# Contents

## EDITORIAL
- Meibomian Gland Dysfunction (MGD)
  
  Sameera Irfan

## OPHTHALMIC SECTION / ORIGINAL ARTICLES
- Neuro-imaging Patterns of Isolated Ocular Motor Nerve Palsies in a Pakistani Cohort
  
  Tayyaba Gul Malik et al

- A Study of Prevalence of Risk Factors in Patients with Non-Arteritic Anterior Ischemic Optic Neuropathy (Na-Aion)
  
  Akhunzada Muhammad Aftab et al

- Dacryocystorhinostomy - is Endonasal Endoscopic Approach A Viable Option?
  
  Khawaja Khalid Shoaib et al

- Ocular and systemic Complications of Intravitreal Bevacizumab (Avastin) therapy
  
  Akhunzada Muhammad Aftab et al

- Incidence of Intraocular Foreign Body in Penetrating Trauma presented to a Tertiary Care Hospital of Khyber Pakhtun Khwa and its Visual Outcome
  
  Mohammad Idris et al

- To Determine the Efficacy of Tattoo Ink in Changing the Color of Rabbit’s Iris
  
  Mehdi Soltanifar et al

- Incidence of Hepatitis B & C among Admitted Eye Patients in Tertiary Care Hospital of Peshawar
  
  Bilal Bashir et al

- Visual Outcome & Complications of Scleral-fixation Posterior Chamber Intraocular Lenses
  
  Mir Ali Shah Aftab et al

- Prevalence and Density of Amblyopia in Strabismic Patients of School Age Children
  
  Mohammad Alam et al

- Tuberous Sclerosis Complex
  
  Hussain Ahmad Khaqan et al

- Association of Anemia with Diabetic Retinopathy in Patients with Type II Diabtese Mellitus
  
  Mohammad Kashif et al

- Intraocular Pressure Control after Cataract Extraction with Posterior Chamber Intraocular Lens Implantation in Phacomorphic Glaucoma
  
  Prof. Laal Mohammad et al
• Causes of Low vision and Quality of Life after Rehabilitation in Children & Adults
  Mohammad Kashif et al ----------------------------------------------------------------------------- 93

• Intraocular Pressure Control after The Efficacy of Limbal Based Conjunctival Flap in Patients Undergoing Trabeculectomy with Intra-operative Mitomycin C
  Hasan Yaqoob et al -------------------------------------------------------------------------------------------- 100

• Normal Tension Glaucoma & Cerebral Ischemia / Brain Atrophy
  Akhunzada Muhammad Aftab et al ----------------------------------------------------------------------------- 104

• Complications & Results of External Dacryocystorhinostomy in Chronic Dacryocystitis without Intubation (Review of 107 Cases.)
  Mohammad Alam et al -------------------------------------------------------------------------------------------- 107

• Recurrence of Retinal Detachment after Silicone Oil Removal
  Bilal Khan et al ----------------------------------------------------------------------------------------------- 110

• Choroidal Melanoma in a Young Patient
  Hussain Ahmad Khaqan et al ----------------------------------------------------------------------------- 113

■ GENERAL SECTION / ORIGINAL ARTICLES

■ Frequency of High Glasgow Blatchford Score & its One Month Mortality in Patients presenting with Non-variceal Upper Gastrointestinal Bleeding
  Imran Yahaya et al ---------------------------------------------------------------------------------------------------- 115

■ Meatal Mobilization Technique for Childhood Hypospadias Repair, an Early Experience at Lady Reading Hospital, Peshawar
  Muhammad Ayub Khan et al ------------------------------------------------------------------------------------------ 120

■ OPHTHALMOLOGY NOTEBOOK

■ Obituary- Forever Loved - Forever Missed --------------------------------------------------------------------------- 123

■ Murree: The Queen of Mountains - A Shining Pearl of Pakistan (Malika-e-Kohsaar) 124
Meibomian Gland Dysfunction (MGD)
(Current Concept)

Meibomian Gland Dysfunction, also referred to as the posterior blepharitis, is a very common cause of a myriad of symptoms in the general population, particularly after the age of 45 years which is often neglected and under-diagnosed by the ophthalmic fraternity. Many ocular disorders, including evaporative dry eye, blepharitis, sties, chalazia and ocular rosacea have been linked to abnormal function of the meibomian glands. Health professionals in the USA have now been alerted that MGD is a major contributing factor in ocular surface disease in at least 50 - 75% cases. According to the International Workshop on Meibomian Gland Dysfunction in 2011, sponsored by the Tear Film and Ocular Surface Society, USA, there is a paradigm shift in the treatment of dry eyes. As a result of this report, ophthalmologists are now evaluating the lids more carefully, and more often when seeing patients with dry-eye complaints. MGD has also been known to be an important cause contact lens intolerance.

Pathogenesis: Normally there are 40 meibomian glands in the upper lid and 20 in the lower. As the glands make meibum, it is normally pushed outward with each blink by the contraction of Riolan’s muscle (pre-tarsal orbicularis) on to the surface of eyelids and spreads over the lid margin making it a smooth surface which can glide and spread the tear film from the tear meniscus in the lower conjunctival fornix, evenly over the cornea, giving it its polished appearance. Bacteria (staphlococci which are the normal flora of the eyelid) invade the meibomian glands and produce lipases which break down the waxy esters in meibum to short chain free fatty acids. These fatty acids are toxic to the ocular surface and causes its irritation. The lack of waxy esters result in excessive evaporation of aqueous component of the tear film. The abnormally functioning glands may over secrete toxic meibum, under secrete or get blocked, with underlying changes to the eye. Normally the meibum is in a fluid state at normal body temperature but these short chain fatty acids clump together making the meibum viscid. This thick, opaque secretion blocks the meibomian gland orifices, dries up and plugs them (seen in the top pic). When the gland becomes obstructed by thick, inspissated secretion, the glandular epithelium degenerates and stops functioning altogether, leading to minimal or nonexistent production of meibum and loss of meibomian glands. The areas where the meibomian glands have atrophied appears as notches at the grey line (seen in the bottom picture). Meibomian gland secretion is controlled by androgens, mainly testosterone. Its defi-
iciency is particularly seen as a part of normal ageing process. Hence, dry eye syndrome and MGD is more commonly seen in post-menopausal women.7

MGD causes two problems: Firstly, eyelid inflammation and secondly, excessive evaporation of tears and consequently dry eyes. The tears become hyperosmolar which then stimulate corneal nerves resulting in ocular irritation, dryness, tearing, redness, a foreign body sensation or intermittent blurring of vision.

Examination: In every adult patient who has come to you with any eye complaint, try to assess for MGD and look for the following first:

i) The lids may look normal but the lid margin has to be everted a little bit and the meibomian gland orifices examined; normally the meibum is a clear secretion that flows easily out of the orifices with a tiny pressure at the lid margin with a cotton-tip applicator. However, an opaque secretion is abnormal. Or, the glands could be completely blocked / plugged with thick white secretion which cannot be expressed with pressure on the lid margin. Scarred and notched grey line indicates loss of glands. Hence, there are different stages of meibomian gland disease.

ii) Grades of MGD:

Grade 0: Normal, no MGD: clear, thin secretion at the gland orifices, squirts out of orifices with a little pressure on the lid margin.

Grade 1: a viscid secretion flows out easily with minimum pressure.

Grade 2: an opaque secretion flows after exerting a lot of pressure.

Grade 3: gland orifices are plugged/capped and no secretion flows or it comes out like a tooth-paste or a froth is present at the lid margins (due to saponification of fatty acids by bacterial lipases).

Grade 4: atrophic/scarred gland orifices.

NOTE: Toxic secretions cause an inferior conj / corneal staining. If the ducts are blocked with thick meibum plugs, or have atrophied, then there will be no toxic secretions; however, if few ducts are open, then a little bit of corneal staining will be there. Hence seeing corneal staining with open ducts is Grade 2 disease. Seeing corneal staining + majority of ducts being capped/ blocked is grade 3 disease. If grey line shows notching, then trans-illumination confirms atrophic glands at the site of a notch (Grade 4 disease).

iii) Oily debris floating in tear film or foam present at the lid margins indicate hyper-secretion; the fatty acids undergo saponification by bacteria and produce toxic foam.

iv) Look for Rosacea / recurrent chlazia which indicate MGD.

v) Note the tear-film break up time: this gets reduced with worsening of the disease. Normal being >10 mm.

vi) Punctate keratopathy at the inferior limbus and inferior conjunctival staining due to irritation by toxic meibum at the lid margin.

vii) Transilluminate the tarsal plate by a pen-torch held on the skin side of a fully everted lid to look for evidence of atrophy, loss or degeneration of the meibomian glands.

viii) Check for aqueous deficiency of tear film with Schirmer’s 2 test.

ix) Check the tear osmolarity if possible.

x) In severe MGD, check lipid profile/ Blood Sugar. Don’t assume patients will voluntarily mention their symptoms. Be proactive, and ask every adult patient about ocular irritation and whether it is worse in the morning which points to MGD. A dry eye due to aqueous deficiency is worse in the evening.

Treatment:

a) Highest on the list is getting the patient to play an active role by scrubbing the lid margins with a baby shampoo twice a day to remove excess oil.

b) Mobilize the oils out of the lids onto the eye where you do want them. Achieve this through the use of lid compresses, which are believed to melt plugs composed of dried secretions blocking the gland orifice; Apply hot fomentation to the lids with a hot towel to melt the thick secretions/plugs and then expressing meibomian glands on a daily basis by massaging the lower lid upwards and upper lid downwards with a finger or a Q-tip. this should be done 2-3 x per day. This will not work in Grade 4 disease in whom there are no secretions at all due to atrophic glands.

c) Addressing the source of any inflammation; avoid aminoglycocides topically as they worsen MGD. Find out and treat any allergies. Topical tetracycline eye ointment massaged into the lid margins twice per day. Systemic doxycycline can interfere with the lipases produced by Staphilococi that break down the fatty components to free fatty acids- a common regimen is doxycycline 100 mg od or b.i.d. for four to six weeks, in severe cases. An alternative is Azithromycin 500 mg bid or 1 Gm od per week for 3 consecutive weeks. Similarly, cyclosporin eye drops 0.5% - 0.75% twice a day have the same anti-inflammatory affect.

d) Neutralize toxic secretions with artificial tears; drops during day and lubricating ointment at night.

e) Some patients are beyond the point of no return. They don’t have any glands left, or the ones they have aren’t functioning. For them, heating and massaging won’t do anything. They can be given Lipid-based artificial tears.
f) Oral Omega 3 Fatty acids\textsuperscript{11} to restore the balance between good and bad lipids.
g) Intra-ductal probing\textsuperscript{12} of blocked meibomian glands has been found to be effective in removing dried secretion.

Recommendation: MGD is a very common eye problem; try to look for it in every adult who presents at the ophthalmic clinic. Every patient should be specifically asked for symptoms of ocular irritation. An eye examination should commence from the lids.

It is important to familiarize with the normal meibomian secretion by examining the lids of teenagers first and trying to squirt out meibum with a gentle squeeze on the lid margin.

REFERENCES

Dr. Sameera Irfan, FRCS
Consultant Oculoplastic Surgeon & Strabismologist
Mughal Eye Trust Hospital, Lahore, Pakistan
Website: www.sameerairfan.com
Cell: 03364500901

ELECTION RESULT

OPHTHALMOLOGICAL SOCIETY OF PAKISTAN
(Federal Branch, Islamabad)

Following members have been elected as the office bearers of the Ophthalmological Society of Pakistan, Federal Branch, in a recent election held in Islamabad for the year 2015-16.

President Dr. Waheed Afzal
President Elect Prof Farooq Afzal
General Secretary Dr Shahzad Saeed
Treasurer Prof Nadeem Qureshi
Joint Secretary Prof B. A. Naeem

Executive Council:

Prof. Jahangir Akhter, Dr. Izzat Ali Khan, Prof. Brig. Amer Yaqub, Prof. Imran Azam Butt
Prof. Mazhar Ishaq, Prof. Syed Intiaz Ali, Prof. Wajid Ali Khan, Prof. Naqash Sadiq
Prof. Shakaib Anwar, Dr. Tariq Mirza, Dr. Amir Israr, Dr Intisar-Ul-Haq, Lt. Gen (R) M K Akbar,
Dr. Naeem Qadir, Dr. Shahzad Iftikhar, Dr. Ali Raza, Dr. Javed Malik, Dr. Mazhar Qayyum

Neuro-imaging Patterns of Isolated Ocular Motor Nerve Palsies in a Pakistani Cohort

Tayyaba Gul Malik FCPS1, Prof. Khalid Farooq FCPS (Diagnostic Radiology)2
Muhammad Khalil FCPS3

ABSTRACT:
 Objective: To determine neuro-imaging patterns of ocular motor nerve palsies in a Pakistani cohort and to compare with other populations.
 Study Design: Descriptive, retrospective study.
 Study period: 2010 to 2014
 Subjects and settings: 50 Patients of ocular motor nerve palsies from two different centers of Lahore were included in the study. History charts and neuro-imaging reports were reviewed. The data considered for the study was age, sex, ocular manifestations, neuro-ophthalmological findings and imaging reports (CT scans, MRI, MRA and MRV).
 Results: Female to male ratio was 1.6:1. Age ranged from 13 years to 74 years (average 44.18). 66% (n=33) patients had isolated sixth nerve palsy and 34% (n= 17) had isolated third nerve palsy. None of our patients had fourth nerve palsy. 42% patients had normal neuro-imaging. Sinusitis and brain infarcts were commonest cause of third nerve palsy while demyelination was more common in patients with sixth nerve palsy. Other neuro-etiologies were space-occupying lesions, parasellar tumours, multiple sclerosis, aneurysm and meningitis.
 Conclusion: Third nerve palsy is the commonest ocular motor nerve palsy. There are certain cases where neuro-imaging shows normal scans and the cause of palsy remains undetermined.
 Key words: Ocular motor nerve palsy, trochlear palsy, oculomotor palsy, abducent palsy, Parasellar tumours, neuro-imaging.

INTRODUCTION
Ocular motor nerves are comprised of Oculomotor (supplying Medial Rectus, Superior Rectus, Inferior Rectus, Inferior Oblique), Trochlear (innervating Superior Oblique) and Abducent (nerve to the Lateral Rectus). Ocular motor nerve palsies are either supra nuclear or infra nuclear. Associated neurological signs and symptoms help us determine the site of lesion. Fascicular palsies of third nerve are associated with different syndromes (Benedikt, Weber, Nothnagel and Claude). Similarly, fascicular lesions of sixth nerve are associated with Foville and Millard-Gubler syndromes. Fourth nerve palsies are usually congenital in nature. Different causes of isolated nerve palsies are mentioned in literature. These include vascular diseases like Diabetes and Hypertension. In Oculomotor palsy associated with Diabetes and Hypertension, pupils are usually spared. Aneurysms and trauma are other important causes of isolated nerve palsies. Tumours, neurosyphilis and Giant cell arteritis are rare causes.

Very interestingly, idiopathic palsies constitute a large percentage in clinical practice. Acoustic neuroma, basal skull fractures, naso-pharyngeal tumours and raised intracranial pressures are culprits of sixth nerve pathologies. Cavernous sinus pathologies give rise to multiple cranial nerve palsies (oculomotor, trochlear, abducent, ophthalmic and maxillary divisions of trigeminal nerves). This study reviews the neuro-imaging patterns of ocular motor nerve palsies in a selected group of patients from two tertiary care hospitals of Pakistan.

SUBJECTS AND METHODS
It was a descriptive retrospective study. 50 patients with acquired isolated Ocular motor nerve (Oculomotor, Trochlear and Abducent) palsies were selected (from two centers of Lahore City). Study period spanned over 2010 to 2014.

Inclusion criteria:
• Patients with acquired isolated third, fourth or sixth cranial nerve palsies
• Patients whose, complete clinical and radiological data was available.

Exclusion criteria:
• Patients with multiple cranial nerve palsies
• Patients with incomplete clinical and imaging data
We reviewed clinical and imaging charts of selected patients and medical records were analyzed. Clinical data included history, visual acuity, color vision and slit lamp examination. Special attention was
given to pupillary reactions, extra ocular movements, cover/un-cover tests and fundoscopy. Neuro-imaging tests included Computerized tomography with both plain and post contrast images, MRI with T2 and T1 weighted plain and post contrast images, (Gd-DTPA used for post contrast component), magnetic resonance arteriography and venography. Data was compiled, results deduced and descriptive statistical analysis was done.

RESULTS
Fifty patients, 31 females and 19 males (female: male ratio, 1.6:1) were included in the study. Age ranged from 13 years to 74 years (mean 44.18 years). 66% (n= 33) patients had isolated third nerve palsy and 34% (n= 17) had isolated sixth nerve palsy. None of our patients had fourth nerve palsy. Headache (34%, n= 17) and diplopia were the commonest symptoms at presentation. 58% of the patients had right sided nerve palsies and 42% had left sided involvement. None of our patients had bilateral palsies. Normal imaging scans were seen in 44% patients. 13 out of 33 (39.39%) patients with oculomotor nerve palsy had negative scans. The patients with normal MRI and third nerve palsy had normal pupils. 9 out of 17 (52.9%) patients with Abducent nerve palsy showed no positive findings on neuro-imaging. 11 patients with normal scans had uncontrolled diabetes. Details of neurological scans are shown in graphs 1,2 and 3. The commonest etiologies of third nerve palsy (with positive neuro-imaging results) were brainstem infarcts and maxillary sinusitis while demyelinating disease was major cause of sixth nerve palsy.
Parasellar meningioma pressing on the cavernous sinus was the commonest space occupying lesion leading to oculomotor (6%, n = 2/33) and abducens nerve palsies (5.88, n = 1/17). Only one case of Acoustic neuroma had sixth nerve palsy. The patient had developed palsy as a complication of neurosurgery for Acoustic neuroma. One of our patients with third nerve palsy had multiple tuberculomas in parasellar region.

DISCUSSION

Out of twelve pairs of cranial nerves, three pairs supply extra ocular muscles of eyeball. Diabetes, Hypertension, aneurysms, trauma and brain tumours are the most commonest causes of these nerve palsies. There are certain cases where cause cannot be found and they are considered under the heading of idiopathic. In this particular study third nerve palsy was the commonest among all ocular motor palsies. It was consistent with the findings of Kim et al., Chih-Hsien Hung and Chiu EK. Contrary to that, many other researchers had preponderance of sixth nerve palsy in their studies. Male to female ratio was 1.6:1 in a study by Shawn C in his cohort with an average age of 66.9 years. The ratio was reverse in our study (1:1.6).

In this particular study, 22% patients (n=11) were idiopathic. It was very much similar to the figures given by Kumar, Rucker et al. While this percentage was quite high by Berlit P. The incidence of ocular palsy associated with pituitary tumors is reported to be between 4.6 and 32%. We had parasellar meningiomas leading to ocular motor palsy but none of our patients had pituitary adenoma. Laterality of palsies is also interesting. 52% of our patients had right sided palsy which was very much consistent with an earlier study. Headache and diplopia were the commonest presenting complaints of oculomotor palsies in our study similar to earlier researchers.

There are many cases where MRI or other arterial and venous scans show negative results. Controversy still exists whether to perform scans in every patient with isolated oculomotor nerve palsy. One school of thought in the absence of other neurological signs is to have a close follow up of the patient. If neurological findings develop, neuro-imaging should be performed. Others have suggested to perform neurological imaging in all patients even if there is evidence of vasculopathy. In fact, every patient should be thoroughly investigated and neuro-imaging should be performed depending upon history, age and examination findings.

This study has certain limitations. Small sample size could be the cause of absent fourth nerve palsy cases. Our ability to collect detailed information was limited by the retrospective study and we had to rely on the available data. But this study can provide grounds on which prospective follow-up studies can be done.

CONCLUSION

Third nerve palsy is the commonest oculomotor nerve palsy. There are certain cases where neuro-imaging shows normal scans and the cause of palsy remains undetermined.

REFERENCES

21. Chiu EK, Nicholas JW: Sellar lesions and visual loss: key

40 years with no co-morbid with the presentation as in pictures. It started a year back with recurrent redness and swellings. Now this picture for last 20 days in RE and beginnings in LE as well. 

**DD.** cavernous sinus thrombosis, Chemosis, bleeding orbital varices

Curtesy: Dr. Muhammad Rashad Qamar Rao  
FCPS, FRCS  
Associate Professor of Ophthalmology  
QAMC, Bahawalpur, Pakistan  
E-mail: drrashadqr@yahoo.com
A Study of Prevalence of Risk Factors in Patients with Non-Arteritic Anterior Ischemic Optic Neuropathy (Na-Aion)

Akhunzada Muhammad Aftab FCPS1, Misbah Durrani FCPS2, Asif MBBS3
Awais Rauf MBBS4, Farzana MBBS5, Prof. Mustafaf Iqbal FRCS, FRCOphth6

ABSTRACT
Purpose: To estimate prevalence of risk factors in patients with Non-Arteritic Anterior Ischemic Optic Neuropathy (NA-AION).
Methods: This was a retrospective chart review of patients admitted and diagnosed as NA-AION. Patients with other optic nerve diseases like Diabetic Papillitis and patients with signs of Arteritic Anterior Ischemic Optic Neuropathy (like raised ESR and CRP) were excluded from the study. Hematological investigations, clinical data like fundus photos and radiological investigations were evaluated to detect associated risk factors.
Results: A total of 24 subjects were included in the study. Total number of males was 15 (62.5%), while 9 (37.5%) were females. Mean age at presentation was 57 years (Range 19-60 years). Total number of diabetics alone were 2 (8.3%), Hypertensives were only 3 patients (12.5%) while 14 (58.3%) suffered both from diabetes and hypertension. 5 (20.8%) were neither diabetics nor hypertensive. Patients with hyperlipidemia were 10 (41.6%). Echocardiography revealed abnormalities including diastolic dysfunction (DF) in 15 (62.5%), mitral regurgitation (MR) in 3 (12.5%), aortic regurgitation (AR) in 2 (8.3%), mitral valve prolapse (MVP) in 1 (4%), while 8 (34%) patients had a normal study. One (4%) patient was found to be Protein C deficient, 1 (4%) was Protein S deficient and 1 (4%) patient had both Protein C and S deficiency. Small optic discs were seen in 18 (75%) patients.
Conclusion: Diabetes, Hypertension and a small disc size are the most common risk factors associated with NA-AION in our setup.
Key Words: Non Arteritic Anterior Ischemic Optic Neuropathy, Diabetes Mellitus, Hypertension, Sleep Apnea

INTRODUCTION
Anterior ischemic optic neuropathy is of two types; Arteritic and Non Arteritic. Arteritic type is associated with giant cell arteritis. It is associated with raised inflammatory markers like erythrocyte sedimentation rate (ESR) and C-reactive protein levels. Non Arteritic Anterior Ischemic Optic Neuropathy is a multifactorial, acute optic neuropathy. It is the most common optic neuropathy in patients aged over 50 years and is the second most common cause of optic nerve related permanent visual loss in adults after glaucoma.3 The pathogenesis of NA-AION involves acute ischemic infarction of the optic nerve head, which is supplied by the short posterior ciliary arteries (SPAC).2 Despite the controversies regarding the distributary variations and characteristics of SPCA anastomoses around the ON head, it has been proved, that, this circle provides segmental supply to the optic nerve head and physiologically acts as end arteries.3

Patients usually present with sudden painless loss of vision in one eye, commonly noticed after wakening from sleep. Some patients may present with slight blurring of vision and a near normal visual acuity is recorded in them. Several studies have shown high prevalence of multiple risk factors. These may be considered as local or systemic factors
- Hypertension
- Diabetes Mellitus
- Hyperlipidemia
- Ischemic heart disease
- Nocturnal hypotension
- Sleep Apnea
- Absent or small cup in optic disc, and many others.4

Some studies have shown intrinsic disorders of regulation of coagulation as an additional risk factor.2,5 The purpose of this study was to evaluate the incidence of these risk factors in patients admitted to Eye A Unit, Khyber Teaching Hospital, diagnosed with NA-AION.

METHODS
This retrospective chart review study was conducted on patients previously admitted in Eye A Unit of Khyber Teaching Hospital. Diagnosis of NA-AION was made considering the following criteria:
- Positive clinical history of sudden painless visual loss/blurring of vision.
A Study of Prevalence of Risk Factors in Patients with Non-Arteritic Anterior Ischemic Optic Neuropathy (Na-Aion)

- Presence of risk factors.
- Reduced/ near normal visual acuity.
- Presence of relative afferent pupillary defect (RAPD).
- Diffuse or sectorial optic nerve head edema.
- Central and (or) altitudinal field defect on Humphrey’s visual field.
- Normal ESR and CRP

All the available records including history sheets, hematological investigations, ophthalmic examination, fundus photos, visual fields and radiological investigations were reviewed. We evaluated history of onset and duration of loss of vision. Duration of systemic disease like diabetes and (or) hypertension was considered. Also inquiry from the patient and (or) partner regarding noticing symptoms of sleep apnea was also evaluated. Hematological tests reviewed included complete blood count (CBC), ESR, CRP levels, glycosylated hemoglobin (HbA1c) levels, fasting lipid profile, renal function tests (RFT), prothrombin time (PT) and activated partial thromboplastin time (APTT), homocysteine levels, protein -C and -S levels. Fundus photos were evaluated for size of the disc and size of the cup. Radiological investigations which were analyzed included carotid doppler, echocardiography and ECG.

RESULTS

In this study, 24 patients were included. Total number of males was 15 (62.5%), while 9 (37.5%) were females. Mean age at presentation was 57 years (Ranging from 19- 60 years). All (100%) had a positive clinical history of sudden painless loss/ blurring of vision in the affected eye and presented within 10 weeks of onset of symptoms (Range 3 days to 10 weeks). Almost half the study patients (13), reported to have noticed vision loss upon wakening up in the morning. Only one (4%) patient’s history was positive for sleep apnea. 14 (58.3%) patients suffered both from diabetes and hypertension. 2 patients (8.3%) were having only diabetes and 3 patients (12.5%) were diagnosed hypertensive patients. 5 (20.8%) patients were neither diabetics nor hypertensive. Mean duration of diabetes was 7 years (Range 6 months to 15 years). Mean duration of hyper tension was 5 years (Ranging from 2 months to 20 years). All (100%) patients had normal CBC, ESR and CRP levels. All diabetics had raised HbA1c levels (mean = 8.7%). 10 out of 17 hypertensive patients in total had raised blood pressure recordings. Patients with hyper lipidaemia were 10 (41.6%).3 patients had raised cholesterol, 3 had raised triglycerides while 4 patients had both cholesterol and triglyceride levels above normal.

All 24 (100%) patients had renal function tests, PT and APTT levels within normal range.

One (4%) patient was found to be protein C deficient, 1 (4%) was Protein S deficient and 1 (4%) patient had both protein C and S deficiency in our study. One patient was suffering from hepatitis C and was taking interferon treatment. Fundus photographs revealed 18 (75%) patients in our study to have small discs with little or no cup. These discs are commonly referred to as “disc at risk”. Carotid doppler imaging revealed 7 (29%) patients to be having atheromatous plaques in the carotid arteries. None of these patients had more than 70% stenosis. Echocardiography revealed abnormalities including diastolic dysfunction (DF) in 15 (62.5%), mitral regurg (MR) in 3 (12.5%), aortic regurg (AR) in 2 (8.3%), mitral valve prolapse (MVP) in 1 (4%), while 8 (34%) patients had a normal study.

