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## Epidemiology of penetrating eye injuries in Alkadimiya teaching hospital, a 3-year hospital-based review

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### Abstract

**Purpose:** To assess risk factors associated with occurrence of penetrating ocular injury among patients presenting to Alkadimiya Teaching hospital in Baghdad. Iraq.

**Materials and Method:** All cases of penetrating ocular injury presenting over 3-year period, were identified by retrospective chart review. All current cases of penetrating ocular injury identified were included. All information was obtained retrospectively from medical records.

**Results:** the cohort consisted of 116 cases. That admitted to the eye department in Alkadimiya Teaching hospital for surgical treatment because of penetrating eye injury in years 2017, 2018, 2019.

Injuries were most likely to occur outside home (in the work or in the streets). The most common mechanism of injury was missiles injury the age ranges from 1 year to 60 years. The most affected age group in 30-39 years group (29.5%) followed by 20-29 years group (27.8%) are least in 50-60-year group (5%). Males were affected more frequently involved than females (86.2% males 13.8% females). The final acuity could not be assessed because many cases needs further vitreoretinal management in a tertiary center.

**Conclusion:** Penetrating ocular injury occurs most frequently in the work or during the patient's way to work (because of explosions during 2017), other causes include playing with sharp object in the children age group.

**Keywords:** Children, explosions, causes

### Introduction

Ocular trauma is an important cause of morbidity worldwide and is a major cause of unilateral visual loss in developing countries <sup>[1, 2]</sup>. The epidemiology has been studied in developed countries <sup>[3, 5]</sup>. However, the pattern of ocular injury in the country can influenced by changes in the environmental and socio-economic life style and the security status of the country (unstable security during 2017 in comparison to better security in 2019). Risk factors associated with ocular trauma include age, occupation and lower socio-economic status.

### Materials and Methods

A chart review was performed for patients with penetrating eye injury between January 2017 and December 2019, based on the theater operation register of department of ophthalmology in Alkadimiya Teaching hospital in Baghdad- Iraq. Injury in this study was defined as an open globe injury caused by sharp object with or without a retained intraocular foreign body. Information collected for this study included age, sex, cause of injury, type of injury, unilateral or bilateral injury.

### Results

A total of 116 patients with penetrating eye injuries were identified based on chart review. There were 100 males out of 116 cases (86.24) and 16 females (13.8%). The patients ranged in age from 1yr to 60yrs.

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**Table 1:** Age groups and frequency with percentage

Age groups and frequency with percentage		
Age group	Frequency	Percentage
1-9	22	18.9
10-19	19	16.3
20-29	39	33.6
30-39	25	21.5
40+	11	9.4

The right eye was affected in 38.9% and the left eye was affected in 61.1%. wounds are predominantly corneal 46.2% corneoscleral 18.5% and scleral only 35.3% uveal prolapse occurred in 65.5% of patients 35% of patients presented with hyphemia and 26.4% with cataract and 28.8% with associated lid lacerations.

Place of the injury in work (including militaries) or during the way to work (victims of explosions) 53%, Domestic (Home) 30% school 6%, Road traffic accident 6%, Assault 5%.

The most common mechanism of injury was from a missile injury because bombings that used to occur during these years, especially 2017 also small numbers of cases occur in children due to playing with sharp objects (pencil tips and wooden pieces).

**Table 2:** Causes of penetrating ocular injuries in the study

Causes of penetrating ocular injuries in the study		
cause	Frequency	Percentage
- Missile (metallic stone)	55	47.4
- Sharp edges of metallic objects	26	22.4
- Gun shot	19	16.3
- Shattered glass or bottle	11	9.4
- Sharp tip of the pencil	5	4.3

## Discussion

Ocular injury is a well-established cause of preventable vision loss in young individuals [7, 8]. The epidemiology of ocular injuries varies from community to community, region to region and with time. In this study, there was a higher incidence of penetrating ocular injury among males which is consistent with finding from majority of similar studies [1, 6, 7, 8]. The fact that more males are involved in high risk behavior and work. Male children also exhibit greater mobility and violent behaviors. The majority of injuries occur in young individuals in 30 years and younger. The majority of the injuries in the current study occurred in work (including militaries) followed by house hold accidents which may be smaller or has a differ results from other smaller studies. Which is related to the abnormal war condition that happened in Iraq. Which indicate the variation of etiology of the injuries at different times and locations of the world. The cornea & corneoscleral region were the most affected sites due to greater exposure of these structures to impact. There is some limitation of this study by retrieving data from hospital records especially the emergency registers. In addition, the unusual circumstances of the country during these periods make the results differ from other similar studies other where, since prevention is the goal in the management of penetrating eye injuries. Greater attention should be directed to the potential causes of injury at home and at the work place.

Hence, we recommended wearing protective eye gear, while engaged in potentially dangerous tasks not only at work but also at home. Adequate supervision of children must be emphasized and using on playing with sharp tools and toys should be discouraged. The enforcement of seatbelt use should be a sustained effort.

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