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Review Article

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SEVERE OCULAR TRAUMA AND MIRACULOUS RECOVERY-NOTHING IS IMPOSSIBLE

Dr. K. Jyoti*

India.

***Corresponding Author: Dr. K. Jyoti**

India.

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INTRODUCTION

Ocular trauma is a common occurrence with all severe trauma. The age group effected is generally the young and economically active population .Treating ocular trauma is very important after all life saving measures because timely intervention and energetic management can prevent blindness even in the event of severe trauma. A systematic meticulous approach can tackle very severe cases and be given good vision to the individual.

5 cases of severe ocular trauma who have regained good vision

Case 1

Blast injury with severe ocular trauma both eyes.

A 20 year old male got to our hospital while he was handling chemical explosives caused severe trauma (involving hands), blasted and shattered. Injury to chest and face which included severe injury to eyes.

O/E:

Patient was immediately taken to operation theatre and intubated for General Anaesthesia.

Surgical team was amputating the remnants stump of upper limb while general surgeon operating upper limb. ENT surgeon was taking care of multiple wounds over maxilla-facial area. The eyes were involved along with the face, severe oedema of the face with multiplesplinter injuries.

Complete multi-disciplinary approach was provided in the golden hour of trauma.

Per-operatively, there were multiple lacerations on eyelid and face, lid swelling, conjunctival including orbital and perirorbital area and multiple splinter injuries were seen with chemosis both eyes. Patient was examined under general anaesthesia.

Right eye shows corneo-scleral laceration at 3o'clock position with vitreous leak, central corneal star-shaped was present. Hyphaema in anterior chamber and other details wenre visualised.

Surgical treatment – Corneo-scleral wound was sutured with 8-0' vicryl after doing sponge vitrectomy with Vannas scissors. Anterior chamber entered through the central laceration and hyphaema cleared. Air bubble placed in anterior chamber and central corneal wound is sutured with 10-0'nylon.

Subconjuctival injection with dexamethasone and moxifloxacin given.

Left eye:

Multiple lid splinters and conjunctiva splinters were removed patiently.

Corneal partial thickness laceration.

Anterior chamber appeared normal.

Fundus no view. Patient remained on ventilator for the next four days.

Hence, vision could be noted only after fourth post op day. His vision was perception of light present with projection of rays accurate in both eyes. However, dressing of wound was done every day. Antibiotic ointment applied on the wound. Both eyes instillation of topical antibiotic and tear substitute prevented dryness of cornea.

On 4th post op day Right eye:

lid oedema reduced, conjuctival congestion present, corneal sutures intact, anterior chamber has resolved lenticular matter, while the left eye showed corneal scar formation. Anterior chamber appeared normal, but, no fundal glow was seen.

Investigation: USG B Scan shows right eye cataract dislocation. Left eye show vitreous haemorrhage. In both eyes, retina was attached.

Later, right eye underwent optical penetrating keratoplasty with SFIOL and left eye vitreous haemorrhage resolved.

Salient treatment features

Final outcome after 3months was right eye: best corrected visual acuity 6/9(P) RE,LE:6/6(P)

Despite, severe ocular trauma, associated with multiple injuries, early treatment, prevention of endophthalmitis, ensured good vision and good quality of life.

CASE 2

19 yr old male got injured in right eye during firing practice with cartridge shell. Patient brought with gross diminution of vision after 5 hours of initial injury. O/E: patient showed right eye lid oedema, conjunctiva chemosis, central corneal laceration, severe corneal oedema. Vision: perception of light present with projection of light inaccurate.

Management: wound exploration done under general anaesthesia. Anterior chamber entered from the wound. Visco-elastic used. Care was taken not to touch the lens. After anterior chamber wash, air bubble placed. Corneal suturing done with 10-0' nylon.

Post-op USG B Scan Right eye confirmed the absence of intra-ocular foreign body.

Systemic anti-inflammatory along with topical antibiotics and NSAIDS given. After 2 months, suture removal done. Final visual outcome of right eye 6/6(P).

CASE 3

Case of fungal keratitis after ocular trauma.

25 yr old male trauma with thorn presented to the hospital with congestion, corneal ulcer, hypopyon in anterior chamber. Vision in the right eye perception of light present with projection of rays accurate.

Diagnosis of fungal keratitis made and was treated with topical antifungal and topical antibiotics for 6 weeks. Cycloplegics were given. Patient became asymptomatic after 6 weeks and has a central scar. Distant visual acuity in right eye is 6/60 with no further improvement. The treatment of corneal scar with topical loteprednol 0.5% and flubiprofen 0.3% 6 hourly per day for 4 weeks. Later, lotepred was tapered twicw a day for 2months, and flubiprofen continued for 4 weeks. At the end of 4 months, distant visual acuity right eye was 6/6 unaided.

CASE 4

Open globe injury with iris prolapsed-

25 yr old soldier presented with severe pain and vision loss following injury with a barbed wire. Since he was posted to a forward location, he could reach hospital 16 hrs after injury.

Initial examination showed, vision of light perception, lid edema, corneal laceration with iris prolapsed.

After initial investigations and preanaesthetic check up, a decision to explore the wound under anaesthesia was taken

In view of an open globe, general anaesthesia was administered .