DISCUSSION

NA-AION is the most common type of ischemic optic neuropathy. It may or may not be present with decrease in visual acuity and is usually associated with visual field defects, respecting the horizontal mid line. The characteristic clinical features and the associated risk factors are important in making the diagnosis as NA-AION is often misdiagnosed as optic neuritis or in case of diabetics as diabetic papillopathy or even proliferative diabetic retinopathy. It must also be emphasized that two large studies have looked into the natural history of NA-AION and have reported a spontaneous improvement in 41%- 43% of eyes.6, 7

The most common presenting feature of NA-AION is noticing sudden loss of vision upon awakening. This finding has been reported by 62% patients in our study. Similar incidence of discovering loss of vision upon awakening was reported in 73% cases.8 Regarding visual field defects, a large study has shown inferior nasal defects to be the most common types of defects.9 In this study, we concluded that the most common risk factors in our study population for NA-AION were hypertension (70%) and diabetes (66%) followed.
by hyperlipidemia (42%). Another study conducted at Singapore, the most common risk factor were found to be hypertension (60%) followed by hyperlipidemia (51%) and diabetes (49%). In the Ischemic Optic Neuropathy Decompression Trial, conducted at 25 US clinical centers, hypertension (47%) was the most common risk factor, followed by diabetes (24%).

Another study conducted in Malaysia by a. Bawazir et al on 18 patients (20 eyes) at the Hospital University Sains Malaysia from January 2005 until December 2009 revealed hypertension (55%) and diabetes in 44% patients of NA-AION. These studies conducted on Asian populations are parallel with our findings.

Regarding treatment of NA- AION, multiple therapies have been tried including management of risk factors, optic nerve sheath decompression, systemic steroids, Aspirin, Intravitreal triamcinolone and intravitreal bevacizumab.

CONCLUSION

In this study we concluded that the most common risk factors for NA- AION in our population are hypertension followed by diabetes.

REFERENCES


The World Glaucoma Congress is being held from 6-9 June 2015 in Hong Kong

While the preparations for 2nd IGCP are in full swing, Pakistan Glaucoma Society like to share with a good news. Two symposia on Glaucoma Diagnosis and Management that we had submitted in the scientific programme of World Glaucoma Congress have been accepted. Prof Nadeem Hafeez Butt and Prof Syed Imtiaz Ali have received invitations as speakers and to chair a session. It is hoped that it will strengthen our relationship with World Glaucoma Association and in future to hold World Glaucoma Congress in Pakistan, as these events are landmarks and turning points for the development of subspecialty in the country and region.

Prof. Nadeem Hafeez Butt, FRCS
Executive Vice President
Ophthalmological Society of Pakistan &
President Elect, SAARC Academy of Ophthalmology
Dacryocystorhinostomy - is Endonasal Endoscopic Approach A Viable Option?

Khawaja Khalid Shoaib FCPS, FRCS¹, Sabih uddin Ahmed FCPS, FRCS²
Iftikhar Aslam FCPS³, Syed Nadeem ul Haq FCPS⁴

INTRODUCTION

Dacryocystorhinostomy (DCR) by external(ext) approach is a gold standard for the management of obstruction of lacrimal passages beyond the common canaliculus. However internal approach is also becoming popular now. Through the nose endoscopic (Endo) DCR can be done either mechanically or with different types of lasers. Advantages during the procedure include magnified view, bright focal illumination, projection on closed circuit TV (Fig 1), option of recording and no bleeding from skin and orbicularis while post operative advantages are decreased pain and reduced recovery time. Present study was carried out to find out the problems encountered during endo DCR, post op complications and the overall success rate.

MATERIAL AND METHOD

This quasi experimental study was carried out at eye departments of CMH Kharian and Mardan from Jan 2008 to Dec 2011. A total of 35 endo DCR were done in 34 patients. Probing and sac syringing was done in all the cases presenting with watering of eyes and no cause of excessive production of the tears. Inclusion criteria for the study were watering, purulent discharge, chronic dacryocystitis or mucocele and obstruction at or beyond common canaliculus. Cases having punctual stenosis or eversion and those having canalicular obstruction, were excluded from the study.

Fig-1: Endonasal DCR with endoscope, camera and projection on monitor

A 30 degree nasal endoscope was used and packing with ribbon gauze (soaked in 2% xylocaine with adrenaline 1: 100000) was done for fifteen minutes, in

ABSTRACT:
Objective: To analyze the per operative problems, post operative complications and success rate of dacryocystorhinostomies performed by endoscopic endonasal approach (endo DCR).

Study design: Quasi - experimental study

Place and duration of study: CMH Kharian and Mardan, from Jan 2008 to Dec 2011

Material and Method: In the initial ten cases, only nasal packing with 2 % xylocaine with adrenaline was done and kept for fifteen minutes. In the next ten cases, after packing, injection of the same solution was given at sac area and middle turbinate. Packing was done again for ten minutes. In rest of the cases, after packing, cautery was done instead of the injection. In all the procedures, silastic intubation and application of Mitomycin C 0.5 mg/ml for ten minutes was done.

Results: A total of 35 endo DCR were done in 34 patients under general anesthesia. 3 (9%) were males and 31 (91 %) were females. Age ranged from three years to sixty three years (mean 42 ± 15). Follow up ranged from 4 to 11 months (mean 6.5 ± 2.5). Problems during the operation included moderate bleeding obscuring view during six (17%), difficulty in localization of sac area in five (14 %), mild bleeding on first post operative day after three (9%), nasal mucosal adhesions after one (3 %) and persistent watering after six (17 %) requiring re operation with endonasal endoscopy. Success rate was 83 % after first operation and 94% after the endo procedure.

Conclusion: Complications encountered during and following endo DCR can be managed. The procedure has a good success rate.

Keywords: Dacryocystorhinostomy, endoscopic DCR, endonasal DCR

¹Eye Specialist, CMH Kharian. ²Eye Specialist, CMH Rawalpindi ³Eye Specialists, Lahore. ⁴RMI, Peshawar.

Correspondence: Col. Khawaja Khalid Shoaib, Eye Department, CHM Mardan. E-mail: kkshoaib@gmail.com, Ph: 0333-8533550
all the cases. In the initial ten cases, fiber optic light pipe (20/23 G) was passed through the canaliculi into the sac and at the site of transilluminated light, mucosal incision was made. As the bone was absent in the five endo cases, a probe was passed from canaliculi to nose to identify the area. In the initial ten procedures, only nasal packing mentioned above was done. In the next ten operations, after packing, injection of the same solution (2 cc of 2% xylocaine with adrenaline1:10000 mixed with 0.5 cc of adrenaline 1: 1000) was given at the sac area and middle turbinate). Packing was done again for ten minutes. In the next fifteen procedures, after packing, cautery was done to achieve haemostasis. Intermittent packing of ribbon gauze soaked in 2 % xylocaine with adrenaline 10000 was required for brief periods especially when bone was removed with the punch and sac wall was incised. In all the cases, silicon tube (Eagle, USA) was passed and ribbon gauze soaked in one ml of mitomycin C (0.5 mg/ml) was placed at the osteotomy site for ten minutes. DCR tube was removed after six months in all the cases except in two who have not yet completed six month post operative stenting. Data was analyzed using SPSS version 15. Descriptive statistics were used to describe the results.

**RESULTS**

Under general anesthesia (GA), a total of 35 endo DCR were done in 34 patients. 3 (9%) were males and 31 (91%) were females. Age ranged from three years to sixty three years (mean 42 ± 15). Follow up ranged from 6 to 10 months (6.5 ± 2.5). During the operation problems encountered were moderate bleeding obscuring view during six (17%) and difficulty in localization of sac area in five (14%) procedures (Table 1). Post operative complications included mild bleeding on first post operative day after three (9%), nasal mucosal adhesions after one (3%) and persistent watering after six (17%) procedures requiring re-operation with endonasal endoscopy. Repacking controlled post op bleeding nose. Persistent watering after five operations (16%) required re-operation with endonasal endoscopy. Success rate after the first operation was 83% and after the second operation was 94%, two cases did not improve, one was dealt with external DCR and the other was operated third time by endo DCR.

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Problems / complications</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bleeding in the nose obscuring view through endoscope</td>
<td>6 (17)</td>
</tr>
<tr>
<td>2</td>
<td>Difficulty in localization of sac area inside the nose</td>
<td>5 (14)</td>
</tr>
<tr>
<td>3</td>
<td>Mild bleeding on first post operative day</td>
<td>3 (9)</td>
</tr>
<tr>
<td>4</td>
<td>Nasal mucosal adhesions</td>
<td>1 (3)</td>
</tr>
<tr>
<td>5</td>
<td>Persistent watering after operations</td>
<td>6 (17)</td>
</tr>
</tbody>
</table>

**DISCUSSION**

DCR is more frequently required in females. This series had around 90% females and included initial endo DCR cases of the surgeons. It was thought that males are less concerned of cosmetic appearance of the scar and moreover it would be difficult to break the hard bones in them, so a few males were dealt with external approach. All of the cases reported for DCR tube removal six months after the operation except the two who had not completed the six month stenting period. After tube removal, only those patients visited who had persistent problem.

Fiber optic light pipe was required in each case in the initial ten cases and was used occasionally in rest of the cases to confirm the sac location. A probe was passed instead of the light pipe in endo cases through the already made osteotomy. Even slight bleed in the nose results in blurring of the view through the endoscope. Only nasal packing for fifteen minutes with 10cc of 2% xylocaine with adrenaline mixed with 0.5 cc of adrenaline 1: 10000 in the initial ten cases could not control the bleeding effectively. Injection of the same solution (2 cc of 2% xylocaine with adrenaline mixed with 0.5 cc of adrenaline 1: 10000) in the next ten cases though improved haemostasis but resulted in increased heart rate/blood pressure as the absorption from nasal mucosa was very rapid. In the rest of the cases, cautery was found very useful. Surgery can be done with the endoscope only while attaching camera and monitor provide the surgeon and assistant, a magnified view. Ronguers/punch of smaller diameter (Fig 2) are easier to manipulate in the narrow nasal cavity. Granulation formation occluding rhinostomy site leads to failure of the procedure and recurrence of epiphora. To prevent it, different dosages of Mitomycin C have been used eg. 0.5 mg/ml for 10 minutes,3 0.5 mg/ml for 5 min,2 0.2 mg/mL for 2 min, 3 0.05% nasal pack for 48 hours,4 0.03% with silicone intubation5 and 0.2 mg/ml for 30 minutes.6 In the present study 0.5 mg /ml for 10 min did not cause any problem. Initial half of the cases in this series were done by combined efforts of eye and ENT surgeons while later half of the cases were done by the eye specialist independently proving that with
learning either of the two can do the procedure.

Endo DCR has been done for dacryocystocele in a 4 month old infant\(^6\) and in adults\(^8,9\) It has been found to be safe and effective procedures for the management of persistent epiphora in children\(^10\) and for adults.\(^11\) The common insertion of the upper and lower canaliculus of the lacrimal sac has been repaired with endoscopic DCR followed by silicone stenting.\(^12\) Formation of mucosal flaps at the end of the operations has been claimed to improve success rates\(^13,14\) and has been termed powered endonasal DCR by some while many used the term mechanical endonasal dacryocystorhinostomy (MENDCR)\(^15\) when there is large rhinostomy and mucosal flaps. Success rates of MENDCR 92%\(^14\) and 93.5%\(^16\) were found to compare favorably with that of standard external DCR 95.8%.\(^17\) In a few studies, success was inferior (86% endo - 94% ext)\(^17\) while endo DCR\(^18\) while in other studies, success rates after endo DCR have been found to be equal to that of external DCR.\(^19\) Many think that best endo DCR results are achieved by stenting or removal of the medial wall of the lacrimal sac.\(^20\) while a few recommend no intubation because of similar surgical success rates, and granulation formation, patient discomfort, and increased cost with intubation.\(^21\) Nasal endoscopy has been recommended before and after external DCR\(^2\) and to treat a failed external DCR.\(^23\)

**CONCLUSION**

Problems/complications encountered during Endo DCR can be managed as the procedure has good success rate.

**REFERENCES**

Ocular and systemic Complications of Intravitreal Bevacizumab (Avastin) therapy
(12 months audit report)

Akhunzada Muhammad Aftab FCPS1, Awais Rauf MBBS2, Farooq Khan MBBS3, Syed Bilal Hassan Zaidi MBBS4, Prof. Mustafa Iqbal FRCS, MRCOphth5, Syeda Ghazala Shahnawaz MBBS, D.O6

ABSTRACT

Introduction: Since the introduction of Anti-VEGF therapy in 2005, it has been extensively used in treating ophthalmic conditions like proliferative diabetic retinopathy, age related macular degeneration and macular edema. However intravitreal route of administration predisposes to ophthalmic complications along with few systemic adverse events too.

Materials and Methods: A retrospective analysis of the records of all patients admitted for intravitreal bevacizumab therapy was performed during 1st January 2012 to 31st December 2012. All patients under went complete ophthalmic and systemic evaluation especially to evaluate the cardiovascular risk factors. Multiple doses of 2.5mg/ 0.1ml of bevacizumab were given from a single vial in multiple settings in a sterile environment. Ocular and systemic complications were analyzed on 1st, 7th day and after 4 weeks.

Results: Ocular complications included sub conjunctival hemorrhage (2.19%), crystalline lens trauma (0.69%), transient rise of IOP (0.3%), endophthalmitis (0.11%), mild uveitis (0.2%), conjunctival injection with punctate erosions (0.11%) and regurgitation of drug (0.4%). No systemic side effects of therapy were seen during the study period. Conclusion: Services provided at our institute meet the international standards and all the adverse effects and (or) complications are within international standards despite use of single vial for multiple doses and multiple settings.

Key words: Bevacizumab, Intravitreal, Neovascularization, Proliferative Diabetic Retinopathy.

INTRODUCTION

Vascular Endothelial Growth Factors (VEGF) plays an important role in many ocular pathologies, both of the anterior and the posterior segment, leading mainly to complications like neo-vascularization and macular edema. Since the introduction of anti-vascular endothelial growth factor therapy in 2005, it has gained wide spread popularity among ophthalmologists worldwide.1-6 Although not FDA approved, ‘off label’ use of Bevacizumab has been in practice since June 2005.7 It has been used with promising results in conditions like Age related macular degeneration, proliferative diabetic retinopathy, neovascular glaucoma, clinically significant diabetic macular edema and macular edema due to vascular occlusions.1,2,3,5-10

Commercially available bevacizumab (Avastin®);

1Registrar Eye A Unit Department of Ophthalmology, Khyber Teaching Hospital, Peshawar, 2,3,4 Traine Medical Officers, A Unit Department of Ophthalmology, Khyber Teaching Hospital, Peshawar, 5Prof. & Head of Ophthalmology Department, Khyber Teaching Hospital, Peshawar, 6Registrar, Ophthalmology Department, Khyber Teaching Hospital, Peshawar.

Correspondence: Dr. Akhunzada Muhammad Aftab c/o Prof. Dr. Muhammad Ibrar, Department of Botany, University of Peshawar, Peshawar. Cell: 03339106060, E-Mail: draftingal@aol.com

Received: January 2015    Accepted: February 2015

Financial disclosure: There has been no financial interest involved in this study.
underwent a complete systemic review especially to exclude any cardiovascular risk factors and blood pressure monitoring. Written informed consent was taken from all the patients.

Intravitreal 2.5mg/0.1ml Bevacizumab (Avastin®) was injected in sterile environment of operation theater under strict aseptic technique using topical anesthesia. Multiple drug doses were drawn from the same vial and each vial served the purpose in multiple settings. In between procedures, the vial used to be stored in a sterile box in a refrigerator (8°C). Standard procedure for injecting Intravitreal Avastin was followed. Topical proparacaine 0.5% drops were used for anesthesia followed by instillation of 5% povidone Iodine in the conjunctival sac. Periocular scrubbing and sterile draping was performed. Using a sterile 27 gauge needle, 0.1 ml of Avastin was injected into the vitreous cavity 3.5-4 mm posterior to the limbus. Site of injection was pressed for 20 seconds to avoid reflux. Central retinal artery patency was confirmed using binocular indirect Ophthalmoscopy. All the patients received topical Ofloxacin drops 6 hourly post injection for one week.

Patients were followed up on first post Op day, 7th day and after 4 weeks. Patients underwent ophthalmic evaluation including visual acuity, intraocular pressure measurement, anterior chamber evaluation especially for signs of inflammation and (or) endophthalmitis, posterior chamber evaluation especially to exclude any cells, vitreous hemorrhage and dilated fundus examination using 90D lens. They were also asked to report any systemic side effects of the therapy. Patients were also reevaluated after 4 weeks for a repeat injection to be given.

RESULTS

Total number of patients receiving Avastin during the specified time period was 867. Demographic analysis revealed 59% males (n=512) and 41% (n=355) females. The most common age group in our study was 56-65 years (38%) followed by 46-55 years group (36%). Complete breakdown of all age groups in our study is given in figure I. The most common indication for intravitreal Avastin injection was proliferative diabetic retinopathy (PDR) with macular edema (42%), followed by clinically significant macular edema (CSMO) with non proliferative diabetic retinopathy (NPDR) (29%). Indication of macular edema secondary to venous occlusion was present in 10% patients. Complete breakdown of the different indications for intravitreal Avastin of this study period is given in figure II and Table I.

Regarding the ocular complications, the most common was sub conjunctival hemorrhage (2.19%), followed by crystalline lens trauma with needle (0.69%), which led to traumatic cataract. Post operative endophthalmitis was present in only one (0.11%) patient. Other complications observed included transient rise in IOP, regurgitation of drug and mild uveitis. None of our patients experienced any systemic side effects during the study duration. Figure III explains breakdown of the complications.

TABLES & FIGURES

<table>
<thead>
<tr>
<th>Indication</th>
<th>No of Patients</th>
<th>Indication</th>
<th>No of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDR with Macular Edema</td>
<td>367</td>
<td>NPDR with CSMO</td>
<td>253</td>
</tr>
<tr>
<td>CRVO, BRVO</td>
<td>87</td>
<td>Iris Neovascularization</td>
<td>17</td>
</tr>
<tr>
<td>NVG</td>
<td>42</td>
<td>Wet AMD</td>
<td>37</td>
</tr>
<tr>
<td>Vitreous Hemorrhage</td>
<td>38</td>
<td>CSR</td>
<td>08</td>
</tr>
<tr>
<td>Myopia</td>
<td>06</td>
<td>Eales Disease</td>
<td>12</td>
</tr>
</tbody>
</table>

Table I: Indication (s) of Intravitreal Avastin Therapy. PDR (Proliferative Diabetic Retinopathy), CSMO(Clinically Significant Macular edema), NPDR(Non Proliferative Diabetic Retinopathy), CRVO(Central Retinal Vein Occlusion), BRVO.Branch Retinal vein Occlusion), NVG(Neovascular Glaucoma), CSR(Central Serous Retinopathy), AMD(Age Related Macular Degeneration)
DISCUSSION

Anti VEGF injections have become a revolutionary treatment modality in the last decade. Its use in ophthalmologic pathologies has yielded promising results. “of label” use of Bevacizumab (Avastin) is gaining wide popularity not only because of the promising results but also its easy availability and a relatively cheap cost. As already mentioned most centers, hospitals and clinics divide the vial into multiple small doses, reducing the cost per injection further.

The dose of Bevacizumab used in ophthalmology is small as compared to the intravenous dose used in carcinoma colon, still, various ocular and systemic complications have been reported worldwide. In our study, out of a total of 867 patients, only 36 patients developed ocular side effects of the therapy while no patient experienced any systemic side effects in the study duration. Out of these 36 patients, 29 had perioperative complications like sub conjunctival hemorrhage, crystalline lens trauma and regurgitation of drug. The most common age group in our study was 56-65 years (38%), and the most common indication for therapy was proliferative diabetic retinopathy with macular edema (42%). Ocular complications in our study included subconjunctival hemorrhage (2.1%), crystalline lens trauma and regurgitation of drug. The most common age group in our study was 56-65 years (38%), and the most common indication for therapy was proliferative diabetic retinopathy with macular edema (42%). Ocular complications in our study included subconjunctival hemorrhage (2.1%), crystalline lens trauma and regurgitation of drug (0.6%) which led to traumatic cataract, transient rise of intra ocular pressure (0.3%), mild uveitis (0.2%), endophthalmitis (0.1%), conjunctival injection with punctate epithelial erosions (0.1%) and regurgitation of drug (0.4%). No patient (0%) had any systemic side effects in the study duration.

In another study conducted by Fasih U et al, out of 150 patients receiving intravitreal bevacizumab, ocular complications included sub conjunctival hemorrhage (23%), regurgitation of drug (5.3%), transient rise of IOP (4.7%), mild uveitis (2.7%), lens injury (2%), conjunctival chemosis and iatrogenic vitreous hemorrhage (0.7%). Among the reported systemic complications were acute rise of blood pressure (2.7%) and mild irritation and allergic reaction on skin (0.7%). In our study there was one case of endophthalmitis, while rates of other complications were less. None of our study patients has conjunctival chemosis or iatrogenic vitreous hemorrhage. None of our patients had systemic side effects of therapy.

A study conducted by Shima C et al, published in 2008, reported ocular and systemic side effects of intravitreal bevacizumab therapy in 707 patients. Results of their study included corneal abrasion 2 patients (0.28%), Conjunctival chemosis 2 patients (0.28%), Crystalline lens injury 1 patient (0.14%), ocular inflammation 2 patients (0.28%), Retinal pigment epithelial (RPE) tear 1 patient (0.14%) and acute vision loss 1 patient (0.14%). Systemic complications included cerebral infarction 1 patient (0.14%), elevation of systolic blood pressure 2 patients (0.28%), facial skin redness 1 patient (0.14%), itchy diffuse rash 1 patient (0.14%) and menstrual irregularities 3 patients (0.42%). While in our study complications like RPE tear, sudden loss of vision and systemic side effects were not seen. A retrospective study conducted by Johnson D et al, at the Department of Ophthalmology, Queens Hospital Kingston, Ontario, 9 (1.30%) cases of acute intraocular inflammation were seen out of 693 injections given.

CONCLUSION

Intravitreal Bevacizumab therapy has fewer side effects as compared to systemic administration. The ocular side effects of our study are well within range of international studies. In order to avoid systemic complications, admission of all the patients and strict cardiovascular evaluation is mandatory. Using the same vial for multiple doses and being used in multiple settings do not seem to increase the risk of ocular and (or) systemic complications. Multiple dosing from a single vial can reduce the total patient cost tremendously. The operative complications can be avoided by adopting proper procedure and employing trained ophthalmologists for the procedure.

REFERENCES

Retina 2006;26:279–84.
6. Mason JO III, Albert MA Jr, Vail R. Intravitreal bevacizumab (Avastin) for

Metastatic ocular melanoma

A 35-year-old male patient presented to our OPD with complaint of sudden painless decreased vision for 4-5 months in left eye. Visual acuity was 6/6 OD and CF OS. There was a large mass supertemporally just posterior to and indenting the crystalline lens. Fundus examination revealed large elevated amelanotic lesion superior to superior arcade and exudative retinal detachment inferiorly. Enucleation was done and the specimen was sent for histopathology.

Curtesy: Dr Hussain Ahmad Khaqan Department of Ophthalmology, Lahore General Hospital/PGMI, Lahore.
Incidence of Intraocular Foreign Body in Penetrating Trauma presented to a Tertiary Care Hospital of Khyber Pakhtun Khwa and its Visual Outcome

Mohammad Idris FCPS, Zubairullah Khan FCPS, Hasan Yaqoob FRCS, Asim Ali Shah FCPS

ABSTRACT

Objective: to determine the Frequency of Intraocular foreign body in penetrating injury presented to a tertiary care centre of Khyber Pakhtunkhwa for management and its visual outcome.

Study design: prospective, interventional case series

Material and Methods: The study was carried out at Department of Ophthalmology, Govt Lady Reading Hospital, Peshawar from July 2010 to Jan 2013. We received 100 cases from outdoor department for management. Patients were examined after detailed history and important findings noted. Data was collected on special proforma and was analyzed with the help of SPSS Version 16.

Results: The study comprised of 100 cases. In 37 (37%) patients with penetrating ocular injury, IOFB was found. 73 (73%) patients were male and majority was young patients. Students and children were in majority, 38 (38%) patients were students, 35 (35%) patients were labors, and 15 (15%) patients were related to sports and defense. Commonest reason of penetrating injury was toys, stone and metal and glass pieces. Main reason for poor visual acuity was late presentation and BBI (bomb blast injuries).

Conclusion: Occupation like labor, sports, defense and children are persons who are constantly prone to penetrating trauma and IOFB. In case of school children, teachers can play a vital role in prevention and timely referral to a tertiary care centre. Commonly male and young people are risk group people and should be advised to wear protective goggles during outdoor work. Visual progression was poor in majority of the eyes; delayed presentation and BBI were the top reasons. Most serious cause of penetrating trauma was BBI.

Key words: penetrating trauma, intraocular foreign body, ocular trauma, visual outcome.

INTRODUCTION

Penetrating ocular trauma is a serious type of injury to the globe. Intraocular foreign bodies (IOFBs) are the major cause of penetrating ocular trauma and the most serious problem is the resulting impairment of visual function. Special attention should be paid on primary and secondary complications, which include mechanical lesions of the ocular tissues, metallosis and endophthalmitis. Ocular trauma associated with intraocular foreign bodies (IOFBs) is one of the major causes of visual impairment in young individuals.

Various reports indicate that 18-41% of all open globe injuries involve at least one IOFB. In a study, the intraocular foreign body in open globe injury was found in 45 eyes (38%). In our study it was seen in 37% cases. Most of the victims are male and young patients working on fields which are exposed because of their occupations. In this regard, lack of awareness regarding protective goggles and early referral to eye specialist for urgent management is lacking. Most ocular injuries in this rural population occurred at the workplace, suggesting the need to explore workplace strategies to minimize ocular trauma as a priority. Eye care programs targeting high-risk ocular trauma groups may need to consider ocular trauma as a priority in eye health awareness strategies in order to reduce its incidence.

METHODOLOGY

The study was carried out at Department of Ophthalmology, Govt Lady Reading Hospital, Peshawar from July 2010 to Jan 2013. We received 100 cases from outdoor department and were admitted for management. This was a prospective, interventional case series of consecutive patients with IOFBs. Patients were examined after detailed history and important finding were noted. The following variables were recorded for the purpose of the study: age, gender, cause of trauma, occupation, complications, presenting best-corrected visual acuity (BCVA), slit lamp and fundus examination, ultrasound examination when ophthalmoscopy was not possible, foreign body localization based on orbital...
Incidence of Intraocular Foreign Body in Penetrating Trauma presented to a Tertiary Care Hospital of Khyber Pakhtun Khwa and its Visual Outcome

CT scan, size, site, and type of the foreign body, consequences of retained IOFB including complications, time interval since injury, details were recorded. All patients underwent surgical removal of the IOFB. Final visual acuity at 6 month follow up visit was noted. Data was collected on special proforma and was analyzed with the help of SPSS Version 16; on probability consecutive sapling technique was used.

**Inclusion criteria:** patients with history of intraocular foreign body.

**Exclusion criteria:** patients with history of ocular disease especially diabetic retinopathy, high myopia, past ocular surgery and bleeding disorders.

**RESULTS**

We analyzed 100 cases of patients who suffered penetrating ocular trauma. Various aspects of subjects with penetrating trauma are presented in Table 1.

