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CASE REPORT

Scleral buckle infection with *Aspergillus* and pyogenic granuloma: A case report

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Abstract

Scleral buckle infection after detachment surgery is a rare condition and it can occur even years after. We report two cases with scleral buckle infection who had undergone detachment surgery 11 and 12 years ago. The first patient was admitted to clinic with pain and discharge. Intense purulent discharge, conjunctival hyperemia, chemosis, and a large mass extending to the corneal surface were seen on her anterior segment examination. The second case had reconstruction surgery with oral mucosal greft for sponge exposure 4 years ago and she had purulent discharge, conjunctival chemosis and sponge were exposed on her anterior segment examination. During the surgery of both cases, yellowish-white multiple foci seen on buckle material which gave an impression of a fungal infection. We performed removal of the mass and scleral buckle in the first case, and removal of the scleral buckle, covering of thinned sclera with oral mucosal greft, and tarsorrhaphy in the second case. After *Aspergillus* grown on the culture media, lavage with voriconazole and voriconazole eye drop treatments completed and there was no recurrence in terms of detachment and infection.

Keywords: *Aspergillus*; detachment surgery; pyogenic granuloma; scleral buckle; scleral buckle infection.

Scleral buckling is an important approach for retinal detachment surgery. This method can cause complications such as refractive changes, intrusion, extrusion, infection, glob ischemia, and choroid detachment.[1,2] Infection rate is reported as 0.2%.[2] The development of infection can occur in the early post-operative period or may occur after years.[3,4] Coagulase positive and coagulase-negative staphylococci are the most common sources of infection (70–90%) and fungal agents are rarely reported on a case-by-case basis.[5]

In this study, we present the clinical findings, treatment approach, and results of two patients with *Aspergillus* infection on scleral buckling material.

Case Report

The first case was a 63-year-old female patient who had undergone scleral buckling surgery for retinal detachment of the left eye 11 years ago. The patient was admitted to our clinic with pain, watering, and purulent discharge that had been present for the past 3 months. The patient

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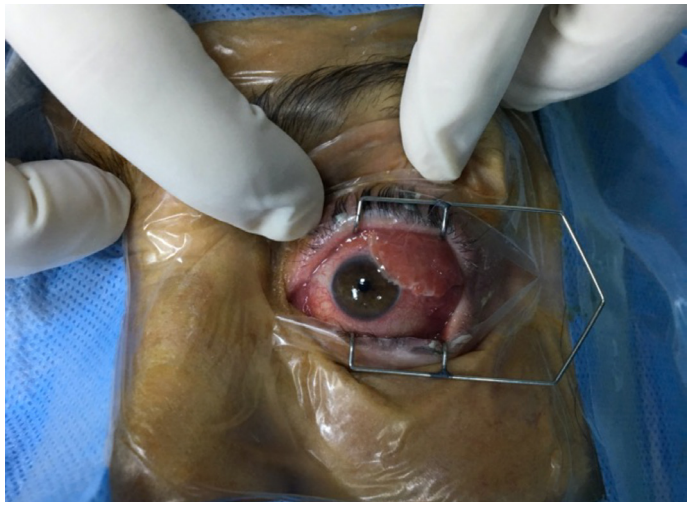

Fig. 1. A large mass (22×24 mm) was extending from superotemporal orbit to the corneal surface, which gives an impression of pyogenic granuloma.

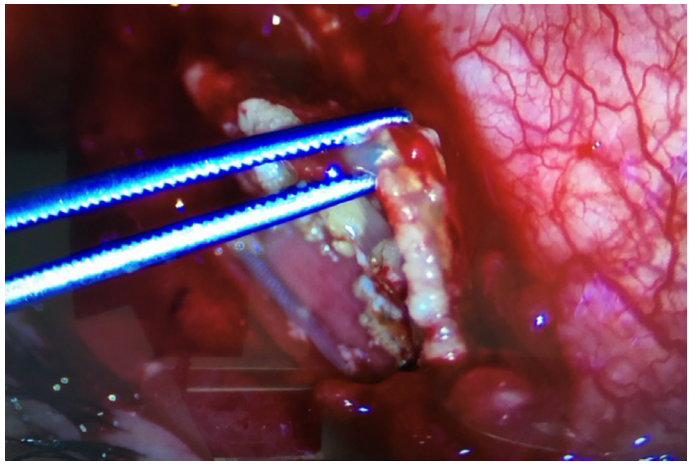

Fig. 2. The scleral buckle was covered with multiple infiltration foci, which gave an impression of fungal infection.

