitude and distribution of refractive error in children of Bangladesh in community settings to plan an effective vision testing program for children in Bangladesh.

Methods:

A household survey was carried out in the Dhaka city and Kishoregonj district of Bangladesh in the year 2011 with a view to identify the children aged 5-15 years with refractive error.

Study population

The target population of the survey was children aged 5-15 years living in Bangladesh while the study population was 5-15 years aged children living in Dhaka city and different areas of kishoregonj district. One selected children of the target age group from the selected household were eligible as study respondent.

Sampling design

For this survey Primary Sampling Units (PSUs) for rural stratum was Mauzas, the smallest revenue rural geographic unit having jurisdiction list number for which census information is available with clear and updated boundaries. For the urban stratum, PSUs based upon Mahalla which is the lowest urban geographic unit having identifiable boundaries. Households in this survey is defined according to BBS as " A dwelling in which persons either related or unrelated living together and taking food from the same kitchen". A Total of 12 PSUs were selected from Dhaka and Kishorganj districts with an equal allocation to urban and rural stratum (six PSUs each to both urban and rural strata). Household selection in the PSU was done by an equal probability systematic selection with required number of households per PSU. If a selected household do not have any children then the adjacent household was selected. Within the selected household one child aged 5 to 15 years was selected randomly by using Kish Table.

Sample size

The survey is designed to produce estimates that meet the following precision requirements:

Estimates computed at the national level, by urban/rural classification, should have a 95% margin of error of 3 percentage points or less for prevalence rate of refractive error 7%. Assuming a design effect of 2.00 and non repose of 10% for estimates computed by urban/rural classification, the minimum sample sizes needed to accommodate these precision requirements are 810 respondents in each of the two groups. This results in a minimum expected respondent sample of 1620. Among the 12 PSUs/SSUs selected, 6 PSUs/SSUs were allocated to urban areas, and 6 were allocated to rural areas. Among the expected 1620 individual interviews, 810 were in urban areas, and 810 were in rural areas. From each PSUs 135 households were selected to get the required number of respondents.

Survey questionnaire

A survey questionnaire was designed by the research team after consultation with relevant experts. The survey questionnaire had two components. The screening component collected information on all usual resident children age 5-15 years in the selected household and collect their basic information to select a random eligible respondent. For all listed household children information on age and sex were collected. Individual questionnaire collected information from the selected children from the selected household. The individual questionnaire had four sections. These sections collected information about the following aspects of the respondents

a. Information on the selects child's parents and household asset and other demographic information
b. Information on schooling and study habit of the child
c. Information on exposure to other media and use of spectacles by respondents and relatives
d. Information from eye examination

Recruitment & training

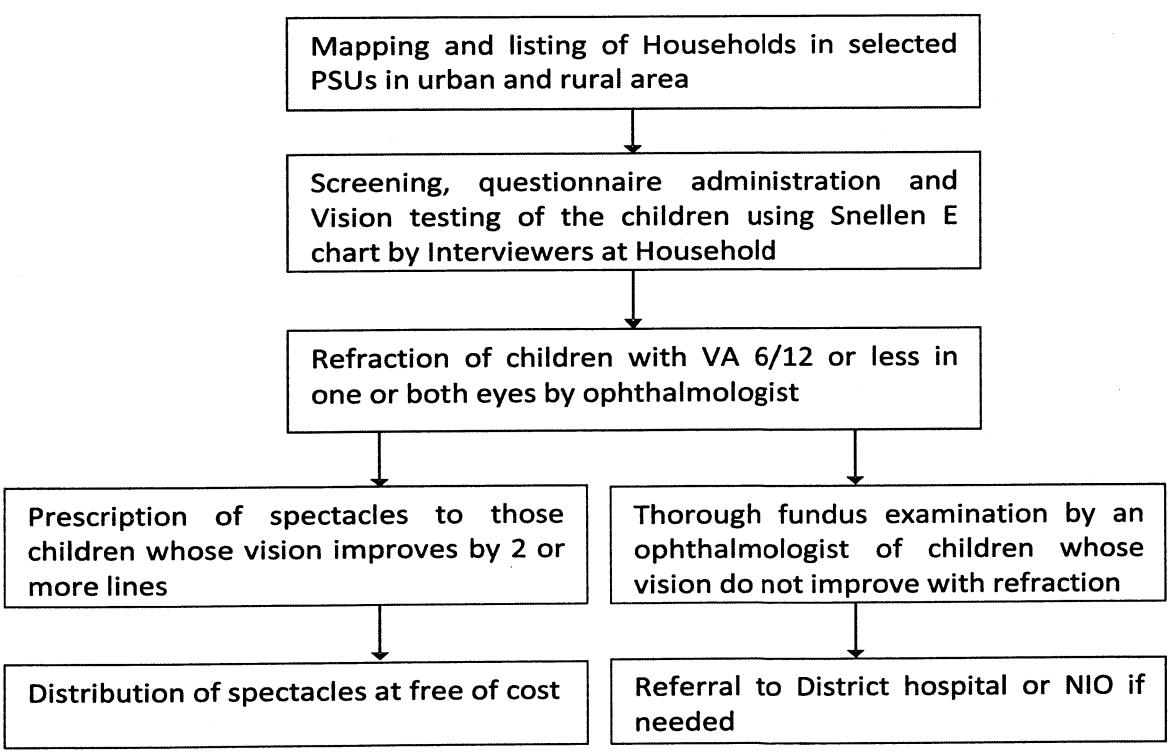
Community Ophthalmology department of National Institute of Ophthalmology and Hospital has implemented the study. Organization for Human Development Initiatives through Research (OHDIR), Foundation a community based NGO and Community Ophthalmology department of NIO has organized the training of the interviewers for questionnaire administration and vision testing, mapping, field level data collection and data management. Six field interviewers, one coordinator and one Project Medical Officer were recruited and trained for fieldwork. A three-day training session was organized by NIO and OHDIR at the NIO conference room. Interviewers were trained on mapping and listing of the selected areas, questionnaire administration and vision testing by Snellen E chart. Project medical officer, a trained ophthalmologist, was also given refreshers training on refraction measurement.

Mapping & fieldwork

Maps of the selected PSU were done by the survey interviewers in July 2011 prior to the fieldwork. Interviewers prepared the map and also done the household listing of 12 selected PSUs. Information on the number of household members was also collected during the listing operation. The household list provided the frame for household sample selection. From each PSU, 135 households were selected by systematically from the list.

Fieldwork was done in July to September 2011. Data collection team consisting six interviewers and one coordinator visited the PSU and did the mapping and listing work. After selection of the household, each interviewer visited the assigned households for questionnaire administration and vision testing. All children aged 5-15 years present on the day of survey in the household had their vision testing done however questionnaire administration for the survey was done only for the selected child. After taking written informed consent of parents or guardians, questionnaire was administered by the interviewers to the parents and also to the selected child. Height, weight and mid upper arm circumference were measured in a standardized method. Then the vision was checked by using Snellen E chart at 6 meter. Cut off level of Visual acuity was 6/12. Visual acuity of the right eye was recorded first, then the left. Each time keeping other eye occluded. Finally the binocular acuity was recorded. In children who wearing spectacles, visual acuity was first recorded unaided then with spectacles. Those who fail to see 6/12 by one or both eye had a repeat visual acuity testing and only those children who fail this repeat procedure in one or both eye was refracted by project medical officer. Retinoscopic refraction followed by subjective refraction was done in a semi dark room with a working distance of 2/3 rd meter. The refractive error, corrected visual acuity and IPD were recorded. Spectacles were prescribed to the children to those in whom visual acuity improved significantly i.e. by 2 or more lines of Snellen Acuity with refraction. Spectacles were distributed free of charge among those children. Children whose vision did not improve by refraction were thoroughly examined by the researcher to find out the cause of reduced vision and were noted. These children were referred to the nearest eye hospital in Kishoregonj General Hospital and if required they were referred to NIO, Dhaka for further consultation.

Figure 1: Flow chart of the fieldwork



Data management and analysis

All the collected data from questionnaire and clinical examination were entered in a database. A logic check was done before analysis. Statistical analyses were done by using window based computer software Statistical Packages for Social Sciences (SPSS-16) (SPSS Inc, Chicago, IL, and USA). The estimates of the prevalence with 95% confidence interval were obtained for rural and urban sample separately. The continuous data were expressed as mean ± SD. The categorical data were expressed as number and percentage and were compared via the Chi-square test or Fischer exact test. Two tailed $P < 0.05$ was considered significant.

Result:

Sample and population characteristics

The overall study period was January to December 2011 and field work was conducted during the period of July to September 2011. Field data collection was done in two districts, Kishoreganj and Dhaka. Sadar and Bajitpur thana of Kishoreganj and Mirpur thana of Dhaka were selected as urban areas while, areas selected from Pakundia, Mithamain, Tarail, Hosenpur, Karimganj and Kuliarchar of Kishoreganj district were considered as rural.

In total 1620 households were selected for the survey and eligible respondent was found in 1578 households with the response rates in urban, rural and overall was 95.60%, 99.30%, and 97.40% respectively. Individual Response Rate among the respondents in urban, rural and overall was 100% (Table 1). Among the 1578 respondents 49% were from rural area and 51% from Urban areas (Table 2)

The distributions of the age of the respondents are shown in Table 3. Among the respondents 33.9 % were in the age group of 5 to 7 years, 43.7 % were in the age group of 8 to 11 years and rest 22.4 % were in the age group of 12 to 15 years. Among the urban respondents 37.2% were in the age group of 5 to 7 years, 41.5% were in the age group of 8 to 11 years and rest 21.3% were in the age group of 12 to 15 years. Among the rural respondents 29.6 % were in the age group of 5 to 7 years, 46.6 % were in the age group of 8 to 11 years and rest 23.8 % (CI, were in the age group of 12 to 15 years.

Mean (±SD) of the age among urban rural and overall were 9.1 ± 2.8, 9.3 ± 2.6 and 9.2 ± 2.7 years respectively

Table 1: Number and percent of Household and Individuals interviewed and response rate by residence

	Residence					
	Urban		Rural		Total	
	Number	Percent	Number	Percent	Number	Percent
Selected Household						
Completed (HC)	774	95.6	804	99.3	1578	97.4
Not Eligible to answer (HNE)	1	0.1	0	-	1	0.1
No Screening respondent (HNS)	33	4.1	6	0.7	39	2.4
Refused (HR)	1	0.1	0	-	1	0.1
Others (HO)	1	0.1	0	-	1	0.1
Total Households Selected	810	100	810	100	1620	100
Household Response Rate[1]	*95.60%*		*99.30%*		*97.40%*	
Selected Individual						
Completed (PC)	774	100	804	100	1578	100
Individual Response Rate	*100%*		*100%*		*100%*	
Total Response Rate	*95.6%*		*99.3%*		*97.4%*	

Table 2: Distribution of the respondents by resident

Locality	Frequency	Percentage
Urban	774	49.0
Rural	804	51.0
Total	**1578**	**100.0**

Table 3: Distribution of the age of the respondents

Age g roup	Urban Percentage	Rural Percentage	Total Percentage
05-07 years	37.2	29.6	33.9
08-11 years	41.5	46.6	43.7
12-15 years	21.3	23.8	22.4
Mean (±SD)	**9.1 ± 2.8**	**9.3 ± 2.6**	**9.2 ± 2.7**

Table 4 shows that out of 1578 respondents 763 (48.4%) were male and 815 (51.6%) were female. Among the respondents 515 (32.6%) were in the age group of 5 to 7 years, 515 (32.6%) were in the age group of 8 to 11 years and rest 385 (24.4%) were in the age group of 12 to 15 years. Among the male 266 (34.9%) were in the age group of 5 to 7 years, 321 (42.1%) were in the age group of 8 to 11 years and rest 176 (23.1%) were in the age group of 12 to 15 years. Among the female 249 (30.6%) were in the age group of 5 to 7 years, 357 (43.8%) were in the age group of 8 to 11 years and rest 209 (25.6%) were in the age group of 12 to 15 years.

Table 5 shows the distribution of the respondents by age group and sex according to the residence. Out of 1578 respondents, 774 were from urban and 804 were from rural. Among the urban respondents, 380 were male and 394 were female. Among the male 136 (35.8%) were in the age group of 5 to 7 years, 151 (39.7%) were in the age group of 8 to 11 years and rest 93 (24.5%) were in the age group of 12 to 15 years. Among the female 135 (34.3%) were in the age group of 5 to 7 years, 166 (42.1%) were in the age group of 8 to 11 years and rest 93 (23.6%) were in the age group of 12 to 15 years. Among the rural respondents, 383 were male and 421 were female. Among the male 130 (34.9%) were in the age group of 5 to 7 years, 170 (42.1%) were in the age group of 8 to 11 years and rest 83 (23.1%) were in the age group of 12 to 15 years. Among the female 114 (27.1%) were in the age group of 5 to 7 years, 191 (45.4%) were in the age group of 8 to 11 years and rest 116 (27.6%) were in the age group of 12 to 15 years

Table 4: Distribution of the sex of the respondents by age group

Age group	Male n (%)	Female n (%)	Total n (%)
05-07	266 (34.9)	249 (30.6)	515 (32.6)
08-11	321 (42.1)	357 (43.8)	678 (43.0)
12-15	176 (23 .1)	209 (25.6)	385 (24.4)
Total	**763 (100.0)**	**815 (100.0)**	**1578 (100.0)**

Table 5: Distribution of the respondents by age group and sex by residence

Age group	Urban			Rural		
	Male	Female	Total	Male	Female	Total
05-07	136 (35.8)	135 (34.3)	271 (35.0)	130 (34.9)	114 (27.1)	244 (30.3)
08-11	151 (39.7)	166 (42.1)	317 (41.0)	170 (42.1)	191 (45.4)	361 (44.4)
12-15	93 (24.5)	93 (23.6)	186 (24.0)	83 (23.1)	116 (27.6)	199 (24.6)
Total	**380 (100.0)**	**394 (100.0)**	**774 (100.0)**	**383 (100.0)**	**421 (100.0)**	**804 (100.0)**

*Figure in the parenthesis indicate corresponding percentage

Household information

Information on parental educational level and their household assets were collected for the purpose of categorizing respondent's socio- economic status and to see whether these have any relation to low vision.

The wealth index was constructed using principal component analysis. Asset information was collected with the survey questionnaire and covered information on household ownership of a number of items. Each asset was assigned a weight (factor score) generated through principal components analysis, and the resulting asset scores were standardized in relation to a normal distribution with a mean of zero and standard deviation of one. Each household was then assigned a score for each asset, and the scores were summed for each household; individuals were ranked according to the total score of the household in which they resided. The sample was then divided into quintiles from one (lowest) to five (highest). A single asset index was developed for the whole sample; indices were not prepared for urban and rural populations separately. Table 6 shows the distribution of the respondents by wealth quintile.

According to the wealth index the survey population is found to be equally distributed in all five wealth quintiles from lowest to highest. As a whole all respondents were evenly distributed by wealth quintile and lowest, low, middle, high and highest 313 (19.8%), 314 (19.9%), 324 (20.5%), 299 (18.9%) and 328 (20.8%) respectively. Among the urban respondents lowest, low, middle, high and highest were 3 (0.4%), 27 (3.59%), 150 (19.4%), 270 (34.9%) and 324 (41.9%) respectively. Among the rural respondents lowest, low, middle, high and highest were 310 (38.6%), 287 (35.7%), 174 (21.6%), 29 (3.6%) and 04 (0.5%) respectively

Table 6: Distribution of the respondents by wealth quintile

Wealth quintile	Urban n (%)	Rural n (%)	Total n (%)
Lowest	03 (0.4)	310 (38.6)	313 (19.8)
Low	27 (3.5)	287 (35.7)	314 (19.9)
Middle	150 (19.4)	174 (21.6)	324 (20.5)
High	270 (34.9)	29 (3.6)	299 (18.9)
Highest	324 (41.9)	04 (0.5)	328 (20.8)
Total	774 (100.0)	804 (100.0)	1578 (100.0)

Educational information

Educational status may have relationship with refractive error. This information was collected using the survey questionnaire. Table 7 shows the distribution of respondents by regularity of schooling.

Table 7 : Distribution of respondents by regularity of schooling

Regularity of schooling	Urban n (%)	Rural n (%)	Total n (%)
Regular	707 (91. 3)	682 (84.8)	1389 (88.0)
Irregular	01 (0.1)	07 (0.9)	08 (0.5)
Not going to school (< one year)	04 (0.5)	17 (2.1)	21 (1.3)
Not going to school (> one year)	10 (1.3)	22 (2.7)	32 (2.0)
Never gone to school	52 (6.7)	76 (9.5)	128 (8.1)
Total	774 (100.0)	804 (100.0)	1578 (100.0)

Refraction

Refraction was done and interpupillary distance (IPD) and spherical equivalent for respondent with refractive error were measured. The distribution of the refractive error of the respondents is shown in Table 8. Out of 1578 respondents 1522 (96.5%) have normal vision, vision of 46 (2.9%) respondents improved with refraction and vision of 10 (0.6%) not improved with refraction. Among the urban respondents 727 (93.9%) have normal vision, vision of 43 (5.6%) respondents improved with refraction and vision of 04 (0.5%) not improved with refraction. Among the rural respondents 795 (98.9%) have normal vision, vision of 3 (0.4%) respondents improved with refraction and vision of 6 (0.7%) not improved with refraction. Overall prevalence of refractive error, Myopia among the Bangladeshi children aged 5 to 15 years was 3.4 (95% CI, 2.4, 4.7). Prevalence of refractive error, Myopia among the urban and rural Bangladeshi children aged 5 to 15 years were as 5.6 (95% CI, 4.0, 7.9) and 0.4 (95% CI, 0.1, 1.3) respectively

Table 8: Distribution of the refractive error of the respondents

Vision	Urban n (%)	Rural n (%)	Total n (%)
Normal Vision	727 (93.9)	795 (98.9)	1522 (96.5)
Vision Improved with Refraction	43 (5.6)	03 (0.4)	46 (2.9)
Not Improved with Refraction	04 (0.5)	06 (0.7)	10 (0.6)
Total	774 (100.0)	804 (100.0)	1578 (100.0)
Prevalence of refractive error , Myopia (95%CI)	**5.6 (4.0, 7.9)**	**0.4 (0.1, 1.3)**	**3.4 (2.4, 4.7)**

The mean ±SD of IPD of the respondents was 60.30 ± 3.20 mm.

Table 9 shows the distribution of spherical equivalent of the respondents. Out of 46 respondents with Myopia 8 (17.4%) had spherical equivalent up to -1, 22 (47.8%) had spherical equivalent -1 to -2, 8 (17.4%) had spherical equivalent -2 to -3, 7 (15.2%) had spherical equivalent -3 to -4 and 1 (02.2%) had spherical equivalent -4 to below. Among the 43 urban respondents with refractive error 7 (16.3%) had spherical equivalent up to -1, 21 (48.8%) had spherical equivalent -1 to -2, 8 (18.6%) had spherical equivalent -2 to -3, 7 (16.3%) had spherical equivalent -3 to -4 and 01 (02.2%) had spherical equivalent -4 to below. Among the 3 rural respondents with refractive error 1 (33.3%) had spherical equivalent up to -1, 1 (33.3%) had spherical equivalent -1 to -2 and 1 (33.3%) had spherical equivalent -4 to below.

Table 9: Distribution of respondents by spherical equivalent with refractive error

Spherical Equivalent	Urban	Rural	Total
Up to -1	07 (16.3)	1 (33.3)	08 (17.4)
-1 to -2	21 (48.8)	1 (33.3)	22 (47.8)
-2 to -3	08 (18.6)	-	08 (17.4)
-3 to -4	07 (16.3)	-	07 (15.2)
-4 to below	-	1 (33.3)	01 (02.2)
Total	**43 (100.0)**	**3 (100.0)**	**46 (100.0)**

Myopia and its associated factors:

Associations of Myopia with some of the factors were investigated. Relationship between study time in a week and spherical equivalent was investigated by cross tabulation. Table 10 shows the distribution of the respondents by spherical equivalent and study time

Table 10 : Distribution of the respondents by Myopia and hours of reading

Hour of reading	Urban		Rural	
	No Myopia	Myopia	No Myopia	Myopia
Up to 20	71 (9.7)	-	139 (17.4)	1 (33.3)
21-40	300 (41.0)	10 (23.3)	320 (40.0)	-
41-60	257 (35.2)	17 (39.5)	256 (32.0)	1 (33.3)
61-80	97 (13.3)	15 (34.9)	84 (10.5)	1 (33.3)
81 or above	6 (0.8)	1 (2.3)	2 (2.0)	-
Total	**731 (100.0)**	**43 (100.0)**	**801 (100.0)**	**3 (100.0)**

*Figure in the parenthesis indicate corresponding percentage

Table 11 shows the distribution of respondents by refraction error and TV watching more or less than 12 hours. Chi squared equals 1.328 with 1 degree of freedom. Although the prevalnec of refraction was higher in the group with more the 12 hours of TV watching (56.8% vs. 43.2%) , the two-tailed P value equals 0.2492. The association between refraction error and TV watching more or less than 12 hours groups is considered to be not statistically significant.

Table 11 : Distribution of respondents by refraction error and TV watching more or less than 12 hours

TV watch	RE –	RE+	Total
TV watched up to 12 hrs	576 (52.0)	19 (43.2)	595 (51.7)
TV watched more than 12 hrs	531 (48.0)	25 (56.8)	556 (48.3)
Total	**1107 (100.0)**	**44 (100.0)**	**1151 (100.0)**

*Figure in the parenthesis indicate corresponding percentage

It was found that the prevalence of myopia increases with Increasing study time. The more is the prevalence with more study hours. (Table 12)

Table 12: Distribution of the respondents by sph equivalent and Study Time

Sph Equivalent	Study Time				
	Up to 20	21-40	41-60	61-80	81+
Up to -1	0 (0.0)	2 (20.0)	4 (22.2)	2 (12.5)	0 (0.0)
-1 to -2	0 (0.0)	6 (60.0)	9 (50.0)	6 (37.5)	1 (100.0)
-2 to -3	0 (0.0)	0 (0.0)	2 (11.1)	6 (37.5)	0 (0.0)
-3 to -4	0 (0.0)	2 (20.0)	3 (16.7)	2 (12.5)	0 (0.0)
-4 to below	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Total	**1 (100.0)**	**10 (10 0.0)**	**16 (100.0)**	**16 (0.0)**	**1 (100.0)**

*Figure in the parenthesis indicate corresponding percentage

Table 13 shows the distribution of the respondents by Sph Equivalent and number of visual media use. Out of 46 respondents with refractive error 23 use two visual media, 14 use one media, 7 use three media and 2 use no media.

Table 13: Distribution of the respondents by Sph Equivalent and number of visual media use

Sph Equivalent	No use of visual media	One	Two	Three
Up to -1	0 (0.0)	3 (21.4)	4 (17.4)	1 (14.3)
-1 to -2	0 (0.0)	7 (50.0)	11 (47.8)	4 (57.1)
-2 to -3	0 (0.0)	3 (21.4)	3 (13.0)	2 (28.6)
-3 to -4	1 (50.0)	1 (7.1)	5 (21.7)	0 (0.0)
-4 to below	1 (50.0)	0 (0.0)	0 (0.0)	0 (0.0)
Total	**2 (100.0)**	**14 (100.0)**	**23 (100.0)**	**7 (100.0)**

The vision of 10 respondents did not improve with refraction and had undergone dilated fundus examination. The reasons of reduced vision identified were corneal scar(2;20%), RP (4, 40.0%) and maculopathy (2,20%). One diagnosed strabismic amblyopia and another one had trauma.

Table 14 shows the relationship of wealth index and myopia. 83.7% of the myopic children represent highest, 14.0 % higher wealth index families.

Table 14: Relationship of wealth index and Myopia

Wealth index	Urban		Rural	
	No Myopia	Myopia	No Myopia	Myopia
Lowest	3 (0.4)	-	306 (38.5)	1 (33.3)
Low	27 (3.7)	-	285 (35.8)	1 (33.3)
Middle	148 (20.4)	1 (2.3)	171 (21.5)	1 (33.3)
High	263 (36.2)	6 (14.0)	29 (3.6)	-
Highest	286 (39.3)	36 (83.7)	4 (0.5)	-
Total	**727 (100.0)**	**43 (100.0)**	**795 (100.0)**	**3 (100.0)**

*Figure in the parenthesis indicate corresponding percentage

Discussion:

This community based survey estimated the prevalence of refractive error and its association with related factors among the children aged 5-15 years in selected urban and rural areas of Bangladesh. The overall all prevalence of refractive error in children aged 5-15 years was 3.4% (% CI: 2.4% - 4.7%) while in the urban children the prevalence was 5.6% (4.0%-7.9%) and for rural children tit was 0.4% (0.1% - 1.3%).

There are only few surveys done in Bangladesh among children. One of the previous surveys Khan et al found 8.6% prevalence of refractive error among the rural children of Bangladesh. While Mannaf et al showed in their study 3.2% and 13.4% prevalence of myopia in rural and urban children of Bangladesh respectively3 .The refractive error prevalence study in urban school children by Sharif MA showed a prevalence of 6.5%. In another study Shakoor examined 1911 urban school students of 9-13 years age and revealed overall refractive error of 9.2%. . In 2007 Shakoor again in her study of refractive error in urban and rural school children observed the overall prevalence of total refractive errors to be 13.15%. 6

The prevalence found in this study is comparable to the result of Refractive error study in children in Chile, China, Nepal and in Andhra Pradesh,India 7,8,9,10,11. The differences observed among the studies are may be due to differences in sampling procedure and study methodology. Although our study was done in selected areas of two districts, the selection of sample was done in such a way that sample represents the population of that community. Our subjects were school going children and we had a high response rate within the community. As general characteristics of these selected populations of urban and rural areas are similar to the other urban and rural population of the country, the estimate generated from this study may be closer to the real or actual prevalence of the country. However results should not the generalized to national estimate rather it give us an indication of the burden we are facing in terms of childhood refractive error. Further large scale studies are required to get nationally representative data. Although we had a plan to do a survey in the tribal community, but due to lack of resources we could not do it. Another study with adequate resources and sample size should be undertaken in tribal community to estimate refractive error in those communities.

Several factors were found to be associated with refractive error such as exposure to visual media, reading time and wealth index. In a study in the Singaporean children Tan Gj et al found a positive correlation between near work and myopia.12 Zhao gave the same atatement in his Refractive error survey in Chinese children. 10 Other studies too found more study hours, more near work and use of visual media responsible for myopia. 12,13,14,15,6 To clarify the relationships further large scale studies need to done, which may provide clue to the prevention and early correction strategies for Bangladesh.

Although we have done household survey to include non school attending children, but we found that a very high percentage of our children (88%) were attending school and number of children with refractive error were mostly from school going students. As Bangladesh has achieved high primary school enrollment rate, it could be beneficial to have school based eye health program.

Conclusion & Recommendations

The prevalence of Refractive error in children aged 5-15 years in selected communities were 3.4% which is comparable with the prevalence's reported from neighboring countries. However there is a sharp urban rural difference in the prevalence. Some factors such as exposure to TV viewing and longer study time were higher in children with refractive error. Following recommendations from this survey are done

- School eye sight testing should be undertaken as a national program and it can be incorporated with school health or national eye care program
- To further clarify the determinants of the refractive errors and investigate the causes of urban rural difference, a low vision survey among the nationally representative sample of school going children should be undertaken.

Reference:

1. Gilbert CE, Foster A. Childhood blindness in the context of vision 2020- The Right to Sight. Bull WHO 2001; 79: 227-232.
2. Khan Y; Uddin M S; Sheikh A B; Azad C A K. Pattern of refractive errors in school children of rural areas of Bangladesh. Trans Ophthal Soc Bang 2004;31(1);44-45
3. Mannaf Sk A, Islam MN, Yasmin BHN, Prevalence of myopia in urban and rural children and it's relation with breast feeding - A preliminary study. Trans Ophthal Soc Bang. 2000;27(1), 38-39
4. Sharif MA, Amanullah M. Prevalence of refractive error in urban school children of Bangladesh. Trans ophthalmol Soc Bang. 1991, 18(2); 20-24
5. Shakoor SA; School vision testing in Dhaka, Bangladesh: Operational research study to assess the need and uptake of spectacle provision in children aged 9-13Years. Trans Ophthal Soc Bang.2003;30(2);188-202.
6. Shakoor S A. Myopia and it's association with near work, socio economic status and parental myopia: a study on Bangladeshi school children. Journal of Ophthalmological Society of Bangladesh.2009;36(1)20-23
7. Dandona R, Dandona L, Naduvilath T, Srinavas M, McCarty C A, Rao G N. Refractive errors in an urban population in Southern India: the Andhra Pradesh Eye Disease study. Invest Ophthalmol Vis Sci, 1999. 40 (12): 2810-1818.
8. Dandona, - Rakhi; Dandona, - Lalit; Srinivas, - Marmamula; Sahare, -Prashant; Narsaiah, - Saggam; Munoz, - Sergio-R; Pokhearel, -Gopal-P; Ellwein, -Leon-B. Refractive error in children in a rural population in India. Invest-Ophthalmol- Vis-Sci, 2002 Mar.43 (3): 615-22.
9. Maul E, Barraso S, Munoz S R, Sperduto R D, Ellwein L B. Refractive Error study in children: results from La Florida, Chile. Am J Ophthalmol, 2000 Apr. 129(4): 445-454.
10. Zhao J, Pan X, Sui R, Munoz S R, Sperduto R D, Ellwein L B. Refractive error study in children: Results from Shunyi district, China. Am J Ophthalmol, 2000. 129(4): 427-435.
11. Pokharel GP, Negrel AD, Munoz SR, Ellwein LB. Refractive error study in children: results from Mechi zone, Nepal. Am J Ophthalmol, 2000. 129(4): 436-444.
12. Tan GJ, Ng YP, Lim YC, Ong PY, Snodgers A, Saw S M. Cross Sectional Study of near work and myopia in Kindergarten children in Singapore. Lancet , 2000 Oct. 20, 356(9240): 1456-7.
13. Saw SM;Hong RJ;Zhang MZ;FU ZF;Ye M;Tan D;Chew SJ. Near work activity and myopia in rural and urban children In china. J Pediatr Ophthalmol Strabismus2001 May-June;38(3):149-55
14. Wong TW, Foster PJ, Hee J, Ng TP, Tielsch JM, Chew SJ, Johnson GJ, Seah SKL. Prevalence and Risk factors for Refractive Errors in adult Chinese in Singapore. Invest- Ophthalmol- Vis- Sci, 2000 august. 41(9); 2486-2494.
15. Wong,TY, Foster, PJ, Johnson,GJ, Seah, SKL.(2002) Education, socioeconomic atatus, and ocular dimensions in Chinese adults: the Tanjong Pagar Survey. British Journal Of Ophthalmology
16. Murthy, GVS; Gupta SK; Ellwein LB; Munoz SR; Pokharel GP; Sanga L; Bachani D. Refractive error in children in an urban population in New Delhi. Invest-Ophthalmol-Vis-Sci, 2002 Mar. 43(3): 623-31.

Characterization of Paediatric congenital cataract

Salma Parveen

Abstract:

Aims and objectives: *To identify the factors mainly responsible for paediatric congenital cataract.*

Study design: *Cross-sectional descriptive study.*

Methods: *Fifty one children of clinically diagnosed cataract cases irrespective of sexes attending the Islamia Eye Hospital, Dhaka was enrolled in this study. Verbal informed consent was taken from guardian of each patient. A detailed history was taken and a brief clinical examination was accomplished. History of maternal infections was observed carefully to ensure the accuracy of the study. Every subject's data was recorded in a predesigned questionnaire. Data has been entered in a computer and crosschecking was done to minimize error. Data was analyzed using statistical program SPSS 16.0. Results have been described as percentages with 95% confidence intervals. Association and difference between proportion and means was analyzed by Pearson correlation test & Chi- square test.*

Results: *Out of 51 patients 31 were male and 20 were female. Age ranges from less than 1 year to 10 years. Of the 51 cases 33 had history of antenatal care of mother and 18 had no such history. Among 33 mothers, 15 developed fever and rash and 18 had no fever and rash. Among 18 mothers who had no history of antenatal care 11 developed fever and rash. So there is significant difference between antenatal care and causes of cataract. Most of the diagnosd congenital cataracts were due to maternal Torchs infection (58.8%) such as Toxoplasmosis, Rubella, Cytomegalovirus, Herpes/Varicella and Syphilis; and the remaining congenital cataracts (41.2%) were due to other causes such as drugs, trauma, malnutrition, family history.*

Conclusion: *This study reveals that maternal Torchs infection is mainly rsponsible for congenital cataract in children. There is significant difference between antenatal care and causes of cataract. Further analytical study is necessary to find out the causes of cataract and chromosomal abnormality.*

Introduction: Children are valuable asset of a country and vision is the right from his birth time. A cataract interferes with light passages from the environment to the retina resulting in variable loss of some or all visual functions.[1] Cataracts in the paediatric population can be present at birth or develop during childhood. Congenital cataracts are responsible for nearly 10% of all visual loss in children worldwide.2The cause of the vast majority of cataracts is unknown. A large number of systemic and metabolic disorders can result in cataract formation. It is estimated that 1 in 250 newborns has some form of cataract.[2] Etiology of paediatric cataracts are idiopathic, can be inherited. In Bangladesh due to over population, ignorance, malnutrition, improper use of drug & due to some maternal disease condition children become blind from his birth. In Bangladesh about 12 thousand children are added per year as visual handicapped. There are some factors which are responsible for paediatric congenital cataract. Among these some viral infections are mainly responsible for developing congenital cataract.[2] In this study the objects are to identify the factors and to create awareness among the people of the community about paediatric cataract and taking measures to prevent the paediatric blindness.

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Research Questions:

1. What factors are mainly responsible for paediatric congenital cataract?
2. Whether any family history or hereditary factors are responsible for occurrence of Paediatric congenital cataract?