Surgery steps-

Cleaning and draping was followed by speculum application.

A large corneal laceration fom 1 o clock to 6 o' clock was noticed and iris prolapsed medially.

The time of injury was 16-18 hrs back and the eye mode of injury was rusted barbed wire. Due to high risk of infection, a decision to abcise the iris was made. With a vanna's scissor, the iris was excised flush with the corneal surface. This was followed by application of intracameral moxiflox, both on the laceration site and anterior chamber. There was hyphaema and AC wash was done. Use of copious amt of viscoelastic substance was done to form the AC and also as a tamponad, to stop bleed from iris edge.

Corneal wound was highly ragged and bevelled. The aim was to salvage as much cornea as possible. After removing mascerated tissue, the remaining cornea was sutured using 10 'o ethicon sutures. The knots were buried, and visco wash done.

Large air bubble placed in AC. Again intracmeral moxiflox was used in anterior chamber to prevent infection.

The patient was already informed about the severity of the injury and guarded prognosis.

First post op day-

Patient was comfortable, cornea was clear and sutures intact. AC was well formed, air bubble seen superiorly and few cells were seen. Vision was counting finger close to face and a pin hole improvement of 6/12 (P).

After 1wk, USG B scan done and retinal detatchment was ruled out

The patient was treated with systemic and topical antibiotics. No topical steroids were used due to fear of infection.

The patient showed steady improvement and was on regular follow up. At the end of 4 weeks, the cornea was almost clear away from sutures. Now topical steroids were introduced in tapering dose over next 4 wks. The patient developed traumatic cataract, and a surgey was planned.

8 wks after initial injury, suture removal was done.

8 wks after injury- stage 2 of treatment-

Phacoemulsification and foldable PCIOL implantation was done under guarded prognosis. Due to zunnular weakness, CTR, capsular tension ring had to be used.

The large iris defect had to be tackled with SINGLE THROW FOUR PASS PUPILLOPLASTY-thus creating pinhole pupil

Final outcome-

After 4wks after cataract surgery, the patient had unaided vision of 6/9(p).

High lights-

Quick decision making

Abcision of prolapsed iris

Adequate precautions to prevent infection and not using topical steroids

Phacoemulsification and PCIOL implantation with CTR

Single pass four throw pupilloplasty, which made good vision possible despit high astigmatism

CASE 5

Corneal burns

24 yr old patient presented with history of hot oil spilling into his left eye. On examination, the patient had severe blepherospasm and conjuctival chemosis and corneal opacity. No other details were visualised.

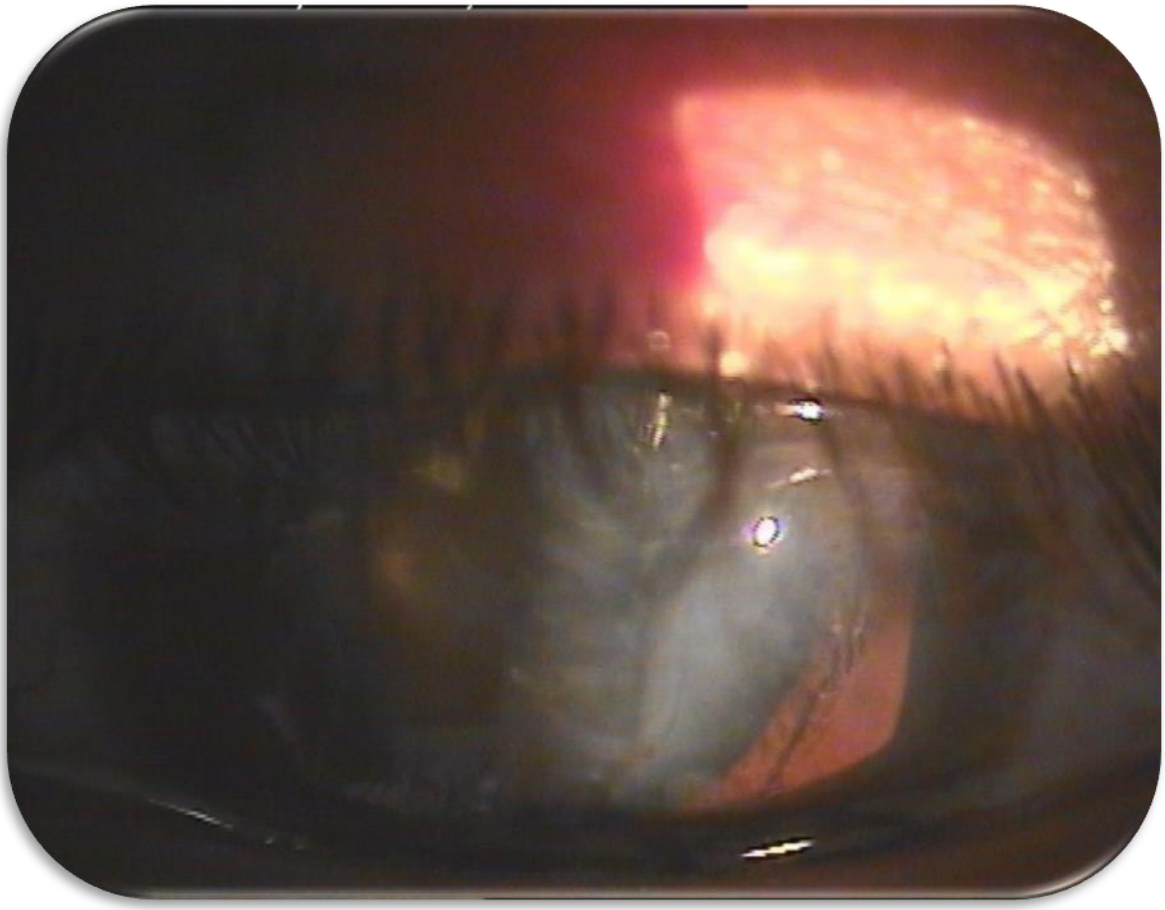
Slit lamp examination showed epithelial defect over entire cornea and burnt tissue lying over cornea.
Treatment: Conjuctival irrigation done and all dead tissue removed. Ointment gatifloxacin, eye drop atropine and eye patching done.