Regarding gender distribution, 73 (73%) patients were male and only 27 (27%) patients were female. We divided age into 03 groups. 38 (38%) patients were young with age less than 20 years. 53 (53%) patients have age ranging from 21 to 40 years and only 09 (09%) patients have age 40 years or old. So majority were young patients. Different causes of the penetrating trauma were determined and presented. Hammering a chisel was the main cause and it was seen in 33 (33%) cases. bomb blast injury was seen in 17 (17%) patients and sports or accidental cases were seen in 44 (44%), while other causes reported unknown by the patients were 06 (06%) cases.

Different occupation of patients were divided and presented. Students and children were in majority, 38 (38%) patients were student, 35 (35%) patients were labors, and 15 (15%) patients were related to sports and defense activities. Occupations other than above were found in 12 (12%) patients. Finally visual outcome was shown in table 1., generally the final visual acuity was poor in majority of the patients. We divided the patient’s visual acuity into Perception of light (PL) to no perception of light and counting finger or better. 37 patients were having visual acuity of perception of light to no perception of light. 63 patients have counting finger or better vision. PL was mostly in BBI and cases which were presented late. So majority had poor prognosis even after treatment, at six months follow up period. Main reason for poor visual acuity was late presentation and BBI.

Table 2 shows frequency of IOFB in 100 cases presented to the emergency department for management. out of 100 cases, 37 (37%) patients have IOFB detected either clinically or using imaging techniques like, X-rays, CT-scan and ultrasound B-scan. In 63 (63%) patients with penetrating ocular injury, no IOFB was found.

**DISCUSSION**

In this study we evaluated cases with penetrating intraocular injury that underwent repair and with or without foreign body removal. The visual outcomes and complications of surgical management were determined. The final visual acuity, and important observations reported in the literature were compared to the present study.

With successive wars in the twentieth century, there has been a relative increase in injuries to the eye compared to injuries of other parts of the body. The main causes of eye injury have changed with advances in techniques and weaponry of warfare, with blast fragmentation injuries accounting for 50-80% of cases. In our study, Mostly victims are those working in the field and exposed to environment. According
to different studies\textsuperscript{2, 6, 9} despite early referral, BBI were having worse prognosis and despite proper management and early intervention, results and final visual outcome were poor and disappointing. It was mainly because of multiple and complex type of injuries and severe ocular damage.

The most common causes of open globe injury are domestic accidents and occupational injuries. Significant prognostic factors for final visual outcome in patients with open globe injury are initial visual acuity, posterior extent and length of wound, presence of hyphaema and presence of vitreous prolapse. Awareness of the factors predicting a poor visual outcome may be helpful during counseling of patients with open globe injuries.\textsuperscript{10}

Several studies confirm that trauma of any type is common in male\textsuperscript{11} in our study males were in majority also. Similarly young to middle age people are the common group of people exposed to both accidental as well as occupational trauma.\textsuperscript{4, 5} Most of our patients were less than 40 years age. Penetrating ocular injuries with retained posterior segment foreign bodies are challenging cases requiring urgent attention by vitreoretinal surgeons. Posteriorly located injuries can result in serious immediate and delayed vitreoretinal sequelae, such as retinal detachment and endophthalmitis. De Souza S et al, reported the rates of retinal detachment and endophthalmitis were 41\% (17/41) and 17\% (7/41) respectively.\textsuperscript{12} Several studies have shown that the visual prognosis is poor. In a study, Visual acuity on admission between 6/60 to PL comprises highest number (64\%) and also on discharge between 6/60 to PL comprises highest number of cases (50\%) of IOFB.\textsuperscript{3}

In eye injury patients, the nature of the foreign body determines the clinical behavior; inert objects such as steel and glass may not cause significant inflammation to warrant their removal. Removal of organic foreign bodies, however, is mandatory since these objects usually lead to secondary infection, like endophthalmitis.\textsuperscript{13}

**CONCLUSION**

Occupation like labor, sports, defense and children are persons who are constantly prone to penetrating trauma and IOFB. In case of school children, teachers can play a vital role in prevention and timely referral to a tertiary care centre. Commonly male and young people are risk group people and should be advised to wear protective goggles during outdoor work.

Visual progression was poor in majority of the eyes due to delayed presentation and BBI were the top reasons. Most serious cause of penetrating trauma was BBI. FBs like wood and stone were strongly associated with endophthalmitis which needs local and systemic antibiotics should be advocated in any trauma particularly contaminated ones.

**Recommendations:** Awareness regarding early referred to the tertiary care hospital, when facilities of vitrectomy is available for IOFB removal with out delay. Any FB can enter the eye and cause damage so the need of imaging is stressed in every suspected case. Majority of patients with IOFB were male, laborer and workers, so the incidence can easily be reduced with adopting simple measures like safety goggles use during work because in most of the cases prognosis is poor and prevention is better.

**REFERENCES**

10. Madhusudhan AL, Evelyn-Tai LM, Zamri N, Adil H, Wan-Haz-abbah WH. Open globe injury in Hospital Universiti Sains Ma-

12. De Souza S, Howcroft MJ. Management of posterior seg-
To Determine the Efficacy of Tattoo Ink in Changing the Color of Rabbit’s Iris

Mehdi Soltanifar MBBS¹, Jahanzeb Durrani, DOMS, FICO²

ABSTRACT

Aim: To determine the efficacy of tattoo ink in changing the color of rabbit’s iris.

Methods: The research was carried out on rabbit eyes. The dye used to change the color of the iris was the standard tattoo ink. Five different colors of tattoo ink were used and these include red, yellow, green, blue and brown. All the eyes underwent intra-ocular pressure measurement, The anterior chamber reaction and iris atrophy was assessed. A record of iris color was kept by serial photographs. After anesthetizing the rabbit a port was made at the limbus at the 12 o’clock position preformed tattoo ink was injected in the anterior chamber. The Anterior chamber was washed after ten minutes in group (A) of rabbits and after twenty four hours in group (B) of rabbits with balanced salt solution. The wound was sealed via stromal hydration. Topical antibiotic-steroid drops were used to post operatively.

Results: Our study included 20 eyes from 10 rabbits. The right eye of each rabbit was used as a control. The IOP, AC cell count and AC flare stayed constant in right eye over one month follow up. The left eye however had significantly decrease in IOP at 1 week and 1 month; p=0.00. The AC cell count and AC flare was significantly high in left eye as compared to the baseline; p< 0.05. All rabbits had round regular pupil responding to light at the baseline. Iris atrophy was not seen in any rabbit at the baseline and also not at 1 week or 1 month. In all rabbits of group A no color change in iris occurred. However in group B all rabbits showed change of color of iris. The color could be seen in the form of membranes of color formed in front of the iris. However, the cornea and the lens did not take up any color and did not show any staining. In group A there was some pigment in the epithelial cells but no color could be demonstrated in the stroma. In group B the color deposits can be seen in the epithelial cells, in the macrophages of the stroma and also in the extracellular matrix of the stroma.

Conclusion: Tattoo ink changed the color of iris if retained in the anterior chamber for 24 hours. It caused complications of decreased intraocular pressure and increased anterior chamber cell count and flare. No iris atrophy occurred. The change in color of iris was patchy for most colors but for blue ink the whole iris color change occurred.

INTRODUCTION

The color of the iris has important implications in the cosmetic appearance of a person’s eyes. Different optical aids have been developed to change the color of the iris and hence the appearance of the eyes. These devices include colored contact lenses and anterior chamber intra ocular lenses. Both these aids have their advantages and associated complications. Tattoo ink can also be used to change the color of the iris. It has been used in humans on the skin for a long time. The tattoo ink is ingested by the fibroblasts and permanently changes their color. The aim of this research is to use tattoo ink to change the color of the iris in animal models. The research will be carried out in rabbit eyes because of their close anatomical resemblance to human eyes. The eyes will then be monitored for a change in the color of the iris as well as any possible side effects.

OPERATIONAL DEFINITION

The safety and efficacy of the ink will be judged according to the following parameters;

1-Intraocular pressure (IOP): A difference of more than 4 mmHg before and after the procedure will be considered significant.

2-Anterior chamber reaction: A cell count of more than fifteen and a flare of more than +2 will be considered significant.

3-Iris atrophy: The pupillary size and excursion to light will be compared with the other eye to determine damage to the iris muscles. Iris atrophy will be recorded as being either present or absent.

4-Iris colour: The color of the iris before the use of tattoo ink will be compared to its color after its use.

MATERIAL AND METHODS

Setting: Department of Ophthalmology Pakistan Institute of Medical Sciences, Islamabad.

Duration of Study: 6 months after approval of synopsis.

Sample: Size twenty eyes of ten rabbits with one eye of each animal being used as control.

Sampling Technique: Non probability (convenience) sampling.

Inclusion Criteria:
1. Healthy adult rabbits with normal eyes.
2. Age from 2 to 6 months

Exclusion criteria:
1. Any ocular pathology
2. Age less than 2 months and greater than 6 months

Data Collection Procedure: The dye that will be used to change the color of the iris is standard tattoo ink. The
concentration of the dye will be standardized by cen-
trifuging one milliliter of ink to remove the fluid fol-
lowed by washing with normal saline. One milliliter
of hydroxy methyl cellulose will then be added to this
mixture.

All the eyes will undergo intra-ocular pressure
measurement by Schiotz tonometer. The anterior
chamber reaction and iris atrophy will be assessed by
slit lamp biomicroscopy. A record of iris color will be
kept by serial photographs. All these variables will be
measured one day before the injection of tattoo ink then
two weeks after the injection finally one month after the
procedure.

The rabbits will be anesthetized by an intramus-
cular injection of forty percent ketamine, xylazine Hy-
drochloride and Atropine. After anesthesia the head
of the rabbit will be fixed. A port will be made at the
limbus at the 12 O’ clock position. Viscoelastic will be
injected in the anterior chamber for deepening it and
protection the cornea. Finally, preformed tattoo ink will
be injected in the anterior chamber through the same
port. The Anterior chamber will be washed after ten
minutes in group (A) of rabbits and after twenty four
hours in group (B) of rabbits with balanced salt solu-
tion. The wound will be sealed via stromal hydration.
Topical antibiotic-steroid drops will be used to post op-
eratively.

Data analysis: The data will be stored and analyzed in
SPSS (10). Frequency (percentages) will be calculated
for all the variables including intraocular pressure,
anterior chamber reaction, irisatrophy and iris color.
Chi-square test will be used as the test of significance. P
value of <0.05 will be considered as significant.

RESULTS

Intraocular pressure: The IOP in right eye ranged
from 25.8 to 30.4 with a mean of 27.6±2.37. At 1 week the IOP ranged from 18.5
to 25.8 with a mean of 22.4±3.63. At 1 month the IOP
decreased further and ranged from 14 to 25.8 with a
mean of 19.6±5.59. The decrease in mean IOP at 1 week
was compared to IOP at baseline and a mean decrease
of 5.15±4.09 was noted, this difference was statistically
significant; p=0.003 (using paired sample t test). The
decrease in mean IOP at 1 month was compared to IOP
at baseline and a mean decrease of 8.02±6.57 was noted,
this difference was statistically significant; p=0.004.

Anterior chamber cell count in rabbits eye: At 1 week
however 6 (60%) had +1 and 4 (40%) had +2 cells in the
AC. At 1 month it improved in one (10%) patient and
no cell were seen. However in 5 (50%) +1 cells and in 4
(40%) +2 cells were seen. The cell count in AC was sig-
ificantly higher at 1 week and at 1 month as compared
to the baseline; p=0.00.

Anterior chamber flare in rabbits eye: At 1 week how-
ever 3 (30%) had no flare, 3 (30%) had +1 flare, 2 (20%)
had +3 flare and 2 (20%) had +4 flare in the AC. At 1
month the condition was the same as at 1 week. The
flare in AC was significantly more at 1 week and at 1
month as compared to the baseline; p=0.009.

Pupillary reaction: Two rabbits however developed
sluggish left pupil at 1 week and at 1 month.

Iris atrophy: Iris atrophy was not seen in any rabbit at
the baseline and also not at 1 week or 1 month.

Color change of iris: In all rabbits of group (A) no color
change in iris occurred. However in group (B) all rab-
bbits showed change of color of iris. The color could be
seen in the form of membranes of color formed in front
of the iris. However, the cornea and the lens did not
take up any color and did not show any staining.

Histopathology: In group A there was some pigment in
the epithelial cells but no color could be demonstrated
in the stroma. In group B the color deposits can be seen
in the epithelial cells, in the macrophages of the stroma
and also in the extracellular matrix of the stroma.
**Differences between different colors:** The response observed with different colors was varied. For example, with blue and yellow color the change in color was homogenous however with brown, green and red color the color change was patchy and inhomogeneous.

**DISCUSSION**

Different optical aids have been developed to change the color of the iris and hence the appearance of the eyes. These devices include colored contact lenses and anterior chamber intra ocular lenses. Both these aids have their advantages and associated complications. Anterior chamber intra ocular lenses have been used to mask the original color of the iris and improve the appearance of patients with iris colobomas. The complications associated with these include uveitis, iris atrophy, glaucoma, endophthalmitis, pupillary abnormalities, haloes and reduced vision at night. Colored contact lenses are easy to use and are widely employed to change the color of the iris for cosmetic reasons. Contact lens use has been associated with uveitis, epithelial keratopathy and allergic reactions. Tattoo ink can also be used to change the color of the iris. The immediate uptake of the ink by the fibroblasts, together with the scarcity of these cells in the endothelial layer of the cornea and anterior capsule of the lens ensures that these structures in the anterior chamber do not change their color and react minimally to the presence of the ink.

We carried out a study at PIMS hospital to see the efficacy of tattoo ink in changing color of iris. The study was carried out at Department of Ophthalmology, PIMS Islamabad. The research was carried out on rabbit eyes. The response observed with different colors was varied. For example with blue and yellow color the change in color was homogenous however with brown and red color the color change was patchy and inhomogeneous. Each tattoo color has a different chemical formula which is a secret of the company manufacturing it. The differences observed in the homogeneity of color change may be due to differences in the chemical nature of the different colors.

From our study it is evident that the color change occurs if the dye is retained in the anterior chamber for 24 hours. Complications included features of inflammation which settled by the end of one month in some eyes. It caused complications of decreased intraocular pressure and increased anterior chamber cell count and flare. No iris atrophy occurred. The reduction in the intraocular pressure in rabbits’ eyes may be due to reduced fluid production by the ciliary body in response to the dye. However, reduced pressure does signify the fact that the tattoo ink did not block the outflow tracts of the anterior chamber.

Tattoo inks have their own hazards even when used on the skin. In our study the injection of tattoo ink was associated with development of inflammation as evidenced by significant increase in cell count and development of flare in the anterior chamber. However, tattoo ink was quite safe in our study since no case of iris atrophy was observed. Since the previous methods had their own limitations attempts at inventing a new method that is successful in changing the eye color without side effect will continue. Our study was one such effort. Further studies are required in the field with slight changes in the tattoo chemistry and its solvent that can improve the results in future.

**CONCLUSION**

Tattoo ink changed the color of iris if retained in the anterior chamber for 24 hours. It caused complications of decreased intraocular pressure and increased anterior chamber cell count and flare. No iris atrophy occurred. The change in color of iris was patchy for most colors but for blue and yellow ink are homogenous and whole iris color change occurred.

**REFERENCES**

Incidence of Hepatitis B & C among Admitted Eye Patients in Tertiary Care Hospital of Peshawar

Bilal Bashir FCPS1, Muhammad Zubair Masud FCPS2, Muhammad Nazim FCPS3 Bilal Khan FCPS4, Mahfooz Hussain FRCS5

ABSTRACT:
Purpose: To determine the frequency of sero-positive cases of Hepatitis B & C viral infection in the admitted patients undergoing elective eye surgery in tertiary care hospital.

Material and Method: It was a descriptive study based on survey in which all patients above 2 years of age admitted for eye surgery in Eye unit of Lady Reading Hospital Peshawar were screened for Hepatitis B and C infections, from 1st July 2013 to 30th June 2014. Those found positive on screening test were confirmed by Enzyme Linked Immunosorbant Assay (ELISA).

Result: Total number of patients screened was 1147. Male patients were 54.31% (623/1147) and female patients were 45.68% (524/1147). The frequency of hepatitis B and C (combined) was found to be 5.66% (65/1147); out of which 2.5% (29/1147) were HBsAg positive and 3.13% (36/1130) anti-HCV positive

Conclusion: Screening of blood borne viral infections has important role in minimizing the transmission of the virus to doctors, paramedics and other patients.

BACKGROUND

Hepatitis is described as an infection with swelling and inflammation of the liver that if progresses, may lead to cirrhosis or cancer. Sometimes people contract hepatitis with limited or no symptoms but often it leads to jaundice, anorexia (poor appetite) and diarrhea. Hepatitis is caused by a wide variety of causatives like alcohol, poison and autoimmunity but most cases of hepatitis are reported by viruses. Pakistan has large number of both diagnosed and un-diagnosed patients of hepatitis B and C. The prevalence among general public of HBV and HCV infection in Pakistan is 10%2,3 and 4–10%4,5 respectively. Hepatitis B virus (HBV) infection is endemic worldwide and is responsible for an estimated 1-2 million deaths worldwide every year. About 350 million (5-15% of the total cases) are carriers of the virus, out of which around 80% reside in Asia.6 According to WHO estimates, HCV prevalence is 3% of world population with 170 million cases. Almost 50% of all cases become chronic carriers at risk of liver cirrhosis and liver cancer.7

HBV can be transmitted through blood, semen, vaginal fluids and other bodily fluids of the infected individual.8 HCV however, can only be contracted through blood to blood contact. The transmission risk of these diseases is more among patients receiving blood transfusions or injection drug users.9,10 Patients presenting to different public and private hospitals are not routinely screened for hepatitis B and C. Therefore there is high risk of transmission of infection from asymptomatic carrier patients. Keeping in view the dreadful complications of hepatitis and its high infectivity we cannot take the risk of operating on patients without hepatitis screening. This study was carried out to discover the frequency of hepatitis B and C in our surgical patients to get an idea about the number of the patients we are operating on them without knowing that whether they are hepatitis B or C positive.

MATERIAL AND METHODS

This prospective observational study was conducted at Eye Unit, Lady Reading Hospital Peshawar from July 2013 to June 2014. A total of 1147 patients undergoing eye surgery, who were unaware of hepatitis infection were included in this study. After taking ethical approval from the department, patients informed consent was taken. Rapid chromatography immunoassay for qualitative detection of hepatitis B and C was the screening method. Those found positive on screening test are confirmed by ELISA. A special proforma is made for this study and results were analyzed by statistical methods.

RESULTS

Total number of patients screened were 1147. Male subjects were 54.31% (623/1147) and female subjects were 45.68% (524/1147). The frequency of hepatitis B and C (combined) was found to be 5.66% (65/1147); out of which 2.5% (29/1147) were HBsAg positive and 3.13% (36/1130) anti-HCV positive. The frequency of
incidence of Hepatitis B & C among admitted eye patients in tertiary care hospital of Peshawar

HBV was 75.8% (22/29) in males and 24.13% (7/29) in females. The frequency of HCV was 66.66% (24/36) in males and 33.33% (12/36) in females. No patient was diagnosed with both Hepatitis B and C co-infection.

**DISCUSSION**

The incidence of hepatitis B and C has achieved endemic situation in many countries of the world, especially in underdeveloped countries. Pakistan also has high prevalence of Hepatitis B and C. Most common source of spread of these infections is through the use of unsterilized syringes or instruments especially dental instruments or unchecked blood transfusion. Other factors involved in the spread of infection are persons who have their face shaved by street barber or those involved in sexual abuse.

In our study the frequency of Hepatitis B and C is 2.5% and 3.13% respectively. In other study by Sheikh and colleagues carrier state of HBsAg was found to be 2.8%. According to Chaudhary and his colleagues the prevalence of hepatitis C was 11.26%. In another study done by Weis and his co-workers at John Hopkins, 4% patients admitted for surgery had HBV and 35% had HCV.

In our study the prevalence of Hepatitis B and C was more in males (54.31%) than in females (45.68%). In another study done by Naeem and co-workers, Hepatitis B and Hepatitis C prevalence in preoperative cataract patients was found to be higher in males (59.18%) than females (40.82%). Iftikhar et al also showed that the total prevalence of Hepatitis B & C in males was higher than females among preoperative cataract patients of D I Khan. Surprisingly some studies have shown higher prevalence of Hepatitis B and C in females than in males. A study conducted in different Eye camps of Pakistan in 2010 showed higher prevalence of the diseases in females with 60.18% than in males with 39.81%.

**CONCLUSION**

Our study has shown that there is high prevalence of Hepatitis B and C in patients admitted for elective Eye surgery. Therefore Hepatitis screening is mandatory in all preoperative patients. This will prevent transmission of infection to both medical staff and other patients. We recommend mass immunization against Hepatitis B and awareness to public through print and electronic media. Larger population based studies are needed to confirm the results.

**REFERENCES**

16. Makary ESW, Weis MA. Prevalence of blood borne pathogens in an urban university based general surgical practice. Ann...
In Incidence of Hepatitis B & C among Admitted Eye Patients in Tertiary Care Hospital of Peshawar


---

**SUBSCRIPTION TO ‘OPHTHALMOLOGY UPDATE’**

Dear Doctor,

Your Quarterly ‘**Ophthalmology Update**’ is being regularly published from Islamabad since 1998. The subscription of the paid members expires by 31st December every year and needs to be renewed immediately, while the new subscribers are welcomed to join the esteemed coterie of our regular members.

Since the journal is fully indexed with Pakistan Medical & Dental Council (PMDC) and Higher Education Commission of Pakistan (HEC) as a standard scientific journal entirely devoted to promotion of Medical Sciences especially to the welfare of visually handicapped. It highlights the most current research, scientific articles, reviews and interesting case reports in all fields of Medicine including Ophthalmology with updated information around the world. Currently, the journal is being subscribed by the doctors practicing in every field of medicine, postgraduates, health professionals including libraries of medical colleges and are making full use of the scientific material. Doctors serving in your institutions can also contribute their research papers, thesis, articles and interesting case reports to the journal.

The journal is being printed by a high-class printer of the country on a beautiful English Matt paper and is being published on quarterly basis on the 1st of every ensuing month of the year. Moreover, the journal is freely distributed to the participants of various conferences being held from time to time.

Fresh and renewed annual subscription of the journal is Rs.800/- which is very nominal and can be remitted through money order/cheque/bank draft and on line to A/C: 145-20620-714-126749 maintained at Summit Bank (Code: 145), Markaz F-10, Islamabad in the name of **Ophthalmology Update**, or to the managing editor at 267-A, St: 53, F-10/4, Islamabad. Single copy of the journal is supplied freely to the principal author on complimentary basis, while the additional copies can be had on payment of Rs.200/- per copy. Members are ensured regular and uninterrupted supply of the journal at their doorstep. Our sole motto is **SERVICE TO MEDICINE** and we assure you our fullest cooperation with highest considerations for regular and well-in-time supply of the journal. Wishing you good health, happiness and a prosperous professional life. With profound regards.

Yours sincerely,

**Prof. Dr. M. Yasin Khan Durrani**
MBBS., DO., MD., FICO(UK)., FRCOphth(Lond)
Editor in Chief
Visual Outcome & Complications of Scleral-fixation Posterior Chamber Intraocular Lenses

Mir Ali Shah FCPS. Fellow Vitreo-Retina1, Bilal Khan2, Bilal Khan3, Bilal Bashir4, Sher Akbar Khan5, Mohd Jawad6, Muhammad Idris7

ABSTRACT:

Purpose: To determine the visual outcome and complications of posterior chamber scleral fixation intraocular lenses (PCSF IOL).

Material and Methods: This retrospective study was carried out in the Department of Ophthalmology, Lady Reading Hospital, Peshawar from July 2011 to July 2013. A total of 17 patients were included in the study. Details of the patients like age, gender, pre- and postoperative best spectacle corrected visual acuity (BSCVA), indication for surgery and detailed slit-lamp and fundus examination were recorded on a designed proforma. The main outcome measures were postoperative visual acuity (VA) and complications. Patients were followed for one year regarding vision and any complications. All the data was entered and analyzed using SPSS version 17. The data was expressed in the form of tables and charts.

Results: A total of 17 eyes of 17 patients were included in this study. 14(82.35%) were males and 3(17.65%) were females with a male to female ratio 4.6:1. The age ranged from 4 to 15 years and were followed over a period of one year after placement of posterior chamber scleral fixation intraocular lenses (PCSF-IOL). 14 (82.35%) of the eyes had a gain in VA from CF to 6/9 while 3(17.65%) had no change in the VA. Postoperative complications were observed in 5(29.40%) and included IOL dislocation in one case(5.88%), exposed suture with pyogenic granuloma in 2(11.76%), increased IOP in 1 case (5.88%). and iris capture in 1(5.88%) eye.

Conclusion: Posterior chamber scleral fixation IOL appear to be a safe technique with minimal complications when there is no capsular support.

INTRODUCTION

While crystalline lens subluxation can occur in any patient, these three profiles are most prone: significant blunt trauma to the eye or head; systemic conditions such as Marfan’s syndrome, homocystinuria, familial ectopia lentis, Weill-Marchesani syndrome, aniridia and Ehlers-Danlos syndrome, hypermature cataract in which zonular support has been lost. Symptoms of lens subluxation includes visual disturbance from extreme hyperopic or myopic shift, astigmatism or acquired aphakia. Acute secondary angle closure glaucoma can occur due to subluxated lens. Children with monocular aphakia who become contact lens intolerant require an intraocular lens (IOL) for visual rehabilitation. When there is inadequate support from the posterior lens capsule, use of an anterior chamber IOL (AC IOL) or PCSFIOL may be considered. The authors reported their experience with scleral fixation of posterior chamber IOLs in children. Implantation of a PCSF IOL for the surgical management of aphakia in the absence of capsular sup- 1Associate Professor, Department of Ophthalmology, PGMI Lady Reading Hospital Peshawar. 2,4,5Resident, Vitreo-Retina. 3Resident Neuro Surgery. 6Postgraduate Trainee Department of Ophthalmology, Lady Reading Hospital, Peshawar. 7Medical Officer Ophthalmology, Lady Reading Hospital Peshawar.

Correspondence: Dr. Mir Ali Shah, Associate Professor, Department Ophthalmology, Lady Reading Hospital, Peshawar. Email: drmashahpsh@gmail.com Cell: 03005948091

Received: December 2014 Accepted: January 2015
as well as for iris claw lenses fixed to the anterior surface, a technique introduced by Jan Worst almost 30 years ago.

**MATERIAL AND METHODS**

It is a retrospective study carried out in the Department of Ophthalmology, Lady Reading Hospital, Peshawar from July 2011 to July 2013. A total of 17 patients of PCSF-IOL were included in the study. Details of the patient like age, gender, pre- and postoperative best-corrected visual acuity (BCVA), indication for surgery and detailed slit-lamp and fundus examination were recorded on a designed proforma. Visual acuity was tested using standard Snellen visual acuity chart along with best spectacle corrected visual acuity. The main outcome measures were final BCVA and postoperative complications. Patients were followed for one year regarding vision and any complications like raised intraocular pressure (IOP), IOL decentration and suture breakage. All the data was entered and analyzed using SPSS version 17. The data was expressed in the form of tables and charts.

