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Research Article

**A CROSS SECTIONAL STUDY ON THE SPREAD OF
PENETRATING OCULAR TRAUMA AND ITS CONTROL**¹Dr Zafar Iqbal, ²Dr Aswad Ahmed, ¹Dr Sidra Zafar Iqbal¹Al Shifa Eye Hospital, Sukkur, ²Isra Universit.**Article Received:** August 2019**Accepted:** September 2019**Published:** October 2019**Abstract:**

Purpose: The aim of this research work is to know about the spread and control of POT (Penetrating Ocular Trauma) at Al Shifa Eye Hospital, Sukkur.

Methodology: This research work carried out on 300 patients at Al Shifa Eye Hospital, Sukkur. Majority of the patients of this research work got admission through the Emergency Department. We collected the elaborated background history with particular consideration to the total injury and the object as a reason of injury. We recorded the visual acuity with the utilization of the Snellen chart and examination contained documentation of tear size, visual axis's involvement, and prolapse of iris, formation of cataract, IOFB (Intraocular Foreign Body) and detachment of retina. All the patients were present with the pre & post-operative B-Scan ultrasonography. We carried out the regular follow-up and recorded the final BCVA (Best Corrected Visual Acuity).

Results: The average age of the patients was 16.22 years, with about 68.0% POT present in first twenty year of life. In the first ten year of life, male to female ratio was 1.58: 1.0 but it arouses to 8.0:1.0 after 1st decade of life. IOFB was present in 13.0% patients and prolapse of iris in 60.48% patients. In 23.0% patients, there was involvement of visual axis. There were 73% were corneal tears and 22% were corneoscleral tears. The rate of occurrence of the formation of cataract was 59.58%. The relation of 33.0% trauma was with the sharp objects and 16.0% trauma has relation with blunt objects. There was occurrence of retinal detachment in 7.79% patients. There was relation of Post-op visual acuity with the trauma severity.

Conclusion: There was high occurrence of the trauma in the 25 years of life and this disease was much common in males as compared to the female patients. Sharp objects were the main reason behind the most of the trauma. There is a requirement of the awareness of this complication among public to decrease the rate of occurrence of blindness in the childhood stage.

Keywords: POT, Severity, Trauma, IOFB, BCVA, Retina, Iris, Prolapse, Occurrence.

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INTRODUCTION:

One of the main cause of loos of vision in adults is ocular trauma. Yearly, 2.50 million persons suffer from injuries of eye in our country. Blinding injuries of about one million occur in the whole world. The most important reason of the unilateral blindness in ocular trauma now a day. The distribution of the age for the prevalence of the severe ocular trauma bimodal, with highest occurrence in adults and then in the elder population of society. Various research works have displayed that majority of these injuries are affecting males. About fifty percent patients who appear in the department of emergency are suffering from ocular trauma. The injuries can be mild, non-sight threatening and some leading to blindness. The aim of this research work is to identify the spread and control of this very complication.

METHODOLOGY:

This was a retroactive research work carried out in Al Shifa Eye Hospital, Sukkur. The duration of this research work was from March 2015 to March 2019. A sum of total 300 patients present with POT were the part of this research work. We made no discrimination for age and sex for the admission in study. Majority of the patients got admission through emergency department. We collected the elaborate background history with particular consideration to the injury duration & the object which is the reason behind injury. We recorded the visual acuity with the utilization of the Snellen chart and examination with slit lamp contained documentation of the tear size, its site, and visual axis's involvement, prolapse of iris, formation of cataract, IOFB and detachment of retina. All the patients were present with pre & post-op B-Scan ultrasonography. We carried out the general

physical checkup of patients and testing in laboratory for different examinations particularly general anesthesia, count of total leukocyte, differential count of leukocyte, and complete analysis of urine, hemoglobin, X-ray of chest and skull, ECG, electrolyte balance & function of kidneys to prevent any other further complication.

We carried out the regular follow-ups for complete 3 months and we recorded the final BCVA on every visit. SPSS V.11 was in use for the analysis of the collected information. We analyzed the age with the help of descriptive method with average \pm standard deviation. We analyzed the various variables as gender, pre-operative visual acuity, post-surgical visual acuity, treatment & related complications with percentages & frequencies.

