



TRAUMATIC CATARACT IN A 7-YEARS-OLD GIRL FOLLOWING FIRECRACKER INJURY

Ophthalmology

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ABSTRACT

Introduction: Eye injuries caused by firework are often severe and can cause permanently reduced visual acuity or blindness. Most are unintentional injuries. This leads to development of traumatic cataract after weeks, months or years. **Case History:** A 7-year-old girl presented with a history of firecracker injury to her eye before 20 days. On examination, she had a traumatic cataract with vision reduced to light perception. Surgical intervention was performed, and an intraocular lens was implanted. **Management:** Cataract irrigation and aspiration done under general anaesthesia. **Results:** Post-operative follow-up showed improvement in vision to 6/18. The patient was advised regular follow-up to monitor for complications. **Conclusion:** This case highlights the importance of preventive measures to avoid firecracker injuries in children. It is recommended that children should be supervised when using fireworks. Fireworks should be used only outdoors, a source of water should always be made available nearby. Prompt surgical intervention can improve visual outcomes in cases of traumatic cataract.

KEYWORDS

Firecrackers, Traumatic Cataract

INTRODUCTION

Ocular trauma remains a major cause of acquired blindness in children, accounting for a significant proportion of paediatric ophthalmic emergencies worldwide. In developing countries like India, the incidence of ocular injuries spikes during festival seasons, particularly during Diwali, when unsupervised handling of firecrackers is common among children.

Firecracker-related ocular injuries can be both blunt and penetrating in nature, leading to various complications such as conjunctival and corneal burns, hyphema, traumatic iritis, lens damage, globe rupture, and retinal detachment. Among these, traumatic cataract is one of the most frequent complications of blunt trauma, particularly when the impact causes disruption of the lens capsule and opacification of lens fibres.

Children are especially vulnerable due to their lack of awareness and protective reflexes. Unlike adults, paediatric patients may not immediately report symptoms, which can delay diagnosis. Moreover, untreated cataracts in children can lead to amblyopia, a condition in which the brain suppresses input from the affected eye, leading to permanent vision loss if not addressed early.

Management of traumatic cataract in children involves not just the surgical removal of the cataract and IOL implantation, but also a comprehensive visual rehabilitation plan including refraction, occlusion therapy, and long-term follow-up.

This case report presents a 7-year-old girl who developed a traumatic cataract in her left eye 20 days after a firecracker (sutli bomb) injury, underscoring the need for early ophthalmic evaluation, timely intervention, and public education to prevent such injuries.

Case History

A 7-year-old girl was brought to the Ophthalmology Outpatient Department (OPD) of G.G.G. Hospital, Jamnagar by her parents with complaints of gradual diminution of vision in the left eye.

On further history, it was revealed that the child had sustained a blunt ocular injury to the left eye approximately 20 days ago while playing with firecrackers during the Diwali festival. Following the incident, she experienced immediate symptoms including redness, watering, mild pain, and photophobia in the affected eye.

Initial treatment was taken from a nearby local practitioner, where she was prescribed topical antibiotics and lubricants. Her acute symptoms improved within a few days. However, her parents later noticed that she was having difficulty seeing clearly with the left eye, prompting a visit to our tertiary care centre.

There was no history of foreign body entry, double vision, floaters, or

previous ocular surgery. The right eye was asymptomatic. The child had no history of spectacle use or pre-existing eye disorders. Her birth and developmental milestones were normal, and she had no significant systemic illness. Immunization status was complete for her age.

There was no family history of congenital or paediatric cataract, and no similar complaints in siblings.

