Scleral Abscess of the Infusion Port Site Following Pars Plana Vitrectomy and its Management

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ABSTRACT

Introduction: Mycotic scleral abscess after the pars plana vitrectomy (PPV) is a rare entity and a case of scleral abscess caused by Aspergillus flavus following PPV has not been reported in the literature. We describe the clinical presentation, complications and management outcome in a patient, who developed a mycotic scleral abscess at the infusion port site after 20 gauge pars plana vitrectomy.

Case: Two weeks after pars plana vitrectomy for retinal detachment, a patient presented with a scleral abscess at the site of infusion port. He was a known diabetic, had a history of pulmonary tuberculosis and was using steroid eye drop at the time of presentation. Surgical debridement of the abscess was performed and he was treated with topical and systemic antifungal drugs. After three days of incubation, Sabouraud dextrose agar identified growth of Aspergillus flavus. After showing initial resolution, at the 4 weeks follow up, the scleral abscess was noted to have progressed to involve the adjacent cornea. Corneoscleral patch graft was performed and treatment with topical and systemic antifungal was continued, which led to complete resolution of the corneoscleral abscess with corneal opacity and scar formation, over a period of eight weeks.

Conclusion: Scleral abscess is a rare complication after pars plana vitrectomy and requires early and appropriate treatment to decrease the ocular morbidity. Dissemination of the infection to involve the cornea can be managed with corneo scleral patch graft and appropriate antifungal medications to salvage the eye.

Key words: Infusion port site infection, Pars plana vitrectomy, Scleral abscess.

Financial Interest : Nil
Conflict of Interest : Nil

Received : 10.02.2021
Accepted : 15.11.2021

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Access this article online
Website: www.nepjol.info/index.php/NEPJOPH
DOI: https://doi.org/10.3126/nepjoph.v14i1.34882

ISSN: 2072-6805, **E-ISSN:** 2091-0320

INTRODUCTION

Scleral abscess can occur after an intraocular surgery and can lead to devastating complications such as endophthalmitis and panophthalmitis. Cases have been reported after intravitreal injection (Sluch IM et al, 2016), scleral buckle surgery for retinal detachment (RD), (Pope J Jr et al, 1989, Milauskas AT et al, 1967, Folk JC et al, 1987, Lincoff HA et al, 1965) pars plana vitrectomy (PPV), (Saito W et al, 2006), pterygium surgery, (Berler DK et al, 1982), cataract surgery, (Cameron JA et al, 1994), posterior subtenon injection, (Tripathy K et al, 20161 and Oh IK et al, 2007) and trabeculectomy (Gupta S et al, 2014).

On review of the literature, we found no case report of mycotic scleral abscess at the sclerotomy port site after PPV. We report a case of mycotic scleral abscess at the site of infusion port, following 20 -gauge (G) PPV and discuss its clinical presentation, complications and management.

CASE

A 53- year- old male underwent belt buckle, PPV, membrane peeling, endolaser and silicone oil insertion for RD in the left eye (LE). He was a known diabetic and had a history of pulmonary tuberculosis. At the time of presentation, the patient was not using anti tubercular drugs. Two weeks after the surgery, he presented with a complaint of pain, redness and discharge in the LE. At the time of presentation, he was using topical 0.05% Difluprednate four times a day in the LE.

On examination of LE, his best corrected visual acuity was hand motion, lids were oedematous, mucopurulent discharge was noted. Slit lamp examination showed circumcorneal ciliary congestion, a localized 2 x 2 mm scleral abscess, inferotemporal to the limbus, at 5 clock hour meridian. Cornea had descemet's folds, anterior chamber (AC) was deep and 2 mm hypopyon was noted. Pupil was mid-dilated, the lens was clear and fundus examination revealed an attached retina**.** He underwent surgical debridement of the scleral abscess on the same day.

Under aseptic conditions, the conjunctiva overlying the abscess was excised, purulent material was drained and removal of necrotic scleral tissue were carried out, till the healthy sclera was seen, followed by a thorough cleaning of the abscess margins. At the end of the procedure, conjunctiva was left open to facilitate penetration of the topical medications.