RESULT:

There were total four hundred and eighty patients in this research work. The average age of the patients was 16.22 years with nearly 68.0% POT occurring in 1st twenty years of life. In the 1st ten year of life, the ratio of males to female was 1.58: 1.0 but it highly increased to 8.0: 1.0 after the end of 1st ten years of life. IOFB was present in 73 patients (13.0%) and prolapse of iris in 100 patients (60.48%). There was involvement of visual axis in 60 patients (23.0%), 140 patients (73.0%) were present with corneal tears & 22.0% patients were present with corneoscleral tears. The rate of occurrence of the formation of cataract was 59.58%. 33% trauma was the outcome of sharp objects and 16.0% trauma was the outcome of blunt objects. The detachment of retina occurred in 7.79% patients. Post-op visual acuity has relation to the trauma severity.

Objects Causing Ocular Trauma		
Objects causing trauma	Frequency	
	No	Percent
Metal piece / rod	60.0	17.00
Wooden piece/stick	40.0	15.00
Glass	30.0	10.00
Stone	25.0	8.18
Firecracker	15.0	2.48
Knife	20.0	3.38
Finger Nails	15.0	2.8
Needle	11.0	3.68
Fire arm	10.0	3.8
Animal	11.0	2.18
Scissors	12.0	3.48
Pen/pencil	14.0	2.48
Misc.	37.0	9.58

BCVA improvement was present in 28.22% patients, BCVA smaller than pre-op visual acuity was present in 9.74% patients, Pre-op & BCVA were similar in 56% patients. NPL (No Projection of Light) was the outcome in 8% eyes, 4% eyes became phthisical eyes, 0.038% eyes were enucleated, and 0.058% eyes were eviscerated. We lost the follow up of 9 eyes. There was very frequent presentation after twenty hours (78.0%) which was present with the association

with the adverse prognosis. We used various option of therapy for trauma management. We carried out the repair of corneal tear in 64.0% patients, we performed the repair of scleral tear in 13.0% patients & repair of corneoscleral tears performed for 16% patients. 73 patients were present with IOFB, 45 patients were present with detachment of retina, hemorrhage of retina was present in 12 patients and 3 patients were present with retinal tear.

Corneal vs Scleral tear		
Site of tear	Frequency	
	No	Percent
Corneal tear	170.0	64.00
Scleral tear	60.0	13.00
Corneoscleral tear	70.0	16.00

DISCUSSION:

The reason of blindness in about half million populations in the whole world is ocular trauma and many people have lost their partial sight. The most important reason of the unilateral vision injury is trauma especially in the countries which are under development. There is dominancy of the males to acquire this complication as compared to the females. The high occurrence of ocular injury is very high in young adults. There is high association of the ocular trauma with the low social and economic classes. Because of the seriousness of the ocular trauma, most of the patients are present with adverse outcome of vision. Setting for incidence of the trauma is frequently workplace and high occurrence of the accidents on roads. The domestic accidents are not much common. One other important aspect in the countries which are under development is that incidence of trauma during agricultural work, often causing to loss of vision and ulceration of cornea.

Injuries of the globe particularly ruptured globes were present with the outcome of vision. There is an adverse association of the adverse prognosis with the vitreous hemorrhage following the open injury to globe. Late presentation of the patients is much frequent, which also has association with the adverse prognosis. This complication of ocular trauma leads children to loss of vision. Majority of the cases are avoidable. The education of population, awareness and fast management at primary level can improve the quality of the visionary outcome. There is also requirement for a systematic awareness at periodic levels to decrease the accidents as well as vision loss. This complication is much common in the children who are school going and majority of the cases are the victim of stones,

sharp objects and wood. Mostly, these type of injuries occurred at houses. It is necessary to aware the children about this complication. It is also necessary to educate the people about ocular trauma to reduce the rate of occurrence of blindness in childhood.

CONCLUSION:

The incidence rate is much high in the first twenty year of life and it is more dominant in males as compared to the females. Most of the trauma is the outcome due to sharp objects. There is need of the awareness of ocular trauma to decrease the occurrence of the blindness in childhood period. There is also need of the education about health and awareness about the high rate of morbidity because of late presentation, particularly in the peripheral region to secure the vision. It is the responsibility of the primary health care units to give the treatment at the initial stages and refer the patients with severity to the close health care centers with tertiary care.