After 24 hours, only small area of corneal epithelial loss was visible. Eye was patched again after 24 hours and patient recovered with 6/6 vision.

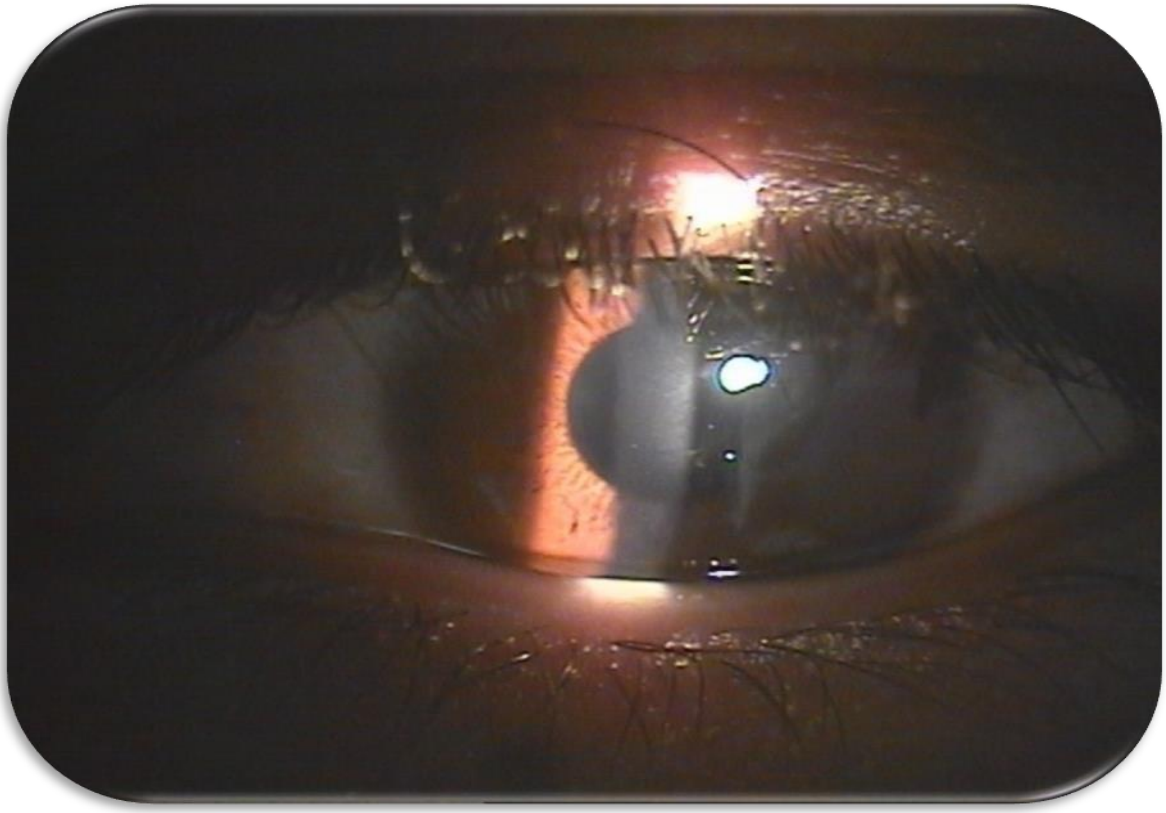
CASE1---BEFORE

CASE 1- AFTER

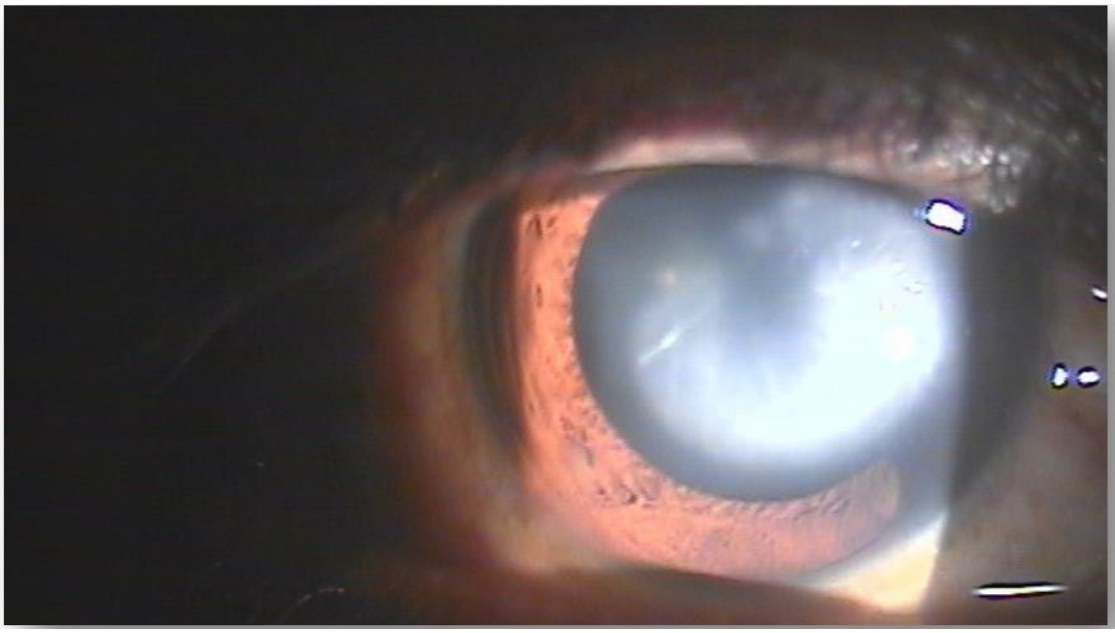
CASE2-ON ARRIVAL