**Surgical technique:** After doing all the essential preoperative investigations, the patients were subjected to surgery either under local or general anesthesia based on individual patient. A scleral tunnel incision centered at the 3 and 9 o’clock positions, with a width of 3-4 mm, was made in all cases. A double-armed 9/0 polypropylene suture with one end straight and the other curved needle was used. One straight needle was passed perpendicularly through the sclera, 1.5 mm behind the limbus at 3 o’clock position in a direction parallel to the iris, and was retrieved in the hollow of a 26-G needle on the opposite side. The stretched prolene suture was pulled out of the eye through a previously made scleral tunnel. The suture was then cut in the middle, and the two suture ends were passed through the corresponding eyelet of the SFIOL and tied. The lens was then inserted into the ciliary sulcus, and the sutures pulled and tied to the partial sclera of the tunnel on both sides below the scleral flap to avoid its exposure and to secure the IOL. The scleral wound was closed with interrupted vicryl 1/0 suture or 10/0 nylon. The suture was covered by the conjunctiva. The IOLs implanted were single-piece polymethyl-methacrylate (PMMA) lenses with eyelets (Neo eye). The optic diameter was 6.5 mm and the overall diameter was 13 mm.

**RESULTS**

A total of 17 eyes of 17 patients included 14 (82.32%) males and 3 (17.68%) females with a male to female ratio 4.6:1 (Figure 1).

The age ranged from 4 to 15 years and were followed over a period of one year after placement of SF-PC-IOL. All eyes had a PMMA IOL implanted. About 14 (83.33%) of the eyes had a gain in VA from CF to 6/9 while 3 (16.66%) had no change in the VA. Postoperative complications were observed in 5 (29.40%) and included IOL dislocation in one case (5.88%), exposed suture with pyogenic granuloma in 2 (11.76%), increased IOP in 1 case (5.88%), and iris capture in 1 (5.88%) eye (Figure 2). The one eye with dislocation of IOL required repeat surgery.

**DISCUSSION**

The lens is supported in a normal eye by zonules, while support for an IOL is provided by posterior capsule and zonules. When there is no capsuler support or lack of zonular support, then IOL can be placed between the iris and cornea in anterior chamber with open or closed loop. It can be placed in the ciliary sulcus as iris fixated or it can be fixated to sclera in the posterior chamber. The gender distribution in our series was a male to female ratio of 4.6:1. There has been an increase in the gender of the male patients resulting from an increased trauma in Pakistan, increase incidence in the male gender has been reported in by Ferriera JL et al and Banayoun Y et al. In our study the mean age
Complications in our study included temporarily sodes. About 14 (83.33%) of the eyes had a gain in VA from CF to 6/9 while 3 (16.66%) had no change in the VA. The reported range in the improvement in the VA has been 53.6% by Kumar et al.20-21

Complications in our study included temporarily elevated IOP unrelated to the IOL insertion, which is in 1 (5.88%) and PCIOL subluxation requiring revision surgery in 1/17 eyes (5.88%). This low rate may, of course, increased in the following years, a fact, which has been published recently.22 Complications encountered in our study are comparable with those seen in other pediatric scleral-fixated PC IOL studies, and retinal problems arising from the procedure or endophthalmitis due to a fistula have not been encountered.19,20

Erosion, breaking or wearing away of the 10×0 polypropylene thread is of some concern, since it has been shown that fibrous reactions around the IOL haptics is lacking. In our study there is breakage of suture and dislocation of only one (5.88%) IOL and we did his second surgery for SF IOL. In an observational case series by Vote et al., 17 eyes (27.9%) had spontaneous suture breakage with several eyes having multiple episodes,23 the discrepancy between his and our study is that reported by other authors around the globe with sutures buried in actively metabolizing ocular tissue.22 there has been a wide range of the incidence in the literature by various authors from 9.09% to 14.28% as shown in table 1. Other complications in our study were IOL dislocations, iris capture, increased IOP and IOL dislocation; table 1 shows a comparison of complications in our study and that reported by other authors.

Table-1: A comparison of various complications seen in our study and that reported by various other authors around the globe

<table>
<thead>
<tr>
<th>Complications</th>
<th>In our study (%)</th>
<th>In literature (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase IOP</td>
<td>5.88%</td>
<td>9.09% by Kumar et al20,17 3.5% by Narang et al21</td>
</tr>
<tr>
<td>Iris capture</td>
<td>5.88%</td>
<td>16.66% by Zou Y et al19 7.1% by Ganesh A et al16</td>
</tr>
<tr>
<td>Glaucoma / suture exposure</td>
<td>11.66%</td>
<td>18.18% by Kumar et al20 14.28% by Sharpe MR et al18</td>
</tr>
<tr>
<td>IOL dislocation</td>
<td>5.88%</td>
<td>14.28% by Sharpe MR et al18 10.70% by Ganesh A et al16 9.09% by Kumar et al20</td>
</tr>
</tbody>
</table>

We are convinced that the best place for fixation of intraocular lenses in the absence of sufficient zonular/capsular support is the sclera. It is the strongest intraocular tissue, mainly avascular, and does not have a tendency toward inflammation.23

For iris claw lenses, uveitis-glaucoma-hemorrhage syndrome has been reported and late dislocations may occur. Should vitreoretinal surgeons choose to use this type of lens, I would recommend the retropupillary reverse implantation technique.21 This technique is much more convenient because it prevents contact with the corneal endothelium intraoperatively, ie, during fluid-air exchange and postoperatively due to eye rubbing, blinking etc.13

CONCLUSION

Posterior chamber sclera fixation IOL implantation is a safe technique with minimal complications when there is no capsular for visual rehabilitation especially in children.

REFERENCES

Prevalence and Density of Amblyopia in Strabismic Patients of School Age Children
(A study of 106 cases)

Mohammad Alam FCPS¹, Misbah Durrani FCPS²
Prof. Lal Mohammad FCPS³, Irfan Ullah Khan FCPS⁴

ABSTRACT
Objective: To find out the prevalence and density of amblyopia in strabismic patients of school age children.

Materials and methods: This prospective study was conducted in eye care centre Karak and Jan eye clinic Kohat from June 2013 to June 2014 with the objective to know the prevalence and density of amblyopia in school age children with strabismus. School age children with strabismus from age range of 5-15 years were included in the study. Visual acuity was checked with Snellen chart. Anterior segment and posterior segment examination was done with direct and indirect ophthalmoscope and slit lamp. Retinoscopy with cycloplegia was done to find out refractive error. Strabismus was assessed with Hirschberg and cover-un cover test. Amblyopia was recorded as mild of 2 lines difference, moderate 3 lines difference while more than 3 lines was graded as severe amblyopia. Total 106 school age children with strabismus were included in the study. Children with co-ocular morbidity except strabismus and refractive error were excluded from the study.

Results: All patients were from age range of 5-15 years with mean age of 7.8 years. Out of 106 patients 68 (64.15%) were male and 38 (35.84%) were female. 81 (76.41%) patients had esotropia out of which 63 (77.77%) had uniciular while 18 (22.22%) had alternating esotropia. 25 (23.58%) patients had exotropia out of which 19 (76%) had uniciular while 6 (24%) had alternating exotropia. In uniciular esotropic 63 patients, 60 (95.23%) patients had amblyopia. The density of amblyopia was mild in 34 (56.66%), moderate in 21 (35%) and severe in 5 (8.33%) of uniciular esotropic group. In alternating esotropic group out of 18 patients 7 (38.88%) had amblyopia in which mild was present in 6 (85.71) and moderate in 1(14.28%).

Conclusion: Strabismus is a common cause of amblyopia in children. Early screening and management of school age children is necessary to prevent amblyopia.

Key word: Esotropia, Exotropia, Amblyopia

INTRODUCTION
Strabismus and amblyopia are two most common pediatric ocular disorders with cosmetic and functional sequale. Amblyopia is associated with suboptimal vision despite best correction with refraction. In the absence of any other ocular or neural morbidity strabismus is the misalignment of the two eyes which in case of failure of treatment may result in loss of binocularity and depth perception. Failure to diagnose and manage amblyopia in early age may result in lifelong visual impairment. Strabismic amblyopia is a serious blinding condition affecting the patients in early life. Population-based prevalence estimates in children range from 0.3% to 4.4% strabismic amblyopia. Hispanic / Latino children age of 5 -14 years assessing study in Colombia has shown a strabismus prevalence of 3% and amblyopia of 1.3%. In developed countries policies are being formulated for early detection of strabismus and amblyopia. In Japan children are assessed for strabismic amblyopia in early age primarily by pediatrician and after 6 years by ophthalmologist. Early detection and treatment of strabismus and amblyopia are very important. But in developing countries like Pakistan, children with strabismus present later. According to a local study most of children with squinting eyes presented after 5 years of age. In comparison to this in developed countries presentation is early. Some studies have revealed presentation of squinting patients at the age of 2-5 years. No reliable data is available in our country and again there is many differences in data in various studies due to demographic, geographical, social, education and cultural influences over the community. This study was done to find out the prevalence and density of amblyopia in strabismic patients of school age children. Then it will be possible for the early detection and management as well as making the people aware of this grave problem.
MATERIALS AND METHODS

This prospective study was conducted in eye care centre Karak and Jan eye clinic Kohat from June 2013 to June 2014 with the objective to know the prevalence and density of amblyopia in strabismic school age children with age range of 5 – 15 years with mean age of 7.8 years. A proper proforma was designed. Consent was taken from the parents/guardians of the children. Children from age 5 -15 years were included in the study. Anterior and posterior segments examination was done with direct/indirect ophthalmoscope and slit lamp. Squint was assessed with Hirchberg test and cover un cover test.

Visual acuity was checked with snellen’s Chart. Cycloplegic refraction was done with retinoscope. Amblyopia density was graded as mild difference of two lines, moderate difference of 3 lines and severe with difference more than 3 lines. Inclusive criteria was children of age 5 -15 years suffering from strabismus while children with other ocular diseases except squint were excluded from the study. Total 106 children with age range of 5 -15 years with mean age of 7.8 years were included. Out of 106 patients 68 (64.15%) were male and 38 (35.84%) were female (Table I). On basis of squint the children were divided into two groups. Group I had esotropic and Group II had extropic patients.

RESULTS

Out of 106 patients, 81 (76.41%) children had esotropia (Group 1) while 25 (23.58%) had exotropia (Group II). In esotropic group 63 (77.77%) had uniocular while 18 (22.22%) had alternating esotropia. Group II had 25 exotropic patients out of which 19 (76%) had uniocular while 6 (24%) had alternating exotropia. Table II In total 106 patients, 86 (81.13%) had amblyopia with subdivision in different groups and sub groups, the density of amblyopia is as follow. In uniocular esotropic patients, 60 (95.23%) had amblyopia in which 34 (56.66%) had mild, 21 (35%) moderate and 5 (8.33%) had severe amblyopia. In alternating esotropia, out of 18 patients 7 (38.88%) had amblyopia. Out of which 6 (85.71%) had mild amblyopia while 1 (14.28%) had moderate amblyopia.

In unioclar exotropic group, out of 19 patients 14 (73.68%) patients had amblyopia in which mild ambly-.
reported amblyopia more dense in unilateral squint and was common in esotropia than exotropia. Presian MW, Novak A, have reported in Baltimore Study amblyopia more common in esotropia than exotropia. Kvarnstrom G, Jakobsson, D have reported in their study that 44% of amblyopic patients were due to strabismus. Ebans Mvogo C, Ellog A etc conducted study on prevalence of amblyopia in strabismic children. According to their study, they reported amblyopia in 80.46% in esotropia and 54.40% in exotropia. Matsuo T, Matsuo C have reported in their study high prevalence of amblyopia in school age children but according to their study strabismic amblyopia was more common in intermittent exotropia. Ahmad-M, Iqbal S, Jhangir N, have reported in their study on patients of strabismic amblyopia. According to their study 71.79% patients with strabismus had amblyopia and in esotropia the amblyopia was more prevalent as well as more dense than exotropia. Our study is being supported by results of other national and international studies. Sethi S has reported amblyopia in 55% strabismic patients. Wood Ruff et al has reported in their study that 57% amblyopia was due to strabismus.

CONCLUSION

Strabismus and amblyopia are common ocular problems in children. Their identification and diagnosis is necessary in early life which is very sensitive stage in children. A comprehensive screening program should be formulated and applied for management. All children in play group or on entry into school may be necessarily examined to give them rid of their problems of amblyopia and strabismus.

REFERENCES

TUBEROUS SCLEROSIS COMPLEX

Hussain Ahmad Khaqan FCPS, FRCS1, Farrukh Jameel MBBS2
Hadia Jabeen MBBS3, Muhammad MBBS4, Usman Imtiaz MBBS5

INTRODUCTION

Tuberous sclerosis complex (TSC) is an autosomal dominant neuro-cutaneous disease (phacomatosis) with variable clinical manifestations. The incidence of the disease is approximately 1/6000-1/10000. Diagnosis is based on clinical and para-clinical criteria defined by the tuberous sclerosis consensus conference in 1998. There are two groups of symptoms including major and minor criteria. The major criteria consist of: Facial angio-fibromas or forehead plaques, Non-traumatic ungula or periungual fibroma, Hypo-pigmented macules (more than 3), Shagreen patch, Cortical tubers, Sub-ependymal nodules, Sub-ependymal giant cell astrocytoma, Multiple retinal nodular hamartomas, Cardiac rhabdomyoma, Lymphangio-myomatosis and renal angio-myolipoma.

The minor criteria include: Dental Pits (more than 14), Hamartomatous rectal polyps, Bone cysts, Cerebral white matter radial migration lines, Non-renal hamartomas, Retinal achromatic patch, Confetti skin lesions, Multiple renal cysts. When there are two major criteria or one major and two minor criteria the diagnosis is established as definite TSC. The term probable TS is used when one major and one minor criteria are detected. Only one major feature or two or more minor criteria without any major feature mentions the possibility of tuberous sclerosis.

Ocular manifestations of TSC including retinal hamartomas occur in less than 50% of the patients and are bilateral in one third of the cases. There is no correlation between age and ocular manifestations.

Case Series:

Case series identified 5 eyes of three patients over the period of 3 months from May 2013 to July 2013 (age range 8 years to 42 years). 1 of the patients was referred from neurosurgery department of Lahore General Hospital, after complaining of seizures and decrease vision, that patient had retinal Astrocytomas and systemic findings sebaceous adenomas, ash leaf spots, subungual hemartoma, small angio-lipomas over both kidneys, multiple calcified foci in sub-ependymal region on initial examination. 1 patient was the sibling of the patient who also had retinal Astrocytomas. 3rd patient was the mother of the patients who had right retinal astrocytomas

Table 1 summarizes the case of all three patients with their age, visual acuity on presentation, initial investigations, examination findings, fundus findings

Patient “A”

A child 8 years/male, presented in Eye-OPD on 1st July, 2013 for the assessment of fundus, referred by some neuro-physician. He has history of fits for 2 years and spontaneous muscular spasm over Left arm, for which he was given medication by the neurophysician.
His fits and muscular spasm were controlled. He has no family history of fits. He has 3 siblings (all boys). Both of his parents were alive and healthy.

**Ocular Examination**

V/A 6/12, 6/6

Anterior segment was normal

Posterior segment showed bilateral retinal astrocytomas

**Systemic Evaluation revealed**

- Ash leaf spots
- Sub ungal hemartoma
- Small angiolipomas over both kidneys
- Multiple calcified foci in sub-ependymal region
- Sebaceous adenomas

**Patient “B”**

This patient was the mother of patient “A” she was 42 y of age. She was screened for any signs and symptoms of tuberous sclerosis. After examination she was found having right retinal astrocytomas without any systemic manifestations.

**Patient “C”**

This patient was the brother of patient “A” 8 y of age. She was screened for any signs and symptoms of tuberous sclerosis. After examination she was also found having right retinal astrocytomas without any systemic manifestations.
Tuberous Sclerosis Complex

DISCUSSION

3 patients were evaluated for Tuberous Sclerosis manifestations (ocular and systemic). 2 patients were male siblings and 1 was the mother. only 1 patient showed both ocular and systemic features. 2 patients showed only Ocular features. this shows strong inheritance pattern and that the Tuberous Sclerosis complex does not necessarily shows systemic manifestations.

CONCLUSION

Tuberous Sclerosis although is a rare having variable ocular and systemic manifestations

REFERENCES


IMPORTANT NOTE

Authors of articles and the subscribers are requested to collect the copies of Ophthalmology Update from representatives of the concerned area according to the following:

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Names</th>
<th>Designation</th>
<th>Area</th>
<th>Mobile</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Amir Zaib</td>
<td>Divisional Manager</td>
<td>Peshawar Div.</td>
<td>0302-5551659</td>
</tr>
<tr>
<td>2</td>
<td>Waqas Majeed</td>
<td>Divisional Manager</td>
<td>Rawalpindi Div.</td>
<td>0302-5551817</td>
</tr>
<tr>
<td>3</td>
<td>Waseem Ejaz</td>
<td>Regional Sales Manager</td>
<td>Lahore Div.</td>
<td>0300-8494327</td>
</tr>
<tr>
<td>4</td>
<td>S. Arshad Ali</td>
<td>Sr. Divisional Manager</td>
<td>Faisalabad Div.</td>
<td>0302-5552024</td>
</tr>
<tr>
<td>5</td>
<td>Niaz Shaikh</td>
<td>Sr. Divisional Manager</td>
<td>Multan Div.</td>
<td>0302-5552041</td>
</tr>
<tr>
<td>6</td>
<td>Khalid Mehmood</td>
<td>Sr. Divisional Manager</td>
<td>Karachi Div.</td>
<td>0303-7770670</td>
</tr>
</tbody>
</table>
ABSTRACT:
Aims/Objectives: (1) To evaluate the association between anemia and diabetic retinopathy (DR) including non proliferative DR (NPDR), proliferative DR (PDR) and diabetic macular edema (DME) in Type II Diabetes Mellitus (T2DM). (2) To identify anemia as an independent risk factor for DR in diabetic patients without significant renal dysfunction. (3) To correlate the severity of anemia with the severity of DR.
Materials and Methods: In this case control study 170 DM patients (85 cases and 85 controls) above 40 years of age were included. All patients underwent stereoscopic fundus photography and if present the severity of DR was classified according to International Clinical Diabetic Retinopathy and Disease Severity Scale, cases were divided into 3 groups, NPDR, PDR and DME, while patients with normal fundus were included in control group. All patients underwent complete blood count (CBC) for hemoglobin estimation for detection of anemia. The statistical analysis was done using SPSS version 20. T-test and chi-square test were used for odd ratios and comparisons.
Results: In the present study anemia was seen 38.8% in cases and 11.1% in controls (p<0.0001). 66.6% patients with severe NPDR and 45.8% with PDR had anemia (p < 0.0001). Odd ratio for anemia in cases and controls was 3.86, and for NPDR, PDR and DME was 3.6, 5.1, 3.0 respectively at 95% of Confidence Interval. The mean hemoglobin level in cases and controls was 10.3±3.2 and 13.6±1.35 g/dl (p<0.0001).
Conclusion: The results showed that T2DM patients with DR had lower level of Hb and severity of anemia was positively co-related with severity of DR. It is suggested that the level Hb should be evaluated periodically in diabetic patients.
Key words: Anemia, diabetic retinopathy (DR), Type 2 diabetes mellitus (T2DM).

INTRODUCTION
Diabetes Mellitus (DM) is one of the leading causes of morbidity and mortality around the globe and is responsible for 3.8 million deaths per year. Its prevalence has shown an exponential rise worldwide in the last two decades from 30 million cases in 1985 to 177 million in 2000. The estimated number of patients with DM worldwide for 2010 was 285 million which is projected to increase to 439 million by 2030. The International Diabetes Federation (IDF) ranks Pakistan 7th in the list of prevalence of DM. At least 171 million people worldwide have DM and this figure is likely to be doubled by the year 2030. About 50% of persons with DM are unaware of the condition and about 2 million deaths every year are attributable to this complication of DM. Diabetic mellitus type 2 (T2DM) is characterized by peripheral insulin resistance, impaired regulation of hepatic glucose production and declining β-cell function, eventually leading to β-cell failure. Diabetic Retinopathy (DR) is the most common micro vascular complication of DM and it remains a leading cause of legal blindness and visual impairment in the working-age population in the developed world. There has been a surge in the T2D-related Diabetic Retinopathy in the last 2 decades, especially in Asian population. Studies using retinal photography consistently suggested that the prevalence of DR is close to 40%, and sight-threatening DR (STDR) accounts for 6-8% of all diagnosed cases.

Diabetic Retinopathy: It is the characteristic group of lesions found in the retina of individuals who have DM for several years. It is considered to be the result of vascular changes in the retinal circulation, a microangiopathy that exhibits features of both micro vascular occlusion and leakage. DR is a progressive condition with micro vascular alterations that lead to retinal ischemia, retinal permeability, retinal neo-vascularization and macular edema. If left untreated patients with DR can suffer severe visual loss. DR is asymptomatic in early stages of the disease, but as the disease progresses symptoms may include blurred vision, floaters, fluctuating vision, distorted vision, dark areas in the vision, poor night vision, impaired color vision, partial or total loss of vision. The risk factor that results in development and severity of DR include duration of DM, poor metabolic control, hypertension, hyperlipidemia, preg-
nancy, obesity, smoking, cataract surgery and anemia.\textsuperscript{16} \textbf{Anemia in type 2 diabetes mellitus.} Anemia, the most common blood disorder, is more prevalent in persons with DM than in persons without diabetes. Anemia is a below normal level hemoglobin in the blood.\textsuperscript{21} WHO defines anemia as Hb less than 12g/dl in women and less than 13g/dl in men. Using this definition, nearly 1 in 4 (23\%) patients with Type2DM are anemic. The prevalence of anemia in DM patients is reported as 14-48\%.\textsuperscript{22}

\textbf{Etiology of Anemia in Type 2DM}

- Diabetic neuropathy affects the central nervous systems anemia response.
- Nutritional deficiencies (low levels of iron or low levels of certain vitamins that body needs to produce Hb and make healthy red blood cells).
- Medications for DM and related conditions.
- Hypertension: systolic pressure > 140 mmHg and diastolic pressure > 90 mmHg.
- Hyperlipidemia: low density lipoprotein LDL > 130 g/dl.
- Poor Diabetic control: Fasting blood sugar FBS > 200mg/dl and Random blood sugar RBS > 250 mg/dl.
- Obesity: body mass index > 30 kg/m\textsuperscript{2}.
- Renal failure: creatinine >1.5 mg/dl.
- Cataract surgery.

\textbf{RESULTS}

In this case control study, 85 diabetic retinopathy patients (cases) and 85 normal retinal subjects (controls), were analyzed to study the association of anemia with diabetic retinopathy in type 2 diabetes mellitus. In the control group there were 34 (40\%) males and 51 (60\%) females, with a mean age of 53.4± years, duration of DM 9.98± years, Creatinine 0.93± mg/dl. In the case group NPDR was present in 43 (50.6\%) patients, with a mean age of 53.4 ± 9.0 years, duration of DM 9.7± years, Creatinine 0.93± mg/dl. In the case group PDR was present in 43 (50.6\%) patients, with a mean age of 53.4 ± 9.0 years, duration of DM 9.7± years, Creatinine 0.93± mg/dl. In the case group DME was present in 24 (28.5\%) patients, with a mean age of 53.4 ± 9.0 years, duration of DM 9.7± years, Creatinine 0.93± mg/dl. In the case group NPDR was present in 24 (28.5\%) patients, with a mean age of 53.4 ± 9.0 years, duration of DM 9.7± years, Creatinine 0.93± mg/dl. In the case group PDR was present in 43 (50.6\%) patients, with a mean age of 53.4 ± 9.0 years, duration of DM 9.7± years, Creatinine 0.93± mg/dl. In the case group DME was present in 24 (28.5\%) patients, with a mean age of 53.4 ± 9.0 years, duration of DM 9.7± years, Creatinine 0.93± mg/dl. In the case group PDR was present in 43 (50.6\%) patients, with a mean age of 53.4 ± 9.0 years, duration of DM 9.7± years, Creatinine 0.93± mg/dl. In the case group DME was present in 24 (28.5\%) patients, with a mean age of 53.4 ± 9.0 years, duration of DM 9.7± years, Creatinine 0.93± mg/dl. In the case group PDR was present in 43 (50.6\%) patients, with a mean age of 53.4 ± 9.0 years, duration of DM 9.7± years, Creatinine 0.93± mg/dl. In the case group DME was present in 24 (28.5\%) patients, with a mean age of 53.4 ± 9.0 years, duration of DM 9.7± years, Creatinine 0.93± mg/dl.

\textbf{MATERIALS AND METHOD}

\textbf{Study Design:} Analytical Observational Case Control study.

\textbf{Study Settings:} Department of Endocrinology, Diabetes and Metabolic Disease at Hayatabad Medical Complex Peshawar.

\textbf{Study Duration:} Study duration was 4 months (from 1\textsuperscript{st} September to 30\textsuperscript{th} December 2014). And total data collection time was 2 months from first October to 30 November.

\textbf{Sample Size} Total of 170 Patients. 84 cases and 84 control.

\textbf{Inclusion Criteria:}

- **Cases:** All Type 2 diabetic patients above age 40, both male and female, having diabetic retinopathy.
- **Controls:** All type 2 diabetic patients with the same age, sex, demographic location to the case group, and having no DR were included.

\textbf{Exclusion criteria:}

In both cases and controls the following exclusion criteria was applied:

- Patients with history of malignancy, blood loss during the past three months.
- Hypertension: systolic pressure > 140 mmHg and diastolic pressure > 90 mmHg.
- Hyperlipidemia: low density lipoprotein LDL > 130 g/dl.
- Poor Diabetic control: Fasting blood sugar FBS > 200 mg/dl and Random blood sugar RBS > 250 mg/dl.
- Obesity: body mass index > 30 kg/m\textsuperscript{2}.
- Renal failure: creatinine >1.5 mg/dl.
- Cataract surgery.
was 11.1±0.6 in mild DME, 11.0±1.4 in moderate DME, 11.2±2.1 in severe DM.

**Table- : Anemia in Patients with Diabetic Retinopathy and Normal Retinal Subjects**

<table>
<thead>
<tr>
<th>Anemia</th>
<th>Cases</th>
<th>Control</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td>33</td>
<td>12</td>
<td>45</td>
</tr>
<tr>
<td>Absent</td>
<td>52</td>
<td>73</td>
<td>125</td>
</tr>
<tr>
<td>Total</td>
<td>85</td>
<td>85</td>
<td>170</td>
</tr>
</tbody>
</table>

Odd Ratio at 95% of CI=3.8 P value = 0.0001

**DISCUSSION**

Diabetic Retinopathy is a major cause of blindness among the working age group. Because DM and its complications are a public health problem, data on the association of anemia with DR will help in formulating prevention from DM or at least delaying the onset.

In this case control study there was a significant association of anemia with DR in Type 2 DM with odd ratio of 3.86. Anemia was higher in patients with severe DR like Severe NPDR and PDR in which anemia was 66.6% and 45.8%. So severity of DR was associated with severity of anemia. Hb level was also lower in patients having DR 10.3 g/dl, than those with no DR 13.6 g/dl and was much lower in patients with severe NPDR having Hb level of 9.7 g/dl and PDR 9.3 g/dl.

In 2013 Bahar et al. conducted a similar study in Sari, Iran. In their study total 1100 diabetic patients in which 159 subjects with DR (cases) and 318 normal retinal subjects (controls). DM patients with anemia were 2.4 times more likely to develop DR. Anemia was observed 45.9% in cases and 26.1% in controls and was 43% in mild to moderate NPDR, 53% in severe NPDR and PDR. The mean hemoglobin level in controls was higher (12.73±1.38g/dl) than patients with mild and moderate NPDR (12.25±1.38 g/dl) and severe NPDR and PDR (11.89±1.76 g/dl) with a P value of 0.001 respectively. Similarly, in our study DM patients with anemia were 3.8 times more likely to develop DR. Anemia was 38.8% in cases and 11.1% in controls and 21.4% in mild NPDR, 29.4% moderate NPDR, 66.6% in severe NPDR, 45.8% in PDR. The mean hemoglobin level in controls was higher (13.6±1.35 g/dl) than patients with mild to moderate NPDR (10.8±1.3g/dl) (9.7±0.2g/dl) severe NPDR, and PDR (9.3±0.3g/dl) with a P value of 0.0001 respectively.

