



ORIGINAL RESEARCH PAPER

Surgery

SCLERAL TUNNEL COMPLICATIONS OF SMALL INCISION CATARACT SURGERY

KEY WORDS:

Bhadra Priya* MBBS,DNB,SR NMCH Patna *Corresponding Author

Sharad Hemant MBBS,MS,SR SKMCH,Muzaffarpur

Rupak Jha MBBS,MS,SRDMCH,Darbhanga

Cataract surgery is one of the most commonly performed surgeries in the world. The various techniques of cataract surgeries are- conventional extracapsular cataract extraction, small incision cataract surgery and phacoemulsification. Although the developing countries have shifted to phacoemulsification, SICS is still a widely performed surgery in the developing world.^{1,2} SICS continues to prove useful in the developing countries where cost constraints are a factor in delivery of sight saving cataract surgery.³ The results of SICS compares favorably with modern phacoemulsification surgery.^{4,5} However there are various complications associated with SICS: 1. Tunnel related complication (Premature entry and button hole) 2. complication during capsulorhexis- too small rhexis or extension of rhexis margin 3. Posterior capsular rupture 4. Descmet membrane tear 5. Zonular dialysis 6. Nucleus drop. Tunnel construction is a crucial part of SICS. A scleral tunnel; 5.5-7.5mm in length, 1.5 to 2mm behind the limbus, half to two third of scleral thickness, extending 1-2mm in cornea, with side pockets in sclera is self sealing in nature and requires no sutures at the end of surgery⁶ Poorly constructed leads to button hole, premature entry into anterior chamber causing iris prolapse or nucleus may get stuck during delivery. In this case series we will discuss three cases who came to the clinic with late presentation of scleral tunnel related complication after SICS.

Case Description

Case 1: A 65 year old female patient came to our clinic with complaints of mild heaviness in right upper eyelid since past 2 weeks. She underwent SICS in right eye 1 month before. There was no history of trauma or any systemic illness like rheumatoid arthritis. Her BCVA in right eye was 6/24 and left eye 6/9. On slit lamp examination a large iris tissue prolapse was seen covered with fibrous membrane, measuring 8mm horizontally and 6mm vertically (Figure 1). It was non tender, immobile and soft in nature. There was no wound leak noted on Siedel's test. Anterior segment examination revealed a well formed and quiet anterior chamber with a slight superior decentration of posterior chamber intraocular lens. Fundus examination was normal in both eyes. Intraocular pressure was 14mmHg and 16 mmHg in right and left eyes respectively. Conjunctival peritomy was done and exposed iris tissue was excised. Since the wound gape was large in size direct scleral closure was not possible. Tenons tissue was mobilized from the temporal fornix and sutured with 8-0 vicryl suture to the surrounding sclera. On postoperative day 1 she had visual acuity of 6/36 in right eye, with a iris coloboma superiorly and occasional cells in the anterior chamber. She was treated with steroids and antibiotic drops postoperatively. On follow up visit at 6 month her BCVA was 6/18 with 3D of astigmatism.

Case 2 :

A 70 year old female came to clinic with complaints of mild irritation in right eye. She underwent SICS in right eye 3 months back but did not come for follow up visits after surgery. Her visual acuity in right eye was 6/36 and in left eye was 6/12. On examination of right eye there was iris tissue prolapse through the scleral tunnel, well covered with conjunctiva, with associated superficial vascularization.

(Figure 2) Anterior segment examination revealed quiet and well formed anterior chamber with irregular pupil shape. Posterior chamber intraocular lens was seen in the bag. Intraocular pressure of right eye and left eye were 16 and 14mmHg respectively. Fundus examination was normal in both eye. Patient was taken for re surgery after taking informed consent. Conjunctival peritomy was done and iris tissue was excised. Sclera was closed with interrupted 8-0 vicryl sutures. Conjunctiva was covered with 8-0 vicryl suture. Post operatively patient was treated with steroid and antibiotic drops. On follow up visit at 1 month her BCVA was 6/12 with -2.5D of astigmatism.

Case 3:

A 70 year old male patient came with complaints of redness and mild pain in right eye since 1 week. He underwent SICS in right eye 1 week back. On examination of right eye, iris prolapse was seen through posteriorly placed deep scleral tunnel associated with conjunctival congestion (Figure 3). Anterior segment examination revealed grade 1 cells in the anterior chamber, with posterior chamber intraocular lens in the bag. Fundus examination was normal in both eyes. B scan of right eye was normal. After taking informed consent patient was taken for surgery. Exposed healthy iris was repositioned and sclera was sutured with 8-0 vicryl suture. Conjunctiva was covered with a single 8-0 vicryl suture. Patient was treated with antibiotic and steroid eye drops. On follow up visit BCVA was 6/9 with 1.5D of astigmatism.

