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It is a very common condition and every one gets a red eye at some stage of his life. Though it appears to be a temporary condition, but sometime, if not treated in time it could be harbinger of some serious ailment like Uveitis and Glaucoma, extremely important for the patient to consult an Ophthalmologist for proper treatment.

Red eye is typically due to irritation from allergy, smoke, tired eyes due to long journey, lack of sleep and dry eyes normally in older age group, menopausal women and in younger age group specially the students from overuse of computers or contact lenses. Another, most common cause is due to atmospheric pollution, congested living in big cities and chemical fumes in industrial areas but least seen with infective causes like bacterial or viral.

Normally, the condition of red eye is never taken seriously as people mostly depend on self-medication like using rose water, repeatedly washing with cold water. Since times immemorial, when present medications were not available, rose water was the only home remedy. If the condition still persists for few days the patient usually consults a pharmacist at the chemist shop or a quack in the vicinity. They straight away prescribe antibiotics eye drops or steroid eye drops, as a miracle treatment, which is absolutely unethical and be discouraged. When the patient gets relief, he saves these drops as panacea for all other eye ailments and uses them frequently for his own family members, relations and friends around.

In case of constant redness, he consults his family doctor (not an ophthalmologist) for his persistent redness, who prescribes decongestant eye drops. Now these drops relieves the redness temporarily, when the effect wears off, the eyes worsen due to “rebound phenomenon of redness”. It is well documented that decongestant eye drops used for a longer period may induce narrow angle Glaucoma. Moreover, it is contra-indicated for Hypertensive cases as it raises the BP. Secondly, anti inflammatory steroid eye drops are also prescribed which has its own complications on prolonged usage, can induce Glaucoma in genetically predetermined cases and Uveitis. It should never be used unless both medications (decongestants as well as steroids) are prescribed by an Ophthalmologist, only in resistant cases that too for a shorter period and not more than 72 hours. Both the eye drops can cause serious visual threatening.

The question arises what should be used to relieve the congestion in the red eye? The answer is simple, wash the eyes with cold water repeatedly, use preservative free lubricating eye drops or artificial tear eye drops which certainly relieves the symptoms.

It has been observed that the patient hardly consult a doctor as they think it is a minor ailment and does not require any medical advice. They usually consult some elderly person in the family who advises the rose water. Now, there is no scientific evidence in support of using this home remedy. If at all one uses rose water he should ensure that the drops have been sterilized properly. However, an ophthalmologist must be consulted:

- If your eyes suddenly become red or blood shot.
- Your eyes are constantly red and severely watering.
- You have blurry and painful eyes.
- You have an injury to the eye.
- You have sticky discharge from the eyes.
- If you have blurry vision for the distance or reading, the redness will be relieved after using the distance or reading glasses.

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ABSTRACT

Purpose: To assess the outcome and complications after modified Jones procedure for primary lower lid senile entropion.

Methods: Interventional case series of 57 eyes of 51 patients selected on non-probability purposive basis from Ophthalmology department, Bakhtawar Amin Medical and Dental College/Hospital, Multan from January, 2016 to December, 2017. Permission was taken from ethical review committee. All the patients reporting to Ophthalmology department, Bakhtawar Amin Medical and Dental College/Hospital diagnosed as having lower lid senile entropion were included. Patients having associated medial or lateral canthus laxity, history of previous entropion surgery or patients unfit for surgery having any uncontrolled medical condition were excluded. All patients underwent modified Jones procedure and followed up for 6 months.

Results: 57 eyes of 51 patients were included in this study. All patients underwent Jones procedure under local anesthesia. Age of the patients range from 53 years to 78 years (mean of 66.78 years). 31 (60.78%) patients were female while 20 (39.21%) were male. 06 (11.76%) patients had bilateral disease while 45 (88.23%) had unilateral disease. 52 (91.22%) eyes were totally corrected (Table 1), 02 (3.5%) eyes were overcorrected, 03 (5.26%) eyes had recurrence which needed repeat surgery. As far as complications are concerned 15 (26.31%) eyes had bruising, 02 (3.50%) eyes developed hematoma. 01 (1.75%) eye had wound infection, 02 (3.50%) eyes had overcorrection and 02 (3.5%) eyes had wound dehiscence.

Conclusion: Modified Jones procedure is an effective option for correction of primary lower lid senile entropion. It has a good outcome, low recurrence rate with fewer complications.

Key words: Entropion, Jones procedure

INTRODUCTION

Senile entropion of the lower eyelid is a common involutional lid malposition. Due to inward rotation of the lid margins the lashes cause continuous irritation of the conjunctiva and may result in corneal insult which may range from punctate epitheliopathy to corneal ulceration1. Various factors contribute in pathophysiology of lower lid senile entropion. These include overriding of pre-septal orbicularis over pre-tarsal, lower lid retractors weakness, horizontal lid laxity and enophthalmos2.

The definitive treatment of entropion is surgical. Various surgical techniques have been devised to cater different pathophysiological mechanisms causing entropion. These include lid evverting sutures, Weiss procedure, Jones and Quickert etc. Entropion due to overriding of part of orbicularis is treated primarily with Weiss procure, however recurrent cases and those with lower lid retractor weakness are treated with Jones procedure. In this study we have shown that any type of primary involutional entropion without significant canthal laxity can be treated with modified Jones procedure successfully with fewer recurrences and complications.

Modified Jones procedure is an effective option for correction of primary lower lid senile entropion. It has a good outcome, low recurrence rate with fewer complications.

In this study we have tried a slightly modified approach by adding a step from Hotz procedure by fixing the skin and orbicularis to the tarsal plate thus reducing recurrences through making a barrier between pre tarsal and pre sepal Orbicularis. Additionally the
wound was closed in a single layer fashion taking bites from all the layers simultaneously, from lower wound edge passing through inferior portion of the lower lid retractors, taking a bite again through the superior part of retractors and exiting through the superior wound margin with adhering it to superior.

MATERIAL AND METHODS

Patients were selected on non-probability purposive basis from Ophthalmology department, Bakhtawar Amin Medical and Dental College Hospital, Multan from January 16 to December 17 (02 years). Permission was taken from ethical review committee. All the patients reporting to Ophthalmology department, Bakhtawar Amin Medical and Dental College Hospital diagnosed as having primary lower lid senile entropion were included. Patients having other causes of entropion such as enophthalmos, lid and canthal laxity or previous entropion correction were excluded. Patients were followed up for 6 months.

Preoperative and postoperative photographs of the patients were taken on every visit. Complete ocular examination was done with special attention to demarcate the pathology causing entropion. Overriding was confirmed by applying gentle pressure on the lid margin which alleviated overriding and corrected the entropion. Lower lid retractor weakness was delineated by demonstrating lower lid lag on downgaze and noted accordingly. Any concomitant corneal or conjunctival damage was noted and addressed accordingly.

Routine preoperative investigations including viral markers were done for all patients. Modified Jones procedure was performed in all cases. The incision line was marked 4 mm inferior to the lid margin. Local infiltration with 2 ml of Lignocaine with adrenaline 1:1000 was injected over infraorbital foramina as infraorbital block.

After proper sterile draping a horizontal incision was made parallel to lid margin to incise skin and orbicularis. Traction sutures with 4/0 silk were applied at the superior and inferior wound margins. The junction of lower tarsal plate and lower lid retractors is identified. Blunt dissection was carried out in the horizontal plain of the lower lid retractors up to the inferior orbital rim. The excessive skin from the lower wound margin was excised elliptically to ensure lower lid blepharoplasty. This steps adds a lot in success of the procedure. Three 6/0 polygalactin sutures were passed parallel to each other, starting portion of lower tarsal plate. This step is a small modification to add the benefits of Hotz procedure to avoid recurrences. The sutures were tied ensuring slight overcorrection. Readjustment were done with larger and deeper bites, if there was inadequate correction. Additional skin to skin sutures were placed to close wound gaps between the main sutures. Antibiotic ointment was applied over wound and eye pads were applied for 24 hours.

On 1st day follow up bandage was removed and antibiotic ointment was prescribed for thrice daily application. The skin sutures were removed on 1st week follow up. The deep sutures were removed on 2nd week follow up. Subsequent follow ups were done at 3 month and 6 month post operatively. Photographs were taken on each follow up and any complication or recurrence was noted and managed accordingly.

RESULTS

57 eyes of 51 patients were included in this study. All patients underwent modified Jones procedure under local anesthesia. Age of the patients range from 53 years to 78 years (mean of 66.78 years). 31(60.78%) patients were female while 20(39.21%) were male. 06 (11.76%) patients had bilateral disease while 45(88.23%) had unilateral disease. 52(91.22%) eyes were totally corrected (Table 1), 02 (3.5%) eyes were overcorrected, 03 (5.26%) eyes had recurrence which needed repeat surgery.

As far as complications are concerned (table 2) 15 (26.31%) eyes had bruising, 02(3.50%) eyes developed hematoma. 01 (1.75%) eye had wound infection, 02(3.50%) eyes had overcorrection and 02(3.5%) eyes had wound dehiscence.

Table 1: Surgical Outcome

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Outcome</th>
<th>No. of Eyes</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Good</td>
<td>52</td>
<td>91.22</td>
</tr>
<tr>
<td>2</td>
<td>Recurrence</td>
<td>03</td>
<td>5.26</td>
</tr>
<tr>
<td>3</td>
<td>Overcorrected</td>
<td>02</td>
<td>3.50</td>
</tr>
</tbody>
</table>

Table 2: Post-operative complications

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Complication</th>
<th>No. of patients</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bruising</td>
<td>15</td>
<td>26.31</td>
</tr>
<tr>
<td>2</td>
<td>Hematoma</td>
<td>02</td>
<td>3.50</td>
</tr>
<tr>
<td>3</td>
<td>Wound infections</td>
<td>01</td>
<td>1.75</td>
</tr>
<tr>
<td>4</td>
<td>Wound dehiscence</td>
<td>02</td>
<td>3.50</td>
</tr>
<tr>
<td>5</td>
<td>Over correction</td>
<td>02</td>
<td>3.50</td>
</tr>
</tbody>
</table>
Modified Jones Procedure for Primary Lower Lid Senile Entropion

73 year old female with right eye lower lid senile entropion

Same patient after 2 post-operative week.

DISCUSSION

Senile lower lid entropion is a common lid malformation. Despite its most common cause being involutional due to laxity of tissues, conditions like Ocular Cicatricial Pemphigoid and Steven Johnson Syndrome also play their role. The tarsal plate of the lower lid is smaller as compared to upper lid. The relatively bigger and stronger pre septal portion of orbicularis easily rides over the weaker and smaller pre tarsal part which in turns rolls the lid margin inside.

The choice of surgical procedure for management of involutional entropion is simple. At first other causes of entropion like cicatrization or epiblepharon are excluded through examination. Any canthal laxity has to be addressed. If there is no laxity and the entropion is mild, lid evertting sutures can relieve the problem, but it’s a temporary solution which usually lasts not more than 18 months. Weiss procedure is adopted for a permanent correction especially if there is overriding of orbicularis parts. If there is mild laxity then Quickert procedure can be done. Jones procedure is conventionally reserved for recurrences and cases in which there is lower lid retractor weakness. We performed Jones procedure as a primary procedure in all types of involutional entropion except those having gross lid or canthal laxity and have proved it be beneficial in acquiring good results and limiting recurrence rate. We did a small modification of the conventional Jones procedure. Instead of closing and repairing in layers, we did it with single sutures passing through all layers. Additionally we add a little effect of Hotz procedure by taking a bite from the upper part of the lower tarsal plate, thus fixing the skin and orbicularis to the tarsal plate to ensure lid stability and avoiding chances of recurrence through making a barrier between the pre tarsal and pre tarsal orbicularis.

Modifications of plication of lower lid retractors have been tried by various surgeons. Nakauchi K et al have described and performed a similar approach with a recurrence rate of only 5%. Alteiri M performed a modified plication approach with 7.1% as compared to 14.7% recurrence with conventional approach. Involutional lower lid entropion is more common in females as compared to males. The reason for this is attributed to the presence of a relatively smaller and thinner lower tarsal plate in females as compared to males. In our study females were 60.78% as compared to 39.21% males. The studies by Damasceno et al and Borboridis K et al have comparable female preponderance. However Fattah A and Sahasrbudhe S have shown a contrast with higher male preponderance.

In our study the success rate was 91.22%. This is comparable to Simon et al with 91.8%, Nakauchi K et al with 95% and Alteiri M et al with 92.9%. As far as complications are concerned, we experienced overcorrection in 02 (3.5%). This is slightly encouraging then Fattah A who reported 11% overcorrection. Mild overcorrection is desirable at the end of surgery as it tends to squeeze back a little as the post-operative edema settles. However larger overcorrections need to be addressed to avoid epiphora and exposure. We performed lateral tarsal strip in patients with overcorrection in whom the lid alignment was completely restored after the procedure. 3(5.26%) patients had recurrence. This is comparable to Simon et al with 8.2%, Nakauchi et al with 5% and Alteiri et al with 7.1%. Two cases of recurrence were treated with a repeat Jones procedure, while in one patient there was lateral and medial canthal laxity which developed 5 months after surgery. This patient was treated with canthal tightening and lid shortening.

Hematoma developed in 2(3.5%) patients. One case resolved spontaneously while in one patient the wound was opened to drain the hematoma. Orbital bruising was quite common which appeared in 15(26.31%) patients. However all cases had spontaneous improvement within 2 weeks without any alteration in the surgical outcome. Wound dehiscence was noted in 2(5.3%) patients, and treated with re suturing on the skin wound.

One (1.75%) patient had a wound infection. The causes of infection were identified as improper use of post-operative antibiotic ointment, uncontrolled diabetes, left over sutures because of not following up properly for suture removal. The suture were removed and sent for culture and sensitivity, wound drained and oral antibiotics prescribed. The patient responded well with a good final outcome.
CONCLUSION

Modified Jones procedure is an effective option for correction of primary lower lid senile entropion. It has a good outcome, low recurrence rate with fewer complications.

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Separation of the iris (Traumatic Iridodialysis)

An old man complained of blurred monocular double vision with photophobia after 1-week history of pain in one eye. He was struck in the eye with a rubber band used to secure goods on his bike. His VA was 20/200 after correction. Physical examination revealed bruising of the eyelid and a distorted pupil. Slit-lamp examination revealed a deformed iris with the upper portion sagging downward, detached from the 9 o’clock position to the 3 o’clock position. No evidence of lens dislocation, traumatic cataract or retinal injury was noted. Separation of the iris from the ciliary body caused by blunt injury is traumatic iridodialysis. The patient underwent iridoplasty and had restoration of pupil shape and improvement in visual acuity to 20/50. The iris remained attached with mild deformity and without evidence of glaucoma.

D.D. Separation of the iris, separation of the pupil, separation of the lens, normal eye finding separation of the sclerae

Chia-Chieh Hsiao, M.D., and Wei-Li Chen, M.D., Ph.D.
Curtesy: NEJM
Frequency of Hepatitis - B & C in Patients Undergoing Ocular Surgery in Rawalpindi

(Original Article)

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ABSTRACT

Objective: To analyze the frequency of hepatitis C virus (HCV) and hepatitis B virus (HBV) in patients with different ocular procedures in a tertiary care centre in Rawalpindi. It was a retrospective descriptive study in Department of Ophthalmology, Fauji Foundation Hospital, Rawalpindi.

Method: The study was conducted from Nov 2015 to Nov 2017. A total of 3143 patients who underwent different ocular procedures were included in our study. HBV and HCV screening was done in all patients.

Results: Out of these patients, 7.2% were males and 92.8% females, 9% patients were hepatitis positive, with 8.3% of the total infected with HCV while 0.70% had HBV.

CONCLUSION: There should be uniform policy in all hospitals to do routine screening test for hepatitis B and C to avoid the spread of hepatitis viruses.

INTRODUCTION

Hepatitis B (HBV) and Hepatitis C (HCV) are viral types leading to inflammation and swelling of the liver1. Worldwide 2 billion people have been infected with HBV and 5-15% of the total cases are carriers of the virus2. WHO estimated that HCV prevalence is at 3% of world population, 50% of all cases become chronic carriers, which may lead to liver cirrhosis and malignancy3. The annual death toll from hepatitis is around 1.5 million.4

HBV is transmitted through the blood, semen, vaginal fluids, and other body fluids of an infected individual having hepatitis B infection. HCV, is a blood-borne viral infection whose primary mode of transmission is via direct percutaneous exposure to blood such as blood transfusions, sharing of needles, accidental percutaneous occupational exposures and vertical transmission from infected mothers5,6,7. For instance, studies have suggested that annual percutaneous exposure among US hospital staff is around half a million per annum.8

In Pakistan, the incidence of hepatitis B and C is rising. According Khan et al up to 38% of our population is infected with HCV and 2.5% with HBV9. The prevalence of transmissible blood-borne viral infections is quite high in Pakistan. Various studies have reported an incidence of 4%-20% of hepatitis infection in the general population in Pakistan10.

There should be a uniform policy in all hospitals to do screening test before procedures in order to avoid the spread of these transmissible diseases from patients to doctors, paramedical staff and to other non-infected patients. The battle against the spread of hepatitis requires holistic approach using print, electronic media and the society at large to educate the general public on prevention and culminating the spread of viral epidemics.

Both HCV and HBV infections are highly prevalent. Health care workers (HCW) who are constantly in contact with human blood products, infected individuals, and laboratory equipment are at high risk of acquiring these infections. Once HCW get in contact with human blood products or infected individuals or infected laboratory equipment, they remain asym-
In Fauji Foundation Hospital (FFH), Rawalpindi we do routine screening tests at the time of admission before all elective surgeries, but not in minor procedures. The study was in patients in view of recommending stricter screening protocols that are in-line with international best practices.

**MATERIAL AND METHODS**

This retrospective study was conducted in Ophthalmology Department, Fauji Foundation Hospital, Rawalpindi. Duration of study was from Nov 2015 to Nov 2017. Hospital ethical committee has approved this study. The study data was collected from hospital records. All patients included in the study were admitted in eye ward for different ocular surgeries. All such patients were excluded from the study that underwent minor ocular surgeries in which screening tests were not performed.

**RESULT**

A total of 3143 patients participated in our study of which 7.2% were males and 92.8% females. In the total population under study 9% patients were hepatitis positive, 8.3% of the total having HCV+ while 0.70% had HBV. 4% of the males exhibited HCV+ while 8.6% females were diagnosed with the same. The incidence of HBV in males and females was 0.44% and 0.72%, respectively. Only 1 female patient presented with combined HCV and HBV infection. Mean age among hepatitis patients was 62.34 ± SD 10.99.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Total</th>
<th>Not infected</th>
<th>HCV+</th>
<th>HBV+</th>
<th>HCV and HBV+</th>
<th>Hepatitis+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>2918</td>
<td>2667 (90.6%)</td>
<td>252</td>
<td>21</td>
<td>1 (0.7%)</td>
<td>273 (9.4%)</td>
</tr>
<tr>
<td>Male</td>
<td>225</td>
<td>215 (95.6%)</td>
<td>9 (4%)</td>
<td>1 (0.4%)</td>
<td>0</td>
<td>10 (4.4%)</td>
</tr>
<tr>
<td>Total</td>
<td>3143</td>
<td>2882 (91.7%)</td>
<td>261</td>
<td>22</td>
<td>1 (0.7%)</td>
<td>283 (9%)</td>
</tr>
</tbody>
</table>

**DISCUSSION:**

The incidence and prevalence of chronic liver disease due to HBV and HCV is gradually increasing in Pakistan. This is in congruence with the trend in other developing countries where lack of financial resources coupled with illiteracy to blame. The World Health Organization (WHO) puts the percentages of population suffering from Hepatitis B between 2 and 5% in the Indian subcontinent, with a figure of 4-5% Pakistanis infected with Hepatitis C. These are recognized as some of the highest global infection rates. In Pakistan, in addition to the high-risk populations, Hepatitis B and C are also found in the wider population at alarming rates.

A large number (estimated 50-80%) of Hepatitis B and C positive individuals are unaware of their infection status as these conditions remain asymptomatic. This results in a large number of potential carriers and adds to the difficulty in battling the spread of these chronic liver diseases. An appreciation of the local epidemiology of Hepatitis B and C is essential in coming up with prevention strategies and meeting world-wide goals of disease control. There is, of course, a need to institute nation-wide screening programs in this regard.

