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## **RETINA ON CORNEA IN CASE OF MECHANICAL OCULAR INJURY: A CASE REPORT**

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### **ABSTRACT:**

Ocular injuries are one of the major factors for mono-ocular blindness in adult population. Majority of mechanical ocular injuries occurs in factories. Our patient had injury with grinder blade. On examination, vision was no perception of light in right eye, corneoscleral tear along with lens and vitreous in the wound. Ocular trauma score was 1 with chances of visual recovery nil. After primary treatment, when we had taken patient under general anaesthesia, we found whole retina lying over cornea which was a rare event. We excised that tissue and tear repair was done. None of the factors which can lead to expulsive haemorrhage was observed in patient. We have seen many patients with extensive corneoscleral tear but never seen retina coming out of the wound. We recommend to use all protective equipments for workers to prevent industrial ocular injuries.

**KEY WORDS:** globe rupture, industrial ocular injury, corneal perforation

### **INTRODUCTION:**

Globe rupture is the most common ophthalmic emergency especially in industrial workers. It is a leading cause of mono-ocular blindness.<sup>[1]</sup> In one survey of United States, eye injuries cost >\$300 million per year because of lost productivity, medical expenses, and workers' compensation.<sup>[2]</sup> Globe rupture may be associated with traumatic hyphema, cataract or lens dislocation, vitreous haemorrhage, retinal detachment, uveal prolapse, scleral wound, orbital wall fractures, optic nerve damage or intraocular foreign body. Pre-operative care include proper stabilization of the general condition, application of eye shield, topical antibiotics, antiemetics, injection tetanus, analgesics and no manipulations to the globe. Globe rupture should be repaired as soon as general condition stabilizes.<sup>[3]</sup>

### **CLINICAL HISTORY**

A 34 years old male patient presented with history of trauma to right eye by blade of industrial grinder while working in a factory. He presented to us with history of loss of

vision, pain and bleeding from the eye. On examination, visual acuity of right eye was no perception of light and left eye was 20/20. Slit lamp findings were upper and lower lid edema, chemosis and congestion. There was corneo scleral tear extending from 1 to 6.30 o'clock, limbus to limbus and extending on sclera. Lens and vitreous was present in the wound. Anterior chamber details were not visualized. [Figure 1] Posterior segment evaluation was not possible. The ocular trauma score was 23 raw points with OTS value 1 which indicates poor visual outcome. [4] Primary treatment was given including eye shield and patch with preservative free antibiotic drops, injection tetanus, systemic antibiotics and analgesics. All pre operative investigations were done for general anaesthesia. X ray skull with orbit was done to rule out foreign body. Visual prognosis was explained to the patient. We have planned wound exploration and repair under general anaesthesia. It took 8 hours from time of presentation to time of surgery. On table after painting and draping, when we applied wire speculum, we saw retina coming out from wound and lying over cornea across whole length of the wound. [Figure 2] As it was necrotic and not viable, we excised the same and sent to histopathology department. Through manual vitrectomy was done near entry wound so as to make wound clear from the vitreous. Limbal suture was taken first to secure contour of cornea. Corneal tear was sutured with 10-0 nylon interrupted suture and scleral extension was noted 4 mm beyond limbus superiorly and 3 mm beyond limbus inferiorly and was sutured with 8-0 virgin silk interrupted. Scleral sutures were covered by conjunctival sutures which were taken with 10-0 nylon. Subconjunctival gentamycin and dexamethasone injection was given. Bandage contact lens was applied and eye was patched. Higher injectable antibiotics and systemic steroids were given along with analgesics. On first post operative day, vision was no perception of light, corneoscleral sutures were in place and bandage contact lens was in place.[figure 3] Other eye was normal. We started topical antibiotic, moxifloxacin (0.5%) eye drops- 6 times a day, prednisolone acetate eye drops (1%) every 2 hourly and atropine (1%) eye drops 3 times a day. Systemic steroids were given according to weight with 7 days tapering.

## **DISCUSSION:**

Ocular trauma is a leading cause of vision loss especially in young adults and major reason of monocular blindness. Approximately 55 million patients suffer from ocular trauma each year in the entire world; out of which 750 000 people require hospitalization and 1.6 million patients develop blindness from the trauma. [1]

An angle grinder is a power tool that is used by construction workers and contractors. Many of these injuries can be caused by flying abrasive and metallic particles, ejected materials, and from contact with the tool itself. Our patient had history of injury with blade of grinder while working. Patient had not used any protective equipment for eyes. We recommend all industrial workers to wear protective shield and other equipment at workplace to prevent industrial injuries.

Primary line of management in ocular trauma patient is to stabilize general condition, protect eye from further injuries by applying shield and patch and tear repair as soon as possible. Our patient had severe corneoscleral tear and there was vitreous in wound. We had many patients with such extensive tear and taken many patients under local anaesthesia also, vitreous loss can aggravate after anaesthesia but never seen impending expulsive haemorrhage so as whole retina lies over cornea. Reasons for expulsive haemorrhage are systemic factors like advance age, arteriosclerosis, blood dyscrasia, diabetes, hypertension, alcoholism and ocular factors like myopia, glaucoma, recent intraocular surgery and

expulsive haemorrhage in other eye. <sup>[5]</sup> None of the above mentioned factors were present in our patient, still lens which was present in the wound was extruded along with whole vitreous and retina which is a rare phenomenon. Though we were not able to salvage vision in this patient.

**RECOMMENDATION:**

Industrial ocular injury is a major cause of vision loss in adults. We recommend wearing protective eye shields to prevent such hazards. Also we recommend workers to regularly check all parts of instruments before use.

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