

## Case Report

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### ABSTRACT

A 35-year-old, male factory employee with retained subconjunctival foreign body in form of a glass particle in the left eye (LE) presented at Mazabuka General Hospital Eye Unit with chronic painful red eye, photophobia and epiphora for two months. On examination, his visual acuity was 6/6 for the right eye (RE) and 6/9 for the LE. There was mild upper eyelid swelling and ecchymosis. The posterior segment of both the right and left eyes had normal findings. A clinical diagnosis of the left eye ocular trauma was made with suspected scleral tear near the limbus at 9 O'clock position. Examination under local anaesthesia revealed a foreign body which was later removed. The sclera was found to be intact.

### INTRODUCTION

Eye trauma refers to damage caused by an injury to the eye [1]. Trauma may affect not only the eye, but the adnexa, including adjacent tissue and bone structure [1,2]. There are many different forms of trauma, varying in severity from minor injury like eye foreign bodies to medical and surgical eye emergencies [1,2].

An ocular foreign body is any abnormal substance or object that is found on the eye, but does not belong to the eye [2,3]. The incidence of ocular foreign body is high especially in the industrial towns. It can occur at any age and in both genders. It affects the eye by mechanical effects, by introduction of infection or by specific reaction [1-3].

The reaction of the eye to a retained foreign body varies with the composition of particle [4]. The ocular reaction may be of three types in the first place, inorganic substances cause no specific reaction except for mechanical irritation and an exudative and fibroblastic isolation of the foreign body [4,5]. Secondly, a chemical reaction may produce a nonspecific or

occasional specific damage. In the third place, organic material tends to set up a proliferative response characterized by the formation of granulation tissue with the giant cells [4,5].

Foreign bodies on the conjunctival surface are best recognized with slit-lamp examination. Foreign bodies can lodge in the inferior cul-de-sac or can be located on the conjunctival surface under the upper eyelid [4]. It is imperative to evert the upper eyelid to examine the superior tarsal plate and eyelid margin in all patients with a history that suggests a foreign body [4]. If several foreign bodies are suspected double eversion of the eyelid with a Desmarres retractor or a bent paperclip is advised to allow the examiner to effectively search the entire arc of the superior cul-de-sac [4].

Usually the materials of extra ocular foreign body are coal, dust, sand, iron particles, glass, eye lashes, wood piece, husk of seed and wings of insect among others. The Intra Ocular Foreign Body (IOFB), which penetrate the eye and retained are minute chips of iron or steel, stone, glass, lead pellets, copper, spicules of wood to mention but a few [1,3].

Occupational eye injuries represent 63% of all occupational injuries. Workers in construction, manufacturing and mining are particularly at risk. Fifty two percent (52%) of all occupational injuries in manufacturing are eye injuries [4]. Most occupational eye injuries are foreign bodies (FB) in the eye (71.5%) [4]. Up to 90% of eye injuries are preventable with effective interventions including education, professionals can play an important role in promoting and prescribing eye injury prevention strategies to help reduce this avoidable cause of vision loss. [4]

Vision is intimately linked with one's ability to navigate the environment and can strongly affect our mental, physical and economic well-being. Losing one's vision

through an eye injury can lead to substantial long-term costs, and impact on an individual, their family and community

### CASE SCENARIO

A 35 year-old male factory worker from Mazabuka district in Southern Province of Zambia presented to Mazabuka General Hospital eye unit complaining of chronic painful red eye with sensitivity to light, tearing, headache and blurred vision for two months.

He constantly got permission from work to seek medical attention for his eye condition of which he lost many man hours from work. He had received medical attention and treatment at several public and private health centres with no improvement. The pain remained the same despite receiving different types of topical medication and oral pain killers. He also received traditional herbs and tattoos without any improvement at all. He eventually sought for help from local private optician where he was prescribed plano photochromic spectacles.

He could not recall any history of ocular infection or trauma to the eye prior to the onset of this problem. He could not recall any history of work related accidents prior to the onset of the pain. However, he reported history of working under various departments, including factory maintenance department where he was attached a week prior to the onset of his ordeal. He was a constant user of safety glasses at work and he reported that the company was strict with the policy of safety attire at work stations. There was no history of known allergies in the family.