In this retrospective study, we have analyzed clinical records of patients who underwent ocular surgeries at the Fauji Foundation Hospital from the point of view of prevalence of Hepatitis B and C. The results of our study show that 8.3% of the 3143 patients suffered from Hepatitis C, whereas 0.70% were HBV positive bringing the total incidence of Hepatitis infection to 9%. In Ahmed et al, a similar study was done on a smaller group of patients (215) found prevalence rates of 7.44% and 2.8% for HCV and HBV, respectively. Ri-azet al, report a higher incidence of 14.29% in their study of 315 patients but, interestingly, do not find any of them infected with HBV. Tahir et al found an incidence for Hepatitis B and C of 2.62% and 6.17% in their study of 648 patients which is more or less consistent with our findings. Finally, Lohanoet al, report a combined Hepatitis B and C prevalence of 15.36% in their study of 2200 patients in Hyderabad, India.

The distinguishing feature of our study is the large sample size that we have managed to analyze. As shown earlier, smaller studies conducted in Pakistan. Our study had a large sample of females, because in FFH families of ex-servicemen are entitled, the number of male patients are rather small (female : male ratio of 12.96:1). This means that we are unable to meaningfully comment on the gender disparity in the prevalence of Hepatitis. Butt et al have reviewed various studies and in almost all studies males are affected more than females both for hepatitis B and C. Also, since the patients that we have analyzed were mostly cataract patients, our sample has an average age of 62.34 years. We were therefore, unable to study the incidence of Hepatitis wise as a function of age. Fattahi et al conducted study on 6095 patients (age 7-95years) and showed that maximum prevalence of HCV was present in age 12.
years or less.\textsuperscript{19} Akhtar \textit{et al.} have showed prevalence of HCV according to age. In their study, maximum prevalence was present in age group of 41-50 years, and 20-30 years of minimum prevalence was found in patients above 70 years.\textsuperscript{20}

Another drawback of our study is that we have not assessed the risk factors. Various risk factors are the previous surgery or blood transfusion history of any dental treatment or barbershop.\textsuperscript{21}

**CONCLUSION**

Most of the hospitals are not doing routine screening test to rule out Hepatitis B and C before major and minor surgeries. There should be a uniform policy in all hospitals to do screening test to avoid the spread of these transmissible diseases from patients to doctors, paramedical staff and to o ther-infected patients. Thus, the prevalence of blood born infection will decrease subsequently. The battle against these chronic infections requires a holistic approach using print, electronic media and the society at large to educate the general public on prevention and culminating the spread of viral epidemics.

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ABSTRACT
Objective: Rickets is a disease of growing bones which is secondary to the defect in mineralization at growth plate matrix. Vitamin D deficiency remains the most common cause of rickets globally. Vitamin D is usually obtained from exposure to sunlight and from diet like fish liver oil and egg yolk. Solar ultra violet B radiations penetrate the skin and initiate the process of vitamin D formation. The objective is to determine the frequency of nutritional rickets in children with lower respiratory tract infection.

Materials and Methods: This cross sectional study was conducted in the Pediatric Department, Lady Reading Hospital, Peshawar, from 6/2/2018 to 6/8/2018. Children were assessed by researcher through detailed history from the parents followed by detailed clinical examination for the confirmation of lower respiratory tract infections. Blood sample was taken for the children and were send to hospital laboratory for investigation of serum calcium, phosphorus and alkaline phosphatase level and X-rays were performed. Diagnosis of nutritional rickets was done on the bases of all these factors. Data was entered and analyzed by means of SPSS version 20 and was expressed in the form of tables and charts.

Results: In this study 62% children were in age ranged 1-3 years and 38% children were in age range 4-5 years. Mean age was 2 years with SD ± 2.16. Fifty eight percent children were male and 42% children were females. Moreover 65% children had low serum calcium level < 2.12 mmol, 58% children had low serum phosphorus level < 0.87 mmol and 60% children had serum alkaline phosphatase > 280 units per liter on the bases of which the frequency of nutritional rickets among 151 children was 60% in our study.

Conclusion: study concludes that the frequency of nutritional rickets was 60% in children with lower respiratory tract infections under five years of age.

Key Words: nutritional rickets, children, lower respiratory tract infections.

INTRODUCTION
Rickets is a disease of growing bones which is secondary to the defect in mineralization at growth plate matrix. Vitamin D deficiency remains the most common cause of rickets globally. Vitamin D is usually obtained from exposure to sunlight and from diet like fish, liver oil and egg yolk. Solar ultra violet B radiations penetrate the skin and initiate the process of vitamin D formation. Vitamin D helps in absorption of calcium from intestine. In the presence of vitamin D intestinal calcium absorption can be as high as 80% of the intake. Rickets usually presents with features like delayed fontanels closure, craniotabes, frontal bossing, enlargement of wrists, rachitic rosary, delayed teething, carious teeth and legs deformity like bowing of legs, kyphosis and narrowed pelvis.

The frequency of nutritional rickets was 60% in children with lower respiratory tract infections under five years of age.

Nutritional rickets caused by deficiency of vitamin D has been strongly associated with lower respiratory tract infections. Deformities in the chest like Harrison grove occurs from pulling of the softened ribs by diaphragm during inspiration. Softening of the ribs impairs air movement and predisposes patient to atelectasis and pneumonia. In addition, vitamin D deficiency which is the primary cause of nutritional rickets is also associated with an increased incidence of lower respiratory tract infections. Vitamin D has a role in innate immune system.

Lower respiratory tract infections (like pneumonia and bronchiolitis) are the leading causes of mor-
Frequency of Nutritional Rickets in Children with Lower Respiratory Tract Infections under Five Years of Age

Sub clinical vitamin D deficiencies were associated with severe lower respiratory tract infection, and clinical vitamin D deficiency was associated with a 13-fold-increased risk of pneumonia. The aim of this study is to find out the frequency of rickets in patients presenting with pneumonia in our set up. Pneumonia being one of the major killers among children is important to be studied in synergy with rickets as the combination is understandably fraught with more sinister outcomes. The results will add to the existing body of knowledge and would be useful for practitioners as well as planners and policy makers of health to devise meaningful interventions both at clinical and community levels.

The frequency of nutritional rickets is 60% in children with lower respiratory tract infections under five years of age.

MATERIALS AND METHODS

This cross sectional study was conducted in the Pediatric Department of Lady Reading Hospital Peshawar from 6/2/2018 to 6/8/2018. Permission from hospital ethical committee was taken before start of study. All new cases with lower respiratory tract infections (as per operational definitions above) were enrolled in study. Informed written consent was taken from parents.

Children were assessed by the researcher by taking detailed history from the parents followed by detailed clinical examination for the confirmation of lower respiratory tract infections. Blood sample was taken for the children and were send to hospital laboratory for investigation of serum calcium, phosphorus and alkaline phosphatase level. All the requisite investigations were done by expert pathologist and radiologist. Diagnosis of Nutritional rickets was done on the basis of all the factors mentioned in the operational definition. All the above mentioned information including name, age, gender and address were recorded in a pre-designed proforma. Strictly exclusion criteria had followed to control confounders and bias in the study results. Data was analyzed using SPSS version 20, and was expressed in the form of tables and charts.

RESULTS:

In this study age distribution among 151 children were analyzed, and 94(62%) children in the age ranged 1-3 years while 57(38%) children were in age range 4-5 years. Mean age was 2 years with SD ± 2.16. Gender distribution among 151 children was analyzed as 88(58%) children were male while 63(42%) children were females. Among 151 children analyzed on weight, 68(45%) children had weight ≤12 Kg, while 83(55%) children had weight >12 Kg. Mean weight was 12 Kg with SD ± 5.713. 62(41%) children had duration of sun exposure ≤30 minutes while 89(59%) children had duration of sun exposure >30 minutes. Radiological findings in these patients showed that 59(39%) children had open fontanelle, 91(60%) children had frontal bossing, 110(73%) children had splaying, 118(78%) children had rachitic rosary, 113(75%) children had bow legs as these are shown in the table 1.

Fifty three (35%) children had normal serum calcium > 2.12 mmol, while 98(65%) children had low serum calcium level < 2.12 mmol. Sixty three (42%) children had normal serum Phosphorus > 0.87 mmol, while 88(58%) children had low serum phosphorus level < 0.87 mmol. Sixty (40%) children had normal serum alkaline phosphatase < 280 units per liter while 91(60%) children had serum alkaline phosphatase > 280 units per liter. 91(60%) children had rickets while 60(40%) children didn’t had rickets. (as shown in table no 2).

<table>
<thead>
<tr>
<th>Radiological findings (n=151)</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open fontanelle</td>
<td>59</td>
<td>39%</td>
</tr>
<tr>
<td>Frontal Bossing</td>
<td>91</td>
<td>60%</td>
</tr>
<tr>
<td>Splaying</td>
<td>110</td>
<td>73%</td>
</tr>
<tr>
<td>Rachitic Rosary</td>
<td>118</td>
<td>78%</td>
</tr>
<tr>
<td>Bow legs</td>
<td>113</td>
<td>75%</td>
</tr>
</tbody>
</table>

Table 1, shows the various radiological finding in patients with rickets.

<table>
<thead>
<tr>
<th>Observation</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Mean and SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serum Calcium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>53</td>
<td>35%</td>
<td>1 mmol</td>
</tr>
<tr>
<td>&lt; 2.12 mmol</td>
<td>98</td>
<td>65%</td>
<td>± 1.731</td>
</tr>
<tr>
<td>Total</td>
<td>151</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Serum Phosphorus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>63</td>
<td>42%</td>
<td>0.76mmol</td>
</tr>
<tr>
<td>&lt; 0.87 mmol</td>
<td>88</td>
<td>58%</td>
<td>± 1.12</td>
</tr>
<tr>
<td>Total</td>
<td>151</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Serum Alkaline Phosphatase</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>280 Units/liter</td>
<td>60</td>
<td>40%</td>
<td>294 units per L</td>
</tr>
<tr>
<td>&gt;280 Units/liter</td>
<td>91</td>
<td>60%</td>
<td>± 8.374</td>
</tr>
<tr>
<td>Total</td>
<td>151</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Table 2, shows the proportions of patients having different levels of serum calcium, phosphorous and serum alkaline phosphatase.
DISCUSSION

Rickets is a disease of growing bones which is secondary to the defect in mineralization at growth plate matrix. Vitamin D deficiency remains the most common cause of rickets globally.1 Vitamin D is usually obtained from exposure to sunlight and from diet like fish, liver oil and egg yolks. Solar ultra violet B radiations penetrate the skin and initiate the process of vitamin D formation.2 Vitamin D helps in absorption of calcium from intestine. In the presence of vitamin D intestinal calcium absorption can be as high as 80% of the intake. Rickets usually presents with features like delayed fontanels closure, craniotabes, frontal bossing, enlargement of wrists, rachitic rosary, delayed teething, carious teeth, and legs deformity like bowing of legs, kyphosis and narrowed pelvis.2

Our study shows that 62% children were in age ranged 1-3 years and 38% children were in age range 4-5 years. Mean age was 2 years with SD ± 2.16. In one study 14(23.33%) children were below 6 months of age while 38(68.33%) children were below 13 months. Poor maternal vitamin D status during pregnancy, in addition to other factors, may be important risk factor in these babies.5 Thick dark veils and habit of indoor staying contributes to vitamin D deficiency in pregnant and lactating mothers.6 Fifty eight percent children were male and 42% children were females. In a study carried out by Siddiqui et al8 there was high male predominance with male to female ratio of 3.71:1 (78% vs 21%). In another study from Turkey male to female ratio was 2.9:1.15 Same results were reported in a study from Peshawar by Khattak et al7 with male to female ratio of 2.9:1.15. While in a very large study from Denmark, Beck-Nielson et al observed no difference in gender distribution.8

More over 65% children had low serum calcium level < 2.12 mmol, 58% children had low serum phosphorus level < 0.87 mmol and 60% children had serum alkaline phosphatase > 280 units per liter on the bases of which the frequency of nutritional rickets among 151 children was 60% in our study. Similar findings were observed in other studies as: In a study conducted in slum areas of Karachi 99% of the children with nutritional rickets were malnourished.9 In another study 24(40%) children were underweight according to Gomez classification of malnutrition. Malnutrition has been reported in literature as a contributing factor for nutritional rickets.10

The clinical signs of the rickets (widened wrists, rickety rosary of costochondral junctions, and bowing of the legs) were present in 40 (66.66%) children in our study, while Hameed et al9 have reported these clinical signs in 70% of the children with nutritional rickets. In another study 51(85%) children had radiological findings of rickets, while these findings were detected in 73.84% 11, 38.09% 12, and 100% 13 in different studies.

Highest incidence of rickets was found in age between 2 to 12 months that is 79.8%. Even in studies from other cities of Pakistan same fact was enhanced like in studies from Abbotabad and Peshawar, 90% patients were below 2 years while from Lahore 76% were under 2 years consistent with this study.6,7,11

In this study rickets was more common in breast fed infants that is 85.3%. In a study from United States, 96% of children who developed rickets were breast fed while in a Canadian study 94% rachitic children were breast fed.14 For this reason it has been recommended by American Academy of Pediatrics that breastfed and partially breastfed infants should be supplemented with 400 IU/day of vitamin D beginning in the first few days of life. Supplementation should be continued unless the infant is weaned to 1 L/day or 1 qt/day of with rickets had none or minimal exposure to sun light.16 vitamin D-fortified or whole milk.15 Rickets in this study was found to be more common in children who were not exposed to sunlight i.e., 98.3%. In a study from Sydney 89% of children in Karachi city there is an increased trend of living in multistoried apartments where there is no or minimal sunlight exposure. Other possible reasons could be living indoors due to hot climate and wearing fully covered clothes with most of the women covering their head and few their faces well.17 There was an increased incidence of rickets in patients admitted with severe pneumonia i-e 74 % (101/137) in this study.18 A similar study from Jordan has shown 85% patients having rickets presented with respiratory tract infections.19 While in other studies chest infections were the second most common presentation.9

CONCLUSION;

Our study concludes that the frequency of nutritional rickets was 60% in children with lower respiratory tract infections under five years of age.

REFERENCES
Thrombotic thrombocytopenic purpura

A young man presented with a 2-day history of abdominal pain, headache, and brown urine. He was well oriented. He had no purpura or petechiae. Laboratory evaluation revealed a hemoglobin level of 8.6 g per deciliter and a platelet count of 6000 per cubic millimeter. Levels of indirect bilirubin and lactate dehydrogenase were elevated, haptoglobin was undetectable, and the serum creatinine level was 1 mg per deciliter. Test results for infection with the human immune-deficiency virus were negative. A peripheral-blood smear showed numerous schistocytes.

Differential Diagnosis: Idiopathic thrombocytopenic purpura, Thrombotic thrombocytopenic purpura, Pseudothrombocytopenia, Hemolytic uremic syndrome, Excessive splenic platelet sequestration. Curtsey: NEJM
Corneal Cross Linkage in Patients with Unstable Keratoconus: Comparative Analysis of Visual Outcome after 1 Year Follow-up


ABSTRACT
Objective: To report on 1-year postoperative visual outcome with the corneal cross linkage for unstable keratoconus patients.

Material and methods: Thirty eyes of 15 patients with unstable keratoconus and myopia between 0.00 and 17.00 DS and astigmatism between 1:00 and 8:00 DS were analyzed in this prospective interventional study. The visual outcome was analyzed on the best possible refraction and topographic readings preoperative and post operative.

Results: At 1-year follow-up, 45% had 20/20 vision or better and 100% had 20/40 or better uncorrected visual acuity (UCVA). Vector analysis of refractive astigmatism shows that the surgically induced astigmatism (SIA) (3.20 1.46 D) was not significantly different from the target induced astigmatism (TIA) (3.14, 1.42 D) (p=0.620). At 1 years postoperatively, none of the eyes showed a decrease in UCVA, in contrast to 24 eyes in which UCVA was increased by 1 lines, with contrast sensitivity and improvement in total aberrations and MTF value at 5 per degree (p=0.004) after CXL surgery. The cumulative 1-year corneal endothelial cell loss was 5%. No patients reported dissatisfaction. At the end of follow-up, the vault was 54.33m (range, 500–711) and the intraocular pressure was 11.7 ± 2.08 mm Hg. Occurrences of glare and night-driving troubles diminished after CXL surgery.

Conclusion: The results of this prospective interventional study support corneal cross linkage for unstable keratoconus.

Key Words: Corneal cross linkage, keratoconus,

INTRODUCTION:
Keratoconus is a disorder of the cornea which results in progressive thinning of the cornea that induces irregular astigmatism, resulting in impairment of vision. 1 Keratoconus is derived from Greek words kerato (cornea) and konos (cone). It usually affects both the eyes and may result in corneal perforation of corneal scaring. 2 Keratoconus is usually diagnosed in second and third decade of life and affects quality of life of young adults. 3 Keratoconus affects about 1 in 2000 people. 12 Despite considerable research, the cause of keratoconus remains unclear. 4 Several sources suggest that keratoconus likely arises from a number of different factors: genetic, environmental, cellular, any of which may form the trigger for the onset of the disease. 5 However, the exact mechanism by which it manifests in terms of progression, genetic heterogeneity and phenotypic diversity is not known, thereby resulting in a series of diverse diagnostic and treatment methods. 6 7 In early stages of keratoconus, glasses or soft contact lenses can suffice to correct for the mild astigmatism.

Prospective interventional study supports corneal cross linkage for unstable keratoconus.

As the condition progresses, these may no longer provide the person with a satisfactory degree of visual acuity, and most practitioners will move to manage the condition with rigid contact lenses, known as rigid gas permeable lenses (RGP) lenses. 8 Between 11% and 27% of cases of keratoconus, it will progress to a point where vision correction is no longer possible, thinning of the cornea becomes excessive, or scarring as a result of contact lens wear. 9 10 11 Surgical treatment in form of keratoplasty (Corneal transplantation) is then required for such patients. Another technique which is called corneal rings implants are alternative of keratoplasty which is performed by the insertion of intrastromal corneal ring segments. A small incision is made in the periphery of the cornea and two thin arcs of polymeth-

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ORIGINAL ARTICLE

Ophthalmology Update Vol. 17 No.3, July - September 2019
Corneal Cross Linkage in Patients with Unstable Keratoconus: Comparative Analysis of Visual Outcome after 1 Year Follow-up

**METHODOLOGY:**

This was a prospective interventional study. Fifteen patients (30 eyes) age 15–40 years with systemic and other ocular diseases except keratoconus were included in this study and treated with corneal collagen cross linking (CXL) in 1 year follow up in hospital. These cases were selected using a non-random consecutive sampling method. Before starting the study, informed written consent was taken from every participant before study. Study approval was taken from institution ethical review committee of Pakistan Institute of Community Ophthalmology (PICO) Peshawar. After 6 months post CXL, the refraction was declared as stable if there was a change in refraction of six subjective refractions within ±0.75 D of spherical equivalent. Those patients were included whose best corrected visual acuity was 6/12, K max <53, intraocular pressure (IOP) <21mm Hg, clear cornea, normal ACD of at least 3.5 mm to the endothelium width of angle greater than 30 degree. Contact lens use was discontinued for at least 2 weeks for rigid lenses and 1 week for soft lenses before any intervention. Those patients who were mentally disabled, pregnant, lactating mothers and those who didn’t signed consent form were excluded from the study.

**RESULTS:**

A summary of patient demographics is provided in table 1. The mean spherical error was -5.06 ±3.96 D (range: 0.00 to -18.00 D), and the cylindrical error was -3.57±1.56 D (range: -1.25 to -8.00 D). Patients at the time of surgery were aged 30.57±4.69 years (range 25–38 years). CXL was performed at the clinical investigational site in this group. Patients were followed up five times after surgery at 1 month, 2 month 3 month and 6 months and then 1, year. At year postoperatively, 82.5% of eyes were within ±0.50 D, and 97.05% were within ±1.0 D of attempted correction, and the mean spherical and cylindrical manifest refractions were 0.44 ±0.40 D and -1.01 ±0.44 D, respectively. At the end of the follow-up, the mean vault was 658 ±54.33 mm (range, 500–711), and the IOP was 11.7 ±2.08mm Hg.