used many topical treatments in many different centers before, but her complaints did not regress and a growing mass was observed, which was extending to the corneal surface. On her ophthalmologic examination, her visual acuity was counting fingers from 1 m. Intense purulent discharge, conjunctival hyperemia, and chemosis were seen on anterior segment examination. In addition, a large mass extending from the superotemporal orbit to the corneal surface, which gave an impression of pyogenic granuloma (Fig. 1). The retina was fully attached on fundus examination. The right eye had no ophthalmopathology except cataract. Surgical exploration was planned after magnetic resonance images revealed contrast-enhanced mass compatible with focus on lateral superior of the left orbit. The mass was removed during the surgery and sent to laboratory for pathological investigation. Scleral buckle material showed up after removal of the mass. The scleral buckle was covered with multiple infiltration foci, which gave an impression of fungal infection (Fig. 2). Infected material removed with a clear margin. Samples from buckle material were plated onto the culture media. The removed mass was reported as pyogenic granuloma.

The second case was a 71-year-old female patient with no additional disease. She had scleral buckle surgery for retinal detachment of the left eye 12 years ago and reconstruction surgery with oral mucosal greft for sponge exposure. The patient had purulent discharge and pain in her left eye for approximately 2 months.

Visual acuity was counting fingers from 2 m. There was purulent discharge, conjunctival chemosis and sponge were exposed on her anterior segment examination. On her

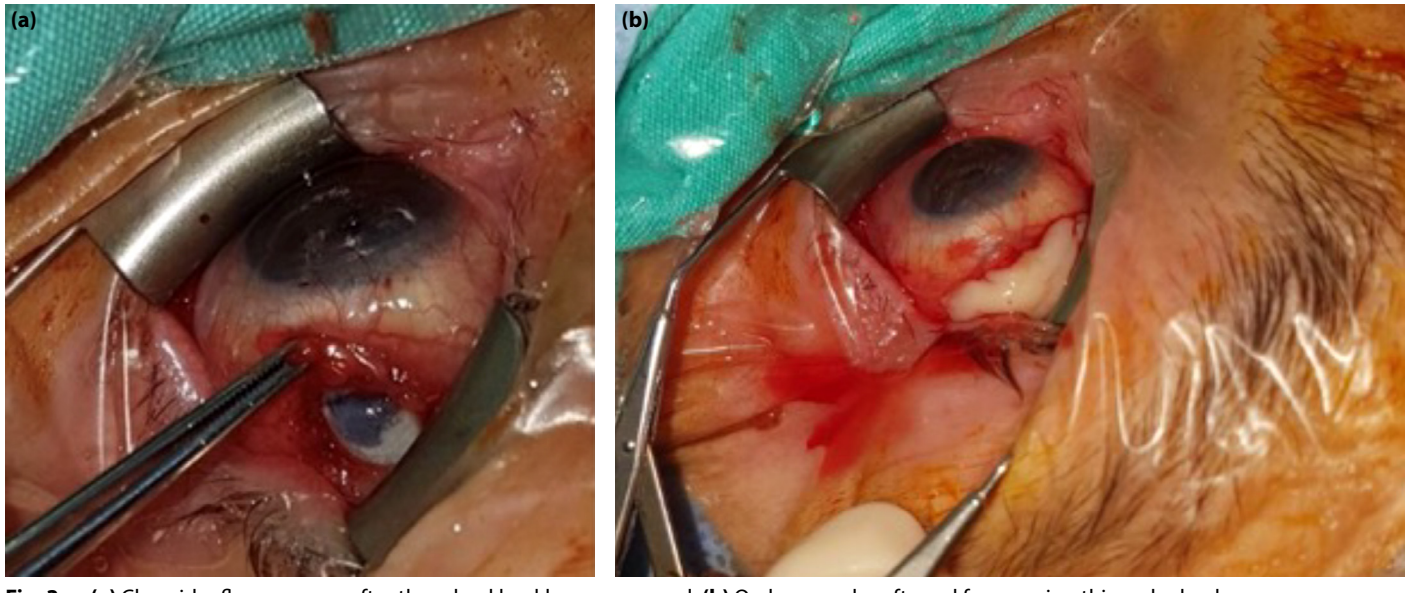

Fig. 3. **(a)** Choroid reflex was seen after the scleral buckle was removed. **(b)** Oral mucosal greft used for covering thinned scleral area.

