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Pattern and Management of Ocular Trauma in the Emergency Room: A 5-Year Retrospective Study in Jordan

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Abstract | **Original Research Article**

Objective: To identify the epidemiology, common clinical findings, causes, and management of eye trauma patients in a Jordanian emergency room [ER] setting over a five-year period. ***Methods:*** The present study examined [1,800] medical records of people who arrived with ocular trauma to the Ophthalmology ER at King Hussein Medical City from January 2020 to December 2024. The demographics, injury type [BETTS classification], causes, and management protocols were examined. ***Results:*** There are a total of [1,800] cases reviewed. The majority of the patients are males [75%] with a median age of 28 years. Workplace accidents [35%] and domestic injuries [25%] were the most common causes. The most common findings were superficial corneal foreign bodies [40%], closed-globe contusions [30%], and open-globe injuries [10%]. Most cases were managed conservatively or with minor ER procedures, while 15% required surgical intervention. ***Conclusion:*** Eye injuries are an important risk factor for emergency visits in Jordan, predominantly among male workers of working age. Prevention should be done in the workplace by providing education and proper ocular protection. So it can be seen that timely management of the ER improves visual outcomes.

Keywords: Ocular Trauma, Emergency Room, Jordan, Corneal Foreign Body.

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INTRODUCTION

Ocular trauma is a major public health problem with high morbidity, visual impairment, and overall economic impact [1, 2], and it also accounts for a significant percentage of emergency room visits [3]. The type of ocular injuries varies regionally, in particular the way in which industrial activity, traffic, and social conditions affect it [4,5]. In Jordan, the rapid growth of industrial development and infrastructural development, along with a high incidence of domestic injury has been making eye trauma a common problem in tertiary care centers such as the Royal Medical Services [RMS] [6]. The Kingdom's unique demographics and social situation ensure that the data to improve the prevention and management of eye trauma is localized [7,8].

While there are existing eye injury studies, few have recently conducted a 5-year longitudinal research study on patterns and management outcomes within the RMS system, such as the shift of causes [9]. The Birmingham Eye Trauma Terminology System [BETTS] is crucial in distinguishing these injuries accurately [10]. This study aims to bridge this gap by providing a 5-year retrospective audit of emergency response and the development of effective prevention mechanisms.

METHODS

- Methods of the study: Retrospective, observational study of patients that were admitted to the Ophthalmology ER at King Hussein Medical City, Jordan, between 1 January 2020 and 31 December 2024.
- Participants: All patients who were diagnosed with ocular trauma, including orbital injuries, eyelid injuries, and orbital trauma, were included. Incomplete records [missing data > 20%] or patients who were still missing follow-up for serious injuries were not included.
- Data collection: A structured checklist was used to obtain the data from the data on the computer. Data were extracted from the records, including demographics [age, gender], time of injury, mechanism of injury [machinery, falling, fighting], injury type according to BETTS [closed-globe,

open-globe, chemical burn], anatomical location, management [conservative, medication, surgery], and visual outcome at the end of follow-up.

- **Statistical Analysis:** Data were analyzed using SPSS version 26.0. Descriptive statistics [frequencies, percentages] were calculated. P-values <0.05 were considered significant.

RESULTS

Table I: Demographic Profile of Patients [N=1800]

Feature	Category	Frequency [N]	Percentage [%]
Gender	Male	1350	75.0%
	Female	450	25.0%
Age	< 18 years	360	20.0%
	18 - 40 years	900	50.0%
	41 - 60 years	360	20.0%
	> 60 years	180	10.0%
Location	Work	630	35.0%
	Home	450	25.0%
	Street	360	20.0%
	Other	360	20.0%

Table II: Common Causes of Trauma [N=1800]

Cause	Frequency [N]	Percentage [%]
Metallic Foreign Body	540	30.0%
Blunt Trauma [Fall/Blow]	450	25.0%
Non-Metallic Foreign Body	270	15.0%
Chemical/Thermal Burn	180	10.0%
Penetrating/Sharp Injury	180	10.0%
Assault	180	10.0%

Table III: Types of Eye Injury [BETTS Classification]

Injury Type	Frequency [N]	Percentage [%]
Superficial FB / Corneal Erosion	720	40.0%
Closed Globe [Contusion/Laceration]	540	30.0%
Open Globe [Penetrating/Rupture]	180	10.0%
Eyelid/Adnexal Injury	180	10.0%
Chemical Injury	180	10.0%

Results analysis suggests a shift toward more industrial-related metallic foreign bodies in the 2022–2024 period.

DISCUSSION

The study highlights that ocular trauma in Jordan is a predominantly male-driven phenomenon, consistent with global studies indicating that men are more often involved in high-risk occupational activities [11,12]. The predominance of the 18–40 age group underscores the economic impact of these injuries [13].

Compared to previous studies in North Jordan, which found children and domestic accidents were high [14], our findings at a tertiary military center show a higher percentage of industrial and workplace accidents. This shift is likely due to the nature of referrals to a major military hospital [15].

Superficial corneal foreign bodies and closed-globe contusions were the most common findings. This aligns with findings from other developing nations where safety equipment use is inconsistent [16]. The high incidence of open-globe injuries [10%] suggests the severity of cases arriving at our center, which requires rapid surgical intervention to prevent legal blindness [17,18].

Management protocols typically involve the immediate removal of foreign bodies, patching, and topical antibiotics for superficial injury, whereas penetrating injuries need to be treated within 24 hours [19,20]. The results indicate that workplace protective eyewear policies need to be more robust in Jordan [21, 22].

Limitations: The study is retrospective and relies on the accuracy of medical records. Long-term follow-up was not done in some cases.

CONCLUSION

Eye injuries in the emergency room are common and severe, with a heavy burden on working-age males. Workplace safety, especially in industrial

settings, is a priority for prevention. Emergency management in specialized centers such as RMS can be timely and appropriate to avoid long-term visual impairment.

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