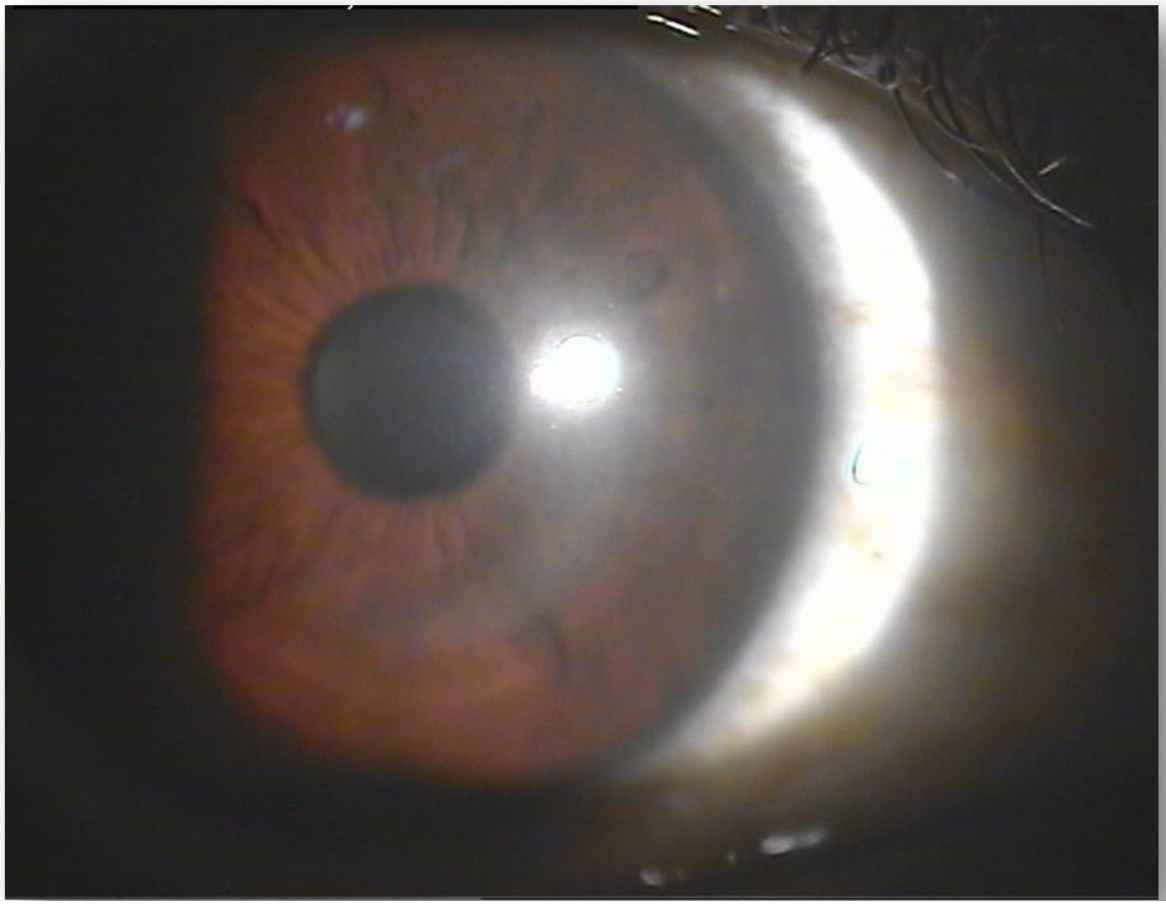
CASE-2 AFTER TREATMENT



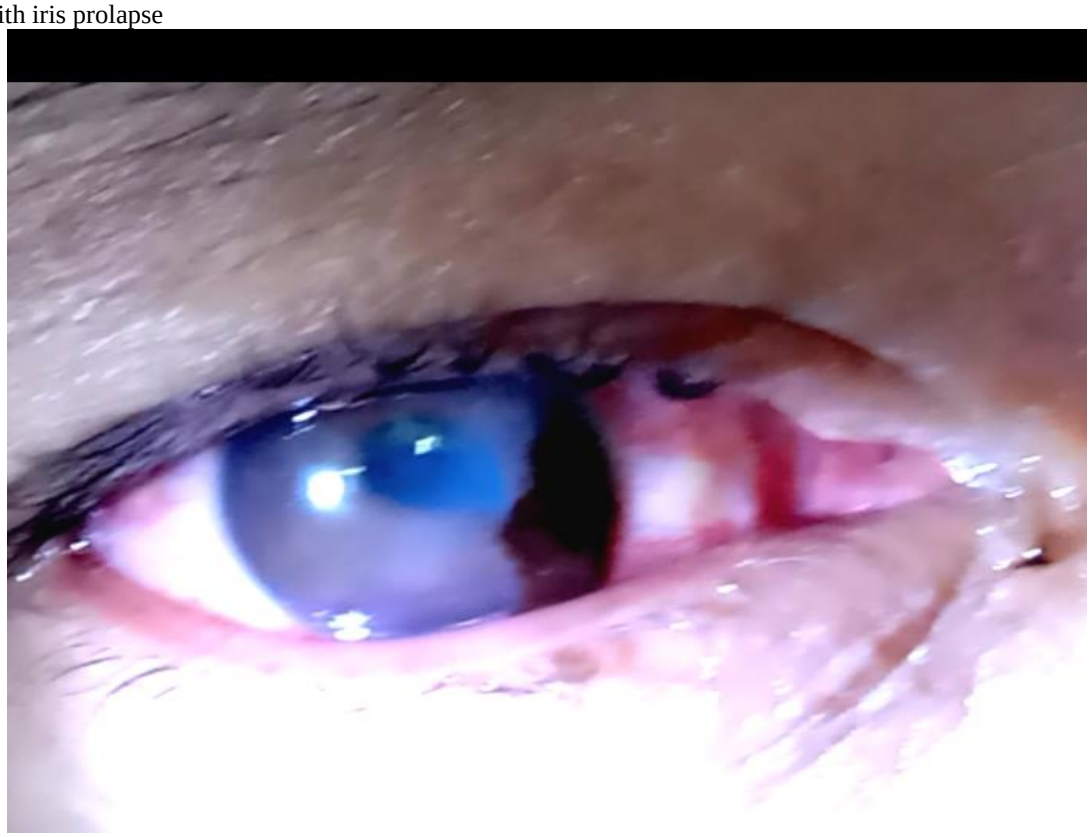
CASE3 CORNEAL SCAR



