



**ORIGINAL RESEARCH PAPER**

**Ophthalmology**

**PREVALENCE OF TRAUMATIC CATARACT AND ITS MANAGEMENT IN PATIENTS ATTENDING TERTIARY CENTRE, NORTH BENGAL MEDICAL COLLEGE & HOSPITAL, DARJEELING DISTRICT, WEST BENGAL, INDIA**

**KEY WORDS:** Rupture, Traumatic Cataract, Blunt, Iris, Pigment epithelium, Visual, Injuries, Blunt Trauma, Penetrating Injury

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**ABSTRACT**

Blunt Trauma may cause rupture of the capsule and allow fluid influx and swelling of the lens fibers. The anterior sub capsular regions and may develop a characteristic flower shaped pattern or a punctuate opacity. A small Capsular penetrating may result in rapid fiber hydration and a localized opacity, larger rupture results in rapid fiber hydration and a localized lens opacity. A larger rupture result in complete lens opacification. Penetrating injuries can be caused by accidental or surgical trauma such a peripheral iridectomy or during vitrectomy. Electric shocks as a result of lightening industrial accident cause coagulation of proteins osmotic changes and fern like, grayish white anterior and posterior sub capsular opacities. Ionizing radiation such as from X-rays, damage the capsular epithelial call DNA, affecting protein and enzyme – transcription and cell mitosis. An enlarging posterior pole plaque develops, non-ionizing radiation, such as infrared, is the cause of cataract in glass blowers and furnace workers working without protective lenses. A localized arise in temperature of the iris pigment epithelium causes a characteristic post sub capsular cataract, which may be associated with exfoliation of the anterior capsule. Shah et al found that traumatic cataracts without globe rupture generally have a better prognosis for visual recovery.

**INTRODUCTION**

Traumatic Cataract is a clouding of the lens that may occur after either blunt or penetrating ocular trauma, that disrupts the lens fibers. Most traumatic cataract are in tumescent, but there type and clinical course depends on traumatic mechanism and the integrity of the capsular bag.

Electric shocks as a result of lightening or industrial accidents caused coagulation of proteins, osmotic changes and fund like grayish white anterior and posterior sub capsular opacities. Ionizing radiations such as from x-rays, damage the capsular epithelial cell S affecting proteins and enzyme leading to transcription and cell mycosis. Non-ironing radiations such as infra red, is the cause of cataract in glass blowers and workers working without protective lenses.

Classically, traumatic cataracts have a rosette or stellate appearance. It is also important to note position of lenses, present of phacodonesis, and anterior or posterior capsule rupture. These features help confirm whether there is zonular injuries and determined the urgency of performing cataract extraction.

Shah et al found that traumatic cataracts without globe rupture generally have a better prognosis for visual recovery.

**OBJECTIVES :**

Prevalence of traumatic cataracts and its management in patients attending Terseary Centre, North Bengal Medical College & Hospital, Darjeeling District, West Bengal, INDIA,

**Tools And Technique:**

**Tools -**

- Snellen's Charts
- Near Vision Chart
- Torch Lights
- Slit-Lamp Bio-microscope
- 90D Lens
- Gonioscopy
- Indirect Ophthalmoscope
- Operating Microscope
- Operating Instruments for Cataract Surgery

- USG – B Scan
- X-Ray
- CT Scan
- MRI Brain and Orbit

**Technique -**

Consent must be taken from each of the patient willing to be studied. Recording of visual acuity both for distant and near.

- Study of cataract after full dilatation of pupil with the help of Slit-Lamp Bio-microscope
- Observation for any associated injury to the ocular structure like sub-laxation or dislocation.
- Observation of Iris to find out any tear in the sphincter of pupil that result into Traumatic Mydriasis.
- Any iris defects can be evaluated by performing transillumination with the help of slit lamp Bio-microscope, that may indicate entry point of intra-ocular foreign body.
- Study pupilar lighter reflex and RAPD to exclude any traumatic optic neuropathy or Traumatic optic nerve avulsion
- History of time and period of Injury – where vision can be saved with proper treatment protocol.
- Gonioscopy to study angle for any angle recession
- Measurement of IOP with the help of Goldman's Applanation Tonometer because in a prolonged Vitreous hemorrhage can lead to Ghost call Glaucoma.
- USG – B Scan, when post-segment is not visible, to exclude vitreous hemorrhage a retinal detachment to confirm a normal globe contour and asses IOB, Vitreous opacities retinal detachment or choroidal rupture,
- Indirect ophthalmoscope to study periphery of retina, to look for any tear or retinal dialysis – that requires urgent surgery
- CT Scan -may help to rule out an intraocular or intra-orbital foreign body. It also helps to asses abnormal contour of globe.

