Original Article

Visual Outcomes and Pattern of Injuries among Patients presented with Ocular Trauma: a Multicenter Analysis Across Urban and Peri-Urban Karachi

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ABSTRACT

Purpose: To determine visual outcomes and pattern of injuries among patients presented with Ocular Trauma in three major tertiary care centers of Karachi.

Study Design: Cross sectional study.

Place and Duration of Study: Mross-sectional study conducted at three tertiary care centers of Karachi, over a 3-month period.

Methods: Patients with history and signs of recent ocular and adnexal trauma were included in the study and those with any other ocular or systemic disease were excluded from the study. Data was collected on a self-designed proforma for history and the relevant ocular and adnexal examination details. Majority of the patients presented to the Accident and Emergency department and referred to Eye clinics. Ocular Trauma Scores (OTS) were calculated with the help of OTS chart.

Results: In a sample of 343 patients, 44% were presented at Jinnah Postgraduate Medical Centre (JPMC), 45% at Isra Postgraduate Institute of Ophthalmology (IPIO), and 11% at Dow International Medical College (DIMC). Most injuries occurred in males (76.7%). Accidental injuries were the commonest injuries found in DIMC, (52.63%) and IPIO, (64.52%) (n=100). Whereas in JPMC, assault was the most common (31.75%). Commonest sign of ocular trauma was lid swelling (26.23%) found in DIMC and lid tear (16.76%) in JPMC.

Conclusion: Ocular trauma patterns in Karachi are linked to the nature of surrounding environments, including traffic density, occupational hazards, and access to emergency services. Public education, protective gear enforcement, and workplace safety policies are needed to reduce the burden of preventable vision loss.

Keywords: Wounds and Injuries, Chemical Burns, Vision Disorders, Blindness.

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INTRODUCTION

Ocular trauma ranks as the third leading cause of binocular blindness and the fourth leading cause of monocular blindness. It is estimated that approximately 55 million eye injuries occur each year, with around 19 million resulting in visual impairment or blindness.[1] There is a large spectrum of ocular trauma caused by mechanical, chemical, thermal and electrical agents.[2] Early presentation and immediate intervention are crucial to restoring globe and adnexal

anatomy and visual rehabilitation. Any delay results in diminished chances of structural and visual improvement. Ocular trauma not only affects a patient's physical health but also has significant psychosocial and financial consequences. Substantial expenses are incurred on medications, surgical procedures when needed, and repeated medical consultations, while loss of employment further increases the economic burden.[3]

This multicenter study, conducted across three ophthalmic institutions, sought to determine the burden of ocular injuries, patterns of trauma, presenting signs and symptoms, and corresponding visual outcomes in both urban and peri-urban settings. The aim was to analyze the common presentations of ocular and adnexal trauma across various regions of Karachi. Visual outcomes were evaluated using the Ocular Trauma Score (OTS), a validated tool for predicting visual prognosis in patients with ocular injuries and calculated for each patient at all three participating centers.

METHODS

A cross-sectional study was conducted across three tertiary care centers in Karachi to evaluate the patterns of ocular injuries, associated signs and symptoms, and visual outcomes. The tertiary centers included in this study were Dow International Medical College (DIMC), Jinnah Postgraduate Medical Centre (JPMC), and Isra Post-Graduate Institute of Ophthalmology (IPIO). Ethical approval was obtained from the Institutional Review Board **(REC/IPIO/2025/098)**. The sample size was calculated using the OpenEpi sample size calculator. Based on a reported prevalence of ocular injuries of 39.34%, with a 95% confidence interval and a 5.17% margin of error, the final sample size was determined to be 343 participants.[5]Patients with history and signs of recent ocular and adnexal trauma were included in the study and those with any other ocular or systemic disease were excluded from the study.

