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TO ANALYZE THE EFFECT OF DAMAGE TO OTHER OCULAR TISSUES ON VISUAL OUTCOME AFTER TRAUMATIC CATARACT SURGERY.

Dr. Mita V. Joshi[1] & Dr. Sudhir Mahashabde[2]
[1]Associate Professor, Dept. of Ophthalmology, Amaltas Institute of Medical Science, Dewas
[2]Assistant Professor, Dept. of Ophthalmology, Index Medical College Hospital & Research Centre, Indore

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Corresponding author: Dr. Sudhir Mahashabde
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Abstract
All patient coming to Index Medical College Hospital & Research Centre, Indore operated in Department of Ophthalmology for traumatic cataract due to various injuries
Result: Of the 37 patients, 19 patients (51%) showed corneal/ corneal sclera injury. 10 cases had injury to iris in the form of spincter tear, traumatic mydriasis, iris incarceration, floppy iris, posterior and anterior synechiae. Subluxation of lens was seen in 2 cases and Dislocation of lens was in 1 cases. 3 cases had corneal opacity. Old retinal detachment was seen in 1 (3%) case.
Out of 30 cases who had associated ocular injuries, 3 cases had vision of HM, 07 cases had vision of CF-ctf – CF-3', 01 cases had vision of 5/60, 07 cases had vision of 6/60-6/36, 03 cases had vision of 6/24-6/18, 09 cases had vision of 6/12-6/6.
Out of 7 cases without associated in injury, 2 cases had vision of 6/24-6/18, 05 cases had vision of 6/12-6/6.
Conclusion: Corneal scarring obstructing the visual axis as well as by inducing irregular astigmatism formed an important cause of poor visual outcome in significant number of cases. Irreversible posterior segment damage lead to impaired vision case.
The final visual outcome showed good result however the final visual outcome depends upon the extent of associated ocular injuries. Effective Intervention and management are the key points in preventing monocular blindness due to traumatic cataract.
Keywords: Ocular, Tissues, Traumatic, Cataract & Surgery.

Introduction:

Combination of coup and countercoup injury along with equatorial expansion causes damage to the protoplasmic structures of the lens fibers and necrosis of the capsular material may result. The damage to the capsule impairs its semi-permeability allowing the imbibitions of aqueous by the lens substance and disturbing the active transport of metabolites associated with interstitial appearance of granules, fluid clefts and vacuoles as well as intracytoplasmic structural changes leading eventually to fragmentation and necrosis of cells and fibers, thus leading to opacification of the lens and its capsule resulting in cataract formation.[1,2]

The opacity may be localized or the entire lens may be involved. Both experimentally and clinically the opacity invariably commences in the sub capsular region more commonly posterior part where no epithelium is present. In this region the lens fibers normally have a limited but sufficient sodium and potassium transport capacity which does not seem to be sufficient to counteract an increased sodium concentration following an anterior lens injury, resulting in aqueous imbibitions with subsequent cataract formation.[3]

Penetrating injuries lead to anterior or posterior capsular tear leading to free entry of aqueous into the lens thereby leading to cataract formation as described above. The clinical appearance of the cataract that occurs with or without a capsular tear are very akin as the mechanism involved in both leads to aqueous imbibitions resulting in cataract formation.[4,5]

Material & Method

All patient coming to Index Medical College Hospital & Research Centre, Indore operated in Department of Ophthalmology for traumatic cataract due to various injuries during the year 2013-2014.

SELECTION CRITERIA:-

1. Patients who were cooperative and willing for the surgery were included.

2. Patients with extensive ocular damage were not included.

PREOPERATIVE ASSESSMENT:-

1. History

a) Patients were registered with their name, age, sex and address

b) Relevant history from the patients was taken regarding

- Diminution of vision and associated complain like pain, redness, watering with duration.
- Nature of trauma and associated ocular damage.
- Time lapse between the occurrence of trauma and institution of treatment recorded.

Examination

a) A comprehensive general examination of all patients was done to rule out any systemic illness.

b) ocular examination:

- Visual acuity (unadided and aided.
- Retinoscopy (where possible)
- Detailed anterior segment examination under diffuse
- Illumination and slit lamp microscopy.
- Tonomety by Schiotz tonometer.
- Syringing for patency of lacrimal apparatus.
- Limbal ring x-ray in cases of IOFB for exact laclization.
- USG- B scan to rule out posterior segment pathology.
- Kerotometry to determine preoperative astigmatism and A-scan to determine Power of IOL to be implanted.