As in the study conducted in Iran, diabetic maculopathy (DME) was not included, no association was found between anemia and DME. While in our study there was a significant association between anemia and DME with an odd ratio of 3.04. The Hb level was lower in patients with DME (11.1±2.1g/dl) than controls (13.6±1.35 g/dl). There was no association of treatment of DM like oral hypoglycemia medication and insulin in cases and controls (P value= 0.07). Administration of insulin was higher 7 (8.2%) in cases than controls 6.
(7.1%) which was similar to the Iran’s study in which there was also no association of treatment of DM and insulin was higher (20.5%) in the case group compared to the controls (11%).

Qiao et al. in Finland found that the DM patients with Hb level lower than 12 g/dl had a two-fold higher prevalence of retinopathy after other known factors were controlled. It was also found that in patients with retinopathy, the severity correlated with the severity of anemia. Among patients who had DR odd ratio of anemia was 5.3 (95% CI) for severe DR. Similarly in our study it was found that in DM patients anemia was 3.8 times more likely to develop DR and the severity of DR was correlated with the severity of anemia as odd ratio for severe retinopathy (PDR) was 5.1 at 95% of CI.

David et al. 1997 in Early Treatment of Diabetic Retinopathy Study evaluated a progressive increase in risk for high risk PDR with decreasing Hb and supporting the importance of anemia as a risk factor for the progression and severity of DR. The etiology and pathogenesis of anemia in DM patients is multi factorial. Decreased erythropoietin production is an important cause of development of anemia in DM patients. Chronic hyperglycemia is involved in the pathogenesis of anemia by means of creating abnormalities in RBCs, oxidative stress, autonomic neuropathy and renal sympathetic denervation. These conditions put the renal inerstitium in a hypoxic state and consequently, the production of erythropoietin by peritubular fibroblasts is impaired.

A well-accepted cut-point definition of anemia was selected in our study for our, namely a hemoglobin <13 g/dl in men and <12 g/dl in women. Our results demonstrated that the presence of anemia is an independent risk factor for DR in the case control study. Subgroup analysis suggested that the prevalence of anemia in DR patients (cases) in females was higher (43.1%) than males (32.3%). A study conducted in 2010 by Ranil PK et al. in India in which same definition was used to define anemia. Individuals with anemia were 1.80 times more likely to develop diabetic retinopathy than individuals with no anemia. The prevalence of anemia was higher in women (26.4%) than in men (10.3%). Men with anemia, and not women, had 2 times the risk of developing diabetic retinopathy. While in our study although the prevalence of anemia was higher in females, but both males and females in cases with anemia were 3.8 times more likely to develop DR.

In a case control study done by Francisco J et al. in 2012 there were total 106 T2DM patients in which Hb was having a significant association with PDR with odd ratio of 2.43 at 95% of confidence interval (P value of 0.001) and anemia was an important finding in diabetic patients which was a relevant factor related to the progression of proliferative diabetic retinopathy (PDR), which can be treated with photocoagulation. This study was having similar results to our study in which hemoglobin level was also having a significant association with Proliferative DR with an Odd ratio of 5.1 at 95% of CI (P value of 0.0001).

In a study done in 2012 by JO Chung “Associations between hemoglobin concentration and the clinical characteristics of patients with Type 2 diabetes” the patients with lower Hb concentrations had a longer duration of diabetes, a lower body mass index, and lower concentrations of total cholesterol, triglycerides, and low-density lipoprotein cholesterol. They had a higher prevalence of diabetic retinopathy (DR) and nephropathy. The increased prevalence of diabetic retinopathy was associated with lower Hb concentrations. These findings suggested that lower Hb concentrations might not only be a consequence of diabetes but may also accelerate micro-vascular damage in diabetes mellitus. While in our study there was no association of duration of DM with hemoglobin level and patients with a body mass index (obesity) > 30 kg/m2, LDL > 130mg/dl were excluded in the study. As they were risk factors for DR so were controlled. Patients with creatinine < 1.5 mg/dl were included in both cases and controls proving that anemia in DM patients was unrelated to anemia due to diabetic nephropathy.

Detection of anemia and its treatment is important in the management of diabetic retinopathy. In those patients who had both anemia and diabetes mellitus, Friedman and associates reported that treatment with erythropoietin was correlated with substantial resolution of macular hard exudates. The improved Hb concentration with therapy of anemia improves tissue oxygenation and may result in reduced VEGF production, which improves the hyper permeability and reduces the stimulus for neovascularization. These observations suggest that anemia evaluation should be considered in the routine management of persons with diabetes and should be treated to minimize the risk of microvascular complications such as nephropathy and DR.

CONCLUSION

Diabetic retinopathy is emerging a big public health problem, affecting working age groups. Our finding suggests that there was a significant association between anemia and diabetic retinopathy in Type 2 diabetes mellitus. Anemia was associated with NPDR, PDR and DME. So it is concluded that anemia is an independent risk factor for the development of DR. Severity
of anemia is co-related with severity of DR. Prevalence of anemia was higher in females than males having DR, and was also higher in patients with DR who were using both oral hypoglycemic medications and insulin together. Evaluation and treatment of anemia should be a part of the follow up visits of DM patients. Further studies about the effect of anemia treatment on the severity of diabetic retinopathy are recommended.

REFERENCES
25. Available at www.who.int/nutrition/publications/micronutrients/anaemia
ABSTRACT:
Objective: To find out control of intraocular pressure after cataract extraction with posterior chamber intraocular lens implantation in phacomorphic glaucoma.

Materials and Methods: This retrospective study was conducted in KDA Teaching Hospital Kohat from January 2009 to December, 2013 with the objective of finding intraocular pressure control after cataract extraction with posterior chamber intraocular lens implantation in phacomorphic glaucoma. 48 patients with phacomorphic glaucoma were selected. Informed consent was taken from the patients. Preoperative Intraocular pressure was checked with Perkin Tonometer. All patients were examined with slit lamp. Patients were put on mannitol, systemic carbonic anhydrase inhibitor, and topical antiglaucoma drugs. Topical steroid / antibiotic eye drops were given for five days to one week to control inflammation. After control of IOP and inflammation, patients were operated by conventional extracapsular cataract extraction with posterior chamber Intraocular lens implantation. IOP was checked after one week and one month without anti glaucoma drugs. Total 48 patients comprising of 22 (45.83%) male and 26 (54.16%) female were included in the study.

Results: On presentation preoperative intraocular pressure of all the patients was in the range of 31 to 48 mmHg with mean intraocular pressure of 38.8 mmHg. After surgery no patients was put on antiglaucoma medication. All the patients were put on steroid and antibiotic topical drops for three weeks and systemic pain killer for five days. After one month post operative Intraocular pressure was in the range of 12 – 20 mmHg with mean intraocular pressure of 15.52 mm Hg.

Conclusion: There is a significant control of intraocular pressure with normal range in phacomorphic glaucoma after extracapsular cataract extraction with posterior chamber intraocular lens implantation.

Key Words: Intraocular pressure, Phacomorphic glaucoma, Extracapsular cataract extraction.

INTRODUCTION
Cataract is considered to be the most significant cause of blindness globally as well as territorially. Gifford described phacomorphic glaucoma as a separate entity for the first time in 1900. He attributed it to hypermature cataract. In phacomorphic glaucoma, the lens blocks the forward flow of aqueous humor through the pupil resulting in rise of IOP. This classically occurs in large intumescent cataract which is then named as phacomorphic glaucoma. This lens induced glaucoma is a preventable and a treatable disease if managed at proper time. This condition still exists in the world. Phacomorphic glaucoma is due to lack of awareness of cataract and delayed surgical interventional removal. It is normally due to wrong concept that cataract should be mature at the time of surgery, lack of need for better vision, concurrent systemic diseases, old age, ignorance and economic constraints are other reasons that the patients avoid treatment. Different studies have reported that in subcontinent countries like India, the incidence of intumescent cataract leading to phacomorphic glaucoma is more in comparison to western world. Cataract extraction is the only treatment of phacomorphic glaucoma. But before surgery IOP is being lowered down to a safe level with medication to prevent glaucoma related problems. This study was done to find out the IOP control after cataract extraction with PC-IOL.

MATERIALS AND METHODS
This retrospective study was conducted in KDA Teaching Hospital Kohat from January 2009 to December 2013 with the objective to find out IOP control after cataract extraction with PC-IOL in patients of phacomorphic glaucoma. Diagnosis of phacomorphic was made when patients presented with symptoms of pain, redness of involved eyes, headache and above normal IOP, shallow anterior chamber and intumescent cataract. Proper proforma was designed for documentation of clinical findings of patients, time and duration of presentation on arrival. IOP was checked with Perkin’s Tonometer and visual acuity was recorded. Total 48 patients were selected out of which 22 (45.83%) were male and 26 (54.16%) were female. (Table-I) Age was
ranging from 59 years to 73 years with mean age of 66.3 years. Duration of the symptoms were recorded. (Table-II)

All the patients IOP were controlled with mannitol, systemic carbonic anhydrase inhibitor and topical antiglaucoma medicine. Steroid/antibiotic topical drops were also given to the patients to control inflammation for 5-7 days preoperatively. All the patients were operated by conventional extra capsular cataract extraction with PC- IOL implantation. Those patients with preoperative visual acuity of no perception of light were excluded from the study. After surgery patients were put on steroid/antibiotic topical drops for three weeks and pain killer for 5 days. No antiglaucoma medications were prescribed postoperatively. IOP was checked after one week and one month.

RESULTS

On presentation, preoperative IOP of all patients was in range of 31 mmHg to 48 mmHg with mean IOP of 38.8 mmHg. Post operative IOP after one week was in range of 12 to 22 mmHg with mean IOP of 15.91 mmHg. After one month post operative IOP was in the range of 12-20 mmHg with mean IOP of 15.52 mmHg. (Table III)

Table-I: Showing gender distribution.

<table>
<thead>
<tr>
<th>Gender</th>
<th>No of Patients</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>22</td>
<td>45.83</td>
</tr>
<tr>
<td>Female</td>
<td>26</td>
<td>54.16</td>
</tr>
</tbody>
</table>

Table-II: Duration of presentation

<table>
<thead>
<tr>
<th>Duration</th>
<th>No of patients</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 3 days</td>
<td>27</td>
<td>56.25</td>
</tr>
<tr>
<td>4 - 7 days</td>
<td>15</td>
<td>31.25</td>
</tr>
<tr>
<td>8 - 14 days</td>
<td>06</td>
<td>12.50</td>
</tr>
</tbody>
</table>

Table-III: Preoperative and postoperative IOP

<table>
<thead>
<tr>
<th>IOP</th>
<th>Range in mmHg</th>
<th>Mean in mmHg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preoperative</td>
<td>31—48</td>
<td>38.8</td>
</tr>
<tr>
<td>Postoperative One week</td>
<td>12—22</td>
<td>15.91</td>
</tr>
<tr>
<td>Postoperative One month</td>
<td>12—20</td>
<td>15.52</td>
</tr>
</tbody>
</table>

DISCUSSION

Intumescent cataract is the main cause of pupillary block phacomorphic glaucoma resulting in high IOP with damage to the Optic nerve. After control of preoperative IOP the patients are operated for cataract extraction, the obstruction to the out flow of aqueous humor is removed and there is drastic fall in IOP and the patients do not need any antiglaucoma therapy. The same statement is true as observed in our study in which preoperative mean IOP 38.8 mmHg dropped down to postoperative mean IOP 15.52 mmHg. There are many national and international studies showing similar results. Mandal AK, Gothwal UK have reported IOP control in normal level in all patients operated for phacomorphic glaucoma. Rajal AP, Karki DB reported IOP control after cataract surgery in phacomorphic glaucoma to be from 14 – 22 mmHg in all patients. In their study female patients were more than male as in our study. Payal Gupta study demonstrates post operative IOP to be lower than 20 mmHg in all phacomorphic glaucoma patients without postoperative antiglaucoma medicine. Sing G and Vankatesh et al studies also reported post operative IOP control of 20 mmHg or less in all patients. Mohinder Singh, Hassan Al Arrayyed studies reveal IOP control of below 21 mmHg in all patients like in our study. However, the age of patients with phacomorphic glaucoma were different.

R Ramekrishanan, Davendra Maheshwari et al conducted a study of IOP control in phacomorphic glaucoma in 74 patients. Postoperative IOP was control and below 20 mmHg in all patients with out antiglaucoma therapy. They used sutureless surgery technique so it is clear that IOP control in phacomorphic glaucoma does not depend upon the method used. Nithisha TM, Mallikarjun, Salagar reported that 28% of phacomorphic glaucoma patients had postoperative IOP of more than 20 mmHg which is contradictory to our study. Probably this variation may be due operation complication. PS Mazhar, M Amin Shahzad have reported in their study 3.6% of all glaucoma was phacomorphic needed urgent control of IOP and removal of lens. This ratio is less as compared to other study.

CONCLUSION

Phacomorphic Glaucoma is a devastating ocular condition with high IOP. If treated early with cataract extraction and implantation of PC-IOL, pupillary block will be removed and there is significant fall in IOP within normal range. The patients do not need antiglaucoma therapy post operatively. Therefore public awareness programs may be carried out through print and electronic media and public gatherings to get rid of this problem.

REFERENCES


65-year-old man presented Bilateral painless swelling of the lower eyelids bilaterally since 2-months. On Examination bilateral palpebral edema and palpable masses were identified CT Scan showed enlargement of both lower eyelids with no associated cervical lymphadenopathy. Excision biopsy of the palpebral tumor revealed mucosa-associated lymphoid tissue (MALT) lymphoma.

Comprehensive physical examination revealed no other lesions. Localized MALT lymphoma of the lower eyelids was diagnosed. The patient was treated with radiation therapy had a complete response. After 18 months of follow-up, ophthalmologic examination and CT revealed no relapse of lymphoma at a local or a distant site.

Issam Lalaya, M.D. Hamid Mansouri, Ph.D., Military Teaching Hospital Mohammed V Rabat, Morocco., Curtesy NEJM issamlalya@yahoo.fr
Causes of Low Vision and Quality of Life after Rehabilitation in Children & Adults

Mohammad Kashif BVS, MPH¹, Mohammad Arshad Raza FCPS²
Siraj Safi BVS, DBO³, Fahim Marwat BVS⁴, Samiuddin BVS⁵

ABSTRACT

Objectives: 1. To determine the and causes of low vision in adult and children.
2. To evaluate quality of life before and after using low vision devices

Materials & Methods: This Cross-sectional study conducted at Low Vision Clinic, Department of Ophthalmology Hayatabad Medical Complex during a period of six month from June 2014 to Dec 2014. A total of one hundred and sixty five subjects were assessed and referred by Ophthalmologist. The magnitude of etiology for low vision were recorded and analyzed. The patients having best corrected visual acuity <6/18 in the better eye were consulted for low vision re-assessment with the help of LVDs. Quality of life questionnaire (LVQOL) was administered to every patient on first and follow up visit after using LVDs in order to determine the impact of LVDs on quality of life of the selected subjects. Data was analyzed with SPSS.

Results: Total of one hundred and sixty five patients were include in study having adults were 102 (61.8%), Children 63 (38.18%). The main causes of low vision in children includes stargardt’s disease 22.2%, nystagmus 17.4%, Retinitis pigmentosa 14.28% albinism with nystagmus 12.69%, Aphakia 12.69%, Myopia 11.1%, Cong. Cataract 3.17%, corneal opacity 3.17%, cone dystrophy 1.59%. Among adult group the main causes were age related macular degeneration 21.50%, corneal opacity 15.68%, Retinitis pigmentosa 13.72%, aphakia%, high myopia 8.82%, congenital cataract 5.58%, glaucoma 5.88%, nystagmus 4.70%, oculo-cutaneous albinism 3.92%, Stargardt’s maculopathy 3.92%, cone dystrophy 3.92%. After using low vision devices the population with group of great problem reduced to only 10% while the moderate category reduced to 20% respectively. Similarly the problem with activities of daily living reduced after using LVDs from 65% to 35% so the reduction was almost half and those who were having no problem increased from 13% to 49 %. Although the score of the population in the psychological adjustments was less as compare to other aspect e.g. reading, distance equity etc but still significant amount of population gain a reasonable score after using LVD.s.

Conclusion: Efforts should be done to reduce the low vision burden of the diseases which are treatable. Visually impaired patients due to different etiologies do benefit from low vision services which facilitate vision having dramatic impact on the quality of life of those suffering subjects.

Key Words: Visual impairment, Low vision devices, quality of life

INTRODUCTION

Low Vision: a person with low vision is one who has 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 for which vision is essential. Or Low vision is visual acuity less than 6/18 and equal to or better than 3/60 in the better eye with best correction. Functionally, low vision is characterized by irreversible visual loss and a reduced ability to perform many daily activities. It is an important public health problem and provision of low vision services is one of the priorities in the global initiative, VISION 2020—The Right to Sight.

Low Vision and Quality of Life: The quality of life of a person with low vision is always compromised. The presence of low vision affects functional and social life of an individual and has a negative effect on physical and emotional well being and increased emotional distress. The provision of low vision services and use of low vision devices allows people with visual impairment to use their limited residual vision as optimally as possible.

1.3 ICD-10 Classification of Visual Impairment: “The World Health Organization ICD-10 (International Classification of Diseases) categories the visual impairment in to three categories 1: Moderate visual impairment from all causes visual acuity of 6/18 to 6/60. 2: Severe visual impairment from all causes 6/60 to 3/60 in the better eye and 3: Blindness from all causes 3/60 in the better eye.”

¹Senior Optometrist, Pakistan Institute of Community Ophthalmology Hayatabad Medical Complex, Peshawar. ²Eye Specialist, District Head Quarter Hospital, Nowshera, KPK. ³Lecturer Optometry, Pakistan Institute of Community Ophthalmology Hayatabad Medical Complex. ⁴Orthoptist, Pakistan Institute of Community Ophthalmology Hayatabad Medical Complex. ⁵Optometrist, Pakistan Institute of Community, Ophthalmology Hayatabad Medical Complex, Peshawar.
1.5 Causes of Low Vision: Globally the principal causes of visual impairment are un-corrected refractive errors and cataracts, 43% and 33% respectively. Other causes are glaucoma, 2%, age related macular degeneration (ARMD), diabetic retinopathy, trachoma and corneal opacity. A large proportion of causes, 18%, is undetermined. The causes of blindness are cataract, 51%, glaucoma, 8%, AMD, 5%, childhood blindness and corneal opacities, 4%, uncorrected refractive errors and trachoma, 3%, and diabetic retinopathy 1%, he undetermined causes are 21%.9(WHO 2010)

METHODOLOGY

This study conducted at low vision clinic in Department of Ophthalmology Hayatabad Medical Complex Peshawar, Pakistan. The study sample of 165 patients were thoroughly assessed / examined and treated by Ophthalmologist. Those patients who did not achieved visual acuity better than 6/18 after surgical, medical or optical treatment were referred to low vision clinic. The other sources of referral are patients referred by ophthalmologist from Tehsil and District head quarter hospitals from all over the province.

Low Vision assessment: The patients were seen first by ophthalmologists and then referred to low vision clinic for assessment, where they are refracted and assessed for LVDs. Optometric examination included detailed history of the patient, his/ her family history; functional, occupational and clinical assessment. The anterior and posterior segment examination was performed. The diagnosis was confirmed by at least one ophthalmologist and one optometrist.

Visual Acuity: Distance visual acuity was measured by Log MAR chart, near visual acuity was measured William Feinbloom and Lea Cards. The distance between the near acuity chart and the patient was recorded for calculation of magnification.

Quality of life questionnaire: The LVQOL questionnaire was administered to every patient on first visit and after using LVDs.

1.6 Data Management and Analysis: Data were entered in the register after each low vision day and then entered and analyzed using SPSS version 20. Frequency tables and cross tables were used.

RESULTS

The study population was divided in to two groups on the basis of age.

1: Adults 2: Children

Table-1: Age + Gender wise distribution of study population

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>95</td>
<td>70</td>
<td>165</td>
</tr>
<tr>
<td>Male</td>
<td>57.57%</td>
<td>42.42%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table-2: Distribution of causes of low vision among total population

<table>
<thead>
<tr>
<th>S No</th>
<th>Cause</th>
<th>Number of Patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Retinitis Pigmentosa</td>
<td>23</td>
<td>13.93%</td>
</tr>
<tr>
<td>2</td>
<td>Age Related Macular Degeneration</td>
<td>22</td>
<td>13.3%</td>
</tr>
<tr>
<td>3</td>
<td>Aphaki</td>
<td>20</td>
<td>12.12%</td>
</tr>
<tr>
<td>4</td>
<td>Stargardts Disease</td>
<td>18</td>
<td>10.9%</td>
</tr>
<tr>
<td>5</td>
<td>Corneal Opacity</td>
<td>18</td>
<td>10.9%</td>
</tr>
<tr>
<td>6</td>
<td>High Myopia</td>
<td>16</td>
<td>9.69%</td>
</tr>
<tr>
<td>7</td>
<td>Nystagmus</td>
<td>16</td>
<td>9.69%</td>
</tr>
<tr>
<td>8</td>
<td>Oculo-cutaneous Albinism with Nystagmus</td>
<td>12</td>
<td>7.27%</td>
</tr>
<tr>
<td>9</td>
<td>Cong Cataract</td>
<td>8</td>
<td>4.84%</td>
</tr>
<tr>
<td>10</td>
<td>Glaucoma</td>
<td>7</td>
<td>4.24%</td>
</tr>
<tr>
<td>11</td>
<td>Total</td>
<td>165</td>
<td>99.9%</td>
</tr>
</tbody>
</table>
### Table-3: Distribution of causes of low vision among Children

<table>
<thead>
<tr>
<th>S No</th>
<th>Cause</th>
<th>Number of Children</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stargardts Disease</td>
<td>14</td>
<td>22.22%</td>
</tr>
<tr>
<td>2</td>
<td>Nystagmus</td>
<td>11</td>
<td>17.4%</td>
</tr>
<tr>
<td>3</td>
<td>Retinitis Pigmentosa</td>
<td>9</td>
<td>14.28%</td>
</tr>
<tr>
<td>4</td>
<td>Oculo-cutaneous Albinism with Nystagmus.</td>
<td>8</td>
<td>12.69%</td>
</tr>
<tr>
<td>5</td>
<td>Aphakia</td>
<td>8</td>
<td>12.69%</td>
</tr>
<tr>
<td>6</td>
<td>High Myopia</td>
<td>7</td>
<td>11.11%</td>
</tr>
<tr>
<td>7</td>
<td>Congenital Cataract</td>
<td>2</td>
<td>3.17%</td>
</tr>
<tr>
<td>8</td>
<td>Corneal opacity</td>
<td>2</td>
<td>3.17%</td>
</tr>
<tr>
<td>9</td>
<td>Cone Dystrophy</td>
<td>1</td>
<td>1.58%</td>
</tr>
<tr>
<td>10</td>
<td>Congenital Glaucoma</td>
<td>1</td>
<td>1.58%</td>
</tr>
<tr>
<td>11</td>
<td>ARMD</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>12</td>
<td>Total</td>
<td>63</td>
<td></td>
</tr>
</tbody>
</table>

### Table-4 Distribution of causes of low vision among Adult population

<table>
<thead>
<tr>
<th>S No</th>
<th>Cause</th>
<th>Number of Children</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Age Related Macular Degeneration</td>
<td>22</td>
<td>21.56%</td>
</tr>
<tr>
<td>2</td>
<td>Corneal Opacities</td>
<td>16</td>
<td>15.68%</td>
</tr>
<tr>
<td>3</td>
<td>Retinitis Pigmentosa</td>
<td>14</td>
<td>13.72%</td>
</tr>
<tr>
<td>4</td>
<td>Aphakia</td>
<td>12</td>
<td>11.7%</td>
</tr>
<tr>
<td>5</td>
<td>High Myopia</td>
<td>9</td>
<td>8.82%</td>
</tr>
<tr>
<td>6</td>
<td>Congenital Cataract</td>
<td>6</td>
<td>5.88%</td>
</tr>
<tr>
<td>7</td>
<td>Glaucoma</td>
<td>6</td>
<td>5.88%</td>
</tr>
<tr>
<td>8</td>
<td>Nystagmus</td>
<td>5</td>
<td>4.90%</td>
</tr>
<tr>
<td>9</td>
<td>Oculo-cutaneous Albinism with Nystagmus.</td>
<td>4</td>
<td>3.92%</td>
</tr>
<tr>
<td>10</td>
<td>Stargards Maculopathy</td>
<td>4</td>
<td>3.92%</td>
</tr>
<tr>
<td>11</td>
<td>Cone Dystrophy</td>
<td>4</td>
<td>3.92%</td>
</tr>
<tr>
<td>12</td>
<td>Total</td>
<td>102</td>
<td></td>
</tr>
</tbody>
</table>

### Categories of Low Vision in study Population:
The World Health Organization Classify the low vision in to three broad categories on the basis of the best corrected vision:1: Moderate (6/60 < VA < 6/18, 10° < VF < 20°) 2: Severe vision impairment (3/60 < VA < 6/60, 5° < VF < 10°) 3: Blindness or profound vision impairment (VA < 3/60, VF < 5°).

### Table-5: Categories of low vision in Total population

<table>
<thead>
<tr>
<th>S.No</th>
<th>Type of Low Vision</th>
<th>Number of Patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Moderate visual Impairment</td>
<td>67</td>
<td>40.60 %</td>
</tr>
<tr>
<td>2</td>
<td>Severe Visual Impairment</td>
<td>56</td>
<td>33.9 %</td>
</tr>
<tr>
<td>3</td>
<td>Blind or profound Visual Impairment</td>
<td>42</td>
<td>25.45 %</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>165</td>
<td>99.9%</td>
</tr>
</tbody>
</table>

### DISCUSSION
A group of diseases in either ages and genders that leads to low vision, affects the overall quality of life and has profound physical, psychological and social impacts. Our study investigates the major causes of low vision in both children and adult population, while most of the studies conducted are only confined to either adults or children. More over the quality of life score is measured that shows the affectivity of low vision services that consequently helps in planning and development of low vision services. If we look at the results the retinal diseases were commonest among both adults and children. In retinal diseases the pattern of diseases was different in two groups. Stargards maculopathy in which the onset takes place in the first decade of life and is almost untreated, so it runs throughout the life. The child and/or parents usually noticed...
the decrease of vision when the child is admitted in the school. Nystagmus is the second leading cause among children that accounts for about 17%, Retinitis pigmentosa 14% and oculo-coetaneous albinism with nystagmus 8%. If we add the nystagmus without albinism and with albinism it becomes 25% and becomes the leading cause of low vision in children. The severity of the low vision caused by nystagmus is comparatively lower than retinitis pigmentosa and stargardts disease. Retinitis pigmentosa was prevalent in both adult and children but more in adults than in children. The reason may be that R/P is a progressive disease and some patients do not noticed the deterioration of vision in early life until it goes on progression and causes much damage to the vision which is then noticed by the patients.