Research Hypothesis:

Maternal Torchs (Toxoplasmosis, Rubella, Cytomegalovirus, Herpes/Varicella & Syphilis) infection are mainly responsible for Paediatric congenital cataract.

Research Objectives:

1. General Objective: To identify the influencing factors responsible for Paediatric congenital cataract.
2. Specific Objective: To find out the characteristic of Paediatric congenital cataract.
3. Ultimate Objective:
   i. To create awareness among people about maternal Torchs infection
   ii. To include Rubella and other related vaccines in routine EPI

Key variables:

1. Dependant variable: Paediatric congenital Cataract.
2. Independent variable: Maternal Torchs infection
3. Confounding variables: Malnutrition, hypoglycemia, prematurity, trauma, drugs, familial and hereditary factors.

Methodology (Materials and Methods):

Study design: The study is designed as a cross sectional study descriptive in nature.

Study sites: This study is done in Paediatric Ophthalmology department, Islamia Eye Hospital, Dhaka.

Study Population: This study was carried out in Paediatric Ophthalmology department, Islamia Eye Hospital, Dhaka. All the OPD and admitted cases during the study period were the study population from which sample has been taken.

Study Period: Five weeks from the date of starting of the study. The tentative schedule of the study was as follows-

i Planning and preparatory: 2 weeks

ii. Data Collection: 3 weeks

iii. Data entry, analysis and processing: 1 week

iv. Interpretation, report writing and dissemination 1 week

Schedule of the activities (Flow Chart)

	1st 2 weeks	3rd week	4th week	5th week	6th week	7th week
selection of topic						
Data Collection						
Data Entry						
Data Analysis						
Report writing & dissemination						

Subject selection:

Inclusion criteria:

i. Age: Children of any age(preferably 1-10 years) of either sex

ii. Signs and symptoms suggestive of congenital Cataract

iii. Primarily diagnosedas a case of Cataract

Exclusion criteria:

Patient who is unwilling to participate in the study

Sample Size: Sample size was calculated based on the formula below:

$n=Z^2pq/d^2$

Here, Z=1.96, p= Prevalence of paediatric cataract in the country = 0.4,

q= (1-p) = 0.6

d= 0.05(Precision)

So the approximate sample size was 50.

Sampling Technique: Simple random sampling.
Data collection tool/Research instrument: Structured Questionnaire.

Informed consent:

Written informed consent was obtained from every subject and/or guardian of the subject. Each subject or guardian was informed of the aims, methods, anticipated benefits and potential hazards of the study. After that consent was taken. The patient or guardian will be at liberty to abstain from participation in the study or free to withdraw from the study at any time. In case of children, consent was obtained from the eligible attendants/guardians.

Study procedure: Fifty one children of clinically diagnosed cataract cases irrespective of sexes attending the Islamia Eye Hospital, Dhaka was enrolled in this study. The study was carried out for about 3 weeks. After taking written informed consent from the guardian a detailed history was taken and a brief clinical examination was accomplished. History of maternal infections was observed carefully to ensure the accuracy of the study. Every subject's data was recorded in a predesigned questionnaire. The data was analyzed using Standard statistical method.

Data analysis:

Data has been entered in a computer and crosschecking was done to minimize error. Data was analyzed using statistical program SPSS 16.0. Both descriptive and inferential statistics is used to analyze the data. Results have been described as percentages with 95% confidence intervals. Some of the baseline characteristics of the cases were expressed as means and +/- SD and others as percentages with range. Association of different variables with the outcome in percentages was analyzed using frequency &cross tabs. Tables, graphs & diagrams are used to show frequency of distribution. Association and difference between proportion and means was analyzed by Pearson correlation test & Chi- square test.

Observation and Results: Fifty one cases were included in this study. The age range was from 1-10 years. Most of the patients were 1-5 years of age (43%)(Table I). Out of 51 patients 31 were male and 20 were female (Table II). Higher educated mother has less history of congenital cataract than illiterate and less educated mother. There is negative relationship between educational status and causes of cataract (Table III). Majority of mother who had taken antenatal care were less affected by maternal infections than those who were not. Cross tabulation of antenatal care of mother and maternal infection torch's are showed in table IV.

Most of the diagnosed congenital cataracts were due to maternal Torchs infection (58.8%); and the remaining congenital cataracts (41.2%) were due to other causes such as drugs, trauma, malnutrition, family history (Table V).

Table-1: Age distribution of studied patients:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 1year	18	35.3	35.3	35.3
	1-5year	22	43.1	43.1	78.4
	6-10year	11	21.6	21.6	100.0
	Total	51	100.0	100.0	

Table II: Relation between age with sex of the patients:

			sex of patient		
			male	female	Total
age in years	less than 1year	Count	14	4	18
		% within age in years	77.8%	22.2%	100.0%
		% within sex of patient	45.2%	21.1%	35.3%
	1-5year	Count	11	11	22
		% within age in years	50.0%	50.0%	100.0%
		% within sex of patient	35.5%	57.9%	43.1%
	6-10year	Count	6	5	11
		% within age in years	54.5%	36.4%	100.0%
		% within sex of patient	19.4%	21.1%	21.6%
Total		Count	31	20	51
		% within age in years	60.8%	37.3%	100.0%
		% within sex of patient	100.0%	100.0%	100.0%

Table III: Relation between educational status of mother with causes of cataract

			Causes of cataract		
			Torch infection	Others	Total
Education of mother	illiterate	Count	7	3	10
		% within Education of mother	70.0%	30.0%	100.0%
		% within Causes of cataract	23.3%	14.3%	19.6%
	Primary	Count	11	10	21
		% within Education of mother	52.4%	47.6%	100.0%
		% within Causes of cataract	36.7%	47.6%	41.2%
	Secondary	Count	10	8	18
		% within Education of mothe	55.6%	44.4%	100.0%
		% within Causes of cataract	33.3%	38.1%	35.3%
	Higher secondary	Count	2	0	2
		% within Education of mother	100.0%	.0%	100.0%
		% within Causes of cataract	6.7%	.0%	3.9%
Total		Count	30	21	51
		% within Education of mother	58.8%	41.2%	100.0%
		% within Causes of cataract	100.0%	100.0%	100.0%

Table I V: Relation between Antenatal care of mother with Torch's infection :

			Torch infection of mother		
			Fever & rash	No fever & rash	Total
Antenatal care of mother	Yes	Count	15	18	33
		row	45.5%	54.5%	100.0%
		column%	57.7%	72.0%	64.7%
	No	Count	11	7	18
		row	61.1%	38.9%	100.0%
		column%	42.3%	28.0%	35.3%
Total		Count	26	25	51
		row	51.0%	49.0%	100.0%
		column%	100.0%	100.0%	100.0%

Table V: Causes of Cataract

	Frequency	Percent	Valid Percent	Cumulative Percent
Torchs infection	30	58.8	58.8	58.8
Others	21	41.2	41.2	100.0
Total	51	100.0	100.0	

Chi - Square Tests

	Value	df	Asymp. Sig.(2-sided)	Exact Sig. (2 sided)	Exact Sig. (1 sided)
Pearson Chi-Square	1.142[a]	1	.285		
Continuity Correction	.602	1	.438		
Likelihood Ratio	1.150	1	.284		
Fisher's Exact Test				.382	.219
N of Valid Cases	51				

Discussions:

This study was carried out in Paediatric Ophthalmology department, Islamia Eye Hospital, Dhaka. All the OPD and admitted cases during the study period were the study population from which sample has been taken. Fifty one cases were included in this study. The age range was from 1-10 years. In my study most of the patients were 1-5 years of age (43%) In United Kingdom most of the patients lie between newborn to 1 year.3,4 So, this result of my study does not correlate with the study in UK. Out of 51 patients 31 were male and 20 were female.

Paediatric congenital cataract is probably much higher in children due to illiteracy, drug abuse, trauma, prematurity, malnutrition in underdeveloped countries. In UK hereditary factors, maternal infections and metabolic disorders are main factors for paediatric congenital cataract.

Of the 51 cases 33 had history of antenatal care of mother and 18 had no such history. Among 33 mothers, 18 developed fever and rash and 15 had no fever and rash. Among 18 mothers who had no history of antenatal care 11 developed fever and rash. So there is significant difference between antenatal care and causes of cataract. (Table IV). Most of the diagnosd congenital cataracts were due to maternal Torchs infection (58.8%) such as Toxoplasmosis, Rubella, Cytomegalovirus, Herpes/Varicella and Syphilis; and the remaining congenital cataracts (41.2%) were due to other causes such as drugs, trauma, malnutrition, family history (Table V). Metabolic and systemic diseases in USA are found as many as 60 of bilateral cataract.[5] In Australia causes of Congenital cataract are mainly due to sporadic, chromosomal anomalies, metabolic diseases and intrauterine infections(Rubella).[6] In developed countries role of antenatal care, educational status, socio-economic conditions are not important in relation to causes of congenital cataract.[7]

Summary and Conclusion:

This study reveals that maternal Torchs infection is mainly responsible for congenital cataract in children. There is significant difference between antenatal care and causes of cataract. There is poor relationship between paediatric congenital cataract with family history and hereditary factors. Further analytical study is necessary to find out the causes of cataract and chromosomal abnormality.

Reference:

1. David Taylor, Creig S Hoit. Systemic Paediatric Ophthalmology, 3rd ed. 2007; Chapter 47: 441.
2. Richard W Hertle, David B Schaffer, Jill A Foster. Paediatric Eye Disease, Color Atlas & Synopsis. 2nd ed. Blackwell Scientific, 1998: 23.
3. Marilyn Haddrill; Congenital Cataract; Causes, Treatments, Outcomes: http://www.allaboutvision.com/conditions/congenital-cataracts.htm #ixzz1 TGhX GQPJ
4. Causes of congenital cataracts. http://www.rnib.org.uk/eyehealth/eyeconditions/conditionsac/Pages/congenital_cataracts.aspx; April, 2011.
5. Mounir Bashour Cataract, Congenital. emedicine.medscape.com/article/1210837-overview; Jun 8, 2009.
6. Congenital cataracts.www.chw.edu.au/parents/factsheets/eycongej.htm; Apr 6, 2010.
7. Congenital cataracts; Eye Defects and Conditions in Children: http://eglobalmed.com/core/MerckMultimedia/www.merck.com/mmpe/sec19/ch293/ch293c.html; June 2007.

Clinical Outcome of External dacryocystorhinostomy with Temporary Intubations

Tanuja Tanzin

Abstract:

Since its introduction external dacryocystorhinostomy (ExDCR) has undergone multiple modifications to become the standard treatment for nasolacrimal duct obstruction. However routine use of silicon tube was advocated by various surgeons worldwide for last two decades.

The objectives of this study were to assess the success rate of ExDCR with intubations, to compare the clinical outcome between procedures with or without tubes and to determine the patient's satisfaction to the operation. It was a randomized control trial conducted on 76 patients admitted for dacryocystorhinostomy (DCR) operation at the inpatient department of Ophthalmology in Chittagong Medical College Hospital. Between March 2006 and September 2006, the patients were operated on and included in the study. The patients were selected from the admitted patients by exclusion and inclusion criteria. They are then randomized by simple lottery method into two groups. Among them 43 patients had undergone DCR with tube (Study group) and 33 patients without tube (Control group).Both the groups were followed up to 3 months.

Success rate were determined by observing the post operative symptoms and syringing of the lacrimal system. It was found to be statistically significant ($p<.05$). The syringing in the study group was 93% after 2 months and 90.6% after 3 months. The post operative complications like nasal irritation and conjunctivitis were benign and were significantly less.

Since the most common cause of DCR failure are obstruction of common canaliculus and the osteotomy site, it is reasonable to acquire the use of silicon tube as a routine procedure to prevent these complications and thus improves surgical results.

Considering the outcome measures the study concludes that silicon intubation in conjunction with DCR provides additional benefit over conventional one. The procedure is inexpensive, easily available and cosmetically acceptable. So routine use of silicon tubes during ExDCR is safe and simple.

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Introduction:

Chronic dacryocystitis is one of the most common ophthalmic disorders in our hospital settings and regular practice. Among the various ophthalmic surgeries perform each year in any ophthalmic department in Bangladesh, Dacryocystorhinostomy (DCR) accounts a large number, next to cataract surgery. In the department of Ophthalmology in Chittagong Medical College Hospital (CMCH), only DCR accounts 66.9% for the year 2005 (Annual Report 2005 from the Department of Ophthalmology, Chittagong Medical College Hospital). Conventional External Dacryocystorhinostomy (ExDCR) without silicon intubation is the usually practiced method in our centers.

In Bangladesh, patients with chronic dacryocystitis do usually attend in the ophthalmic units at late stage, sometimes associated with multiple complications. As a consequence of delayed treatment and improper follow up there is more chance of developing postoperative complications and operation failure. Evidence from different studies done both in developed and developing countries, Rosen et al (1989), Mumtaz Hossain et al (1998), Delaney et al (1965), Badhua et al (2005), they suggested that these problems can be eliminated by introducing routine practice of dacryocystorhinostomy with intubation.

Advantages like lessening the technical difficulties of suturing the flaps, maintaining of lacrimal passage and no need for irrigation the lacrimal system are identified by some surgeons, Rosen et al (1989), Badhua et al (2005), Walland et al (1994).Furthermore it is a cost-effective procedure though associated with few complications and a high level of patient satisfaction can be achieved, Erdol et al (2005).

ExDCR is the standard treatment for nasolacrimal duct obstruction, with success rate above 90% in experienced hands, Kanski (2005). Various other methods like endoscopic dacryocystorhinostomy, endoscopic laser nasal dacryocystorhinostomy, dacryocystoplasty are complex method and neither can improve success rate over ExDCR.

With this above evidence and information it is aimed to observe the clinical outcome of ExDCR with intubations and evaluation striving for the benefits and drawbacks of silicone tube as a standard step in the routine Dacryocystorhinostomy (DCR).

Materials and Methods

The study was conducted at in-patient Department of Ophthalmology, Chittagong Medical College Hospital (CMCH) from March 2006 to September. This was a Randomized Control Trial. Study subjects were patients with chronic dacryocystitis admitted in the department of Ophthalmology, CMCH.

Selection criteria

Inclusion Criteria

1. Patients with chronic dacryocystitis and no any other ocular diseases.
2. Patients with age group between 15 years to 65 years.

Exclusion Criteria

1. Patients having lacrimation other than nasolacrimal duct obstruction.
2. Patients of below 15 years of age and above 65 years.
3. Patients with pregnancy and lactating mother.
4. Patients with acute dacryocystitis, lacrimal abscess, rhinosporodiosis, atrophic rhinitis, nasal polyp, deviated nasal septum and other inflammatory and malignant conditions of eyelids, nasal area and sac area.
5. Patients with canalicular obstruction.
6. Patients with associated systemic diseases e.g. diabetes mellitus, bleeding disorder, thyroid disease.

Sample Size

Sample Size estimation

We calculated the sample size from anticipated success rate of the two type of surgery. That is,

n=153

With limited time and resource, availability of patients for operation and drop out of patients during follow up could not full fill the expected number of

Sampling Tecnique

Simple random sampling.

Study Group

The patient admitted for DCR, were randomly divided into two groups, Study group and Control group. Randomization was done by simple lottery. Study group participants were selected for DCR with intubations with silicone tube. Control group was selected for DCR without intubations. In both the cases patients were observed for the same duration and setting of follow up.

Ethical Consideration

Every patient was explained about the purpose, beneficial effect as well as side effect of the procedure. Approval from the Ethical review committee, CMC and informed written consent of the patient's were taken.

Intervention

After a complete pre-operative evaluation, standard surgical technique of EX-DCR was performed in all patients under study. Local (infiltrating) anaesthesia of 2% lignocaine mixed with 1:100,000 adrenaline and 0.5% Bupivacaine were used by the same surgeon.

Operation field was sterilized with 5% povidone iodine. A skin incision was performed at about 8-9 mm away medially from the medial canthus. A standard technique of EX-DCR was adopted. In all cases an ideal osteotomy of 12 mm to 15 mm in diameter was created over the lacrimal fossa at the level of middle meatus. All bleeding points were checked and stopped. After identification of both nasal and lacrimal sac 2 hinge flap were made at same level of both mucosa

Both the punctum were dilated by punctum dialator. The ends of the tube were lubricated with antibiotic ointment and then silicone tubes were passed through the upper and lower punctum. The two ends were made equal and tied by silk thread in such a way that the knot was placed near the sac wall and another knot at near the ends of the tubes. The two ends were passed through the bony ostium into the nostril with the help of an artery forceps by introducing through the external opening of the nostril. The ends of the tube were cut just 1 mm inside the external nare.

At first the posterior and then the anterior flaps of the sac wall and nasal mucosa were united by 2-3 interrupted sutures with 6/0 Vicryl with atraumatic needle. The periosteum and orbicularis oculli muscle were sutured separately with 6/0 Vicryl. Finally the skin incision was closed by subcuticular continuous suture by the same suture material.

DCR Operation without intubation was done same as above except the silicon tube. Antibiotic ointment was applied in the wound and firm pressure dressing was applied. Nasal pack was introduced if there was nasal bleeding.

Systemic antibiotic started from the day of operation and continued for 7 days. Analgesic and anti inflammatory drugs were given in the postoperative period for five days.

The first dressing was done on the first post operative day. If nasal pack was present it was removed on first dressing. Antibiotic eye drop was instilled four times a day for 1 month and nasal decongestant drop 3-4 drops to the operated nostril was installed 3 times a day for 5 days. On the 7lh postoperative days skin stitches were removed.

Follow Up

Patients were followed at the 1st post operative day, at the day of stitch Removal (7th post operative day), after one month, two month and finally after three month.

All patients were followed up for 3 mouths to evaluate the success rate of both procedures. Necessary data were collected in the case record form.

During each visit special attention was given on important symptoms like watering, discharge and signs like tear film meniscus height and patency of the lacrimal drainage channel. Syringing of lacrimal passage was done to each and every patient after removal of silicon tube at the end of two month follow up. The subjective and objective evaluations were carried out by asking the patients whether the symptoms of the patients were relieved or not, satisfied with the operation or not.

Outcome Measures

By considering the clinical variables the outcome was measured. The clinical variables included:-

i. Pre and Post Operative Symptoms (Watering & discharge)

ii. Pre operative sac patency test and postoperative irrigation and subjective symptoms by asking the patients whether the watering condition was improved or not, satisfied with the operation or not.

iii. Cosmetic appearance of DCR operation.

iv. Patients satisfactions regarding operation.

Results

The trial initially targeted 153 subjects for the surgical intervention. Maximum efforts were put to maintain randomization. Over this period only 83 subjects could be enrolled for the study; further attrition was encountered at the follow up. Due to short time and incompleteness of data further 7 cases were excluded from final analysis, constituting the ultimate sample to be 76. Among them 43 were inserted silicon tube and the rest of the 33 were not given with silicon tube.

The result of the surgery was evaluated by objective findings such as watering, discharge, irrigation, oedema, epistaxis and subjective symptoms by asking the patients about the condition of tear improvement & patient's satisfaction.

The methods of grading system were followed according to the operational definition. Statistical analysis was done by Chi-square (2) test to compare the results of subjective symptoms and objective findings after DCR surgeries for both groups.

Table 1: Pre operative grading of symptoms

Grade of symptom	Treatment group		Total
	Study group	Control group	
One (1)	13	16	29
	30.2%	48.5%	38.2%
Two (2)	26	12	38
	60.5%	36.4%	50.0%
Three (3)	4	5	9
	9.3%	15.2%	11.8%
Total	43	33	76
	100.0%	100.0%	100.0%

Chi-Square Tests e2 4.34 df = 2 P = .114 (NS)

Table 1: shows the distribution of the respondents by grading of pre operative symptom. No statistical difference was found between the two group regarding pre operative symptoms (P >.05).

Grading of symptoms

0 = No symptom

1 = Mild watering, no discharge.

2 = Moderate watering, mild discharge.

3 = severe watering, matting of eyelashes \by discharge.

Table 2: Post operative grading of symptoms

Grade of symptoms	Treatment group		Total
	Study group	Control group	
Zero (0)	41	27	68
	95.3%	81.8%	89.5%
One (1)	2	2	4
	4.7%	6.1%	5.3%
Two (2)	0	2	2
	.0%	6.1%	2.6%
Three (3)	0	2	2
	.0%	6.1%	2.6%
Total	43	33	76
	100.0%	100.0%	100.0%
Chi-Square Tests e2 5.67 df = 3P = .023 (S)			

Table 2: Shows the distribution of the respondents by grading of post operative symptoms. The difference in post operative symptoms was found to be statistically significant (P <.05)

Grading of symptoms

0 = No symptom

1 = Mild watering, no discharge.

2 = Moderate watering, mild discharge.

3 = severe watering, matting of eyelashes by discharge.

Table 3: Distribution of the respondents on the basis of the results of sac-patency test

	Study group	Control group	Total	Test of Significance
1. Pre-operative sac patency test				
Partially blocked	02 (4.7)	01 (3.03)	03 (3.9)	e2 .129, df = 1, p = .72
Blocked	41 (95.3)	32 (96.97)	73(96.1)	
Total	43(100)	33(100)	76(100)	
2. Post-operative sac patency test/ syringing after 60 days				
Patent	40(93.0)	24(72.7)	64(84.2)	e2 6.395, df = 2, p=.04
Partially blocked	03(7.0)	07(21.2)	10(13.2)	
Blocked	0(0)	02(6.1)	02(2.6)	
Total	43(100)	33(100)	76(100)	
3. Post-operative sac patency test/ syringing after 90 days				
Patent	39(90.6)	23(69.7)	62(81.6)	e2 5.576 df =2, p = .02
Partially blocked	02(4.7)	04(12.1)	06(7.9)	
Blocked	02(4.7)	06(18.2)	08(10.5)	
Total	43(100)	33(100)	76(100)	

Figures in Parentheses illustrates Percentage

Patency of lacrimal drainage passage is graded as follows:

1 = Patent

2 = Partially Blocked

3 = Not patent (Blocked)

Comparison of SPT

The table shows the comparison of sac patency test between the groups at three points of time (Preoperative, follow-up at 60th POD and at 90th POL)). The differences might be due to different number of study population, place and methodology

Pre-operative sac patency test

Before the operation all of the patients had block. The difference was statistically insignificant. (P >.05)

Post-operative sac patency test (60th POD)

After 2 months of operation the difference between two group was statistical significant (P <.05)

Post-operative sac patency test (90th POD)

After 3 months the difference between the two group was found statistically significant (P <.05)

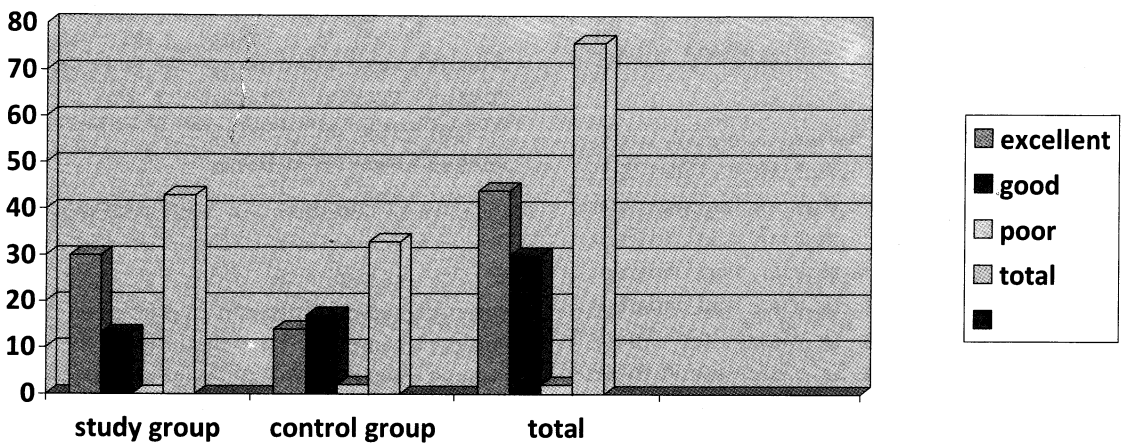

Figure 1: Cosmetic appearance of wound

1. **Excellent** = Linear scar mark obscured by skin fold/merged with skin colour.
2. **Good** = Linear scar mark not obscured by skin fold.
3. **Poor** = Keloid/bow sting/obvious scar mark.

Table 4: Distribution regarding satisfaction of the patient

Satisfaction of the patient	Study group	Control group	Total
Highly satisfied	30 (69.8)	16(48.5)	46 (60.5)
Satisfied	11 (25.6)	10(30.3)	21 (27.6)
Unsatisfied	02 (4.7)	07(21.2)	09(11.8)
Total	43 (100)	33 (100)	76(100)
Chi-Square Tests e2 = 5.87 df = 2 P = .02 (S)			

Table 4: Shows the distribution of the respondents by level of satisfaction of patients.The difference between the group regarding satisfaction about the outcome was statistically significant (P <.05)

Satisfaction defined as mental and psychological fulfillment of desire or demand.

Discussion

Current study is an endeavor to evaluate silicon intubation conjunct with the Dacryocystorhinostomy operation.

Here the out come was assessed after three months. The rate of positive outcome was actually of a point at 3 months after intervention. The study design doesn't rule out the possible exclusion of emergence of recurrence of the symptoms. The follow up assessment should better be of relatively longer duration.

The Mean age of the subjects was 35.9±1.2 years, although the majority of the subjects were of less then forty years of age, no intra group difference was observe between the treatment group (P >.05). In both the group Majority of the subjects were female. Housing condition, Place of residence and monthly family income were used as proxy for Socio economic status and all three have been found to be indifferent between the group (P >.05). Altogether almost half of the subjects were of kachha house, rural back ground and more than half from family with low income. In this study females are suffering predominantly from chronic dacryocystitis (80.3%) than male (19.7%). This is 10% higher than the finding of Besharati and Rastengar (2005) 70.6% and Deen Mohammad (1991) 70.17%. The male to female ration was nearly 1:4, consistent with Erdol et al (2005), Besharati & Rastenger (2005).

Per operative clinical condition was almost identical in both groups, 84.2% of the study subjects had considerable hemorrhage, 17.1% had adhesion and 5.6% had there nasal mucosa ruptured during the operation. Hemorrhage was invariable in both the group. Although exposure to ethmoid sinuses were found in few cases, none injury to conjunctiva or eyeball were observed in the current study.

For facilitation of comparison symptoms were categorized into 4 groups ranging from 0 to 3. Preoperative symptoms were found to be almost similar in both the groups. Overall only 11.2% were found to have grade 3 symptoms. Postoperative symptoms were found to be in lower grade in study subjects in comparison to conventional Dacryocystorhinostomy (P <.05). The criteria for success in the study were based on the lack of postoperative symptoms of tearing or discharge.

The list of complications with intubation of the nasolacrimal system is long and includes, in part, punctal slitting, punctual dilatation, nasal irritation, nasal migration, corneal erosions, and superior loop displacement. These complications was significantly less than reported in prior studies Anderson (1979), Lauring (1976), Dortzback (1978). Conjunctivitis (P<.01) and nasal irritation (P<.OI) were found to be significantly less among the patients treated with temporary intubation. Out of 43 subjects, Only 4 (9.3%) had Punctal erosion, 9 (20.9%) had Punctal dilatation and none of the patients were found to develop corneal abrasion in the current series. Weighing the complications, the clinical success of intubation was remarkable.

Patency of lacrimal sac was assessed between the groups at three points of time, before the operation all of the patients had block (P >.05). Follow up syringing after 2 months of operation among study subjects found to be patent in 93.0% subjects. In control subjects the Percentage was 72.7%. Sac patency after two month of operation was significantly high with intubation (P <.05). After 3 months of operation the difference was also found statistically significant (P <.05). Surgical success was evaluated by the objective demonstration of a patent lacrimal system through irrigation and subjective lack of postoperative tearing or discharge based on follow up examinations. Successful irrigation was achieved in 90.6% of the study sample. The finds of this study is in consistent with the other studies Rosen et al (1989), Ali M.M. et al (1984), Mumtaz Hossain et al (1998), Besharati Rostcnger (2005), Advani et al (2004).Regarding results of operation without intubation this study shows 69.71% cases were successful.

Besides Syringing, perception of patients regarding the outcome of operation was also assessed. Both cosmetic appearance (P <.05) and satisfaction regarding outcome (P <.05) was found to be significantly better among the patients treated with silicon intubation. Patients were asked to indicate how satisfied with their overall surgical experience. All 43 patients surveyed stated that they would recommend the surgery to others. The cutaneous scar was appreciated by almost all patients.The silicon tubes were generally well tolerated in the patients.

Considering the outcome variables the study hereby concludes that routine silicon intubation in conjunction with Dacryocystorhinosiomy provides additional benefit over conventional Dacryocystorhinostomy. In text book the procedure is strongly recommended for patients with chronic dacryocystitis who are at high risk of surgical failure (Kanski 2005). Major advantages of this approach are thought to be associated with less follow up; lower complication rate, reduced patient morbidity and most importantly it assure the patency of the fistula. In the presence of silicone tube there is no need to irrigate the lacrimal drainage system postoperatively, thereby reduces the number of patient's visit, although there are diverse opinions around the globe regarding its practicability. Many surgeons have been complaining of difficulty and several post surgery complications.

Conclusion

With the insight of the study findings the study hereby concludes:

Majority of the subjects was of less than forty years of age and were female.

Altogether half of the subjects were of kachha house, rural back ground and more than half from family with low income.

Post operative complications particularly conjunctivitis and nasal irritation were found to be significantly less among the patients treated with temporary intubations.

Post operative symptoms were found to be with lower grade in subjects treated EXDCR combined with silicon intubation.

Syringing after 2 months were found to be patent in 93.0% subjects. In control subjects the Percentage was 72.7%. After 3 months the difference was persistent and the success rate was 81.6%.

Both cosmetic appearance and satisfaction regarding outcome was found to be significantly better among the patients treated with silicon intubation.

Recommendation

The silicon tubes are a traumatic and cosmetically acceptable. Providing trauma during passage of tubes is avoided and these are retained for a period longer than six months can make the procedure highly successful.

Routine use of silicon tube is safe and simple procedure. The technique is less expensive and comparatively easily available.

Although surgical results are no better than other published series without tubes, I have found that silicon intubation increases the ease of performing surgery and simplifies post operative follow up.

Reference:

1. Imrie R. Rethinking the relationship between Ali MM, Israfil M, Mannaf,SMA; Technique Dacryocystorhinostomy in the national Institute of Ophthalmology and analysis of its results. Trans. ophthal.Soc.Bang.XII:33-42-1984.
2. Badhua B, Dulal S, Kumar S, Thakur SK, Sood A, Das H; Epidemiology of chronic dacryocystitis and success rate of external dacryocystorhinostomy in Nepal.Orbit,2005;24(2) : 79-82 (ISSN : 0167-6830).
   Besharati M R, Rastegar A; Results and complications of external dacryocystorhinostomy at a teaching hospital in Iran. Saudi Med J. 2005; 26(12): 1940-4 (ISSN:0379-5284).
3. Deen Mohammad; Comparative study of Dacryocystorhinostomy,Anterior Flaps and posterior flaps. BCPS, Dissertation- 1991.
4. Delaney Y M,Khooshabeh R; External dacryocystorhinostomy for the treatment of acquired partial nasolacrimal obstruction in adults. BR J Ophthalmol;2002: 86-533-535.
5. Dortzback RK; Dacryocystorhinostomy. Ophthalmology 1978, 85: 1267-70.
6. Erdol H, Akyol, Imamoglu Hi, Sozen E; Long term follow up of external dacryocystorhinostomy and factors affecting its success. Orbit 2005; 24(2) 99-102
7. Kanski JJ: Clinical Ophthalmology; Butter worth Heinemann International edition 2005; 4: pp 44-54.
8. Lauring L; Silicon Intubation of the lacrimal system: pitfalls, problems and complications. Ann. of Ophthalmol. 8(4): 489-499,1976.
9. Mumtaz Hussain, Saleem Akhter, Saeed Awan; DCR (dacryocystorhinostomy) With or Without intubation, Ann king Edward Med Coll Sep.1998:4(3); 34-6.
10. Rosen N, Sharir M, Moverman DC, Rosner M; Dacryocystorhinostomy with silicon tubes: Evaluation of 253 cases; Ophthalmic Surg 1989 Feb: 20(2): 115-9.
11. Walland MJ, Rose GE; The effect of silicon intubation on failure and infection rates after dacryocystorhinostomy. Ophthalmic Surg 1994; 25:597-600.

Keratometric Change in Superotemporal Clear Corneal SICS.

Nurul Alam[1], ASM Moin Uddin[2], Fakhrul Islam[2], Khurshid Zaman[4]

Abstract:

Purpose: *To evaluate the outcome of supero- temporal clear corneal SICS.*

Method & Materials: *125 eyes of 105 patients were randomly selected for prospective study. Study period was from 15th July 2007 to 31st December 2008. Male 59 and female 46. Age ranging from 25 to 65 years. Grade I to IVF cataract was selected fro superotemporal clear corneal operation. Complicated cataract, patient with diabetes and other systemic diseases and extreme age group were excluded. The study was done in East-West Medical College & Hospital Dhaka Bangladesh. Follow up was given routinely at 1st 7th and 30th POD. Pre-operative and 30th POD Rerotometric reading was recorded.*

Results: *Mean K1 change about 0.35D and K2 about 0.75D (Limit was 0-1.50D). BCVA 6/6 about more than 90% in uncomplicated cases at 30th POD. Per-operative and post-operative complications were Minimum.*

Conclusion: *Keratometric change and astigmatism is very minium in superotemporal clear corneal SICS.*

Introduction:

As we know cataract is the most common cause of blindness throughout the world and cataract surgery with IOL implant is the only remedy till today. So quality of surgery with minimum cost must be ensured. Phaco-machine is used to reduce the size of incision, astigmatism and bloodless clear corneal cataract surgery with early rehabilitation. The phaco machine is a costly instrument and not available in all the centres. The learning curve of phaco- emulsification surgery also higher than SICS. So if clear corneal SICS is done with minimum astigmatism, then ultimate outcome will be almost as like as phaco-emulsification.