<table>
<thead>
<tr>
<th>Parameter studied</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refractive surgery (number of eyes)</td>
<td>15 patients; 30 eyes</td>
</tr>
<tr>
<td>Mean age</td>
<td>21.57 ±4.69</td>
</tr>
<tr>
<td>Range</td>
<td>16–36</td>
</tr>
<tr>
<td>Gender</td>
<td>Male 7 (45%) Female 8 (55%)</td>
</tr>
<tr>
<td>Mean Preoperative visual acuity</td>
<td>UCVA 1.38±0.27 CDVA 0.29±0.10</td>
</tr>
<tr>
<td>Preoperative refractive error</td>
<td></td>
</tr>
<tr>
<td>(spherical equivalent)</td>
<td>Range (-1.50 to -21.50) Mean (-7.50 ±4.21)</td>
</tr>
<tr>
<td>Postoperative visual acuity (log MAR)</td>
<td>UCVA 0.11 ±0.12 CDVA 0.04 ±0.15</td>
</tr>
<tr>
<td>Postoperative residual refraction (D)</td>
<td>Mean 0.43 ±0.40</td>
</tr>
</tbody>
</table>

All patients had a preoperative uncorrected visual acuity (UCVA) worse than 20/40 with 95% having unaided acuity limited to counting of fingers. At 1 years, postoperative UCVA was better than or equal to preoperative CDVA in 92.50% (37/40) of eyes, and UCVA was increased by ≥1 lines in 25 eyes in table 2.

### Table 1: Demographics of the patients

<table>
<thead>
<tr>
<th>Preoperative CYLINDER</th>
<th>n/N (%)</th>
<th>Postoperative CYLINDER</th>
<th>n/N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.50</td>
<td>4/40 (10%)</td>
<td>1.50</td>
<td>36/40 (91.1%)</td>
</tr>
<tr>
<td>3.50</td>
<td>20/40 (50%)</td>
<td>3.50</td>
<td>40/40 (100%)</td>
</tr>
<tr>
<td>5.00</td>
<td>34/40 (85%)</td>
<td>5.00</td>
<td>40/40 (100%)</td>
</tr>
<tr>
<td>7.00 (92.5%)</td>
<td>37/40 (92.5%)</td>
<td>7.00 (92.5%)</td>
<td>40/40 (100%)</td>
</tr>
<tr>
<td>8.00 (100%)</td>
<td>40/40 (100%)</td>
<td>8.00 (100%)</td>
<td>40/40 (100%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Preoperative SPHERE</th>
<th>n/N (%)</th>
<th>Postoperative SPHERE</th>
<th>n/N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.00</td>
<td>12/40 (30%)</td>
<td>3.00</td>
<td>37/40 (92.5%)</td>
</tr>
<tr>
<td>5.00</td>
<td>20/40 (50%)</td>
<td>5.00</td>
<td>40/40 (100%)</td>
</tr>
<tr>
<td>7.00</td>
<td>34/40 (85%)</td>
<td>7.00</td>
<td>40/40 (100%)</td>
</tr>
<tr>
<td>8.00</td>
<td>40/40 (100%)</td>
<td>8.00</td>
<td>40/40 (100%)</td>
</tr>
</tbody>
</table>

Mean SD 3.57 1.56 Mean SD 5.06 3.96 Mean SD 1.01 0.34
The log MAR visual acuity under defocus curve of +2, +1, 0, -1, -2, -3 and -4 D in postoperative and preoperative periods in a noncycloplegic condition. The differences between the measurements of binocular distance corrected defocus curve in the study demonstrated significant differences in log MAR visual acuity at the defocus curve levels of +1, 0 and -1 D, but no significant difference was observed at the defocus curve level of +2, -2, -3 and -4 D.

MTFs were estimated for six spatial frequencies (5, 10, 15, 20, 25 and 30 C/ D) from the ray-tracing aberrometer at a pupil diameter of 6 mm.

DISCUSSION:
This study demonstrated the visual results of CXL in unstable keratoconus with a long-term follow-up. Our observations were similar to those of other studies with respect to the supportive safety, efficacy, predictability and stability of this procedure in patients with stable keratoconus.

In our study, similar to report of González-López, in which a significant improvement in UDVA
and CDVA was demonstrated. The visual acuity test is gradually becoming standard for evaluation of vision, as it provides only a limited amount of data in artificial conditions. The contrast sensitivity tests presented a variety of visual performance data under real conditions. This motivated us to advance in this area of medicine. To the best of our knowledge, this is the first CXL study in patients with unstable keratoconus (not limited to mild and moderate) with a long-term follow-up that focuses on quality indexes (contrast sensitivity, MTF, curve aberrations and defocus) in January 2018.

The amount of aberrations in the eye is related to factors such as age, refraction, severity of keratoconus and even techniques of evaluation. In the current study, after one year of follow-up evaluation of the aberration using the ray tracing technology, there was a significant improvement in the total aberrations after the CXL compared to the previous treatment, and the CXL for six spatial frequencies (5, 10, 15, 20, 25 and 30 c / d) of the ray tracing aberrometer with a pupil diameter of 6 mm. Improvement of MTF value to 5 per degree (* p = 0.004). A blurred asymmetric retinal image exerted by higher order aberrations in keratoconic eyes with CXL seems to compensate through mechanisms such as the neural visual system and other related components that help to improve the long-term visual experience.

The CXL is a feasible approach with less invasion in visual performance, because it does not change the curvature relationships between the anterior and posterior corneas. In this regard, although some approaches may show slightly better results for uncorrected visual acuity and predictability of refraction, in a study conducted by Alfonso, CXL showed reliable results similar to those of biopics. A single procedure with CXL can avoid possible complications for a second alternative surgery.

Some studies reported a trend towards decreased corneal transplantation for keratoconus compared to different periods. It is a promise that seems to be related to contemporary management modalities in the early detection of keratoconus progression and treatments. The divorce available on the market riboflavin (more potent riboflavin with less cytotoxicity), better protocols and cross-linking techniques ‘the procedure to stop the progression of the disease’ may allow the correction of visual defects in patients with keratoconus, by What, the CXL implantation becomes a perfect refractive surgical correction technique in the future.

**CONCLUSION:**

The results of this prospective interventional study support corneal cross linkage for unstable keratoconus.

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Ophthalmology Update Vol. 17 No.3, July - September 2019


Hydroxychloroquine toxicity
A 60-year-old woman presented to the ophthalmology clinic after noticing central blind spots in the visual fields of both eyes. She had a history of rheumatoid arthritis, which had been treated with hydroxychloroquine for 14 years. The retinal examination showed the pattern below.

**Differential Diagnosis:** Rheumatoid arthritis, Hydroxychloroquine toxicity, Age-related macular degeneration, Type 2 diabetes, Bardet-Biedl syndrome. Curtsey: NEJM
INTRODUCTION

Apraxia of lid opening ALO is defined as non-paralytic motor abnormality of the upper eyelid characterized by inability to open the eyes intentionally once closed. It is not considered to be a true apraxia. A true apraxia is defined as inability to perform a motor action to command despite both an adequate understanding of the action and the elementary ability to carry it out. However ALO is confirmed when there is inability to open the lids at will but lids do open at other times when patients is not trying it willingly.

Exact patho-physiology of ALO is not established, however few mechanisms have been considered in its explanation. There is believed to be an abnormality in the supranuclear control of voluntary eyelid elevation, which requires the activation of the levator palpebrae superioris and the concurrent inhibition of orbicularis oculi activity.

Frontalis Sling for Apraxia of Lid Opening (ALO) is minimally invasive and effective procedure for treatment of apraxia of lid opening. It shows promising results with fewer complications.

Key words: Frontalis sling, Apraxia

ABSTRACT

Purpose: to assess the outcome and complications after frontalis sling for apraxia of lid opening (ALO)

Methods: Interventional case series of 21 eyes of 19 patients selected on non-probability purposive basis from Ophthalmology department, Bakhtawar Amin medical and dental college/hospital, Multan from January, 2016 to December, 2017 (02 years).

Patients were followed up for 6 months.

Results: 21 eyes of 19 patients were included in this study. All patients underwent frontalis sling through Suprabrow single stab incision (SBSS) technique with silicone tube. Age of the patients range from 49 years to 71 years (mean of 59.98 years). 13 (68.42%) patients were female while 06(31.57%)were male. 17 (89.47%) patients had bilateral disease while 02(10.52%) had unilateral disease. 14 (66.67%) eyes had good outcome, 04 (19.04%) had fair outcome, while 03 (14.28%) had under correction. As far as complications are concerned 02 (9.52%) eyes had sling failure, while 01 (4.76%) had knot exposure with wound infection.

Conclusion: Frontalis sling is minimally invasive and effective procedure for treatment of apraxia of lid opening. It shows promising results with fewer complications.

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Conclusion: Frontalis sling is minimally invasive and effective procedure for treatment of apraxia of lid opening. It shows promising results with fewer complications.

Electromyographic studies have demonstrated that involuntary levator palpebrae inhibition (ILPI), intermittent or prolonged, persistent pretarsal Orbicularis contraction and ILPI (either intermittent or prolonged) with persistent pretarsal Orbicularis contraction can cause ALO. Which is sometimes associated with essential blepharospasm. Such cases have to be differentiated clinically as their management is different from simple ALO. ALO can be caused by a variety of CNS lesions in non-dominant hemisphere, medial frontal lobe, basal ganglia or rostral brainstem.

Progressive supra nuclear palsy is one of the most common causes of ALO. Other causes include Parkinson disease, idiopathic dystonia, hydrocephalus, Motor neuron disease, Dystonia due to kernicterus, Choreoathetosis, Huntington chorea, Shy-Drager syndrome, Post-encephalitic parkinsonism, and Neuro-acanthocytosis. Drugs like Lithium and sulpiride are also associated with ALO.
be treated medically or surgically. Medical treatment include Injection of a botulinum toxin A (BOTOX) 21,Levodopa, sodium valproate 22and anticholinergic agent trihexyphenidyl, however the efficacy is dubious and indications are limited. Frontalis sling gives a promising surgical correction in majority of patients. It is minimally invasive. With lesser invasive approaches such as modified fox pentagon though Suprabrow single stab incision 23 (SBSS), the cosmetic outcome is even better. Various sling materials can be used; however we used silicone tube because it provides elasticity to allow the movement of upper eyelid on downward gaze, effectively reducing lid lag and lagophthalmos.

**MATERIAL AND METHODS**

Patients were selected on non-probability purposive basis from Ophthalmology department, Bakhtawar Amin medical and dental college/hospital, Multan from January, 2016 to December, 2017. Permission was taken from ethical review committee. All the patients were diagnosed as having Apraxia of lid opening were included. Patients having associated blepharospasm with continuing botulinum toxin therapy or having active neurological disease were excluded, they were followed up for 6 months.

Preoperative and postoperative photographs of the patients were taken on every visit after informed consent. Neurological assessment for exclusion of active neurological disease was carried out by a competent neurologist. Routine preoperative investigations including viral markers were done for all patients. Cardiac clearance was taken from cardiologist and anti-coagulants settled in case of patients having any cardiac issue.

SBSS frontalis sling was done in all patients, which included marking of the pentagon angles, incisions over the superior tarsus. Single stab incision was given on the frontalis muscle. A silicone tube was used as the sling material. Sling was introduced through the tarsal incisions and then brought out at the Suprabrow incision following the marks at the eyebrow, deflecting beneath the skin and orbicularis muscle without piercing them and passing through the superior orbital septum. The two ends of the sling were fixed as per desired correction and Suprabrow incision was closed with a single 5/0 polypropylene suture with the knot buried by making a shelving facial pocket. The upper lid was supported with a frost suture from the lower lid in cases of larger corrections.

Post-operatively patients were given oral antibiotics and NSAIDs. Bandage was removed on the following day. Topical ointment containing antibiotics were prescribed to be applied over the wound. Frequent lubrication in form of artificial tears and gel was prescribed to counter lagophthalmos. Follow up was done on 1st post-operative day then at 1st week, 3rd week and finally at 6th month. At all visits palpable fissure height (PFH), and marginal reflex distance (MRD) were measured, photographs were taken and any complication was looked for. Functional outcome was documented on the basis of patient’s ability to open the eye intentionally. Cosmetic outcome was graded according to the post-operative MRD in comparison with the normal (normal 4-4.5mm) as follows:

<table>
<thead>
<tr>
<th>Complication</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>within 1mm of normal</td>
</tr>
<tr>
<td>Fair</td>
<td>within 2mm of normal</td>
</tr>
<tr>
<td>Under corrected</td>
<td>less than 2 mm from normal</td>
</tr>
<tr>
<td>Over corrected</td>
<td>more than 2mm from normal</td>
</tr>
</tbody>
</table>

The various complications that have been reported in literature are under correction, overcorrection, exposure keratitis, lid crease abnormalities, eyelid margin contour abnormalities, lagophthalmos, ectropion and entropion.

**RESULTS**

21 eyes of 19 patients were included in this study. All patients underwent Frontalis sling through Suprabrow single stab incision (SBSS) with silicone tube. Age of the patients range from 49 years to 71 years, (mean of 59.98 years). 13 (68.42\%) patients were female while 06 (31.57\%) were male. 17 (89.47\%) patients had bilateral disease while 02 (10.52\%) had unilateral disease. 14 (66.67\%) eyes had good outcome, 04 (19.04\%) had fair outcome, while 03 (14.28\%) had under correction (table 1). As far as complications are concerned 02 (9.52\%) eyes had sling failure, while 01 (4.76\%) had knot exposure with wound infection (table 2).

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Outcome</th>
<th>No. of Eyes</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Good</td>
<td>14</td>
<td>66.67</td>
</tr>
<tr>
<td>2</td>
<td>Fair</td>
<td>04</td>
<td>19.04</td>
</tr>
<tr>
<td>3</td>
<td>Under corrected</td>
<td>03</td>
<td>14.28</td>
</tr>
<tr>
<td>4</td>
<td>Overcorrected</td>
<td>00</td>
<td>00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Complication</th>
<th>No. of patients</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sling failure</td>
<td>02</td>
<td>9.52</td>
</tr>
<tr>
<td>2</td>
<td>Knot exposure</td>
<td>01</td>
<td>4.76</td>
</tr>
<tr>
<td>3</td>
<td>Suture granuloma</td>
<td>00</td>
<td>00</td>
</tr>
</tbody>
</table>
Frontalis Sling for Apraxia of Lid Opening (ALO)

65 year old male with ALO (unable to open eyes intentionally)

Asymmetric opening involuntarily

1st post-operative day after bilateral frontalis sling

After one month post-operative

DISCUSSION

Inability to open the eyes willingly can make a patient practically blind especially when he needs them for a desired visual task. ALO is a debilitating condition in which the patient is unable to see despite having good vision. Classical apraxia is characterized by loss of controlled motor function all the times however, in ALO patients do respond to unintentional phenomena.

The levator palpabrae superioris LPS is innervated bilaterally from the central caudal subdivision of the oculomotor nucleus, while the Orbicularis Oculi is innervated unilaterally from the facial nucleus. The cortex, extrapyramidal motor systems, and rostral midbrain structures may control LPS motor neuron activity.

EMG studies have proposed two possible pathophysiological phenomena for ALO. Either there is involuntary inhibition of LPS (ILPI) or Persistent pretarsal Orbicularis Oculi contraction. In ALO alone ILPI is dominant while in cases associated with essential blepharospasm the element of persistent orbicularis contraction is also contributing to the disease. Therefore it is imperative to clinically differentiate both entities as their management differs at a certain stage. Essential blepharospasm with ALO is treated with Botulinum toxin injections first and then surgical options are added to supplement its effect. However in pure ALO botulinum toxin has limited effect and surgical options have primary role in its management.

Botulinum toxin provides a very handy treatment for blepharospasm. ALO associated with blepharospasm has also been treated with botulinum first and then augmented with surgery. However as Botulinum is a toxin, it can have some adverse effects as well. These effects include hypersensitivity, respiratory problems, dysphagia, seizures, flu like syndrome, facial and other muscle weakness, ptosis, skin and injection site reactions. Tolerance is another issue and the response becomes refractory as the number of injections increases.

Different surgical options have been tried successfully by various surgeons for the correction of ALO with or without blepharospasm. These include frontalis sling, brow lift, myectomy of orbicularis, corrugator and protractor muscles, partial or limited myectomy, levator aponeurosis repair and frontalis advancement. However, frontalis sling alone provides with a minimally invasive approach and is relatively easier to revert in case of a spontaneous recovery.

We did frontalis sling in all our patients without any botulinum injection. The technique used was Suprabrow single stab incision SBSS with modified fox pentagon which is relatively less invasive and has better cosmetic results than other techniques. We used silicone tubes as sling material. Surgeons have used different materials in this regard including PTFE, Polypropylene and Nylon etc. We preferably used silicon due to its elasticity, inertness and easy availability. Due to its elasticity we didn’t experience any significant lid lag, lagophthalmos or exposure keratopathy. Due to its inert nature and softness, knot extrusion and suture granulomas were also well controlled.

Unilateral ALO is very rare but we experienced two cases. Both had isolated ALO and no systemic or neurological deficit was found. Unilateral cases also responded to frontalis sling very well with good cosmetic and functional outcome. Frontalis sling in unilateral cases has always been a dilemma for discussion however we have previously managed unilateral cases of ptosis treated with frontalis sling with commendable outcomes. Patients are to be guided about moving the head instead of moving the eyes to mask any difference causing obvious lid lag.
Our surgical outcome is comparable to other researchers. We achieved a good result in 66.67% and a fair result in 19.04%, this adds up to 85.71% of cosmetically satisfied patients. This is comparable to Karapantzou C28 74.6% and 76.92% by De Groot V35. As far as complications are concerned we had 02 (9.52%) sling failures due to breaking of the tube. These cases had repeat procedure and finally had a good outcome. We experience 02 (9.52%) under corrections, but as the patients were cosmetically and functionally satisfied, revision was not necessitated. 01 (4.76%) patient had knot exposure with wound infection in one eye. After controlling the infection the knot was buried deeply in the frontalis and wound closed in layers to avoid recurrence; the outcome remained unaltered.

CONCLUSION
Frontalis sling is minimally invasive and effective procedure for treatment of Apraxia of Lid Opening. It shows promising results with fewer complications.

REFERENCES:
ABSTRACT

Objective: To evaluate awareness about ocular symptoms due to smart phone use, awareness about smart phone causing vision problems.

Methodology: A cross sectional study was done in Pakistan Institute of Community Ophthalmology (PICO) from September 2018 till February 2019. An informed consent was taken from all the smart phone users eligible for the study. Questionnaires were circulated among the subjects evaluating awareness about ocular symptoms due to smart phone use. The data was recorded for awareness about smart phone causing vision problems. Subjects who were aware about 3 or more ocular symptoms were labeled as awareness. If subjects were aware of 3-4 symptoms they were included in the criteria of low level awareness. Subjects aware of 5-6 symptoms were categorized in moderate level of awareness and subjects who were aware about 7 or more ocular symptoms were categorized in high level awareness.

Results: Data was collected from 104 subjects. 82 (78%) subjects were aware about ocular symptoms due to smart phone use and 22 (21%) were unaware. 34 out of 38 (89%) staff members and (48 out of 66) 72% students were aware about it. High level awareness was 50% (17 out of 34) among staff members and 50% (24 out of 48) students were highly aware about ocular symptoms due to smart phone use. 80% subjects were aware about the eye strain/fatigue, 76% subjects were aware about irritation/burning, 51% subjects were aware about the ocular pain, 46% subjects were aware about the redness of the eyes, 45% were aware about the watering of the eyes, 42% were aware about the eyesight deterioration, 31% were aware about the double vision, 8% were aware about the macular degeneration and 6% were aware about the cataract due to smart phone usage.

Conclusion: There is a shortage of literature survey to find out the awareness in developing the ocular symptoms due to smart phone use. From this study it is concluded that most of the subjects i.e. staff members and students were aware about ocular symptoms due to smart phone use. Unlike students, staff members were more aware of it. Numerous staff members and students were highly aware while very few were unaware about some of the ocular symptoms caused due to smart phone use.

Key words: Smart phone, Awareness, Blue light.

INTRODUCTION

A smart phone is a very useful device which includes sending and receiving emails and photographs, browsing the internet, playing games, video chat, creating high quality photographs, determining user’s exact location utilizing GPS (global positioning system) satellites and many more.1 Two of the most popular smart phone operating systems are Android and IOS According to World Population Clock the current world population is 7 billion and currently 2.71 billion world population uses smart phone which is expected to pass 5 billion mark by the end of 2019. 2 A study “Smartphone addiction among university students in the light of some variables” the frequency and indices of smart phone addiction in a group of King Saud University students investigated smartphone addiction based on different variables. Results revealed that the addiction percentage among participants was 48%. Bachelor degree students were found to have the highest degree of addiction. 3

Most of the subjects i.e. staff members and students were aware about ocular symptoms due to smart phone use. Unlike students, staff members were more aware of it.