In the case of adults the major cause of low vision observed was age related macular degeneration (ARMD) which is the disease of old population and caused by degenerative changes in the retina with growing age. Its onset takes place after fourth decade of life. ARMD badly affects the central vision and. Illuminated magnifiers enhance the reading capabilities of the patients and can improve quality of life by helping in reading, signing cheques, reading price tags in the market, needle threading and reading holly Quran.

The second leading cause of low vision among adult population was corneal opacities 16% R/P and aphakia 13 and 12% respectively. High myopia was responsible for about 8% in adults. These results are co-inciding with the results of the study conducted in the same center but the target population was only adults. The study shows that the main causes of visual impairment included nystagmus (15%), Stargardt’s disease (14%), maculopathies (13%), myopic macular degeneration (11%) and oculocutaneous albinism (7%). The percentages of visually impaired, severe visually impaired and blind were 33.8%, 27.2% and 39.0% respectively. A study conducted on the causes of low vision in Mohnbili National Hospital Dar us Salaam Tanzania revealed that among 561 patients, there were 100(17.83%) patients with low vision. The highest proportion (10.3) of low vision patients was found among the age group of 18-27 years age, and a gradual trend of decrease in low vision patients with increasing age (0.2% in eldest age group of 78-87 years) was observed. Optic neuropathy was the predominant cause of low vision (47%) in the study population, followed by ARMD (9%), Retinitis pigmentosa (7%), glaucoma (7%), albinism (7%), amblyopia (7%), corneal diseases (5%), refractive errors (4%), diabetic retinopathy (4%) and macular scars (3%).

The severity of the problem was categorized in to severe, moderate and none. These questions encompass almost all the aspects of quality of life in terms of vision. The results of the study revealed that in total population 68% of the population had great problem, 27% had moderate problem while 5% had no problem with distance vision mobility and lighting before low devices. After using low vision devices the population with great problem reduces to only 10% while the moderate category reduced to 20% respectively. Similarly the problem with activities of daily living reduced after using LVD,s from 65% to 35% so the reduction was almost half and those who were having no problem increased from 13% to 49%. Although the Score of the population in the psychological adjustments was less as compare to other aspect eg reading, distance equity etc but still significant amount of population gain a reasonable score after using LVD,s. In general, optical devices (including distance or near magnifiers, field expanders, night-vision aids) are less useful for those with poorer levels of visual function, and those affected require environmental modification (e.g., light augmentation, improving mobility). Evidence exists that low-vision services improve quality of life and mental state clinical trial evidence of the effectiveness of specific interventions for individuals with FLV is lacking.

A recent Cochrane review concluded that further research is recommended to compare different types of low-vision devices as well as to delineate patient characteristics that predict performance. Designing clinical trials of low-vision interventions is challenging due to the heterogeneous nature of the causes and consequences of the conditions causing FLV, the wide range of possible interventions, the fact that interventions must be tailored to individuals’ needs, and the large number of possible outcomes research of this kind is urgently needed in developing counties, as findings from studies in industrialized countries may not apply in situations in which the causes and functional visual needs are quite different.

**CONCLUSION & RECOMMENDATIONS**

Efforts should be done to reduce the low vision burden of the diseases which are treatable, genetic counseling of the families having disease like Retinitis pigmentosa to minimize its occurrence by avoiding consanguine marriages. Visually impaired children especially with hereditary/congenital ocular anomalies benefit from refraction and low vision services which facilitate vision enhancement and inclusive education. Awareness among eye care professionals should be enhanced, in order to facilitate referral and management of low vision. Efforts to expand low vision services including making simple, high quality, low cost, Low Vision devices.
### THE LOW VISION QUALITY-OF-LIFE QUESTIONNAIRE (LVQOL)

#### Distance Vision, Mobility and Lighting

**How much of a problem do you have:**

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>Moderate</th>
<th>Great</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>With your vision in general</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>With your eyes getting tired (e.g. only being able to do a task for a short period of time)</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>With your vision at night inside the house</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Getting the right amount of light to be able to see</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>With glare (e.g. dazzled by car lights or the sun)</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Seeing street signs</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Seeing the television (appreciating the pictures)</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Seeing moving objects (e.g. cars on the road)</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>With judging the depth or distance of items (e.g. reaching for a glass)</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Seeing steps or curbs</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Getting around outdoors (e.g. on uneven pavements) because of your vision</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Crossing a road with traffic because of your vision</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

#### Adjustment

**Because of your vision, are you:**

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Moderately</th>
<th>Greatly</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unhappy at your situation in life</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Frustrated at not being able to do certain tasks</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Restricted in visiting friends or family</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

**How well has your eye condition been explained to you**

<table>
<thead>
<tr>
<th></th>
<th>Well</th>
<th>Poorly</th>
<th>Not explained</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Reading and Fine Work

**With your reading aids / glasses, if used, how much of a problem do you have:**

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>Moderate</th>
<th>Great</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading large print (e.g. newspaper headlines)</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Reading newspaper text and books</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Reading labels (e.g. on medicine bottles)</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Reading your letters and mail</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Having problems using tools (e.g. threading a needle or cutting)</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

#### Activities of Daily Living

**With your reading aids / glasses, if used, how much of a problem do you have:**

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>Moderate</th>
<th>Great</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Finding out the time for yourself</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Writing (e.g. cheques or cards)</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Reading your own hand writing</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>With your every day activities (e.g. house-hold chores)</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>
Annexure I: Data Collection Instrument

<table>
<thead>
<tr>
<th>NAME:</th>
<th>AGE:</th>
<th>SEX:</th>
<th>SERIAL NO:</th>
<th>Occupation:</th>
<th>Address:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Ophthalmology Findings

**Right Eye**

**Left Eye**

**Cause of Low Vision /Blindness**

<table>
<thead>
<tr>
<th>Distance Visual Acuity (Without Glasses)</th>
<th>Right Eye</th>
<th>Left Eye</th>
<th>Binocular</th>
<th>Test Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance Visual Acuity (With Glasses)</td>
<td>Right Eye</td>
<td>Left Eye</td>
<td>Binocular</td>
<td>Test Used</td>
</tr>
<tr>
<td>Near Visual Acuity</td>
<td>Right Eye</td>
<td>Left Eye</td>
<td>Test Used</td>
<td></td>
</tr>
</tbody>
</table>

**Visual Fields**

**Refraction**

<table>
<thead>
<tr>
<th>Right Eye</th>
<th>Left Eye</th>
<th>Near Add</th>
<th>Test Used</th>
</tr>
</thead>
</table>

**Low Vision Assessment**

<table>
<thead>
<tr>
<th>Eye Selected</th>
<th>Right Eye</th>
<th>Left Eye</th>
<th>Type of Telescope</th>
<th>Type of Magnifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual Acuity With LVD</td>
<td>Right Eye</td>
<td>Left Eye</td>
<td>Near</td>
<td>Distance</td>
</tr>
<tr>
<td>Non-Optical Aid</td>
<td>Right Eye</td>
<td>Left Eye</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Action/ Comments**

**References**

10. mshah et al causes of low vision in children.
11. World Health Organization. Consultation on Development of...
Standards for Characterization of Visual Loss and Visual Functioning. 2003; WHO Geneva, Switzerland. PBL/03.91
16. YemaneBernahe et al. prevalence and causes of blindness and low vision in Ethiopia, Ethiop. J. Health Dev. 2007; 21(3).

18th Annual Islamabad Congress of Ophthalmology

Will be held at Bhurban (Murree) from 24-26 April 2015

Please Contact: Dr. Waheed Afzal, President
OSP Federal Secretariat
E.mail: ospfederaley@gmail.com
Phone: 03335153266
ABSTRACT

Objective: To determine the efficacy of limbus based conjunctival flap in patients undergoing trabeculectomy with intraoperative Mitomycin C.

Design: Interventional case series

Setting: Department of Ophthalmology, Khyber Institute of Ophthalmic Medical Sciences (KIOOMS), Post Graduate Medical Institute, Lady Reading Hospital, Peshawar.

Duration: 18 months, from 1st January 2012 to 30th June 2013.

Subjects: Eighty eyes of 80 patients diagnosed as having glaucoma.

Main outcome measure:

1. Intraocular pressure, effective rate of fornix based trabeculectomy with mitomycin C and limbal based trabeculectomy with mitomycin C in lowering intraocular pressure.

2. Bleb formation

Results: 80 eyes underwent limbal based trabeculectomy with MMC. 56.3% of patients were male and 43.8% were female. The mean age was 54.1 years. Preoperative visual acuity ranges from 6/6 to counting fingers (CF). The mean intraocular pressure at the end of follow-up was 12.12 mmHg with standard deviation + 0.68 in group 2. IOP >21 mmHg was not found in any patient. The effective rate of limbal based trabeculectomy with MMC was 85% in formation of bleb on 1st postoperative day.

Conclusion: Limbal based trabeculectomy with intraoperative MMC is an alternative and effective method in glaucoma treatment surgically.

Key Words: Glaucoma, Trabeculectomy; intraocular pressure, Mitomycin C.

INTRODUCTION

Glaucoma is characterized by progressive loss of retinal ganglion cells leading to characteristic visual fields defects and optic nerve head cupping and pallor\(^1\). It is an optic neuropathy secondary to various risk factors including increased IOP.

Glaucoma may be (a) congenital or (b) acquired. Further sub-classification into open-angle and angle-closure type is based on the mechanism by which aqueous outflow is impaired. The glaucoma may also be (a) primary or (b) secondary depending on the presence or absence of associated risk factors. In primary glaucoma there is no associated ocular disorder while in secondary glaucoma a recognizable ocular or non-ocular disorder alters aqueous outflow. Secondary glaucoma may be acquired or developmental and of the open-angle or angle-closure type.

Secondary open-angle glaucoma may be:

1. Pre-trabecular like neovascular glaucoma.

2. Trabecular like pigmentary glaucomas, red cell glaucomas, ghost cell glaucomas, phacolytic glaucomas, pseudoexfoliative glaucomas and post-traumatic angle recessive glaucoma etc.

3. Post-trabecular in which aqueous outflow is impaired by elevated episcleral venous pressure due to carotid-cavernous fistula, Sturge-Weber syndrome and obstruction of superior vena cava.

Secondary angle-closure glaucoma may be due to posterior forces which push the peripheral iris against the trabeculum (iris bombe due to seclusion-pupillae) or anterior forces which pull the iris over the trabeculum by contraction of inflammatory or fibrovascular membrane (e.g. late neovascular glaucoma).

Patients present with a variety of signs and symptoms like pain, watering, dimness of vision, headache, nausea and vomiting depending on the nature of glaucoma. Therefore, slit-lamp biomicroscopy, fundoscopy, tonometry, gonioscopy and perimetry is mandatory for management of these patients to see for ciliary injec-
tion and corneal oedema, optic disc cupping, intraocular pressure, angle details and visual field defects. Glaucoma is a highly prevalent and vision threatening condition affecting approximately 66 million people worldwide. In a recent study conducted in Pakistan, it was showed that glaucoma accounted for 8.1% of all eye admissions. Open-angle glaucoma was responsible for 37.6% or 731 glaucoma admissions followed by secondary glaucoma (35.0%) and angle-closure glaucoma (18.2%).

In our set-up, people present with advance disease due to poverty, illiteracy and lack of district-based eye care. Different types of treatment options are available like anti-glaucoma drugs, laser treatment and surgical interventions. Treatment of choice in our setting is surgical intervention due to poverty, poor drug compliance, late presentation and high failure rate of laser trabeculoplasty. Trabeculectomy alone introduced by Cairns in 1968 and modified by Watson in 1970, or with antimetabolite (Mitomycin-C, 5-Fluoro-urocil) has been the surgical method of choice. The Efficacy of Limbus based Conjunctival Flap in Patients undergoing Trabeculectomy with Intra-operative Mitomycin C.

**Objective:** To determine the efficacy of Limbus based conjunctival flap in patients undergoing trabeculectomy with intraoperative Mitomycin C.

**Efficacy:** it will be measured on the basis of conjunctival bleb formation and normal intraocular pressure (11-21mmHg) and thus affectivity of the procedure will be assessed.

**MATERIAL AND METHODS**

**Setting:** Department of Ophthalmology, Khyber Institute of Ophthalmic Medical Sciences (KIOMS), Post Graduate Medical Institute, Lady Reading Hospital, Peshawar.

**Duration of Study:** 18 months, from 1st January 2012 to 30th June 2013.

**Sample Size:** Using WHO sample size calculator, where
- Confidence level=95,
- Absolute precision=0.03,
- Population proportion (P) =10%.
- The sample size=80

**Sampling Technique:** non probability: consecutive

**SAMPLING SELECTION**

a. **Inclusion criteria:**
   i. patients of 30 to 60 years, both male and female.
   ii. Patients of primary open angle glaucoma, angle closure glaucoma pseudoxfoliative glaucoma and induced glaucoma with raised intra ocular pressure not controlled by maximum treatment or poor compliance.

b. **Exclusion criteria:**
   - Patients with previously failed trabeculectomy.
   - Patients with history of previous intra ocular surgery or trauma. Patients with congenital or normal tension glaucoma. Patients with secondary glaucoma like uveitic, neovascular or pseudophakic

**Study design:** prospective, interventional case series.

**Data collection procedure:** The study was conducted at Out Patient Department, Eye Unit of Lady Reading Hospital, Peshawar. Before we start the study, permission from the hospital ethical committee was obtained. An informed written consent was obtained from the patient. The patients were evaluated for inclusion and exclusion criteria. Patients for trabeculectomy will be admitted to eye unit of Lady Reading Hospital, Peshawar, through an eye OPD waiting list. A detailed history regarding dimness of vision (DV) (whether sudden or gradual, painless or painful), previous ocular trauma and intraocular surgery will be taken. Pre-op ocular examination including best corrected visual acuity, relative afferent papillary defect (RAPD) and slit lamp examination of optic disc with 90 D lens noting optic disc cupping and cup-disc ratio (c/d ratio), gonioscopic examination of angle structure by Goldmann single mirror goniolens, intraocular pressure measurement (IOP) by Goldmann applanation tonometer and visual field testing using Humphrey perimeter. Laboratory investigations like Hb %, HBA1C, Ag, anti-HCV, blood sugar etc will be done in Pathology Department, Lady Reading Hospital, Peshawar. Radiological investigations like chest X-Ray will be done in Radiology Department, Lady Reading Hospital, Peshawar. The surgery will be done both under local and general anesthesia. On first day after surgery and on follow up the patients will be assessed for visual acuity, conjunctival bleb, and intraocular pressure. Patients will be examined on first post-op day and will be discharged after being followed up on 10th postoperative day and 1 month. Nominal data of the outcome of surgery for all the patients will be recorded on a data collection proforma on each follow up visit.

**Surgical Procedure:** Limbal based trabeculectomy was performed.

**Data analysis procedure:** After completion of data collection, the data will be analyzed using SPSS version 13.0. All categorical variables including gender and operative outcome will be given in frequencies and percentages; mean and standard deviation will be calculated for numerical variables for example age and intraocular pressure on day 1, 10, and 30. Operative outcome in the form of intraocular pressure and bleb formation was documented and presented in the form of tables.

**RESULTS**

Eighty patients were diagnosed as “Glaucoma”
admitted at Ophthalmology Unit, KIOMS, Lady Reading Hospital, Peshawar. Eighty eyes of eighty patients were included in the study and it was conducted from among these 80 patients 45 (56.3%) were male and 35 (43.8%) were female patients, as shown in figure 1. The mean age was 54.1 years with ± standard deviation of 5.6. The youngest was 32 years and the oldest was 60 years as shown in table 1. In 80 eyes trabeculectomy with limbal based conjunctival flap and intra-operative Mitomycin C (MMC) was performed as primary procedure. At presentation the IOP was ranged from 24-32 mmHg, with mean of 27.28 mmHg with ± 2.32 standard deviation. Intraocular distribution is given in table 3. Among these 80 patients right eye was involved in 39 (48.8%) and left eye was involved in 41 (51.3%) as shown in figure 2. After full assessment, patients had postoperative follow up of one month. During this period intraocular pressure and bleb formation were assessed at 1st day, 10th day and 30th day postoperatively. Postoperative intraocular pressure (IOP) was assessed. Mean IOP on day 1st, day 10th and day 30th was 11.17, 12.1 and 12.12, as shown in table 4, 5 and 6. Bleb formation was assessed postoperatively on day 1st, day 10th and day 30th i.e. 85%, 100% and 100% as shown in table 7 and 8. In my study final mean IOP was 12.12 ± 0.68.

Figures and Tables:

Table-1: Age Distribution (n=80)

<table>
<thead>
<tr>
<th>Age(years)</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>60</td>
<td>54.10</td>
<td>5.63</td>
<td></td>
</tr>
</tbody>
</table>

Table-2: Pre-operative Intraocular pressure with respect to procedures (n=80)

<table>
<thead>
<tr>
<th>IOP</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>24-26 mmHg</td>
<td>19</td>
</tr>
<tr>
<td>27-29 mmHg</td>
<td>13</td>
</tr>
<tr>
<td>30-32 mmHg</td>
<td>8</td>
</tr>
</tbody>
</table>

Table-3: IOP on 1st Post-Operative day with respect to procedures (n=80)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>N</th>
<th>Mean IOP</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limbal based</td>
<td>40</td>
<td>11.72</td>
<td>2.22</td>
</tr>
</tbody>
</table>

Table-4: IOP on 10th Post-Operative day with respect to procedures (n=80)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>N</th>
<th>Mean IOP</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limbal based</td>
<td>40</td>
<td>12.12</td>
<td>0.68</td>
</tr>
</tbody>
</table>

Table-5: IOP on 30th Post-Operative day with respect to procedures (n=80)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>N</th>
<th>Mean IOP</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limbal based</td>
<td>40</td>
<td>12.12</td>
<td>0.68</td>
</tr>
</tbody>
</table>

Table-6: Bleb formation on 1st postoperative day with respect to procedures (n=80)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Bleb formed</th>
<th>Bleb Not formed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fornix based</td>
<td>40</td>
<td>0</td>
<td>40</td>
</tr>
<tr>
<td>Limbal based</td>
<td>34</td>
<td>0</td>
<td>34</td>
</tr>
</tbody>
</table>

Table-7: Frequency of bleb formation on 10th post-operative day with respect to procedures (n=80)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Bleb formed</th>
<th>Bleb Not formed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fornix based</td>
<td>40</td>
<td>0</td>
<td>40</td>
</tr>
<tr>
<td>Limbal based</td>
<td>40</td>
<td>0</td>
<td>40</td>
</tr>
</tbody>
</table>

Table-8: Bleb formation on 30th post-operative day with respect to procedures (n=80)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Bleb formed</th>
<th>Bleb Not formed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limbal based</td>
<td>40</td>
<td>0</td>
<td>40</td>
</tr>
</tbody>
</table>

**DISCUSSION**

This study was conducted in Ophthalmology Department, Khyber Institute of ophthalmic Sciences/Lady Reading Hospital, Peshawar. In this study eighty eyes of glaucoma patients were included. The surgical management of glaucoma has progressed and evolved throughout the years. With advances in surgical technique, such as the use of adjunctive antifibrotic or antimetabolic agents and the placement of adjustable sutures, glaucoma surgery has become a more reliable...
and predictable undertaking. Trabeculectomy with MMC augmentation is a safe and effective procedure for reduction of IOP and visual rehabilitation whether a fornix- or a limbal-based conjunctival flap is utilized.

My study presents outcome data comparing the limbal flap design in trabeculectomy procedures. In this study 45 (56.3%) of patients were male and 55 (43.8%) were female. In a study by A Alwitry, mean IOP was 48.1 years +/- 21.9. In a study by Susan L Jee, The mean IOP was 69.74 years (23-85 years). In a study by Tham CC1, mean age was 48.1 years (23-85 years). In a study by Henderson, a mean age of 130.6% was seen in 10 out of 41 limbus based flaps (24%) on the 1st postoperative day. In a study by Wu L, leaked was seen in 10 out of 41 limbus based flaps (24%) on the 1st postoperative day.

CONCLUSION

- Glaucoma is a common vision threatening condition affecting both sexes.
- It is more likely occur in older individuals.
- Patients present with different types of signs and symptoms depending upon the type of glaucoma.
- The most common of which is decreased visual acuity.
- In our setup patients usually presents with advance disease, so the treatment of choice is surgical intervention due to late presentation, poor drugs compliance and poverty.
- Trabeculectomy with fornix based conjunctival flap and MMC is more effective than trabeculectomy with limbal based conjunctival flap and MMC, as the chances of bleb non-formation due to leakage is more common on 1st postoperative day in the latter procedure.
- Surgical procedure is cost effective and reduces the use of lifelong antiglaucoma drugs. Drugs side effects can be avoided with surgical procedures. Surgery should better be performed by an experienced surgeon.

REFERENCES

INTRODUCTION

Glaucoma encompasses a heterogeneous group of conditions, resulting in optic nerve damage and characteristic visual field changes. It is usually but not always associated with raised intraocular pressure (IOP). Normal-tension glaucoma (NTG) is a chronic optic neuropathy with features similar to primary open-angle glaucoma (POAG), with the exception of a consistently normal IOP, i.e. less than 22 mm Hg. The disease usually presents in old age and has a female predilection. The exact etiology of NTG is uncertain and various risk factors have been postulated. These include:

- Generalized peripheral vascular endothelial dysfunction.
- Ocular circulation insufficiency (lower ocular pulse amplitude)
- Increased resistance index in the central retinal artery (role in progression of visual field defect)
- Impaired vascular auto regulation (prolonged arteriovenous venous passage time in relation to ocular perfusion)
- Migraine
- Peripheral vasospasm, Raynaud syndrome
- Autoimmune disorders
- Systemic vascular disease (i.e. atherosclerotic disease, cerebrovascular insufficiency)
- Systemic nocturnal hypotension
- Sleep apnea (decreases oxygen saturation)

Cerebral ischemia and (or) brain atrophy is a recognized risk factor and researchers are taking keen interest in this hypothesis. Optic nerve being a part of the central nervous system is affected in the same way as the brain. This theory is supported by some studies which have found a significant portion of patients diagnosed as NTG to have cerebral ischemia and (or) brain atrophy. In our department, we investigated patients diagnosed with normal-tension glaucoma using magnetic resonance imaging.

MATERIAL AND METHODS

Patients diagnosed with normal tension glaucoma were included in the study. All patients were admitted and underwent 2 hourly IOP phasing for 24 hours to exclude unrecognized IOP spikes. Detailed ophthalmological examination including visual acuities, best corrected visual acuity, pupils examination, IOP measurement, gonioscopy, optic disc and fundus examination were carried out on all patients. Humphrey Visual Field analysis and Central Corneal Thickness (CCT) was done and correction factors were applied to all IOP readings. All patients underwent an MRI Brain and Orbits without contrast. T1, T2 and FLAIR images were obtained and reported by a consultant radiologist. Hematological and other radiological investigations were done to exclude other causes of cerebral ischemia.

Results: Total number of patients in this study was 19. Most patients included in our study were females (63%). Mean age was 60 years (range 42–75 years). None of the study patients recorded a corrected IOP reading of more than 21 mmHg on phasing. MRI imaging revealed 15 (79%) patients having cerebral ischemic changes and (or) brain atrophy. In these patients, 10 had cerebral ischemic changes including small lacunar infarcts, while 5 patients were reported as having gross brain atrophy with small vessel ischemic changes in brain.

Conclusion: The study suggests a greater incidence of cerebral ischemia and (or) brain atrophy in patients with normal-tension glaucoma.
was carried out on all patients. Humphrey visual field analysis and central corneal thickness (CCT) was done and correction factors were applied to all IOP readings.

Hematological investigations included Full blood count, prothrombin time (PT), activated partial thromboplastin time (APTT), HbA1c and fasting lipid profile. Other investigations included 8-hourly blood pressure monitoring, ECG, echocardiography and carotid doppler scans. All patients underwent an MRI brain and orbits without contrast. T1, T2 and Flair images were obtained and reported by a consultant radiologist who was unaware of the diagnosis of the patients. Concurrent conditions like diabetes, hyperlipidemia and hypertension were actively managed in consultation with an endocrinologist and a cardiologist.

RESULTS

Our study included 19 patients. Male patients included in our study were 7 (37%) while there were 12 (63%) females. Mean age was 60 years (range 42-75 years). None of the study patients recorded a corrected IOP reading of more than 21 mmHg on phasing. Two (10%) patients suffered from diabetes, 10 (53%) patients had hypertension while 5 (26%) patients were diagnosed as both diabetic and hypertensive. One (5%) patient in our study group had raised triglyceride levels. There were 2 (10%) patients with history of migraine. None of the study patients was reported to have sleep apnea.

Echocardiography revealed abnormalities in 6 (32%) patients. These included diastolic dysfunction in 3 patients. Mild mitral valve regurgitation was reported in 2 patients while one patient had mild aortic valve regurgitation. Carotid Doppler scans did not reveal significant stenosis (>75%) in any of the study patients. MRI imaging revealed 15 (79%) patients having cerebral ischemic changes and/or brain atrophy. In these patients, 10 had cerebral ischemic changes including small lacunar infarcts, while 5 patients were reported as having gross brain atrophy with small vessel ischemic changes in brain.

DISCUSSION

The exact pathophysiology causing optic nerve damage in normal tension glaucoma is still uncertain and a matter of ongoing debate. Intraocular pressure, the only factor with other types of glaucoma has in common is not related to this condition. Probably that is the reason why anti glaucoma medications, which lower the IOP have not been proven effective in halting the progression of the disease process. Stroman GA et al. reported an increased incidence of cerebral small vessel ischemia in patients with normal tension glaucoma compared to control subjects and proposed the theory of vascular damage of optic nerve in these patients.6 Another study conducted at The Sydney Eye Hospital, Australia compared MRI of brain of patients with NTG with control subjects. They concluded that patients with NTG had increased incidence of cerebral infarcts, the thickness of the body and genu of corpus callosum was thinner as compared to control subjects. They also postulated an ischemic pathophysiologic basis for NTG.

Optic nerve damage and progression of visual fields loss also seems to be related to cerebral ischemia. In NTG patients with cerebral ischemia on MRI, the visual fields showed deeper depression in the inferior pericentral visual field and has been marked as an independent risk factor for visual fields progression in such cases.9, 10 In a study, conducted by Suzuki J. et al at the university of Tokyo School of Medicine, 32 out of 94 patients with NTG has ischemic changes on MRI. In our study we also concluded that a significant number (79%) of patients diagnosed as NTG had signs of cerebral ischemia and/or brain atrophy indicated on magnetic resonance imaging of brain and visual pathway. This further acknowledges the hypothesis that ischemic damage occurring in the brain of patients with NTG is responsible for optic nerve damage as well, as both share common blood supply (Carotid system) and hence is subjected to similar insults.
CONCLUSION

The study suggests a greater incidence of cerebral ischemia and (or) brain atrophy in patients with normal-tension glaucoma. Optic nerve damage in such patients may be an extension of the same disease process.

REFERENCES


Tuberous sclerosis complex (TSC) is an autosomal dominant neurocutaneous disease (phacomatosis) with variable clinical manifestations (see the main article) Curtesy: Dr Hussain Ahmad Khaqan Department of Ophthalmology, Lahore General Hospital/PGMI, Lahore.
ABSTRACT:

Objective: To find out complications and results of external dacryocystorhinostomy without tube intubation in chronic dacryocystitis (CDC).