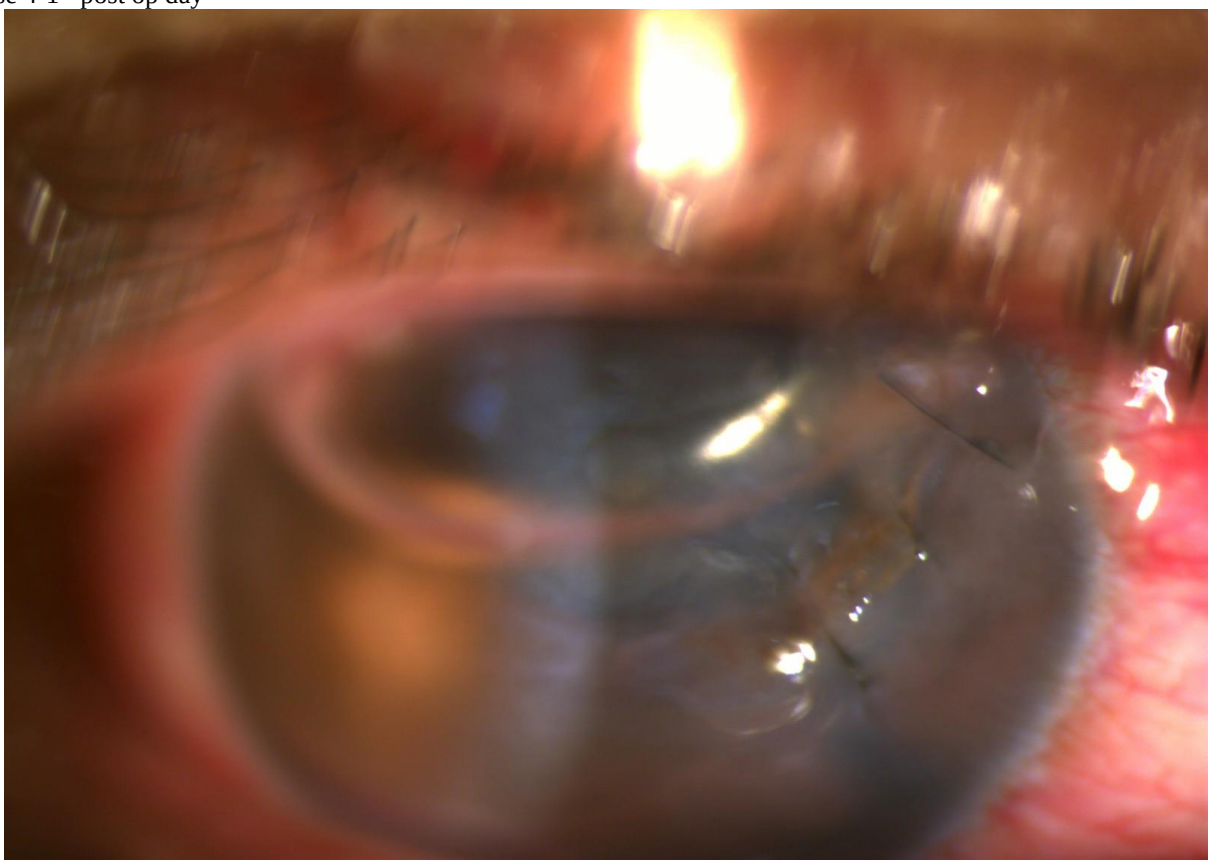
CASE3-FINAL OUTCOME



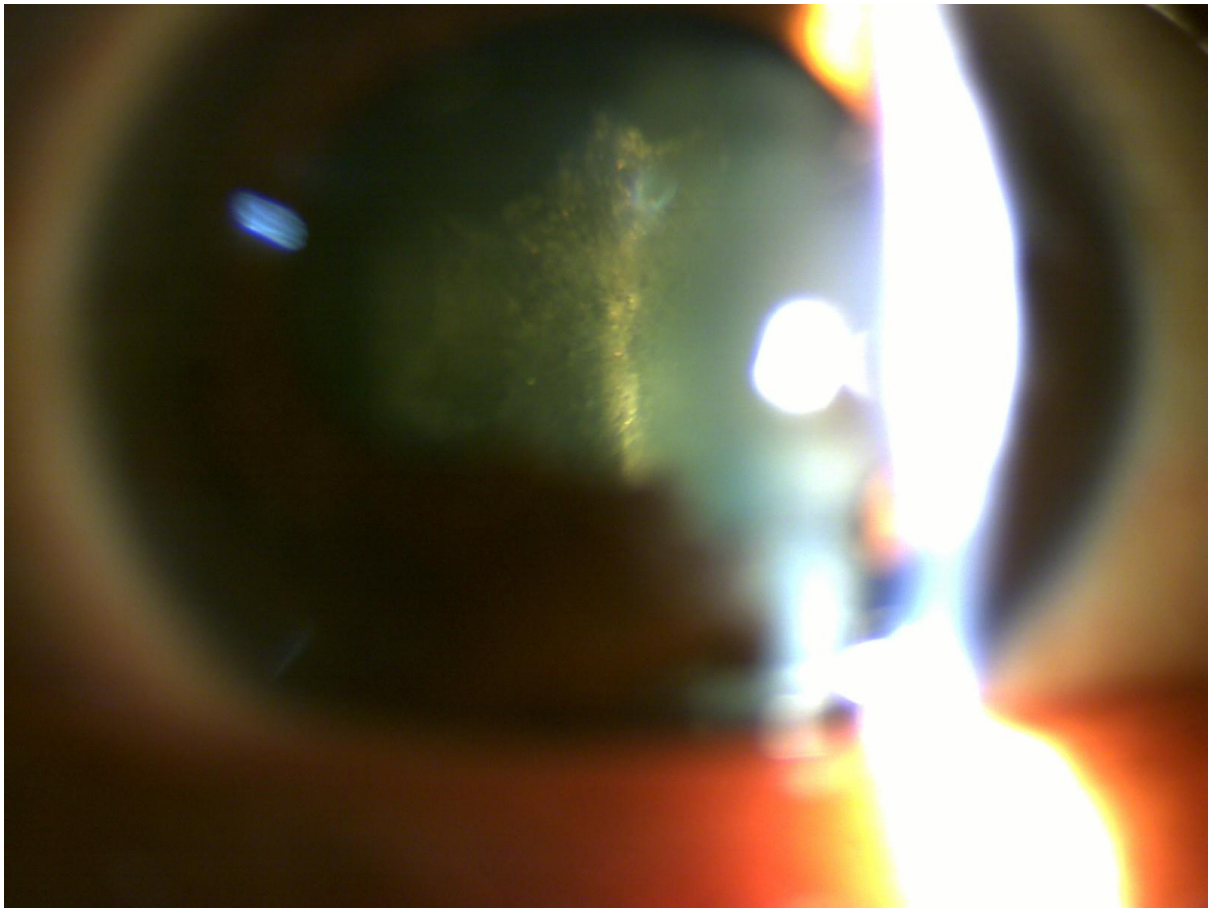
CASE4-ON ARRIVAL
Injury with iris prolapse