In October 2014, Gen Xers, and Millennials a report from the Vision Council discussed digital device usage by adults 90% spend 4 hours per day, 60% spend more than 5 hours per day and 30% spend more than
9 hours per day. More than 60% report symptoms of digital eyestrain including redness, burning, itchiness, blurred vision, fatigue and headaches. While staring at screens, we blink less increasing the risk of dry-eye disease. In discussion more than 10 million people suffer from dry eyes in this age of smart phones. Eye strain occurs when the eyes get tired from intense use of cell phone. Excessive use of the smart phone at near leads to excessive stimulation of ciliary muscle. It was the first case series to report an association of smart phones and accommodative spasm. Use of smart phones may be an emerging cause of unilateral ocular pain and headache. A study revealed that children using mobile phones for over 4 hours a day develop squint and double vision. The premature development of cataract is closely linked to the increase in cases of eye fatigue or presbyopia, which appears more and more to be the result of longer usage of smartphones.

Scientists have found the chemical reason that blue lights are bad for the eyes. The blue light from smartphones could also contribute to age-related macular degeneration. The cell death caused by blue light excited-retinal doesn’t usually happen until a person is about 50 or 60 years old, which is when age-related macular degeneration usually sets in. Mobile phones have been linked to a rare form of eye cancer. The regular use of cell phones could lead to an increased risk of contracting uveal melanoma, in which tumors form in the layer that makes up the iris and base of the retina. Most of the subjects, unlike students are aware of ocular symptoms.

**METHODOLOGY**

A device used for phone calls and having a highly advanced features, high-resolution touch screen display, Wi-Fi connectivity, and Web browsing capabilities. Subjects who knew about 3 or more ocular symptoms were labeled as aware and below that were labeled as unaware.

**Low level awareness:** If subjects were aware of 3-4 ocular symptoms they were included in the criteria of low level awareness.

**Moderate level awareness:** Subjects aware of 5-6 ocular symptoms were categorized in moderate level awareness.

**High level awareness:** Subjects who were aware about 7 or more ocular symptoms were categorized in high level awareness.

It is a cross-sectional study, at the Pakistan Institute of Community Ophthalmology (PICO) Hayatabad Peshawar for 6 months and non-probability convenient sampling. After ethical approval, an informed written consent was taken from all the subjects meeting eligibility criteria of the study. Data was collected using a questionnaire for awareness about ocular symptoms caused due to smart phone use. The data was entered and analysed through SPSS software version 17.

**Inclusion Criteria:** All the literate subjects of the Pakistan Institute of Community Ophthalmology present at the time of data collection were included in my study.

**Exclusion Criteria:** Those who were not willing to participate.

**RESULTS**

Graph 1: Students Awareness Level

The above graph shows that 50% (24 out of 48) students were highly aware, 33% (16 out of 48) were low level aware and 16% (8 out of 48) were moderate level aware about ocular symptoms due to smart phone use.

Graph 2: Symptoms Awareness

The above graph shows that 80% subjects were aware about the eyestrain/fatigue of the eyes due to smart phone usage. 76% subjects were aware about the irritation/burning of the eyes 51% subjects were aware about the ocular pain 46% subjects were aware about the redness of the eyes 45% were aware about the watering of the eyes 42% were aware about the eyesight deterioration 31% were aware about the double vision 8% were aware about the macular degeneration 6% were aware about the cataract.

**DISCUSSION**

The study “Awareness about ocular symptoms due to smart phone use” aimed to evaluate the awareness about ocular symptoms due to smart phone use.
There were many contradictory results reported regarding ocular symptoms due to smartphone use and its awareness.

It was found that 82 out of 104 (78%) subjects were aware about ocular symptoms due to smartphone use while 22 (21%) subjects were unaware about it. A survey was conducted named “Influence of smartphone on dry eye syndrome in adolescents” in which they analyzed the relevance association between smartphone usage time and dry eyes in high school students. They conducted question investigation survey of 200 (men 140, women 60) high school students. 182 students who met the appropriate criteria were included in this study. 94 students were diagnosed with dry eye syndrome by Ocular Surface Disease Index (OSDI). In this study, they revealed and observed a meaningful significant correlation between smartphone usage and dry eye syndrome. Therefore, it is important to emphasize control of smartphone usage in adolescents.14

Awareness among professions showed that 89% (34 out of 38) staff members and 72% (48 out of 66) students were aware about ocular symptoms due to smartphone use. In 2014 Jun Hyung Moon carried out a case control study and stated that children using mobile phone was high associated with pediatric Dry Eye Disease.15

The awareness and unawareness among staff members about ocular symptoms due to smartphone use in which 89% (34 out of 38) were aware and 10% (4 out of 38) were unaware about ocular symptoms due to smartphone. A survey was done in Hong Kong in which anonymous 40 years old was diagnosed with eye cancer and the reason was known to be the usage of his smartphone pattern. There are still doubts about smartphone causing a threatening ocular disease i.e. eye cancer.16 Awareness level among staff members shown in graph 4 showed 50% (17 out of 34) staff members were highly aware, 26% (11 out of 34) were low level aware and 11% (6 out of 34) were moderate level aware about ocular symptoms due to smartphone use.

The awareness among students in which 72% (48 out of 66) students were aware and 27% (18 out of 66) were unaware about ocular symptoms due to smartphone use. Andrew Griffin performed a study on people who were addicted to their smartphones. He found out that it is causing chemical variation of the brain that could lead to severe tiredness and anxiety.17 50% (24 out of 48) students were highly aware, 33% (16 out of 48) were low level aware and 16% (8 out of 48) were moderate level aware about ocular symptoms due to smartphone use. A medical director named Jeff Taylor claimed that at least 1 out of every 4 eye patients comes with complain of eyestrain and the commonest reason is using small screen smartphone for reading purpose.18

This study also showed awareness about different ocular symptoms caused due to smartphone use. It showed that most 80% staff members and students were aware about eyestrain/fatigue caused due to smartphone while very few 8% and 6% were aware about smartphone use causing cataract and macular degeneration respectively. A study conducted by Aswatha Priya Sadagopan in 2017 revealed that 43% of the students having symptoms complained of any one of the symptoms of vision syndrome while working on smartphone.19

We also found that 76% of subjects were aware about the irritation/burning of the eyes, 51% subjects were aware about the ocular pain, 46% subjects were aware about the redness of the eyes, 45% were aware about the watering of the eyes, 42% were aware about the eyesight deterioration and 31% were aware about the double vision due to smartphone use. A study in Kocaeli, Turkey concluded that subjects who possessed smart phone for more than 2 years had a significant increase in blurring of vision compared to users having mobile phone for less than 2 years in which female had been reported to have more inflammation in the eyes as compared to men.20

CONCLUSION

There is a shortage of literature survey to find out the awareness in developing the ocular symptoms due to smartphone use. From this study it is concluded that most of the subjects i.e. staff members and students were aware about ocular symptoms due to smartphone use. Unlike students, staff members were more aware about it. Numerous staff members and students were highly aware while very few were unaware about some of the ocular symptoms caused due to smartphone use.

REFERENCES

1. Andrew Nusca. 20 August 2009. “Smartphone vs. feature phone arms race heats up; which did you buy?” [Accessed date: 12-4-2019]
Awareness Level of Ocular Symptoms Caused by Smart Phone Use


17. Andrew Griffin. 30 November 2017. Smartphone addiction causes an imbalance in the brain that makes people tired and anxious, study finds.


*****************************************************************************************************************

Uveal melanoma

An old woman presented to the emergency department with a 4-day history of inflammation and pain in the right eye. She had been blind in the eye for several years. MRI revealed a right orbital mass. Abdominal and thoracic imaging showed numerous hepatic masses, abdominal and thoracic lymphadenopathy, and vertebral sclerotic osseous disease. The right eye was enucleated for palliative relief and to obtain tissue for diagnosis.

**Differential Diagnosis.** Amaurosis fugax, T-cell lymphoma, Uveal melanoma, Vitreous hemorrhage, Disseminated aspergillosis.
Photorefractive Keratectomy a Predicative Procedure with Mitomycin – C in Myopic Patients.
(Case Study)

M. Alam FCPS¹, Prof. Lal Mohammad FCPS ², Irfan Ullah Orakzai FCPS³
Department of Ophthalmology, KMU. IMS., KDA Teaching Hospital, Kohat

ABSTRACT
Objective: To evaluate refractive error status, visual acuity outcome and satisfaction level in patients treated for myopia with photorefractive keratectomy.
Materials and Methods: This study was carried out from 2012 to 2018 on myopic patients undergoing photorefractive keratectomy. 42 patients were selected with age range from 21-29 years with mean age of 23.5 years. Out of 42 patients 15 (35.7 %) were male and 27 (64.23%) were female. All these patients had stable refractive error for one year. Proper informed consent was obtained. Corneal topography was done. Topical alcaine drops were instilled into eyes. Central optical zone debridement was done with soaked alcohol swab and spatula. Excimer laser were applied according to the desired level. After laser Mitomycin C was applied for 15 seconds and then thoroughly washed. Bandage contact lens were applied. Topical antibiotic drops were put in eyes. Patients were put on topical antibiotic /steroid drops for two weeks, nepafenac for one month and systemic diclofenac for five days. Contact lenses were removed after 4 days. Patients refractive error status, visual acuity and satisfaction level was recorded after 6 months.
Results: Preoperative spherical error was from -2.75 to -7.25 diopters, cylindrical error was - 0.5 to -3.5 D cylinder and spherical equivalent -2.75 to -8.0 diopters. Post operative spherical error was from -0.25 to -1.0 diopters, cylindrical from 0 to-0.75 diopter cylinder and spherical equivalent from -0.25 to -1.25 diopters. Visual acuity of 6/6 was recorded in 39 (92.85%) and 6/12 in 3 (7.14%) patients. 37 (88.09%) patients were very satisfied and 5(11.90%) patients were satisfied from results of laser procedure.
Conclusion: PRK is very effective procedure for correction of myopia.
Key Words. PRK (photorefractive keratectomy), V.A (visual acuity), DS (diopter spherical), DC (diopter cylinder).

INTRODUCTION:
Laser surgery is a procedure in which excimer laser is used to vapourise parts of the cornea in order to reshape it. With reshaping procedure it corrects visual impairment. Now a days it is effective procedure for permanent solution of refractive disorders including myopia, hypermetropia and astigmatism. PRK was first introduced in 1988 and has been a gold standard treatment for low to moderate myopia and astigmatism¹.
Initially some complications of PRK like corneal haze and myopic regression were noted ²³. But acquainting the procedure with safe hands and improving experience these complications were slowly eliminated and the ophthalmologists considered this procedure as safe, effective and more predictable to correct myopia.²⁶ PRK is warding procedure and has excellent safety profile. In the past main drawback of surface corneal ablation was the high of possibility of keratocytes activation leading to haze and regression of refractive outcome.
PRK is effective, predicative and rewarding procedure which is stable and safe for the treatment of myopia. It eliminates the long term use of glasses and avoids contact lenses related complications. For good accounting results proper patient selection, refraction, age and topography should be considered.

With continuous research focus on these issues in the last decade PRK outcome have been made good avoiding haze formation and regression particularly with intraoperative use of Mitomycin C.⁷⁸ Mitomycin C acts as alkylating agent inhibiting DNA and protein, Inhibiting proliferation of rapidly growing cells such
as fibroblast causing cell apoptosis. Mitomycin C is also being used with encouraging results in other ophthalmic surgical procedures like trabeculectomy, pterygium, DCR etc.

The objective of this study is to know the refractive error status, visual acuity and patients satisfaction level with PRK for correction of myopia.

MATERIALS AND METHODS:
This study was conducted on myopic patients undergoing PRK with the objective to know the refractive status, VA and patients satisfaction level from 2012 to 2018. Total 42 patients out of which 15 (35.71%) were male and 27 (64.28%) were female (table I) were included in the study. The age range of patients was from 21 to 29 years with mean age 23.5 years. Informed consents were taken and proper proforma was made for documentation of patients results data. Anterior and posterior segments examination was properly done for any associated pathology.

Inclusive criteria:
- Myopic patients
- Normal fundi patients
- Non traumatic eyes
- Stable refraction for one year

Exclusive Criteria:
- Traumatic eyes
- Previous surgery
- Previous PRK

Preoperative refractive status was checked in the form of spherical, cylindrical and spherical equivalent (table-II). During procedure alcaine drops were instilled into the eyes. Epithelial debridement was done with soaked alcohol swab and spatula for clearing of central corneal optical zone of 6mm. PRK was done according to the calibrated need. Mitomycin C drops were put for 15 seconds and then thoroughly washed. Bandage contact lenses were applied. Antibiotic drops were put topically. Antibiotic + steroid topical drops four times a day for two weeks were prescribed. Diclofenac sodium tablets were prescribed for 5 days. Artificial tears along with nepafenac were advised for one month. Dark glasses were advised for 2 weeks. Contact lenses were removed after 4 days. Final refractive status, VA and patients satisfaction level were recorded after 6 months of PRK.

RESULTS:
After 6 months of PRK the refractive status was from -0.25 to -1.0 DS spherical, from 0 to -0.75 DC cylinder and spherical equivalent was from 0 to -1.25DS (table-III). Post PRK VA at the end of 6 months was 6/6 in 39 (92.8%) patients and 6/12 in 3 (7.1%) patients (table IV). Patients satisfaction level at the end of 6 month was very satisfied (39) and satisfied (3) (table V).

DISCUSSION:
PRK is a very safe and effective procedure for correction of myopia. People opt PRK to get rid of glasses and avoid contact lens related complications. Moreover in social set up patients do not want glasses particularly female patients. This is the reason that mostly female patients undergo this procedure as reflected in our study.

Our study demonstrates dramatic decrease in the refractive error of the patients by PRK and improvement in VA without refraction being comparable with national and international studies. Lombardo studies in 2010 has revealed mean spherical error of - 0.11 ± -0.50D while Diakon has reported it as -0.27± -0.70D which are comparable to our study.

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**Table I: Gender Distribution**

<table>
<thead>
<tr>
<th>Gender</th>
<th>No. of patients</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>15</td>
<td>35.71%</td>
</tr>
<tr>
<td>Female</td>
<td>27</td>
<td>64.28%</td>
</tr>
</tbody>
</table>

**Table II: Pre Operative Refractive Status**

<table>
<thead>
<tr>
<th>Refractive status</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>Spherical diopters</td>
<td>-0.25 to -1.0 DS</td>
</tr>
<tr>
<td>Cylindrical</td>
<td>-0.75 to -1.25 DS</td>
</tr>
<tr>
<td>Spherical equivalent</td>
<td>-1.0 to -1.25 DS</td>
</tr>
</tbody>
</table>

**Table III: Post PRK Refractive status after 6 months**

<table>
<thead>
<tr>
<th>Refractive status</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>Spherical diopters</td>
<td>-0.25 to -1.0 DS</td>
</tr>
<tr>
<td>Cylindrical</td>
<td>-0.75 to -1.25 DS</td>
</tr>
<tr>
<td>Spherical equivalent</td>
<td>-1.0 to -1.25 DS</td>
</tr>
</tbody>
</table>

**Table IV: Post PRK VA at the end of 6 months**

<table>
<thead>
<tr>
<th>VA</th>
<th>No. of patients</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/6</td>
<td>39</td>
<td>92.85%</td>
</tr>
<tr>
<td>6/12</td>
<td>3</td>
<td>7.14%</td>
</tr>
</tbody>
</table>

**Table V: Post PRK Patient Satisfaction level after 6 months.**

<table>
<thead>
<tr>
<th>Satisfaction level</th>
<th>No. of patients</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Satisfied</td>
<td>39</td>
<td>92.85%</td>
</tr>
<tr>
<td>Satisfied</td>
<td>3</td>
<td>7.14%</td>
</tr>
<tr>
<td>Not Satisfied</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Masih Hashmeni et al has reported PRK results with use of Mitomycin C with PRK for myopia. According to their study after PRK mean dioptric spherical equivalent before surgery was -3.40 ± 1.73 and post PRK it was 0.08 ± -0.40. Nouman Hashemi et al. study reported post operative refractive status of spherical -0.3 to 1.5 DS, cylindrical -0.8 to -0.6 DC and spherical equivalent of -0.6 to -1.6DS being comparable to our study. This study also reports patients satisfaction level being lesser than our study.

Our study has reported visual equity of 6/6 in 92.85% patients and 6/12 in 7.14% patients after PRK. Tu-Ling, Liu, et al has reported VA of 6/6 in 79.2% patients. Bradley et al study has shown VA of 6/6 in 81.5% patients. Chadfen et al reported V.A of 6/6 in 25% patients in high myopia with PRK. The variation in results are mostly due to patient selection, experienced refraction assessment and topography and machine use. Moreover age of patients has very important role in final outcome.

PRK has shown its efficacy for correction of myopia from low to high myopia. It is common procedure subjected to affordability. With use of Mitomycin C the haze and regression chances are less.

CONCLUSION:

PRK is effective, predicative, awarding procedure which is stable and safe for the treatment of myopia. It eliminates the long term use of glasses and avoids contact lenses related complications. For good accounting results proper patient selection, refraction, age and topography should be considered.

REFERENCES:

ABSTRACT:
Objective: To compare astigmatism induced by the superior and temporal section in manual small incision cataract surgery.
Material and Method: This study was a randomized comparative trial conducted at the department of Ophthalmology, Hayatabad Medical Complex Peshawar, from May 31, 2018 to Nov 30, 2018. 164 patients were included through Out Patient Department and informed written consent was taken. Personal biodata was recorded on predesigned proforma. Patients were randomly allocated by lottery method to superior incision group and temporal incision group. Corneal astigmatism was measured by Helmholtz keratometer (Topcon OM-4).

Results: A total of 164 patients of 50-74 years of age of either gender undergoing manual small incision cataract surgery were studied, who were divided into two equal groups. Overall male to female ratio was 1.20:1. Sex distribution among the groups was insignificant with p-value = 0.376. Surgically induced astigmatism wise distribution shows that patients in superior incision group (Group A) have average astigmatism of 0.328 ± 0.333 S.D while in temporal incision group (Group B) it was 0.243 ± 0.296 S.D, which was significant with p-value = 0.080.

Conclusion: Both incisions resulted in same amount of mean astigmatism at 6 weeks and difference in mean surgically induced astigmatism (SIA) was found to be statistically insignificant. Temporal incision had the trend of inducing with-the-rule astigmatism.

Key Words: Astigmatism; Surgically Induced Astigmatism; Manual Small Incision Cataract Surgery; Extra capsular cataract extraction; Cataract visual-outcome; Keratometry.

INTRODUCTION
Cataract remains the leading cause of avoidable blindness worldwide, and is the most commonly performed surgical procedure in the world, with an estimated 19 million operations performed annually. However, the safest, most effective, and economical technique of cataract surgery remains debatable. Over the past decade, manual small incision cataract surgery (MSICS) has become an established surgical alternative to phacoemulsification.

Both incisions resulted in same amount of mean astigmatism at 6 weeks and was found to be statistically insignificant. Temporal incision had the trend of inducing with-the-rule astigmatism.

Manual small-incision cataract surgery (MSICS) is a cost-saving procedure and is suitable for developing countries. Now-a-days, all techniques of cataract extraction are being modified to give best uncorrected visual acuity and early rehabilitation. In addition to improving visual acuity (VA), one of the goals of modern cataract surgery is to reduce pre-existing astigmatism.

ORIGINAL ARTICLE

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Comparison of Astigmatism following Manual Small Incision Cataract Surgery:

MATERIALS AND METHODS:

This study was conducted at the department of ophthalmology, Hayatabad medical complex Peshawar, from May 31, 2018 to Nov 30, 2018. It was a randomized comparative trial. Sample size was based on study done by Magdum RM et al whereby mean SIA (surgically induced astigmatism) in two groups. Effect of gender and age was assessed with statistical methods that decrease postoperative against-the-rule astigmatisms have good outcomes. A study done by Magdum RM et al showed that "In superior incision group, mean SIA was 1.09D ± 0.66 and temporal incision group the mean SIA was 0.72D ± 0.79 and the difference between the groups was statistically significant".