**Sign and symptoms of Traumatic**

- Pain and discomfort eye
- Redness
- Anti-chamber cell reaction
- Corneal infection and Oedema

- Blurry Vision
- Hyphemia
- Cataracts

**Main Reasons of Traumatic Cataract**

- Ocular Trauma Blunt Or Penetrating Injury
- Prolong exposure to UV light
- Infrared Radiations
- Electric Shock
- Long Radiation
- Head injury accident as following reasons – Road Traffic accidents

**Risk Factors Associated with Traumatic Cataract**

- Smoking
- Drinking too much Alcohol
- Diabetes
- Spending too much time in sun without sunglasses
- A serious head on eye injury
- Radiation treatment for cancer or other diseases
- Patients systemic co morbidities
- Diabetes and immune compromising conditions may increase risk of infection with ocular trauma and cataract surgery.
- Patients on immunosuppressive or anticoagulant drugs.

**METHODS :**

Period of data collection – July 2022 to June 2023

Site of data collection – At Eye OPD of North Bengal Medical College Darjeeling

Schedule of data collection – From 10a.m to 2p.m on following days in week – Monday, Wednesday and Friday

A total number of 70 patients with traumatic cataract were taken up for the study. The study was conducted from July 2022 to June 2023. The cases were selected from both Outdoor and Indoor.

**Inclusion Criteria -**

Both male and female patients were included with age group between 18 years and 70 years.

**Exclusion Criteria -**

- Central Corneal Scar
- Vitreous Hemorrhage
- Retinal Detachment
- Optic Nerve avulsion
- Age of patient below 18
- Patients with previous ocular surgery and ocular disease or disorders

A detailed history of mode of ocular trauma, type of ocular trauma (blunt/penetrating), laterality of eye involved, object causing trauma, duration between trauma and presentation were taken.



A thorough ocular examination including visual acuity, torch light examination, slit lamp bio microscope examination, direct and indirect ophthalmoscopy, slit lamp bio microscopy with +90 diopter lens, tonometry, gonioscopy, USG-B scan, routine X-RAY orbit was done. MRI, CT scan, OCT, FFA were recommended whenever required.

A scan biometry and keratometry were done for calculation of power of intra ocular lens.

Pre operative investigations include measurement of blood pressure, estimation of blood sugar, both fasting and post prandial blood sugar, routine blood analysis, serum creatinine, chest X-RAY, ECG in all leads, virology for HIV-1, HIV-2, surface antigen for Hepatitis-B.

**Pre-Operative Preparation**

Informed and written consent was taken from the patient as well as from attendants. Systemic antibiotics, topical antibiotics and topical anti-inflammatory medications were started two days prior to surgery. In cases of raised intra ocular pressure, topical anti glaucoma drugs were started. Povidine Iodine (5%) painting of the ocular adnexa was done on admission. Pupils were dilated with Tropicamide (0.8%) and Phenylephrine (5%) to obtain fully dilated pupil.

**Management:**

Cataract extraction may be performed immediately following open globe trauma as a primary procedure or deferred weeks to months after the trauma as a secondary procedure. Removal of the traumatic cataract should be urgently if there is capsule rupture, lens material in the anterior chamber, phacomorphic glaucoma, or increased intraocular pressure. If none of these conditions are present, differing surgery may be considered.

There is consensus on optimal timing of cataract extraction for traumatic cataracts. Benefits of secondary extraction include the potential for more accurate intraocular lens calculation, improved visualization during surgery and operating in a quiet eye resulting into less post operative complications. In contrast, proposed advantages of primary extraction include lower cost and time of a hospital stay and minimizing.

Integrity of the anterior can identified using trypan blue dye intra-operatively, when there is concern for a capsular tear, hydro-dissection should be done cautiously. In this case, IOL can be placed in the capsular bag, wherever in zonular dehiscence or large posterior capsular tear, IOL is placed in the sulcus.

Visual acuity is recorded next day of surgery and after 7 days of post operative care. Patients are asked to visit OPD on regular basis, visual acuity and other clinical findings are documented in every visit.

**RESULTS:**

Both penetrating and blunt ocular injuries can result in development of traumatic cataract. There is approximately 14% life time prevalence of ocular trauma in the general population. Prevalence of Traumatic Cataract in patients attended OPD of North Bengal Medical College & Hospital, Govt. of West Bengal, Darjeeling, is 15%. Depending on the reports 27-50% of Ocular Traumas lead to formation of traumatic Cataract.

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