INTRODUCTION

Post traumatic glaucoma associated with lens injury always presents with a surgical challenge whether to perform only trabeculectomy or lens extraction or combined surgery. Secondary Glaucoma following closed globe injury occurs due to coup-countercoup injury to the Lens. Early predictors of chronic glaucoma after closed globe Injury are Increased pigmentation of the globe Injury are Increased pigmentation of the complications. In patients with blunt trauma.

Early intervention in reducing intraocular pressure is needed to prevent irreversible damage to optic nerve. There are few case studies suggesting management of post traumatic glaucoma and related lens injury.[1] Our study deals with lens injury in post-traumatic glaucoma and its surgical outcome which has been rarely described previously to our knowledge.

Secondary glaucoma was observed more frequently in patients with blunt trauma. [2]

CASE 1

28 years old male presented with chief complaints of Diminution of vision (DOV), pain and photophobia in left eye (LE) after blunt trauma by stone. On examination (OE) Right eye (RE), was within normal limits (WNL). LE BCVA 1/60, LE showed circumcorneal congestion, stromal corneal edema with epithelial defect superonasally, 1 mm hyphema, cells 2+ and flare 2+, pupillary sphincter tear and mydriatic pupil, anterior lens capsule rupture about 2 mm located centrally with ruffled cortex seen through it with cataractous lens, IOP by Goldmann applanation (GAT) was 32 mm of hg, Gonioscopy showed ruptured anterior capsule in the superiorly, with Shaffer’s Grade IV angle inferiorly and superiorly, Grade 1 in nasal and temporal angle. Medical management consisted of combination of steroid antibiotic drop, tablet (tab) acetazolamide, tab Prednisolone 1mg/kg body weight, and Brimonidine + Timolol eyedrop antiglaucoma medications (agm). Considering lens rupture and raised IOP, Lens Particle Glaucoma was diagnosed. Combined trabeculectomy with antimetabolite + Phacoemulsification with Intraocular lens implantation was planned.

Post Operative:
Post op Day 1, BCVA 6/60, bleb formed, congestion + blood tinged aqueous with inflammatory membrane on IOL.
Day 7, BCVA 6/24, IOP 18, LE thin inflammatory membrane, anterior nebranectomy was done by ND YAG laser.
Day 30, BCVA 6/12, Bleb was diffuse, parafoveal edema noted, IOP 28 mmhg, considering steroid response Prednisolone eyedrops were then changed.
to dexamethasone eyedrops. Brimonidone+Timolol eye drop added. Day 90, BCVA 6/9, IOP 14 with agm, fundus LE 0.8 cup with resolution of parafoveal edema.

Figure 1: Day 2 picture, Cornea clear, Anterior capsule Rupture, total cataractous lens.

Figure 2: Gonioscopy Left Eye

Figure 3: Post Op Day 1

CASE 2

52 years old male complained of DOV and pain RE since 3 weeks, history of blunt trauma to RE by first 3 weeks back. RE BCVA was 6/36 circumcorneal congestion, stromal edema, Irregular anterior chamber, Iridocorneal touch at 6’o clock, vitreous along pupillary border, sphincter loss from 2 to 8 clock, mydriatic pupil with sluggishly reacting to light, Anterior and inferior subluxation from 4’- 8’ clock of cataract, Gonioscopy showed grade 2 by shaffers in superior and temporal angles with inferior and nasal closed angle grade 0. RE CDR 0.7 NRR thinning. IOP RE was 58. Left eye was WNL. RE Trabeculectomy+MitomycinC+Cataract extraction+ Anterior vitrectomy+ Iris claw under mannitol was performed.