RESULTS:

A total of 164 patients of 50-74 years of age of either gender undergoing manual small incision cataract surgery were studied, who were divided into two equal groups. Patients in one group with superior incisions was made (Group A) while patients in another group passed through temporal incision (Group B). There were 46(56.1%) male and 36(43.9%) female patients in Group A while 49(59.8%) were males and 33(40.2%) were females in Group B, which was statistically insignificant in both the groups with p-value 0.376. Overall male to female ratio is 1.20:1. Table 1.

Average age was 58.09 years± 5.86SD in Group A and contains 27(32.9%) patients having less than or equal to 55 years, 45(54.9%) patients 56-65 years and 10(12.2%) patients lie in the age of more than 65 years. While Group B have average age of 57.70 ±6.05SD and contains 30(36.6%) patients in less than or equal to 55 years, 43(52.4%) in 56-65 years and 9(11%) patients have age more than 65 years. The overall average of the patients was 57.89 years ±5.94SD. The age distribution among the groups was insignificant with p-value 0.880. Table 2.

Surgically induced astigmatism wise distribution shows that Group A have average astigmatism of 0.328± 0.335SD while in Group B it was 0.243±0.296SD which was significant with p-value = 0.080. Table 3.

When surgically induced astigmatism was stratified for age in both the groups, it was found that age group was insignificant for astigmatism in both the groups. Table 4. Similarly when pain of the patients was stratified for gender, it shows that pain was significant in males while females have insignificant effect in both the groups. Table 5.
Comparison of Astigmatism following Manual Small Incision Cataract Surgery:

### TABLE NO: 1. Gender distribution in both the groups (p-value 0.376)

<table>
<thead>
<tr>
<th>Groups</th>
<th>A</th>
<th>B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>46</td>
<td>49</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>56.1%</td>
<td>59.8%</td>
<td>57.9%</td>
</tr>
<tr>
<td>Female</td>
<td>36</td>
<td>33</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>43.9%</td>
<td>40.2%</td>
<td>42.1%</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>82</td>
<td>164</td>
</tr>
<tr>
<td></td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

### TABLE NO: 2. Age wise distribution in both the groups (p-value 0.88)

<table>
<thead>
<tr>
<th>Age in years</th>
<th>Group A</th>
<th>Group B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 55</td>
<td>27</td>
<td>30</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td>32.9%</td>
<td>36.6%</td>
<td>34.8%</td>
</tr>
<tr>
<td>56 - 65</td>
<td>45</td>
<td>43</td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>54.9%</td>
<td>52.4%</td>
<td>53.7%</td>
</tr>
<tr>
<td>66 +</td>
<td>10</td>
<td>9</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>12.2%</td>
<td>11.0%</td>
<td>11.6%</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>82</td>
<td>164</td>
</tr>
<tr>
<td>Mean +SD</td>
<td>58.09 years +5.86</td>
<td>57.70 years +6.05</td>
<td>57.89 years +5.94</td>
</tr>
</tbody>
</table>

### TABLE NO: 3. Comparison of surgically induced astigmatism in both the groups

<table>
<thead>
<tr>
<th>Groups</th>
<th>No.</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgically Induced Astigmatism</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>82</td>
<td>.3276</td>
<td>.33344</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>82</td>
<td>.2427</td>
<td>.29648</td>
<td>0.080</td>
</tr>
</tbody>
</table>
### TABLE NO: 4. Age wise distribution of surgically induced astigmatism in both the groups

<table>
<thead>
<tr>
<th>Age (in years)</th>
<th>&lt;= 55.00</th>
<th>56.00 - 65.00</th>
<th>66.00+</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Groups</strong></td>
<td>A</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>Surgically Induced Astigmatism</td>
<td>Count</td>
<td>Mean</td>
<td>Deviation</td>
</tr>
<tr>
<td>Standard</td>
<td>27</td>
<td>.38</td>
<td>.34</td>
</tr>
<tr>
<td>Standard</td>
<td>45</td>
<td>.30</td>
<td>.33</td>
</tr>
<tr>
<td>Standard</td>
<td>10</td>
<td>.28</td>
<td>.37</td>
</tr>
<tr>
<td><strong>p-value</strong></td>
<td>.3568</td>
<td>.1354</td>
<td>.8956</td>
</tr>
</tbody>
</table>

### TABLE NO: 5. Gender wise distribution of surgically induced astigmatism in both the groups

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Groups</strong></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Surgically Induced Astigmatism</td>
<td>Count</td>
<td>Mean</td>
</tr>
<tr>
<td>Standard</td>
<td>46</td>
<td>.31</td>
</tr>
<tr>
<td>Standard</td>
<td>36</td>
<td>.35</td>
</tr>
<tr>
<td><strong>p-value</strong></td>
<td>.3325</td>
<td>.8467</td>
</tr>
</tbody>
</table>

**Comparison of Astigmatism following Manual Small Incision Cataract Surgery:**

- **TABLE NO: 4.** Age wise distribution of surgically induced astigmatism in both the groups
- **TABLE NO: 5.** Gender wise distribution of surgically induced astigmatism in both the groups
DISCUSSION

Advocates of phacoemulsification and MSICS report less post-surgical astigmatism along with earlier stabilization of refraction, visual acuity and early spectral correction.10 MSICS technique was introduced by Ruit et al in 2000, and since then, this technique has grown in popularity in developing countries.12 The basic aim of this study was to compare the surgically induced astigmatism at two incision sites in manual small incision cataract surgery. Cataract surgery has transformed into a refractive surgical procedure, as incision location in cataract surgery can affect the corneal astigmatism and ultimate visual outcome. In clear corneal surgery, placement of the incision on steep axis can help to reduce astigmatism within the meridian.11,12 In a kerato-refractive surgery it was seen that astigmatism as low as 0.75 D may leave a patient symptomatic with visual blur, ghosting and halos.13 In a study conducted on 1500 patients mean surgically induced astigmatism in MSICS at 6 weeks postop was found to be 0.3 D,14 another study showed a SIA of 0.69 D but these studies did not compare SIA at different incision sites.

In our study mean SIA at 6 weeks in superior incision group was 0.367 ± 0.669 D which is comparable to earlier studies. In temporal incision group mean SIA at 6 weeks was 0.225 ± 0.529 D. It can be seen here that temporal incision induced less mean SIA than superior incision but this difference was statistically insignificant (p value 0.257). A study conducted in India had found the mean SIA of 1.28 D for superior incision and 0.37 D for temporal incision in MSICS.7

In our study it is seen that superior incision group has resulted in a higher SIA at 6 weeks. Exact cause is undetermined but it is possible that less mean pre-op astigmatism resulted in a higher SIA in this group. When only mean astigmatism present at 6 weeks was compared both groups had equal amount of astigmatism (0.892 D in superior incision group vs. 0.894 D in temporal incision group). In 2007, Ruit et al compared MSICS with Phacoemulsification, in their series all MSICS surgeries were performed by a temporal incision, mean astigmatism was 0.88 D which is comparable to mean astigmatism in temporal group of our study at 6 weeks.15 However, another study showed higher mean postop astigmatism in superior incision than in temporal incision, 1.45 D versus 0.43 D respectively.7 Paired T test was applied to determine the effect of incision site on magnitude of postop astigmatism. Superior incision had an insignificant effect on magnitude of astigmatism at 6 weeks (p value 0.139) while temporal incision had a significant effect on magnitude of astigmatism at 6 weeks (p value <0.001). When both the groups were compared no significant difference in amount of pre and postop astigmatism was seen (p-value 0.089 and 0.990 respectively). Both the study groups showed a significant association between incision site and change in axis of astigmatism as determined by chi-square test (P value 0.005 in superior incision group versus 0.021 in temporal incision group).

In superior incision group out of 24 eyes who had pre-op with-the-rule astigmatism, 7 eyes (29.1%) retained with-the-rule astigmatism they had pre-op astigmatism equal to or more than 0.75 D. 14 eyes (58.3%) developed against-the-rule astigmatism along with 3 eyes (12.5%) with neutral astigmatism postoperatively. These 17 eyes were having pre-op astigmatism 0.5 D or less. All the 25 eyes having pre-op against-the-rule astigmatism, retained against-the-rule astigmatism post-operatively. Astigmatism shift was seen in those patients in superior incision group with a pre-op astigmatism of 0.5 D or less. Tejedor and Murube, in a study of patients having with-the-rule astigmatism, recommended at least 1.5 diopters of corneal astigmatism in a superior incision in order to avoid a change in axis.16

Chi-square test showed a significant relationship between incision site and axis shift in astigmatism (p value 0.005). In temporal incision group 20 eyes (100%) with pre-op with-the-rule astigmatism, retained with-the-rule astigmatism postoperatively. While 20 eyes (74%) having pre-op against-the-rule astigmatism along with 6 eyes (100%) having neutral pre-op astigmatism had a postop axis shift to with-the-rule astigmatism. Seventy three percent of patients with axis shift were having pre-op astigmatism of 0.75 D or less.

In one of the study, 75% of cases who had against-the-rule astigmatism and who underwent surgery through a temporal incision for an astigmatism axis shift of 90 degrees were found to have a preoperative astigmatism magnitude of less than 0.75 diopters.16 These results are comparable to our study and chi-square test showed a significant relationship between incision site and axis shift in astigmatism (P value 0.021). When both the groups were compared using chi-square test, a significant difference in type of post-op astigmatism was noted with 81.1% of eyes in superior incision group having against-the-rule shift while 86.8% of eyes in temporal incision group having with-the-rule shift (p value 0.000).

Studies have shown that if the magnitude of astigmatism is significantly reduced, the patient’s visual acuity could improve, even if axis shift occurs. However, it is generally accepted that reducing astigmatism without significantly changing the axis is well tolerated and should be the goal.17,18 There is a difference of opinion as to which type of astigmatism, if any, is preferable after cataract surgery. Some authors have suggested that residual with-the-rule astigmatism may favor better uncorrected distance acuity and is better tolerated visually.19,20 Others believe that low myopic against-the-rule astigmatism provides better near UCVA compared to an equal amount of with-the-rule astigmatism.21 In our study 50% patients in temporal incision group
had against the rule astigmatism preoperatively which reduced to 13.2 % postoperatively. Actual impact of this change could not be assessed because visual acuity assessment was not performed in this study. In a study conducted by Huang and Tseng from Taiwan, surgically induced astigmatism was compared between two groups of patients in which sutureless temporal clear corneal and sutureless temporal scleral frown incisions were given. It was concluded that scleral frown incision resulted in a much lesser amount of surgically-induced corneal astigmatism as compared to the clear corneal incision, which caused greater WTR astigmatism. This study also proved that corneal stability was achieved one week after scleral frown incisions as compared to clear corneal incisions in which case, stabilization of refraction delayed to 1–3 months post-operatively.22

On the other hand 47.2 % cases in superior incision group had pre-op against-the-rule astigmatism which increased to 81.1 % postoperatively. This finding is similar to results of a study conducted by Hennig and co-authors, in which 85.5 % patients had against-the-rule astigmatism post operatively at 6 weeks with superior incision.23 In one of related study, authors concluded that with-the-rule astigmatism induced by temporal incision is advantageous because most elderly patients have pre-op against-the-rule astigmatism.24 Similarly in a study comparing superior and temporal scleral incisions it was showed that a superior incision induced slight against-the-rule astigmatism and a temporal incision was associated with slight with-the-rule astigmatic changes.25

CONCLUSION

Both superior and temporal incisions in MSICS resulted in almost same amount of mean astigmatism at 6 weeks (final follow-up) and mean SIA was found to be insignificantly different in both groups. Temporal incision group had the advantage of achieving with-the-rule astigmatism. It was seen in this study that applying superior incision on patients with pre-existing with-the-rule corneal astigmatism could lead to axis shift to against-the-rule astigmatism. So selection of site of incision should be guided by amount and type of preoperative astigmatism.

REFERENCES

Ocular Trauma in Children Below 16 Years’ Age admitted in a Tertiary Care Hospital

Afzal Qadir FCPS¹, Ashfaq ur Rehman FCPS², Abdul Aziz FCPS³, Mohammad Israr MCPS⁴

ABSTRACT:
Objective: Ocular trauma is a leading cause of preventable blindness and is a serious public health concern. To describe the pattern and causes of ocular trauma in children below 16 years of age requiring hospitalization.
Methodology: A retrospective descriptive study was conducted in ophthalmology department of Hayatabad Medical Complex, Peshawar. Data of 658 patients admitted with ocular trauma during a period of three years, from January 2016 to December 2018 was reviewed and analyzed. The details of patients regarding age, gender, causes, types of injuries and outcomes were evaluated from the data.
Results: In our data majority were boys (63%). The mean age at admission was 6.4 years. Ocular trauma was noted more frequent in children between 5 and 10 years than those below or above age group. Most cases of trauma occurred at home (54 %) followed by playgrounds (22%), roads and streets (20%), farms (3%) and schools (1%). Open globe injuries were reported more frequently than closed globe and adnexal injuries. Among the causes of injury, projectile objects constitute (22%), household objects (18%), blunt objects (16%) and others 44%. Open globe injuries with corneal laceration were the most common presentation causing severe visual impairment.
Conclusion: Most ocular injuries in children are preventable, therefore importance of health education, supervision at home and application of appropriate protective measures are necessary in order to reduce and avoid the incidence and severity of trauma.
Key words: Ocular trauma, children.

INTRODUCTION:
Non-fatal injuries are one of the leading causes of emergency hospitalizations with long term morbidity and burden for health systems around the world. Ocular trauma is a leading cause of preventable blindness in any country and is a serious public health concern in developed and developing countries. In a research programme for the prevention of blindness, the World Health Organization (WHO) estimated that 55 million eye injuries occur yearly, of which 750,000 patients require hospitalization. Population based studies even in developed country like USA have reported eye injury as the third most common indication for hospitalization in emergency departments, and the National Society for the Prevention of Blindness estimates that up to 90% of all eye injuries are preventable, especially in the paediatric age group. Ocular injuries accounts for approximately 8-14% of total injuries suffered by children.

Most ocular injuries in children are preventable. The importance of health education, supervision at home and application of appropriate protective measures are necessary in order to avoid the incidence and severity of trauma.

Ocular trauma especially in children is an unpleasant event. Children are found more inquisitive than adult, hence they are exposed to violent environment in terms of place and causative objects. Children are more susceptible to ocular trauma because of their immature motor skills and curious nature. Male gender is affected more than females for their adventurous and aggressive behaviour. Ocular injuries in paediatric patients have different patterns regarding nature of...
trauma and cause of insult as compared to adult and have age-specific type of injuries. Children below 3 years of age mostly suffer handler-related injuries such as finger nails of parents, siblings or caretakers while in older children injuries are mostly due to sharp pointing objects such as toys, sticks, pencils, needles, scissors, sports objects and stones etc. Children less than 3 years of age sustain fewer injuries because of close supervision by parents. Bringing the patient to the nearest available eye care facilities and rapid evaluation and assessment of severity along with early management must be provided earlier in order to avoid blindness causing complications. Paediatric eye injuries account for approximately 8-14% of total injuries and the most common type requiring hospitalization. Ocular injuries are simply classified into three types: Open globe, closed globe, and adnexal injuries. Most common emergencies are due to open-globe injuries and require immediate interventions.

The ignorance and lack of responsibility also leads to indirect damage to the eye resulting in loss of vision. This condition may result into poor visual outcome (dense amblyopia). Even small trauma to an eye may lead to permanent visual impairment creating significant impact on future quality of life. The ensuing visual disability has significant emotional, psychological and socio economic impact on the individual person, family and to the society as a whole. Hence, awareness regarding eye injuries and its early specialized treatment can give good visual prognosis. Our study was aimed at describing the pattern of paediatric injuries in terms of age, place, causes and types of injury. The suggestions based on results would help in taking protective and precautionary measures at home and outside for kids to avoid blindness causing injuries.

MATERIALS AND METHODS:
A retrospective descriptive study was conducted in ophthalmology department in Hayatabad Medical Complex, Peshawar. The data of 658 patients with 672 eyes admitted for ocular trauma during a period of three years, from January 2016 to December 2018 was reviewed and analysed. The details of patients regarding age, gender, causes and type of injuries were evaluated from the data. Children with age 16 years or below were included in study. Data consisted of only patients who presented or were referred to the hospital from all parts of Khyber Pakhtunkhwa and adjacent Tribal areas requiring hospital admission.

RESULTS:
Data of total 658 patients with 672 eyes, with bilateral involvement in 14 eyes was reviewed and analyzed. The minimum age affected was 7 months while the maximum age was 15 years and 11 months. Most of injuries were reported in boys (63%) as compared to girls. Majority of injuries (61%) occurred in children age group between 6 and 10 years of age. (Table 1)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Male (%)</th>
<th>Female (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;6 years</td>
<td>12</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>6-10 years</td>
<td>38</td>
<td>23</td>
<td>61</td>
</tr>
<tr>
<td>11-16 years</td>
<td>13</td>
<td>8</td>
<td>21</td>
</tr>
</tbody>
</table>

While analyzing the timings of seeking treatment, 85% eye injuries were reported within first 24 hours, 10% within first week while remaining 5% eye injuries were reported after first week. Regarding the place of ocular trauma houses were among the most frequent causes followed by playgrounds. (Figure 2)

<table>
<thead>
<tr>
<th>Causes of Trauma</th>
<th>Frequency %</th>
<th>Nature of Traumatic Objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projectile objects</td>
<td>22</td>
<td>Catapults, BBIs, Crackers, Foreign bodies</td>
</tr>
<tr>
<td>Household sharp objects</td>
<td>18</td>
<td>Pencils, Sticks, Iron bars, Scissors, Toys, Glass pieces, Nails, Syringes</td>
</tr>
<tr>
<td>Blunt objects</td>
<td>16</td>
<td>Nails, Hands, Stones, Utensils</td>
</tr>
<tr>
<td>Sports objects</td>
<td>14</td>
<td>Tennis Balls, Sticks</td>
</tr>
<tr>
<td>Falls</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Chemicals/Burns</td>
<td>6</td>
<td>Lime, Batter blasts</td>
</tr>
<tr>
<td>RTAs</td>
<td>5</td>
<td>Motorcycle, Cars</td>
</tr>
<tr>
<td>Violence/Assaults</td>
<td>5</td>
<td>Fists, steel rods</td>
</tr>
<tr>
<td>Animal bites</td>
<td>2</td>
<td>Monkey, Rooster bites</td>
</tr>
<tr>
<td>Others (Unknown)</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1:
Table 1: Age Group and gender Distribution

Figure 2:
Table 2: Causes of Trauma
Open-globe injuries constitute 48% of cases where full thickness corneal, scleral, corneo-scleral lacerations were observed along with other ocular findings. While 4% of open globe injuries were associated with intraocular or intra-orbital foreign bodies. Closed-globe injuries had 37% of cases that presented with hyphema, corneal IFBs, partial thickness corneal tear, lens injuries, irido-dialysis and vitreous haemorrhage. While amongst the adnexal injuries lid lacerations were the most common findings. (Table 3)

**Table 3: Types of Injuries**

<table>
<thead>
<tr>
<th>Injuries</th>
<th>Frequency %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adnexa</td>
<td>9%</td>
</tr>
<tr>
<td>Lids Lacerations</td>
<td>3%</td>
</tr>
<tr>
<td>Burns</td>
<td>3%</td>
</tr>
<tr>
<td>Blow out fractures</td>
<td>3%</td>
</tr>
<tr>
<td>Closed Globe Injuries</td>
<td></td>
</tr>
<tr>
<td>Hyphema</td>
<td>14.5%</td>
</tr>
<tr>
<td>Vitreous bleed</td>
<td>6.7%</td>
</tr>
<tr>
<td>Corneal FBs</td>
<td>6%</td>
</tr>
<tr>
<td>Conjunctival Lacerations</td>
<td>5.2%</td>
</tr>
<tr>
<td>Conjunctival FBs</td>
<td>2.3%</td>
</tr>
<tr>
<td>Others</td>
<td>2.3%</td>
</tr>
<tr>
<td>Open globe injuries</td>
<td></td>
</tr>
<tr>
<td>Corneal Laceration</td>
<td>29%</td>
</tr>
<tr>
<td>Corneo-scleral Tear</td>
<td>13%</td>
</tr>
<tr>
<td>Scleral laceration</td>
<td>6%</td>
</tr>
<tr>
<td>Other associated injuries in OGlis:</td>
<td></td>
</tr>
<tr>
<td>Uveal tissue damage</td>
<td>46%</td>
</tr>
<tr>
<td>Lens injury</td>
<td>34%</td>
</tr>
<tr>
<td>Hyphema</td>
<td>13%</td>
</tr>
<tr>
<td>Vitreous bleed</td>
<td>9%</td>
</tr>
<tr>
<td>IOFBs</td>
<td>4%</td>
</tr>
</tbody>
</table>

Ocular injuries were more frequent (82%) in age-group between 6 and 16 years than below 6 years (18%) which is similar to other studies like MacEwen where it was 84% of ocular injuries in 5-14 years age-group, 17-19 Children of this age group are more susceptible to injuries than younger age groups, because of their independent, adventurous and aggressive behaviour in many unsupervised activities, making them more vulnerable. While children of age-group below 5 years are most of the time under supervision of parents and less active in physical activities as compared to other age groups. So, younger age groups are more susceptible to handler-related injuries like fingernails of siblings, mother, or caretakers. Overall, there was disproportionately large number of boys in the study population with male to female proportion of 63:37. In one local study there were 166 male (76.85%) while female were 50 (23.15%). This owing to more adventurous and aggressive behaviour of boys compared to girls for getting more and severe ocular injuries. The strong associations of ocular trauma with younger age, male gender have been consistently documented in other studies.