DISCUSSION

Proper construction of scleral tunnel forms the foundation stone for a successful surgery and good visual outcome postoperatively. If the crescent knife is blunt or if the surgeon has entered a superficial plane, button holing of tunnel can occur. A study done in Pune showed one case of button holing out of 168 cases.⁷ If the tunnel is made too deep in the sclera, premature entry can occur which causes trauma to the iris base. It causes difficulty in performing further steps as there is repeated iris prolapse throughout the surgery. This can make the tunnel less self sealing and a box or a cross suture may be applied at the end of surgery.

In this case series we discuss three cases with scleral tunnel related complications after SICS. In the first case iris prolapse was large in size as compared to the other two cases. This may be due to the larger premature entry into the anterior chamber which was not closed with sutures at the end of surgery. This led to prolapse of the iris through the tunnel. Premature entry without adequate tunnel width into the cornea was found to be the cause for post-operative tunnel complications in all the cases. Case one had a large iris prolapse from the tunnel and patient presented one month after surgery. After excising the exposed iris tissue, direct scleral closure with sutures was not possible due to the big gap. Therefore we mobilized the tenons tissue from temporal side and sutured it to the sclera. Similar procedure was done in a case report by Lin et al. They managed a case with scleral perforation after pterygium excision by mobilizing the tenons capsule and suturing it to the episclera.⁸ The other two cases in our case report were managed with direct closure of scleral

tunnel with 8-0 vicryl sutures. The interesting thing to note is that the first two cases had a quiet and well formed anterior chamber as the iris had blocked the scleral tunnel, which was covered with conjunctiva. B scan was done in all the patients to look for presence of exudates in the vitreous cavity to rule out endophthalmitis. In the third case there was occasional cells in the anterior chamber as the case presented within a week after surgery. All the three patients did well postoperatively.

CONCLUSION

In this case series we emphasize on the importance of a good scleral tunnel construction. If complication like premature entry occur, they should be managed by suturing of the scleral tunnel followed by conjunctival closure.

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Conflict of Interest

None

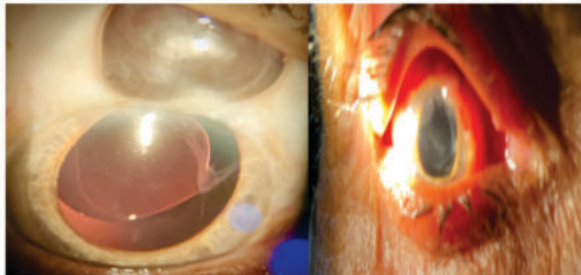


Figure 1 (a) showing large iris prolapse through the scleral tunnel. (b) postoperative image after tenoplasty

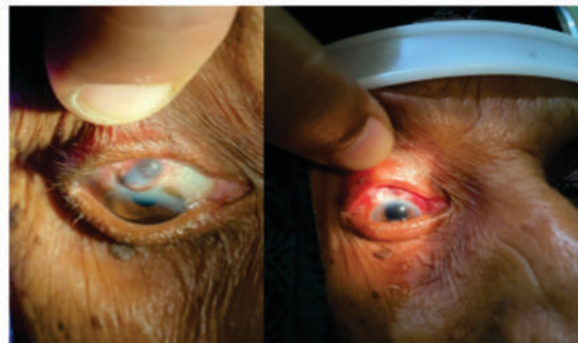


Figure 2 (a) showing pre operative image of iris prolapse through the tunnel (b) postoperative image of the same patient

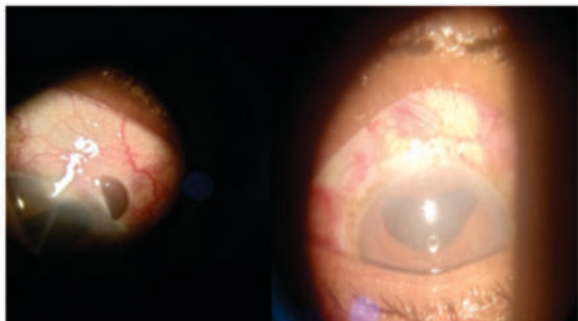


Figure 3 (a) showing pre operative image of iris prolapse through scleral wound presenting 1 week after cataract surgery (b) post operative image of the same patient

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