Informed consent was obtained from all participants, and data were recorded on a customized proforma capturing relevant history and details of ocular and adnexal examination. All assessments were performed by a single examiner to ensure consistency. The study procedure was clearly explained to each patient prior to enrollment. Most patients initially presented to the Accident and Emergency Department and were subsequently referred to the Eye Clinics for further evaluation. A comprehensive ocular and adnexal examination were performed for every patient, and the Ocular Trauma Score (OTS) was calculated using the standardized OTS chart.

Data was analyzed using SPSS version 25.0. Normality of data was checked through Shapiro Wilks test and data was found to be normally distributed. For quantitative variables mean ± S.D was calculated. While qualitative variables were presented in form of frequencies and percentages.

RESULTS

Three hundred and forty-three patients were included in the study including 11% (n=38) from DIMC, 44% (n=150) from JPMC and 45% (n=155) patients from IPIO. Mean age of the patients visiting DIMC was 41.05±13.25, 38.19±18.06 in JPMC and 39.23±15.66 years in IPIO. Gender stratification among three centers is presented in **(Figure 1)**.

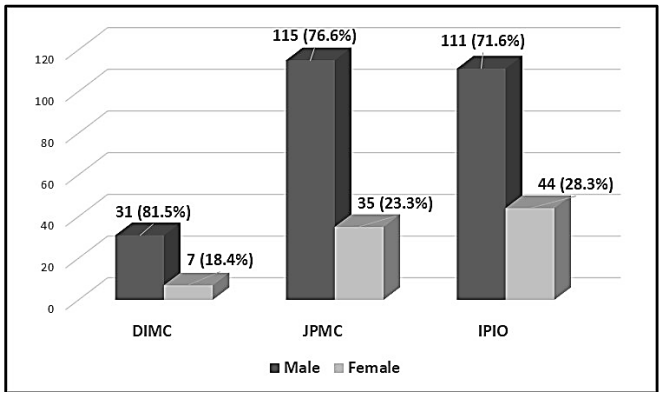

Figure 1: Gender stratification among three centers.

Most of the patients, 52.63% (n=20) presented in DIMC came with accidental injuries due to foreign body, hit by wood etc. While in JPMC, 31.75%(n=48) cases were of assault, hit by iron rod, stone, acid etc. followed by road traffic accidents, 19.33% (n=29). Similar pattern was seen in IPIO as we noticed in DIMC, majority of patients, 64.52% (n=100) were of accidental injuries and foreign body, 21.29% (n=33) was the commonest exposure among all **(Table 1).**

Among the three tertiary centers, 73.68% (n = 28) of patients at DIMC presented with good visual outcomes (6/6–6/18), followed by 93% (n = 62) at JPMC and 52.90% (n = 82) at IPIO (Table 2). The