Materials and methods:

Study was carried out in East- West Medical college Hospital, Uttara, Dhaka from 15th July 2007 to 31st December 2008. Total eyes 125 of 105 patients. ale 59 and female 46. Age group from 25 to 65 years. Grade was I to IV. Pre-operative karatometry was recorded in all patients.

Co-operative patients were operated by surface anaesthesia and non-co operative patient by peribulbar block with 2% Xylocaine. Only 4 to 6 ml peribulbar injection was given in the floor of the orbit. 5% povidone iodine was used for pre-operative wash. No rectus was held. Directly clear corneal entry was done with 3.2 mm keratome. Continuous curvilinear capsulorrhexis was done with curved 26 gauge needle. Hydrodissection was done and nucleus prolapse was done with siniskey hook, would was enlarged with 5.1 mm keratome 6 to 7 mm according to size and grade of the nucleus. IOL was implanted in the bag, A/C was well formed and wound was sealed with hydration.

Follow up was given in 1st, 7th and 30th POD. Va SLB done routinely and tonometry, fundoscopy was done in selective cases. Keratometric reading also recorded at 30th POD.

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3. *Registrar, Ophthalmology, East West Medical College*

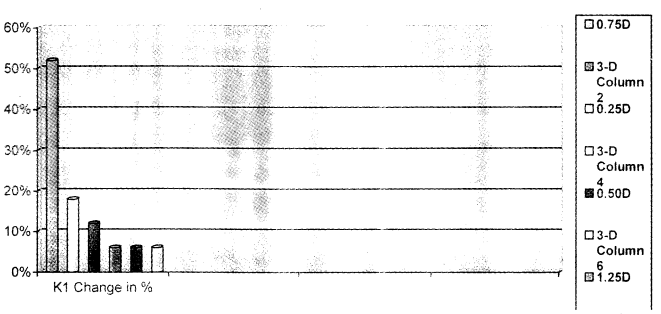
Keratometric change was recorded after one month of surgery as below:-

K1-Change in %		K2- Change in %	
0.75 D	52%	0.75 D	26%
0.25 D	18%	0.50 D	20%
0.50 D	12%	0.25 D	12%
1.25 D	6%	1.25 D	12%
2.00 D	6%	1.50 D	12%
1.50 D	6%	1.00 D	6%

Graphical representation is given at page : - 3 to 4

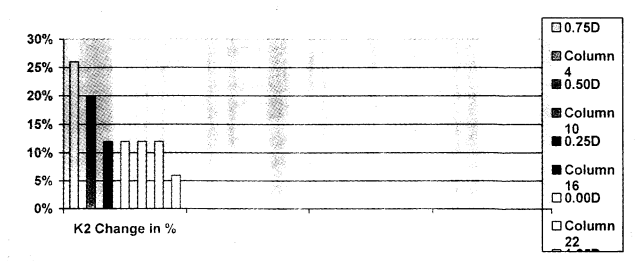
K_1 – Change in %

0.75 D	52%
0.25 D	18%
0.50 D	12%
1.25 D	6%
2.00 D	6%
1.50 D	6%



K_2 – Change in %

0.75 D	26%
0.50 D	20%
0.25 D	12%
0.00 D	12%
1.25 D	12%
1.50 D	12%
1.00 D	6%



Results:

Would was well sealed and A/C was well formed in almost all patients. 2 degree wound stitch was given only in 2 eyes. There was iris prolapse in one eye and managed accordingly. OIL drop or displacement was not found. Corneal edema and striation was found in few cases and disappeared within one week. BCVA was recorded 6/6 to 6/9 in about more than 90% cases after one month in uncomplicated cases. No endophthalmitis was found. Meak k1 change is about 0.35D and k2 change 0.75D after one month.

Discussion:

The benefits of clear corneal phaco-emulsification surgery has been established throughout the world because of bloodless surgery, where no cautery is used, no rectus holding is necessary, early rehabilitation and surgery can be performed with topical anaesthesia. But non-phaco SICS through clear corneal incision is not routinely done in most of the centres. Md. Sales Ahmed has shown in his study of clear corneal SICS in 125 eyes that the mean astigmatism was 1.27D ranging from 0.25 to 2.00 D. But he did not record the keratometric change in his study.

References

1. Rao SN, knowal A, murchison AE, Epstein RJ. Enlargement of the temporal clear corneal cataract incision to treat pre-existing Astigmatism. J Refract Surg 2002. 18:463-467.
2. Minassian DC, Rosen P Dart JKG, Redidy A, Desai P, Sidhu M. Extra Capsular Cataract extraction Compared with Small incision Surgery by Phacoemulsification: A rendomised trial B J Ophthlamol 2001: 85:822*829.
3. Jacob S. Agwarwal A, Agarwal S, Chowdhury R. Bagmar AA, Try Pan Blue as an adjunct for safe phacoemulsificationh in eyes with white cataract. J Cataract Surg 2002: 28: 1819.
4. Sood A. Kumar S.Badhu B. Kulshrestha V. Astigmatism and corneal thickness in conventional large incision versus manual small incision cataract surgery Asian J ophthalmolgy 2002: 4:2-6
5. Kohenen T, Dick B. Computerized videkeratographic analysis of astigmatism induced by temporal corneal tunnel incision for phacoemulsification., Invest Ophthalmol Vis Sci 1994: 35:1435 cited in : Rao SN, Knowal A, M urchison AE, Epstein RJ. Enlargement of treat pre-xisting astigmatism. J Refract Surg 2002: 18:463-467.
6. Ahmed S. cornal tunnel small incision sutureless non-phaxo cataract surgery, trans. Ophthal soc, Bang. 2003: 30 (2): 103-107.

Synovial Sarcoma of the orbit: A rare clinical entity

Syeed Mehbub Ul Kadir[1], M Subrahmanyum[2]

Abstract:

Purpose: *To report a rare case of Synovial Sarcoma in the lacrimal gland fossa of the orbit.*

Patient and methods: *A female 70-years in age has presented to the department of orbit and ophthalmic plastic services of tertiary care eye hospital with eccentric proptosis of right eye of one month duration and pain for the past one week. Clinical examination revealed fullness in the right lacrimal gland region. CT scan of the orbit has shown a mass lesion in the fossa of the lacrimal gland. It's margin are irregular and erosion of lateral wall and roof of the orbit is noted. From the clinical picture and imaging, diagnosis of malignant tumor of the lacrimal gland was made. The tumor was excised through lateral orbitotomy. Histopathology and immunohistochemistry revealed that the tumor is synovial sarcoma. Conclusion: Synovial sarcoma is a very rare lacrimal gland malignant tumor in the orbit. Immunohistochemistry is very important to confirm the diagnosis.*

Key words: *Synovial sarcoma, histopathology, immunohistochemistry.*

Introduction:

Sarcoma is rare malignant tumor of the orbit except rhabdomyosarcoma in infants and young children.1 Synovial sarcoma (ss) is one of the common soft tissue malignancies in the adeloscents and young adults.2 Synovial sarcoma can occur anywhere in soft part of the body and most predominate in the leg, thigh or around the knee (70%-80%), only 1-10% involve the head and neck region.3,4,5,6 The tumors often near a joint, tendon and bursa. It accounts 8% of all soft tissue sarcomas. 1,2 The peak of incidence is in the 3rd decade and males are affected more often than females (male/female ratio around 1.2:1).7,8 Despite its name, it is not histogenetically derived from the synovium.9 The most common benign tumor of lacrimal gland fossa is pleomorphic adenoma of the lacrimal gland (57%) and most common malignant tumor is adenoid cystic carcinoma (38%) of the lacrimal gland.10 Synovial sarcoma of the orbit is very rare clinical entity. In our experience, no such tumor is diagnosed in the orbit. We report a rare case of synovial sarcoma of the lacrimal gland fossa in the orbit and underwent surgical removal of the lesion through lateral orbitotomy followed by histopathological examination and immunohistochemistry.

Case report:

A female 70 years in age was seen in the department of orbit and ophthalmic plastics of a tertiary eye hospital (Sankar Foundation Institute of Ophthalmology, Visakhapatnam, Andhra Pradesh, India) with eccentric proptosis of right eye of one month duration and intermittent pain for the past one week. She also complained of gradual dimness of vision of both eyes since 6 months. She did not give any history of diplopia, ocular trauma and ocular surgery. She had bilateral asymmetrical drooping of the eyelid but she didn't aware of it. She had no diabetes, hypertension, bronchial asthma, no known drug allergy. Inspection revealed that fullness in the lacrimal gland region of right orbit, non-pulsatile eccenteric proptosis of the right eye, the eyeball pushed downwards and inwards, ocular motility was mild restricted in upgaze and abduction in right eye and full in all gazes of left eye, pupil was normal in size and reacting to light, valsalva maneuver was absent, mild ptosis (MRD1+D2: +2+5) was in right eye and moderate ptosis (MRD1+d2: +0.5+5) in left eye. On palpation, we found a mass which was 2.5×1.2 cms, nodular in shape, irregular surface, tender, firm in consistency in the supero-temporal quadrent of right

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orbit (lacrimal gland fossa). The proptosis of right eye was 6 mm by Hertel's exophthalmomtry, The right eye was displaced horizontally 3 mm and vertically 2 mm. Hypoesthesia was present over the skin of the lacrimal gland, supero-lateral part of brow and adjacent forehead skin along the supply of lacrimal nerve. Slit lamp examination of anterior segment revealed immature cortical cataract in both eye and vascularized opacity at superior part of cornea. Schirmer's test-1 was 10 mm in right eye and 12 in left eye. Lacrimal excretory apparatus system was patent. IOP was 12 in both eye by GAT. Posterior segment was normal study in both eyes. General examination and systemic examination showed normal study. Our clinical diagnosis was malignat tumor of the lacrimal gland.

CT scan of the orbit has shown a mass lesion in the fossa of the lacrimal gland. It's margin are irregular and erosion of lateral wall and roof of the orbit is noted. So, the imaging diagnosis is malinant lesion in the lacrimal gland.

The management plan score based on the clinical picture and imaging study of the tumor in the lacrimal gland fossa was - 2. Hence, our diagnosis was malignant tumor of the lacrimal gland fossa. On investigation, the hemogram, blood sugar, liver and kidney function were essentially normal.

Figure 1: Mass in the superotemporal quadrent of the right orbit

Figure 2: Worm's eye view

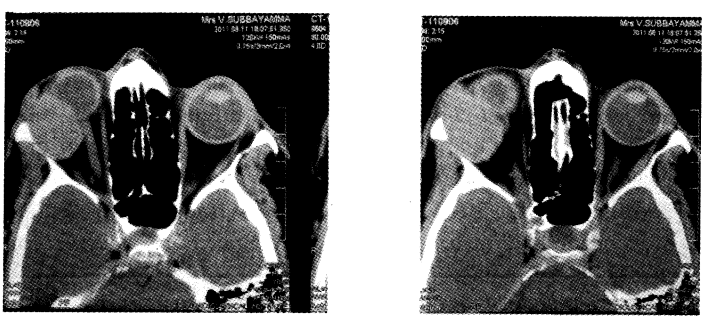

Figure 3: Axial view of CT scan of orbit

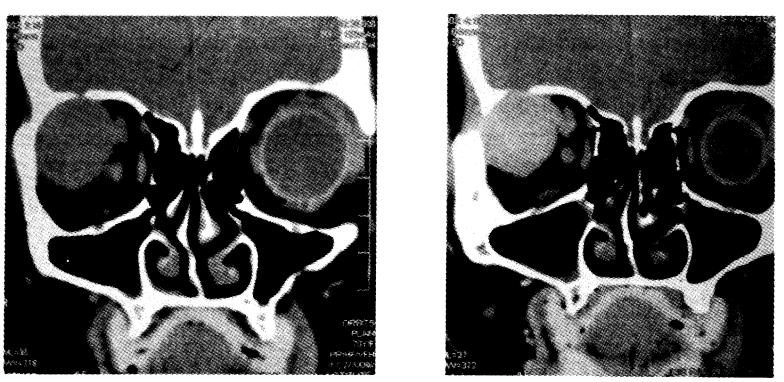

Figure 4: Coronal view of CT scan of orbit

The patient was consented for surgery. The tumor was excised through modified lateral orbitotomy. We had sent the excised tissue for histopathological & immunohistochemistry examination. Histopathology and immunohistochemistry revealed that the tumor is synovial sarcoma.

Histopathological examination report:

Gross apearence showed brownish fragment of tissue of 2.8×1 cms. Cut section shows solid, firm & gray-white in appearance

Microscopic evaluation revealed well demarcated tumor mass with fibrous capsule composed of spindle cells having plump uniform nuclei arranged in irregular fascicles. Vascularity is prominent with narrow irregular lumened arborising blood vessels, No giant cells are seen. No significant mitotic figures present. Tumors shows thick fibrotic capsule. Lobules of normal acinar tissue are seen at periphery. There is no evidence of glandular differentiation, haemorrhage or necrosis. Featurs suggestive of synovial sarcoma

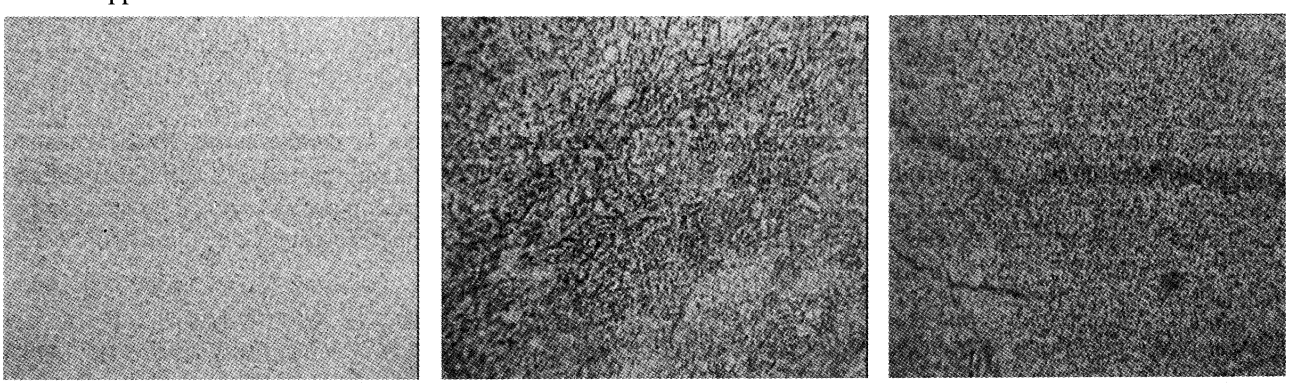

Fig.5: Photomicrograph of Histolopathology & Immunohistochemistry of SS

Immunohistochemistry (IHC markars) for further confirmation

IHC: CD34 in parafin block, IHC- negative, BCL-2, Tissue/praffin block -positive, Smooth muscle actin, IHC- negative, KI-67 Tissue/parrafin block- positive, Pan Cytokeratin IHC: Negative. Impression: synovial sarcoma.

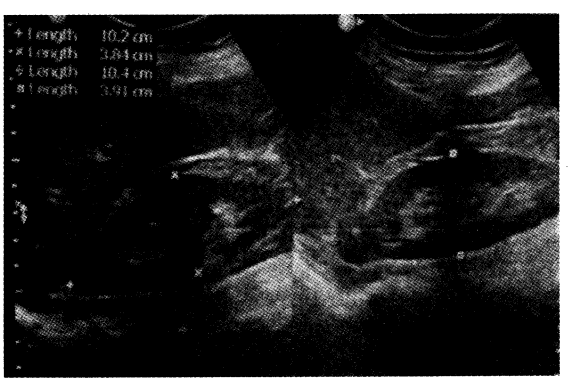

Fig 6: USG of Abdomen

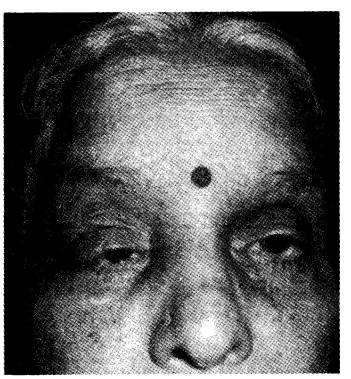

Fig 7: Post operative condition

Following HPE & IHC confirmation, we referred to the patient whether the lesion is primary or secondary. The internist reported that there is no any abnormality in other system. So the lesion was primary synovial sarcoma. Finally, we referred the patient to oncologist for further management. The oncologist gave radiotherapy to the patient. Now patient conidition is satisfactory and no recurrence in 6 months follow up.

Discussion: Synovial sarcoma account for less than 1% of all malignant tumors and 2% of all cancer-related deaths but in children soft tissue sarcomas represent about 8% of all malignancies.1,2,8 Synovial sarcoma occurs primarily in the para-articular regions of the extremities and paravertibral areas of the neck. The most typical presentation is palpable deep-seated swelling associated with pain or tenderness. Other clinical symptoms are rare and depend on the location of the tumor.11

Histopathologically, synovial sarcoma can be categorized as a classical biphasic type (with distinct epithelial and spindle-cell components in varying proportions), a monophasic fibrous type (without epithelial components) and poorly differentiated synovial sarcoma. Synovial sarcoma is positive for keratin, vimentin, CD-99 and BCL2 on immunohistochemistry.12

We believe that this is the first reported case of synovial sarcoma in the lacrimal gland fossa and 4th reported case of synovial sarcoma of the orbit. After histopathologic and immunological diagnosis, we referred the patient to internal medicine specialist for evalution of primary or secondary sarcoma. The internist reported that there is no any pathology on clinical & radiological assessment in other organ of the body. So, the tumor was primary synovial sarcoma of the lacrimal gland fossa. Synovial sarcoma of the orbit is a rare occurrence, but there are isolated reports in the literature.

Shukla PN et al.11 reported a case primary orbital calcified synovial sarcoma in a 32-year-old woman presented with a progressively increasing recurrent swelling of the left eye. An orbital tumor was detected, immunohistochemistry and electron microscopy confirmed the tumor as a synovial sarcoma,

Votruba M et al.13 described Primary monophasic synovial sarcoma of the conjunctiva in a 29 year old man presented with a 4 month history of a growing mass in the conjunctiva at the medial canthus of the right eye. Gross appearance was of a pink, fleshy, soft tumour, 10 mm in diameter, with a prominent feeding blood vessel. Computed tomograph (CT) scan showed no deep extension of the mass. Histology showed a spindle cell tumour with collagen bundles and frequent vessels in the stroma and immunohistochemistry showed widespread EMA staining and scattered keratin positive cells. Stain for CD-99 and bcl-2 was positive. These were characteristic features of a monophasic synovial sarcoma.

Hartstein ME et al.14 described the clinicopathologic and immunohistochemical features and treatment of a rare case of primary synovial sarcoma of the orbit in a 14-year-old young man. The diagnosis was confirmed by demonstration of a specific chromosomal translocation by polymerase chain reaction studies.

Ratnatunga N et al.15 reported primary biphasic synovial sarcoma of the orbit in a young adult as a slowly enlarging subconjuntival mass. It is noteworthy at this juncture that the present case was also a slow-growing biphasic synovial sarcoma in a 21 year old woman. Primary synovial sarcoma of the kidney, primary cutaneous synovial sarcoma, and primary cardiac sarcoma are other unusual manifestations.

The role of irradiation in the management of synovial sarcoma was evaluated by Fontanes J et al.16 who concluded that addition of radiotherapy is of questionable benefit for patients with adequate surgical resection and good tumor characteristi cs (IRS Gr I and II); however, for lesions that have been resected incompletely, there is evidence that irradiation may provide a durable local control. The case reported here was treated with postoperative adjuvant radiotherapy in view of the incomplete resection.

Shmookler et al.17 presented a clinicopathologic study of 11 cases of orofacial synovial sarcoma, observed a median follow-up of 2.9 years and interestingly noted that all the fatalities were associated with extensive, often deeply invasive, local recurrences. The mean survival in this group was 5.6 years. Greater emphasis was placed on irradiation and chemotherapy in the management of fatal cases. The authors conclude that surgical resection is the primary modality of treatment, but complete resection in the head and neck is rarely feasible, necessitating adjuvant radiotherapy to reduce local failure; however, this will have to be confirmed in larger studies.

So, histopathology and immuno-histochemistry is essential diagnostic tool to confirm the diagnosis of orbital tumor in respect of age and sex. Surgery is the primary treatment of choice. Radiotherapy and or chemotherapy may be used as adjunctive therapy.

Conclusion: Synovial sarcoma is a very rare malignant tumor in the orbit. Involving the lacrimal gland is the first reported case in our knowledge till submission of this article. Histopathologic examination, immunohistochemistry and polymerase chain reaction (PCR) is very important tools to confirm the diagnosis of synovial sarcoma.

References

1. Shields JA, Bakewell B, Augsburger JJ, Flanagan JC. Classification and incidence of space-occupying lesions of the orbit. A survey of 645 biopsies. Arch Ophthalmol 1984;102:1606-11.
2. Schmidt D, Thum P, Harms D, Theuner J. Synovial sarcoma in children and adolescents: A report from Kiel Pediatric Tumor Registry. Cancer. 1991;67:1667-72.
3. Roth JA, Enzinger FM, Tannenbaum M. Synovial sarcoma of the neck: a follow-up study of 24 cases. Cancer 1975;35: 1243-53.
4. Flieder DB, Moran CA. Primary cutaneous synovial sarcoma: A case report. Am J Dermatopathol. 1998; 20(5):509-12.
5. Enzinger FM,Weiss SW. Soft tissue tumors. 3rd ed. St. Louis: Mosby, 1995.
6. Machen SK, Easley KA, Goldblum JR. Synovial sarcoma of the extremities: a clinicopathological study of 34 cases, including semiquantitative analysis of spindled, epithelial and poorly differentiated areas. Am J Surg Pathol. 1999;23: 268-75.
7. Fisher C. Synovial sarcoma. Ann Diagn Pathol. 1998;2:410-21.
8. Ladenstein R, Treuner J, Koscielniak E, et al. Synovial sarcoma of childhood and adolescence: report of the German CWS-81 study. Cancer. 1993;71:3647-55.
9. Fletcher CDM, McKee PH. Pathobiology of soft tissue tumours. Edinburgh: Churchill Livingstone, 1990.
10. Rootman J, White VA, Katan HA. Tumors of the lacrimal gland. Diseases of the Orbit: A Multidisciplinary Approach. 2nd ed. Lippincott Williams & Wilkins. 2003; 343-79.
11. Shukla P.N., Pathy S, Sen S, Purohit A, Julka P K et al., 'Primary orbital calcified synovial sarcoma: A case report', Orbit, Swets & Zeitlinger, 2003;22(4):299-303.
12. Van de Rijn, Barr FG, Xiong QB, Hedges M, Shipley J, Fischer C. Poorly differentiated synovial sarcoma: An analysis of clinical, pathologic and molecular genetic features. Am J Surg Pathol. 1999;23:106-112.
13. Votruba M, Hungerford J, Cornes P G S, Mabey D and Luthert P. Primary monophasic synovial sarcoma of the conjuctiva. Br J Ophthalmol. 2002 December; 86(12):1453-54
14. Hartstein ME, Silver FL, Ludwig OJ, O'Connor DM. Primary synovial sarcoma. Ophthalmology. 2006 Nov;113(11):2093-6.
15. Ratnatunga N, Goodlad JR, Sankarakumaran N, et al. Primary biphasic synovial sarcoma of the orbit. J Clin Pathol. 1992;45:265-67.
16. Fontanesi J, Pappo AS, Parnam DM et al. Role of irradiation in management of synovial sarcoma: St. Jude Children's Research Hospital Experience. Med-Pediatr Oncol. 1996;26(4):264-67.
17. Shmookler BM, Enzinger FM, Brannon RB. Orofacial synovial sarcoma. A clinicopathologic study of 11 cases and review of the literature. Cancer 1982;50:269-76.

Successful management of a case of acute severe unilateral retrobulbar optic neuritis with modified conventional treatment

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Abstract:

Purpose: *To report the successful management of a case of acute severe unilateral retrobulbar optic neuritis with modified conventional treatment protocol.*

Methods: *It is a non-comparative single centered and follow up case study. The period of study of is from 27.12.2007 to 22.11.2010.*

Case: *Miss Parul (19 years) reported at eye OPD of SSMC Mitford Hospital on 27.12.2007 with rapidly progressive severe loss of vision in left eye for 10 days. It was clinically diagnosed as a case of acute severe retrobulbar optic neuritis LE. Routine investigation like CBC, RBS+CUS, VDRL test along with MRI of brain was done. All were found normal. Modified conventional treatment option with subtennon dexamethasone injection LE. and injection methyl prednesolone 40mg at left orbital floor along with injection hydroxycobalamine 1 ample I/M at 5 days interval (total 12 dose).*

Result: *At first report her V/A was only PR in 4 quadrant. It improved gradually and reached to 6/6 unaided LE within 4 months of period.*

Conclusion: *The visual recovery was excellent and stable for the last 3 years of follow up time. So this management protocol proved to be a highly successful one.*

Keywords: *Retrobulbar optic neuritis , Methyl prednesolne acetate , Hydroxycobalamine.*

Introduction

Optic neuritis is an acute or sub-acute inflammatory or demyelination process affecting the optic nerves which may be classified anatomically -- Papillitis , Neuroretinitis and Retrobulbar neuritis. Aetiologically it may be due to demyelination e.g multiple sclerosis, para infections e.g due to virus or immunization and infections like syphilis , lyme disease , cat scratch fever , meningitis or AIDS. In case of retrobulbar optic neuritis usually females are more affected and these are commonly unilateral.

Methodology: This case was studied in EYE OPD of SSMC Mitford Hospital, Dhaka. The patient Parul (19 years) D/O M.d Paran Ali from Shutarpur, Dohar, Dhaka reported to R/S (Ophthalmology) with the complaints of rapidly progressive severe loss of vision in Left eye for last ten days. On examination her VAR was 6/6 unaided and VAL was only PR(Projection of rays) in all quadrants. There was also mild eye ache on extreme ocular movements and RAPD in left eye. Fundus examination revealed normal findings in both eyes. Relevent laboratory investigations like CBC, RBS, VDRL test, CXR and MRI of brain were done but all showed normal findings. So it was diagnosed as a case of acute severe unilateral aediopathic retrobulbar optic neuritis. As the patient first reported ten days after

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attack, so intravenous methyle prednesolone followed by oral prednesolone regime was not chosen. Rather empirical modified conventional treatment was started immediatly at OPD basis. Here the treatment protocol used was Inj.

Dexamethasone -1ample postereor subtennons-stat - LE + Inj. methyle prednesolone acetate (Depomedrol) -40 mg at left orbital floor -stat+Inj. Hydroxy cobalamine1ample IM stat and at five days interval-(total 12 doses) followed by oral prdnesolone 60 mg daily with breakfast along with an H2 blocker coverage . The oral prednesolone was gradually tapered and completed by 2 months. In addition a combination of Vit B1,B6 and B12 one tab.TDS were taken orally for 3 months.

The patient follow up schedule was as follows-------

	Date	VAL unaided
1st report	27/12/07	PR in all quadrants
1st follow up	31/12/07	CF-1 foot
2nd	09/01/08	CF-10 feet
3rd.....	20/02/08	6/12
4rth.....	02/04/08	6/9
5th.....	20/06/08	6/6
6th.....	06/12/08	6/6
7th.....	10/10/09	6/6
8th.....	21/11/10	6/6

Results

In the above case study it was observe that these modified treatment protocol gave very promising, successful and stable outcome.

There was no recurrence for the last 3 years of follow up period. By this time the patient has got married and is passing very happy life.

Conclusion:

In our country usually the retrobulbar neuritis pts come to the proper treatment center at late and often ignore the immediate hospitalization and treatment with intravenous methyle prednesolone. In these cases our treatment protocol may be an alternative but very effective and successful one.

References:

1. Manual of ocular diagnosis and therapy- 4th Edn. Deborah-Pavan-Langston
2. Clinical Ophthalmology - 4th Edn-Jack J Kanski

Pigmented fungal keratitis: A Case Report

Shahana karim[1], Ferdous Akhter Jolly[2], Md. Hazrat Ali[3]

Abstract:

Fungal infection of the cornea is quite common in our country, but pigmented corneal ulcer may not be so common. Among the Filamentous fungi, responsible for keratomycosis, fusarium and aspergillus are commonly implicated. This was our first case at BIRDEM hospital of a pigmented fungal corneal ulcer by curvularia. The patient being a long time diabetic with uncontrolled glycemic status, was treated for his primary disease along with topical and systemic anti fungal agents, as well as superficial keratectomy to remove the pigmented plaque from central part of the cornea of the affected eye. Following treatment his vision recovered from hand movement to 6/24, which was satisfactory as the patient also had non proliferative diabetic retinopathy in both eyes and the vision in his eye not affected by corneal ulcer was also 6/24.

Introduction

Fungal infection of the eye are a common threat in an agriculture based country like Bangladesh. Aspergillus and Fusarium are long recognised as ocular pathogens1, but the dematiaceous(pigmented) hypomycetes has emerged as important opportunists2-4.They were originally named for their tufted, floccose appearance in culture, dematiaceous fungi comprise those septate molds with melanin in their hyphae and conidia5. A prevalent member of these darkly pigmented fungi, curvularia, received its current name in 1933 and it is related to the sexual teleomorph Cochliobolus.

This genus of filamentous fungi colonizes soil and vegetation and spreads by airborne spores. Curvularia species are mostly phytopathogens(responsible for plant disease) causing failure of seeds to grow. Curvularial growth on stored grain, thatch and other dead plant material looks like smudges of blackish dust[6].

There are several other curvularia species which are zoo pathogenic. Wound infection is the most common disease caused by Curvularia and ranges from onychomycosis to skin ulceration and subcutaneous mycetoma7-8. Other human Curvularia infections are invasive and are responsible for causing allergic sinusitis and bronchopulmonary diseases. Abscesses of the lung, brain and connective tissue have occurred .

Infection of the cornea, reported in 1959 was the first human disease proved to be caused by curvularia9. Infection usually involved the center or lower half of the cornea . Early infection typically presents as a feathery, superficial stromal infiltration with an epithelial defect, the colour of the infiltrate ranges from dark brown to black22. After the infection was established for longer than 1 week, focal necrotizing inflammation tended to obscure the velvety edges. Chronic forms of curvularia keratitis varied from suppurative ulceration to smoldering inflammation.

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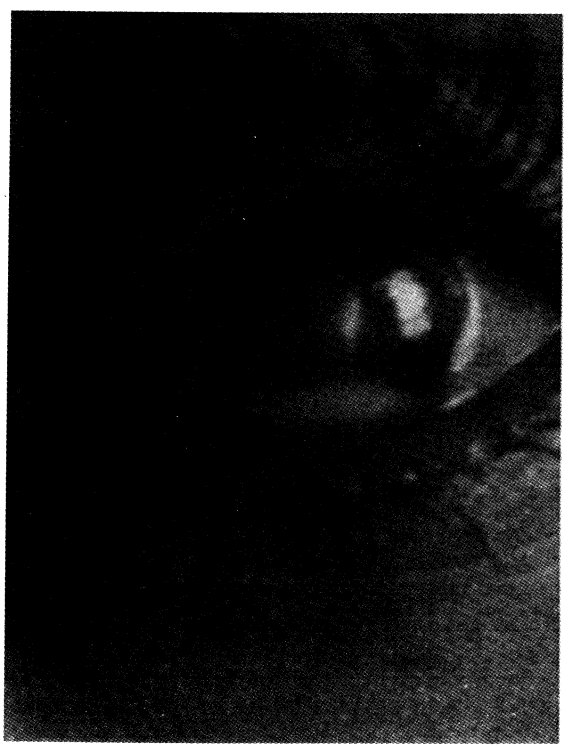
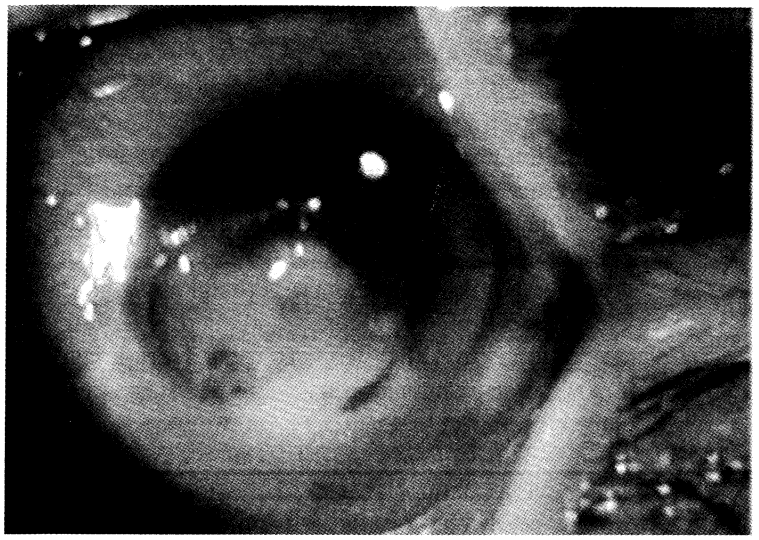
3. *Professor, Head of the Department of Ophthalmology, BIRDEM, Shahabag, Dhaka.*

Case Report

A 33 years old male agricultural worker was admitted under ophthalmology department, BIRDEM, with the complaints of pain, redness and discharge in left eye for 5 days with a blackish pigmented mass like plaque over left cornea. He gives history of something falling in his left eye about 2 months back. He first noticed a small white spot in his left eye, at that time he had mild irritation, no redness or pain. Then around 5 days prior to presentation at BIRDEM, he had severe pain, redness and discharge in his left eye. The patient is a known case of Diabetes Mellitus for 15 years, his diabetes has been uncontrolled most of the time. Records revealed fungal skin infection at the time of first time diabetes detection. He was first detected to have non proliferative diabetic retinopathy in both eyes 10 years back. On examination of eyes at presentation to ophthalmology department, BIRDEM, best corrected visual acuity in right eye was 6/24 and in left eye hand movement. Anterior segment evaluation of right eye revealed no abnormality.