Ocular injuries were more commonly domestic (54%), followed by playground (22%) which are very much similar to MacEwen C (51%) and Desai T et al., (45.62%). Similarly, the injuries due to knife and scissors occurred in home and were the commonest (17.59%) and the injuries occurring due to fire cracker and vegetable matter outside home were also common 16.20% and 13.89% respectively. Home is the common place of injuries both for preschool and school-going children, for the amount of time is spent more at home. Early treatment acquisition is very important for good visual outcome and in our study 85% of patients reported within 24 hours, 10% within first week which was contradictory with few studies like in Desai T et al. where around 70% presented after 24 hours. Malik R et al. found 47.50% visit within 24 hours and 30.50% in more than 48 hours. It appears to be due to improved infrastructure like transport, availability of specialized hospitals in remote area, and increasing awareness in parents and society at large. Those visited late were due to poor parenthood, carelessness, poverty, extremely remote area, and fear factor in children.

In our study, projectile objects caused more number of eye injuries (22%), by household injuries (18%), blunt objects (16%) and sports (14%) which are more common in older age groups (6-16 years). Due to low socioeconomic status and lack of supervision on part of parents accidental fall, burns and animal bite injuries were more common in younger age group (>6 years). Similarly, in sports injuries, cricket ball and bat injuries are more common to gilli-danda and bow-arrow injuries nowadays even in rural areas. One study showed that vegetative material (branches of trees, thorns) and wooden sticks as the common causative agents.
Adnexal, closed globe and open globe injuries had different incidences of 15%, 37%, and 48% respectively, which are different from other studies like Desai T et al. where incidence of adnexal and closed globe injuries were 27% and 32% respectively. In a study that looked at the medical records of 481 children of up to 16 years who had sustained ocular trauma, about 51% injuries were of open-globe type and 37.6% were closed-globe injuries. While open globe injuries incidence varies in different studies in different countries.

All patients treated were admitted at our hospital. Eyes with traumatic cataract were treated surgically with posterior chamber intraocular lens (PCIOL) implantation. Eyes with lacerated adnexa and globe were surgically repaired under general anaesthesia. 4% eyes had intraocular foreign bodies that were removed with vitrectomy by vitreoretinal surgeons. 3% of eyes needed enucleation or evisceration with implants due to either irreparable shattered globes or endophthalmitis. Endophthalmitis following retention of intraocular foreign body for prolonged time is extremely serious, and may lead to severe loss of vision. In a global survey the reported incidence of endophthalmitis after penetrating ocular trauma was 13.5%. Post-traumatic eye complications caused is facial expression ambyopia, and blindness that affect quality of life. Therefore, it is very important for the health care providers and the parents to be aware of the ocular traumas and its consequences, risk factors and causative objects at home and in surroundings and to take preventive measures to avoid trauma. Moreover, in addition to describe patterns of trauma, further studies are required on visual outcome and long term complications of traumatic eyes.

CONCLUSION:
Most of the eye injuries in paediatric age group occur below 10 years, due to aggressive and curious behaviour prevailing at this period of life, particularly in male gender. Risk factors such as playing with stones, sticks and other sharp pointed objects should be identified and discouraged. Provision of pictorial educational materials to parents and at schools in order to distract the attention from aggressive behaviour are very much advised. Moreover, seeking treatments in time is helpful for better outcome and avoid complications in traumatic eyes.

REFERENCES:
Ocular Trauma in Children Below 16 Years' Age admitted in a Tertiary Care Hospital

47. Sultan MN, Javed EA, Nawaz M. Profile of Ocular Trauma in Patients Under the Age of Sixteen Years in Allied Hospital, Faisalabad. APMC 2016;10(4):228-232
ABSTRACT:
Aim: To find the ocular manifestation in rheumatoid arthritis.
Material and Method: A cross sectional study was conducted in Bahria Hospital Lahore. 200 patients were examined in I or II stage of rheumatoid disorders. Consecutive sampling technique was used. All patients were sero-positive. Ophthalmological exam, visual acuity by Snellen’s visual acuity, biomicroscopy of anterior segment, Schirmer test, tear break-up time (BUT), applanation tonometry and indirect ophthalmoscopy.
Result: The result showed Ocular manifestations were in 41% patients. Most common ocular manifestation were keratoconjunctivitis and 33% other ocular manifestation were scleritis including uveitis, keratitis, episcleritis.
Conclusion: Ocular manifestations involved with RA are significant. The most common manifestation of ocular involvement was KCS, these were more common amongst patients with longer disease duration and the persons mostly steroids for longer duration.
Keywords: episcleritis, keratoconjunctivitis sicca, rheumatoid arthritis, scleritis including uveitis.

INTRODUCTION:
Rheumatoid arthritis (RA) is a systemic inflammatory disease, which is associated with a number of extra-articular organ manifestations, such as pericarditis, pleuritis, major cutaneous vasculitis, Felty’s syndrome, neuropathy, ocular manifestations, glomerulonephritis, and other types of vasculitis [1]. Extra-articular manifestations in RA are present in 10-40% of patients and are more frequently seen in sero-positive patients [2]. Ocular manifestations involved with RA are mainly keratoconjunctivitis sicca (KCS), episcleritis, scleritis, corneal changes, and retinal vasculitis [3].
KCS is common in individuals with RA and is often the initial manifestation. KCS appears as a result of the decreased secretion of tears from the main and accessory lacrimal glands. [4][5] The interruption of lacrimal secretion is caused by the atrophic and cirrhotic changes in the lacrimal glands and leads to the reduction of the middle layer of the precorneal lacrimal film, which becomes viscous in later stages. In KCS, conjunctival goblet cells are stimulated to increase the secretion of the mucus. [6] Very often, fibrous coverings of mucin tied down to the cornea or laid in the lower fornix are seen. It rarely appears as a form of filamentous keratitis – for example, twisted filaments tied up to the cornea by one part. This is a particularly painful condition, because blinking moves the filaments, tugging the epithelial attachments and tending to strip off further epithelium [7].

Ocular manifestations involved with RA are significant. The most common ocular involvement is KCS and more common among patients with longer disease duration with steroids.

Episcleritis is an inflammatory condition affecting the episcleral tissue that lies between the conjunctiva and the sclera. Usually, episcleritis is a mild, self-limiting, recurrent disease; although most cases are of unknown etiology; up to one-third of patients have an underlying systemic condition [8]. Scleritis is a chronic, painful, and potentially blinding inflammatory disease that is characterized by edema and cellular infiltration of the scleral and episcleral tissues. It may be
Manifestation of Ocular Involvement in Rheumatoid Arthritis

classified into anterior and posterior. Anterior scleritis can be diffuse, nodular, necrotizing with inflammation (necrotizing), and necrotizing without inflammation (scleromalacia perforans)⁹. The most common clinical forms are diffuse scleritis and nodular scleritis. Necrotizing scleritis with or without inflammation is much less frequent, more ominous, and frequently associated with systemic autoimmune disorders. Posterior scleritis is characterized by flattening of the posterior aspect of the globe, thickening of the posterior coats of the eye (choroid and sclera), and retrobulbar edema; however, it is rarely seen in patients with RA.¹⁰

MATERIAL AND METHOD:

A total of 200 patients with RA were selected through consecutive sampling to participate in this cross-sectional study during the period between October 2016 and August 2017. Patients were selected according to strict eligibility criteria, with rheumatoid arthritis of stage I and II. On the other hand other types of retinopathy due to other reasons such as diabetic retinopathy, retinitis pigmentosa, and retinopathy due to blood disorders were excluded. Ophthalmological exam contained visual acuity by Snellen’s biomicroscopy of anterior segment, Schirmer test, tear break-up time (BUT), applanation tonometry and indirect ophthalmoscopy. The study was approved by the Ethical Committee of Bahria University. The participants were informed about the purpose of the study, and confidentiality of data was maintained. Informed consent was obtained from all participants. Data were analyzed using the software statistical package for the social science (SPSS version 20. Frequency distribution with its percentage and descriptive statistics with mean and SD were calculated. Chi-square, t-test, and correlations were done whenever needed. P values of less than 0.05 were considered significant.

RESULTS:

Of the 200 patients who were recruited for the study, 84% were female and 16% were male. The age of the patients ranged between 20 and 72 years with a mean of 44.97±11.75 years. The duration of RA since it was diagnosed for the first time ranged between 1 and 18 years with a mean of 5.73±4.13 years; 81 (45%) patients had a history of RA more than 5 years and 99 (55%) patients had a duration less than 5 years. The mean erythrocyte sedimentation rate of the patients was 45.13±12.05 mm. Throughout the study, 101 (56.1%) patients were on monotherapy, and the rest of the patients were taking more than one medication, with 165 (91.7%) patients being on methotrexate, 75 (41.7%) patients on steroids, and 48 (26.7%) patients on antimalarial drugs. 33% patients had ocular manifestations (3 male and 58 female). 4% had episcleritis (all were female); 3.2% had scleritis (all were female); and three patients 2 patients had keratitis (1 male and 1 female). There was no statistically significant difference between the two sexes as regards the form of ocular manifestations (P>0.05). Patients with scleritis were found to have anterior diffuse scleritis including iridocyclitis.

Table 1: Disease activity score relation with ocular manifestation

<table>
<thead>
<tr>
<th>Disease activity score</th>
<th>Ocular manifestation</th>
<th>Keratoconjunctivitis</th>
<th>Episcleritis</th>
<th>Scleritis</th>
<th>Keratitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>27%</td>
<td>24%</td>
<td>2%</td>
<td>2%</td>
<td>-</td>
</tr>
<tr>
<td>Moderate</td>
<td>12%</td>
<td>8%</td>
<td>2%</td>
<td>1.2%</td>
<td>1%</td>
</tr>
<tr>
<td>Severe</td>
<td>41%</td>
<td>1%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 2: Distribution of ocular manifestation with duration of disease

<table>
<thead>
<tr>
<th>Duration of disease</th>
<th>Patients</th>
<th>Ocular manifestation</th>
<th>Keratoconjunctivitis</th>
<th>Episcleritis</th>
<th>Scleritis</th>
<th>Keratitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5 year</td>
<td>91</td>
<td>11%</td>
<td>5%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>&gt;5 year</td>
<td>109</td>
<td>30%</td>
<td>28%</td>
<td>4%</td>
<td>3.2%</td>
<td>1%</td>
</tr>
</tbody>
</table>

Interpretation:
The result shows that patients who had RA issue from more that 5 year had ocular manifestation more than others.

Table 3: Distribution of ocular manifestations according to steroid intake

<table>
<thead>
<tr>
<th>Steroid intake</th>
<th>Patients</th>
<th>Ocular manifestation</th>
<th>Keratoconjunctivitis</th>
<th>Episcleritis</th>
<th>Scleritis</th>
<th>Keratitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>yes</td>
<td>141</td>
<td>37%</td>
<td>29%</td>
<td>3%</td>
<td>2.2%</td>
<td>-</td>
</tr>
<tr>
<td>No</td>
<td>59</td>
<td>4%</td>
<td>4%</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
</tr>
</tbody>
</table>

Interpretation: The table shows that people who were steroids had ocular manifestation more than others.
DISCUSSION:

The result showed that the ocular manifestations were present among 41% patients. Most common ocular manifestation was keratoconjunctivitis which was 33% other ocular manifestation were scleritis, keratitis, episcleritis. A study was conducted in Egypt in 2017 by Safaa F in which Of the 180 examined patients, 61 (33.9%) patients had ocular manifestations. There were 52 (85.3%) patients with KCS, three (4.9%) patients with episcleritis, three (4.9%) patients with scleritis, and three (4.9%) patients with keratitis. Patients with longer disease duration were much more likely to have ocular manifestations (odds ratio=7.13, P<0.001).

Another study was in addition, patients with positive history of steroid manifestations of rheumatoid arthritis may affect various components of the eye. There are a lot of signs and symptoms concerning the eye tissue like keratoconjunctivitis sicca, episcleritis, scleritis, keratitis and uveitis. Our study represents a first step in understanding the consequences of rheumatoid arthritis in the eye involvement. Moreover, the purpose of this article is to clarify to clinicians the possible manifestations of the aforementioned disease, as well as their specific management and treatment options. (odds ratio=1.88, P<0.001).

Similarly a study was conducted in Saudi Arabia by Khalid A. Tabbara according to him Thirty nine (65%) patients had ocular manifestations of rheumatoid arthritis. The most frequent manifestation was dry eyes 30 (50.0%). There was no relation between severity of the rheumatoid arthritis disease and ocular manifestation (P = 0.529). There was a relationship between the Anti-CCP antibodies titer and presence of ocular manifestations in rheumatoid arthritis patients (P = 0.006). There were no curable effects of the disease modifying anti-rheumatic drugs, biological agents on ocular manifestations in rheumatoid arthritis patients.

CONCLUSION:

Ocular manifestations involved with RA are significant. The most common manifestation of ocular involvement was KCS. Ocular manifestations were more common among patients with longer disease duration specially with the persons who used steroids for longer duration.

REFERENCES


Assessment of Intraocular Pressure Variation in Dermatological Patients on Long-Term Corticosteroid

Ayesha Maqbool MBBS¹, Tahira Sadaf MBBS², Dr. Saria Yaqub MBBS³

ABSTRACT:
Aim: To describe changes in intraocular pressure after long term use of steroids.
Material and method: A prospective study was conducted in 200 patients with steroid-induced glaucoma, who were on systemic and topical corticosteroids for various dermatological conditions. The variation in IOP caused by different steroid preparations was studied.
Result: Two hundred patients who were on systemic steroids for more than 8 weeks developed raised IOP. Three of these patients also developed bilateral posterior sub-capsular cataract.
Conclusion: Systemic steroids can induce rise of IOP and cataract formation. If it is not detected and treated in time, rise in IOP can lead to irreversible damage to the eyes. CRS may present with a wide spectrum of ocular and systemic findings and require complete investigations for diagnosis. Any sick infant with unilateral or bilateral congenital cataract should also be investigated thoroughly for CRS.
Key points: CRS, microphthalmos, hypoplasia, retinopathy, cataract, iris, bilateral, ophthalmoscopy

INTRODUCTION:
Topical corticosteroids are routinely used in the treatment of post-operative inflammation following cataract surgery [¹] as well as after most other ocular surgical procedures [²] Prolonged use of topical as well as systemic steroids produces a type of glaucoma that is very similar to chronic simple glaucoma. While elevated intraocular pressure (IOP) is reversible, glaucomatous cupping and field defects are irreversible. We wish to draw attention to the disastrous complications that steroids can produce if these patients are not closely followed up. Corticosteroids reduce intraocular inflammation, which is most often measured by anterior segment cell and flare reaction. [³] They also alleviate associated symptoms, such as photophobia, swelling, pain, and tenderness. At a histological level, corticosteroids suppress cellular infiltration, capillary dilation, the proliferation of fibroblasts, collagen deposition, and eventually scar formation [⁴] At a cellular level, they stabilize intracellular and extracellular membranes, and increase the synthesis of anti-inflammatory lipocortins nd in turn, block phospholipase A₂, the enzyme responsible for conversion of phospholipids to arachidonic acid, the first step in the inflammatory cascade [⁴] Corticosteroids mediate their anti-inflammatory effects primarily through the glucocorticoid receptor by direct and indirect actions at the genomic level [⁵] Recent work suggests that the activated corticosteroid–receptor complex also elicits non-genomic effects, particularly in the inhibition of vasodilatation, vascular permeability, and migration of leukocytes [⁶].

Systemic steroids can induce rise of IOP and cataract formation, if it is not detected and treated in time, rise in IOP can lead to irreversible damage to the eyes. CRS may present with a wide spectrum of ocular and systemic findings, which requires a careful diagnosis. Any sick infant with unilateral or bilateral congenital cataract should be investigated thoroughly for CRS as well.

Although topical corticosteroids are a vital component of the treatment of post-operative inflammation, their prolonged use can produce side effects, such as increased IOP, secondary cataract formation (in phakic individuals), and lowered resistance to infection.
The mechanism whereby topical corticosteroids increase IOP is not fully understood. The glucocorticoid receptor is involved in multiple, diverse signaling pathways, and it is thought that steroid-induced IOP elevation, particularly that observed with long-term use or high doses of corticosteroids, is the result of up regulation or repression of one or more genes unrelated to the indication being treated. Most studies implicate trabecular meshwork (TM) cells and myocilin gene expression in the mechanism of corticosteroid-induced IOP elevation. Corticosteroids appear to decrease the outflow of aqueous humor by inhibiting the degradation and/or enhancing the deposition of extracellular matrix material within the TM and/or cross-linking of actin fibers between TM cells. The TM accounts for the majority of drainage from the eye; it appears to be this resistance to aqueous outflow (caused by changes to the TM and its extracellular matrix) that eventually leads to an increase in IOP. Indeed, early ultrastructural studies revealed an increase in extracellular ground substance of the corneo-scleral trabeculum in steroid-induced glaucoma.

MATERIAL & METHOD
This was a prospective study carried out by the Department of Ophthalmology in University of Lahore in patients who were advised systemic steroids for various dermatological conditions and were referred to the Department of Ophthalmology as part of pre-treatment workup. These patients had been advised steroids for periods ranging from 6 to 52 weeks; patients who were prescribed steroids for a period of less than 6 weeks were not considered for the study. A detailed clinical history was taken for all patients and the indications for prescribing steroids were recorded. The patients were divided into three groups based on the mode of steroid intake: group I, included patients on systemic steroids, group II comprised patients on systemic steroids plus topical steroids, and group III included those on systemic pulse steroids. All patients underwent ophthalmological examination and those with preexisting cataract and glaucoma were excluded from the study. Patients were followed up every 2 weeks. At each visit they underwent slit-lamp examination to look for any cataractous changes in the lens and Goldmann applanation tonometry to evaluate IOP changes. IOP was measured on the first visit and after 8 weeks. Increase in IOP of more than 30% of the initial recording was considered significant. The t-test was done using to look for statistical significance of difference between the median values of IOP before start of steroid therapy and after 8 weeks of treatment.

RESULT:
Two hundred patients who were on systemic steroids for more than 8 weeks developed raised IOP. Three of these patients also developed bilateral subcapsular cataract. Of the 200 patients, 137 were males and 63 were females. The age of the patients ranged from 25 years to 50 years. Indications for steroid therapy were as follows: pemphigus in 20 patients, lepra reaction in 19 patients, generalized vitiligo in 52 patients, and parthenium dermatitis in 109 patients as shown in Table 1. Systemic prednisolone in tablet form, at a dose of 0.5–1.5 mg/kg body weight, was used by 107 patients for 8 weeks and by 18 patients for 13 weeks; these 125 patients constituted group I. In addition to oral prednisolone, 21 patients concurrently used topical clobetasol cream and these patients were designated as group II. Pulse therapy with tablet methyl prednisolone, 64 mg/week, was used by 54 patients for 54 weeks; these patients were designated as group III.

All the patients, except those on pulse therapy, had increase of IOP by 30%–50% after 6 weeks of therapy. Patients on systemic prednisolone plus topical clobetasol (group II) showed 38% rise in IOP, while patients on systemic prednisolone alone (group I) showed a rise of 29%. Patients on pulse therapy did not show any rise in IOP. The mean IOP rise in group I was 5.56 and the mean increase in group II was 6.04; in both cases the change was statistically significant (P<0.0001). The mean increase in IOP in group III was 0.17, which was not a statistically significant change (P=0.6057) [Table 3]. A total of seven patients (three from the group III, two from the group II, and two from group I) showed a 50% increase in IOP; these patients were labeled as high steroid responders.