Table 1: *Pattern of injuries at different tertiary care centers.*

DIMC					
Mode of injury	**Count**	**%**	**Mode of injury**	**Count**	**%**
Road traffic accident	2	5.26	Frizbee	1	2.63
Accidental exposure, n= 20(52.63)			Hand	1	2.63
Bicycle stand	1	2.63	Fireworks	1	2.63
Tree branch	2	5.26	**Workplace injury, n=16 (42.11%)**		
Door	2	5.26	Grinding stone	9	23.68
Foreign body	11	28.95	Welding	7	18.42
Wood	1	2.63	**Total**	38	100
JPMC					
Mode of Injury	**Count**	**%**	**Mode of Injury**	**Count**	**%**
Road traffic accident	29	19.33	**Workplace chemical injury, n=5 (3%)**		
Accidental exposure due to chemical, n=6 (4%)			Acid spill	3	2
Sanitizer spill	1	0.67	Lime	1	0.67
Thinner splash	1	0.67	Welding	1	0.67
Perfume	1	0.67	**Assault, n=48 (31.75%)**		
Elfy	2	1.33	Acid splash	4	2.67
Caustic Soda	1	0.67	Plastic pipe	2	1.33
Blunt objects, n=35 (16.56%)			Broken plastic piece	2	1.33
Bike handle	1	0.67	Plastic bottle	1	0.67
Cracker	1	0.67	Steel/iron rod	2	1.33
Hand	1	0.67	Punch	22	15
Thorn	6	4.00	Stick	6	4.00
Foreign Body	4	3	Scissor	1	0.67
Flame	1	0.67	Knife	2	1.33
Cloth	1	0.67	Stone	6	4
Tipcat (a game)	1	0.67	Others	25	16.67
Ball	3	2.00	Falling exposure		
Nail	1	0.67	From ladders	4	2.67
Tree branch	1	0.67	From stairs	5	3.33
Tyre Burst	1	0.67	From Bike	1	0.67
Wheat grain	1	0.67	On glass	2	1.33
Hair band	1	0.67	**Total**	150	100
Needle	1	0.67			
IPIO					
Mode of Injury	**Count**	**%**	**Mode of Injury**	**Count**	**%**
Road traffic accident	6	3.87	Motorbike handle	1	0.65
Accidental exposure, n= 100 (64.52%)			Insect bite	1	0.65
Foreign body	33	21.29	Ball	2	1.29
Tennis ball	1	0.65	Toy	1	0.65
Hand	1	0.65	Cup	1	0.65
Fist	2	1.29	Hot water	1	0.65
Elbow	1	0.65	Rope	1	0.65
Finger	1	0.65	Pencil	2	1.29
Vegetative matter	9	5.81	Tree branch	8	5.16
Glass	2	1.29	Cracker	1	0.65
Stick	12	7.74	Needle Slipper	1	0.65
Fall on washbasin	3	1.94	Others	22	14.19
Door handle	1	0.65	**Workplace Injury, n=11 (7.10%)**		
Rooster's beak	1	0.65	Welding	2	1.29
Rubber band	2	1.29	Foreign body	3	1.94
Goat Horn	4	2.58	Wire	2	1.29
Knife	2	1.29	Iron/steel rod	4	2.58
Bird's beak	1	0.65	Car battery explosion	1	0.65
Pipe	1	0.65	Stone	11	7.10
Scissor	1	0.65	Chemical		
Matchstick	1	0.65	Bleach	4	2.58
Wall	1	0.65	**Total**	155	100

Table 2: *Visual acuity at different tertiary care centers.*

DIMC		JPMC	
Visual acuity	**n (%)**	**Visual acuity**	**n (%)**
6/6 - 6/18	28 (73.68)	6/6 - 6/18	93 (62%)
< 6/18 - 6/60	1 (2.63)	< 6/18 - 6/60	26 (17.33%)
< 6/60	9 (23.68)	< 6/60	31 (20.66%)
Total	**38 (100)**	**Total**	**150 (100)**

IPIO	
Visual acuity	**n (%)**
6/6 - 6/18	82 (52.90)
< 6/18 - 6/60	17 (10.96)
< 6/60	56 (36.12)
Total	**155**

detailed distribution of Ocular Trauma Scores (OTS) across the three centers is illustrated in **(Figure 2).**

The most common sign of ocular injuries in DIMC was lid swelling (26.23%, n=10). Similarly, in JPMC, lid tear (16.76%, n=30) was the most frequent sign of injury. While subconjunctival hemorrhage was 13.21% (n=35) followed by foreign body in cornea (9.43%, n=25)at IPIO**(Table 3).**

DISCUSSION

Ocular and adnexal trauma results from various causes and is a major challenge to the health-care sector. It usually arises from ignorance or disregarding safety regulations, and exposure to hazardous chemical or mechanical agents at work, home, during leisure activities, or on the streets. Limited awareness of the potential toxicity and severity of injury caused by these agents further increases vulnerability.[6]

In our study, a comparable number of patients presented with a history of ocular trauma at IPIO and JPMC. The relatively lower number of cases at DIMC may be attributed to its peripheral location, limited accessibility for a large segment of the population, and the provision of paid services. As a considerable proportion of our society comprises underprivileged individuals, fewer patients sought care at DIMC. Males constituted most patients presenting at all three centers, reflecting their greater involvement in outdoor occupations and consequently higher exposure to potential ocular trauma. Similar findings have been reported in other studies, with male predominance rates of 84.2% and 81.6%.[7,8]