Anterior Segment Examination

Parameter	Right Eye (OD)	Left Eye (OS)
Lids & Adnexa	Normal	Normal
Conjunctiva	Clear	Mild congestion
Cornea	Clear, no signs of trauma	Clear, no epithelial defect
Anterior Chamber	Deep and quiet	Deep and quiet
Iris	Normal architecture	Normal architecture
Pupil	Round, regular, reactive to light	Round, regular, reactive to light
Lens	Clear	Traumatic cataract with anterior capsular rupture
Intraocular Pressure	Within normal limits (WNL)	Within normal limits (WNL)

Dilated Fundus Examination

Structure	Right Eye (OD)	Left Eye (OS)
Media Clarity	Clear	Hazy – Fundus not visualized due to cataract
Optic Disc	Normal, well-defined margins	Not visualized
Cup-to-Disc Ratio	0.3	Not visualized
Retinal Vessels	Normal calibre and course	Not visualized
Macula	Normal foveal reflex	Not visualized
Peripheral Retina	Within normal limits	Not visualized

B-Scan Ultrasonography Findings (Left Eye)

Parameter	Finding
Media clarity	Hazy due to cataract
Vitreous	Clear, no evidence of haemorrhage
Retina	Attached
Optic Nerve Head	Normal appearance
Posterior Staphyloma/FB	Not present
Other findings	No signs of posterior segment pathology

This confirms that **no posterior segment complications** were detected, and the eye is suitable for **cataract extraction and IOL implantation**.

Management**Definitive Treatment Plan:**

Cataract extraction with intraocular lens (IOL) implantation in the left eye under general anaesthesia

Pre-operative Work-up:**Examination Under Anaesthesia (EUA):**

- To confirm anterior segment findings and rule out other injuries
- B-scan Ultrasonography:**
- Performed due to hazy media; confirmed attached retina, no vitreous pathology
- Biometry (A-scan or optical biometry):**
- For accurate IOL power calculation
- Pre-anaesthetic Check-up (PAC)** and blood tests
- Paediatrician clearance** for surgery.

Surgical Procedure:

- Cataract aspiration and irrigation done under general anaesthesia.
- Posterior chamber IOL (PCIOL) implantation in the capsular bag.
- Wound closure with sutures (if required).

Post-operative Management:

- Topical antibiotic-steroid combination drops** (frequent tapering doses)
- Cycloplegic drops** to stabilize the anterior chamber and reduce pain
- Refractive correction** after 3–4 weeks
- Amblyopia therapy (Occlusion of fellow eye)** depending on visual acuity recovery
- Close Follow-up For:**
- Posterior capsular opacification
- Secondary glaucoma
- Inflammatory reaction
- IOL stability

DISCUSSION

- Ocular trauma remains one of the leading causes of acquired monocular blindness in children. Among the various types of ocular trauma, **blunt injuries caused by firecrackers** are especially common during festive seasons in India. These injuries often go unreported or undertreated, particularly in rural or semi-urban populations.
- In this case, a **7-year-old girl developed a visually significant cataract 20 days after sustaining blunt trauma from a firecracker**. Blunt trauma can lead to direct or indirect injury to the lens. The energy from the impact can rupture the anterior lens capsule, disrupt lens fibres, and initiate cataract formation. **Anterior capsular rupture with cortical opacification**, as seen in this child, is a hallmark of such injuries.
- Paediatric traumatic cataract management poses unique challenges**, including:
 - Risk of **amblyopia** if not treated early
 - Difficulty in accurate preoperative evaluation due to poor cooperation
 - Inflammatory response being more pronounced in children
 - The need for long-term visual rehabilitation and refractive care
- In our case, a **planned cataract extraction with IOL implantation** was selected as the treatment of choice. A **primary posterior capsulotomy with anterior vitrectomy** was performed to reduce the risk of **posterior capsular opacification (PCO)**, which is more common and develops faster in paediatric patients.
- Postoperative care is critical and includes **refraction, visual rehabilitation, and amblyopia therapy**. The prognosis for visual recovery is generally good if surgery is done timely and followed by proper amblyopia management.
- This case highlights the need for:
 - Timely referral** and intervention in paediatric ocular trauma.
 - Parental education** on supervision during firecracker use
 - Preventive strategies and public health policies** to reduce such preventable injuries.

CONCLUSION

- This case underscores the potentially serious consequences of **blunt ocular trauma from firecrackers** in children, with

traumatic cataract being a common and vision-threatening complication.

- Early recognition of visual symptoms, prompt referral, and **timely surgical intervention with cataract extraction and IOL implantation** are critical to restoring vision and preventing **amblyopia** in paediatric patients.
- Public awareness, **parental supervision**, and stricter safety practices during festive seasons are essential to **prevent such avoidable ocular injuries** in children.

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