Table 1: Indication for steroid therapy

<table>
<thead>
<tr>
<th>Indication</th>
<th>Number of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pemphigus</td>
<td>20</td>
</tr>
<tr>
<td>Lepra reaction</td>
<td>19</td>
</tr>
<tr>
<td>Generalized vitiligo</td>
<td>52</td>
</tr>
<tr>
<td>Parthenium dermatitis</td>
<td>109</td>
</tr>
</tbody>
</table>

Table 2: Drugs used for therapy

<table>
<thead>
<tr>
<th>Drug used</th>
<th>Duration of therapy</th>
<th>Number of patients</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systemic prednisolone [group I]</td>
<td>13,8</td>
<td>125</td>
<td>Lepra reaction</td>
</tr>
<tr>
<td>Systemic prednisolone [group II]</td>
<td>8</td>
<td>21</td>
<td>Pemphigus</td>
</tr>
<tr>
<td>Systemic prednisolone [group III]</td>
<td>54</td>
<td>54</td>
<td>Generalized vitiligo</td>
</tr>
</tbody>
</table>
TABLE 3 Changes in IOP

<table>
<thead>
<tr>
<th>Group</th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean IOP at presentation</td>
<td>12.41</td>
<td>11.05</td>
<td>12.25</td>
</tr>
<tr>
<td>Mean IOP after 8 weeks of therapy</td>
<td>17.9</td>
<td>17.8</td>
<td>12.50</td>
</tr>
<tr>
<td>Changes in IOP and p-value</td>
<td>5.53(0.000)</td>
<td>6.02(0.002)</td>
<td>0.17(0.6051)</td>
</tr>
</tbody>
</table>

DISCUSSION

Two hundred patients who were on systemic steroids for more than 8 weeks developed raised IOP. 5 of these patients also developed bilateral posterior sub-capsular cataract. A study was conducted by John. 5 in 2011 in Indonesia in which two hundred patients who were on systemic steroids for more than 9 weeks developed raised IOP. Three of these patients also developed bilateral posterior sub-capsular cataract.[20]

Similarly another study was conducted in Australia by Bernard. B in 2019 in which a controlled study of topical steroids noted a small but significant increase in intraocular pressure without change in outflow facility.[21]

François and Goldmann have also in 2016 recorded glaucomatous states after prolonged topical steroid therapy, but these were considered rare occurrences. [20]

Recently Bernstein and Schwartz[14] found that patients on long-term systemic corticosteroid. A study on this issue was conducted by Tanui. B in 2009 in India one-third of individuals experienced moderate increase in IOP after topical steroid use. However, 5-6% of normal population developed a marked increase of IOP after 4-6 weeks of topical steroid therapy. Thus, 5% of the general population is considered to be “steroid responder”, i.e. may develop steroid-induced glaucoma when steroids are administered. Careful monitoring of all patients on corticosteroids (especially those with a family history of glaucoma) is warranted. Self medication and injudicious use of steroids should be avoided. If necessary, steroid therapy must be used with intermittent drug holidays and never on a continuous basis old therapy showed significantly higher mean applanation pressure.[21]

CONCLUSION:

Systemic steroids can induce rise of IOP and cataract formation. If it is not detected and treated in time, rise in IOP can lead to irreversible damage to the eyes. CRS may present with a wide spectrum of ocular and systemic findings and requires a serious types of suspicion for diagnosis. Any sick infant with unilateral or bilateral congenital cataract should be investigated thoroughly for various complications.

REFERENCES:

Cranial Nerves Palsy & Presenting Ocular Symptoms in Patients with Tuberculous Meningitis

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Division of Neurosciences, Sharif Medical and Dental College, Sharif Medical City Hospital, Lahore

ABSTRACT

Objective: To determine cranial nerve (CN) involvement in tuberculous meningitis (TBM) patients at the time of presentation.

Methodology: A cross-sectional study was performed among 100 TBM patients with CN palsy as the presenting complaint. TBM diagnosis was made on the clinical findings, cerebrospinal fluid (CSF) examination, and computed tomography (CT) scan.

Results: Out of 100 TBM cases, 24 patients (24.0%) presented with CN palsy. Among 24 patients with CN palsy, abducens nerve (CN VI), oculomotor nerve (CN III), trochlear nerve (CN IV), and facial nerve (CN VII) palsy was observed in 8 (33.3%), 7 (29.2%), 5 (20.8%), and 4 (16.7%) patients, respectively.

Conclusion: CN VI and CN III are the most commonly affected nerves in TBM followed by CN IV and CN VII. The results showed that patients presenting with CN palsy should be evaluated for TBM in order to initiate proper treatment.

Key words: Tuberculous meningitis, Cranial nerve palsy

INTRODUCTION

Mycobacterium tuberculosis (MTB) has long been recognized as the causative agent of tuberculosis (TB). 1 About one third of the world’s population is estimated to be infected with MTB, with Asia being the highest prevalence region of TB. 1 Tuberculous meningitis (TBM) is the serious complication of TB with high mortality and morbidity rates. 2 The estimated risk of deaths from TBM is 15 - 32%. 3, 4 Delayed treatment and advanced stage disease are poor prognostic factors of TBM. 5 Hosoglu et al. demonstrated that TBM patient admitted in the hospital with CN palsy are at risk of developing severe neurological deficits. 6 Kalita et al. observed CN palsy in 23% cases of TBM. 6

Another study conducted at Karachi (Pakistan) demonstrated 22.5% cases of TBM with CN palsy. 7 TBM patients may present with headache, altered mental status, signs of meningeal irritation, and/or CN deficits.

CN VI and III are the most commonly affected nerves in TBM followed by CN IV and VII. The results showed that patients presenting with CN palsy should be evaluated for TBM in order to initiate proper and early treatment.

Out of 12 pairs, cranial nerves emerging from the midbrain are more likely to be affected by TBM, followed by cranial nerves originating from the pons. It has been demonstrated that CN VI is affected most frequently by TBM, followed by CN-III, -IV, and -VII. 8 The present study aimed to determine the frequency of CN palsy in patients with TBM at the time of presentation. The diagnosis of TBM was based on clinical manifestations, CSF examination, and CT scan brain (contrast) of the patients.

METHODOLOGY

A total of 100 patients including 64 male and
Cranial Nerves Palsy & Presenting Ocular Symptoms in Patients with Tuberculous Meningitis

36 female, aged 18-60 years (mean age 37.6 ± 5.7 years) were included in the study. The study was conducted at Sharif Medical City Hospital (Lahore, Pakistan) over a period of three years between September, 2015 and September, 2018. Written informed consent was obtained from all patients. TBM patients with any of the following features were included in the study: CT brain (contrast) suggestive of TBM, Typical CSF findings of TBM, Acid fast bacilli culture or smear positive in CSF examination, family history of TBM and/or history of contact with tuberculous patients, positive Mantoux Test of more than 10 mm. Meanwhile, patients with one of the following were excluded from the study: Brainstem encephalitis confirmed on CSF examination and/or neuroimaging, pyogenic meningitis confirmed on CSF examination, CT scan suggestive of brainstem infarction and hemorrhage, History of acute head trauma (less than 3 months).

Data were analyzed using SPSS version 21.0. The quantitative variables like age were presented by calculating the mean and standard deviation. The frequency and percentage were calculated for gender and CN palsy.

RESULTS

A total of 100 patients were included in this study. Out of 100 cases, 18 patients (18.0 %) were < 20 years old, 67 patients (67.0 %) were 20-40 years old, and 15 patients (15.0 %) were 41-60 years old. The mean age of patients was 37.6 ± 5.7 years (Table 1). Regarding gender distribution, 64 patients (64.0%) were male, while the remaining 36 patients (36.0%) were female (Table 2). CN palsy was observed in 24 patients (24.0%), (Table 3).

Among 24 cases with CN palsy, 8 patients (33.3%) presented with CN VI palsy, 7 patients (29.2%) presented with CN III palsy, 5 patients (20.8%) presented with CN IV palsy, and 4 patients (16.7%) presented with CN VII palsy.

Table 1: Age Distribution of TBM cases

<table>
<thead>
<tr>
<th>Age (year)</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 20</td>
<td>18</td>
<td>18.0</td>
</tr>
<tr>
<td>20-40</td>
<td>67</td>
<td>67.0</td>
</tr>
<tr>
<td>41-60</td>
<td>15</td>
<td>15.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100.0</td>
</tr>
</tbody>
</table>

| Mean ± SD  | 37.6 ± 5.7 |

Table 2: Gender Distribution of TBM cases

<table>
<thead>
<tr>
<th>Sex</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>64</td>
<td>64.0</td>
</tr>
<tr>
<td>Female</td>
<td>36</td>
<td>36.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 3: Distribution of cases regarding cranial nerve palsy

<table>
<thead>
<tr>
<th>Cranial nerve palsies</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>24</td>
<td>24.0</td>
</tr>
<tr>
<td>No</td>
<td>76</td>
<td>76.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100.0</td>
</tr>
</tbody>
</table>

DISCUSSION

TBM, with significant mortality and morbidity, is a feared complication of TB infection. The common clinical manifestations of TBM include headache, fever, and the presence of signs of meningeal irritation. Other manifestations may include diminished cognition, seizures, paresis, and CN palsy. Chotmongkol and colleagues found clinical presentation of headache, fever, stiff-neck, mental impairment, motor weakness, and CN palsy in 95.6%, 91.1%, 77.8%, 40.0%, 11.1%, and 11.1% cases of TBM, respectively. In the present study, CN palsy was observed in 24 patients (24.0%) with TBM. Our findings are consistent with the study of Fazel et al. where they reported CN palsy in 22.5% of patients with TBM.

It has been observed that CN VI is usually involved first and is most frequently affected in TBM. The lateral rectus muscle is innervated by CN VI and patients with CN VI palsy present with difficulty in moving the eye laterally. In the current study, the most frequently involved CN was also CN VI. Out of 24 cases with CN palsy as the presenting complaint, CN VI palsy was observed in 8 patients (6 patients with unilateral and 2 patients with bilateral lateral rectus palsy).

The extra-ocular muscles other than the lateral rectus and superior oblique muscles are supplied by CN III. In patients with CN III palsy, the eye is displaced downward and outward. In the present study, the second most frequently involved CN was CN III. Out of 24 cases with CN palsy as the presenting complaint, CN III palsy was observed in 7 patients.

The superior oblique muscle is innervated by CN IV and is responsible for intorsion and depression of the eye. Patients with CN IV palsy present with diplopia (vertical) which is exacerbated on inward and downward movement of the eye. In our study, out of 24 cases, CN IV palsy was observed in 5 patients. CN
VII is a mixed (sensory and motor) cranial nerve. The motor component of CN VII is involved in controlling facial expression muscles, while the sensory component of CN VII is responsible for the anterior two-third taste sensation of the tongue. Patients with CN VII palsy present with flattening of the nasolabial fold and difficulty in closing the eye. In the present study, out of 24 cases with CN palsy as the presenting complaint, CN VII palsy was observed in 4 patients.

TBM often presents non-specifically and is diagnosed when brain is already affected. Therefore, the outcome of TBM can be improved with early diagnosis. Komolafe et al. 14 advocated the formation of exudates at the base of the brain in TBM causing cerebral vasculitis and central nervous system pathologies, thereby blocking cerebrospinal fluid (CSF) route and entrapping cranial nerves.

TBM diagnosis may only be based on CSF and clinical findings in the absence of confirmation of definitive microorganism. Decreased glucose and increased protein levels with predominant lymphocytes are classical findings of CSF in TBM. A single CSF sample for acid fast bacilli has low sensitivity (20 – 40%). 15 It has been demonstrated that multiple CSF samples can increase the sensitivity to 85%. 16 The use of ELISA assays to detect antibodies in the CSF against specific microorganism antigens is limited due to affordability issue, especially in developing countries.

Neuroimaging may aid to diagnose TBM. Hydrocephalus and basal meningeal enhancement are classical neuroimaging features of TBM. 15, 19 Basal meningeal enhancement with 100% specificity and 89% sensitivity have been proposed in patients with TBM. 20 In the present study, we used CSF and neuroimaging (CT Brain with contrast) findings in addition to clinical manifestations of patients to diagnose TBM. The poor prognosis of TBM is related to the advanced stage of the disease, hydrocephalus, and positive CSF findings. 21

CONCLUSION

CN VI and CN III are the most commonly affected cranial nerves in TBM followed by CN IV and CN VII. Patients presenting with CN palsy should be evaluated for TBM in order to initiate proper treatment.

REFERENCES

Prevalence of Hepatitis B & C in Cataract Patients

(A socio-demographic and economic profile with nationwide hepatitis control plan and guide-lines, a community-based Study in most affected regions.)

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ABSTRACT

Purpose: This study was conducted to find out the prevalence of Hepatitis B and C in pre-operative cataract patients. It is a descriptive cross-sectional study conducted at Tandlianwala District Faisalabad from March to August 2017.

Material and Methods: A total of 573 pre-operative cataract patients were invited for participation in the study. After taking the informed consent, these patients were screened for HBsAg and Anti HCV by Immuno-chromatographic test.

Results: Out of 573 subjects, 325 (57%) were found positive for either HBsAg or anti-HCV while among them anti-HCV shared 90% (293 patients) of the disease burden. Gender wise, 59% of male and 47% of female were sero-positive for anti-HCV while male (12%) and female (2%) positive for HBsAg. Patient with age >40 years were the mostly affected (59%) by either HBV or HCV.

Conclusion: This study found that Faisalabad region could be earmarked as one of most affected regions in Pakistan by viral infection of HCV and HBV. So, there is an immediate need to lay out nationwide hepatitis control plan as well as implementation of guidelines to reduce the risk of exposure to the healthcare professionals involved in these free eye camps.

Key words: Hepatitis C, Hepatitis B, Faisalabad, Cataract, Eye Camps

INTRODUCTION

Among all types of viral hepatitis, Hepatitis B virus (HBV) and hepatitis C virus (HCV) infections pose a severe threat to the public health especially in developing countries¹. The latest evidence estimates that around on third of the global population is infected by HBV whereas 71 million people have chronic hepatitis C infection. The annual mortality due to HBV is around 780000 and HCV accounts for 399000 deaths². It is worth mentioning that the developed countries have managed to curtail the disease transmission through proper vaccination for HBV and public awareness about the gravity of these viral infections such as liver cirrhosis, hepatocellular carcinoma, hepatic fibrosis and steatosis. A literature review was conducted on hepatitis B virus (HBV). In contrast, the lack of preventive measures and health literacy among the general population are the major reasons to restrict the problem in developing countries³. Pakistan is facing a serious challenge of these viral infections as both HBV and HCV are endemic representing the intermediate prevalence zone⁴. The available data of Pakistan describes that around 4 to 5% of the population is the sufferer of HCV which represents one of the highest global infection rates⁵. However the first national survey which was conducted in the year of 2007-2008 concluded the overall prevalence of HBV as 2.4% and of HCV was 4.8%⁶.

There is an immediate need to lay out nationwide hepatitis control plan as well as implementation of guidelines to reduce the risk of exposure to the health care professionals involved in eye camps.

Diverse studies conclude that not only the remote areas, but the industrialized regions like Faisalabad are equally affected. A relevant study in this area concluded the cumulative prevalence of HBV and HCV as 48.81% in a community based free eye camp. It indicates a higher prevalence rate of hepatitis B & C than the projected national figures⁷. The major way of transmission is parenteral, peri-natal and sexual route and the health care workers, intravenous drug addicts and child born to positive mothers are the high risk group⁸. Poor
socio-economic conditions of the exposed population is considered as the main risk factor. Similarly lack of awareness, jobs at healthcare facilities, shaving with shared razors, and practice of non-sterilized equipment for surgeries, unchecked quackery and absence of safe blood transfusion services are the few other risk factors.

The socio demographic and economic profile Pakistani population represents that a significant portion of the society is ignorant about the epidemiology and risk factors of viral hepatitis. Although, secondary prevention modes in the form of early diagnosis and prompt treatment are highly recommended. But majority of the patients of these viral infections approach the hospitals at a stage of complication and advanced liver damage. Although HBV vaccination is highly effective to prevent the infection but its proper availability and affordability is another issue. It is evident that about 10% of Pakistani population is at verge of getting either HCV or HBV viral infection which is around 20 million of the total population. These asymptomatic patients pose a great threat not only to the general population but national health care system and economy as well. An efficient vaccination plan combined with a public education campaign may lead to an effective control over the transmission of HBV. On the other hand, the absence of any vaccination for HCV limits our efforts to the identification of high risk population and a mass drive against unsafe practices.

Traditionally, provision of community based free eye care services is a regular feature of the medical professionals, charity organizations and philanthropists in Pakistan. These services mainly focus the screening and extraction of cataract with intraocular lens implantation.

A study by Jadoon et al shows that as cataract causes bilateral blindness, estimated 570,000 individuals are effected from cataract in Pakistan, which has been estimated to increase up to 3,560,000 by the year 2020. Most of these patients get their cataract surgeries done in free eye camps. As a result, health care workers and ophthalmic surgeons exposed to HCV and HBV transmission via contaminated instruments or accidental needle-stick or sharp injuries. As large number of patients approach these free activities which may increase the risk of accidental transmission to health care professionals and patients. Keeping in view this scenario, the current study was conducted to quantify the magnitude of HBV and HCV prevalence in free eye camps at Tandlianwala region of Faisalabad.

MATERIAL AND METHODS

This descriptive cross-sectional study was conducted during the month of March to November 2017. The ethical approval was obtained and a semi structured questionnaire was prepared for data collection. The study was conducted in a community based free eye camp at Tandlianwala district Faisalabad. The camps continued for a period of three days both in March and November 2017. These camps were primarily arranged for the screening of Cataract and surgery for Intra ocular lens Implantations. A well-planned public campaign was launched at least one month before the camp date. The relevant channels of communication effective in the local area were used. The patients were screened by the qualified ophthalmologists. A total of 573 patients were selected for cataract surgery in both the camps. These patients were invited for participation in the study. After taking the informed consent, these patients were screened for HBsAg and Anti HCV by Immuno-chromatographic test.

The serum obtained was tested for HBsAg and HCV antibodies using Immuno-chromatographic test kit. The test were performed according to the manufacturer’s instructions. The sampling process was observed and performed under the supervision of a qualified virologist.

Around three ml of venous blood was drawn strict aseptic conditions. The blood was centrifuged for 5 minutes at 4500 rpm to obtain the serum and 20µl obtained serum was used for each of the test on immuno-chromatographic kits. The serum was let to run on the ICT kit for HBsAg while 20µl of binding buffer was added to the serum on the ICT kit for anti-HCV test. The sample sera were allowed to migrate chromatographically by capillary action to react with the dye conjugate immunogenic protein on the pre-coated membrane for 10 minutes. The reaction had generated colored band on the membrane. The number of bands were observed. A single band indicated the absence of the immunogenic protein and referred as a negative result while in positive samples, two bands were observed. The presence of a single band is the verification of sufficient serum and proper flow of it as a control. It was assured that during analysis the background of immune-chromatographic membrane was clear and no result was entertained after 20 min of sample run.

RESULTS

Among all the 573 subjects of this study 199 (34%) were males and 374 (66%) were females. The study subjects were divided into two age groups. Group A consisted of 171 (30%) subjects, with age ≤ 40 years. Group B comprised of 402 (70%) subjects with age > 40 years. Further distribution is presented in Table 1 and 2 respectively. The results represent that 248 (43%) subjects were found negative for HBsAg and Anti-HCV while 325 (57%) were found positive for either HBV or HCV. These findings are presented in Figure I. Prevalence of HCV shared the most of the disease burden as out of 325 subjects that found positive for either HCV or HBV, 293 (90%) subjects were found positive for anti-HCV. However, 32 (10%) were found positive for HBsAg (Table-1).

The result shows that out of 171 subjects with age ≤ 40 years, 13 (8%) and 75 (44%) were found positive for HBsAg and anti-HCV respectively. Similarly, out of 402 subjects with age > 40 years, 19 (5%) and 218 (54%) were respectively found reactive for HBsAg and anti-HCV ICT tests. AP-value of < 0.05 reflects that prevalence of hepatitis C viral infection is significantly associated with the older age (Table-I).