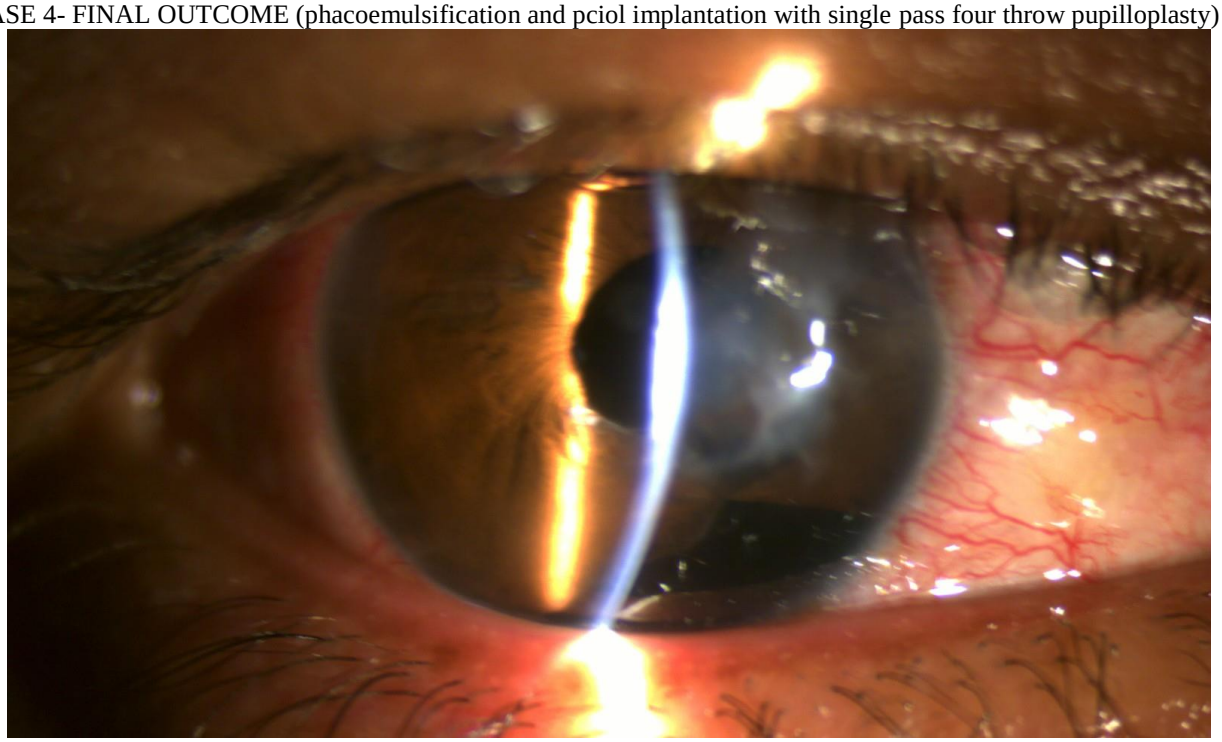
Case 4-1St post op day-



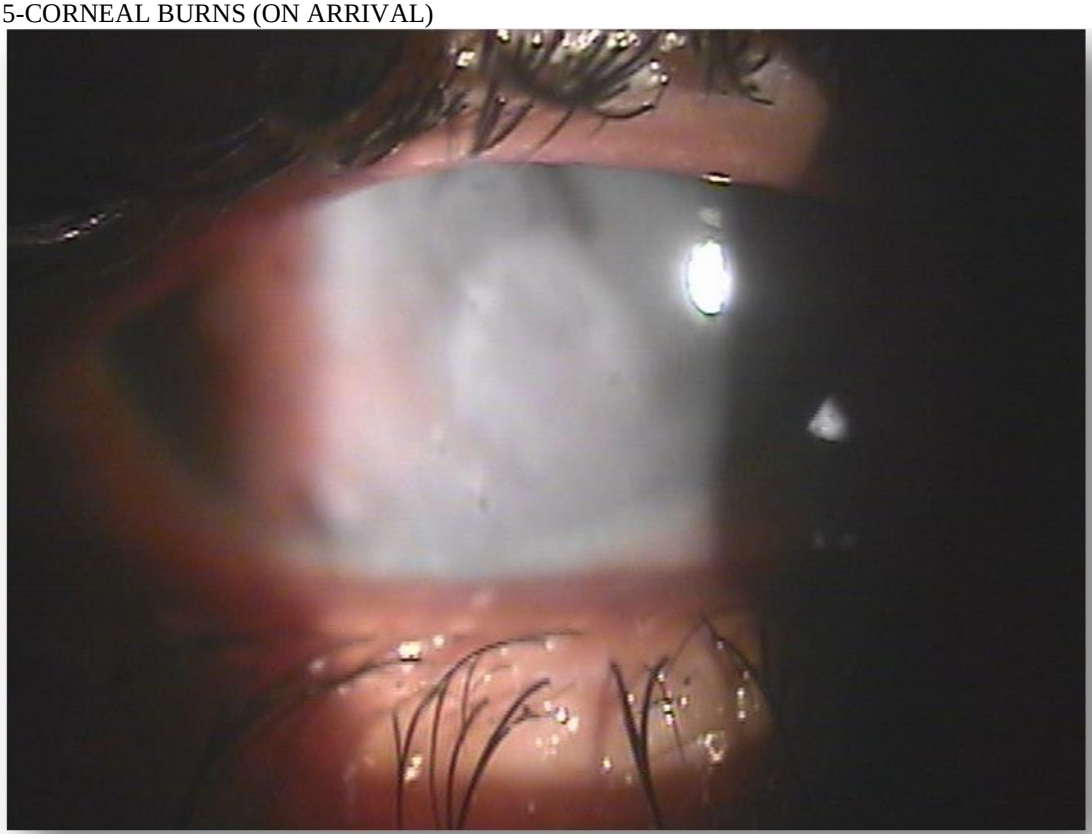
CASE 4-TRAUMATIC CATARACT DEVELOPED -8 WKS AFTER INITIAL INJURY



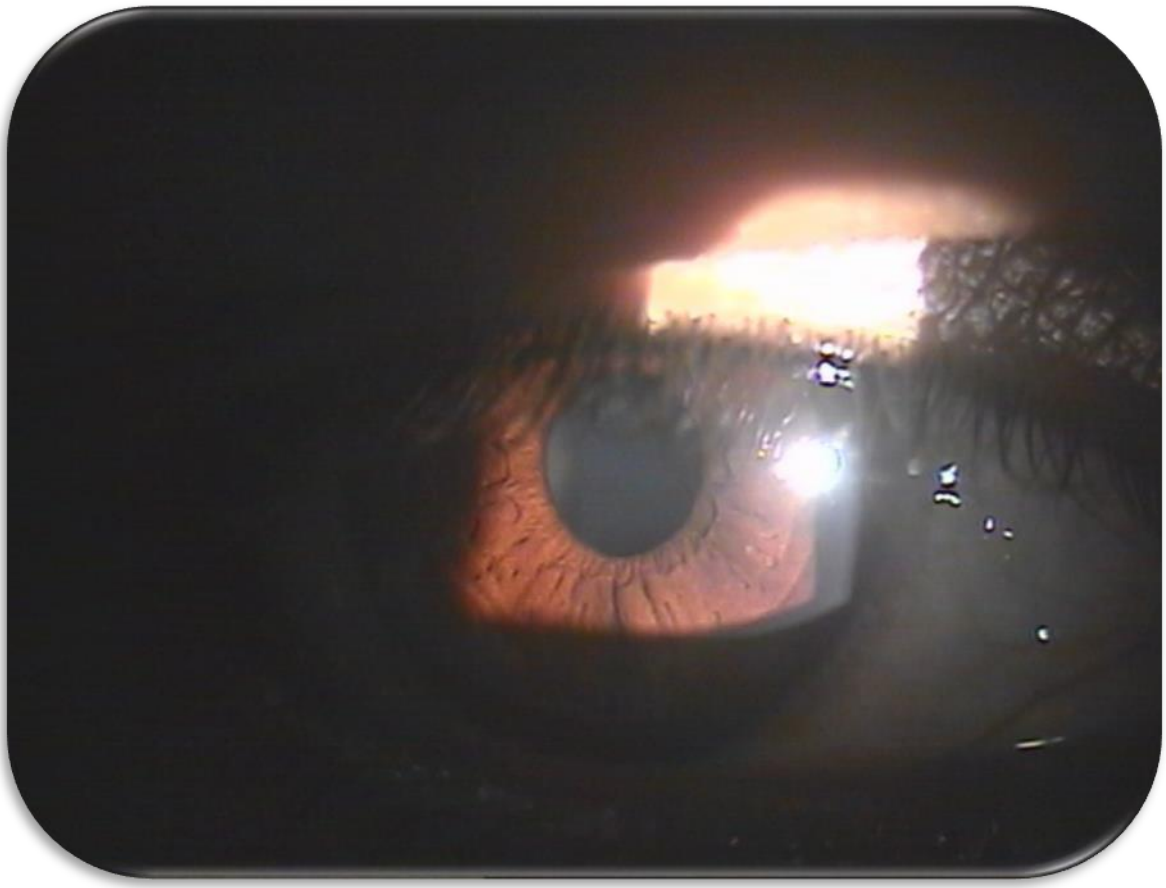
CASE 4- FINAL OUTCOME (phacoemulsification and pciol implantation with single pass four throw pupilloplasty)



CASE 5-CORNEAL BURNS (ON ARRIVAL)



CASE 5-FINAL OUTCOME



DISCUSSION

In this article, case series, patients with major have associated ocular injuries. Major trauma and associated ocular injury are 3 times more common in men than in women. Visual impairment in active years of life will be particularly devastating, delaying rehabilitation and serious economic consequences. All cases of trauma once the other life threatening injuries are handle should be actively assessed for visual affliction as not all cases may be so dramatic in presentation, other traumas like traumatic optic neuropathy, avulsion of optic nerve or angle recession may be subtle in presentation or the patient may not be conscious to tell the problems as is apparent in the first case. The environment has to be sensitised to the gravity of ocular trauma and the need for good, energetic treatment for best visual outcome. Ocular trauma followed by loss of vision is not just visual impairment but a psychologically depressing situation. So a holistic quick assessment and treatment is the need of the hour. Apart from the initial examination by medical professional first ophthalmologist plays a very crucial role.

O cular trauma score was proposed by Kuhn et al in 2000 to provide a simple scoring system.

Betts ocular trauma classification is for mechanical injuries, primarilay mechanical.

This article is to highlight the impotance of the quick decision making, and surgical intervention by the first ophthalmologist, where in even the worst cases get the best outcome. A systematic and scientific approach, with innovative techniques are the key to success in treating ocular trauma.

CONCLUSION: early energetic treatment of ocular trauma by the first Ophthalmologist can promise good visual recovery in case of worst case scenarios.