

Superficial corneal foreign bodies: A series of 90 cases

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Abstract

Introduction: Superficial corneal foreign bodies represent a frequent reason for consultation in ophthalmological emergencies and are a cause of unilateral visual impairment. The aim of our work is to study the epidemiologist of the occurrence of ocular trauma of the anterior segment and highlight the potential risk incurred by manual workers.

Material and methods: This is a descriptive and prospective study, carried out from September 2021 to December 2021, in the ophthalmological emergencies department of the hospital 20 August 1953 in Casablanca. The inclusion criteria were corneal foreign bodies occurring at the workplace.

Results: Our study involved 90 patients, averaging 31.8 years old (ranging from 20 to 64 years), predominantly male. The metallurgical industry represented 62.2% of cases in the professional sector. Issues regarding protective measures were notable, with 60% reporting unused protective gear, 30% using inadequate protection, and 10% lacking access to protective equipment. Foreign bodies were found in paraaxial locations in 60% of cases, axial in 20%, peripheral in 20%, and limbic in 10%. Metallic foreign bodies accounted for 65.5% of cases, while non-metallic ones accounted for 34.5%. Complications included corneal opacity in 30% of cases, corneal wounds or scalp in 11%, corneal abscesses in 5%, cataracts in 6%, and endophthalmitis in 3% of cases.

Discussion: Foreign bodies in the anterior segment are common. Speed and point of entry determine the site at which a foreign body comes to rest. The non-metallic foreign bodies generally have a lower velocity than metallic foreign bodies and once they have penetrated the cornea, tend to remain in the anterior segment.

Conclusion: Superficial corneal foreign bodies are a significant cause of vision loss and blindness. The use of appropriate protective eyewear is an excellent means of protection which is simple and effective, hence the need for good awareness in workplaces at risk.

Keywords: Superficial; Corneal; Foreign Bodies; Ocular Trauma.

1. Introduction

Superficial corneal foreign bodies are a frequent reason for emergency visits in ophthalmology, often resulting in unilateral visual impairment. Our study aims to delve into the epidemiology of anterior segment ocular trauma, particularly highlighting the risks faced by manual laborers. This research seeks to comprehensively analyze the incidence, types, and outcomes of ocular injuries in industrial settings, where exposure to mechanical and chemical hazards is common. By understanding the specific circumstances and contributing factors involved in these injuries, we aim to underscore the importance of preventive strategies and proper safety measures. By elucidating these aspects,

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our findings intend to inform occupational health practices and policies, promoting safer working environments and reducing the burden of preventable ocular injuries among manual workers.

2. Material and methods

This descriptive and prospective study was carried out over a four-month period, from September to December 2021, at the ophthalmological emergencies department of Hospital 20 August 1953 in Casablanca. The primary objective was to investigate cases of corneal foreign bodies specifically occurring in occupational settings. By focusing on incidents that occurred in workplaces, we aimed to gather detailed data on the circumstances, types, and outcomes of these injuries. The study employed rigorous inclusion criteria to ensure the relevance and specificity of the findings, thereby contributing valuable insights into the epidemiology and management of occupational ocular injuries. This version expands on the timeframe of the study, clarifies the focus on occupational settings, and emphasizes the importance of the research objectives.

3. Results

Our study encompassed a cohort of 90 patients, with an average age of 31.8 years (ranging from 20 to 64 years), the majority of whom were male. Notably, the metallurgical industry emerged as the predominant sector, representing 62.2% of cases (figure 1).



Figure 1 Number of patients according to the professional practice sector

Concerningly, a significant proportion of participants reported issues with protective measures: 60% stated they did not use protective gear when handling hazardous materials, 30% used inadequate protection, and 10% did not have access to necessary protective equipment. Regarding the anatomical distribution of corneal foreign bodies, findings revealed that 48% were located paraaxially, 22% axially, 19% peripherally, and 11% limbically (figure 2).