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Preop Vision</th>
<th>Preop IOP</th>
<th>Gonioscopy</th>
<th>Diagnosis</th>
<th>Surgery</th>
<th>Post op vision at 6th month</th>
<th>Post op IOP</th>
<th>Post op agm</th>
<th>Medications</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>1/60</td>
<td>50</td>
<td>Cortex in superior angle</td>
<td>Lens particle glaucoma</td>
<td>Trabeculectomy with Mitomycin C with cataract extraction with PCIOL implantation</td>
<td>6/9</td>
<td>14</td>
<td>2</td>
<td></td>
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<tr>
<td>2</td>
<td>6/36</td>
<td>58</td>
<td>Inferior angle closed</td>
<td>Anterior subluxated cataract with secondary glaucoma</td>
<td>Trabeculectomy + Mitomycin C + Cataract extraction+ Anterior vitrectomy+ Iris claw</td>
<td>6/18</td>
<td>14</td>
<td>1</td>
<td></td>
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<tr>
<td>3</td>
<td>6/24</td>
<td>28</td>
<td>Angle Recession &gt; 270’</td>
<td>Angle recession glaucoma with traumatic cataract</td>
<td>Trabeculectomy+Mitomycin C+ Cataract extraction with PCIOL</td>
<td>6/12</td>
<td>12</td>
<td>nil</td>
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</tbody>
</table>
Post-operative management:

Day 1, RE 6/18 vision, bleb diffuse. Iris claw in place, IOP 10. Day 14, IOP 22, considering steroid responder patient was shifted to dexamethasone eyedrop from prednisolone eyedrops. Day 30 6/18 vision. IOP 20 mmhg cup disc ratio (CDR) of 0.7 with Retinal Pigment alteration at macula. Day 90, IOP of 14 mm of Hg with addition of travaprost eyedrop.

CASE 3

11 years old male presented with DOV RE since 3 weeks post cricket ball injury. OE RE vision 6/24, Gonioscopy showed angle recession 270°, posterior sub capsular cataract IOP 28 with 3 antiglaucoma drugs. CDR 0.6, Combined surgery trabeculectomy+MMC+cataract surgery was planned. Trabeculectomy was done in superonasal site, phacoemulsification was performed temporally. Post op Day 1 Vision 6/9, bleb elevated, IOP of 10mm hg. Day 3o Vision 6/9, bleb elevated, minimal tortedis, Day 90 Vision 6/12 minimal PCO with IOP 10mmhg with no agm.

DISCUSSION

Blunt trauma due to sports-related injuries, including airbags, elastic cords injuries, bottle caps and corks, airsoft pellets, and paintball guns have been reported. We defined Early trabeculectomy as surgery done within 1 month of trauma. Primary outcome measure was defined as complete success if an IOP was > 5 and ≤ 21 mm Hg without any glaucoma medications or re-surgery. Qualified success was defined as IOP ≤ 21 mm Hg with or without anti-glaucoma medications. Failure was defined as IOP ≥ 22 mm Hg despite medications or ≤ 5 mm Hg (on 2 or more examinations) with hypotony maculopathy and if there was loss of light perception. Lens particle glaucoma is disruption of the lens capsule due to ocular trauma, permits release of lens particles into the anterior chamber, obstructing the aqueous outflow pathway and elevating IOP days to weeks after the original injury. When IOP cannot adequately be controlled despite medical therapy, the residual lens material should surgically be removed promptly. In our case early trabeculectomy was performed along with lens aspiration. Angle recession glaucoma had IOP less than 20 and complete success was achieved at end of 6 months. Reduction in IOP was noted after change of steroids from prednisolone eyedrops to dexamethasone eyedrops. Long term follow is must for all cases of trauma. In our study limitation were number of cases. Steroid-induced glaucoma typically occurs within weeks of initiation of topical steroid therapy, with pressures as high as 60 mm Hg reported following prolonged use.

Fuller et al suggested that traumatic glaucoma would be best managed by trabeculectomy combined with anti-metabolites or the use of an artificial draining device, with frequent follow ups. Our findings correlate with study done by Charu et al in paediatric group they found elevated IOP following Closed globe injury develops much earlier and is more severe, difficult to treat, and requires more surgical interventions to control IOP than eyes with Open globe injury. Our findings suggests that early trabeculectomy combined with cataract surgery prevented further disc damage due to better IOP control. Thus, visual prognosis was better in long term follow up. Assessment after ocular trauma, it is important to identify and treat secondary conditions such as post-traumatic glaucoma that may adversely affect visual outcome and to minimize any additional damage that may occur.

CONCLUSION

In secondary glaucoma due to trauma, the success rate of the surgical complications is expected to be higher, but if treated with vigilance and on time, most of it can be managed with a favorable prognosis.

REFERENCES