On examination of left eye, eyelid was found to be swollen, eyelashes matted with discharge, conjunctiva, congested and chemosed. Corneal examination revealed, dry superficial feathery infiltration with velvety edges, an epithelial defect, involving central 9mm of the cornea. Black pigmentation over the area of epithelial defect, peripheral cornea was clear.. A thick and immobile hypopyon of 3mm in height was found in the anterior chamber. Pupil was miosed and there was only a hazy view of the iris. Corneal scraping for microscopic examination with 20% KOH, gram stain and culture and sensitivity were done. Corneal scraping for microscopical examination detected septate fungal hyphae and filamentous fungus and culture showed curvularia form of dematiaceous fungus. Superficial keratectomy was done to remove the pigmented layer, frequent anti fungal drops and ointment and systemic anti fungal was used with atropine 1% and timolol eye drops with and a strict control of diabetes, helped salvage his eyes and a reasonable vision of 6/24 was finally achieved.





Discussion

Human mycoses are caused by many mitosporic filamentous fungi. Most are classed as deuteromycetes, and these imperfect fungi include non pigmented (hyaline or moniliaceous) aspergillus and fusarium most commonly implicated and pigmented (dematiaceous) groups. The histopathological recognition of dematiaceous hypomycetes is based on seeing tissue invasion by pigmented hyphae10. Curvularia is one of several genera of these " black fungi11." Dematiaceous molds live and linger in the soil and on plants in warm climates. Curvularia is the most common dematiaceous fungal corneal isolate and accounts for 4% to 9% of all fungi isolated in hot climates12-15. The number of reported cases of curvularia progressively increased during the last half of the 20th century. One fourth of the reports and one fourth of the total number of previously reported cases came from the United States. Nearly half of the reports and two thirds of the cases were from India and surrounding Asian nations. Besides India other regions in Asia reporting patients with curvularia keratitis are from Bangladesh, Taiwan, Thailand, Nepal, Srilanka, Korea, Singapore, and the Philippines. Most cases of curvularia found during summer when curvularia airborne spores peak. Curvularia species are among the most prevalent fungal spores in the air in many hot climates. Most of the patients developed their fungal keratitis after trauma, one half with plants or dirt14.

Curvularia keratitis has a slower course and less inflammation than other fungal corneal infections16. That is the reason that the patient in our case report waited 2 months before seeking care. This was found to be true in other international cases where patients waited several days before seeking care, and half of all cases smoldered for more than a week before the diagnosis was made17.

The case was treated with superficial keratectomy to remove the pigmented layer22 with addition of anti fungal drops, ointment and systemic anti fungal agent. Previous case reports found in international studies have suggested that topical amphotericin b or miconazole is sometimes effective. Topical natamycin 5% suspension, first successfully used for curvularia keratitis in 1970 is a preferred therapy18. In our case also we used topical natamycin drops, the benifits of which corroborates with other international studies18,22. Most isolates of curvularia are sensitive to ketoconazole and itraconazole19 and in some studies it was found that an oral triazole anti fungal agent can cure curvularia keratitis even without topical therapy20,21. In our case we gave oral ketoconazole tablets along with topical natamycin and found the result to be very satisfactory.

Conclusion:

Pigmented fungal lesion may be a diagnostic dilemma, if not carefully evaluated. Early intervention can save the eye. Curvularia keratitis presented with superficial feathery infiltration, with visible pigmentation and hypopyon. Smears of corneal scraping disclosed hyphae and culture media showed growth of dematiaceous fungi curvularia. Superficial keratectomy to remove the pigmented plaque along with topical natamycin and systemic ketoconazole led to clinical resolution with good vision.

References:

1. Jones BR, Richards AB, Morgan G. Direct fungal infections of the eye in Britain. Trans Ophthalmol Soc UK 1969;89:727-741.
2. Forster RK, Rebell G, Wilson LA. Dematiaceous fungal keratitis. Clinical isolates and management. Br J Ophthalmol. 1975;59:372-376.
3. Jones DB. Strategy for the initial management of suspected microbial keratitis. In: Barraquer J. Binder PS, Buxton JN et al. eds. Transactions of the New Orleans Academy of Ophthalmolology. Symposium on medical and surgical diseases of the cornea. St. Louis, MO: CV Mosby; 1980: 86-119.
4. Schell WA. Oculomycosis caused by dematiaceous fungi. Proceedings of the vi international conference on the mycosis scientific publication No. 479. Washington, D.C. : Pan American Health Organisation; 1986:105-109.
5. Pappagianis D, Ajello L. Dematiaceous- a mycologic misnomer? J Med Vet Mycol 1994;32:319-321.
6. Khasonov BA, Shavarina ZA, Vypritskaya AA, et al. Characteristics of curvularia Boedjin fungi and their pathogenicity in cereal crops. Mikol Fitopatol 1990;24:165-173.
7. Yau YCW, de Nanassy J. Summerbell RC, et al. Fungal sternal wound infection due to curvularia lunata in a neonate with congenital heart disease: case report and review. Clin Infect Dis 1994;19:735-740.
8. Fernandez M. Noyola DE, Rossmann SN, et al. Cutaneous phaeohypomycosis caused by curvularia lunata and a review of curvularia infections in paediatrics. Paediatric Infect Dis J 1999; 18:727-731.
9. Anderson B. Roberts SS Jr. Gonzales C, et al. Mycotic ulcerative keratitis. Arch Ophthalmol 1959;62:169-179.
10. McGinnis MR. Chromoblastomycosis and phaeohypomycosis: new concepts, diagnosis, and mycology. J Am Acad Dermatol 1983;8:1-16.
11. Fader RC, McGinnis MR. Infections caused by dematiaceous fungi: Chromoblastomycosis and Phaeohyphyomycosis. Infect Dis Clin North Am 1988;2:925-938.
12. Jan JH, Ma DH-K, Tsai R-F. Keratomycosis. Ten years review. In Shimizu K , ed. Current Aspects in Ophthalmology. Vol. 1. Proceedings of the X11 congress of the Asia- Pacific Academy of Ophthalmology. Amsterdam. Netherlands: Excerpta Medica; 1992:339-342.
13. Lakshmi VVP, Lakshmi VVT, Gomathi A, et al. Mycotic keratitis in Madras. Indian J pathol Microbiol 1989;32:190-197.
14. Rosa RH, Miller D, Alfonso EC. The changing spectrum of fungal keratitis in South Florida. Ophthalmology 1994;101:1005-1013.
15. Sandhu DK, Randhawa IS. Studies on the airborne fungal spores in Amritsar: their role in keratomycosis. Mycopathlogia 1979;68:47-52.
16. Dunlop AA, Wright ED, Howlader SA. et al.Suppurative corneal ulceration in Bangladesh. A study of 142 cases examining the microbiological diagnosis, clinical and epidemiological features of bacterial and fungal keratitis. Aust NZ J Ophthalmol 1994;22:105-110.
17. Arawak PK, Lal B, Shukla PK, et al. Clinical and experimental keratitis due to Curvularia lunata (Wakker) Boedjin Var Aeria(Batista, Lima and Vasoconcelos) Ellis. Sabouraudia 1982;20:225-232
18. Dorey S, Ayliffe WH, Edrich C, et al. Fungal keratitis caused by curvularia lunata, with successful medical treatment. Eye 1997;11:754-755.
19. Guarro J, Akiti T, Almada-Horta R, et al. Mycotic keratitis due to Curvularia senegalensis and in vitreo anti fungal susceptibilities of curvularia spp. J Clin Microbiol 1999;37:4170-4173.
20. Thomas PA, Kalavathy CM, Abraham DJ, et al. Oral ketoconazole in keratomycosis. Indian J Ophthalmol 1987;35:197-203.
21. Thomas PA, Abraham DJ, Kalavathy CM, et al. Oral itraconazole therapy for my optic keratitis. Mycosis 1988;31:271-279.
22. Kirk R. Wilhelmius, Dan B. Jones. Curvularia keratitis. Tr. Am. Ophth. Soc2001;99:111-127.

Patterns of posterior uveitis in a tertiary eye care centre in Bangladesh

Nazmun Nahar[1], Tariq Reza Ali[2]

Abstract:

Purpose: *To identify the distribution and characteristics of new posterior uveitis referrals to Ispahani Islamia Eye Institute and Hospital, Dhaka, Bangladesh.*

Methods:

A one-year prospective study was carried out to obtain information on 52 new patients referred to this institute and later diagnosed as cases with posterior uveitis. A complete ophthalmologic

examination was performed in all cases; a routine set of tests and an additional battery of directed workup were conducted when indicated.

Results:

Mean age was 31.69 (±10.42) years. There was significant male predominance (male=40, female=12). The most common forms of posterior uveitis were Vasculitis (46.2%),Toxoplasma retinochoroiditis (21.2%). Noninfectious (43.3%) vs. infectious (56.7%). Tuberculosis (36.53%) and Toxoplasmosis (21.2%) were the main causes of posterior uveitis. There was significant visual improvement after treatment with anti-tubercular and anti-toxoplasma drugs (pre treatment logMAR mean visual acuity 0.91±0.50 and post treatment 3 months mean logMAR visual acuity 0.48±0.46)

Discussion:

Some entities such as CMV retinitis and Behçet's disease were not found.

Conclusion:

Although the current study was performed at a referral center, it definitely reflects the distribution of posterior uveitis in Bangladesh.

Key words: *Posterior uveitis; Tuberculosis; Toxoplasmosis; referral pattern*

Introduction

Uveitis refers to intraocular inflammation involving not only the uveal tract but also the adjacent structures, including the retina and vitreous. It affects people from all parts of the world, and it is a significant cause of severe visual impairment, accounting for 10% of blindness in the Western world.1 The pattern of uveitis is largely influenced by a multitude of factors, including genetic, ethnic, geographic, and environmental factors, diagnostic criteria, and referral patterns.2 It also changes over time with the emergence or identification of newer uveitic entities and improvement of diagnostic techniques.

Given the continuing globalization of the world, epidemiological studies on uveitis in different geographic areas or populations are important, as their results provide relevant clinical and research applications. Numerous studies on pattern of uveitis in various geographic regions from Western countries

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and Asia have been published, showing similarities and distinct differences in epidemiologic profiles and aetiologies of uveitis.3-7 But data on uveitis from Bangladesh is scarce.

The objective of our study was to identify the pattern of posterior uveitis in a tertiary eye care centre in Dhaka, Banngladesh.

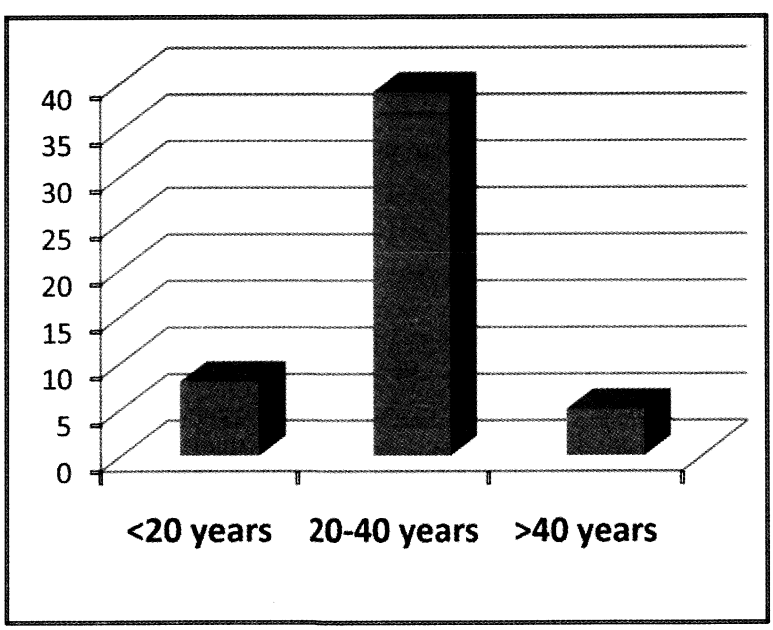
Materials and methods:

The study included 52 consecutive patients diagnosed as posterior uveitis who were seen between January 2011 and December 2011in the Vitreo-Retina department of Islamia Eye Institute, a tertiary eye care centre in Dhaka Bangladesh. The patient's history was carefully taken especially with respect to systemic diseases, such as cutaneous diseases, pulmonary disease, arthropathy, neurological involvements, and gastrointestinal diseases. Every patient was examined routinely with a slit-lamp microscope and indirect ophthalmoscope. Colour fundus documentation was done for every patient. Fluorescein angiography and indocyanine green angiography were performed in selected patients. Other auxiliary examinations, such as routine blood tests, x-rays, computed tomography, magnetic resonance imaging, ocular ultrasonography, skin allergy testing, and laboratory tests including erythrocyte sedimentation rate, C-reactive protein, serum angiotensin converting enzyme, antinuclear antibody, antitoxoplasma antibody, anticytomegalovirus antibody, and anti-herpes simplex virus antibody were, if needed, also carried out to help to make a diagnosis. Diagnosis was made according to the diagnostic criteria available in the literature. The following parameters such as category, etiology, gender, and the age at uveitis presentation were analyzed and compared with those presented in other countries. Statistical analysis was performed using the software SPSS 16.0.

Results:

Among 52 patients 40 were male and 12 were female, with a ratio male: female of 3.33. Mean age was 31.69 (±10.42) years with the range 14 to 62 years. The number of the patients aged 20 to 40 years was 37 in total, accounting for 71.15% of all the patients (Fig. 1). The most common forms of posterior uveitis were Retinal vasculitis 46.2%, Toxoplasma retinochoroiditis 21.2% and Tubercular chorioretinitis15.3% (Fig.3). Infectious causes were found in 56.7%. No cause could identify in 15.3% cases. Among the infectious cases Tuberculosis was 36.53% and Toxoplasmosis was 21.2%. Tuberculer posterior uveitis presented in the form of retinal vasculitis 21.2% and chorioretinitis or choroidal granuloma in 15.3%. There was significant visual improvement after treatment with anti-tubercular and anti-toxoplasma drugs (pre treatment logMAR mean visual acuity 0.91±0.50 and post treatment 3 months mean logMAR visual acuity 0.48±0.46.

Fig1: Age distribution



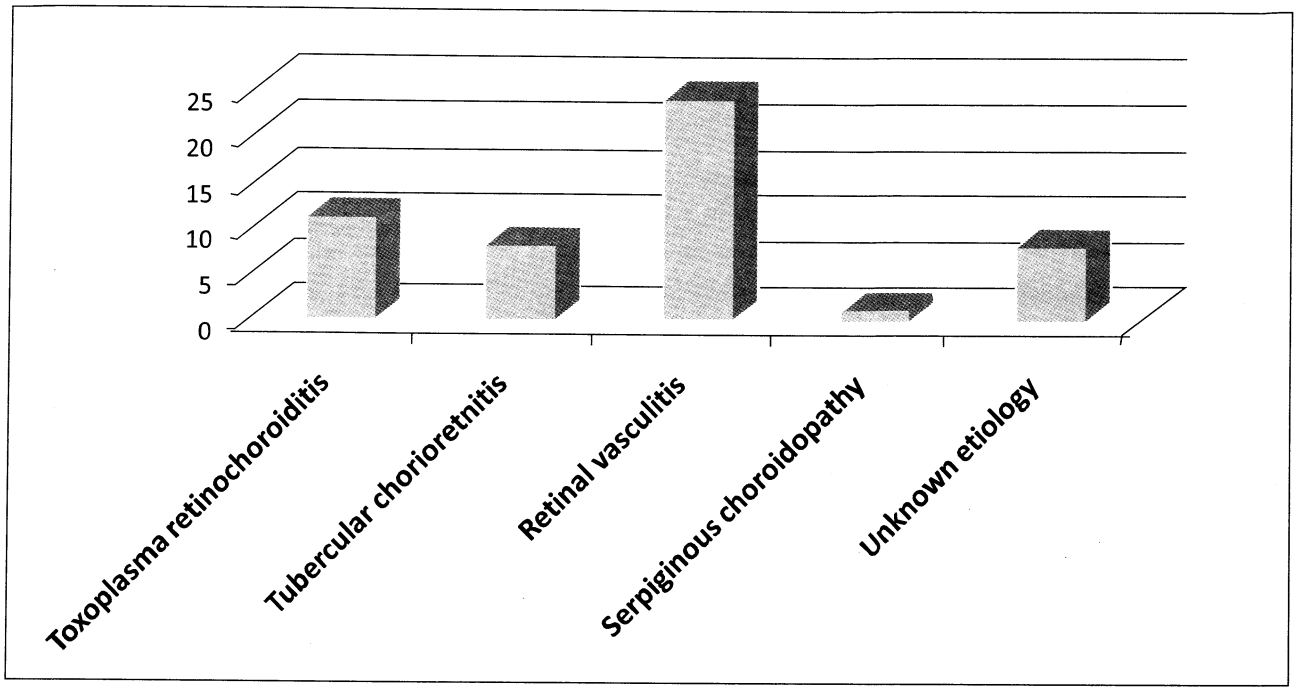


Fig 2: Types of posterior uveitis

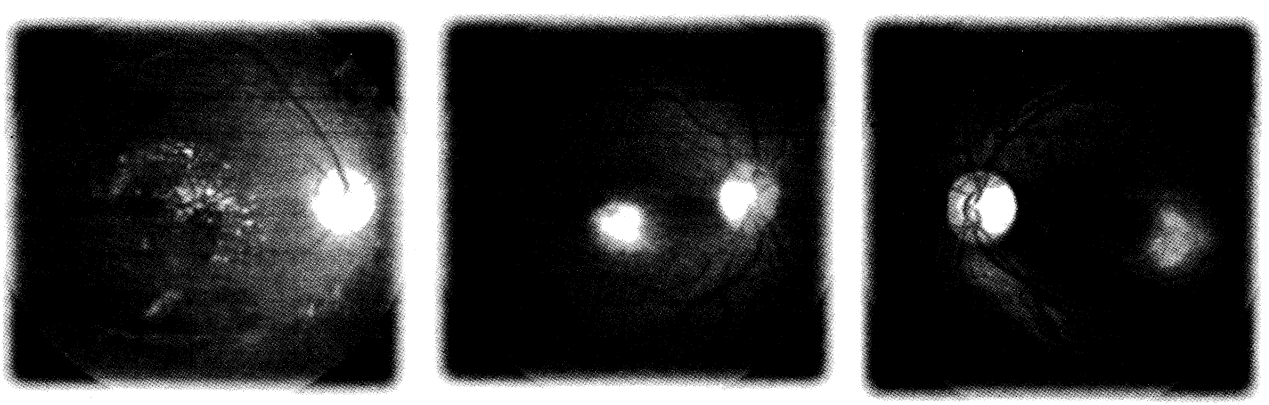


Fig 3: a) Vasculitis retinae b) Toxoplasma retinochoroiditis c) Tubercular chorioretinitis

Discussion:

Toxoplasmosis is the most frequently reported cause of posterior uveitis in Europe (49.2%), Middle East (33.3%), Tunisia, Africa (38.3%) and even in the part of India (Assam 40.2%) (Table-1)8-12. In our study we have found that toxoplasmosis (21.1%) is the second most common cause and tuberculosis (36.5%) is the most frequently found cause of posterior uveitis in Bangladesh. Whereas from different study it is evedent that tuberculosis is very less frequently occurring cause of posterior uveitis in Europe, Middle East, Chaina &Tunisia. Shing R et al found in the study done in North India that 8.95% of their posterior uveitis was related to tuberculosis. Again we did not found any case of CMV retinitis or Behchet disease, whereas in Middle East and Tunisia Behchet disease is a significant cause of posterior uveitis. So the etiology of posterior uveitis is different in Bangladesh from other part of the world and tuberculosis is the most important cause.

Table-1:

	Toxoplasmosis	Tuberculosis	Serpiginous Choroiditis	Behchet disease
Europe	49.2%	1.8%		2.4%
Middle East	33.6%	2.8%		17.4%
Tunisia, Africa	38.3%	0.0%	5.3%	12.8%
China	1.6%	0.0%	4.2%	
North India		8.9%	25.1%	
Assam, India	40.21%		15.21%	
Bangladesh	21.2%	36.5%	1.9%	0.0%

Conclusion:

As the study was done in a referral centre we cannot draw generalized conclusions from our findings and therefore, we cannot estimate the true incidence or prevalence of posterior uveitis in Bangladesh. Nevertheless, these results are valuable and reflect the causative pattern of posterior uveitis in patients referred from the different districts of Bangladesh and it can be said that tuberculosis is the most frequently occurring cause of posterior uveitis in Bangladesh.

References:

1. Nussenblatt RB. The natural history of uveitis. Int Ophthalmol 1990; 14: 303-308.
2. Weiner A, BenEzra D. Clinical patterns and associated conditions in chronic uveitis. Am J Ophthalmol 1991; 112: 151-158.
3. Darrell RW, Wagener HP, Kurland LT. Epidemiology of uveitis. Incidence and prevalence in a small urban community. Arch Ophthalmol 1962; 68: 502-514.
4. Miettinen R. Incidence of uveitis in Northern Finland. Acta Ophthalmol 1977; 55: 252-260.
5. Perkins ES, Folk J. Uveitis in London and Iowa. Ophthalmologica 1984; 189: 36-40.
6. Kijlstra A, Rothova A, Baarsma GS, Zaal MJ, Fortuin ME, Schweitzer C et al. Computer registration of uveitis patients. Doc Ophthalmol 1987; 67: 139-143.
7. Chung YM, Yeh TS, Liu JH. Endogenous uveitis in ChineseFan analysis of 240 cases in a uveitis clinic. Jpn J Ophthalmol 1988; 32: 64-69.
8. Patterns of Uveitis in the Middle East and Europe. J Ophthalmis Vis Res 2011;6(4)233-240
9. Pattern of Uveitis in a Referral Eye Clinic in North India. Indian J Ophthalmol 2004;52:121
10. Clinical Patterns and Characteristics of Uveitis in a Tertiary Center for Uveitis in China. Current Eye Research, 30:943-948, 2005.
11. Population-based prevalence of uveitis in Southern India. Br J Ophthalmol 2011; 95:463e467.
12. Pattern of uveitis in a referral centre in Tunisia, North Africa. Eye 2007; 21, 33-39.

Prognostic result of ocular acid & alkali burn

Nazneen Bari

Abstract:

Ocular chemical burn is one of the ocular medical emergencies. It needs immediate management to avoid more pathetic outcome like total blindness. These may cause extensive damage of ocular tissues including lid, cornea, anterior segment of the eye and may result in severe morbidity and may become blind. The common acids are sulfuric acid(used in car batteries, nitric acid (gold maker) acetic acid and hydrochloric acid. Common alkalis are lime, ammonia (cleaning solution), potassium hydrochloride, magnesium hydrochloride. Alkali burns are more common than acid burn as it is more commonly used in our daily work. Most of the chemical burns are due to assault and some are accidental. Acid burn is usually less severe than alkali burn because acid causes tissue protein to coagulate thus make a barrier which prevents further spread of acid particles to the deeper structure so the tissue destruction is less. On the other hand alkali causes melting of the tissues thus disrupt the normal barrier resulting deep penetration to the deeper structures causing severe damage to the lens and anterior uvea. The severity of the chemical injury depends on retention of the chemical particle in the eye, the effect may cause severe psychological and visual problem for the patients.

Objective: *To see the visual affect after ocular acid and alkali burn, and to compare the effect between the two forms of chemical injuries.*

Material and method : *The study was done in National Institute of Ophthalmology from 1st January 2009 to 31st December 2009 .The total number of patients were 60 out of which 30 were acid and 30 were alkali burn . Data were collected by taking history and detail clinical examination of the patients. The history included present complaints, history of incidence and treatment history a careful general and local examination was done. Local examination included slit lamp biomicroscopy, direct ophthalmoscopy, retinoscopy and visual acuity. Examination was done to determine the nature of the chemical by which the injury was done. Copious irrigation*

was done immediate done immediately after the patient was received. The patient was then hospitalized for proper treatment both medical and surgical whenever needed. all the patients were followed up at hospital daily.

The follow-up was done after the discharge from the hospital periodically for 6 months. The clinical improvement; complications were noted both early and late.

Results:

The total number of the patients was 60 in number out of which 30 were acid and 30 were alkali burn. Majority of the patients were in between the age of 25 to 30 years of age (table-1) most victims were females (Acid-73.33%, alkali- 60%) in comparison to the male Majority of the patients were from low social groups (Table-III). The mode of the injury were mostly due to assault (Acid-86.66%, Alkali-90%) The study showed that 86.50% of the patients of alkali burn developed cataract but no patient developed cataract in acid burn. 26.64% patients developed Corneal opacity in acid and 53.28% had in alkali burn. Loss of lid tissue was observed in26.64% of acid burn and 40% in alkali burn . In this study pthysis bulbi occurred in 2 cases (6.66%) in alkali burn but none in acid burn. Regarding visual outcome During follow up after 3 months of initial injury, shows that no one of acid burns had V/A >6/12. 13.32% of acid burn had V/A of 6/12 - 6/24. No patient of alkali burn had V/A >6/36 . 26.64% of acid burn and 13.32% of alkali burn had V/A of CF (5-10 ft). 19.98% of acid burn and 13.32% of alkali burn had V/A of CF (1-4 ft). 13.32% of acid burn and 16.65% of alkali burn had V/A of HM. 6.66% of acid burn and 39.96% of alkali burn had V/A of PL. Finally no acid burn cases developed total loss of vision but 16.65% of alkali burn developed total loss of vision . In this study it is seen that only 6.66% of patient of alkali burn developed V/A of 6/60 or better and 19.98% of acid burn developed that visual status. On the other hand 46.62% of acid

Conclusion: *Incidence of severe loss of vision was very high in alkali burn than acid burn mainly due to cataract, corneal opacity, and secondary glaucoma.*

Key words : *Ocular burns, chemical burns ,ocular irrigation, limbal transplant*

MS Student,NIO, Dhaka

Introduction:

Chemical or thermal ocular burns represents about 10% of ocular traumas [1,2] . Generally bilateral ocular burn is found in young subjects usually due to work-related, domestic or accidents, as well as assaults. Chemical burns are more common and caused by strong bases and acids. They are also responsible for the most severe and heavy psychological, social and legal consequences. Severity depends on the nature, concentration, quality and length of exposure and pH of chemical substances. The collective prognosis for satisfactory recovery from these injuries is poor [3]. Most of the eyes injuries are results from use of lime [3] . Automotive battery acid burns have become increasing the more common [4]

During recharging of a acid storage battery, which contains up to 25% sulphuric acid, hydrogen and oxygen produced by electrolysis form a highly explosive gaseous mixture [5].

In generally alkali injuries are more damaging to the eye than those caused by acids. Alkalis are water soluble substances that release hydroxyl ion. On ocular surface they saponify cell membrane and intercellular bridge which facilitates rapid penetration into the deeper layers and on into the aqueous and vitreous compartment 6.Cell damage from alkaline agents depends from both the concentration and duration of alkali. The higher the pH, the greater the damage of the eye , with the most significant injuries occurring at a pH of 11 or higher[7]. In the corneal stroma, alkali cations cause damage and necrosis by binding to the mucopolysaccharides and to collagen[8].

The most common alkalies involved in ocular injury are calcium hydroxide (Lime), potassium hydroxide(potash), sodium hydroxide and ammonium hydroxide(Ammonia). If the epithelial barrier is removed, the rate of penetration increases until they are nearly equal for all alkalies except ammonium hydroxide which remains the fastest[7].

Ammonium hydroxide passes most rapidly through the cornea as it destroy epithelial barrier by saffonification of the lipoidal cell wall and also it diffuses fastest through the stroma. Other alkalies lack the high mobility of the cornea necessary to permeate layers of cell [7].

Regarding acids the intact epithelium offers moderate protection against penetration of dilute or weak acid, allowing the pH is [2.5] or less .However severe tissue destruction can occur at a pH greater than [2.5] after the epithelium has been removed [7]. With sulfurous acid penetrating more rapidly than hydrochloric, phosphoric or sulfuric acids [7].

After chemical injury there is normal mechanism of regeneration of corneal epithelium. Normally corneal epithelium has five layers overlying basal epithelial cell which are attached to a basement membrane [9]. Epithelial cells arise from multipotential stem cells at the limbus migrate continuously toward the corneal center and they replace the epithelial cells that have moved toward the surface during their normal maturation and have desquamated from the cornea 10. In the uninjured cornea, complete replacement of epithelial cells occurs every 5 to 7 days [11]. The rate at which migrating cells move over the corneal surface increases after a traumatic loss of corneal epithelial cells [12].

Conjunctiva participates with the corneal epithelium in establishing a relative barrier to the passage of microorganisms and noxious chemical agents, and it is active in local immune reactions [13]. The conjunctival epithelium provides a source of cell to repopulate the corneal surface when the entire corneal epithelium has been denuded and limbal stem cells has been destroyed, as in severe chemical injuries [14, 15].

Material & method :

The study was done in National Institute of Ophthalmology from 1st January 2006 to31st December 2006 .The total number of patients were 60 out of which 30 were acid and 30 were alkali burn . Data were collected by taking history and detail clinical examination of the patients. The history included present complaints, history of incidence and treatment history a careful general and local examination was done. Local examination included slit lamp biomicroscopy, direct ophthalmoscopy, retinoscopy and visual acuity. Examination was done to determine the nature of the chemical by which the injury was done. Copious irrigation was done immediate done immediately after the patient was received. The patient was then hospitalized for proper treatment both medical and surgical whenever needed. all the patients were followed up at hospital daily.

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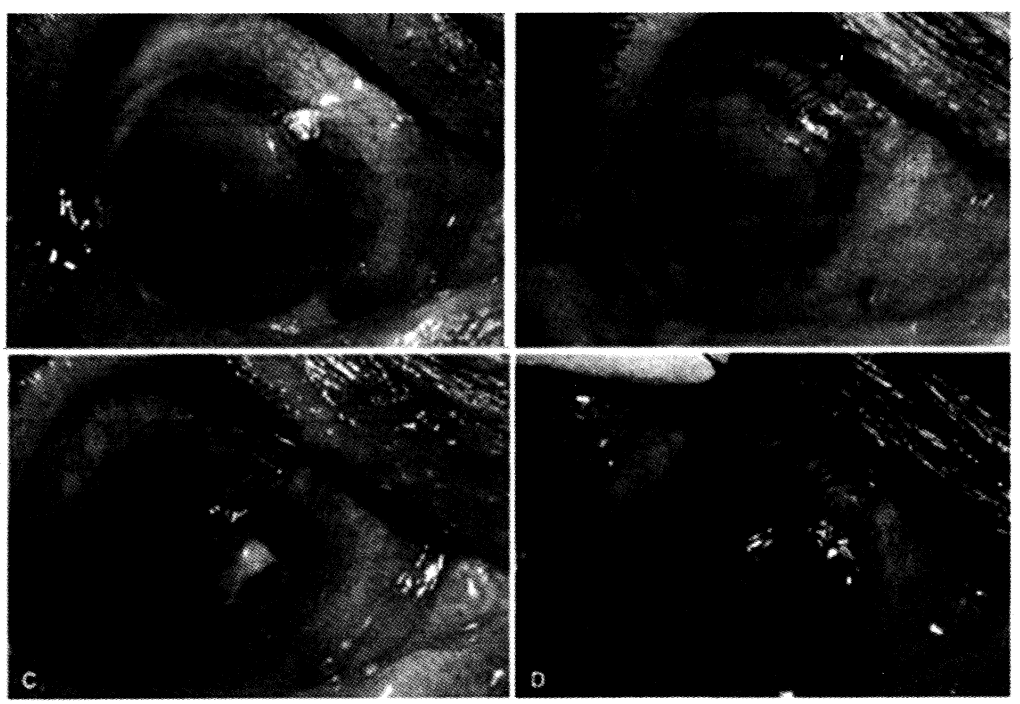

Fig. 1

Severe alkali burn. A. Two weeks after injury: pannus begins to invade the opaque cornea from above. B. Three weeks after injury: pannus grows as the cornea begins to thin and clear. C. Seven weeks after injury: collagenolytic erosion and descemetocele in advance of the pannus. D. Eight weeks after injury: frank perforation of the cornea.

Fig.2

Acute alkali burn of moderate degree. Scattered blanching of perilimbal vessels can be seen. Corneal epithelium is denuded. Mottled corneal edema partly obscures anterior chamber details.

Fig.3

Acute alkali burn of great severity. Marked involvement of facial skin is apparent.

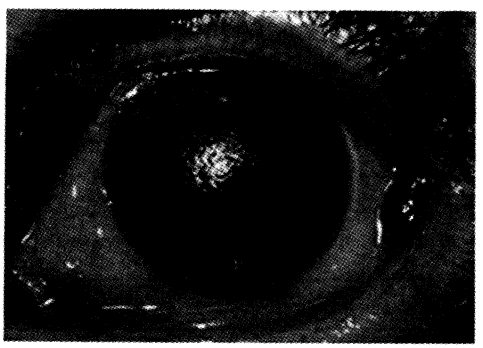

Fig.4

Acute alkali burn of marked severity, with perilimbal blanching and translucent cornea.

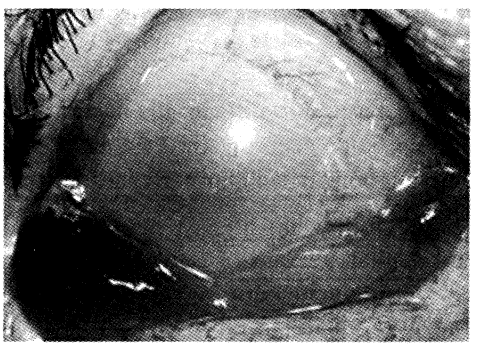

Fig.5

Acute alkali burn of greatest severity. Perilimbal blanching, chemosis, and corneal opacification are evident.