REFERENCE:

1. Yang, X. B., Liu, Y. Y., Huang, Z. X., Mao, Y., Zhao, L., & Xu, Z. P. (2018). Clinical Analysis of 1593 Patients with Infectious Endophthalmitis: A 12-Year Study at a Tertiary Referral Center in Western China. *Chinese medical journal*, 131(14), 1658.
2. Abraham, C., & Sankari, M. (2018). An Assessment of knowledge, Attitude and Practice of Lasers among periodontists in India. *Research Journal of Pharmacy and Technology*, 11(12), 5458-5460.
3. Kroll, M. W., Ritter, M. B., Kennedy, E. A., Siegal, N. K., Shinder, R., Brave, M. A., & Williams, H. E. (2019). Eye injury from electrical

- weapon probes: Mechanisms and treatment. *The American journal of emergency medicine*, 37(3), 427-432.
4. Mumcuoglu, T., Ozge, G., Soykut, B., Erdem, O., Gunal, A., & Acikel, C. (2015). An animal model (guinea pig) of ocular siderosis: histopathology, pharmacology, and electrophysiology. *Current eye research*, 40(3), 314-320.
 5. Cheung, A. Y., Price, J. M., Gamsky, S. T., Gupta, C. K., & Rolain, M. A. (2017). Post-refractive Surgery Trauma. In *Textbook of Ocular Trauma* (pp. 33-62). Springer, Cham.
 6. Eye Injury Snapshot Data Summary, 2004-2008, American Academy of Ophthalmology and American Society of Ocular Trauma
 7. Negrel AD, Thylefors B. The global impact of eye injuries. *Ophthalmic Epidemiol*. 1998; 5: 143-69.
 8. Glynn RJ, Seddon JM, Berlin BM. The incidence of eye injuries in New England. *Arch Ophthalmol*. 1988; 106: 785-9.
 9. MacEwen CJ. Eye injuries: a prospective survey of 5671 cases. *Br J Ophthalmol*. 1989; 73: 888-94.
 10. Chiapella AP, Rosenthal AR. 1 year in an eye casualty clinic. *Br J Ophthalmol*. 1985; 69: 865-70.
 11. Arfat MY, Butt HM. Visual outcome after anterior segment trauma of the eye. *Pak J Ophthalmol*. 2010, 26: 74-78.
 12. Cillino S, Casuccio A, Di Pace F, et al. A five-year retrospective study of the epidemiological characteristics and visual outcomes of patients hospitalized for ocular trauma in a Mediterranean area. *BMC Ophthalmol*. 2008; 22: 6.
 13. Guly CM, Guly HR, Bouamra O, et al. Ocular injuries in patients with major trauma. *Emerg Med J*. 2006; 23: 915-7.
 14. JBabar TF, Khan MN, Jan SU, et al. Frequency and causes of bilateral oculartrauma. *Coll Physicians Surg Pak*. 2007; 17: 679-82.
 15. Yeung L, Chen TL, Kuo YH, et al. Severe vitreous hemorrhage associated with closed-globe injury. *Graefes Arch Clin Exp Ophthalmol*. 2006; 244: 52-7.
 16. Babar TF, Khan MT, Marwat MZ, et al. Patterns of ocular trauma. *J Coll Physicians Surg Pak*. 2007; 1: 148-53.
 17. Soliman MM, Macky TA. Pattern of ocular trauma in Egypt. *Graefes Arch Clin Exp Ophthalmol*. 2008; 246: 205-12.
 18. Lee CH, Su WY, Lee L, et al. Pediatric ocular trauma in Taiwan. *Chang Gung Med J*. 2008; 31: 59-65.
 19. Zghal – Mokni I, Nacef L, Kaouèche M, et al. Epidemiology of work – related eye injuries. *Tunis Med*. 2007; 85: 576-9.
 20. Garrido, C., Cardona, G., Güell, J. L., & Pujol, J. (2018). Visual outcome of penetrating keratoplasty, deep anterior lamellar keratoplasty and Descemet membrane endothelial keratoplasty. *Journal of optometry*, 11(3), 174-181.
 21. Kroll, M. W., Ritter, M. B., Kennedy, E. A., Silverman, N. K., Shinder, R., Brave, M. A., & Williams, H. E. (2018). Eye injuries from electrical weapon probes: Incidents, prevalence, and legal implications. *Journal of forensic and legal medicine*, 55, 52-57.
 22. Bauer, D., Alt, M., Dirks, M., Buch, A., Heilingloh, C. S., Dittmer, U., ... & Eis-Hübinger, A. M. (2017). A therapeutic antiviral antibody inhibits the anterograde directed neuron-to-cell spread of herpes simplex virus and protects against ocular disease. *Frontiers in microbiology*, 8, 2115.
 23. Balestrini, S., Clayton, L. M., Bartmann, A. P., Chinthapalli, K., Novy, J., Coppola, A., ... & Sander, J. W. (2016). Retinal nerve fibre layer thinning is associated with drug resistance in epilepsy. *J Neurol Neurosurg Psychiatry*, 87(4), 396-401.
 24. Ronak, N. H. (2016). Knowledge about infection control measures among nurses at Hawler Teaching Hospital in Erbil city. *Zanco Journal of Medical Sciences (Zanco J Med Sci)*, 20(2), 1272.