CASE REPORT

Ocular Emergency-A Case Report

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ABSTRACT

Background: *Ocular emergencies are not uncommon and one of the causes is chemical burns. Irrigation is the major emergency therapeutic measure of such burns and this also has an impact on the prognosis. We hereby present a case report of chemical burns.*

Method/Result: *The case report of a 33year old factory worker presenting with history of visual loss following splash of cement dust unto his face is hereby presented with literature review.*

Conclusion: *We conclude that people working in high-risk industries for chemical injuries should wear protective devices and be given health education as to what they can do in cases of accident.*

KEYWORDS: Ocular emergencies; Chemical burns.

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INTRODUCTION

One of the causes of Ocular emergency is chemical burn of the eye. It accounts for a small but significant fraction of ocular trauma [1,2]. It commonly occurs as occupational injury i.e. at workplace, as household accidents, suicide cases and assaults [1-4]. Alkali burns occurs more frequently than acid burns and it is more severe because it penetrates the cornea layers[3, 5]. The most common agents causing alkali burns are ammonia (NH_3), lye (NaOH), Potassium hydroxide (KOH) and lime (CaOH).

The severity of a chemical injury is dependent on the pH, the volume, and duration of contact and inherent toxicity of the chemical [6] .The clinical feature varies in severity from mild irritation to complete destruction of the ocular surface epithelium, cornea opacification, loss of vision and loss of the eye. Eye burns are classified into 4 grades (Table I) and this also determines the prognosis [7] . Mild burns of grade I and II have good prognosis while grades III and especially IV have poor prognosis [7] .

Treatment should be prompt and aggressive. It is one of the cases where the clinician starts treatment before taking a good history. We hereby present this case report to illustrate the features and complications of chemical burns.

CASE REPORT

Mr. I.O, a 33year old factory worker presented with 5hours history of loss of vision in both eyes following cement splash unto the face.

He is a factory worker at Portland cement who accidentally had cement splash unto his face when a pipe bursted while off-loading cement from a tanker lorry. There was associated sudden loss of vision in both eyes with severe eye pain, irritation, tearing and photophobia. He had good vision in both eyes prior to injury. There was also associated nasal irritation and slight difficulty in swallowing saliva. He was taken to a private hospital where copious ocular irrigation was done before referring the patient to us at Olabisi Onabanjo University Teaching Hospital (OOUTH).

Ocular examination findings revealed visual acuities of counting fingers (cf) in each eye. There was bilateral lid oedema with cement particles in both upper and lower conjunctival fornices. There was conjunctival hyperaemia, chemosis, and 360 ° perilimbal blanching in both eyes. Both corneae were completely opaque and there was no further view of other ocular structures. Further irrigation was done but patient refused speculum examination and thorough irrigation of the conjunctiva fornices so as to remove all the cement particles. He was admitted and placed on Oc Chloramphenicol, gutt maxitrol, gutt Timoptol and padding of both eyes was done. He was to be on prolonged irrigation, daily debridement and rodding which patient refused. He developed bilateral symblepharon by the third day and subsequently discharged himself against medical advice. The visual acuities before discharge were still counting fingers in each eye.

Table I. Roper Hall Classification of chemical and Thermal burns

Grade	I	II	III	IV
Cornea	Epithelial loss only	Cornea stroma haze, iris details visible	Widespread cornea stroma haze iris observed	Opaque Cornea. No view of pupils or iris
Conjunctiva	No Ischaemia	<1/3limbus Ischaemia	Ischaemia 1/3 -1/2 of limbus	Ischaemia >1/2 limbus
Prognosis	Good.Full recovery	Good with some scarring	Uncertain	Poor.Expect Perforation.

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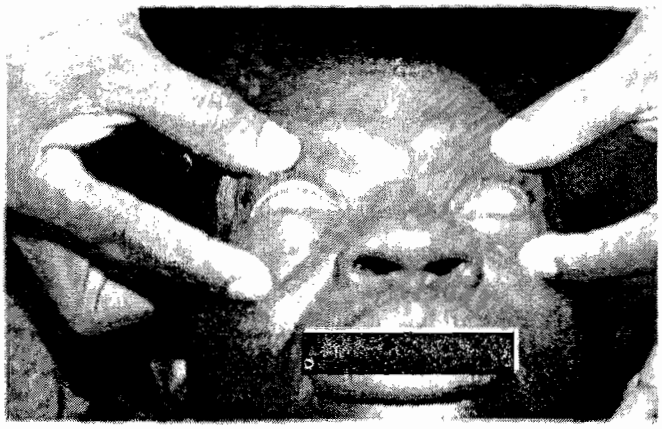

Figure 1. Photograph of the Patient.

DISCUSSION

The incidence of chemical and thermal injuries to the eye is said to be about 7.7% - 18% of all ocular trauma [8]. Most injuries are mild with no lasting adverse effect [1,2] except in few cases like that of our patient. The most important emergency treatment is irrigation. The speed at which initial irrigation of the eye begins is said to have the greatest influence on the prognosis and outcome of eye burns[2]. This was not commenced immediately in our patient. It was delayed until he got to the private hospital. Thus health education of workers in industries may go a long way in reducing severe injuries. Water is readily available everywhere as the irrigation fluid though recent studies have suggested that fluids with higher osmolarity e.g. Normal saline, balanced salt solution, Ringers Lactate and Diptoterine are better than water [2,9]. In cases of cement dust like in our patient it is necessary to irrigate the conjunctiva cul-de sac to remove the particles of cement (calcium hydroxide), which might be lodged there. The use of a cotton tipped soaked in 1% EDTA have also been advocated. However because of pain this may be done under sedation/topical anaesthesia in uncooperative patients like ours, who also refused its use though topical anaesthetic agent was used to anaesthesise the cornea.

Further treatment depends on the severity of injury. For grades II, following the irrigation topical antibiotics/steroids and atropine eye drops may be enough. Additional treatments include rodding and topical ascorbic acid drops[2]. Early systemic administration of betametasone or cyclosporin A has been found to be of benefit in treatment of alkali injury[10]. Other adjunctive procedure includes regular glass rodding to prevent symblepharon which this patient refused leading to early development of symblepharon in him, antiglaucoma drugs in cases of raised intraocular pressure. In grades III to IV burns early surgery (keratoplasty) [11, 12] may be necessary to prevent perforation and possible restoration of vision which this patient will also need since he has grade IV injury.

In conclusion, we would like to emphasize the use of protective devices in factory workers especially the cement industry and health education on the first aid management that can be given in cases of accidents such as occurred in this patient since prevention is better than cure.

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