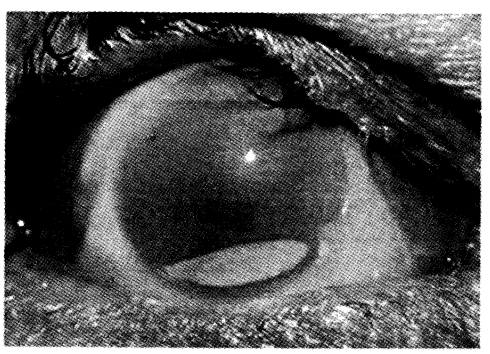

Fig.6

Acute alkali burn of severe degree. The eye rolled upward in avoidance (Bell phenomenon), exposing the lowest aspect of the cornea to the greatest damage

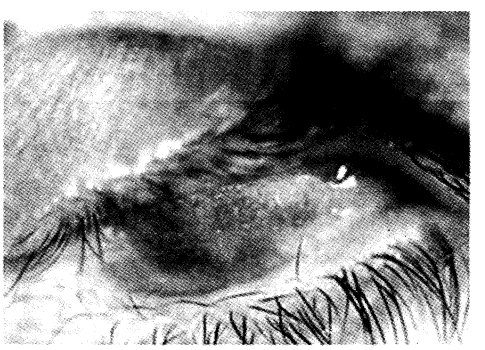

Fig.7

Severe ocular chemical burn. Immobile eye in late cicatricial stage

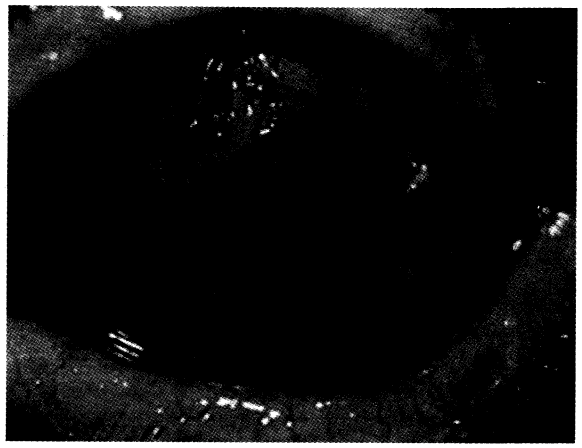

Fig.8

Heavily vascularized cornea with symblepharon several years after severe chemical burn. Poor prognosis is expected for penetrating keratoplasty.

of acid burn and 40% in alkali burn . IN the study pthysis bulbi occurred in 2 cases (6.66%) in alkali burn but none in acid burn. Regarding visual outcome

During follow up after 3 months of initial injury, shows that no one of acid burns had V/A >6/12. 13.32% of acid burn had V/A of 6/12 - 6/24. No patient of alkali burn had V/A >6/36. 26.64% of acid burn and 13.32% of alkali burn had V/A of CF (5-10 ft). 19.98% of acid burn and 13.32% of alkali burn had V/A of CF (1-4 ft). 13.32% of acid burn and 16.65% of alkali burn had V/A of HM. 6.66% of acid burn and 39.96% of alkali burn had V/A of PL. Finally no acid burn cases developed total loss of vision but 16.65% of alkali burn developed total loss of vision . In this study it is seen that only 6.66% of patient of alkali burn developed V/A of 6/60 or better and 19.98% of acid burn developed that visual status. On the other hand 46.62% of acid

Table - I

Distribution showing mode of Chemical burn

Mode of injury	Acid burn	Alkali burn
Accidental	4(13.32%)	3
Assault	26(86.66%)	27 (90%)
Total	30 (100 %)	30 (100 %)

Table –II

Distribution of socioeconomic condition of patients

Class	Acid burn	Alkali burn
Lower income group	18	22
Middle income group	8(26.64%)	6
High income group	4	2
Total	30	30

Table-III
Sex distribution

Sex	Acid burn	Alkali burn
Male	8(26.64%)	12(40%)
Female	22(73.33%)	18(60%)
Total	30(100%)	30(100%)

Burn had V/A of CF and 26.64% of alkali burn had the same vision . 6% of acid burn had V/A worsens than CF but 73.26% of alkali burn resulted to that visual loss.

Table-IV –Age distribution

Age(years)	Acid burn	Alkali burn
<15	5(16.66%)	7(23.31%)
15-20	82(6.64%)	13(43.29%)
25-30	14(46.62%)	8(26.64%)
>35	3(9.99%)	2(6.66%)
Total	30(100%)	30(100%)

Discussion:

The severity of injury correlates directly with the chemical involved , duration of contact , pH of chemical solution and its penetration 16 . Corneal epithelial damage may ultimately result in limbal ischemia and loss of limbal steam cells 17 . Hydroxyl ion of alkali saponifies cell membrane fatty acid and causes lysis 18 . The interaction allowed dipper penetration into the corneal stroma causing denasturation of collagen and keratocyte destruction 18. Immediate copious irrigation is the most important emergency treatment and should begin at the scene of injury 19 .

Chemical burn is one of the ocular emergencies. Our study shows that chemical burn causes severe ocular complications and visual disability. Severe contracture of eyelids and surrounding structure of the face to place mostly in alkali burn. Few patient with alkali burn (13.98%) developed visual impairment but most of the alkali burn (73.26%) had HM or worse due to damage of the deeper ocular structure. So alkali burn causes more corneal damage then that by acid burn20 Roper-hall MJ stated that corneal stromal damage and limbal ischemia occur mostly in alkali burn .This study shows that 18% of alkali burn had corneal perforation with iris prolapsed and there was no such case in acid burn. Tsubota K and satio H et al (1995)21 stated in their study That 16% of alkali burn developed corneal perforation with iris prolapsed.86.58% developed cataract in alkali burn and there was no case had cataract in acid burn as the penetration power of alkali was more and on the other hand acid causes coagulation of protein in the tissue thus limits the spread of spread of toxic effect of acid. Here I have seen that no cases was blind in acid burn but 16.65% patient developed blindness in alkali burn. Peterson CA22 showed that 70% of alkali burn had visual acuity of HM or worse. Morgan SJ23 reported 10% of the cases of phthisis bulbi causing permanent loss of vision in severe alkali burn.

Table V -Complications of chemical burn

Complications	Acid	Alkali
Lid necrosis	8(26.64%)	12(40%)
Entropion	10(33.3%)	26(86.88%)
Limbal ischemia	5(16.65%)	16(53.028%)
Conjunctival scaring	10(33.3%)	16(53.28%)
Corneal oedema	8(26.64%)	16(53.28%)
Uveitis	7(23.31%)	23(76.09%)
Iris atrophy	1(3.33%)	9(29.97%)
Cataract	Nil	26(86.58%)
Vitreous prolapsed	Nil	4(12%)
Secondary glaucoma	Nil	5(16.66%)
Phtysis bulbi	Nil	6 (19.33%)

Table VI- Visual outcome during 2-3 Months

6/9 or better	nil	Nil
6/12- 6/24	4(13.32%)	Nil
6/36- 6/60	6(19.98%)	2(6.66%)
CF(5-10ft)	8(26.64%)	4(13.32%)
CF(1-4ft.)	6(19.98%)	2(13.32%)
HM	4(13.32%)	5(16.65%)
PL	2(6.66%)	12(39.96%)
NPL	Nil	5(16.65%)
Total	30(100%)	30(100%)

Conclusion:

Both acid and alkali may cause severe damage to the ocular structure. As the face is the most exposed part, damage is more common in the face by chemical burn. Incidence of severe loss of vision was very high in alkali burn than acid burn mainly due to cataract, corneal opacity, and secondary glaucoma. About 16% of the patients were blind due to alkali burn. Chemical burn is one of the major causes of blindness in our country. We have to develop adequate public awareness and education about the danger of chemical burn and about the first aid with immediate irrigation with water, early hospitalization of chemical burn so that we can reduce the incidence of acuteness of the morbidity.

References:

1. Zagelbaum B, Tostanowski J, Kerner D Hersh PS, Arban eye trauma, Ophthalmology, 1993;100: 851-6 .
2. Jones NP, Hayward JM, Khaw PT et al.,Funtion of an Ophthalmic accident and emergency department: Results of six months servay, Br Med J,1986;292:188-90 .
3. Kuckelhorn R, Makropoulos W, Kottek A et al: Retrospective study of severe alkali burns of the eyes. Klin Monatsbl Augenheilkd 203:397, 1993 .
4. Siebert S: Ocular trauma from lead-acid vehicle battery explosions. Aust J Ophthalmol 10:53, 1982
5. Holekamp TLR, Becker B: Ocular injuries from automobile batteries. Trans Am Acad Ophthalmol Otolaryngol 83: 805, 1977
6. Arena JM: Treatment of caustic alkali poisoning. Mod Treat 8:613, 1971
7. Grant WM: Toxicology of the Eye, p 88. 2nd ed. Springfield, IL: Thomas, 1974.
8. Grant WM, Kern HL: Cations and the cornea. Am J Ophthalmol 42:167, 1956.
9. Gipson IK, Watanabe H, Zieske JD: Corneal wound healing and fibronectin. Int Ophthalmol Clin 33:149, 1993 .
10. Thoft RA, Friend J: The X, Y, Z hypothesis of corneal epithelial maintenance. Invest Ophthalmol Vis Sci 24: 1442, 1983
11. Schultz GS: Modulation of corneal wound healing. In Krachmer JH, Mannis MJ, Holland EJ (eds): Cornea: Fundamentals of Cornea and External Disease, p 183. St Louis: Mosby, 1997.
12. Kuwabara T, Perkins DG, Cogan DG: Sliding of the epithelium in experimental corneal wounds. Invest Ophthalmol Vis Sci 15:4, 1976
13. Montan PG, Biberfeld PJ, Scheynius A: IgE, IgE receptors, and other immunocytochemical markers in atopic and nonatopic patients with vernal keratoconjunctivitis. Ophthalmology 102:725, 1995
14. Shapiro MS, Friend J, Thoft RA: Corneal re-epithelialization from conjunctiva. Invest Ophthalmol Vis Sci 21:135, 1981
15. Danjo S, Friend J, Thoft RA: Conjunctival epithelium in healing of corneal epithelial wounds. Invest Ophthalmol Vis Sci 28:1445, 1987 .
16. Morgan SJ . chemical burns of the eye: causes and management. Br J Ophthalmol. 1987;71;854-7 .
17. Shazlly TA Ocular acid burn due to 20% concentrated salicylic acid . Cutan Ocul Toxical. 2011;30(1):84-6{PubMed}.
18. Pfister RR, Koski J. The pathophysiology and treatment of alkali burned eye. South Med J. 1982;75:417-22 .
19. Ikeda N, Hayasaka S, Hayasaka Y, Watanabe K .Akali burn of the eye : Eddect of immediate copious irrigation with water on their severity . Ophthalmmologica .2006;220(4):225-8{Pubmed}.
20. Roper-Hall MJ . Thermal and chemical burn of the eye. Trans. Ophthalmol. Soc.UK 2010; 85: 631-646 .
21. Tsubota K, Toda 1, Saito H et al. Reconstruction of corneal epithelial by limbal auto graft transplantation for severe ocular surface disorder . Ophthalmology 1999; 105: 1486-1496.
22. Burns FR Paterson CA. Pront irrigation of chemical eye injuries may avert severe damage .Occupational health and safety , 1989; 58:33-36.
23. Morgan SJ and Murray AT EL. Limbal auto transplantation in the acute and chronic phases of severe chemical burn. Eye 2010; 10: 349-354 .

A Rare Case of Bilateral Retinoma Occurring in A 17 Year Old Child

Shafiqur Rahman[1], Sabrina Rahmatullah[2], Md. Mostafizur Rahman[3], Tariq Reza Ali[4], Md. Arifuzzaman[5]

Abstract:

Objective:

To report a case of bilateral retinoma in a 17 year old child.

Method:

The patient was evaluated with clinical, ophthalmological and investigational reports.

Results:

On routine examination a 17 year old child was revealed with a bilateral grey translucent mass extending into vitreous from retina which was larger in left fundus with extensive chorioretinal atrophy. Fundus photographic documentation, Fluorescein angiography and B-scan ultrasonography were performed. Retinomas are most commonly observed in patients with retinoblastoma and their relatives. In this case, none of the patient's parents, or siblings had evidence of retinal tumor.

Conclusion:

Retinoma is a rare benign retinal tumor that in the past has been called 'spontaneous regression' of retinoblastoma. The diagnosis of retinoma strongly suggests the presence of retinoblastoma gene, necessitating genetic counseling and frequent observation of retina of the individual for malignant transformation of tumor. There is also a possibility of an increased risk of developing a second primary tumor in patients of retinoma. So timely and correct diagnosis with regular follow up is essential to minimize the risk of future generation.

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Introduction:

Chemical or thermal ocular burns represents Retinocytoma or retinoma is a benign tumor of retinocytic origin that is caused by mutation of retinoblastoma gene. This condition was first described by Gallie et al. in 19821. Spontaneous regression is an uncommon but well described feature of retinoblastoma2, which is estimated to occur approximately 2 of every 100 tumors3. Unilateral , unifocal spontaneous regression of retinoblastoma is uncommon, bilateral multifocal retinoma is even rarer. Yet several of this type have been reported4-14. In many of the previously reported case, the eyes with spontaneously regressed tumor has been phthisical and blind. Only a few case report describe useful vision in both eyes. Even fewer of these cases have been well illustrated photographically.

This paper describes the case of a boy with bilateral spontaneously regressed retinoblastoma or retinoma who retained excellent vision in both eyes. It also illustrates clinical feature with clinical photographs, fluorescein angiogram and B-scan ultrasonography .

Case Report

A 17 year old boy came to Ispahani Islamia Eye Institute and Hospital on November, 2012 with the complaints of black shadow in his right eye for 1 and half months. He gave no history of defective vision or leukocoria or any other intraocular disease.

On examination, visual acuity of both eyes were 6/6 and anterior segment were normal. Fundus examination revealed a bilateral grey translucent mass extending into vitreous from retina which was larger in left fundus surrounded by a rim of pigment epithelial change and extensive chorioretinal atrophy. There was no vitreous seeding, vitreous band or dragging of disc and macula. The lesion was located at superotemporal quadrant just above the fovea in right eye and measured approximately 4 disc diameter. In left eye the lesion was located at the periphery of supero temporal quadrant measuring more than 6 disc diameter.

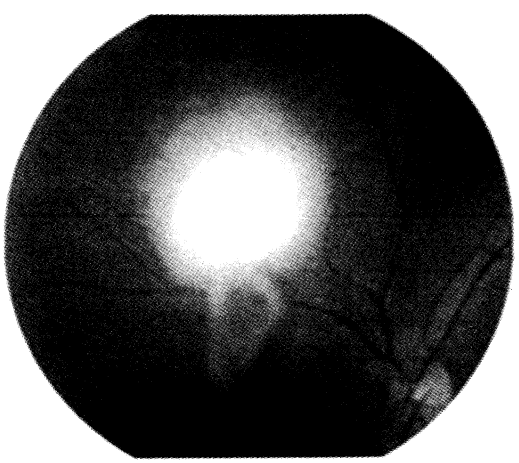


Fig: Color fundus photograph of right eye showing white lesion

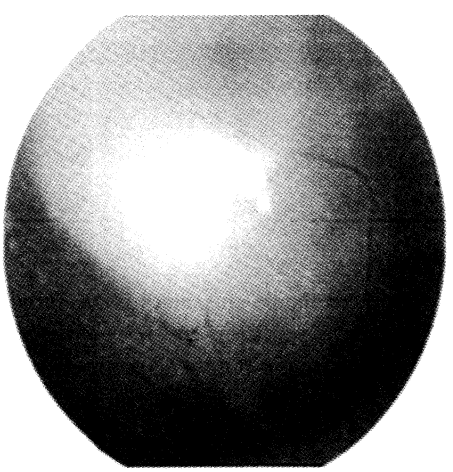


Fig: Color fundus photograph of left eye showing white lesion in the periphery

The fluorescein angiogram of this lesion showed retinal pigment epithelial window defects, the overlying retinal circulation was intact, and there was no indication of any specific tumor circulation.

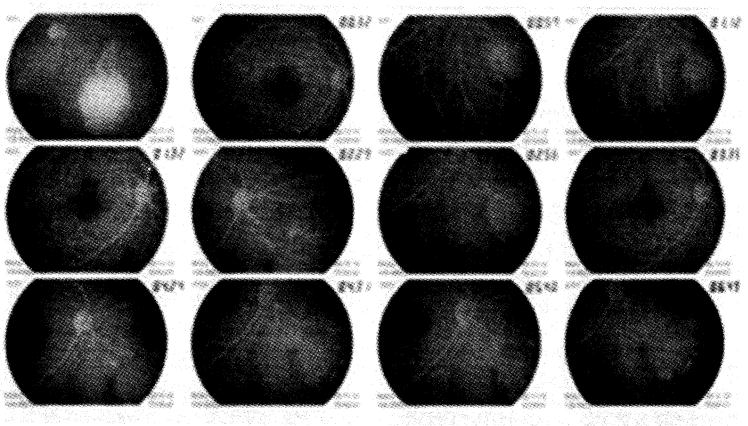


Fig: Fluorescence angiogram of left eye

B-scan ultrasonography revealed mass like elevation with no calcification.

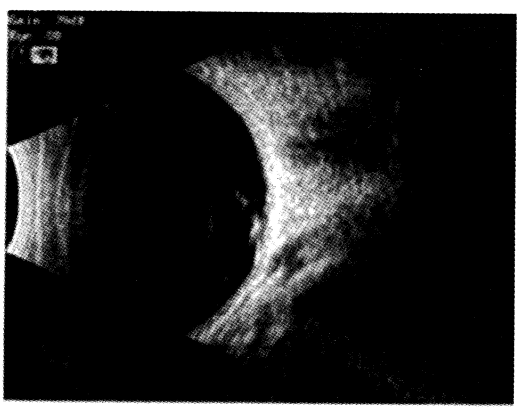


Fig: B-scan ultrasonography of right eye

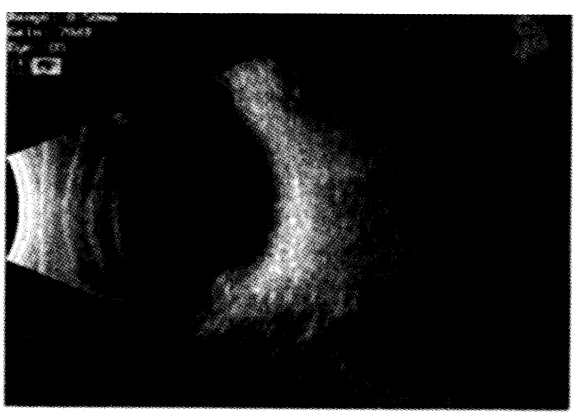


Fig: B-scan ultrasonography of left eye

CT-scan of brain and orbit was within normal limit.

Detailed ocular examination of the patient's siblings and parents revealed normal.

Discussion:

Although retinocytoma is an uncommon tumor, its frequency among families with a history of retinoblastoma is higher and has been reported to vary between 1% and 10%.15-18 Singh et al reported that retinoma diagnosis was made in 85% of patients after 5 years, in contrast to retinoblastoma, which is usually diagnosed in children younger than 5 years.18

The diagnosis of retinoma is made on the basis of characteristic clinical appearance and absence of documented growth during follow-up. Retinocytoma appears as a translucent retinal mass, which is commonly associated with calcification and alteration of retinal pigment epithelium.18 Other features include surrounding chorioretinal atrophy, normal caliber supplying and draining blood vessels.18 It can be differentiated from toxocara granuloma by absence of vitreous band, dragging of disc or macula and in most cases having unilateral involvement. Retinoma commonly simulates regressed retinoblastoma. They usually present with symptoms like visual loss or strabismus. However, retinoma can also be diagnosed in asymptomatic patients during routine eye examination, as in our case. Singh et al. reported that 10 of their 17 patients (59%) were asymptomatic at the time of the diagnosis.18

Retinoma usually presents in the mid peripheral fundus, followed by posterior equator and peripheral retina.18 In our case it involved mid periphery in one eye and peripheral retina in the opposite. In the macular area, retinoma usually do not involve the foveola.18There can be multiple foci of retinoma in same eye.18,19,20Moreover some patients may have retinoblastoma in one eye and retinoma in the opposite eye.15,16

Retinoma is a benign tumor and in many cases remain stationary during follow up. Retinoma can rarely develop progressive resorption over several years.21The most dreaded complication of retinoma is malignant transformation.16-18Singh et al. found that malignant transformation developed in 1 of 24 (4%) retinoma in their series.18Eagles et al. also reported a rapid enlargement of a tumor and vitreous seeding after 3 years of follow up.17Vitreous seeding does not always indicate malignant transformation in retinoma and such cases may remain stationary for many years.20

Retinoma carries same genetic implication as retinoblastoma. Due to improper facility we could not do genetic differentiation. Patients with multiple or bilateral retinoma should be considered to have germ line mutation of retinoblastoma gene.22,23These patients have a 45% risk of passing the gene to their children. In our case , the parents and siblings all underwent eye examination and was found normal. Still families and their children should have a regular genetic counseling. Regular follow up is necessary as the tumor can turn into malignant transformation.

References

1 Gallie BL, Phillips RA, Ellsworth RM, Abramson DH. Significance of retinoma and phthisis bulbi for retinoblastoma. Ophthalmology. 1982;89:1393-1399.

2 Sang DN, Albert DM. Recent advances in the study of retinoblastoma.In: Peyman GA, Apple DH, Sanders DR, eds.Intraocular tumors. New York: Appleton Century Crofts, 1977; 285-329.

3 Gallie BL, Wong JJY, Ellsworth RM, DuPont B, Good RA.Immunological mechanisms in spontaneous regression of retinoblastoma. In Silverstein AM, O'Connor GR, eds.Immunology and immunopathology of the eye. New York:Masson, 1979: 190-6.

4 Purtscher 0. Zur Kenntnis des Markschwamms der Netzhaut und seiner spontanen Ruchbildung. Zentrabl Prakt Augenheilkd 1915; 39: 193-206.

5 Hine M. Spontaneous cure of retinal glioma. Traws Ophthalmol Soc UK 1937; 57: 173-86.

6 Hine ML. A sequel to the case of spontaneous cure of 'glioma ofthe retina.' Report, 1937. Trans Ophthalmol Soc UK 1945; 64:99-106.

7 Steward JK, Smith JLS, Arnold EL. Spontaneous regression of retinoblastoma. Br J Ophthalmol 1956; 40: 449-61.

8 Sakie D. Ein Fall von ruckgebildetem doppelseitigen Glioma retinae. Ber Dtsch Ophthalmol Ges 1959; 62: 300-5.

9 Ellsworth RM. The practical management of retinoblastoma. Trans Am Ophthalmol Soc 1969; 67: 462-534.

10 Ellsworth RM. Additional comments on spontaneous regression of retinoblastoma. Arch Ophthalmol 1969; 82: 298.

11 Boniuk M, Girard L. Spontaneous regression of bilateral retinoblastoma. Trans Am Acad Ophthalmol Otolaryngol 1969; 73:194-8.

12 Smith JLS. Histology and spontaneous regression of retinoblastoma. Trans Ophthalmol Soc UK 1974; 94: 953-67.

13 Khodadoust AA, Roozitalab HM, Smith RE, Green WR. Spontaneous regression of retinoblastoma. Surv Ophthalmol1977; 21: 467-78.

14 Sovik WE. Bilateral retinoblastomas in six siblings. Am J Ophthalmol 1952; 35: 1611-8.

15 Gallie BA, Ellsworth RM, Abramson DH, Phillips RA. Retinoma: spontaneous regression of retinoblastoma or benign manifestation of the mutation? Br J Cancer. 1982;45:513-521.

16 Balmer A, Munier F, Galloud C. Retinoma: case studies. Ophthalmic Pediatr Genet. 1991;12:131-137.

17 Eagle RC Jr, Shields JA, Donoso LA, Milner RS. Malignant transformation of spontaneously regressed retinoblastoma, retinoma/retinocytoma variant. Ophthalmology. 1989;96:1389-1395.

18 Singh AD, Santos CM, Shields CL, Shields JA, Eagle RC Jr. Observation on 17 patients with retinocytoma. Arch Ophthalmol. 2000;118:199-205.

19 Lommatzsch PK, Zimmerman W, Lommatzsch R. Spontaneous growth inhibition in retinoblastoma [article in German]. Klin Monatsbl Augenheilkd. 1993;202:218-223.

20 Lueder GT, Héon E, Gallie BL. Retinoma associated with vitreous seeding. Am J Ophthalmol. 1995;119:522-523.

21 Lam A, Shields CL, Manquez ME, Shields JA. Progressive resorption of a presumed spontaneously regressed retinoblastoma over 20 years. Retina. 2005;25:230-231.

22 Gallie BL, Dumm JM, Chan HSL, Hamel PA, Phillips RA. The genetics of retinoblastoma: relevance to the patient. Pediatr Clin North Am. 1991;38:299-315.

23 Draper GJ, Sanders BM, Brownbill PA, Hawkins MM. Patterns of risk of hereditary retinoblastoma and applications to genetic counselling. Br J

Nd: YAG laser corticolysis - an easy but effective approach for the post operative cortical remnants behind the intraocular lens.

Md. Shahinur Rahman

Abstract:

Purpose: *To assess the efficacy of YAG laser in photo-disruption of retained cortical matter after cataract surgery & to evaluate the associated complications.*

Setting: *Islamia Eye and Laser Centre , Dhanmondi, Dhaka.*

Methods: The study included 5 cases of pseudophakia with cortical remnant behind the intraocular lens. In all the cases vision was satisfactory after small incision cataract surgery (SICS) but deteriorated again after few days due to accumulation of soft hydrated cortex between the posterior capsule & the intraocular lens. The soft hydrated cortex was liquefied with a short, high- power pulse of Q- switched Nd: YAG laser. Within a few days, the liquefied milky cortex became absorbed, restoring a good visual zone.

Result: *Among 5 cases, 3 patients (60%) obtained good vision 1-2 weeks after laser therapy. One patient acquired moderate vision because of persistent corneal opacity. In another patient, vision did not improve due to hazy vitreous. Secondary inflammation rate was high (60%). Temporary rise of intraocular pressure (IOP) was the second common complication (40%). Mild corneal edema was also 40% due raised IOP. All complications were resolved within two weeks by appropriate treatment.*

Conclusion: *Nd: YAG laser allows a surgeon to effectively reach inside the eye with a pair of micro scissors delivered on a beam of light. It is an effective, safe & highly acceptable procedure in photo-disruption of cortical remnant.*

Introduction:

Cataract surgery is the most common ocular surgery through out the world. Small Incision Cataract Surgery (SICS) with posterior chamber intraocular lens implantation is a widely practiced surgery all over the Bangladesh. One of the common problem in SICS is the incomplete clearance of cortical matter from the capsular bag. Particularly removal of sub-incisional cortex at 12' o clock position is really a great challenge for the less competent surgeon. Even it may happen in phacoemulsification when the capsulorrhexis size is too small1.Sometimes, surgeon left some part of the cortex because of accidental posterior capsular tear1. After surgery the cortical remnant gradually becomes soft due to imbibitions of water. The soft hydrated cortex looses its position, entrap between the capsule and the intraocular lens & occlude the visual zone1. This can be managed by subsequent surgery. But the 2nd surgery invites further inflammation, increases the chance of infection as well as many surgeons feels shaky to take the patient to the operation theatre again. Moreover, if there is any pre-existing tear in the posterior capsule, removal of cortical matter by irrigation-aspiration may complicate the whole process.

Nd:YAG laser is a widely accepted non-invasive procedure for tissue photo-disruption . YAG laser can effectively manage a number of disorders arising after cataract surgery such as vitreous strands in the wound, retained cortical matter, pupillary deformities, deposits on the lens surface & posterior capsular opacity2, 6.

This study was performed to assess the efficacy of YAG laser in photo-disruption of retained cortical matter & to evaluate the associated complications.

Associate Professor, Ophthalmology.

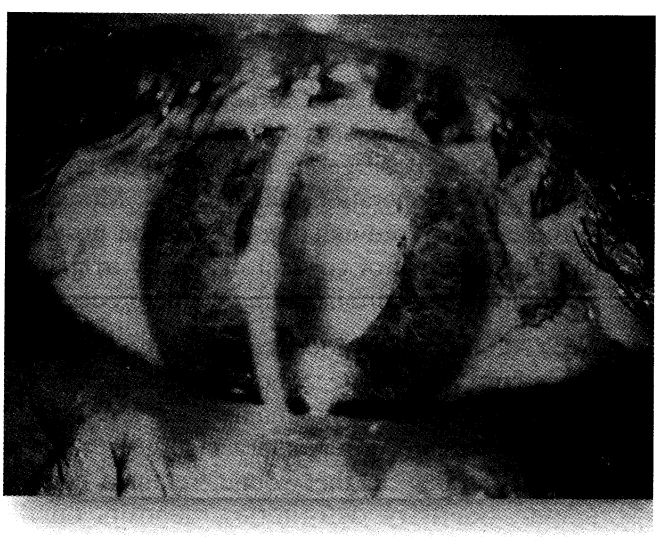
Materials & Method:

This study was performed in the Islamia Eye & Laser Centre during the period of July 2007 to September 2008.. The study included 5 cases of pseudophakia with cortical remnant behind the intraocular lens. All the cases were evaluated in details. The evaluation included a history, assessment of vision, slit-lamp examination of the cornea, anterior chamber, position of IOL, location & amount of cortical remnant & the condition of the posterior capsule. Ophthalmoscopy with dilated pupil & intraocular pressure were also measured. Eyes with post operative severe anterior chamber reaction, glaucoma & markedly hazy cornea were not included. Pseudophakia with posterior capsular opacity were also excluded in the study. Regarding history, every patient told that their visual recovery was satisfactory after cataract operation but the vision deteriorated again few days after surgery. Intra ocular pressure was normal in all cases but cornea was slightly hazy in 2 cases. Mild anterior chamber reaction was present in 3 cases.

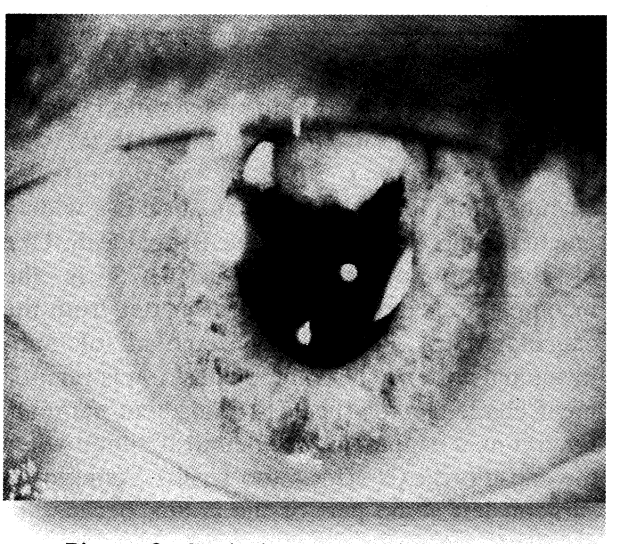
At first pupil was dilated by 1% tropicamide eye drop. Power setting & no of exposures were varied depending upon the amount & thickness of the cortical remnant. Usually 2 - 5 mJ of energy per pulse from a Q- switched Nd: YAG laser were used. The laser beam was focused posterior to the intraocular lens & within the substance of the cortical matter. Posterior capsule was not disturbed. On an average, 40 to 70 shots were required in each case. The cortical matter became milky after application of few shots & settled at the bottom between the lens & the posterior capsule, from where it was absorbed within a week. Only in one case the liquid cortex shifted to the vitreous because of pre existing capsular tear. In this case vitreous became clear within 3 weeks.

At the end of laser, steroid & anti glaucoma drops (Timolol / Brimonidin) were advised to every patient for 2 weeks. Steroid drop was given frequently to prevent anterior uveitis.

All cases were followed up on the next day, 1st & 2nd week & then after 1, 3 & 6 months interval. During follow up period visual acuity, slit-lamp examination, ophthalmoscopy & intraocular pressure were measured.



Picture- 1: Cortical matter behind the IOL



Picture-2 : Cortical matter hanging from above

Result:

Out of 5 cases 3 patients (60%) obtained good vision 1-2 weeks after laser therapy. One patient acquired moderate vision because of persistent corneal opacity. In another patient vision did not improve because the vitreous was hazy.

Case	BCVA before laser	BCVA (6 wks after laser)
1	6/60	6/6
2	CF 7	6/6
3	CF 10	6/9
4	CF 2	6/60
5	HM	CF 2

Table1: Visual status of 5 cases before & after corticolysis. CF- counting finger, HM- hand movement. BCVA - best corrected visual acuity.

Intraocular pressure was found raised in two cases (40%) in the first follow up period. Tablet acetazolamide was given in these cases in addition to timolol drop. Pressure was reduced to normal within two weeks.

Mild corneal edema was present in 2 cases before applying laser. Another 2 patient (40 %)developed corneal edema due to raised intraocular pressure.

Cornea was clear in all cases except one after 2 weeks of laser. Only in patient corneal haziness persist probably due to per-operative endothelial damage.

Anterior chamber reaction was mild to moderate in 3 cases in the first week & became nil within 4 weeks. Retinal detachment and cystoid macular oedema was not seen in any case during our follow up period.

Complications	No	Percentage
Temporary raised IOP	2	40
Corneal edema	2	40
Iritis	3	60
CME	nil	nil
RD	nil	nil
Lens damage	nil	nil

Table 2: Complications of YAG laser corticolysis.

Discussion

The neodymium: yttrium- aluminium- garnet (YAG) laser is a solid state laser with a wave length of 1064 nm that can disrupt ocular tissue by achieving optical break down with a short, high- power pulse. Here, temperature rises from 370 C to 150000 C at the site of application. On optical break down at the desired site, electrons are stripped from the atoms of target tissue resulting in development of plasma field & bubble. This leads to hydrodynamic & acoustic wave & mechanically tears the tissue microscopically[3].