The aqueous from AC tap and scleral necrotic material were sent for the microbiology examination. Potassium hydroxide (KOH) mount of the necrotic scleral scrapings showed septate, branching fungal filaments. After 3 days of incubation, Sabouraud dextrose agar showed the growth of fungus, which was identified as *Aspergillus flavus*. Gram stain showed polymorphs and no organisms were identified from the AC tap.

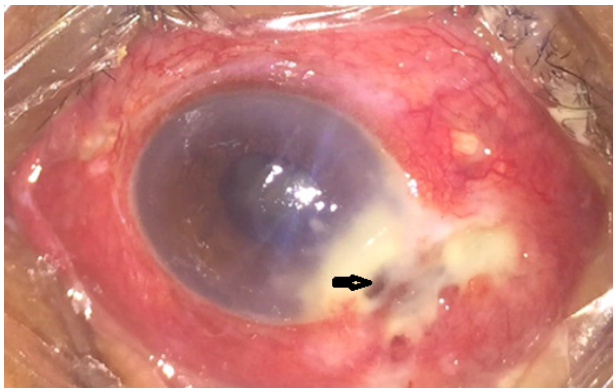

Figure 1: Intraoperative examination of the left eye shows an inflamed conjunctiva, corneoscleral abscess, inferotemporal to the limbus. Arrow shows a corneal perforation, plugged by the iris (arrow).

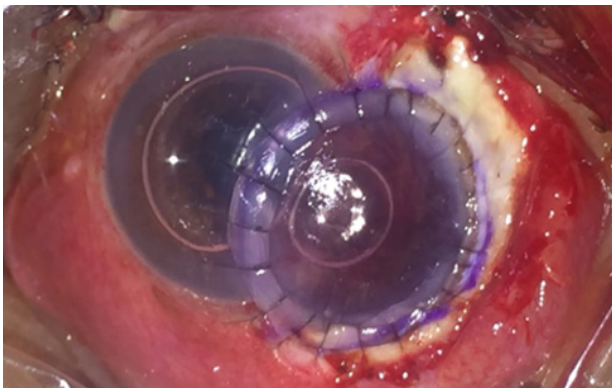

Figure 2: Intraoperative photograph of the patient, showing corneo scleral patch graft and an air bubble in the anterior chamber.

Patient was treated with topical 0.5% Moxifloxacin hourly, topical 5 % Natamycin 6 times a day and oral Ketaconazole 200 mg twice daily, as the patient could not afford topical and oral Voriconazole which is considered to be a treatment of choice. In the follow up visits, the lesion was noted to be regressing in size. Four weeks later, the patient presented to the emergency room, complaining of pain and redness in the operated eye for the past four days. The scleral abscess was noted to have progressed to the adjacent cornea with an impending corneal perforation. (Figure 1)

Patient underwent a penetrating corneoscleral patch graft surgery on the next day. (Figure 2) Under peribulbar anaesthesia, the extent of the corneoscleral involvement was measured with a caliper and the entire area of corneal infiltrate with the adjoining necrotic scleral abscess was excised (9 mm x 10 mm) with scissors including 1 mm adjoining clear margin on all the sides. A donor corneoscleral tissue of 10.5 mm x 11.5 mm size was trephined and used to close the defect. It was sutured with multiple, interrupted 10-0 nylon sutures and the knots were buried. Culture and sensitivity of the excised corneoscleral tissue revealed that the fungus was sensitive to Amphotericin B and Natamycin and resistant to Itraconazole, Voriconazole and Fluconazole. Hence, topical 5 % Natamycin 6 times a day and oral ketaconazole 200 mg twice daily was continued.

At the 8 weeks follow up visit, the patient was asymptomatic, visual acuity showed improvement to counting fingers half meters, the eye was quiet and retina was attached. There was no evidence of inflammation and the lesion showed complete healing with corneal opacity and scar formation. (Figure 3)

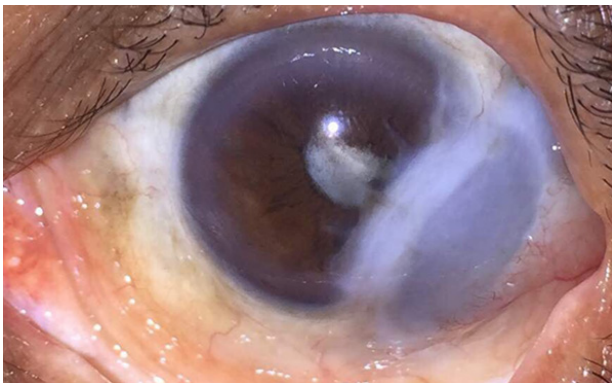

Figure 3: Postoperative slit lamp photograph at 8 weeks follow up period shows a quiet eye, healed scleral abscess and an opacified corneo scleral patch graft.