Surgical procedures undertaken prior to cataract surgery

a) Corneal or scleral tear – tear repair done as soon as possible under LA or GA and cataract surgery postponed for at least 1 month. However, in some cases simultaneous cataract extraction is done and secondary implantation done at a later date.

b) IOFB – localization done with limbal ring x-ray. Accordingly, sclera incision given and FB is extracted with giant electromagnet. Cryoprobe and sclera suture applied and cataract surgery done at least after 2 months

Figure 01: (a) Pre-operative picture of traumatic cataract (closed globe injury)

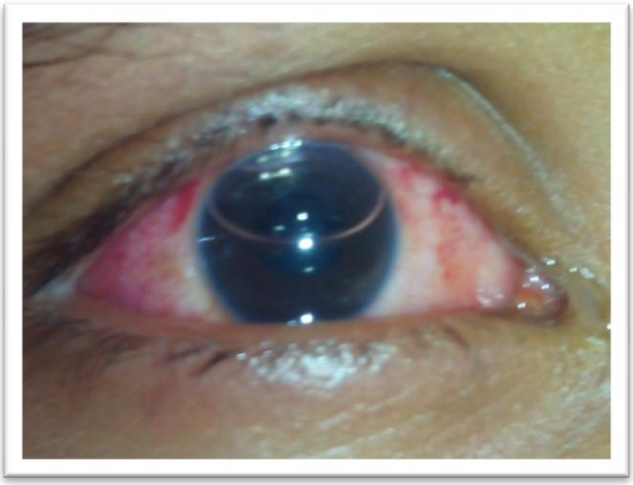

Figure 01: (b) Post-operative picture of the same patient

Results

Table 01: Associated Ocular Damage (n=37)

Associated Ocular Damage	No. of case	Percentage
Corneal /corneo-sceral tear	19	51%
Injury to iris	10	27%
Zonular disruption	03	08%
Cornel opacity	03	08%
Old retinal detachment	01	03%

Of the 37 patients, 19 patients (51%) showed corneal/ corneal sclera injury. 10 cases had injury to iris in the form of spincter tear, traumatic mydriasis,

iris incarceration, floppy iris, posterior and anterior synechiae. Subluxation of lens was seen in 2 cases and Dislocation of lens was in 1 cases. 3 cases had corneal opacity. Old retinal detachment was seen in 1 (3%) case.

Table 2: Relation of final visual outcome between cases with associated ocular injuries and without associated ocular injuries.

Visual acuity	No. of cases with associated ocular injuries	No. of cases without associated ocular injuries
HM	03	00
CF-CTf - CF 3'	07	00
2/60 – 5/60	01	00
6/60 – 6/36	07	00
6/24 – 6/18	03	02
6/12 – 6/6	09	05
Total	30	07

Out of 30 cases who had associated ocular injuries, 3 cases had vision of HM, 07 cases had vision of CF-ctf – CF-3', 01 cases had vision of 5/60, 07 cases had vision of 6/60-6/36, 03 cases had vision of 6/24-6/18, 09 cases had vision of 6/12-6/6.

Out of 7 cases without associated in injury, 2 cases had vision of 6/24-6/18, 05 cases had vision of 6/12-6/6.

Discussion

The visual prognosis in traumatic cataract is poor because of concomitant injury to other structures. The management of traumatic cataract depends on integrity of posterior capsule, zonular apparatus and associated injury to cornea, uveal tissue and posterior segment. In this study the associated damages were corneal injuries in the form of scar or opacity seen in 22 cases (59%). Corneal scarring and opacity affected the visual acuity by obstructing the visuals axis and causing astigmatism.[6,7]

Injury to the iris was seen in 10 cases (27%) in the form of traumatic mydriasis, spincter tear, iris prolapsed through corneal tear, floppy iris, posterior and anterior synechiae.

Zonular disruption was seen in 3 cases, in one case it resulted in anterior dislocation of lens and 2 cases had subluxation of lens. 1 case who had anterior dislocation had SFIOL implantation and 2 patient who had subluxation of lens were managed with PCIOL implantation.[8]

Conclusion

Corneal scarring obstructing the visual axis as well as by inducing irregular astigmatism formed an important cause of poor visual outcome in significant number of cases. Irreversible posterior segment damage lead to impaired vision case.

The final visual outcome showed good result however the final visual outcome depends upon the extent of associated ocular injuries. Effective Intervention and management are the key points in preventing monocular blindness due to traumatic cataract.

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