These results conclude that 51% of the study subjects could be HCV carrier and pose a great threat to the general population. Similarly, the gender wise analysis of the data shows that 59% of male were screened out as positive for anti-HCV while 12% were also positive for HBsAg. The gravity of the situation is not different for female subjects as 47% were found positive for anti-HCV and two percent were positive when subjected to ICT testing for HBsAg. The calculated P-Values for males and females of < 0.05 (0.00, 0.00) demonstrate that both HBV and HCV are significantly associated with gender (Table 2).

Tables & figures

Table-1. Frequency distribution of HBsAg and Anti-HCV in different age groups

<table>
<thead>
<tr>
<th>Test</th>
<th>Age</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>≤ 40</td>
<td>&gt; 40</td>
</tr>
<tr>
<td>HBsAg</td>
<td>13</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>158</td>
<td>383</td>
</tr>
<tr>
<td>Anti-HCV</td>
<td>75</td>
<td>218</td>
</tr>
<tr>
<td></td>
<td>96</td>
<td>184</td>
</tr>
</tbody>
</table>

Prevalence of Hepatitis B & C in Cataract Patients
During the past decade, hepatic cirrhosis has emerged as a major source of mortality in Pakistan. Viral hepatitis stayed at the top among the major reasons for a widespread CLD (chronic liver disease). Different surveys have estimated that 7.6% of Pakistani population is infected with the viral infections of Hepatitis B and Hepatitis C while 2.82% and 4.8% respectively for HBV and HCV. But a latest study accomplished that about 5% of Pakistani population is infected with HCV while these 5% could be translated into 10 million of the population. These numbers reflect the threat of these viral infection for the world population. Worldwide there are more than 175 million HCV carrier patients that accounts for 3% of world population. If we assume that the figures given in recent surveys is accurate than Pakistan is burdened by at least 2% of world hepatitis C patients. But the situation could even be worse if an integrated nationwide extensive campaign is not launched with a focus to the high-risk regions of Pakistan specifically Faisalabad. The present study was conducted in Faisalabad region keeping in mind the results of some previous studies that suspected this region on the verge of a situation that could be called epidemic of hepatitis viral infections specially HCV.

The result of this study could only aggravate the current situation regarding the prevalence of HBV and HCV as it shows that 57% of the subjected population was found positive for either HBsAg or anti-HCV. More alarming situation is that among all the positive patients 90% were found positive for anti-HCV by immune-chromatographic test. These results are not only contrary to the already established facts but also enough for declaring socio-medical emergency. These results again ask for the requirement of a nationwide extensive integrated study and the need to lay out a national action plan by public healthcare system to counter this widespread menace of HBV and HCV. According to a previous study that was conducted in two regions Layyah and Rajanpur of southern Punjab in medical camps, it was found that the cumulative sero-positivity rate for HBsAg and anti-HCV was 13% which also higher than the established numbers but the situation in Faisalabad region is getting worse. Other studies, done in Kashmir, northern areas Pakistan and Sargodha, also reported that of prevalence of these viral infection is higher than the national estimations. The sero-positivity rate of HBsAg and anti-HCV antibodies did not significantly differ across gender. However, it greatly differs among the subjects of age group of >40 years as compare to those with age ≤40 years. In group B (>40 years), prevalence of HBsAg and anti-HCV is respectively 5% and 54% as compare to group A results of 8% and 44%. The possible reasons for a higher prevalence of Hepatitis B and Hepatitis C among population of ages older than 40 years could be due to increased exposure to the risk factors for a longer time as compare the younger ones.

Another reason is selection of study subjects from the pre-operative cataract patients which is an age-related problem. This study found that 71% of all male participants were found positive for either HBsAg or anti-HCV while 49% of all female subjects were found positive for either HBsAg or anti-HCV. So, the prevalence rate of these two viral infections is found significantly higher (P-value <0.005) in males as compare to the female participants. These findings are consistent to the results of a similar previous study where male subjects were more susceptible than the female ones. One of the possible reasons could that the males in our socio-economic setup has to stay outside home for earnings and to fulfill other responsibilities. Hence their exposure to the risk factors is far greater as compare to females.

The silent or unknown carriers of hepatitis B and C pose a great risk to the staff involved in the management of a patient with a cataract surgery. The eye camps arranged in different communities do not have standard operative procedures. Thus, a higher prevalence of HCV or HBV in pre-operative cataract patient may potentially expose the healthcare professional to these menaces. The application of the standard precautionary measures during such free medical camps may be the key in reducing the risk of Hepatitis B and Hepatitis C viral transmission that in turn may result in reduction of infection-related cancers.

As an affordable and convenient screening method, the immuno-chromatographic test kits are preferably used for HBsAg and anti-HCV antibodies testing in most of the clinical or diagnostic facilities. For large scale studies in remote areas with insufficient diagnostic facilities, The ICT kits are again the most preferable choice in developing countries like Pakistan despite of all its error prone results. Thus, PCR test are to be used to confirm any positive result for HBsAg and anti-HCV antibodies.

CONCLUSION

As some recent studies are in consistency with the findings of this study that Faisalabad region may be one of most affected regions in Pakistan by viral infection of HCV and HBV. This study also hints about the probability that there could be some other high-risk regions in Pakistan still not surveyed. So, this study is a way forward in the right direction to counter this national calamity with the priority to educate the healthy ones about precautionary measures and the risk factors while treatment and disease management of the ill-fated infected ones.

On other hand, free eye camps are one of the most sought-after community services that may be helpful in restoring the eye-sight of the under privileged communities. So, the application of the standard guidelines may be the key in reducing the risk of Hepatitis B and Hepatitis C viral transmission to the healthcare workers involved in these activities. The government should develop and implement legal protocols for these camps as well as launch a sustainable nationwide mass drive of an awareness and hepatitis control.
strategy.

The Nationwide Action Plan:

The Nationwide Action Plan against Hepatitis in Pakistan aims to improve the prevention, management and surveillance of hepatitis prevalence in the country. The action plan will serve as a focus for the health sector and proposes multi-sectarian strategies to achieve the set goals. The approach is based on respect for human rights, prohibiting stigma, discrimination or exclusion. Coordination among all concerned authorities will be put in place to monitor the implementation of the action plan. This coordination will work in close collaboration with all the health sectors involved in the implementation of the action plan and will be responsible for giving feedback twice a year on its different indicators as well as the possible solutions to be made.

The action plan has set and prioritized few goals that will be implemented as the guidelines towards the awareness, management, prevention and eradication of hepatitis B & C. These goals are:

- Early detection of infected people on larger scale.
- Adequate healthcare access for people infected with hepatitis by diagnoses, follow-up and treatment according to national and international recommendations.
- Long-term reduction in the incidence of the hepatitis B & C epidemic.
- Enhanced hepatitis precautionary measures for both the general public and those at-risk populations.
- Better prevention from re-infection and recurrence of HBV and HCV.
- Collection of the epidemiological data of HBV and HCV infections in the context of the national health.
- Improvement in diagnostic and laboratory facilities at the doorstep.

Conflict of interests. All authors declare that they have no conflict of interests.

REFERENCES

Collodion Baby Syndrome

ABSTRACT:
Collodion is an uncommon congenital oculo-dermal condition. The neonates are born with thick scaly skin which later develops fissuring. Since, the first line of defense is to save the disrupted skin, which is vulnerable to develop infections, sepsis, electrolyte imbalance, and dehydration. A similar case presented in our department with characteristic clinical features including complete ectropion and ecblabium. She was managed conservatively and surprisingly, the baby responded very well to conservative management.

INTRODUCTION:
Collodion is a rare congenital syndrome in which newborns present with taught cellophane-like skin with multiple breaches. This condition may either be self-limiting or may precede the development of one of the forms of ichthyosis. Ichthyosis are usually autosomal recessive but can also rarely be either X-linked like Netherton’s Ichthyosis and Sjögren-Larsson Syndrome or autosomal dominant, such as Non-bullous Ichthyosiform Erythroderma or Lamellar Ichthyosis. Neonatal complications can occur in 45% of all the cases, with the first week mortality rate reaching up to ~11%. On the other hand, “self-healing Collodion baby” that accounts for 10-25% of the cases will shed membrane, with near-normal skin barely leaving any sign of ichthyosis.

Collodion baby Syndrome is a rare case of self-healing Collodion whose skin retains near-normal appearance after the Collodion membrane is shed.

We report a case of 15 days old baby who presented with typical features of Collodion syndrome and to the best of our knowledge, this is the first case to be reported from Sindh.

Our patient was a 15 days old female baby born to a consanguineous couple after uneventful full-term pregnancy. The mother went through normal and regular antenatal check-ups, scans and supplementations. The baby was born by normal vaginal delivery at a local hospital. The first cry of the baby was normal. At the time of presentation, the baby had bilateral spoon like eversion of lids. There was also an eversion of lips (eclabium) with a fish-mouth like appearance and the whole body was covered with greasy thick skin since birth. On examination her vitals were normal. No feeding or respiratory difficulty and mobility restriction were observed.

On ocular examination, there was a complete spoon like ectropion which was cicatricle in nature. The palpebral conjunctiva was congested and chemosed. Since the lids could not be pulled apart, the globe could not be visualized.

All baseline investigations including complete blood count, serum urea creatinine and electrolytes were normal. Skin biopsy wasn’t done because the parents didn’t consent for it. The child was co-managed with the pediatrics and dermatology department. For general management, the baby was kept in a humidified incubator, sterile measures were taken during handling. With daily monitoring of urinary output and vitals. Daily bath and skin moisturization with emollients were advised. For the eye, topical lubricant ointment application was advised. With this treatment, the ectropion improved markedly. The globe became visible and the internal Ocular examination was found to be unremarkable. After two weeks of this treatment, the collodion membrane was shed leaving almost normal skin beneath it. Similarly, ecblabium was completely reversed too. The patient was kept on follow-up.

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DISCUSSION:

The term “collodion” has a Greek origin which means “glue-like”. It is a very rare disease, with the incidence rate being only 1 in 300,000 live births [4]. Most of the cases are autosomal recessive with a functional mutation in transglutaminase 1 TGM1, ALOXE3 or ALOX12B genes, ABCA12, HIPAL4/ichthyin, and ABHD5 [5, 9].

About 75% of cases develop autosomal recessive congenital ichthyosis, either congenital ichthyosiform erythroderma or lamellar ichthyosis. The skin tends to remain dry, after the membrane is shed, resemble ichthyosis vulgaris. About 10-25% of cases with eventually develop normal skin, a condition known as Self-healing collodion baby. SHCB is the result of compound heterozygous mutations, which renders Transglutaminase 1 to be isomerized to its Cis form which is inactive, and after birth, enzyme regains its active Trans – form [3, 7].

Collodion babies are preterm often and may also be small for gestational age. However, our patient was born in term with normal build and height. The collodion baby is the first expression of some forms of ichthyosis, [3] in which babies are born with encased taut, shiny, yellowish translucent membrane, known as collodion membrane. Collodion membrane is actually an extra skin that fails to shed in-utro, it may often be described as “plastic skin”, “Parchment like” or dripped hot candles wax [3, 4, 6, 7].

The membrane which sheds in 10-14 days [8]. There is usually no mucosal involvement or erythroderma. Collodion baby has very characteristic clinical features which make its diagnosis almost unmistakable. The thickened skin pulls soft tissues around conjunctiva and lips resulting in ectropion in eclabium to develop, which are very common and characteristic. Since eyelids are forced open, if appropriate treatment is not started in time it can lead to keratitis due to xerophthalmia and subsequent blindness can occur [3, 11]. In our case, ectropion and eclabium both were observed. Overt skin tightness around thorax can mechanically interfere respiratory movements. Albeit, respiration can also be compromised due to aspiration of squamous debris rich amniotic fluid, which can be avoided by early identification and delivery by cesarean section. Sucking and pulmonary ventilation may be hindered. The membrane can also take the form of contraction bands leading to the decreased blood supply, swelling and even atrophy of extremities. Owing to impaired dermal integrity, the most significant problems for which these infants are at risk are hyperthermia, increased insensible fluid loss and electrolyte disorders, skin infections, and sepsis [12].

Identification and in time management of potential complication is of utmost importance. The baby should be nurtured in the incubator with high humidity (40-100%) with constant monitoring of body temperature in order to decrease transcutaneous fluid
loss which is 6-7 folds more than that of a normal neonate. On the other hand high humidity can potentiate the colonization of skin pathogens. Other treatment options for supportive care includes the maintenance of fluid and electrolyte balance. In severe cases intravenous supplementation may be needed, although in less severe ones oral or nasogastric fluids may suffice. Other options include the use of emollients to keep skin moist and to decrease the scaling. Topical steroids are of good use to reduce inflammation. Artificial tear drops and lubricant ointments to keep the eye moist. An attempt should not be made to peel the membrane. However, constriction bands of the skin may need surgical division.

In the presence of feeding difficulty due to eclabium, a nasogastric tube is recommended to meet the high caloric demands and growth promotion. Histopathological findings of skin biopsy taken within the first week of life are identical, irrespective of severity and type of ichthyosis that would later develop. Although at around 15 days on histopathological ground it is possible to make a prediction of what variant the patient would develop. But the best option is to perform biopsy after membrane is peeled-off.

Though skin biopsy could not be performed in our patient because of the parent’s refusal. Based on clinical improvement and characteristics of baby’s skin on follow up, it was quite evident that it was a rare self-healing Collodion baby.

CONCLUSION:

We report a rare case of self-healing Collodion baby whose skin retained near-normal appearance after the Collodion membrane was shed.

REFERENCES:
Mucormycosis in Children with Ophthalmic Involvement. (A Case Study)

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School of Nursing, University of Lahore,

ABSTRACT:
Introduction: Mucormycosis (Zygomycosis) has appeared as an infrequent but persistent deadly invasive fungal infection. The accurate signification of this fungal disease in Pakistan is unknown. The crucial fundamental predisposing factors of mucormycosis are diabetes mellitus and immunocompromised status. The diagnostic criteria for this disease biopsy and positive fungal culture and sensitivity reports. The first line treatment of the mucormycosis is Amphotericin B and can also be treated with oral antifungal drugs.

Keywords: Mucormycosis, Invasive Infection, Amphotericin B

INTRODUCTION:

Mucormycosis (Zygomycosis) in children is very unexpected invasive fungal infection, originates with opportunistic fungi. The disease is linked with the intrinsic states and it is specially related to uncontrolled diabetes mellitus in developing countries [1]. A change in epidemiology of mucormycosis has been noticed in the last few years with the increase in incidence, advance causative agents and susceptible population. The ascent has been perceived globally, but it has a dramatic size in the Asian continent. However, Rhizopus Arrhizus is the frequent disease causing agent worldwide, Apophy Somyces variabilis is the uppermost agent in Asia and Lichthemia species in Europe [2].

The mortality rate of mucormycosis is high with very poor prognosis. It can be treated with antifungal therapy that should be in oral or injectable form of antifungal drugs which should always be administered under observation.

The incidence of DM type-I is growing worldwide between 0-14 years old children. previously when the concept of insulin in children was not clear. Diabetic Ketoacidosis (DKA) was major cause of 100% mortality and is now 0-15% 0.31% in developed countries e.g India, Pakistan and Bangladesh the mortality is still at the peak in children with DKA and then mucormycosis[3]. The causative agent of mucormycosis are thermo-tolerant, thrives in soil and decomposing matters, where they release their spores. Those released spores in the air leading to inhalation or direct inoculation of deranged skin [1].
CASE PRESENTATION:

A 13 years old female patient presented in a public hospital with complaint of fever, headache, weakness, fatigue and abdominal pain on 16-04-2018. The patient stated that on the second day of admission on 18-04-2018, she suddenly became restless and irritable. Within almost 1 hour the she became unresponsive. The blood sugar level was 530mg/dl and B.P was 90/60mmhg. The patient shifted in ICU immediately. In ICU, the patient’s urinary ketones were positive (2+), and the patient was being treated on the line of DKA (diabetes ketoacidosis). When the patient became conscious, the right eye of the patient was slightly protruded with ptosis after 6-7 hours becoming unconscious. The conjunctiva of the eye was edematous.

The C.T Scan of the brain and Chest x-ray were normal. When the patient was out of DKA was referred to General Hospital Lahore on 21-04-2018. On examination, conjunctiva of the right eye was still edematous. Left Pupil are reactive to light with normal movements. The MRI of the orbit showed pan-sinusitis with extension of inflammatory process in right orbit.

Biopsy of inferior turbinate showed the results that an acute on chronic inflammation with scattered fungal hyphae (Nacro-inflammatory). After the biopsy report, antifungal (oral) Itraconzole 100mg daily started. The C.T Scan PNS showed that the right orbital pseudo-tumor and right ethmoidal and maxillary sinuses with right sided mastoiditis on 07-05-2018. The fungal culture revealed a heavy growth of Rhizopus spores. After fungal culture report, Inj Amphotericin B I/V daily and put the patient on insulin 70/30 subcutaneous BID (40units in morning and 30 units in the evening) as the blood sugar level was not controlled. The doctor again advised MRI brain and Orbits with & without contrast.

The report showed the inflammatory process involving the right orbit, bilateral ethmoid air cells and frontal sinuses with extension into the right frontal lobe on 18-05-2018. The patient remained under treatment for one month. CT Scan was repeated to confirm if the inflammatory process is not progressing. The patient was medically managing by following medicines; Inj Vancomycin 750mg I/V TDS, Inj Ceftriaxone 1gm I/V BID, Inj Metronidazole 250mg I/V TDS and subcutaneous Humulin R according to sliding scale TDS.

DISCUSSION:

Mucormycosis in children is very unusual disorder. The causative agent the Mucormycosis are thermo-tolerant and can survive in any temperature. The spores are easily ingested or inhaled by an individual. Fungi are usually opportunistic and are not harmful for a healthy person and does not cause any disease. Though in a immunocompromised or diabetic patient they can attacks the individual [1].

Base membranes are composed of extracellular protein matrix that are mainly composed of laminin and collagen type IV. These membranes have segregated epithelial or endothelial cells from underlying stroma. Due to epithelial cells destruction, the extracellular matrix proteins can be vulnerable for direct interaction with inhaled or ingested spores. The Rhizopus spores attack laminin and collagen type IV. The binding of the fungal spores to extracellular proteins matrix is peculiar, antilaminin and anticollagen antibodies block adhesion to extracellular proteins. Mucorales interconnect with the epithelial cells, Rhizopus attaches to and invades endothelial cells by specific recognition of the host receptors. This identification causes the host cellular death by induction of the endothelial cell mediated fungus endocytosis [6].

Mucormycosis has appeared like a growing significant infection and is related to remarkable morbidity and mortality [3]. Clinical and investigational data significantly reveal that individual who have damaged phagocytic outcomes are in the possibility of mucormycosis e.g seriously ill patient with neutropenic disease are more prone to develop mucormycosis [4]. Iron consumption by the individual is important for the development of infection, because iron is needed for the existence of living cells. Patient with iron overcharge toxicity were used to cure the bacterial non-siderophore and deferoxamine. These patients developed a fatal shape of mucormycosis [5]. Iron starvation policies have been conveyed a favorable activity to opposite of Mucorales [9].

As mentioned in the case presentation, the Rhizopus is the causative agent of mucormycosis. It mainly targets victim and immunosuppressive patients [1]. The treatment of the mucormycosis is available in injectable and oral forms. In severe cases, Inj Amphotericin B I/V recommended and given according to weight and under strict observation. Itraconazole oral anti-fungal recommended to treat a number of fungal infections [1]. Amphotericin B often causes reaction. The primary signs and symptoms of Amphotericin B toxicity are nausea, vomiting, fever, rigors, hypertension or hypotension and hypoxia [7].

Clinically and radio-graphically, Mucormycosis is frequently identical from other invasive fungal diseases such as Aspergillosis and easy to diagnose diagnosis is done by histopathological tests and with positive fungal c/s report [6]. Unfortunately, as the disease is not easily diagnosed therefore, the mortality rates extends to 40% even after treatment. It is based on the location of the infection. Surgical debridement with the combination of antifungal therapy are the backbone of the treatment. Amphotericin B is the first choice in the treatment of mucormycosis and Posaconazole is also a second positive choice [8]. Amphotericin B has also side effects therefore it should be avoided. Sometimes due to its side effects, the treatment is stopped. It is all based on the attachment of the Amphotericin B molecules with the fungal cell membrane and permit cytoplasmic
content to leak out which leads to cell death [7].

CONCLUSION:
Mucormycosis is a dangerous disease in children. It is clear that mortality rate of mucormycosis is high with very poor prognosis. The survival rate is very poor with Mucormycosis. Antifungal therapy should be in oral or injectable form and should always administered under observation.

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