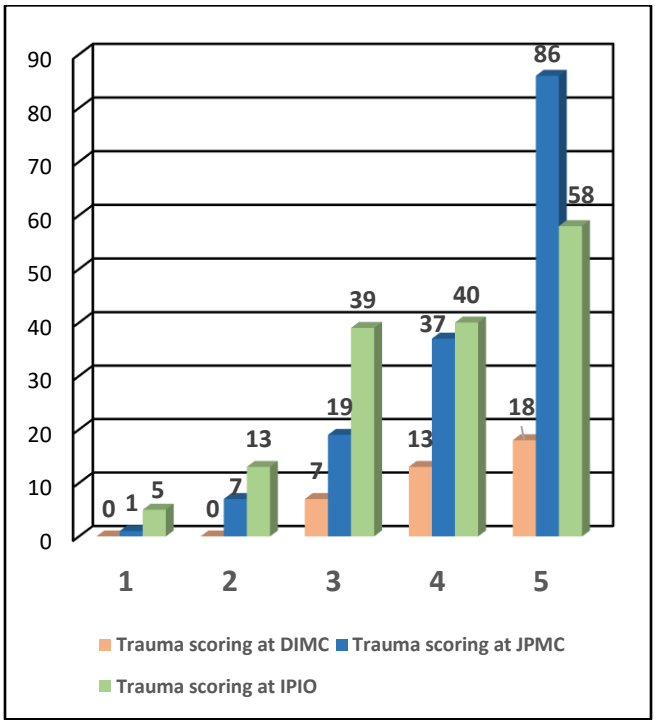

Figure 2: Trauma Scoring at different tertiary care centers.

Table 3: *Sign and symptoms of patients at different tertiary care centers.*

DMC					
Sign	**Count**	**%**	**Sign**	**Count**	**%**
Lid swelling	10	26.32	RD	1	2.63
Corneal	10	26.32	Optic disc	1	2.63
Subconj Hemorrhages	4	10.53	Vitreous hemorrhage	1	2.63
Corneal Tear	2	5.26	Commotio Retinae	1	2.63
Lid Tear	2	5.26	Hyphema	1	2.63
Corneal Abrasion	1	2.63	Glaucoma	1	2.63
Exophthalmos	1	2.63	Red cell glaucoma	1	2.63
Mid dilated pupil	1	2.63	Total	38	100
JPMC					
Sign	**Count**	**%**	**Sign**	**Count**	**%**
Lid tear	30	16.76	Corneoscleral tear	2	1.12

Corneal ulcer	18	10.06	RAPD	2	1.12
Periorbital swelling	13	7.26	Pale disc	2	1.12
Corneal tear	13	7.26	RD	2	1.12
Macular edema	11	6.15	Photo Keratitis	1	0.56
Subconj Hemorrhages	7	3.91	Endophthalmitis	1	0.56
Corneal Abrasion	7	3.91	Globe rupture	1	0.56
Lid swelling	6	3.35	Chemosis	1	0.56
Lid abrasion	5	2.79	CNVI palsy	1	0.56
Lid bruise	5	2.79	Iridodialysis	1	0.56
Cataract	5	2.79	Subluxated Lens	1	0.56
Scleral tear	4	2.23	Macular scar	1	0.56
Brow tear	3	1.68	FB cornel	1	0.56
Lid ecchymosis	3	1.68	Hypotony	1	0.56
Fungal Keratitis	3	1.68	Limbal ischemia		0
Corneal opacity	3	1.68	Grade 1	7	3.91
Conjunctivitis	3	1.68	Grade 2	3	1.68
Iris prolapses	3	1.68	Grade 3	2	1.12
Corneal Edema	3	1.68	Grade 4	2	1.12
Perforated globe	2	1.12	Total	179	100