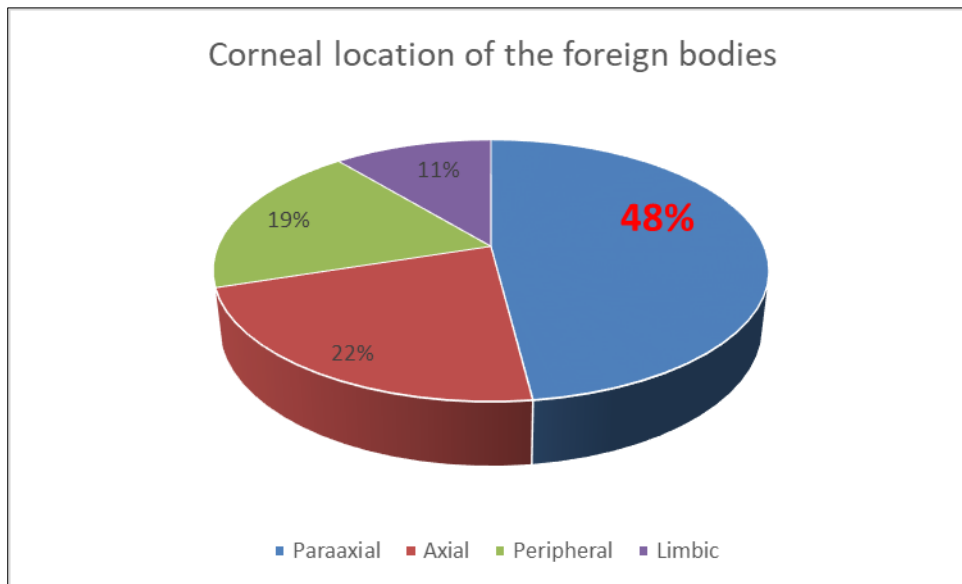


Figure 2 Corneal location

The composition of these foreign bodies varied, with metallic objects comprising the majority at 65.5%, while non-metallic objects accounted for 34.5% of cases. These results underscore the occupational risks associated with inadequate safety practices in industrial settings, emphasizing the need for stringent adherence to safety protocols and improved access to appropriate protective equipment to prevent ocular injuries.

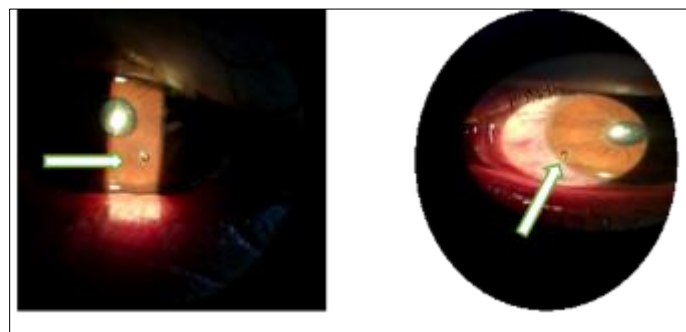


Figure 3 Slit lamp examination showing a corneal foreign body

Corneal foreign bodies can lead to several serious complications, including corneal wounds or scarp in 11% of cases, corneal abscesses in 5% of cases, and endophthalmitis in 3% of cases. Corneal opacity is observed in 30% of cases, often following the removal of the foreign body, while cataracts develop in 6% of cases. These complications underscore the importance of prompt and specialized intervention to preserve ocular health and minimize long-term visual sequelae.

4. Discussion

Trauma to the eye is frequently observed, accounting for 35 to 70% of cases [1]. It predominantly affects males [2]. Visual prognosis can be compromised in severe cases, with a significant risk of infection associated with this type of injury [3].

In our study, the mean age was 31.88 years. Our results are close to those of Zeynep Guzel et al., who found 32.46 years [5]. Emol Ngondi et al. found an average age of 38.3 years [4]. Regarding profession, Zeynep Guzel et al. found the metallurgical industry in 59% of cases [5], which is close to our result of 62%. However, Emol Ngondi et al. had a predominance of construction and public works in 41% of cases [4]. Protective measures were not used in the majority of cases across all three series: 60% in our series, 72.6% in Emol Ngondi et al [4], and 57% in Zeynep Guzel et al [5,6].

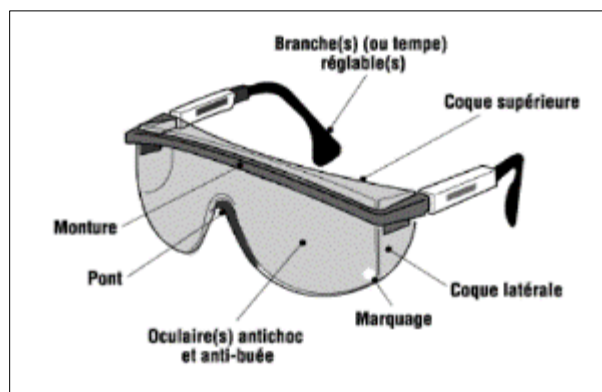


Figure 4 Protective goggles with upper and side shields.

It is necessary to establish workplace safety standards. Adequate training for employees is very useful, and having an occupational physician is mandatory to ensure the health and safety of workers [6].

5. Conclusion

Superficial corneal foreign bodies are a frequent cause of vision impairment and can potentially lead to blindness if not managed promptly and effectively. The adoption of appropriate protective eyewear stands out as a simple yet crucial measure to mitigate these risks. This underscores the importance of raising awareness in workplaces where such hazards are prevalent. Ensuring that workers understand and consistently use protective eyewear can significantly reduce the incidence of ocular injuries and promote long-term eye health. This proactive approach not only safeguards vision but also enhances overall workplace safety and productivity.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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