Before introducing Nd:YAG laser, surgical removal of cortical matter was the only measure. But Nd:YAG laser photodisruption gives the surgeon additional options in the correction of a wide range of complications following cataract surgery. Nd:YAG laser is now frequently used for capsulotomy & peripheral iridotomy. No published data about the use of YAG laser for cortical break down is yet seen in Bangladesh.

As in this procedure, posterior capsule remain undisturbed, it can be done any time after cataract operation with a minimum risk of cystoid macular edema & retinal detachment. In a study of YAG laser capsulotomy by David G. Durham et all 10% patient developed cystoid macular edema & 0.4% developed retinal detachment [4]. In our study, no patient developed CME or retinal detachment, probably as in most cases posterior capsule were intact.

Although in laser corticolysis, temporary rise of IOP & inflammatory reaction are more, the entire problem can be managed within a few weeks satisfactorily by steroid & anti- glaucoma drugs. Rapid liberation of lens protein through photodisruption may be responsible for secondary inflammation & pressure elevation1.

When a patient is asked for 2nd operation a few days after cataract surgery, he/she becomes anxious. The surgeon also feels embarrassing to take the patient to the operation theatre again. Not only that, the chance of endothelial damage, iritis & infection also rises. If any pre existing tear present in the posterior capsule, risk of vitreous loss & lens displacement is also very high. On the contrary, laser corticolysis can be done as an out-door procedure without any preparation of the patient.Some surgeons prefer to wait for spontaneous absorption of cortical matter, but this process is very slow particularly when the cortex is trapped between the capsule and the IOL. As there is no aqueous turnover, the gradual clearing of this material can take a number of months. Moreover, rather than clearing fully, the retained material may slowly become a dense fibrotic sheet that is difficult to open with laser technique1,[5].

Limitations:

1. Number of study populations was very small.
2. Follow up period was short.
3. Can not be compared properly to local & international study due to limitations of papers.

Conclusion

Nd:YAG laser photo-disruption allows the surgeon to reach inside the eye in a closed chamber and effectively cut the target tissue non-invasively without disturbing the other ocular structures. So the procedure is relatively safe, effective & time-honored. With careful laser application, complications are minimum as well as manageable. As the procedure is non- invasive, patient acceptance is also very high.

References:

1. Roger F. Steinert ett all, Cataract Surgery: Technique, Complications, and Management. Saunders 2nd edition 2004; page-555-557.
2. Nd-Yag laser, photo-disruption and its clinical applications, Ann Acad Med Singapore. 1989 Mar: 18(2) : 186-9
3. Bikas Bhattacharyya, Clinical Applications: YAG laser in Ophthalmology. Jaypee Brothers First edition , 2005; page 78-79.
4. D g. Durham and JP Gills, Three thousand YAG lasers in posterior capsulotomies: an analysis of complications and comparison to polishing and surgical dicissions. Trans Am Ophthalmol Soc. 1985; 83: 218-235
5. Suresh K. Pandey et all, Posterior capsule opacification: A review of the etiopathogenesis, experimental & clinical studies & factors for prevention. Current Ophthalmology .2004; 52: 99-112.
6. VS Nirankari, RD Richards, Clinical study of the neodymium: Yttrium- aluminium- garnet (Nd: YAG) laser. Indian Journal of Ophthalmology. 1984: 32: 421-3.

Traumatic Aniridia with Hypermature Cataract- A Case Report (Abstract)

Abdur Rakib[1], Rajashraee Das[2], Abdul Mannan[3]

Abstract:

Purpose: *To report clinical findings and management of a case of traumatic aniridia with hypermature cataract Rt eye in a 52 years old lady.*

Description: *Mrs. R lady of 52 years hailing from Dohar presented to the Eye Department BIRDEM General Hospital with dimness of vision R/E. 2 years back she had trauma on her at eye following which her corneal injury was repaired. After repair of corneal injury she developed photophobia and dimness of vision, initially photophobia was more intense then gradually it decreased as cataract was developing.*

On examination her V/A Rt eye CF 2ft, Lt eye 6/6, on slit lamp biomicroscopy right eyelid, conjunctive looks normal, cornea transparent, iris tissue was absent, hypermature cataract was present, IOP 18 mmHg, Gonioscopy showed open angle, fundus was not visible. L/E was completely normal. She had no family history of aniridia. Systemic examination revealed no other abnormalities. The diagnosis was traumatic aniridia with hypermature cataract.

Results: *All necessary investigations done including biometry (+20.5 D). Management was planned to do cataract extraction. SICS with implantation of special aniridia intraocular lens was done.*

Conclusion: If special aniridia IOL was not given patient would suffered from intense photophobia for whole life.

Key Word: *Aniridia, aniridia IOL.*

Introduction:

Aniridia is the absence of the iris, usually involving both eyes. It can be congenital or caused by a penetrant injury.[1] Isolated aniridia is a congenital disorder which is not limited to a defect in iris development, but is a panocular condition with macular and optic nerve hypoplasia, cataract, and cornealchanges.[2] Vision may be severely compromised and the disorder is frequently associated with a number of ocular complications: nystagmus, amblyopia, buphthalmos, and cataract.[1] Aniridia in some individuals is associated with kidney nephroblastoma (Wilms tumor), genitourinary anomalies, or intellectual disability andcerebellar ataxia (Gillespie syndrome), resulting in the WAGR syndrome.

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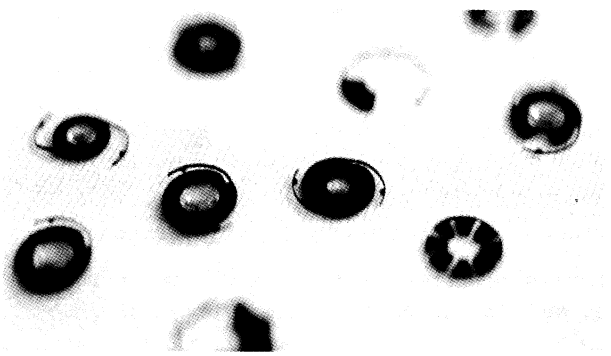
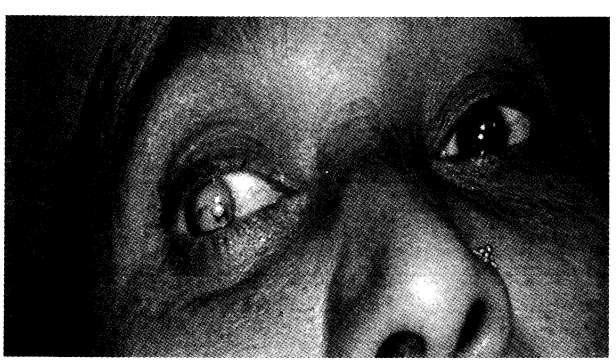
Traumatic aniridia may be associated with corneal injury and t5yraumatic cataract. After cataract extraction with normal PMMA or foldable acrylic intraocular lens, patients will complain intractable photophobia. Now a days there are many special aniridia implants like PMMA aniridia IOLs available in the market.



Mrs. R lady of 52 years hailing from Dohar presented to the Eye Department BIRDEM General Hospital with complaints of dimness of vision R/E for 2 years, which was associated with intractable photobia and deviation of her R/E. On query patient gave history H/o ocular trauma. After trauma she had undergone an operative procedure, at that time her corneal injury was repaired. After repair of corneal injury she developed photophobia and dimness of vision, initially photophobia was more intense then gradually it decreased as cataract was developing. Personal history revealed nothing abnormality. She had no family history of aniridia. Her socioeconomic condition was average. On general examination vital signs were within normal limit. On systemic examination findings were normal.



On ocular examination her V/A Rt eye CF 2ft, Lt eye 6/6, on slit lamp biomicroscopy right eyelid, conjunctive looks normal, cornea transparent, iris tissue was absent, hypermature cataract was present, IOP 18 mmHg, Gonioscopy showed open angle, fundus was not visible. L/E was completely normal. Ocular motility was full or gazes. Color vision intact. All necessary investigations done like ECG, CXR, USG of whole abdomen and no abnormality detected. On B-scan of R/E retina was flat. On biometry IOL power

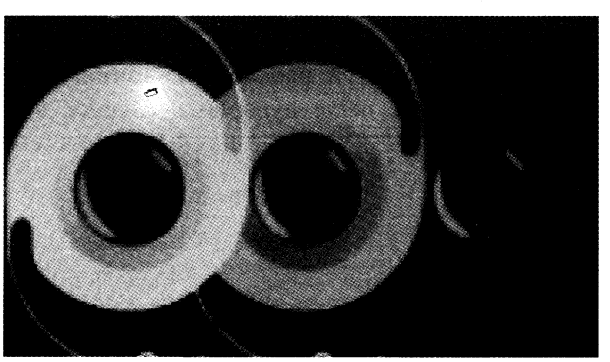
The diagnosis was traumatic aniridia with hypermature cataract.

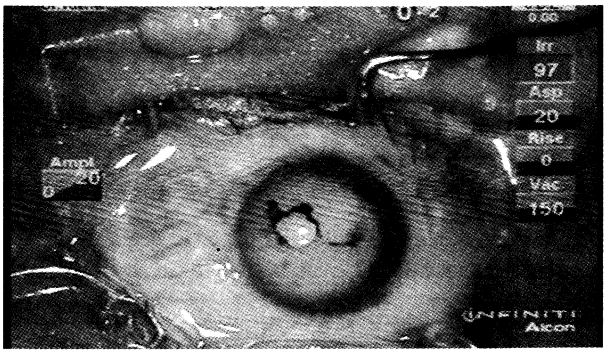
The treatment plan was calaract extraction. On biometry IOL power was +20.5 dioptre. Small inscion cataract surgery with implantation of special aniridia intraocular lens was done.

Postoperative V/A was 6/12. Pt did not develop uveitis, glaucoma or other complication postoperatively. Patient had no photophobia after operation and no complaints of glare.

Description: The use of an inris diaphragm IOL is a safe and effective means of treating patients with post-traumatic or post-surgical partial or total aniridia. Patients are asked to rate the severity of glare on a scale from 0-3.

After implantation of aniridia IOL patients report marked improvement in terms of vision, glare and photophobia.





Pt may develop uveitis and secondary glaucoma following surgery.

Iris diaphragm IOL is made or designed for scleral fixation.

A unique solution for the correction of a aniridia as well coloboma, coloured body and additional optical correction are available for scleral, sulcus and capsular bag fixation.

References:

1. Lang, K (2007). *Ophthalmology: A Pocket Textbook Atlas (2nd ed.)*. Thieme. p. 208.ISBN 1-58890-555-1.
2. Singh, Daljit; Arun Verma (17 January 2008). "Aniridia". eMedicine. Retrieved 2 February 2010.
3. Lee H, Khan R, O'Keefe M (November 2008). "Aniridia: current pathology and management". Acta Ophthalmol 86 (7): 708-15. doi:10.1111/j.1755-3768.2008. 01427.x.PMID 18937825.
4. Gehring, W. J. (2001). "The genetic control of eye development and its implications for the evolution of various eye-types". Zoology 104 (3-4): 171-181. doi:10.1078/0944-2006-00022.

Use of Intracameral air bubble in Descemet's Membrane Detachment (DMD) after cataract surgery

Md. Amiruzzaman[1], Sarwar Alam[2], Shafi Khan[3], Abdul Quader 4 Mahmood Mujtaba[5], Natasha Kajmina[6], Moutushi Islam[7]

Abstract:

Purpose: *To report use of Intracameral air bubble for reattachment of detached Descemet's membrane in pseudophakic bullous keratopathy.*

Method: *Interventional case reports. Under local anesthesia air bubble was given in anterior chamber and pad, bandage for sufficient time.*

Results: *1st case report; A 65yrs old retired male teacher referred for postoperative (phacoemulsification) corneal edema in right eye since 12day with counting finger2 feet and 6/9 in left pseudophakic eye and he was diabetic. Examination revealed near total cornea edema, normal anterior chamber depth, IOL in position in right eye with no definitive Descemet's membrane hanging. When medications caused no improvement, then intracameral air babble given properly. Reattachment of detached Descemet's membrane, relived symptoms, returned corneal transparence and vision gained dramatically.*

2nd case report; *A 53 yrs old lady underwent SICS with PCIOL (Lt) surgery with good general condition .Postoperative persistent central corneal edema, poor vision (Counting Finger 3 feet) for 15days was due to central DMD. With consent, intracameral air babble was given properly. Reattachment of detached Descemet's membrane, corneal edema disappeared and gained best corrected visual acuity 6/12 in left operated eye.*

Conclusions: *Intracameral air bubble use in post cataract Descemet's membrane detachment (DMD) is the simple method to recovered corneal transparence and vision.*

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Introduction:

Symptomatic detachment of Descemet's membrane is a rare complication of ocular surgery, especially in cases where there is excessive manipulation of the incisions, with application of mechanical forces on the cornea that separate Descemet's membrane from the stroma. If not treated early, detachment can trigger major complications such as chronic corneal edema which can have fatal consequences for vision.

Various methods have been used in its treatment: watchful waiting, repair with viscoelastic, transcorneal flap suture, air injection, and 20% SF6, or 14% C3F8 in the anterior chamber. Some cases with poor response to treatment may even require keratoplasty.

The increasing popularity of clear corneal incisions in routine cataract surgery has heightened interest in the topic of Descemet's membrane detachments. While most Descemet membrane detachments remain small and localized to the wound, some can have an impressive presentation with large, extensive detachments, resulting in severe corneal edema and marked reduction in visual acuity.[1]

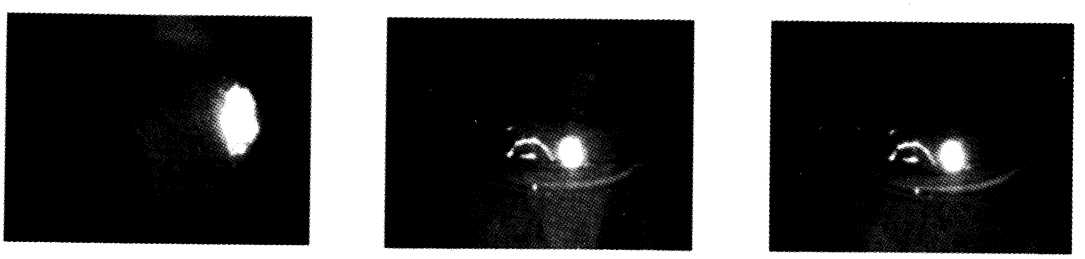
Descemet's detachment (DM) commonly occurs during an attempt to enter the globe without proper visualization. This results in inadvertent entry of the instrument between the Descemet's membrane and stroma, leading to detachment of the Descemet's membrane.[2]

The presence of an opalescent rolled up membrane near the section should alert the surgeon to the possibility of detachment of the Descemet's membrane. In case of extensive Descemet's detachment involving the visual axis, full-thickness radial corneal sutures in the mid-periphery would help hold the Descemet's membrane against the stroma until healing occurs. Some require penetrating corneal grafts. Some alternatives have been used to reattach Descemet's membrane: air bubble, transcorneal sutures and Intracameral viscoelastic gel plus SF6 or C3F8 gas. [3]

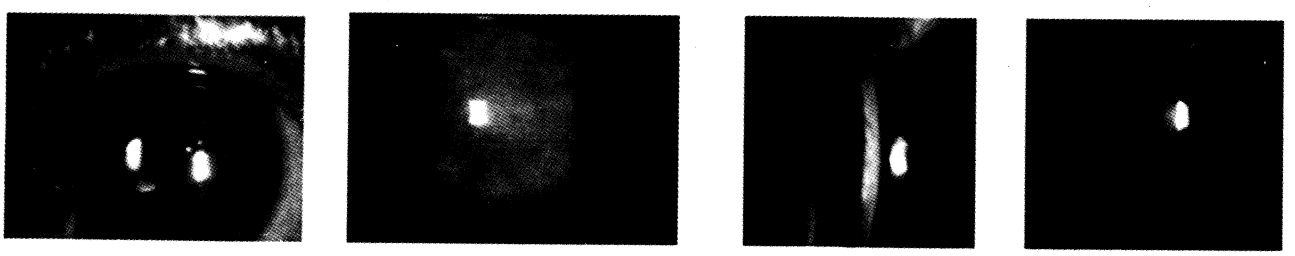
DM does not regenerate; however, if endothelial cells migrate over denuded stroma at the site of a tear the membrane covers the ruptured area and stromal edema subsides.[4]

Traditional treatment regimens have included observation (with the hopes of spontaneous resolution), anterior chamber injections of air or viscoelastic, transcorneal suturing, and even corneal transplantation for persistent cases.

In our cases Intracameral air bubble was used and results was satisfactory without any adverse events.



1st case; Before intracameral air bubble & after



2nd case; Before intracameral air bubble & after

Case-1

A 65yrs old male retired teacher underwent right phacoemulsification surgery under local anesthesia with temporal corneal incision for better vision. He was diabetic, control by discipline, diet. His preoperative corrected vision was counting finger 4feet and his intraocular pressure was 12 mmHg &12mmhg (L/E). After removal of pad, bandage, he became upset for lost his previous vision (CF 3feet). Various medications given for recovery till 1o postoperative day. When there was no hope to recover the conditions, so he was referred to our cornea clinic. We found his right cornea near total edema, with numerous micro cystic bulla and vision only counting finger 2 feet. On postoperative day 10, his intraocular pressure was 16 mmHg, IOL in position in right eye with no definitive Descemet's membrane hanging, only assumption. His left cornea was transparent though he underwent cataract surgery 2 yrs back and vision 6/9 with correction. When medications caused no improvement, then with consent & full aseptic measured intracameral air babble was given properly. Reattachment of detached Descemet's membrane, relived symptoms, returned corneal transparence and vision gained 6/60 unaided dramatically after removal of pad bandage. Three months after intracameral air bubble, his vision was 6/6 & N6 with correction.

Case 2

A 53-year-old lady underwent uncomplicated small incision cataract surgery (SICS with PCIOL) of her left eye under local anesthesia with superior scleral incision. She had no past ocular disease or trauma history. Her preoperative corrected vision was counting finger 1foot and her intraocular pressure was 12 mmHg right & 14mmhg in left eye. On postoperative day one, her corrected visual acuity was counting finger 4 feet, and her intraocular pressure(Lt) was 16 mmHg. The cornea was edematous with Descemet's folds. The anterior chamber was deep with cells 1+. He was instructed to use moxifloxacin eye drops 6 hourly and 0.12% prednisolone eye drops every hour for one week, and then four times a day thereafter. The cornea was still edematous when she visited our clinic one week later. 18 days after surgery when recovery was failed, with consent; intracameral air babble was given properly. Reattachment of detached Descemet's membrane, corneal edema disappeared and gained best corrected visual acuity 6/12 in left operated eye at 4 months.

Discussion

Injection of air into the anterior chamber of the eye has become standard practice in anterior segment surgery. The air bubble is used to exert direct pressure on an intraocular structure. Because air is less dense than aqueous humor, the bubble remains upward.5

The patient is asked to maintain the eye position that will optimize contact between the air bubble and the tissue layer to be stabilized. In Descemet stripping automated endothelial keratoplasty (DSAEK), air is used to promote donor tissue adherence to the recipient bed, thus eliminating the need for sutures. The graft is centered over the posterior surface of the cornea and the patient is asked to lie in a supine position and to look straight at the ceiling for 1 hour after surgery to distribute pressure from the air bubble over the graft surface.

Similarly, the standard treatment for graft dislocation after DSAEK consists in air reinjection with head positioning. Air can also be used to tamponade a detached Descemet's membrane after trauma or complicated cataract surgery.3 For superior detachment, the patient is asked to keep his head in the upright position. Air has also been used recently to shorten the period of corneal edema when hydrops develops in keratoconus eyes.

Sulfur hexafluoride (SF6) has been proposed as an alternative to air because it remains in the anterior chamber for a longer period.5,6 Although now routinely used in several anterior segment surgeries, the safety of air and SF6 for the corneal endothelium still must be demonstrate .

Both air and SF6 injected into the anterior chamber of the eye can induce intraocular reaction in the feline model and that SF6 is more toxic than air in terms of endothelial cell loss and anterior chamber inflammation6.

This therapeutic approach is controversial because many DMD resolve spontaneously and the natural history is still unclear. It seems logical that therapy depends on the severity and extent of the detached area. For those that are flat and localized, observation and medical treatment with steroids and hyper osmotic eye drops is enough.7In cases of a larger abruption, with scrolled borders and affected vision, more aggressive therapy is deemed necessary. Different methods have been tried, mostly in disuse:

digital transcorneal flap suture; exchange with viscoelastic into the anterior chamber, which presents the problem of increased ocular pressure; and exchange with air to 100%, which only remains for3-4 days within the anterior chamber. This is not enough to achieve good reattachment of the membrane in many cases.8

In our first case temporal clear corneal incision and at the end of surgery casual and hurried forceful stromal hydration would be the cause of large DMD. And in our second case during delivering period when instrument/lens touch central part of corneal endothelium, DMD occurred. When natural recovery failed, patients became more symptomatic then we used intracameral air bubble in our cases.If it was not worked, we may try with SF6/C3F8 though their cause's more side effect. Postoperative of air bubble use caused no marked IOP raised.

Conclusions

Intracameral air bubble use in post cataract Descemet's membrane detachment is the simple method to recovered corneal transparence and vision.

References:

1. Kim T, Sorenson A. Bilateral Descemet membrane detachments. Arch Ophthalmol. 2000;118:1302-1303.
2. Marcon AS, Rapuano CJ, Jones MR, Laibson PR, Cohen EJ. Descemet's membrane detachment after cataract surgery: management and outcome. Ophthalmology. 2002;109:2325-2330
3. Kim T, Hasan SA. A new technique for repairing descemet's membrane detachments using intracameral gas injection. Arch Ophthalmol. 2002;120:181-183.
4. Zeiter HJ, Zeiter JT. Descemet's membrane separation during five hundred forty-four intraocular lens implantations. 1975-1982. J Am Intraocul Implant Soc. 1983;9:36-39
5. Makley TA, Jr, Keates RH. Detachment of Descemet's membrane with insertion of an intraocular lens. Ophthalmic Surg Ophthalmic Surg. 1980;11:492-494
6. Zusman NB, Waring GO III, Najarian LV, Wilson LA. Sulfur hexafluoride gas in the repair of intractable Descemet's membrane detachment. Am J Ophthalmol. 1987;104:660-662
7. Price FW Jr, Price MO. Descemet's stripping with endothelial keratoplastyin 200 eyes: early challenges and techniques to enhance donor adherence.J Cataract Refract Surg. 2006;32:411-418.
8. Jessica Potter,Nadia Zalatimo. Descemet's membrane detachments after cataract extraction.optometry.2005:76;720-724.

Comparision of Astigmatism and Visual Outcome Between Straight Incision and Frown Incision in Manual Small Incision Cataract Surgery (Msics).

Tofayel Ahmed[1], A I M Anisuddin[2], Md. Shahin Akhter[3]

Abstract:

To compare the astigmatism and visual outcome in MSICS in between straight incision and frown incision. The prospective study on 100 cases of age related cataract was operated in Sir Salimullah Medical College & Mitford Hospital from July 2008 to Sept. 2009. After proper evaluation of preoperative investigations, recording visual acuity and pre operative corneal astigmatism by Automated keratometry, with widely accepted method for preoperative prophylaxis all operation done by manual small incision cataract surgery(MSICS) , 50 cases operated with 'straight incision' Group-A and 50 cases with 'frown incision' Group-B. Post operative follow up at first post operative day, at 1st week and at 6th week regarding visual acuity and astigmatism. After six weeks 6/6 vision was in 22 cases (44%) in straight incision (Group-A) and 28cases (56%) cases in frown incision (Group-B). 6/9 vision in 15 (30%) cases of straight incision (Group-A) and in 18 (36%) cases in frown incision (Group-B). In two groups 6/9 or better visual outcome was found about 74% in straight incision (Group-A) and 92% in frown incision (Group-B). Surgically induced astigmatism (SIA) after six weeks 1 D or less than 1D occurs in 78% of Group -A (straight) and 92% of Group-B (frown). More than 1D astigmatism was found in 22% cases of Group-A and 8% cases of Group-B. After six weeks mean surgically induced astigmatism was found 0.77 and 0.60 in straight incision and frown incision group respectively. It was observed that in frown incision (Group-B) visual recovery is better than that in straight incision (Group- A) and surgical induced astigmatism is less in frown incision (Group B) than straight incision (Group-B)

Key words: *MSICS, frown incision, straight incision, SIA, auto keratometry*

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Introduction:

Cataract is a common cause of blindness throughout the whole world, surgery is the only remedy to reverse this blindness. Cataract surgery has a long journey from couching (800 B C) to reach modern phaco-emulsification (PE). The objective of modern cataract surgery is to include rapid visual rehabilitation by minimizing surgically induced astigmatism (SIA). Incisional architecture has the vital role to achieve it17. Phaco-emulsification (PE) and manual small incision cataract surgery (MSICS) are the effective method of cataract surgery to have early visual rehabilitation. Phaco-emulsification with foldable intraocular lens(IOL) is an accepted primary method of performing cataract surgeries in developed and in some developing countries, which contribute negligible surgical induced astigmatism (SIA) but it is of limited use in Bangladesh because of this expensive modern technologies7,10. Alternative to phaco emulsfication, a cost effective, safe,simple, machine independent manual small incision cataract surgery(MSICS) is being recently practiced in different center by several Ophthalmologist with very much limited documentation. Among the different incisions of MSICS 'Straight incision' and 'Frown' incision are more commonly practiced. Different literatures highlighted the various incisions regarding the surgical induced astigmatism and visual rehabilitation.2,14,16

Michael McFarland developed a sutureless incision, and Pallin described a Chevron shaped incision in 199017. During the same period, Singer popularized the frown incision16.

Vienna IOL Study Group evaluated superiorly located frown and straight entry incisions. They studied corneal topographic changes after surgery with frown and straight sclera-corneal valve incision. They have shown that frown incision is more stable than straight incision.6,14,15

Materials and methods

The prospective study was carried out in Sir Salimullah Medical College & Mitford Hospital Dhaka from July 2008 to Sept. 2009 on admitted 100 cataract patients in ophthalmology department. Total 100 age related cataract patients of Bangladeshi origin between 40 to 80 age group irrespective of sex was selected. Excluding complicated cataract ,traumatic cataract & cataract with corneal opacity, Patients are divided into Group-A consists of 50 patients for MSICS with 'straight incision' and Group-B 50 patients for 'frown incision .Preoperative visual acuity, Pre operative Auto-Keratometric corneal astigmatism & Biometry was recorded properly. With all standard preparation and procedure uneventful suture less MSICS was done under local peribulber anesthesia and topical surface anesthesia with triplane sclero- corneal self sealing pocket incision 2 mm from the limbus of 5.5 mm to 6 mm in length and ½ mm to 1/3 mm in scleral depth. The location of incision was superior, supero temporal and supero nasal respectively depending on the recordings of preoperative corneal astimatism . In all MSICS continuous curvileaner capsulorrhexis(CCC), hydrodissection, hydrodelineation, prolapsed of neuclus in anterior chamber(AC) with sinskey hook and lens spatula, delivery of nucleus by irrigation vectis, cortical matter by visco exoression and Simco irrigation aspiration canola and implantation of 5.5mm to 6mm poly methyl metha acrylate (PMMA)intraocular lens (IOL) in capsular bag was done by the same surgon. In all maneuver fluid Hart man's solution was used for irrigation-aspiration of AC and visco-elastic 2% hydroxyl methylcellulose used for protection of endothelium, maintenance of AC ,& formation of capsular bag respectively. Conjunctival flap closure by wet cautery, sub conjunctival injection 0.5ml of combination of dexamethasone & gentamycin in inferior fornix, installation 5% povidone iodine and eye was patched with pad & eye shield in completion of surgery. Post operative result was uneventful. Post operative medication systemic tablet ciprofloxacin 500mg bd for 5 days, topical antibiotic moxifloxacin 0.5%, steroid dexamethasone 0.1% drop was used q d s for 4 weeks, anti-inflammatory bromfenac 0.09% drop bd for 4 weeks and 0.5% tropicamide once daily for 1 week. All the pts were examined on the first post operative day and then after 1 week and 6 weeks. In every follow up slit lamp examination, visual acuity (VA) and keratometry at 1st week & at 6th week was recorded respectively. Surgically induced astigmatism estimated by deduction of preoperative astigmatism from the post operative astigmatism.

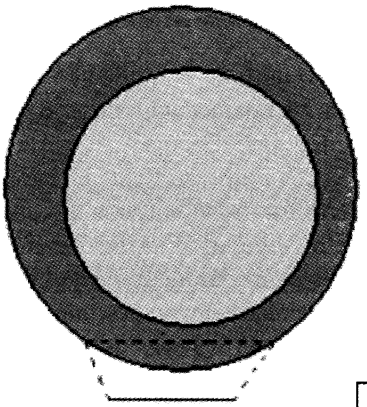

Figure-1: Straight Incision

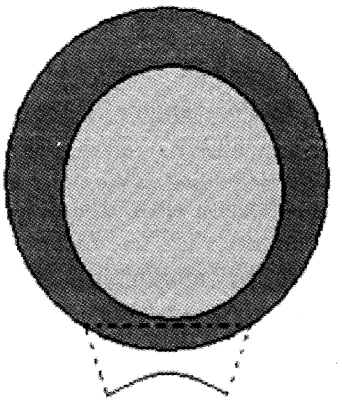

Figure-2: Frown Incision

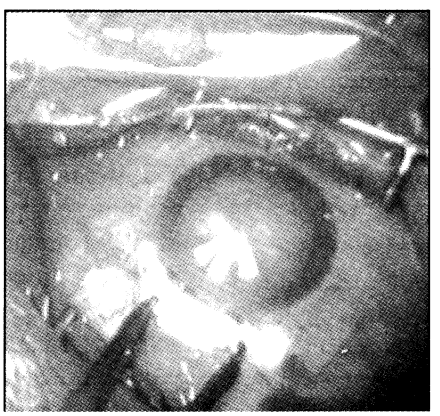

Figure-3: Measurement Of Incision

Observations and Results:

TABLE-I: AGE INCIDENCE OF CATARACT

Age	Straight		Frown		Total	
	No.	%	No.	%	No.	%
40-50	8	16.0	6	12.0	14	14.0
51-60	20	40.0	18	36.0	38	38.0
61-70	17	34.0	24	48.0	41	41.0
71-80	5	10.0	2	4.0	7	7.0
Total	50	100.0	50	100.0	100	100.0

$e^2 = 2.872$; df = 3; $p < 0.412$

Age distribution of cataract pateints among the study group shown in Table- I that in Gr -A (straight) 16%, 40%,34%& 10% pts out of 50 were included in the age group- of 41-50,51-60,61-70, & 71 - 80 yrs respectively. In Gr -B (frown) 12%,36%,48% & 4% pts out of 50 were included in the age group of 41-50,51-60,61-70 & 71- 80 yrs. Highest incident were found in 61- 70 age group and 2nd most incident were found in 51-60 age group . The two group were found similar in age distribution ($p < 0.412$).

TABLE -II: DISTRIBUTION OF TYPE OF CATARACT

Types of Cataract	Straight		Frown		Total	
	No.	%	No.	%	No.	%
Nuclear	18	36	22	44	40	40
Cortical	30	60	25	50	55	55
Sub capsular	02	4	03	6	05	5
Total	50	100.0	50	100.0	100	100.0

$e^2 = 10.408$; df = 3; $p < .015$

Distribution of types of cataract among study groups Table- II shown in Group -A ,60% cataract was cortical , 36% nuclear & 4% sub capsular and in Group -B 50% cortical,44% nuclear& 6% sub capsular. Distribution of different types of cataract between two groups was found almost similar which make the study more representative ($p < .015$).

.TABLE -III: PRE OPERATIVE VISUAL ACUITY

Pre-operative V/A	Patient Selected for Straight Incision		Patient Selected for Frown Incision		Total	
	No.	%	No.	%	No.	%
V/A-6/24	2	4.0	1	2.0	3	3.0
V/A-6/36	5	10.0	1	2.0	6	6.0
V/A-6/60	21	42.0	26	52.0	47	47.0
Finger count	14	28.0	12	24.0	26	26.0
Hand Movement	8	16.0	10	20.0	18	18.0
Total	50	100.0	50	100.0	100	100.0

2 = 3.908; df = 4; $p < .419$

The preoperative visual acuity(VA) shown in Table-III In Group - A 4% had VA 6/24, 10% -6/36,42% -6/60,28%-counting finger & 16% -hand movement and in Gr-B 2% had VA 6/24 , 2% -6/36 ,52% -6/60, 12% - counting finger & 10% had hand movement only. It reveals that 9% patients came with VA better than 6/60 and 91% with 6/60 or less.

Table -IV: POST OPERATIVE VISUAL ACUITY (VA) AFTER ONE WEEK

Post-Operative VA After One Week	Straight		Frown		Total	
	No.	%	No.	%	No.	%
6/9	5	10.0	2	4.0	7	7.0
6/12	22	44.0	20	40.0	42	42.0
6/18	14	28.0	20	40.0	34	34.0
6/24	5	10.0	5	10.0	10	10.0
6/36	2	4.0	3	6.0	5	5.0
6/60	2	4.0	0	0.0	2	2.0
Total	50	100.0	50	100.0	100	100.0

$\varepsilon^2 = 4.640$; df = 5; $p < .461$

Post operative visual out come shown in Table- IV after one week 6/12 or better VA in 17 cases (34%) in Group -A(straight incision) and 29 cases in Group -B (frown incision) , 6/18 VA was found in 18 & 16 cases (36%, 32%)respectively in Group-A & Group -B. After one week there is a significant difference of visual out come in two series is observed($p < .461$)

TABLE -V: POST OPERATIVE UNAIDED VISUAL ACUITY AFTER SIX WEEK

Post-operative VA after Six Week	Straight		Frown		Total	
	No.	%	No.	%	No.	%
6/6	20	40.0	28	56.0	48	48.0
6/9	13	26.0	17	34.0	30	30.0
6/12	11	22.0	4	8.0	15	15.0
6/18	6	12.0	1	2.0	7	7.0
Total	50	100.0	50	100.0	100	100.0

$\varepsilon^2 = 8.705$; df = 3; $p < .033$

Postoperative unaided visual out come shown in Table- V after six weeks, VA 6/6 was in 20 pts (40%) in Group A (straight incision) and 28 pts (56%) in Group -B (frown incision). 6/9 in 13 pts (26%) of Gr-A & 17 (34%) in Group -B. In two groups 6/9 or better visual outcome was found about 46% in straight incision and 90% in frown incision group. So it was observed that visual recovery significantly better in 'frown incision' group than that of 'straight incision' group; ($p < .033$).