Materials and methods: This prospective study was conducted in eye care centre Karak and K.D.A Teaching Hospital Kohat from March, 2008 to March, 2014. 107 patients suffering from chronic dacryocystitis were selected with age range from 31 – 63 years with mean age 44.7 years. Out of 107 patients, 63 (58.87%) were male and 44(41.12%) were female. Indications for dacryocystorhinosomy was epiphora and chronic dacryocystitis. Diagnosis was done on regurgitation test and syringing of nasolacrimal duct system. All patients were operated under local anesthesia. External approach was done and only anterior flap was made. Dacryocystorhinostomy was done without silicone tube intubation. Postoperative syringing was done on the table, 10 days, 3 months and 6 months. Successful outcome was defined as relief from epiphora after dacryocystorhinostomy and patent nasolacrimal duct on syringing.

Results: After six months 95 (88.78%) was the success rate. Epiphora was present in 7(6.54%) patients and epiphora with discharge was present in 5(4.67%). 11(10.28%) patients had nasal mucosal bleeding, 9(8.41%) had nasal bone bleeding and tear in nasal septum was observed in 2(1.86%)patients peroperatively. Postoperatively 9(8.41%) patients had wound infection with cellulitis, 4 (3.73%) patients had bleeding from nose and 13(12.14%) patients had periorbital ecchymosis. All these complications resolved within 10 days.

Conclusion: External dacryocystorhinostomy is a safe procedure under local anesthesia. This technique has high success rate. Complications are minimal and can be easily managed.

Key word: chronic Dacryocystitis, Epiphora, External Dacryocystorhinostomy.

Abbreviations: Chronic Dacryocystitis (C.D.C), Dacryocystorhinosomy (D.C.R) Nasalacrimal Duct (N.L.D)

INTRODUCTION

NLD blockade results in watering of disturbed tears called Epiphora which is the most bothersome problem of lacrimal system obstruction. Management of Epiphora has evolutionary history. Adeo Toti was the first who introduced dacryocystorhinostomy for the treatment of epiphora.1 He created an external approach to lacrimal sac by creating a window in nasal lateral wall. The results of Adeo Toti were not successful in many patients. This procedure was modified by Bourguet and Dupuy-Dutemps. They introduced anastomosis of mucosa with suturing of the mucosal flaps.2 Ohm added suturing of anterior and posterior flaps of nasal mucosa with lacrimal sac.3 External DCR is the mostly practiced operation for NLD obstruction. Usually other methods of surgery for CDC are compared with this gold standard procedure.4 Various studies have reported external DCR success rate more than 80% which depends upon the surgeon experience.

There are other methods of surgical procedure to treat NLD obstruction. These include endoscopic DCR, endoscopic laser nasal DCR, endoscopic radio frequency assisted DCR.3,5 Endoscopic DCR is the favored surgical procedure of ENT surgeon and thus ophthalmologists and ENT surgeons share their clinical skill and experience in care and treatment of NLD obstruction patients.8 There are numerous modifications in various surgical steps that has been introduced in DCR over years to get better results. Various national and international studies have reported low complications rate in external DCR. We present our experience in external DCR with only anterior flaps suturing.

MATERIALS AND METHODS

This prospective study was conducted in Eye Care Centre Karak and KDA Teaching Hospital Kohat from March, 2008 to March, 2014 with the objective to know the success rate and complications of external DCR without silicone tube intubation. Total 107 patients with age range of 31 to 63 years with mean age of 44.7 years were selected table I. Out of 107 patients 63 (58.87%) were male and 44 (41.12%) were female (Ta-
Complications & Results of External Dacryocystorhinostomy in Chronic Dacryocystitis without Intubation

Indications for DCR were epiphora and chronic dacryocystitis. Diagnosis of all patients was made by regurgitation test and syringing of NLD system.

**Inclusive criteria:**
- CDC patients with Regurgitation test positive and NLD blocked by syringing.

**Exclusive Criteria:**
- Hypertensive Patients Canalicular obstruction
- Nasal trauma patients
- Previously operated DCR

All the patients were operated under local anesthesia. Nasal packing in all the patients was done with gauze soaked in 4% Xylocaine and 1 in 10000 adrenaline. Lacrimal sac area was infiltrated with 2% xylocaine with 1 in 100000 adrenaline. DCR was done with Bourguet and Dupuy-Dutemps Technique. Anterior and posterior flaps of the lacrimal sac and nasal mucosa were made. Posture flaps were excised and anterior flaps were sutured together to form bridge. Muscle layers were approximated with stitches. Skin stitches were applied. After skin stitches homeostasis was secured. Nasal pack was removed and syringing of the NLD system was done on the table. Haemostasis was secured on the table. Patients were put on systemic antibiotic pain killer and topical antibiotic ointment for application on wound and antibiotic drops in eye for 10 days. Syringing was done with follow up on 10 day one month, 3rd month and 6th month. Successful results were considered to be negative regurgitation test and on syringing patent NLD along with patients satisfaction.

**RESULTS**

During surgery bleeding from nasal mucosa was observed in 11 (10.28%) patients nasal bone bleeding from 9 (8.41%) patients, tear in nasal septum in 2(18.6%) patients. Regarding immediate/early postoperative complications bleeding in 4 (3.73%) periorbital swelling/ecchymosis in 13 (12.14%) patients while wound infection with cellulitis was observed in 9 (8.4%) patients.(table IV).

Regarding results of success, over all 95 (88.78%) DCR were successful, while in 7 (6.5%) patients epiphora was present on subsequent follow up and epiphora with discharge was present in 5 (4.67%) patients (Table V). In these 12 patients on syringing NLD was observed blocked.

**DISCUSSION**

In our study results had success rate of 88.78% and complications were found being managed early. Moreover in our patients male were more than female. Our study has some similarities to National and International studies. But also variations were found in various aspects of the patients after complete follow up.

Emed S M H has reported success rate of 88.7% of external DCR without intubation which is similar to our study, but in his study female were more than male. Complications reported are also negligible in his study. Rehman A, Channa S have reported 97.77% success rate of external DCR without intubation but they had used mitomycin C during surgery. Probably this may be due to mitomycin C. Besharati MR, Rastigor A have reported in their study of External DCR success rate of 88% and failure rate of 9.6%, wound infection in 5.3% and granuloma formation in 3.2% patients. The results are comparable to our study. Darade DM. Sahasrabudhe VM, Khaire BS et al have reported in external DCR success rate of 96.25% and also in their study female patients were more than male. Complication rates were also less. All these results depend upon the etiology of CDC and surgical expertise. Silicone tube is not necessary in CDC if obstruction is below the canalicular level.
Complications & Results of External Dacryocystorhinostomy in Chronic Dacryocystitis without Intubation

HO Kyung Choung and Sang In Khwarg study reveals 100% anatomic patency results in external DCR. However, epiphora was present in 6.7% patients despite of anatomic patency of NLD.13 Muhammad Al Droos study on external DCR reveals female to be more than male and the complications reported are more than our study like transient lagophthalmos, wound dehiscence and Transient orbicularis hypotony.14 Tsirbas A, McNab had demonstrated secondary haemorhage in external DCR in 10 patients out of 293 DCR, which has not been found in our study. They have also shown a failure rate of 8.5%.15 Now-a-days endoscopic DCR is also in practice but the results of success rate is not as in external DCR. Whitaker JKH, Hall AB, Dhalla KH have reported success rate in discharge and epiphora resolution to be 90.9% and 84.4% patients with external DCR.16 Mekonnen W, Adanbu Y have shown 93% success rate of external DCR.17 Zaman M, Babar TF, Saeed N have reported over all success rate of 98.33% in external DCR. The success rate of this study is high than our study. However the complications mentioned in the study are comparable to our study.18

CONCLUSION

External DCR is the most popular and fruitful surgical procedure with high success rate and less complications. This procedure has short learning curve. It can be performed on local anesthesia and in most cases intubation is not necessary.

REFERENCES

ABSTRACT:

Objective: To find out the frequency of recurrence of retinal detachment after silicone oil removal

Materials and Methods: This is a retrospective review of 100 patients. The study was conducted in the Department of Ophthalmology, Lady Reading Hospital Peshawar. All patients who underwent removal of silicone oil from the eye between June 2012 and January 2014 were included in the study. Silicone oil was removed via pars plana sclerotomies in all patients under peribulbar anesthesia. All surgeries were performed by the same surgeon. The mean follow up period after the removal of silicone oil was 6 months.

Results: 65 of the patients were male (65%) and 35 were female (35%). Age of the patients was ranging from 16 to 70 years, with a mean of 37 years. The duration of intraocular silicone oil tamponade ranged from 3 to 6 months. Retina was attached in all cases before the removal of silicone oil. 6 months after the removal of silicone oil, retina remained attached in 75 of the 100 (75%) patients included in the study. In 25 (25%) patients, the retina detached after removal of silicone oil.

Conclusion: Re-detachment of the retina can occur after removal of silicone oil in eyes having stable attached retina after successful pars plana vitrectomy with silicone oil tamponade. Detail assessment of the patient is important to identify the eyes at risk of re-detachment.

Keywords: Proliferative diabetic retinopathy, Retinal Detachment, Silicon oil, Sulpher hexafluoride.

INTRODUCTION

The retina is an extremely thinnest tissue of the eye. Most retinal detachments are a result of a retinal break, hole, or a tear. Retinal breaks, holes, or tears are not the result of trauma, but are due to pre-existing factors such as high levels of myopia and prior ocular surgery. Early diagnosis and repair of retinal detachments is urgent since visual improvement is much greater when the retina is repaired before the macula or central area is detached.

Silicone compounds are unique materials both in terms of the chemistry and in their wide range of useful applications. Silicone in combination with organic compounds provides unique properties that function over a wide temperature range, making the silicone based products less temperature sensitive than most organic surfactants.

The use of silicone oil in retinal re-attachment surgery was introduced by Paul Cibis in early 1960s, based on the experimental work of silicone. Silicone oil is used in vitreoretinal surgery to provide long-term internal tamponade in cases of rhegmatogenous retinal detachment complicated by severe proliferative vitreoretinopathy (PVR) and giant retinal tears, severe proliferative diabetic retinopathy (PDR), chronic uveitis with profound hypotony, selected cases of macular hole, infectious retinitis, and vitreous hemorrhage after penetrating ocular trauma.

Silicone oil is generally removed after 6 months if the retina is attached and must be removed upon the development of oil emulsification, keratopathy, secondary glaucoma or cataract. Compared with sulphur hexafluoride gas (SF6) as an intraocular tamponade for the management of retinal detachment, eyes treated with silicone oil are more likely to be successfully re-attached, to achieve a better visual acuity, and to have fewer postoperative complications, particularly cataract, glaucoma, and keratopathy. The purpose of our study was to find out the recurrence rate of retinal detachment after silicone oil removal.

MATERIAL AND METHODS

This was a retrospective review of 100 patients. The study was conducted in the Department of Ophthalmology, Lady Reading Hospital Peshawar. All patients who underwent removal of silicone oil from the eye between June 2012 to January 2014 were included in the study. All patients included in the study had previously undergone pars plana vitrectomy using a three
Recurrence of Retinal Detachment after Silicone Oil Removal

Port technique. Pars plana vitrectomy with silicone oil en-damo-tamponade was carried out with endo-drainage of sub-retinal fluid, use of perfluorocarbon liquids, endolaser coagulation, cryopexy and relaxing retinoto-
mies. In all patients, silicone oil with a viscosity of 1000 centistokes was used. Before removal of the silicone oil, the retina was attached in all patients. Silicone oil was removed via pars plana sclerotomies in 100 patients under peribulbar anaesthesia. All surgeries were performed by the same surgeon. The mean follow up pe-
riod after the removal of silicone oil was 6 months.

RESULTS

65 of the patients were male (65%) and 35 were fe-
male (35%). Figure I shows the gender distribution of
patients. Age of the patients was ranging from 16 to 70
years, with a mean of 37 years. Table I shows the age
distribution of patients. The duration of intraocular si-
lcone oil tamponade ranged from 3 to 6 months. Retina
was attached in all cases before the removal of silicone
oil. 6 months after the removal of silicone oil, retina
remained attached in 75 of the 100 (75%) patients in-
cluded in the study. In 25 (25%) patients, the retina de-
tached after removal of silicone oil. Of these 25 eyes, 17
eyes had proliferative vitreo-retinopathy (PVR), 7 eyes
had proliferative diabetic retinopathy and 1 eye had
uncomplicated rhegmatogenous retinal detachment.

Incomplete removal of the vitreous base, defined as
ophthalmoscopically visible remnants of the vitreous
base before removal of silicone oil, was significantly
higher in patients with retinal re-detachment than in
patients without postoperative retinal detachment.

DISCUSSION

Since the invention of the vitrectomy instrument,
the role of silicone oil as a vitreous substitute and reti-
nal tamponade has expanded. The beneficial effects of
silicon oil have been confirmed in a multicenter clinical
trial by the silicon oil study group. More recently, the
beneficial effects of silicone oil have been re-confirmed
in a multicenter clinical trial by the silicone oil study
group.8,9

We did a retrospective review of 100 patients who
underwent removal of silicone oil from the eye, in the
Department of Ophthalmology Lady Reading Hospital
Peshawar, between June 2012 and January 2014 and
had completed 6 months follow up. The retina was at-
tached and stable in all cases before silicon oil removal.
6 months after the removal of silicone oil, retina re-
mained attached in 75 of the 100 (75%) patients includ-
ed in the study. In our study the retinal re-detachment
rate after the removal of silicone oil was 25% which is
almost similar to some other published reports on sili-
cone oil removal before emulsification.10,11,12

The cause of this re-detachment following silicone
oil removal was mostly residual traction and redevel-
lopment of proliferative vitreo-retinopathy that had led
to reopening of pre-existing retinal breaks, or formation
of new retinal breaks as a result of surgical manipula-
tions.

The reported incidence of retinal re-detachment
after silicone oil removal is highly variable.11,13 This
variation is most probably due to marked differences in
the number of eyes studied, the duration of follow-up
after silicone oil removal, and the underlying diseases.

Anatomical success after silicone oil removal, de-
\[\text{continued...}\]

by Zafar S et al, the rate of re-detachment after silicone oil removal was 20%.[18] Pavlovic et al commented that eyes with completely attached retinas, the risk of complication and re-detachment after silicone oil removal is relatively low.[19]

This was a retrospective study and the different risk factors for re-detachment after removal of silicone oil were not studied in detail due to lack of data. Further prospective studies with larger sample size and longer follow up needs to be done to identify the risk factors for re-detachment.

CONCLUSION

Re-detachment of the retina can occur after removal of silicone oil in eyes having stable attached retina after successful pars plana vitrectomy with silicone oil tamponade. Detail assessment of the patient is important to identify the eyes at risk of re-detachment.

REFERENCES

Choroidal Melanoma in a Young Patient

Hussain Ahmad Khaqan FCPS, FRCS, FCPS (Vitreo Retina)¹
Farrukh Jameel MBBS² Hadia Jabeen MBBS³
Muhammad MBBS⁴, Usman Imtiaz MBBS⁵

ABSTRACT:
Introduction: Choroidal melanoma is the most common primary malignant intraocular tumor and the second most common type of primary malignant melanoma in the body.
Case Description: A 35-year-old male patient presented to our OPD with complaint of sudden painless decreased vision for 4-5 months in left eye. Visual acuity was 6/6 OD and CF OS. There was a large mass supero-temporally just posterior to and indenting the crystalline lens. Fundus examination revealed large elevated amelanotic lesion superior to superior arcade and exudative retinal detachment inferiorly. Enucleation was done and the specimen was sent for histopathology.
Conclusion: Although the incidence of choroidal melanoma is highest around age of 55 years, it can present at an early age and the index of suspicion should be high.

INTRODUCTION
Choroidal melanoma is the most common primary malignant intraocular tumor in adults and the second most common type of primary malignant melanoma in the body⁶. Primary choroidal melanoma arises from melanocytes within the choroid. Most choroidal melanomas are believed to develop from pre-existing melanocytic nevi, though de novo growth of choroidal melanomas also occurs.

CASE DESCRIPTION
A 35-year-old male patient presented to our OPD with complaint of sudden painless decreased vision for 4-5 months in left eye. Previous medical and surgical history was unremarkable. Patient was not on any kind of medication. There was no family history of any kind of tumor. Visual acuity was 6/6 OD and CF OS. Ocular examination revealed dilated tortuous episcleral vessels, sentinel vessels, (Fig-1) superotemporally. Cornea was clear and AC was quiet. There was a large mass superotemporally just posterior to and indenting the crystalline lens (Fig-2). Fundus examination revealed large elevated amelanotic lesion in the superior half (Fig-3) and exudative retinal detachment inferiorly. B-Scan showed a multilobular mass arising form the choroid with typical acoustic hollowness at the base and choroidal excavation (Fig-4). B-Scan also confirmed the inferior exudative retinal detachment. MRI was done to detect any extraocular extension. T1 weighted MRI scan revealed hyperintense mass arising from choroid and involving the optic disc. There was no extraocular extension (Fig-5). Abdominal ultrasound didn’t detect any metastasis and Chest X-Ray, CBC, LFT’s and RFT’s were normal too. Enucleation was done and the specimen was sent for histopathology.

¹Senior Registrar Ophthalmology, Lahore General Hospital / PGMI, Lahore. ²³⁴Residents in Ophthalmology, Lahore General Hospital / PGMI, Lahore. ⁵Resident Ophthalmology at Alshifa Trust Eye Hospital, Rawalpindi

Correspondence: Dr. Hussain Ahmad Khaqan, Department of Ophthalmology Lahore General Hospital / PGMI, Lahore. E-Mail: drkhaqan@hotmail.com, Postal Address: House No.87, Eden Canal Villas, Canal Bank Road, Thokar Niaz Baig, Lahore. Tel:+92-42-37498314,Cell:+92-300-4270233, Fax:+92-42-7223039

Received: December 2014         Accepted: January 2015
DISCUSSION

Posterior uveal melanoma is an uncommon disease with an incidence of 5–6 cases per 1 million population per year.2 It is usually diagnosed in the sixth decade of life, and its incidence rises steeply with age.2 Uveal melanoma is rare in children.3 In most series, the median age at diagnosis is 55 years.4 In Jensen’s series,4 rates of disease decreased in males after age 69 years. It is the most common primary intraocular malignancy, and the leading primary intraocular disease, which can be fatal in adults.2 Choroidal melanomas may have variable coloration, ranging from darkly pigmented to purely amelanotic. They typically are dome-shaped. As they enlarge, if they break through the Bruch membrane, they can assume a mushroom configuration. Other shapes found for these tumors are bilobular, multilobular, and diffuse. The last of these is characterized by lateral growth throughout the choroid with minimal elevation; it occurs in about 5% of cases.

Treatment of primary choroidal melanoma without evidence of metastasis involves either globe-conserving therapy or enucleation. In a randomized clinical trial of patients with primary choroidal melanoma treated with globe-conserving iodine-125 brachytherapy versus enucleation, the Collaborative Ocular Melanoma Study (COMS) demonstrated no significant difference in mortality, 5, 10, and 12 years following treatment between brachytherapy and enucleation.5,6,7 Metastasis from uveal melanoma usually occurs within the first few years after enucleation. The liver is usually the first site of metastasis after treatment.6 There is some evidence to suggest that metastasis may occur several years before the diagnosis of hepatic metastasis is made.8 Other organs that may be affected include the lung, bone, skin, and central nervous system.10 The majority of patients with hepatic involvement succumb within a few months of detection of the metastatic lesion.11

CONCLUSION

Although the incidence of choroidal melanoma is highest around age of 55 years, it can present at an early age and the index of suspicion should be high.

REFERENCES
Frequency of High Glasgow Blatchford Score & its One Month Mortality in Patients presenting with Non-variceal Upper Gastrointestinal Bleeding

Imran Yahaya1, Waheedullah FCPS (Gastro)2, Jawad MBBS3 Muhammad Daud MBBS4, Muhammad Iltaf (FCPS)5

ABSTRACT
Objective: To determine the frequency of high Glasgow Blatchford scoring system and its one month mortality in patients presenting with non-variceal upper gastrointestinal bleeding. Patients with liver cirrhosis may develop upper gastrointestinal hemorrhage from a variety of lesions, which include those that arise by virtue of portal hypertension, namely gastro-esophageal varices and portal hypertensive gastropathy and other lesions seen in the general population.

Study design: Descriptive case series.

Duration: The duration of study was six months after approval of synopsis.

Settings: Department of Gastroenterology and Hepatology Hayatabad Medical Complex Peshawar.

Material & Methods: This study was conducted at Gastroenterology and Hepatology Department, Hayatabad Medical Complex, Peshawar. Duration of the study was six months in which a total of 140 at margin of error 5%, confidence interval 95% and 10%2 proportion of mortality among patients with high GB score at admission (non-variceal bleeding) using WHO sample size calculations.

Results: In this study 3% patients were in age range 20-30 years, 18% patients were in age range 31-40 years, 34% patients were in age range 41-50 years, 35% patients were in age range 51-60 years, 10% patients were above 60 years. Mean age was 30 years with SD ± 2.21. Fifty five percent patients were male and 45% patients were female. Twenty five percent patients had Glasgow Blatchford score < 12 and 75% patients had Glasgow Blatchford score more than 12. Mean Glasgow Blatchford score was 11 with SD ± 2.88. Among 140 patients mortality rate was 16%.

Conclusion: In conclusion, GBS is a scoring system that allows calculation of the scores using only clinical and laboratory variables, without a need for endoscopy, and thereby, it can be easily used in the risk analysis of patients under emergency conditions. To support the results obtained from this study, future studies that contain more patients, are multi-centered, and that follow the patients after discharge from the ED are warranted.

Keywords: Glasgow Blatchford Scoring System, mortality, non variceal upper gastrointestinal bleed.
Frequency of High Glasgow Blatchford Score & its One Month Mortality in Patients presenting

pathic disease or cardiac failure and accurately identifies patients at low risk for clinical intervention like early endoscopy by using the Blatchford score.\textsuperscript{12,13,14,15} In one study, the frequency of High GBS was found to be 78-84\%\textsuperscript{2,16} and its 28 day mortality was reported to be up to 10\%.\textsuperscript{2,16}

This study was conducted at Gastroenterology Department Hayatabad Medical Complex, Peshawar in which a total of 140 patients were observed to determine the high Glasgow Blatchford scoring system and its one month mortality in patients presenting with non variceal upper gastrointestinal bleeding and the results were analyzed as age distribution among 140 patients, was analyzed as 43\% patients were in age ranging 20-30 years, 25 (18\%) patients were in age ranging 31-40 years, 48 (34\%) patients were in age ranging 41-50 years, 49 (35\%) patients were in age ranging 51-60 years, 14 (10\%) patients were above 60 years. Mean age was 30 years with SD ± 2.21 (as shown in Table No 1) Gender distribution among 140 patients was analyzed as 77(55\%) patients were male and 63(45\%) patients were female. (shown in Table No 2) Status of Glasgow Blatchford score among 140 patients was analyzed as 35(25\%) patients had Glasgow Blatchford score < 12 and 105(75\%) patients had Glasgow Blatchford score more than 12. Mean Glasgow Blatchford score was 11 with SD ± 2.88 (as shown in Table No 3) Status of mortality among 140 patients was analyzed as mortality rate was 22(16\%) while 118(84\%) patients were normal. (as shown in Table No 4)

Stratification of Glasgow Blatchford score with gender distribution was analyzed as in 35 cases of Glasgow Blatchford score <12, 9 patients were in age range 31-40 years, 11 patients were in age ranging 41-50 years, 12 patients were in age ranging 51-60 years and 3 patients were more than 60 years. Where as in 105 cases of Glasgow Blatchford score> 12, 4 patients were in age ranging 20-30 years, 6 patients were in age ranging 31-40 years, 37 patients were in age ranging 41-50 years, 37 patients were in age ranging 51-60 years and 11 patients were more than 60 years. (as shown in Table No 5)

Stratification of Glasgow Blatchford score with gender distribution was analyzed as in 35 cases of Glasgow Blatchford score <12, 20 patients were male and 15 patients were female. Where as in 105 cases of Glasgow Blatchford score> 12, 57 patients were male and 48 patients were female. (as shown in Table No 6) Stratification of mortality with age distribution was analyzed as out of 22 cases of mortality 10 patients died in age range 51-60 years and 12 patients died in age ranging more than 60 years. (as shown in Table No 7) Stratification of mortality with gender distribution was analyzed as out of 22 cases of mortality 13 patients were male and 9 patients were female. (as shown in Table No 8)

RESULTS

This study is carried out to determine frequency of high Glasgow Blatchford scoring system and its one month mortality in patients presenting with non variceal upper gastrointestinal bleeding and the results were analyzed as age distribution among 140 patients, was analyzed as 43\% patients were in age ranging 20-30 years, 25 (18\%) patients were in age ranging 31-40 years, 48 (34\%) patients were in age ranging 41-50 years, 49 (35\%) patients were in age ranging 51-60 years, 14 (10\%) patients were above 60 years. Mean age was 30 years with SD ± 2.21 (as shown in Table No 1) Gender distribution among 140 patients was analyzed as 77(55\%) patients were male and 63(45\%) patients were female. (shown in Table No 2) Status of Glasgow Blatchford score among 140 patients was analyzed as 35(25\%) patients had Glasgow Blatchford score < 12 and 105(75\%) patients had Glasgow Blatchford score more than 12. Mean Glasgow Blatchford score was 11 with SD ± 2.88 (as shown in Table No 3) Status of mortality among 140 patients was analyzed as mortality rate was 22(16\%) while 118(84\%) patients were normal. (as shown in Table No 4)

Stratification of Glasgow Blatchford score with age distribution was analyzed as in 35 cases of Glasgow Blatchford score <12, 9 patients were in age range 31-40 years, 11 patients were in age ranging 41-50 years, 12 patients were in age ranging 51-60 years and 3 patients were more than 60 years. Where as in 105 cases of Glasgow Blatchford score> 12, 4 patients were in age ranging 20-30 years, 6 patients were in age ranging 31-40 years, 37 patients were in age ranging 41-50 years, 37 patients were in age ranging 51-60 years and 11 patients were more than 60 years. (as shown in Table No 5)

Stratification of Glasgow Blatchford score with gender distribution was analyzed as in 35 cases of Glasgow Blatchford score <12, 20 patients were male and 15 patients were female. Where as in 105 cases of Glasgow Blatchford score> 12, 57 patients were male and 48 patients were female. (as shown in Table No 6) Stratification of mortality with age distribution was analyzed as out of 22 cases of mortality 10 patients died in age range 51-60 years and 12 patients died in age ranging more than 60 years. (as shown in Table No 7) Stratification of mortality with gender distribution was analyzed as out of 22 cases of mortality 13 patients were male and 9 patients were female. (as shown in Table No 8)

\textbf{MATERIALS AND METHODS}

\textbf{Settings:} Department of Gastroenterology and Hepatology, Hayatabad Medical Complex, Peshawar.

\textbf{Study duration:} Six months

\textbf{Study Design:} Descriptive case series.

\textbf{Sample Size:} Total sample size was 140 while taking margin of error 5\%, confidence interval 95\% and 10\% proportion of mortality among patients with high GB score at admission (non variceal bleeding) using WHO sample size calculations.

\textbf{Sampling technique:} Consecutive, non probability sampling. The above mentioned conditions act as confounders and if included will introduce bias in the study results.

\textbf{SAMPLE SELECTION}

\textbf{Inclusion criteria:}

- Age more than 15 years.
- Upper gastrointestinal bleeding on initial assessment.
- Either gender.