IPIO

Sign	**Count**	**%**	**Sign**	**Count**	**%**
Subconj Hemorrhages	35	13.21	Neuritis traumatic	3	1.13
FB in cornea	25	9.43	Iridodialysis	3	1.13
Corneal tear	22	8.30	Corneal perforation	3	1.13
Keratitis	22	8.30	Anterior synechiae	2	0.75
Cataract	20	7.55	Vitreous hemorrhage	2	0.75
Corneal Opacity	15	5.66	Band keratopathy	1	0.38
Endophthalmitis	15	5.66	Phacodonesis	1	0.38
Iris prolapses	13	4.91	ON Atrophy	1	0.38
Pupil irregularity	11	4.15	Paralytic ectropion	1	0.38
Hyphema	8	3.02	Lagophthalmos	1	0.38
Shallow AC	7	2.64	Exposure keratopathy	1	0.38
Corneal ulcer	6	2.26	Corneal abrasion	1	0.38
Phthisis	6	2.26	Choroidal detachment	1	0.38
FB fornix	6	2.26	Chemosis	1	0.38
Lid tear	5	1.89	Secondary glaucoma	1	0.38
RD	5	1.89	PAS	1	0.38
Soft eye	5	1.89	Scleritis with FB	1	0.38
Posterior synechiae	4	1.51	Symblepharon	1	0.38
Occlusion pupillae	4	1.51	Aphakia	1	0.38
Lid burn	4	1.51	Total	265	100

The patterns of ocular and adnexal trauma varied across the three centers, influenced by factors such as hospital location, surrounding occupational activities, and the range of services offered. JPMC, being centrally located and the largest tertiary care facility, received the highest number of trauma cases. All categories of ocular and adnexal injuries were represented. At JPMC, 31.75% of cases were related to assault and 19.33% to road traffic accidents, likely due to the hospital's acceptance and management of medicolegal cases. Various forms of chemical injuries were also encountered; 5% of patients sustained workplace-related chemical injuries from accidental exposure to agents such as acids and lime. Other researchers reported similar findings.[9,10]

Females were most affected by chemical injuries resulting from accidental exposure to cleaning agents and household chemicals used in kitchens. At IPIO, the predominant group of patients comprised farmers presenting with several types of ocular and adnexal trauma, as the hospital is situated near multiple villages where agriculture is the main occupation. Vegetative injuries in such settings can result in a

spectrum of ocular damage, ranging from lid lacerations and microbial keratitis to corneal perforation and endophthalmitis. At IPIO, corneal injuries were often aggravated by unqualified practitioners ("quacks") attempting foreign body removal with unsterile needles, leading to secondary microbial keratitis. Industrial workers, vehicle mechanics, and welders formed the second most affected group at IPIO, frequently sustaining injuries from metallic particles, wires, and rods. Workplace-related ocular trauma was found to be more common than domestic injuries.

Soylu et al, described medical records of 250 patients (including four with bilateral injuries), aged between three months and ninety years. Ocular trauma occurred most frequently in the 0–15-year age group, with a marked male predominance of 76.8%.[11] On the other hand, Shashikantha et al, reported 35% domestic accidents in their cohort.[12] Falls occurred in 21.4% of cases, with one-fifth resulting in residual morbidity.

At DIMC, welders most presented with foreign bodies embedded in the conjunctiva, cornea, or sclera. Several studies have intraocular foreign bodies, with variable prognosis.[13,14]

Ocular and adnexal trauma in children resulted from objects such as rooster's beaks, lit matchsticks, adhesive (elfy), pencils, knives, screwdrivers, and scissors. This tendency has been linked to the portrayal of trauma as a form of amusement in cartoons on television. Children of women from low-income households are particularly vulnerable, as mothers are often occupied with domestic or work responsibilities, leading to inadequate supervision. Large family size further increases the risk, while child labor remains a significant and growing cause of injury in Pakistan.[15] Various studies report that a considerable proportion of ocular trauma occurs in children under 10 years of age.[8,12,15]

In our study, most patients fell into OTS grade 5 for visual acuity, with 73.68% at DIMC, 62% at JPMC, and 52.90% at IPIO, corresponding to a range of 6/6–6/18. This is largely attributable to the most common presentations at each center, lid swelling at DIMC, lid tears at JPMC, and subconjunctival hemorrhage at IPIO, which generally do not affect visual function. Vision-threatening ocular signs were fortunately infrequent, indicating substantial potential to further reduce visual loss and ocular morbidity through preventive measures.