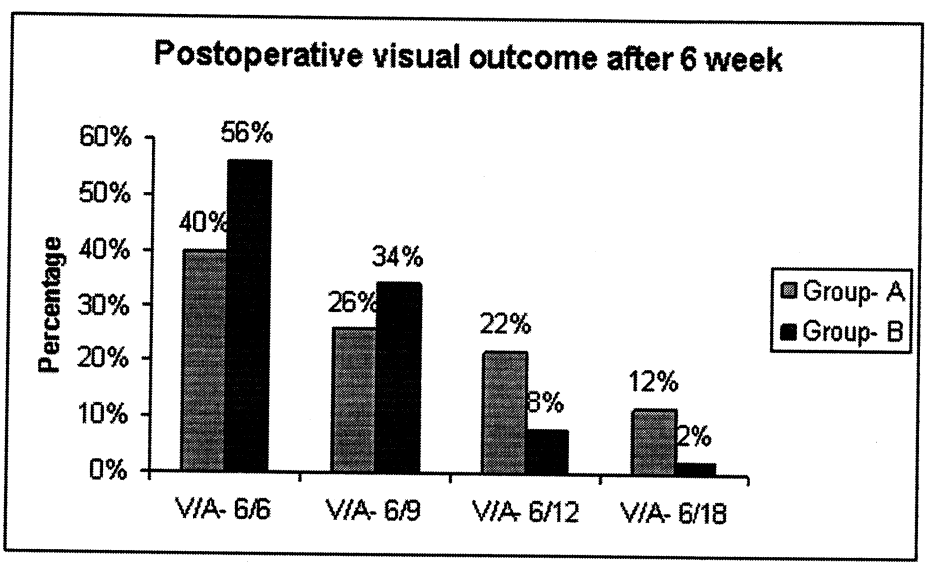

TABLE-VI: POST OPERATIVE AIDED VISUAL ACUITY AFTER SIX WEEKS

Post-Operative VA After Six Weeks	Straight		Frown		Total	
	No.	%	No.	%	No.	%
6/6	22	44.0	28	56.0	50	50.0
6/9	15	30.0	18	36.0	33	33.0
6/12	13	26.0	4	8.0	17	17.0
Total	50	100.0	50	100.0	100	100.0

$\varepsilon^2 = 8.086$; df = 3; $p < .044$

Post operative aided visual out come shown in Table-VI after six weeks 6/6 vision was in 22 pts (44%) in Group -A (straight incision) and in Group - B (frown incision) 28 pts (56%). 6/9 vision in 15 pts (30%) in Group -A and 18 (36%) in Gr-B . In two groups 6/9 or better visual out come was found about 74% in Group -A and 92% in Group -B . It was seen that in 'frown incision' group visual recovery significantly better than that of 'straight incision ' group.

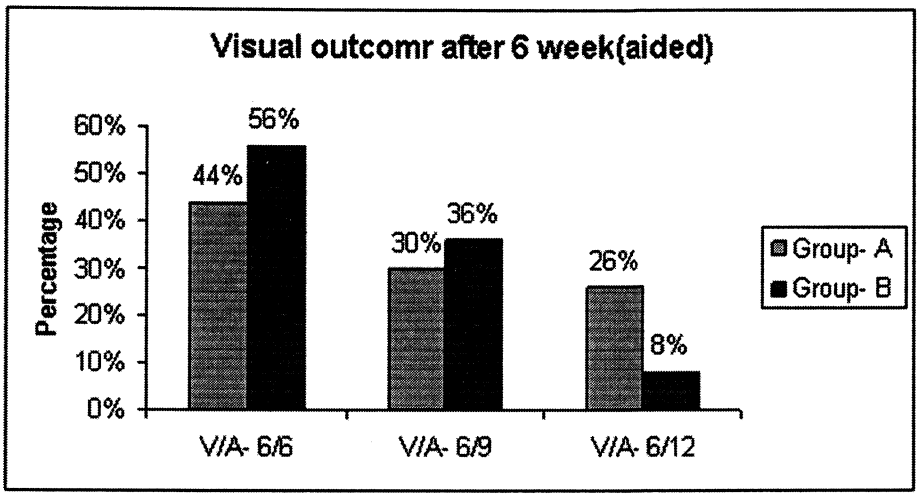

Fig- 5: Bar diagram showing visuals outcome (aided) after 6 week

TABLE –VII: PRE- OPERATIVE ASTIGMATISM

Pre-operative Astigmatism	Straight		Frown		Total	
	No.	%	No.	%	No.	%
0-.50D	11	22.0	17	34.0	28	28.0
.51-1D	21	42.0	27	54.0	48	48.0
1.1-1.5D	13	26.0	4	8.0	17	17.0
1.51-2D	5	10.0	2	4.0	7	7.0
Total	50	100.0	50	100.0	100	100.0

$\varepsilon^2 = 8.086$; df = 3; $p < .044$

Preoperative corneal astigmatism shown in Table-VII in 'straight incision' group A were 0-.5D in 11 pts (22%) , .51-1D in 21 pts (42%) 1.1-1.5D in 13 pts (26%) 1.5-2D in 5 pts (10%) and in'frown incision ' group B astigmatism were 0-.5D in 13 pts (26%) , .51-1D in 19 pts (38%), 1.1-1.5D in 14 pts (28%) , 1.51-2D in 4 pts (8%). Astigmatism found in two groups shows no difference.

TABLEVIII: POST-OPERATIVE ASTIGMATISM AFTER ONE WEEK

Post-operative Astigmatism after one week	Straight		Frown		Total	
	No.	%	No.	%	No.	%
0-.50D	15	30.0	29	58.0	44	44.0
.51-1D	12	24.0	17	34.0	29	29.0
1.1-1.5D	14	28.0	3	6.0	17	17.0
1.51-2D	9	18.0	1	2.0	10	10.0
Total	50	100.0	50	100.0	100	100.0

$\varepsilon^2 = 18.834$; df = 3; $p < .001$

Post operative astigmatism shown in Table- VIII after one week in 'straight incision ' group were found 0-.5D in 30% cases ,.51-1D in 24% cases ; 1.1-1.5D in 28% cases; 1.51-2D in 18% cases and in 'frown incision ' group 0-.5D in 58% cases; ;0.51-1 D in 34% cases ;1.1-1.5D in 6% cases and 1.51-2D in 25 cases. There is significant difference in astigmatism between the two groups(P <.001)

TABLE IX: POST-OPERATIVE ASTIGMATISM AFTER SIX WEEK

Post-operative Astigmatism after six week	Straight		Frown		Total	
	No.	%	No.	%	No.	%
0-.50D	18	36.0	29	58.0	47	47.0
.51-1D	21	42.0	19	38.0	40	40.0
1.1-1.5D	8	16.0	2	4.0	10	10.0
1.51-2D	3	6.0	0	0.0	3	3.0
Total	50	100.0	50	100.0	100	100.0

$\varepsilon^2 = 9.274$; df = 3; $p < .026$

Post operative astigmatism after six week 1D or less than 1 D shown in Table- IX 78% cases of 'straight incision ' group and 94% in 'frown incision' group . 1-2D astigmatism found in 11% cases of Group -A (straight) and 4% of Gr-B (frown). Postoperative astigmatism after six weeks is more in - Group A than Group - B ($p < .026$).

TABLE X -: SURGICALLY INDUCED ASTIGMATISM (SIA) AFTER ONE WEEK

Post-operative Astigmatism after six week	Straight		Frown		Total	
	No.	%	No.	%	No.	%
0-.50D	1	2.0	3	6.0	4	4.0
.51-1D	28	56.0	38	76.0	66	66.0
1.1-1.5D	21	42.0	9	18.0	30	30.0
Total	50	100.0	50	100.0	100	100.0

$\varepsilon^2 = 7.318$; df = 2; $p < .025$

Surgically induced astigmatism (SIA) shown in Table- X after one week is less than 1D in 62% cases of Group -A (straigt) and 78% of Group -B (frown) . Similarly more than 1 D astigmatism found in 42% cases of Group -A and 18% of Group-B ($p < .025$).

TABLE –XI: SURGICALLY INDUCED ASTIGMATISM (SIA) AFTER SIX WEEKS

Post-operative Astigmatism after six week	Straight		Frown		Total	
	No.	%	No.	%	No.	%
0-.50D	7	14.0	18	36.0	25	25.0
.51-1D	32	64.0	28	56.0	60	60.0
1.1-1.5D	10	20.0	4	8.0	14	14.0
1.51-2D	1	2.0	0		1	1.0
Total	50	100.0	50	100.0	100	100.0

$\varepsilon^2 = 8.678$; df = 3; $p < .034$

Surgically induced astigmatism (SIA) shown in Table- XI after six weeks 1 D or less than 1D occurs in 78% of Group -A (straight) and 92% of Group - B (frown) . Similarly more than 1D astigmatism found in 22% - Group A and 8% in Group -B ($p < .034$).

TABLE – XII: MEAN SURGICALLY INDUCED ASTIGMATISM

	Type of treatment	No.	Mean	Std. deviation	p- value
Mean Astigmatism after one week	Straight	50	0.95	0.3280	0.019
	Frown	50	0.76	0.2112	
Mean Astigmatism after six week	Straight	50	0.77	0.2524	0.069
	Frown	50	0.60	0.1774	

Mean of SIA in MSICS was 0.95 and 0.76 with SD . 0.3280 and 0.2112 in straight incision and frown incision group after one week. P value is 0.019 which is statistically significant. Again after six weeks mean surgically induced astigmatism was found 0.77 and 0.60 with SD 0.2524 & 0.1774 in straight incision and frown incision group respectively. P value is 0.069 which is also statistically significant.

Discussion:

There are different types of cataract surgery but manual small incision cataract surgery (SICS), is a simple, faster, simplified and standardized procedure. Manual small incision cataract surgery is ideal for large volume of surgery. The success of cataract surgery is determined by the quicker visual and functional recovery.

In our country manual SICS is being recently practiced in different centers by several ophthalmologist with very much limited documentation. It is done by various incisions, among which straight and frown incisions are more commonly practiced. Surgically induced astigmatism (SIA) is one of the factors affecting early visual rehabilitation .In this study we want to compare the incisional effect on visual recovery.

In this prospective study, the postoperative visual acuity and astigmatism due to change in the corneal curvature is evaluated with meticulous attention to the patient. The study was conducted at Sir Salimullah Medical College, Dhaka for the period of July 2008 to Sept.2009.

One hundred patients with age related cataract underwent manual small incision suture less cataract surgery. Out of hundred, 50 patients were operated with straight sclero-corneal incision (Group-A) and 50 patients were operated with frown sclero-corneal incision (Group-B). Regarding age the highest incident was found in 61-70 years age group, which is about 41% (Table-I). During pre operative examination 91% of selected patients had visual acuity 6/60 or less which reflects the poor socioeconomic condition of our society (Table-III). A 5-6 mm straight incision was made in group-A and a 5-6 mm frown sclera-corneal incision was made in group-B. No stitch was given. Preoperatively and 1 week and 6 week post operatively visual acuity and keratometric reading was recorded.

Post operative visual outcome after 1 week 6/12 or better visual acuity was found in 17 cases (34%) in straight incision (Group-A) and 29 cases (58%) in frown incision (Group-B). And 6/18 vision was found in 18 and 16 cases (36%, 32%) respectively in - Group-A and in Group-B,.

After six weeks unaided 6/6 vision was in 20 patients (40%) in straight incision group and 28patients (56%) cases in frown (Group B). 6/9 (26%) in straight incision group-A and 17 (34%) cases in frown incision group. In both groups 6/9 or better visual outcome was found about 46% in straight incision group-A and 90% in frown incision group-B. It was observed that in frown incision group visual recovery is comparatively better than that of straight incision group.

Post operative aided 6/6 vision was 22 pts (44%) in Group -A (straight incision) and in - Group B (frown incision) 28 pts (56%) . 6/9 vision in 15 pts (30%) in Group -A and 18 pts in Group -B (36%). In both groups better visual out come was found about 74% in Group -A and 92% in Group -B. It is observed that in 'frown incision' groups visual outcome comparatively better than that of 'straight incision Group -A,

Surgically induced astigmatism was calculated by deduction of preoperative keratometric reading (astigmatism) from postoperative keratometric reading (astigmatism). Here surgically induced astigmatism after 1 week was more in Group-A than Group-B. Mean astigmatism at 1 week and 6 weeks postoperatively was 0.95 and 0.77 respectively, in the straight incision (Group-A)and 0.76 and 0.60, respectively in frown incision (Group B),

This study is consistent with the study carried out by Vass C et al. 19973. In that study a 4.5 mm suture less frown incision was made in 22 eyes and a 6.0 mm straight sclera-corneal incision with a horizontal 10-0 nylon infinity suture in 26 eyes. Preoperatively and 1 week and 1 and 3 months postoperatively, corneal topography was recorded by the TMS-1 computer-assisted video keratoscope (Computed Anatomy, Inc.). In both groups, horizontal steepening and lower corneal flattening were consistently 0.4 dioptre (D). Upper peripheral corneal flattening at 1 week and 1 and 3 months postoperatively was 0.7, 0.7, and 0.7 D, respectively, in the straight-incision group and 0.7, 0.4, and 0.3 D, respectively, in the frown-incision group.Vertical flattening and horizontal steepening were significant in both groups ($P < .01$). Group comparisons revealed significant differences in only 15 of 225 areas ($P < .05$). The study is also consistent with the study by Sadiq MN et. al. 20064

Conclusion

The result of this comparative study indicates in manual small incision cataract surgery (MSICS), the visual rehabilitation is better in frown incision than that of straight incision in respect of surgically induced astigmatism (SIA) .Further extensive study should be carried out in this field . From this study it is evident that suture less, manual small-incision cataract surgery is safe, stable and cost effective method to ensure the rapid visual rehabilitation of cataract patients. This procedure can be effectively applied to clear the backlog of cataract-related blindness in places where the resources of phaco facilities are limited.

References:

1. Akura J, Kaneda S, Hatta S, Matsuura K.(2000).Controlling astigmatism in cataract surgery requiring relatively large self-sealing incisions. J Cataract Refract surgery; vol-26, no-4,pp- 1650-1659.
2. Blumenthal M, Kansas P: Small Incision Manual Cataract Surgery. Jaypee 2005, VIII, 64-65, 31-32, New Delhi.
3. Buzard KA , Shearing SP. 1991. Comparison of postoperative astigmatism with incision of varying length closed with horizontal sutures and without sutures. J Cataract Refract Surgery supplement; 17:734-9.
4. Girard LJ, Hofmann RF. Scleral tunnel to prevent induced astigmatism. In: Emery JM, Jacobson AC, editors. Current concepts in cataract surgery: Proceedings of the eight biennial cataract surgical congress Norwalk. Appleton-Century-Crofts; 1984. p. 101-2.
5. Gokhale NS, Sawhney S. Reduction in astigmatism in manual small incision cataract surgery through change of incision site. Indian J Ophthalmol. 2005; 53:201-203.
6. Vass C, Menapace R, Rainer G. Corneal topographic changes after frown and straight sclerocorneal incisions. J Cataract Refract surgery. 1997 Jul-Aug; 23(6):913-22
7. Sadiq MN, Pai A, Kurup PM. Cataract surgeries by phaco-sandwich technique through sclerocorneal tunnel, a cohort study in Oman. J Ayub Med Coll Abbottabad. 2006 Oct-Dec: 18(4); 53-7.
8. Girard LJ. Origin of the Scleral tunnel incision. J Cataract Refract Surgery 1995; 21;7.Haldipurkar SS, Gokhale VN. Astigmatic Considerations in SICS. J International Soc Manual Small Incision Cataract Surgeons.2005 Nov1; 46-8.
9. Hening A, Kumar J, Yorston D, Foster A: Suture less cataract surgery with nucleus extraction: Outcome of a prospective study in Nepal. British J Ophthalmology 2003, 87, 266-270.
10. Kapoor S. Phacosurgery and foldable IOLs , S.P. Publishers Bombay 1997: 4.1-4.29
11. Koch PS.. Structural analysis of cataract incision construction. J Cataract Refract Surgery; 1991;17: 661-67.
12. Mishra P. Incision in Non Phaco SICS. Orissa State Oph J 2002. p. 30-2.
13. Menapace R, Vass C, Radax U, Strenn K. Straight-entrance, sclerocorneal valve incision with horizontal sutures for poly(methyl methacrylate) intraocular lenses. J Cataract Refract Surg. 1996; 22:882-890
14. Rainer G, Vass C, Menapace R, Papapanos P, Strenn K, Findl O. Long-term course of surgically induced astigmatism after a 5.0 mm sclerocorneal valve incision. J Cataract Refract Surg. 1998; 24:1642-1646.
15. Singer JA. Frown incision for minimizing induced astigmatism after small incision cataract surgery with rigid optic intraocular lens implantation. J Cataract Refract Surg 1991; 17:677-88.
16. Thrasher BH, Boerner CF: Control of astigmatism bywound placement. J Am Intraocular Implant Soc 1984; 10:176-9
17. S S.Haldipurker, Hsnain T Shikhari and Viswanath Gokhale, Wound construction in manual small incision cataract surgery. IJO, 2009,Jan-Feb -57(1) 9-13

Case report
Recurrence of dystrophy after Penetrating keratoplasty in gelatinous drop-like corneal dystrophy.

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Abstract:

Purpose: *To report a rare corneal gelatinous drop-like dystrophy (GDLD) that recurred 11months after Penetrating keratoplasty (PKP).*

Methods: *Case report*

Results: *A 22-year-old man was seen in our cornea department in September2010 with bilateral GDLD and parents were consanguineous. Marked dimness of vision, nodular deposits which were present subepithelially and in the central superficial stroma with vascularization were seen in both eyes, with a best-corrected visual acuity of only PL, PR positive in the right eye and 1 foot in the left eye. In October 2010 we performed a penetrating keratoplasty on the right eye, carried out with the patient's informed consent; recipient button stained typically for amyloid with PAS and Congo red. At 3month of PKP, the cornea was clear with a best corrected visual acuity of 6/24. But at later on he experienced dimness of vision, photophobia, and foreign body sensation in right eye. Vision became counting fingers and established amyloidal deposition with vascularization in operated eye.*

Conclusions: *This is the 1st reported case of PKP for rare GDLD and signs of recurrence developed at 11months after penetrating keratoplasty.*

Introduction:

Gelatinous drop-like corneal dystrophy (GDLD) is an early-onset, autosomal recessive corneal dystrophy, reported globally1,2,3but most commonly in Japan.4,5 It presents in the first decade of life with bilateral, axial, elevated, mulberry-like or gelatinous lesions, due to amyloid deposition in the superficial cornea.With time, the cornea vascularises and the deposits spread laterally and deeply within the stroma, leading to a progressive loss in vision.However, there is considerable phenotypic variation.6 Penetrating keratoplasty and phototherapeutic keratoplasty (PTK) is followed by early recurrence.7Some success with limbal stem cell transplantation suggests an important epithelial contribution.8

We report here the clinical features and management of a boy who presented with the phenotypic features of GDLD in childhood and underwent unilateral penetrating keratoplasty and its early recurrence.

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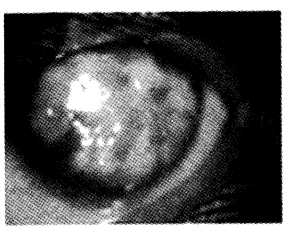
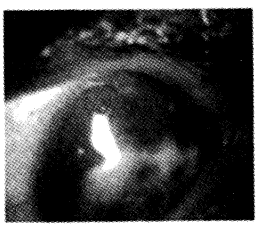
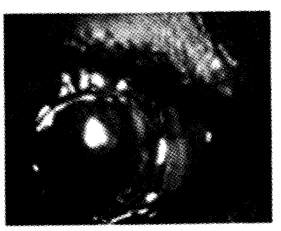
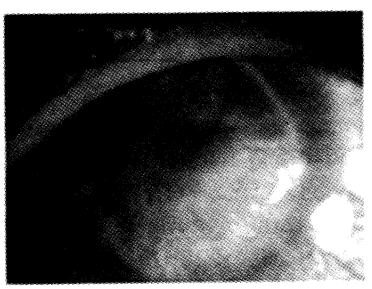
Case report

A 22-year-old male presented with complaints of marked dimness of vision, photophobia, foreign body sensation and whitish mulberry like nodules in both eyes since his childhood. He was a depended on his parents and had never had any systemic or ocular trauma to the eyes in past. His parents were consanguineous marriage and their other sons were normal. Recorded visual acuity of his right eye was eye PL PR positive and of 1 foot of the left eye.Inspection of the eyes showed whitish mulberry like nodules with vascularization, cataract in left eye, eyelids and conjunctiva was normal in both eyes. The anterior chamber appeared normal depth.B-Scan reveled retina flat and no vitreous opacity in both eyes.Penetrating keratoplasty had done in right eye with interrupted stitches. Recipient button send for histopathology stained with PAS and Congo red showing nodular deposits of amyloid (AM). He gained vision counting finger 2 meter and with +4ds/-3dc 30 Va- 6/24.Postoperatively he had no complications till 4 month. Long time after gap, he visited with complications same as before.Superficial keratectomy done and bandage contact lens had given, material sent for histopathology and amyloidal deposit found. Vision fallen counting finger 1 meter with best correction <6/60.




Discussion

The subject of this study was a male Bangladeshi boy with a bilateral, central, sub epithelial vascular corneal disorder showing elevated gelatinous surface lesions typical of GDLD. Deposits were shown to be due to the accumulation of amyloid. The features resembled those of gelatinous drop-like corneal dystrophy, an autosomal recessive disorder, due to mutations in the M1S1 gene. [6]

GDLD is an extremely rare subepithelial amyloidosis. It is unique among corneal dystrophies in that it is an autosomal recessive condition, which may explain its rarity of occurrence. It has an occurrence of 1 in300000 in Japan, 1 with only a few isolated cases having been reported in the Western. Vascularization is a common feature of GDLD in reported series.[6]

A recent genetic linkage study of 20 GDLD families in Japan identified the gene responsible for GDLD as M1S13 on chromosome1p.[9]

The epithelial cells were up to70 micron in length and 20-50micron in width. This was in contrast to normal epithelial cells, which appeared polygonal in form and were 30-40 micron in diameter. The GDLD epithelial cells also appeared to be less securely attached than normal.[10]

A well-recognised feature of GDLD is an increase in epithelial permeability, associated with fluorescein staining of the 'intact' epithelium. This probably accounts for the intraepithelial accumulation of lactoferrin reported here and elsewhere.11 The clinical and pathological features of this patient are in keeping with a diagnosis of GDLD.

The pathogenesis of GDD remains unknown, but clinical and pathologic findings indicate that the corneal epithelium seems to be involved in the production of amyloid deposits. Pathological examination showed that amyloid deposits are formed in subepithelial lesions. Subepithelial glasslike haziness, an early sign of recurrence, develops approximately 8 months after surgery. The period corresponds to the replacement of donor corneal epithelium by recipient epithelium.[12]

In addition, bandage soft contact lens wear, which decreases epithelial turnover, was reported to delay postkeratoplasty recurrence.[13]

In our case recurrence probably developed early but when symptoms more then the patient came for follows up at 11 month.

Although lamellar or penetrating keratoplasty is the sole treatment of visual rehabilitation, eyes that undergo keratoplasty are invariably complicated by recurrence of the disease. Patients therefore require multiple surgeries, which increase the risk of complications, such as cataract, glaucoma, and infection.[14]

Our patient's recurrence was early so later on we plan to do regraft with conjuntival stem cell graft from parents.

Limbal stem cell transplantation for the treatment of subepithelial amyloidosis of the cornea (GDLD) gained popularity as recurrence is less.

In their current study, neither subepithelial haziness nor recurrence of deposits was observed in eight of nine patients, with a mean observation period of 4 years.

This is markedly different from their previous study, in which all but one (34 of 35) case

developed recurrence within 4 years of keratoplasty. [12]

This difference is likely to be attributed to difference in surgical approaches used (i.e., transplantation of limbal stem cells). [13]

Conclusions

This was the 1st reported case of GDLD recurred after PKP where typical clinical and pathological finding and family history of consanguineous present. Treatment of choice should be deep anterior lamellar graft with stem cell graft to prevent recurrence.

References:

1. Roger F. Steinert ett all, Cataract Surgery: Technique, Complications, and Management. Saunders 2nd edition 2004; page-555-557.
1. Buchi ER, Daicker B, Uffer S & Gudat F. Primary gelatinous drop-like corneal dystrophy in a white woman-a pathological, ultrastructural, and immunohistochemical study. Cornea 1994; 13: 190?194. |
2. Lasram L, Rais C, Eleuch M & Quertani A. Gelatinous drop-like corneal-dystrophy. J Fr Ophtalmol 1994; 17: 24?28. |
3. Kanai A & Kaufman HE. Electron-microscopic studies of primary band-shaped keratopathy and gelatinous, drop-like corneal-dystrophy in 2 brothers. Ann Ophthalmol 1982; 14: 535?539.
4. Fujiki K, Kanai A & Nakajima A. Frequency of gelatinous drop-like corneal dystrophy in Japanese population. Jpn J Med Genet 1986; 31: 210.
5. Fujiki K, Nakayasu K & Kanai A. Corneal dystrophies in Japan. J Hum Genet 2001; 46: 431?435.
6. Kinoshita S, Nishida K, Dota A, Inatomi T, Koizumi N & Elliott A. et al Epithelial barrier function and ultrastructure of gelatinous drop-like corneal dystrophy. Cornea 2000; 19: 551?555. |
7. Ito M, Takahashi J, Sakimoto T & Sawa M. Histological study of gelatinous drop-like dystrophy following excimer laser phototherapeutic keratectomy. Nippon Ganga Ggakkai Zasshi 2000; 104: 44?50.
8. Tsubota K, Satake Y, Kaido M, Shinozaki N, Shimmura S & Bissen-Miyajima H et al. Treatment of severe ocular-surface disorders with corneal epithelial stem-cell transplantation. Arch Ophthalmol 2000; 118: 123
9. Yokoi N, Kinoshita S. Clinical evaluation of corneal epithelial barrier a. function with the slit-lamp fluorophotometer. Cornea 1995; 14:485-9.
10. Ohnishi Y, Shinoda Y, Ishibashi T, et al. The origin of amyloid in a. gelatinous drop-like corneal dystrophy. Curr Eye Res 1982;2:225-31.
11. Shimazaki J, Hida T, Inoue M, et al. Long-term follow up of patients with familial subepithelial amyloidosis of the cornea. Ophthalmology) 1995;102:139-44.
12. .Ohashi Y, Kinoshita S, Hosotani H, et al. New surgical strategy for gelatinous drop-like corneal dystrophy. Rinsho Ganka 1991;45:523-6.)
13. Miller CA, Krachmer JH. Epithelial and stromal dystrophies. In: Kaufman HE, Barron BA, McDonald MB, et al., eds. The cornea. New York: Churchill Livingstone, 1988:409-10.
14. Ren ZX, Lin PY, Klintworth GK, Iwata F, Munier FL & Schorderet DF et al. Allelic and locus heterogeneity in autosomal recessive gelatinous drop-like corneal dystrophy. Hum Genet 2002; 110: 568?577.

Role of Acyclovir on Herpetic Epithelial Keratitis-Comparison among Oral, Topical and Both Routs of administration

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Abstract:

Purpose: *To evaluate the effectiveness of Acyclovir on Herpetic epithelial keratitis.*

Methods: *A prospective Quasi experimental study was conducted among the patients attending in Cornea clinic of Lions Eye Institute & Hospital,Dhaka,Department of Cornea,Ispahani Islamia Eye institute & Hospital,Dhaka for 1 year from 1st August,2009 to 31st July,2010.A total of 75 patients were evaluated,among them 25 patients were treated with topical acyclovir,25 patients were treated with oral acyclovir and 25 patients treated with both topical and oral acyclovir.*

Results: *Dendritic keratitis were 76%,Geographic keratitis 24%.The mean age of the patients were 28.64 years,21.92 years and 34.64 years which were treated by topical,oral and both oral & topical acycovir respectively. At 12th week,there was only 1 small lesion among the 25 studied subjects those who are treated with topical,oral acyclovir and both topical & oral acyclovir respectively than oral.Corneal opacity occurred in 3 cases treated with the topical and both route of acyclovir respectively,and 6 cases treated with oral acyclovir.The mean duration of relief of the symptoms in patients were 13.32 days,17.76 days and 11.08 days which were treated by topical,oral and both oral & topical acyclovir.Recurrence occurs in 7 cases treated with oral acyclovir within 6 months.Grade 1(6/6) visual recovery occurs in 21 cases treated by topical acyclovir,16 cases treated by oral acyclovir and 22 cases treated by both topical & oral acyclovir.*

Conclusion: *Healing effect of the herpetic epithelial keratitis were equally effected by topical and both routs of acyclovir(topical and oral acyclovir) than oral acyclovir after 12th weeks of treatment.*

Key words: *Acyclovir, Herpetic epithelial keratitis, Superficial punctuate epitheliopathy.*

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Introduction

Herpes simplex keratitis is a leading cause of corneal opacification in the United States, other industrialized countries, and developing nations throughout the world. An estimated 450,000 people in the United States can develop recurrent episodes of the disease and about 46,000 episodes of HSV eye infection every year. Herpetic eye disease is the most common infectious cause of corneal blindness in that country. Despite the availability of antiviral agents that are effective in treating herpes simplex epithelial keratitis, inflammation in the corneal connective tissue and iris that can lead to corneal scarring and visual impairment develops in many patients (Wilhelmus KR et al., 1996).

Herpes simplex keratitis is a leading cause of corneal opacification in both developed and developing countries. In developing countries like Bangladesh, a significant proportion of patients present here with Herpes simplex keratitis. Without treatment this infection can lead to corneal scarring, neovascularisation, permanent endothelial dysfunction and corneal oedema, secondary glaucoma and cataract.

Herpes simplex keratitis is usually due to type 1 herpes simplex virus, a member of the pox group of DNA viruses. Infection occurs by direct contact of skin or mucous membrane with virus-laden lesions or secretions. HSV type - 1 is primarily responsible for orofacial and ocular infections, whereas HSV tupe-2 generally is transmitted sexually and cause genital diseases.HSV type-2 may rarely infect the eye by means of orofacial contact with genital lesions and occasionally is transmitted to neonates as they pass through the birth canal of mother with genital HSV-2 infection.

Primary HSV-1 infection occurs most commonly in the mucocutaneous distributation of the trigeminal nerve.It is often asymptomatic but may manifest as a nonspecific upper respiratory tract infection.After the primary infection, the virus spreads from the infected epithelial cells to nearby sensory nerve endings and is transported along the nerve axon to the cell body located in the trigeminal ganglion. There, the virus genome enters nucleus of a neuron, where it persists indefinitely in a latent stste, primary infection of any 3 branches (ophthalmic, Maxillary, mandibular) 5th cranial nerve can lead to latent infections of nerve cells in the trigeminal ganglion. Interneuronal spread of HSV with in the ganglion allows patients to develop subsequent ocular disease without ever having had primary ocular HSV infection (Sutphin JE et al., 2009)

HSV keratitis encompasses a variety of disease processes that HSV can cause in the human cornea.A variety of clinical manifestations of infectious and immunologic etiologies, such as infectious epithelial keratitis, neurotropic keratopathy, necrotizing stromal keratitis, immune stromal keratitis and endotheliitis can affect all levels of cornea. Although more common as a manifestation of recurrent HSV infection, HSV epithelial keratitis may be seen during a primary infection. Primary ocular infection may produce a follicular conjunctivitis or keratoconjunctivitis and this is generally a disease of infancy or childhood. In recurrent herpes, the most classic form preceded by coarse epithelial punctate keratitis, marginal ulceration and geographic or ameboid forms may also occur. Corneal sensitivity is generally reduced even though the patient may complain of a foreign body sensation. Diagnosis can be confirmed by the presence of multinucleated giant cells on scraping, Particularly if intranuclear eosinophilic bodies are found on Giemsa stain, Fluorescent antibody test and viral culture. Antiviral agents like Acyclovir either topical or oral form is useful in managing epithelial form of disease, though cases do heal spontaneously (Holland EJ et al., 2007)

Acyclovir is synthetic guanosine analog that requires activation by viral thymidine kinase. The activated acyclovir triphosphate, concentrated 50-100 times in HSV infected cells, suppresses viral replication by preferentially inhibiting viral DNA polymerase, serving as a DNA chain terminator and inducing irreversible binding between polymerase enzyme and the interrupted DNA chain. Potent inhibition of viral growth with minimal toxicity to uninfected epithelial cells. Oral acyclovir at a dose of 2gm/day for 10 days has been reported to be as effective as topical agents for epithelial keratitis with the advantage of no ocular toxicity. Topical acyclovir formulation (3% ointment), which is equal to trifluridine but less toxic, is commercially available in our country (Safrin S, 2007)

MATERIALS AND METHODS

Type of Study:

Prospective Quasi study.