\textbf{Exclusion criteria:}

- Acute myocardial infarction, trauma, stroke and other conditions in association with upper gastrointestinal bleed.
- Variceal bleeding on endoscopy.
- Cause not identified on endoscopy.
- Developed bleeding during hospital stay for some other diagnosis.
### Table No-1: age distribution (n=140)

<table>
<thead>
<tr>
<th>Age distribution</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30 years</td>
<td>4</td>
<td>3%</td>
</tr>
<tr>
<td>31-40 year</td>
<td>25</td>
<td>18%</td>
</tr>
<tr>
<td>41-50 years</td>
<td>48</td>
<td>34%</td>
</tr>
<tr>
<td>51-60 years</td>
<td>49</td>
<td>35%</td>
</tr>
<tr>
<td>&gt; 60 years</td>
<td>14</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>140</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Mean age was 30 years with SD ± 2.21

### Table No-2: gender distribution (n=140)

<table>
<thead>
<tr>
<th>Gender distribution</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>77</td>
<td>55%</td>
</tr>
<tr>
<td>Female</td>
<td>63</td>
<td>45%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>140</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

### Table No-3: Glasgow Blatchford scoring findings (n=140)

<table>
<thead>
<tr>
<th>Glasgow Blatchford score</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 12</td>
<td>35</td>
<td>25%</td>
</tr>
<tr>
<td>&gt; 12</td>
<td>105</td>
<td>75%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>140</td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Mean Glasgow Blatchford Score was 11 with SD ± 2.88

### Table No-4: mortality (n=140)

<table>
<thead>
<tr>
<th>Mortality</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>22</td>
<td>16%</td>
</tr>
<tr>
<td>No</td>
<td>118</td>
<td>84%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>140</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

### Table No-5: stratification of accuracy high Glasgow Blatchford score in age distribution (n=140)

<table>
<thead>
<tr>
<th>Accuracy</th>
<th>20-30 years</th>
<th>31-40 years</th>
<th>41-50 years</th>
<th>51-60 years</th>
<th>&gt; 60 years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 12</td>
<td>9</td>
<td>11</td>
<td>12</td>
<td>3</td>
<td>3</td>
<td>35</td>
</tr>
<tr>
<td>&gt; 12</td>
<td>4</td>
<td>6</td>
<td>37</td>
<td>37</td>
<td>14</td>
<td>105</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4</strong></td>
<td><strong>25</strong></td>
<td><strong>48</strong></td>
<td><strong>49</strong></td>
<td><strong>14</strong></td>
<td><strong>140</strong></td>
</tr>
</tbody>
</table>

### Table No-6: stratification of accuracy high Glasgow Blatchford score in gender distribution (n=140)

<table>
<thead>
<tr>
<th>Accuracy</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 12</td>
<td>20</td>
<td>15</td>
<td>35</td>
</tr>
<tr>
<td>&gt; 12</td>
<td>57</td>
<td>48</td>
<td>105</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>77</strong></td>
<td><strong>63</strong></td>
<td><strong>140</strong></td>
</tr>
</tbody>
</table>

### Table No-7: stratification of mortality in age distribution (n=140)

<table>
<thead>
<tr>
<th>Mortality</th>
<th>20-30 years</th>
<th>31-40 years</th>
<th>41-50 years</th>
<th>51-60 years</th>
<th>&gt; 60 years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>10</td>
<td>12</td>
<td>2</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>25</td>
<td>48</td>
<td>39</td>
<td>2</td>
<td>118</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4</strong></td>
<td><strong>25</strong></td>
<td><strong>48</strong></td>
<td><strong>49</strong></td>
<td><strong>14</strong></td>
<td><strong>140</strong></td>
</tr>
</tbody>
</table>

### DISCUSSION

Upper gastrointestinal bleeding is one of the life threatening complications in patients with liver cirrhosis. It is responsible for over 250,000–300,000 hospital admissions and $2.5 billion in costs in the USA each year. Upper gastrointestinal bleeding is from a source between the pharynx and the ligament of Treitz, characterized by hematemesis (vomiting up blood) and melena (tarry stool containing altered blood). Gastrointestinal endoscopy remains the diagnostic and therapeutic procedure of choice for UGI bleeding. The epidemiology of various causes of upper G.I. bleeding has been changing in recent years. Variations in disease pattern from time to time require the need for periodic studies to define the changing etiological distribution for continuous medical education and learning. Risk scoring systems are not used commonly in daily practice in the ED for the patients with UGI system bleeding, and the patients are evaluated mostly based on the clinical decision of the emergency physician. However, in patients with UGI system bleeding, more objective criteria are warranted for deciding discharge/hospitalization of the patient, the use of blood transfusion and the necessity of emergent endoscopy. In this regard, as GBS scores may be calculated easily based only on clinical and laboratory variables, this system seems to be suitable for use in the ED.

In the retrospective study performed by Chen et al. in patients with non-variceal UGI system bleeding, GBS and Rockall scoring systems were compared, and the sensitivity of the GBS system in the differentiation of high-risk patients for a cut-off value of GBS >0 was found to be higher (99.6%). Similarly, in our prospective study, which included the patients with non-variceal bleeding, the sensitivity of the GBS system was found to be high (100%) in the differentiation of high-risk patients for a cut-off value of GBS >12. In our study, the number of the subjects with UGI system bleeding with a GBS score ≤12 was 25% and, in this group of patients, none of the subjects that underwent endoscopy showed a serious pathology or required an intervention during the endoscopy. Thus, in our study, it was demonstrated that the patients with UGI system bleeding, who had a GBS score ≤12, did not require clinical and endoscopic intervention and could be safely discharged from the...
ED. While the retrospective study performed by Sriraj Askanthan et al.22 revealed a cut-off value of GBS ≤12 in the differentiation of low-risk patients among the patients with UGI system bleeding, other studies23,24 used GBS=0 in the differentiation of the low-risk patients.

An ideal scoring system should have both a good sensitivity and high specificity. However, in the studies conducted, the sensitivity and specificity of the GBS system vary among high-risk patients with UGI system bleeding.25,26 In our study, the sensitivity and specificity were 100% and 1.41% for a cut-off value of GBS >12, 100% and 16.9% for a cut-off value of GBS >3, 96.63% and 36.62% for a cut-off value of GBS >5, and 86.52% and 69.01% for a cut-off value of GBS >8. In the study performed by Chen et al.27 positive predictive value (PPV) and negative predictive value (NPV) for GBS >0 were 75.2% and 96.4%, respectively. In the study conducted by Farooq et al.28 PPV and NPV were 37% and 100%, respectively for GBS >0 and 42% and 82% for GBS >5. In our study, PPV and NPV were 56% and 100% for GBS >0 and 65.6% and 89.7% for GBS >5, respectively. In our study the mortality rate was 16% and the those patients were more than 50 year of age similar results were found in other studies in which the mortality rate was 11% and 13%.29,30

In the study performed by Hsu et al.29 in cirrhotic patients with UGI system bleeding, six prognostic factors were determined: male gender, hepatocellular carcinoma, non-hepatocellular carcinoma, hypoxemia, serum bilirubin level, and PT. The investigators reported that these six clinical parameters might be easily obtained in the ED and be valuable in the early risk determination in cirrhotic patients with acute UGI system bleeding. For the model used in the aforementioned study, the sensitivity was 22.73% and the specificity was 99.8%. In our study, which did not enroll only cirrhotic patients with UGI system bleeding, but instead all patients with UGI system bleeding and in whom the GBS system was used, the sensitivity and the specificity were 86.52% and 69.0%, respectively, for GBS>8, and thereby, GBS seemed more sensitive.31

Although in the literature, there has been no consensus on the best scoring system in various studies performed using the Rockall scoring system and/or the GBS system,31 the GBS system seems to be more useful, especially in patients with non-variceal UGI system bleeding. In our study, which included all the patients with non-variceal UGI system bleeding, we used the GBS system, and found it useful in the differentiation of high-risk patients. The limitations of this study include the single centered design, small number of patients, the fact that all the patients did not undergo an endoscopy, and the enrollment of the patients to the follow-up based only on their conclusions in the ED.

In light of the data obtained from this study, we can state that the patients with UGI system bleeding who have a GBS score ≤3 may be safely discharged from the ED and referred to the polyclinic to undergo an endoscopy.

**CONCLUSION**

In conclusion, GBS is a scoring system that allows calculation of the scores using only clinical and laboratory variables, without a need for endoscopy, and thereby, it can be easily used in the risk analysis of patients under emergency conditions. To support the results obtained from this study, future studies that contain more patients, are multi-centered, and that follow the patients after discharge from the ED are warranted.

**REFERENCES**

Meatal Mobilization Technique for Childhood Hypospadias Repair, an Early Experience at Lady Reading Hospital, Peshawar

Muhammad Ayub Khan, FCPS (Paeds Surgery)¹
Muhammad Uzair FCPS (Paeds Surgery)², Munir Ahmad FCPS³
Younas Khan FCPS (Paeds Surgery)⁴, Arshad Kamal FCPS (Paeds Surgery)⁵
Muhammad Fayaz MBBS⁶, Mussarat Hussain FCPS⁷, Asif Ahmad MBBS⁸

ABSTRACT
Objective: To determine the effectiveness of meatal mobilization (MEMO) by distal urethral preparation as an improved surgical technique for distal hypospadias repair, including glanular, coronal and subcoronal location of the meatus, with or without chordee in children.

Material and Methods: A total number of 60 patients with distal penile hypospadias with or without chordee were operated by using MEMO hypospadias repair technique from April 2013 to April 2014. After penile degloving, mobility of the meatus is evaluated and after urethral preparation the meatus is fixed to the tip of the glans. Glanuloplasty covers the neo-urethra providing a barrier layer. Shaft skin reconstruction completes the procedure Patients were evaluated regarding operative time, peri- or postoperative complications, hospital stay as well as functional and cosmetic outcomes.

Results: Mean duration of surgery was 43 minutes. There was no repair breakdown, new-onset chordee, or meatal stenosis. Primary success rate was 95%. Three patients developed urethral fistula which responded well with short regimen of weekly meatal dilatation for 4 weeks. preputial edema occurred in 3 in non-circumcised patients. In one patient a mild ventral penile deviation without a need for correction was noted leaving a success rate of 96%.

Conclusion: The MEMO-technique is a valid and reliable method for the correction of distal hypospadias. This method is technically simple, less time consuming giving the best cosmetic results with least complications.

Key Words: Hypospadias, Meatal Mobilization, Urethral Reconstruction.

INTRODUCTION
Distal Hypospadias accounts for 50-60% of all forms of hypospadias, with an increasing incidence being present in 1 out of 125 male newborns. Of those, 15% are glanular, 50% coronal, 30% subcoronal, and 5% are of the megameatus intact prepuce (MIP) variant.¹ The goal of modern hypospadias repair is to achieve functionally as well as cosmetically normal looking glans, meatus and phallus.² Generally, the surgical technique of choice is decided upon meatal location, the appearance of the meatus relative to the glans, the presence or absence of chordee, and the quality of the preputial hood. The meatal mobilization (MEMO) technique was developed to correct coronal and subcoronal hypospadias. According to the technique of the meatus mobilization, this operation method referred to as MEMO, based on the work by Beck 1898.³ This approach combines meatal mobilization by distal urethral dissection with steps of previously established techniques, e.g. a rotational flap for fashioning the Firlit preputial collar and straightforward glanuloplasty.⁴⁻⁵ The aim of this study was to determine the short-term results of memo hypospadias repair for distal penile hypospadias in children.

Objective: To determine the effectiveness of meatal mobilization (MEMO) by distal urethral preparation as an improved surgical technique for distal hypospadias repair, including glanular, coronal and subcoronal location of the meatus, with or without chordee in children.

MATERIALS AND METHODS
This descriptive study was conducted in the pediatric surgery unit, Lady Reading Hospital, Peshawar over a period of eight months from June 2009 to February 2010. Non-probability sampling techniques were used. Children between 2 and 14 years, with distal penile hypospadias with or without chordee were included and those who had proximal hypospadias i.e. midshaft penoscrotal and perineal hypospadias were excluded from the study. All those patients fulfilling inclusion criteria of this study whose parents gave informed consent after explanation of the whole protocol, benefits versus risks of surgery were admitted through the outpatient department of the hospital. Each patient was thoroughly re-examined by taking...
Meatal Mobilization Technique for Childhood Hypospadias Repair, an Early Experience at Lady Reading Hospital, Peshawar


History, complete clinical examination routine investigation i.e., Haemoglobin, urine R/E, HBs Ag, anti HCV antibodies and other relevant investigation if necessary were also done. All patients were operated under general anesthesia. A tourniquet was applied to maintain a bloodless field and a 3/0 prolene stay suture taken into glans for traction and later to secure the urethral stent. An intra-urethral stent is inserted and skin incision is performed in a circumcision fashion. The initial dissection of the penile skin is started dorsally along Buck’s fascia until the base of the penis is reached. The key step of the procedure is assessment of distal urethral mobility after penile skin dissection. Only with an appropriately mobile urethra, the MEMO technique can be performed. The meatus is incised circumferentially starting laterally on both sides of the meatus. The corporal bodies represent the dorsal plane of mobilization. Along this plane dissection is easy and is performed 1 to 1.5 cm proximally (Fig. 1-4). The length of mobilization depends upon the mobility of the urethra, but dissection should not be done too far proximally avoiding curvature and fistula formation. Following mobilization the meatus is easily brought up to the tip of the glans. Incision of the glans up to the tip is followed by excision of excess mucosa on both sides. Dissection of glanular wings allows tension free rotation of glanular tissue to cover the underlying urethra. Using 6-0 vicryl interrupted sutures adaptation of glanular und urethral epithelium is performed. Glanuloplasty is accomplished with two or three 6-0 vicryl sutures. It brings spongy tissue ventrally covering the urethra while a conic glans is constructed. Circumcision was performed. Sterile dressing was performed around the penis and remains in place overnight. Patients were followed for three months, with their first visit commencing at the 7th day postoperatively for the removal of the stent in outpatients department. The next visits were scheduled on 1st and 3rd months in the outpatient department. All patients were followed for any complication and documented in a predesigned proforma for each patient. All data was analyzed by using SPSS version 16. Age of patient and the time taken for operative procedure was analyzed for mean and standard deviation any complication were expressed in frequencies and percentages data.

RESULTS
A total of 60 patients with distal penile hypospadias were analyzed for age, operative time and postoperative complications. All these patients were in the age range from 2 to 10 years. Mean age was calculated 3.9 years ± SD 1.86. Mean operative time was 47 minutes (33-56 minutes). Mean duration of hospitalization was 1.5 days (1 to 3 days). There were no complications during surgery in any of the patients. The overall rate of urethra-cutaneous fistula was 5% (3 in 60 patients) two of these patients were treated successfully with weakly meatal dilation under topical xylocaine anesthesia for four weeks remaining one patient underwent for successful surgical correction of fistula repair after 6 months. three patients had a minor complication of preputial edema in which circumcision was not performed all of these patients were treated conservatively by dressing, two patients had local hematoma, which was treated conservatively by compressive dressing; one of the patient noted a split urinary stream which was improved by topical application of petroleum jelly. Cosmetic appearance of the glans, meatus and phallus were acceptable.

DISCUSSION
The MEMO technique, based on a procedure first described by Beck, allows for correction of most coronal and subcoronal hypospadias without tubularizing the urethra or applying a some flap procedure. Utilization of this procedure was not consistently successful because of the high incidence of postoperative chordee due to inadequate mobilization of the urethra. Numerous ingenious methods for urethral advancement were reported by many authors. The ventral aspect of the urethra should not be too flimsy and the urethra should be mobile enough for this procedure. This maneuver additionally creates a cosmically appealing conical shape of the glans.
The fact that more than 300 different operations are described in the literature reflects the wide spectrum of the anomaly, and proves that the treatment has not been perfected. In the presented study, 60 boys underwent surgery using the MEMO technique. No urethral stricture noted in all operated patients, three patients developed urethrocutaneous fistula, two of these patients responded well with weakly meatal dilation under topical anesthesia and hence not requiring any major surgical correction, the remaining one patient was subjected to successful operative repair of fistula after failure of conservative management after 6 months of initial repair.

Overall rate of urethra-cutaneous fistula post MEMO repair was 5% in our series compared to Seibold et al who reported a fistula rate of 1%. This high rate of urethra-cutaneous fistula post MEMO repair in our series compared to Western studies might be the early learning curve of authors as a thorough literature search was made to compare our results with the local studies. No satisfactory local studies were available to compare our results with local results.

CONCLUSION
Over 80 percent of boys with this condition have distal hypospadias, and the successful repair of distal hypospadias can be easily achieved by meatal mobilization technique which is a single stage procedure having low complication rate, good cosmetic results and is technically simple to learn.

REFERENCES

Ophthalmological Society of Pakistan, KPK Branch
is holding the next Ophthalmic Symposium at
Nathiagali, KPK
From 7-9 August 2015

Please contact:
Dr. Mir Ali Shah, Associate Professor
Department of Ophthalmology, Lady Reading Hospital, Peshawar.
Cell : 03005948091, Email: drmashahpsh@gmail.com
Recently, the death of Prof. M. Naseem Ullah and Prof. M. Afzal Farooqi, both Principals of Rawalpindi Medical College, was widely mourned in the twin city of Islamabad and Rawalpindi, especially by the medical community at the large. They were the teachers of teachers and great mentors in their respective fields. Hundreds of students, doctors, professors and representatives of Governmental and pharmaceutical institutions attended the funeral. They earned fame through their professional skill and commitment.

Prof. M. Naseem Ullah served as Professor of Medicine, he had a special interest in academic and research work. After retirement he joined Islamabad Medical & Dental college as Prof. of Medicine & Dean of the faculty. His contributions to the profession will be ever remembered.

Prof. M. Afzal Farooqi served as Professor of Urology. He is well known in the medical fraternity as the best surgeon in the twin cities. With his death the college is deprived of his guidance and support. He was bestowed with a high sense of honor and integrity for the collective goal of our institution.

The editorial board and the management of Ophthalmology Update, bring on record the services of these professors who were responsible for the development and progress of the college in its formative years. We announce the untimely demise of our highly revered professors, impeccable teachers and charismatic personalities with profound grief and sorrow. Both the professors were embodiment of simplicity and role model of medical education. May All bless their souls in peace and paradise..........Amin!

Chief Editor
Murree:  
The Queen of Mountains - A Shining Pearl of Pakistan  
(Malika-e-Kohsaar)

It is not only a hill station but also a tourist paradise. It is a true example of natural beauty. The mind and soul refreshes when you see the green beauty covered with clouds all around you. The lush green lawns, the beautiful rain drops, the colorful flowers, the scenic beauty and happy faces will surely give you strength.

The Murree Hills, 55 kilometers from Islamabad, at an altitude of 2286 m is the most popular resort in Pakistan. With a perfect Himalayan atmosphere and equipped with all modern facilities like good communication network, resort hotels, golf course and chairlift/cable cars. Murree and Gallies are a wonderful retreat from the hot weather of the plains in summer.

Speculations abound on how Murree got its name, some scholars (according to Virgil Miedema, published in his book: ‘Murree - A glimpse through the Forest’ published by Maple-Books, New Delhi in 2002, and the excerpts carried on by Mr. Ansar Saleem in an English Daily ‘DAWN’ in 2014 from pages 13-18 highlighted on the topic “Pages from the History”) say that the name is a corruption of the word Mary or Mariam who died at the age of 70 and buried in a tomb at Pindi Point. According to Mr. Abdul Latif, Chief officer of the Municipal Committee, Murree skeptically said at the time of centenary celebrations of Murree in 1967 that Mary roamed thousand years ago in the thick forests of Murree en route to Kashmir. In fact there is an evidence in the records of Municipal committee of a dispute over the alleged tomb. In 1858 the British built a watch tower near the monument and in 1917 Captain Richardson passed an order to demolish the tomb in order to keep the pilgrims away. There were protests and the demolition was stopped. In 1950 the tomb was rebuilt but the watch tower was removed. Today, there is television transmitter looming over the tomb.

More prosaic explanations for the names abound as well. Murree is a Turkish word meaning “pasture”. It may come from the Urdu or Arabic, meaning an abode or a place, like in Shalimar, a place of happiness, it may come from the English word “Merry” from an English Officer Mr. Murray, or from “Murreey” after the purple or mulberry-colored mountains. In Hindi and the local dialect Marhi means a high place, this Marhi being the original grazing ground for the villages of Museearee raised in 1826, Mohra Sharif, Dewal Sharif and Aliot.

Lying on the outskirts of the Himalaya, the Murree Ridge was officially identified as a potential site for development of a hill station by Edward Thornton, the Commissioner of Jhelum Division. A detailed survey of the Ridge, its climate, temperature, rainfall, flora and fauna, tribes and their customs, water resources, etc. were carefully and quickly undertaken. Located at 33° 54’ 30” north latitude and 73° 26’ 30” east longitude. it was soon confirmed that it was indeed a most suitable place for a sanatorium. In 1850, the Murree Tahsil was transferred from Hazara District to Rawalpindi District, thereby facilitating its development as a military cantonment. The scenery upon the wooded side of the Murree ridge is not surpassed in any of the Punjab hill stations and the climate of Murree is said to be well adapted to the British climate.
In March of 1849, the British decided to establish Murree as a sanatorium. In 1851, Murree was selected as the summer headquarters of Punjab. The Mall was established in 1850, is the centre of shopping area, where most people congregate. Good buys in Murree are Kashmiri shawls, furs, walking sticks, fruits and nuts. Murree’s pistachio nuts are reputed to be the best in Pakistan.

The Imperial summer capital was popularized by Rudyard Kipling- a noble laureate from Lahore and Chief Editor of an English daily “Civil & Military Gazette an English Daily” being published from Lahore. Dane Kennedy commented: ‘Located on peaks that loom like sentinels over heat-shimmering plains. Murree remains among the most curious monuments to the British colonial presence in the area. The Saumly Sanatorium was primarily established for the European invalids, but hill stations soon assumed an importance that far exceeded the therapeutic attraction. To these cloud-enshrouded sanctuaries the British expatriate elite but also to familiarize with the alien culture with the locals living in areas like Aliot, a village 2 kilometer down the Bhurban. Here they established political headquarters and military cantonments and centers where from they issued executive orders.

In 1845 Murree was brought under the control of East India Company rule and after the Treaty of Lahore (March 9, 1846), the first resident in the Punjab was Henry Lawrence, later founder of the famous Lawrence schools in Ghora Gali (Murree), Abbotabad & Lawrence gardens in Lahore came to Murree. The “Rules for the Administration of Murree Town” were framed in 1851, which allowed for a Murree Sanatorium Committee to be established at Saumly. A total reduction in land revenue of Rs.114.40 and cash compensation of Rs.1,935 was proposed for Ilyot and Mooseearee areas and adjoining areas. This was approved by the Chief Commissioner of the Punjab. A special grant was proposed in the form of a cash lease payment of Rs.50 per annum in perpetuity. Upon the conclusion of protracted negotiations with the villagers, the proposal went to Calcutta for final approval. Finally, this annual payment was approved by the Governor-General, Lord Dalhousie, by an order dated November 23, 1855. The story goes that the original bargain with the people of that area was actually for Rs.60 per annum as lease payment, instead of Rs.50. Since the Maim Sahiba (Lord Dalhousie’s wife) being a British national, was poorly attired according to the Muslim customs of the area, the villagers offered Rs. 10/- for the purchase of Shalwar, Kameez and a shawl for the Maim Sahiba to dress her properly.

By 1850, more than 50 bungalows had been constructed towards Kashmir Point, Pindi Point and along Kuldannah Road. In 1851, troops were first quartered in Murree, and permanent barracks were erected in 1853. Holy Trinity Church on the Mall (Jinnah Road) was opened on May 17, 1857, and the first Sunday Mass service was served.

REFERENCES:
1. Mr. Salim Ansar ‘Pages from the history’, The News, Lahore.
2. Mr. Arshad Mahmood Abbasi, former: Nazim of Union Council, Murree.,
3. Murree — A Glimpse Through the Forest by Virgil Miedema

مصنف زیتون اسم کیہرن سفر میر کیہرن
خواجه نجم سین محقق دهمیندکار
اول
Instructions to the Authors

All materials submitted for publication should be sent to the journal ‘Ophthalmology Update’. Articles/research papers which have already been published or accepted elsewhere for publication should not be submitted. A paper that has been presented at a scientific meeting, if not published in full in proceeding or similar publication may be submitted. Press reports of meetings will not be considered as breach of this rule.

Ethical Aspects: If articles, tables, illustrations or photographs, which have already been published, are included, a letter of permission for republication (or its excerpts) should be obtained from the author(s) as well as the editor of the journal where it was previously published.

Material for Publication: The material submitted for publication may be in the form of original research, a review article, short communications, a case report, recent advances, new techniques, review on clinical/medical/ophthalmic education, a letter to the editor, medical quiz, Ophthalmic highlights/update, news and views related to the field of medical sciences. Editorials are written by invitation. Report on Ophthalmic obituaries should be concise. Author should keep one copy of the manuscript for reference, and send three copies (laser or inkjet) to the Managing Editor, Ophthalmology Update through E-mail/CD or by post in MS word. Photocopies are not accepted. Any illustrations or photographs should also be sent in duplicate. Authors from outside Pakistan can also e-mail their manuscript. It should include a title page, E-mail address, fax and phone numbers of the corresponding author. There should be no more than 40 references in an original/review article. If prepared on computer, a CD should be sent with the manuscript.

Dissertation/Thesis Based Article: An article based on dissertation submitted as part of the requirement for a Fellowship can be sent for publication after it has been approved by the relevant institution. Dissertation based article should be re-written in accordance with the instructions to authors.

References: References should be numbered in the order in which they are called in the text. At the end of the article, the full list of references should give the names and initials of all authors in Vancouver style based on the format used by the NLM in Index Medicus. It verify the references against the original documents before submitting the article.

Peer Review: Every paper will be read by at least two staff editors of the editorial board. The paper selected will then be sent to one or more external viewers.

Abstract: Abstract of original article should be in structured format with the following sub-headings: Objective, Design, Place and duration of Study, Patients & Methods, Result and Conclusion.

Introduction: This should include the purpose of the article. The rationale for the study or observation should be summarized.

Methods: Study design and sampling methods should be mentioned. The selection of the observational or experimental subjects (patients or experimental animals, including controls) should be described clearly. The methods and the apparatus used should be identified and procedures described in sufficient details to allow other workers to reproduce the results and references to established methods. All drugs and chemicals used should be identified precisely, including generic names, doses, routes of administration.

Results: These should be presented in a logical sequence in the text, tables and illustrations. Only important observations should be emphasized or summarized.

Discussion: The author’s comments on the result, supported with contemporary references, including arguments and analysis of identical work done by others. Brief acknowledgement may be made at the end.

Conclusion: Conclusion should be provided under separate heading and highlighting new aspects arising from the study. It should be in accordance with the study.

Copyright: Material printed in this journal is the copyright of the publisher of Ophthalmic Newsnet/Ophthalmology Update and may not be reproduced without the permission of the editor/publisher. The publisher only accepts the original material for publication with the understanding that except for abstracts, no part of the data has yet been published or will be submitted for publication elsewhere before appearing in the journal. The Editorial Board makes every effort to ensure the accuracy and authenticity of the material printed in the journal. However, conclusions and statements expressed are the views of the authors and do not necessarily reflect the opinions of the Editorial Board. Publishing of advertising material does not imply an endorsement by the Ophthalmic Newsnet/Ophthalmology Update.

Address for Correspondence: The Chief Editor, Ophthalmology Update, 267-A, St: 53, F-10/4, Islamabad, Pakistan. E-mail: ophthalmologyupdate@gmail.com