fundus examination, scleral buckle reattachment effect was seen and retina was fully attached. Exploration of exposure area was performed and during the surgery yellowish-white multiple foci seen on buckle material which gave an impression of a fungal infection. Infected material was removed and samples were taken for culture media. There was also choroid reflex under the scleral buckle and there was extremely thinned scleral area (Fig. 3a). Oral mucosal greft used for covering this area (Fig. 3b) and surgery was completed with tarsorrhaphy.

First, empirical topical fortified eye drop treatment was started (vancomycin and ceftazidime 8×1). After *Aspergillus* spp. grown on the culture media lavage once in a day with voriconasol and topical voriconasol eye drop (10 mg/ml, 8×1) added to treatment. Treatment of both patients were completed in 6 weeks and discontinued due to clinical recovery.

When the treatment was stopped, the visual acuity of the first case increased from counting fingers from 1 m to 0.2 m and the visual acuity of the second case increased from counting fingers from 2 m to 0.05 m. There was no recurrence in terms of detachment, exposure, and infection in the 3-year follow-up of both cases.

Discussion

Infections associated with scleral buckling is very rarely seen. It has been reported as 0.2% in the literature and has been shown as rare case reports in general series.[2] It is known that exposure of sponge increases the risk of infection.[2] Smiddy et al.[5] reported that all of the 45 cases who had scleral buckle infection had exposure too. Rate of the infection of eyes had buckle infection without any buckle/suture exposure which is reported as 18.2% by Chhablani et al.[2]

Scleral erosion due to scleral band is seen in 3.8–18.6% of the patients after an average of 7 years (2 months-15 years), and high myopia, tight scleral band, presence of glaucoma, and diathermy application have been reported as the factors that underlie the development of this complication.[6] Due to being an external implant, it may be a source of infection and infection may occur even years after the surgical procedure and our cases also had a history of detachment surgery 11 and 12 years before admission.

Infection factors associated with scleral buckling material are coagulase negative staphylococci, especially Staphylococcus epidermidis, and the rate of fungal agents was reported as 15% and the most common causative agent is reported as *Aspergillus*.[2] While *Aspergillus* infections were frequently described in immunocompromised individuals, there was no feature in the history of both our cases that could cause immunodeficiency. Previously, it was reported that high humidity and temperature may cause susceptibility to *Aspergillus* spp. Our both cases lived in suitable geography for these features.[7]

Pyogenic granuloma can be seen due to surgical trauma and materials used during operation. A patient with conjunctival granuloma following combined classical retinal detachment surgery and pars plana vitrectomy was reported before similar to our first case.[8]

Topical lavage with voriconasol and topical eye drops sufficed for treatment and cure without systemic treatment achieved. Kim et al.[9] reported scleral buckle originate *Aspergillus* infection with scleritis and epibulbar abscess gave no response to topical amphotericin B, oral ketoconazole and itraconasole, but they had clinical improvement with using oral voriconazole. Our patients had no scleral invasion and abscess. One patient had scleral thinning and we had good response to topical treatment after removing infected material without systemic treatment. We think that this result is related to the fact that the infection did not reach the deep scleral layers and the mechanical removal of the infected material in our immunocompetent patients. The risk of re-detachment after removal of scleral buckle material is between 70% and 82% within the first 3–6 months.[10] No recurrence of detachment was observed during 3-year follow-up of our two cases.

Infection associated with scleral buckling material is a rare condition and treatment approach should be determined according to the clinical situation of the patients. In cases where the deep tissues of the sclera do not involve, it is possible to control the infection by removing the infected material and using regional and topical antifungal therapy. Visual acuity was increased in both cases after the treatment and, it was seen that visual recovery was achieved only with topical treatment and regression in the infection.

Informed Consent: Written informed consent was obtained from the patients for the publication of the case report and the accompanying images.

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