Place of study:

Cornea clinic of Lions Eye Institute & Hospital (LEIH), Agargaon, Dhaka and Department of Cornea of Islamia Eye Hospital (IEH), Farmgate, Dhaka.

Period of study:

01.08.09 to 31.07.10 (One year)

Study population:

The study population in Bangladeshi people in respective of age and sex with acute cases of herpetic epithelial keratitis.

Inclusion criteria:

All registered patients aged between 01-70 yrs with acute cases of herpetic epithelial keatitis.

Exclusion criteria:

All the patients with herpetic epithelial keratitis treated previously with acyclovir and other types of herpetic keratitis such as stromal keratitis, endotheliitis or herpetic necrotizing keratitis.

Sample size:

At least 75 patients with acute cases of herpetic epithelial keratitis were evaluated.

Group A: 25 patients with herpetic epithelial keratitis treated by topical acyclovir.

Group B: 25 patients with herpetic epithelial keratitis treated by oral acyclovir.

Group C: 25 patients with herpetic epithelial keratitis treated by both oral and topical acyclovir.

Sampling Technique:

The study subject were selected as per selection criteria.

Diagnostic criteria:

1. History taking
2. Visual acuity by Snellen chart
2. Examination by Slit lamp biomicroscopy (Hagg streit 2000) to see size, shape, of the lesion, epithelial defect, epethelial eodema, stromal infiltration, corneal opacity and others. 3. Fluorescein strip and or Rose bengal strip

Patient were followed up: 1st - 3rd day, 2nd - 7th day, 3rd - 14th day, 4th - after 4 weeks, 5th - 6 weeks, 6th - 12 weeks. All patients examined properly.

Clinically diagnosed cases confirmed by expert cornea specialist.

Questonnaire:

Basic core, expanded and optional variables with regards to socio-economic and demographic data, signs and symptoms of herpetic epithelial keratitis and its risks factors will be self reported by the subjects in a questionnaire.

Piloting of tools:

All the operational data collection tools were piloted in the study site, and amended accordingly. Evaluation indicators include, understanding of wordings of questions, clarity of questions, embarrassments provided by questions and proposed additives.

Statistical analysis:

Data were complied and analyzed using Microsoft Excel. Data were expressed with appropriate central tendency and variability based on its nature and distribution. Difference between groups and associations between parameters were explored by using appropriate univariate and multivariate statistics.

RESULTS

This Observational case series study was conducted in Cornea clinic of Lions Eye Institute & Hospital (LEIH), Agargaon, Dhaka and Department of Cornea of Islamia Eye Hospital (IEH), Farmgate, Dhaka for a period of One year (01.08.09 to 31.07.10). The main objective of the study to evaluate the effectiveness of Acyclovir on Herpetic epithelial keratitis. In this study a total of 75 patients were evaluated and encountered in three types of age groups of the study subjects.

Results are shown in tabulated form below

Distribution of the types of Herpetic epithelial keratitis.

Among the Herpetic epithelial keratitis, Dendritic keratitis were 57 (76.0%), Geographic keratitis 18 (24.0%)

Distribution of the types of Herpetic epithelial keratitis.

Among the Herpetic epithelial keratitis, Dendritic keratitis were 57 (76.0%), Geographic keratitis 18 (24.0%).

Age distribution associated with route of acyclovir application

In the study subjects, topical acyclovir was used in 25 patients in different age groups. Among them 2 patients were involved in 1-15 years age group, 20 patients were in 16-40 years age group and 3 patients involved in 41-70 years age group. Oral acyclovir was used in 10 patients in 1-15 years age group, 11 cases in 16-40 years age group and 4 cases in 41-70 years age group. Both oral and topical acyclovir was used in 5 cases in 1-15 years age group, 10 cases in 1n 16-40 and 41-70 years age groups respectively.

Chi-square test was done, P value = 0.004185 which was < 0.005. This test was very significant.

Distribution of Mean age, SD, SE, 95% CI and Median value of study subjects different with routes of application of acyclovir

The mean age of the patients were 28.64 years, 21.92 years and 34.64 years which were treated by topical, oral and both oral & topical acyclovir respectively.

t-test was done.

Topical vs Oral acyclovir : P value =0.0751, t test value= 1.8196, df =48, SEM = 3.693

Topical vs Oral + Topical acyclovir: P value =0.1384, t = 1.5070, df = 48,

standard error of difference = 3.982

Distribution of laterality of lesion of the study subjects

Among the patients, right eye was involved in 35 (46.67%) cases and left was involved in 40 (53.33%) cases.

Chi-square test was done. P-value was 0.54172 which was > 0.50. This test was not significant.

Distribution of uses of different routes of drugs in different age groups

Group-A : Topical acyclovir mostly used in 16-40 years of age group (20cases, 80%).

Group-B : Oral acyclovir used in 10 cases (40%) in 1-15 years age group, 11 cases (44%) used in 16-40 years age group and rest of the percentage (16%) used in 41-70 years age group.

Group-C : Combined both topical & oral acyclovir were used in 10 cases (40%) in 16-40 years and 41-70 years age group respectively.

Chi-square test was done. P-value was 0.004158 which was < 0.005.

This test was very significant

Table- 6

Distribution of uses of different routes of drugs in different age groups

Route of application	1-15 years	1-15 years	1-15 years	x^2 value df P value
Group-A: Topical Acyclovir	2 (8 %)	20 (80 %)	3 (12 %)	15.263
Group-B: Oral Acyclovir	10 (40%)	11 (44 %)	4 (16 %)	4
Group-C: Topical + Oral Acyclovir	5 (20 %)	10 (40%)	10 (40%)	0.004158

Distribution of size of the lesion at presentation, at 6th week and at 12th week in Topical application of acyclovir

At the presentation of herpetic epithelial keratitis, small size lesion < 2 mm were found in 12 cases, moderate size 2-4mm lesion in 9 cases and large size lesion >4 mm in 4 cases among the patients those who are treated with both topical acyclovir. At 6th week only 2 cases were found small lesion and 1 case were found moderate lesion. At 12th week, there was only one small lesion among the 25 study subjects.

Chi-square test was done. P-value was 0.7997 and which was > 0.50.

This test was not significant.

Distribution of size of the lesion at presentation, at 6th week and at 12th week in orally use of acyclovir

At the presentation of herpetic epithelial keratitis, small size lesion < 2 mm were found in 12 cases, moderate size 2-4mm lesion in 10 cases and large size lesion >4 mm in 3 cases among the patients those who are treated with oral acyclovir. At 6th week only 5 cases were found small lesion and 3 cases were found moderate lesion. At 12th week, there was 2 lesion small lesion and moderate lesion respectively among the 25 study subjects.

Chi-square test was done. P-value was 0.5933 and was > 0.50.

This test was not significant.

Distribution of size of the lesion at presentation, at 6th week and at 12th week in Topical and oral application of acyclovir

At the presentation of herpetic epithelial keratitis, small size lesion < 2 mm were found in 16 cases, moderate size 2-4mm lesion in 5 cases and large size lesion >4 mm in 4 cases among the patients those who are treated with both topical and oral acyclovir. At 6th week only 3 cases were found small lesion and 1 cases were found moderate lesion. At 12th week, there was only one small lesion among the 25 study subjects.

Chi-square test was done. P-value was 0.8639 and > 0.50. This test was not significant.

Distribution of presence of the corneal opacity at 12th week with application of drugs

Corneal opacity develop in 3 cases in **Group-A,** 3 cases in **Group-B** and in 6 cases in **Group - C.**

Chi-square test was done. P-value was 0.4094 and > 0.05. This test was not significant.

Distribution of the duration of relief of symptoms (in days)

The mean duration of relief of the symptoms in patients were 13.32 days, 17.76 days and 11.08 days which were treated by topical, oral and both oral & topical acyclovir respectively.

t-test was done.

Distribution of complications using acyclovir within 6 months of treatment

Among the patients, stinging sensation occurs in 3 patients using topical acyclovir **(A)** and in 2 patients using both topical & oral acyclovir **(C).** Superficial punctate epitheliopathy (SPE) occurs in 4 cases treated with the topical acyclovir and in 2 cases treated with the both topical & oral acyclovir. Recurrence occurs within 6 months, 3 cases treated with topical acyclovir, 7 cases in oral acyclovir and 1 case treated with both topical & oral acyclovir.

Chi-square test was done. P value was 0.0330 and < 0.05. This test was significant.

DISCUSSION

Herpes simplex virus (HSV) keratitis is a common and serious external ocular infection. It is said to be the most frequent, single cause of corneal opacities and subsequent visual disability and blindness, primarily because of its recurrent nature. In the developing countries, the incidence of bacterial and fungal corneal ulcers have been estimated. The epidemiology of ocular involvement with HSV has not been well defined in developing countries despite the observations that in developed nations, this is the most frequent cause of corneal opacity. Not much information is available regarding the visual impairment and the morbidity owing to herpes simplex keratitis in Bangladesh.

This study evaluated the effectiveness of Acyclovir on Herpetic epithelial keratitis. In this study a total of seventy five patients were evaluated and encountered in three types of age groups of the study subjects during the period of 01.08.09 to 31.07.10 (one year) in Cornea clinic of Lions Eye Institute & Hospital (LEIH), Agargaon, Dhaka and Department of Cornea, Islamia Eye Hospital (IEH), Farmgate, Dhaka.

Among the study subjects, Dendritic keratitis were seventy six percent, Geographic keratitis twenty four percent. Dendritic keratitis were more common than Geographic keratitis and ratio were 3.17.

Among this study, two patients were given topical acyclovir, ten patients were used oral acyclovir and five patients were used both topical & oral acyclovir in one to fifteen years age group. In sixteen to forty years age group, twenty patients were used topical acyclovir, eleven patients were used oral acyclovir and ten patients were used both topical & oral acyclovir. In forty one to seventy years age group, three patients were used topical acyclovir, four patients were used oral acyclovir and ten patients were used both topical & oral acyclovir. Different types of application of acyclovir in different age groups is statistically highly significant.

In our study, topical acyclovir were treated by the eight percent of the one to fifteen years age group, eighty percent of the sixteen to forty years age group and twelve percent of the forty one to seventy years age group. Oral acyclovir were treated by the forty percent of the one to fifteen years age group, forty four percent of the sixteen to forty years age group and sixteen percent of the forty one to seventy years age group.

Both topical and oral acyclovir were treated by the twenty percent of the one to fifteen years age group, forty percent of the sixteen to forty years age group and forty one to seventy years age group respectively.

This study evaluated small size lesion less than two mm were found in sixteen cases, moderate size two to four mm lesion in five cases and large size lesion more than four mm in four cases among the patients at the presentation of herpetic epithelial keratitis those who are treated with both topical and oral acyclovir. At sixth week only three cases were found small lesion and only one case were found moderate lesion. At twelfth week, there was only one small lesion among the twenty five study subjects.

At the presentation of herpetic epithelial keratitis, small size lesion less than two mm were found in twelve cases, moderate size two to four mm lesion in nine cases and large size lesion more than four mm in four cases among the patients those who are treated with both topical acyclovir. At sixth week only two cases were found small lesion and one case were found moderate lesion. At twelfth week, there was only one small lesion among the twenty five study subjects.

Among this study, small size lesion less than two mm were found in twelve cases, moderate size two to four mm lesion in ten cases and large size lesion more than four mm in three cases at the presentation of herpetic epithelial keratitis those who are treated with oral acyclovir. At sixth week only five cases were found small lesion and three cases were found moderate lesion. At twelfth week, there was two small lesion and moderate lesion respectively among the twenty five study subjects.

In this study, Corneal opacity occurs in only twelve cases treated with different routes of application of acyclovir. Among them three cases treated with the topical and both route of acyclovir respectively, and six cases treated with oral acyclovir.

In this study, stinging sensation occurs in three patients using topical acyclovir and in two patients using both topical & oral acyclovir. Superficial punctate epitheliopathy (SPE) occurs in four cases treated with the topical acyclovir and in two cases treated with the both topical & oral acyclovir. Recurrence occurs within six months, three cases treated with topical acyclovir, seven cases in oral acyclovir and only one case treated with both topical & oral acyclovir.

Among this study, 6/6 visual recovery occurs in twenty one cases, 6/9 visual recovery occurs in twenty three cases and 6/12 visual recovery occurs in twenty four cases treated by topical acyclovir. In this study, 6/6 visual recovery occurs in sixteen cases, 6/9 visual recovery occurs in nineteen cases and 6/12 visual recovery occurs in twenty cases treated by oral acyclovir. In our study, 6/6 visual recovery occurs in twenty two cases, 6/9 visual recovery occurs in twenty four cases and 6/12 visual recovery occurs

in twenty five cases treated by both topical & oral acyclovir.

Conclusion

The healing effect in the herpetic epithelial keratitis were equally effective by topical acyclovir and combined both routes of acyclovir (topical and oral acyclovir) in comparison to oral acyclovir after twelfth weeks of treatment. The residual corneal opacity of different grades occurs even after twelfth weeks of acyclovir application. Topical and combined therapy with topical and oral acyclovir gives more symptomatic relief than only oral route. Recurrences are more in only oral acyclovir. Visual recovery is excellent in combined both routes of acyclovir (topical and oral acyclovir) application after twelfth weeks of treatment.

References:

1. Barron BA, Gee L, Hauck WW, 1994, "Herpetic Eye Disease Study: A controlled trial of oral acyclovir for herpes simplex stromal keratitis", Ophthalmology, Vol. 101, pp. 1871-82.
2. Bron AJ, Tripathi RC, Tripathi BJ (eds.), 1997, 'The Cornea and Sclera', in Wolf's Anatomy of the Eye and Orbit, 8th ed, Chapman and Hall, New York, pp. 233-267.
3. Garcia DD, Farjo Q, Musch DC et al., 2007, "Effect of prophylactic oral acyclovir after penetrating keratoplasty for herpes simplex keratitis", Cornea, Vol. 26, no. 8, pp. 930-34
4. Guess S, Stone DU, Chodosh J, 2007, "Evidence-based treatment of herpes simplex virus keratitis: a systematic review" Ocul Surf, Vol. 5, no. 3, pp. 240-50.
5. Higaki S, Itahashi M, Deai T, 2006, "Effect of Oral Valaciclovir on Herpetic Keratitis" Cornea, Vol. 25, no. 1, pp. 34-36.
6. Holland EJ, Brilakis HS, Schwartz GS, 2007, "Herpes simplex keratitis" in Krachmer JH, Mannis MJ, Holland EJ (Eds.), Cornea, Vol. 1, Chap. 83, pp. 2342-89.
7. Hsiao CH, Yeung L, Yeh LK, et al., 2009, "Pediatric herpes simplex virus keratitis", Cornea, Vol. 28, no. 3, pp. 249-53.
8. Kabra A, Lalitha P, Mahadevan K et al., 2006, "Herpes simplex keratitis and visual impairment: A case series" PubMed, Vol. 54, no. 1, pp. 23-27.
9. Kanski J.J. (ed.), 2007, "Clinical Ophthalmology", Sixth edition, Butterworth Heinemann Elsevier, Edinburgh, pp.262-64.
10. Kaye S and Choudhary A, 2006, "Herpes simplex keratitis", Prog Retin Eye Res, Vol. 25, no. 4, pp. 355-80.
11. Knickelbein JE, Hendricks RL, Charukamnoetkanok P et al., 2009, "Management of herpes simplex virus stromal keratitis: an evidence-based review", Surv Ophthalmol, Vol. 54, no. 2, pp. 226-34.
12. Miserocchi E, Modorati G, Galli L, et al., 2007, "Efficacy of valacyclovir vs acyclovir for the prevention of recurrent herpes simplex virus eye disease: a pilot study", Am J Ophthalmol, Vol. 144, no. 4, pp. 547-51.
13. Navarro M, Morales J, Serra G et al., 2008, "The potential pathogenicity of chlorhexidine-sensitive Acanthamoeba strains isolated from contact lens cases from asymptomatic individuals in Tenerife, Canary Islands, Spain", Journal of medical microbiology, vol. 57, NO. 11, PP. 1399-1404.
14. Ohashi Y, 1997, "Treatment of Herpetic Keratitis with Acyclovir: Benefits and Problems" Ophthalmologica, Vol. 211, NO. 1, pp. 29-32.
15. Patel NN, Teng CC, Sperber LT et al., 2009, "New-onset herpes simplex virus keratitis after cataract surgery", Cornea, Vol. 28, no, 1, pp. 108-10.
16. Pepose JS, Keadle TL, Morrison LA, 2006, "Ocular herpes simplex: changing epidemiology, emerging disease patterns, and the potential of vaccine prevention and therapy", Am J Ophthalmol, Voil. 141, no. 3, pp. 547-557.
17. Ravindran RD, 2001, "Physiology of the eye" Arbind eye care hospital, Madurai, pp. 5-
18. Safrin S, 2007, "Antiviral Agents" in Katzung BG (Ed.), Basic & Clinical Pharmacology, 10th Ed, McGraw-Hill Companies, USA, pp. 790-99.
19. Shtein RM, Stahl RM, Saxe SJ et al., 2007, "Herpes simplex keratitis after intravitreal triamcinolone acetonide" Cornea, Vol. 26, no. 5, pp.641-2.
20. Silva V, Rodriguez-Conde R, Cobo-Soriano R et al., 2007, "Keratomileusis in patients with a history of ocular herpes", J Cataract Refract Surg, Vol.33, no.11, pp.1855-9.
21. Sutphin JE, Dana MR, Florakis GJ et al., 2009, "Infectious Diseases of the External Eye: Clinical aspects" in External Disease and Cornea, Basic and Clinical Science Course, American Academy of Ophthalmology, Singapore, Sec. 8, pp. 5-14 & 139-191.
22. Wilhelmus KR, Dawson CR, Barron BA et al., 1996, "Risk factors for herpes simplex virus epithelial keratitis recurring during treatment of stromal keratitis or iridocyclitis", Br J Ophthalmol, Vol. 80:, pp. 969-972.

LPS Tucking for moderate to severe Ptosis: Our experience at National Institute of Ophthalmology, Dhaka.

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Abstract:

Purpose: *To assess the outcome of LPS Tucking procedure in moderate to severe Ptosis of different type with good LPS function,*

Method: *This prospective study was carried out at the Oculoplasty unit 2 of National Institute of Ophthalmology and Hospital from January to December 2012. Twelve (12) patients with moderate to severe Ptosis and good LPS function were included in the study. Patients with history of previous lid surgery were excluded. All surgeries were done under local anesthesia by same surgeon.*

Three stay sutures were placed on the upper lid margin at the level of pupil and temporal and nasal limbus. Eyelid crease incision was given maintaining symmetry with the contra lateral eye. The Orbicularis was separated, and under mind to expose the orbital septum and upper half of tarsal surface. The orbital septum was then cut all through its extent, exposing the pad of fat. Whitnall's ligament was identified. Three double armed sutures with 6/0 vicryl were passed about 2mm from the upper border of the tarsus at the level of the 3 stay sutures. The sutures were then passed through the Whitnall's ligament maintaining the same level. The sutures were tightened. Lid crease was formed and eye lid skin was closed with 6/0 vicryl and a frost suture was applied.

Result: *During our study we did LPS Tucking surgery on 12 patients, 7 male and 5 female. The mean age of the sample was 20.4 ± 4.4 yrs. The ptosis was severe in 4;33.33% and moderate in 8;66.66% cases. Bell's was good in 9 patients and fair in 3 patients. No patient had MGJWP. After surgery 11 patients achieved satisfactory cosmetic outcome. In one patient the lid crease needed to be reformed. We noted for the complications of the surgery and found conjunctival prolapse in one patient (1/12, 8.3%), which was resected later. No revision surgery needed for any of the patients.*

Conclusion: *LPS Tucking is an easier procedure for management of Moderate to severe Ptosis and does not need long learning curve. The result is satisfactory with very minimum complication.*

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Introduction

Ptosis is the drooping of the upper eye lid from its normal position. Ptosis surgery is one of the most popular operations in the field of ophthalmic plastic and reconstructive surgery. For moderate to severe ptosis with good to fair LPS function the surgery of choice is LPS resection. The amount of resection is determined by the amount of levator function and the severity of ptosis. Some of the lid surgeons has been practicing LPS Tucking or Plication or Advancement procedure for these cases with good result.

The specific surgical method for repairing Ptosis also depends on preoperative LPS function and degree of ptosis 1 . There are 3 ways of surgical approaches to ptosis surgery; transcutaneous, transconjunctival and sling surgery. 2,3,4

The transconjunctival approach is mainly used in cases of mild to moderate ptosis.5,6 And the transcutaneous approach can be applied to all types of ptosis except for the myogenic type, in which sling surgery may be best suitable 7 Ptosis cases with levator function of 4 mm or more are usually repaired by levator resection 1, whereas sling surgery is used in cases of levator function under 4 mm 8.

In our experience at NIO we found LPS resection needs a longer learning curve, takes longer time, often need revision surgery and complications are more. On the other hand Tucking procedure is much easier, needs not much expertise, with less complication the outcome is cosmetically satisfactory.

Purpose:

So this study was designed to assess the outcome of LPS Tucking in moderate to severe Ptosis of different types with good LPS function

Main outcome measures:

The main outcome variables were functional & cosmetic outcome and surgical complications.

Method:

This prospective study was carried out at the Oculoplasty unit 2 of National Institute of Ophthalmology and Hospital from January 2012 to December 2012. Twelve (12) patients with moderate to severe Ptosis and good LPS function were included in the study.

Thorough history and preoperative examination was done for all the patients.

Patients with history of previous lid surgery were excluded. All surgeries were done under local anesthesia by the same surgeon.

After proper skin sterilization and draping the upper eye lid was infiltrated with local anaesthesic agent .Then three (3) stay sutures with 4/0 silk were placed on the upper lid margin at the level of pupil and temporal and nasal limbus. A lid guard was passed beneath the upper eye lid, the three sutures were held tightly so that the lid could stretch over the lid guard. A fair degree of tautness in the eye lid was desirable. Eyelid crease incision was given with a number 15 blade maintaining symmetry with the contra lateral eye. The Orbicularis was separated, and undermined to expose the orbital septum above and upper half of tarsal surface below. The orbital septum was then cut all through its extent, exposing the pad of fat. Whitnall's ligament was identified. Three double armed sutures with 6/0 vicryl were passed about 2mm from the upper border of the tarsus at the level of the 3 stay sutures. The sutures were then passed through the Whitnall's ligament maintaining the same level. First a loose knot was given and secured with bull dog forceps. At this stage, intra-operative quantification was performed while the patient is in a sitting position. When desired height and contour of the upper eyelid was achieved the sutures were tightened. Lid crease was formed and eye lid skin was closed with 6/0 vicryl and a frost suture was applied.

Postoperatively the patients were examined for any lagophthalmos, over correction, under correction, exposure keratopathy or any other complications.

Results:

During our study we did LPS Tucking surgery on 12 patients, 7 male (58%) and 5 female (42%). The mean age of the sample was 20.4 ± 4.4 yrs. The ptosis was severe in 4 (33.33%) and moderate in 8 (66.66%) cases. Bell's was good in 9 patients (75%) and fair in 3 patients (25%). No patient had MGJWP. Mean LPS function was 10.25 ± 2.20 mm. Table 1 shows the distribution of age, sex, laterality, degree of Ptosis, LPS function, Bell's phenomenon and MGJWP in the sample.

Table 1 the distribution of age, sex, laterality, degree of Ptosis, LPS function, Bell's phenomenon and MGJWP in the sample.

Case no	Age Yrs	Sex	Laterality	Degree of Ptosis	LPS Function in mm	Bell's phenomenon	MGJWP
1.	23	Male	Left	Moderate	10	Good	Absent
2.	17	Male	Right	Severe	11	Good	Absent
3.	17	Female	Right	Moderate	10	Fair	Absent
4.	20	Female	Right	Moderate	11	Good	Absent
5.	18	Male	Right	Moderate	12	Good	Absent
6.	20	Male	Right	Moderate	09	Fair	Absent
7.	17	Male	Left	Severe	10	Good	Absent
8.	20	Female	Right	Moderate	10	Good	Absent
9	29	Female	Right	Moderate	11	Fair	Absent
10.	23	Male	Left	Moderate	10	Good	Absent
11	16	Female	Left	Severe	08	Good	Absent
12	25	Male	Left	Severe	11	Good	Absent

After surgery 11 patients achieved satisfactory functional and cosmetic outcome. There was no lagophthalmos postoperatively. In one patient the lid crease needed to be reformed. We noted for the complications of the surgery and found conjunctival prolapse in one patient (1/12, 8.3%), which was resected later. No revision surgery needed for any of the patients. There was no history of postoperative exposure keratopathy also.

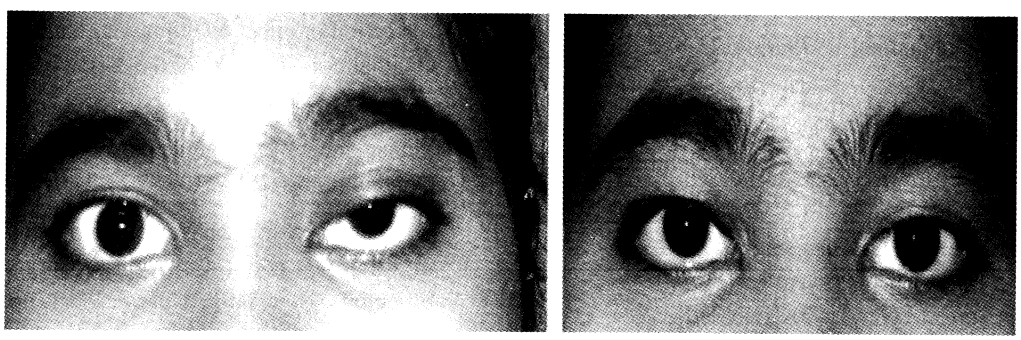


Fig 1. Pre and post operative photograph of a female patient who undergone LPS Tucking. She was 20 years old with moderate ptosis. LPS function was 11mm, Bell's phenomenon good and no MGJWP.

Fig 2: Pre and post operative photo of a male patient who had LPS Tucking . He was 25 years old male with severe Ptosis. His LPS function on left eye was 11 mm, Bell's phenomenon good and MGJWP absent.

Discussion:

LPS Tucking is one of the procedures to correct ptosis of moderate to severe degree with fair to good lPS function. LPS resection is mostly performed surgery. In our series all the surgeries were performed by the same surgeon. The surgical procedure was meticulously followed. In all cases we observed a satisfactory functional and cosmetic outcome. Functional outcome was measured by absence of Lagophthalmos. In this study we have not come across any post operative lagophthalmos and exposure keratopathy. The case selection is an important issue in treating Ptosis patient and achieving a favourable outcome. No revision surgery was needed for any of our patients.

Conclusion:

LPS Tucking is an easier procedure for management of Moderate to severe Ptosis and does not need long learning curve. The result is satisfactory with very minimum complication.

References

1. Finsterer J. Ptosis: causes, presentation, and management. Aesth Plast Surg. 2003;27:193-204.
2. Anderson RL, Dixon RS. Aponeurotic ptosis surgery. Arch Ophthalmol. 1979;97:1123-8. [PubMed]
3. Putterman AM, Urist MJ. Müller's muscle-conjunctival resection ptosis procedure. Ophthalmic Surg.1978;9:27-32. [PubMed]
4. Crawford JS. Repair of ptosis using frontalis muscles and fascia lata: a 20-year review. Ophthalmic Surg. 1977;8:31-40. [PubMed]
5. Jack Kanski, Brad Bowling. Clinical Ophthalmology A Systematic Approach. Elsevier. Seventh Edition. 2011, 1,43
6. Ben Simon GJ, Lee S, Schwarcz RM, McCann JD, Goldberg RA. External levator advancement vsMüller's muscle-conjunctival resection for correction of upper eyelid involutional ptosis. Am J Ophthalmol. 2005;140:426-32. [PubMed]
7. Wong VA, Beckingsale PS, Oley CA, Sullivan TJ. Management of myogenic ptosis. Ophthalmology.2002;109:1023-31. [PubMed]
8. Dresner S. Ptosis management: a practical approach. In: Chen WP, editor. Oculoplastic Surgery: The Essentials. New York: Thieme; 2001. pp. 75-88.

Proper Record Keeping Assuring Quality Eye Care: (Late) Professor M.A.Matin Model

Md Yousuf Talukder

Abstract:

Record keeping is an integral part of the 'information system' of an organization. Every organization generates a lot of data (records). But converting data into information in a useful form is still lacking in many organization.

In this article we want to mention the proforma we are following at BNSB Eye Hospital, Sirajganj.

Introduction

Record keeping" is an integral part of the 'information system' of an organization. Every organization generates a lot of data (records).1 But converting data into information in a useful form is still lacking due to various reasons, viz their main concern is on performance statistics and financial summary report. Management takes most of the decision based on there experience and seldom evidence is used due to lack of readily available information. 2Lack of monitoring dissuades generation and utilization of information.

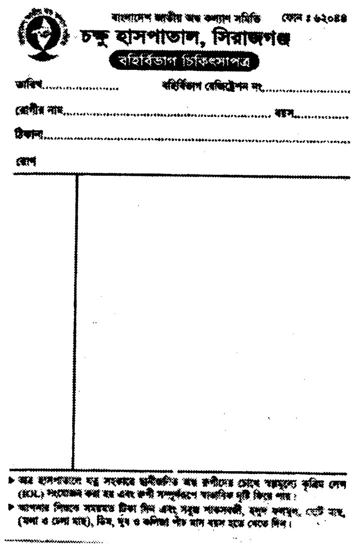
It is vital that every organization should collect data that is proper record keeping as part of every transaction executed, process, to generate usable information, and use the same for monitoring and decision making by following standard system to help in making effective decisions for planning , directing and controlling the needs of the organization. Proper record is an integral part of management information system which is an organized method of providing accurate, timely, relevant information to support operation, management and decision making function in an organization.3

The role of MIS provides sufficient information to make informed decisions to help in making effective decision for planning, directing, and controlling. Information system should be designed utmost care to serve the needs of the organization as well as to deliver quality eye care. But it is very rarely seen in the district level hospitals (secondary level hospital) where proper record keeping as well as MIS system is being practiced (except in the institutional hospitals in the metropolitan cities and in medical colleges, viz, in tertiary level hospitals). For selecting priority of allocation of resources and focus, available proper record plays a paramount role4. Unless we do not have proper records, quality eye care will be jeopardized with our minimal resources to combat with existing gigantic problems. Here we are discussing the method we have applied at our hospital at Sirajganj which is being running by Bangladesh National Society for the Blind (BNSB).

Materials and Methods:

Sirajganj BNSB eye hospital started the new outdoor ticket (including new MIS) under the leadership of its founder chairmen late prof.M.A.Motin (eminent ophthalmologist of the country) in 2011 which is shown below:

Senior Consultant, BNSB Base Eye Hospital, Sirajgonj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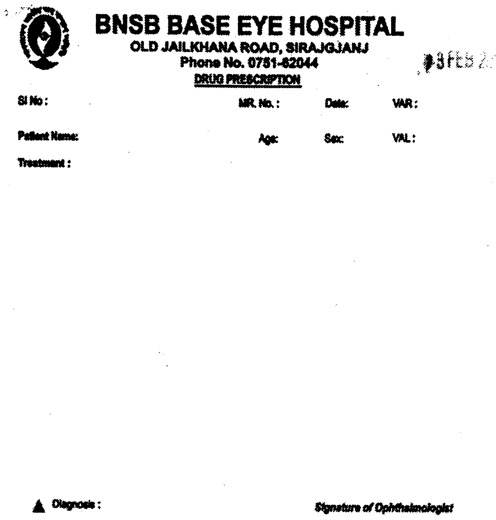
BNSB BASE EYE HOSPITAL
OLD JAILKHANA ROAD, SIRAJGANJ
Phone No. 0751-62044
DRUG PRESCRIPTION
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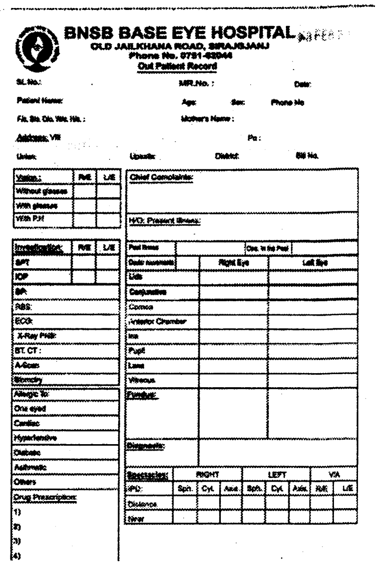
BNSB BASE EYE HOSPITAL
Out Patient Record

Prof.M.A Matin started out door ticket in 2011, where one part of the ticket having prescription, MR no with essential data is given to the patient and a remaining part of the same ticket with full particulars of the patients (ex: SL no, MR no, Date, patients name, Age, sex, Vision, Chief complain, Investigation, Diagnosis (and DISEASE CODE NO) etc) is kept in the hospital record room. This part is written in English and is shown below:

Results: Before 2011 only the patients name, age, address, diagnosis and treatment was written in a resister book. Now with this new model of out door ticket which includes disease code and Medical Record no of the patient, disease code, examination details including visual acuity, refractive error corrections, fundoscopy, IOP, BP and other relevant pathological tests etc which enables us to find out the prognostic status of the patients, prevalence of the disease and other important findings which is very important information for the doctors to assure good eye care delivery as well as for various research works and also for future references.

Conclusion:

We feel delighted to mention that this new system has improved our quality of work. We are keeping all the information including medical and surgical details of all patients attending us. We hope that our experience will help other secondary and even tertiary eye care centers of the country for better data collection.

This article is dedicated to the memory of our beloved teacher, Late PROF.M.A.MATIN

References

1. Journal of ARAVIND Eye care system vol.XI No.3
2. Philip kotler and Robert N Clarke, Marketing for health care organization
3. R.D Thulasiraj and A.K.Sivakumar, Cost Containment in eye care
4. Secrets in ophthalmology, M.A.Matin & Md.Nazrul Islam