The consequences of ocular trauma extend beyond visual loss, encompassing significant financial burdens and psychosocial impacts. Affected individuals may lose their jobs and become physically and economically dependent on others.[16] Globally, approximately 60 million cases of ocular trauma were reported in 2019, with over 400,000 resulting in disability.[17] Numerous studies have highlighted the critical importance of implementing preventive measures.[18,19]

Ocular trauma represents a silent but substantial public health burden in low- and middle-income settings.

This study highlights that a considerable proportion of ocular injuries are preventable and predominantly affect economically active adults and children. Preventive strategies include mandatory use of protective eyewear in industrial and construction settings, regulation and restricted sale of hazardous chemicals, particularly in unlabeled or easily accessible forms, and community-based educational campaigns targeting parents, children, and unskilled workers on safe practices. Integration of ocular safety modules into school health programs and workplace training is also essential. Failure to implement these measures not only risks visual loss but also imposes profound social and economic consequences on affected individuals and their families. Other studies have similarly emphasized the importance of ocular trauma prevention.[20] Furthermore, inadequate facilities at healthcare centers contribute to suboptimal care and poor visual outcomes, highlighting the need for enhanced public awareness and improvements in healthcare infrastructure.

CONCLUSION

This multicenter analysis highlights the diverse etiologies and outcomes of ocular trauma in Karachi. The high frequency of preventable injuries, particularly at workplaces and in domestic settings, underscores an urgent need for improved occupational safety, legal oversight on chemical accessibility, and public awareness regarding eye protection.

Adoption of the Ocular Trauma Score in clinical settings can enhance triage and prognostication. Policymakers must also prioritize enforcement of protective measures and education to reduce the socioeconomic burden of avoidable vision loss.

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Patient's Consent: Researchers followed the guidelines set forth in the Declaration of Helsinki.

Conflict of Interest: Authors declared no conflict of interest.

Ethical Approval: The study was approved by the Institutional review board/Ethical review board **(REC/IPIO/2025/098)**.