DISCUSSION

Postoperative scleral abscess following PPV is a rare complication. (Saito W et al, 2006) The predisposing factors, which may increase the risk for scleral infection, post-PPV can be related to surgery or a patient's systemic condition. The patient-related risk factors are diabetes mellitus or immunocompromised status (Sharma et al, 2016), ocular trauma, postoperative eye rubbing and noncompliance with the postoperative treatment regimen.

The surgery-related risk factors include inadequate sclerotomy site wound closure, non-bevelled sclerotomy and an exposed suture at the surgical site (Cameron JA and Huaman A, 1994). Loose, broken or exposed sutures may cause scleral abscess as a result of mechanical irritation from the loose sutures or protruding suture ends or the protein deposits on the exposed suture. Loose suture can exacerbate local inflammation, and if it is associated with conjunctival retraction and exposure of the bare sclera, cause secondary infection because of microorganism adhesion.

In our patient, the wound was well opposed and adequately covered by the conjunctiva and no conjunctival retraction was noted at the infected port site. A possibility of the 7-0 vicryl loose suture at the sclerotomy site was also ruled out.

We do not know with absolute certainty as to what had contributed to the fungal infection in this case. We speculated the source of infection into the sclerotomy infusion port site could be due to possible contamination of infusion port cannula, as the abscess was noted at the infusion port site. Unfortunately, the infusion port cannula could not be send for the microbiological workup to confirm the suspicion as they were discarded after the surgery and the patient had presented at two weeks following the PPV. Contamination of gloves, irrigating solution, instruments can also be a possible source of infection. However, we did not find any incidence of scleral abscess in the subsequent patients who had undergone PPV. Other factors which may have contributed to the fungal growth and dissemination are systemic diabetes mellitus, pulmonary tuberculosis and use of topical steroids postoperatively.

There have been case reports of bacterial scleral abscess after the scleral buckle procedure. (Pope J Jr et al, 1989, Folk JC et al, 1987, Lincoff HA et al, 1965, Berler DK et al, 1982)

Following PPV, Saito et al (2006) reported a case of scleral abscess at sclerotomy suture site in a diabetic patient, in which, *Pseudomonas aeruginosa* was identified, which resolved with surgical debridement and antibiotics. The authors speculated that the bacteria had spread from the sclerotomy suture, though the suture prominence was not observed. A single case has been reported of infectious scleritis after PPV caused by *Mycobacterium chelonae*.

(Pope J Jr et al, 1989). Sharma et al, (2016) reported a case of scleral abscess in a human immunodeficiency virus -positive patient caused by *Candida albicans* and its resolution with antifungal therapy over a three weeks follow period.

On review of literature, we found two case reports of fungal abscess following scleral buckle surgery (Milauskas AT et al, 1967, Lincoff HA et al, 1965) and none caused by *Aspergillus flavus*, following PPV.

To conclude, we report an uncommon presentation of a mycotic scleral abscess caused by *Aspergillus flavus*, following PPV, which had progressed to involve the adjacent cornea. Patients who have undergone PPV for the posterior segment pathology often have inflamed conjunctiva, reduced vision, and discomfort postoperatively, which may delay their reporting back to the clinic, if these signs and symptoms persist or worsen. Even with early diagnosis and treatment, visual outcomes in the cases scleral abscess are variable. However, early surgical debridement of the necrotic scleral tissue and concurrent appropriate medications may halt the progression of the infection and prevent devastating complications, requiring enucleation or evisceration and hence helps to maintain the anatomical integrity of the eye. After performing PPV, the surgeon should be vigilant about the possible postoperative infection at the sclerotomy site during the follow up visits and educate the patient regarding the same.

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