On examination, his Visual acuity was 6/6 on the RE and 6/9 on the LE. He had photophobia and tearing in the LE with subconjunctival haemorrhage. Slit lamp examination did not reveal any apparent corneal or conjunctival foreign body or lacerations and fluorescein staining was

negative. There was mild upper eyelid swelling and ecchymosis. The posterior segment of the LE had normal findings. The RE was quiet with normal anterior and posterior segment findings and his vital signs were normal.

A diagnosis of LE blunt ocular trauma was made with suspected scleral tear near the limbus at 9 O'clock position. After taking written informed consent, this patient was taken to theatre for further examination and possible suturing of the suspected scleral tear. Under aseptic conditions the LE was given peribulbar injection as local anaesthesia while being mindful of ocular pressure. The conjunctiva was separated from the sclera to expose the source of the haemorrhage. A small piece of glass approximately 0.3 mm diameter was exposed and removed but the scleral was intact. The scleral blood vessels were cauterised and subconjunctival steroid antibiotic injection was given. Topical drugs, eye pad and analgesics were given. The patient was discharged the following day and reviewed after fourteen days. The pain and haemorrhage had subsided significantly and the patient was happy with this outcome.

Permission to publish this case was granted by the patient

## DISCUSSION

The subconjunctiva is a rare site for lodgement for ocular foreign body. Seventy five percent (75%) of conjunctival foreign bodies lodge on the conjunctiva surface of the upper eye [4]. Conjunctiva foreign bodies of the eye are common and can be removed with proper technique [4]. A conjunctival foreign body should be suspected if a patient present with a sensation of something in the eye. Patients with a conjunctival foreign body often state that their eye feels as if an irritating object (grit), sand, or glass is in the eye but that they cannot localize exactly where the sensation is [7,8]. The foreign body sensation is often worse upon blinking when the foreign body is located on the conjunctival (inner) surface of the upper lid. Corneal foreign bodies are easily detected as they are exposed clearly on the clear cornea and because it is highly innervated there is severe pain [7,8].

In this patient, the signs of conjunctival foreign body was not obvious as that of irritating eye object (grit) and sand sensation demonstrating that ocular foreign bodies can lodge without eliciting clear signs and

symptoms. He did not give any account of trauma prior to the onset of his ordeal. He recalls strict adherence to safety goggles at work. He did not notice at any point that a foreign particle had lodged in his left eye neither did any of the staff who attended to him at various health centres, including our team at Mazabuka General Hospital on first examination.

Glass particles and insect hairs are often difficult to see, but a careful search of the cul-de-sac with high magnification aids in identification and removal. In case of conjunctival foreign bodies there is need to search for signs of globe perforation [7,8] In this case, glass particle foreign body embelded subconjunctivally on to the sclera surface, which presented as a small conjunctival growth and caused local inflammatory response.

Eye injuries in the workplace are very common. More than 2,000 people injure their eyes at work each day. About 1 in 10 injuries require one or more missed work-days to recover from. Of the total amount of work-related injuries, 10-20 % will cause temporary or permanent vision loss [4]. Common causes for eye injuries are: flying objects (bits of metal, glass), tools, particles, chemicals, Harmful radiation and any combination of these or other hazards. Many times these foreign particles are missed and intervention is only sought 24 to 72 hours later [5]. There are three things one can do to help prevent an occupational eye injury; (1) know the eye safety dangers at work place (2) complete an eye hazard assessment (3) eliminate hazards before starting work [4].

The most recommended management of ocular foreign bodies is prevention by use of safety eyewear protection which includes non-prescription and prescription safety glasses, goggles, face shields, helmets and full-face respirators. The type of safety eye protection one should wear depends on the hazards at the workplace. Safety glasses with side protection (side shields) are recommended for particles, flying objects, or dust areas. Goggles are recommended for chemicals. Special-purpose safety glasses, goggles, face shields, or helmets are designed for near task radiation (welding, lasers, or fibre optics) [4,5,].

Prompt referral to specialised emergency centres is recommended once ocular trauma is suspected or identified at first contact [6,8].

## CONCLUSION

This case report highlights the importance of thorough ocular examination and good clinical acumen to avoid vision threatening complications because of retained foreign bodies. Glass particles are often challenging to identify and requires skill to manage successfully.

# LIST OF REFERENCES

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