REFERENCES

1. **Bian X, Xu S, Song Y, Wang Y, Zhao B, Zhong Y, et al.** Global, national and regional prevalence, and associated factors of ocular trauma: A protocol for systematic review and meta-analysis. Medicine. 2020;**99(35):**e21870. Doi: 10.1097/MD.0000000000021870.
2. **Shukla B, Agrawal R, Shukla D, Seen S.** Systematic analysis of ocular trauma by a new proposed ocular trauma classification. Indian J Ophthalmol. 2017;**65(8):**719-722. Doi: 10.4103/ijo.IJO_241_17.
3. **Sahraravand A, Haavisto AK, Leivo T.** Resource use and economic burden of eye injuries in Southern Finland. Graefes Arch Clin Exp Ophthalmol. 2022;**260(2):**637-643. Doi: 10.1007/s00417-021-05399-3.
4. **Scott R.** The ocular trauma score. Community Eye Health. 2015;**28(91):**44-45. PMID: 2698930.
5. **Maqsood U, Zafar D, Shahzad H, Ali Z.** Incidence of Ocular Trauma Among the Patients Hospitalized in The Ophthalmology Department of Ayub Teaching Hospital. Pak J Phsyiol.2023;**19(4):**29-31. Doi: 10.69656/pjp.v19i4.1553
6. **Muthukrishnan V, Baba D, Maheshvaran M, Mohanasakth P.** Ocular manifestations and safety awareness among quarry workers in Puducherry. J Evid Based Med. Health. 2017;**4(6):**274-278. Doi: 10.18410/jebmh/2017/52
7. **Iqbal U, Malik IQ, Iqbal H.** Epidemiology of Ocular Trauma in a Tertiary Hospital Setting. Pak J Ophthalmol 2019;**(1):**47-54.
8. **Khaqan H. A., Chaudhry H. R., Ilyas S., Hye A.** Pattern of Ocular Trauma in Tertiary Care Hospital. Pak J Ophthalmol 2017;**33(2):** Doi: 10.36351/pjo.v33i2.65
9. **Qi Y, Zhang FY, Peng GH, Zhu Y, Wan GM, Wang WZ, et al.** Characteristics and visual outcomes of patients hospitalized for ocular trauma in central China: 2006–2011. Int J Ophthalmol. 2015;**8:**162-168. Doi: 10.3980/j.issn.2222-3959.2015.01.29
10. **Koh DH, Lee SG, Kim H-C.** Incidence and characteristics of chemical burns. Burns 2017;**43:**654-664. Doi: 10.1016/j.burns.2016.08.037.
11. **Soylu M, Sizmaz S, Cayli S.** Eye injury (ocular trauma) in southern Turkey: epidemiology, ocular survival, and visual outcome. Int Ophthalmol 2010;**30(2):**143–148.Doi: 10.1007/s10792-009-9300-4
12. **Shashikantha SK, Huchchannavar R, Jindal HA.** Unintentional domestic injuries among elderly in rural areas of Mandya: A community-based cross-sectional study in Southern Karnataka. J Family Med Prim Care. 2023;**12(4):**727-733. Doi: 10.4103/jfmpc.jfmpc_1745_22.
13. **Al-Thowaibi A, Kumar M, Al-Matani I.** An overview of penetrating ocular trauma with retained intraocular foreign body. Saudi J Ophthalmol. 2011;**25(2):**203-205. Doi: 10.1016/j.sjopt.2011.01.001.
14. **Žiak P, Mojžiš P, Halička J, Piñero DP.** Bilateral perforating eye injury with metallic foreign bodies caused by tire explosion: Case report. Trauma Case Rep. 2017;**11:**20-22. Doi: 10.1016/j.tcr.2017.10.022.
15. Unicef Pakistan. Child Protection, Protecting all children in Pakistan from all forms of violence, neglect and exploitation. Available at: https://www.unicef.org/pakistan/child-protection-0 Assessed February 12, 2025
16. **Ahmmed AA, Ting DSJ, Figueiredo FC.** Epidemiology, economic and humanistic burdens of Ocular Surface Chemical Injury: A narrative review. Ocul Surf. 2021;**20:**199-211. Doi: 10.1016/j.jtos.2021.02.006.
17. **Li C, Fu Y, Liu S, Yu H, Yang X, Zhang M, et al.** The global incidence and disability of eye injury: an analysis from the Global Burden of Disease Study 2019. E Clin Med. 2023;**62:**102134. Doi: 10.1016/j.eclinm.2023.102134.
18. **Bhagwati W, Kumar M, Pratima S, Elfride S, Manikandan M.** Burden of ocular trauma and its effect on vision: A community-based cross-sectional study in the coastal population of South India. J Curr Res Sci Med. 2021;**7(2):**97-101. Doi: 10.4103/jcrsm.jcrsm_12_21
19. **Bashir MT, Bouamra O, Kirwan JF, Lecky FE, Bourne RRA.** Ocular injuries among patients with major trauma in England and Wales from 2004 to 2021. Eye (Lond). 2024;**38(14):**2761-2767. Doi: 10.1038/s41433-024-03116-y.
20. **Mahan M, Purt B.** Ocular Trauma Prevention Strategies and Patient Counseling. In: Stat Pearls [Internet]. Treasure Island (FL): Stat Pearls Publishing; 2025 Jan-Available from: https://www.ncbi.nlm.nih.gov/books/NBK580537/ Accessed: November 10, 2025.

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