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(CASE REPORT)

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Traumatic Rosette cataract: A case report

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Abstract

Rosette cataract is characterized by a star-shaped opacity that forms in the lens of the eye after blunt or penetrating trauma. Traumatic cataracts constitute a significant portion of ocular injuries, with rosette cataract being a distinctive subtype. Understanding its formation and progression is critical for effective management. Blunt trauma to the eye causes a shock wave that disrupts the lens fibres. This disruption leads to the characteristic rosette pattern due to peculiar lens fibres arrangement**.** Patients may present with blurred vision, glare, and photophobia due to associated traumatic iritis. The rosette pattern may be visible upon slit-lamp examination. In early stages, observation and protective eyewear may be recommended. Significant visual impairment due to rosette cataract will require cataract surgery. Either small incision cataract surgery or Phacoemulsification with intraocular lens (IOL) implantation is the standard treatment for advanced cases. Timing of surgery depends on the degree of visual impairment and patient's needs.

Keywords: Cataract; trauma; Traumatic cataract; Rosette cataract; Traumatic rosette cataract

1 Introduction

Among the traumatic injuries ocular trauma is quite common. A study conducted by WHO concluded that 55 million eye traumas occur annually worldwide and around 1.6 million people lose their eyesight due to injury to the eye. Traumatic cataract is a disruption of the lens fibres after blunt or penetrating trauma to the eye. However, their type and clinical course depends on the mechanism of trauma and capsular bag integrity (1). After trauma the lens fibres undergo mechanical disruption and biochemical changes (2). A classic traumatic cataract is referred to as rosette cataract. There are evidences where rosette cataract has been detected 30 years later experiencing ocular trauma (3). Exposure to lightning can also result in late ocular injuries (4). Hence there is a need for thorough ocular assessment following eye injuries to detect and treat any delayed-onset complications effectively (5).

2 Case report

A 74 years old gentleman, presented to the ophthalmology outpatient department for routine vision testing. He was accidently detected to have traumatic rosette cataract. He is already diagnosed with diabetes mellitus, hypertension and chronic liver disease. The fasting blood sugar was 113mg/dl, post prandial blood glucose was 124mg/dl and Glycosylated HbA1C was 8.6. However, he has no family history of ocular diseases. On examination he was alert and oriented. His vital signs were normal. Best corrected visual acuity on the right eye 6/6 and left eye 6/12. On examination of the left eye: Cornea had no signs of scars or foreign bodies. The anterior chamber was deep, 180-degree angle recession but the pupil showed traumatic mydriasis and was irregular with evidence of sphincter tear. Direct and consensual light reflexes were sluggish due to iris sphincter micro tears. There was no relative afferent pupillary defect. On Slit- Lamp Examination anterior capsule was intact. He had rosette shaped opacification of the lens, characterized by spoke-like opacities radiating from the centre of the lens. There are no subluxation or dislocation of the lens. On posterior segment examination showed no retinal involvement. The right eye examination was normal. He had no

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diabetic or hypertensive retinopathy. The intra ocular pressure was 10mmHgin the right eye and 11 in the left eye. He underwent left eye phacoemulsification with foldable posterior chamber intraocular lens implantation after controlling the blood sugar.

2.1 Nursing Care

Nursing care was planned using nursing process approach by NANDA nursing diagnosis (6).

2.1.1 Nursing Assessment

- Decreased visual acuity in the left eye
- Uncontrolled blood sugars
- Lens opacity on examination

2.1.2 Nursing diagnosis

- Impaired Vision related to lens opacity secondary to traumatic cataract.
- Risk for Injury related to decreased visual acuity.
- Anxiety related to changes in vision and potential for surgery.
- Deficient Knowledge regarding the disease condition, treatment options, and postoperative care.

2.1.3 Goals and Expected Outcomes

- Improved Vision: Patient will report an improvement in vision following surgical intervention.
- Safety: Patient will demonstrate measures to prevent injury and falls.
- Reduced Anxiety: Patient will verbalize reduced anxiety and an understanding of the condition and treatment.
- Increased Knowledge: Patient will demonstrate knowledge of the disease process, treatment options, and postoperative care.

2.1.4 Nursing Interventions and Rationales

- Assess Visual Acuity:
- Intervention: Conduct regular assessments of visual acuity using Snellen chart or other appropriate tools.
- Rationale: Monitoring changes in vision helps to evaluate the progression of the cataract and the effectiveness of interventions.

- Provide Safe Environment:
- Intervention: Ensure the patient's environment is free of hazards (e.g., clear pathways, adequate lighting).
- Rationale: Reduces the risk of injury due to impaired vision.

- Educate Patient and Family:
- Intervention: Explain the pathophysiology of traumatic rosette cataract, treatment options, and potential outcomes.
- Rationale: Knowledge empowers the patient and family to make informed decisions and reduces anxiety.

- Preoperative Care:
- Intervention: Provide preoperative instructions, including fasting requirements, medication adjustments, and arrival time.
- Rationale: Ensures the patient is prepared for surgery and reduces the risk of complications.

- Postoperative Care:
- Intervention: Monitor for signs of infection, provide instructions on eye care (e.g., using prescribed eye drops, avoiding rubbing the eye), and schedule follow-up appointments.
- Rationale: Promotes healing and early detection of complications, ensuring optimal recovery.

- Pain Management:
- Intervention: Administer prescribed analgesics and provide non-pharmacological pain relief methods (e.g., cold compress).
- Rationale: Effective pain management improves comfort and promotes recovery.
- Emotional Support:

- Intervention: Provide emotional support and counselling as needed, involving the patient in care decisions.
- Rationale: Reduces anxiety and promotes a positive outlook on the treatment and recovery process.

- Vision Rehabilitation:
- Intervention: Refer to vision rehabilitation services, if necessary, to assist with adapting to vision changes.
- Rationale: Supports the patient in adjusting to changes in vision and maintaining independence.

2.1.5 Evaluation

- Improved Vision: The patient reports improved vision, confirmed by visual acuity assessments.
- Safety: The patient demonstrates measures to prevent injury and has had no falls or injuries.
- Reduced Anxiety: The patient verbalizes reduced anxiety and a good understanding of the condition and treatment plan.
- Increased Knowledge: The patient correctly explains the disease process, treatment options, and postoperative care instructions.

2.2 Final patient outcome

He underwent left eye phacoemulsification with foldable posterior chamber intraocular lens implantation after controlling the blood sugar. Post operative visual outcome was satisfactory.

3 Discussion

Traumatic cataracts, particularly rosette cataracts, are typically caused by blunt trauma to the eye. The force of the impact disrupts the lens fibres, leading to the characteristic rosette-shaped opacity. Traumatic pupil sphincter tears are also a common consequence of blunt ocular trauma, resulting in irregular pupil shape and possible photophobia. Prompt diagnosis and management, including surgical intervention, when necessary, are essential to prevent long-term visual impairment and improve patient quality of life.

4 Conclusion

Traumatic rosette cataract is a unique manifestation of ocular trauma that requires prompt diagnosis and tailored management. Advances in surgical techniques and postoperative care have significantly improved patient outcomes. Future research should focus on early intervention strategies and novel pharmacological treatments to further enhance recovery and reduce complications.

Compliance with ethical standards

Disclosure of Conflict of interest

Author declares no competing interest.

Statement of informed consent

Informed consent was obtained from the patient included in the study.

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