Fulminant scleral abscess secondary to infected scleral buckle with *Moraxella* species

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We here report a case of scleral buckle infection with fulminant scleral abscess secondary to *Moraxella* species. A 54-year-old chronic alcoholic male with a history of retinal detachment repair, with scleral buckle 8 years prior, presented with complaints of severe pain, redness, and swelling in the right eye since 2 weeks. The patient was diagnosed with scleral buckle infection, the buckle was removed, and cultures revealed *Moraxella* species. The postoperative course included fulminant scleral abscess treated with dual antibiotic therapy that included ceftriaxone and moxifloxacin. All systemic antibiotics were discontinued after 3 weeks, retina remained attached, and no recurrence occurred over a 1-year follow-up. *Moraxella*, though commonly associated with bacterial keratitis, can also lead to buckle infection, especially in chronic alcoholic and immunocompromised patients. In buckle infection, infected buckle along with sutures should be immediately removed without damaging underlying compromised sclera. Lastly, culture and drug sensitivity play a very important role in buckle infections.

Key words: Buckle infection, *Moraxella* spp., Scleral abscess

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Scleral buckle infection is a rare postoperative complication after buckling surgery for retinal detachment (RD).[1] The reported incidence of buckle infection varies between 0.5% and 5.6%.[1] Gram-positive cocci are the most common cause of buckle infection.[2] *Moraxella* spp., although a well-known cause of keratitis, is rarely associated with buckle infection.[3,4] We report a rare occurrence of buckle infection with *Moraxella* spp., resulting in a fulminant scleral abscess.

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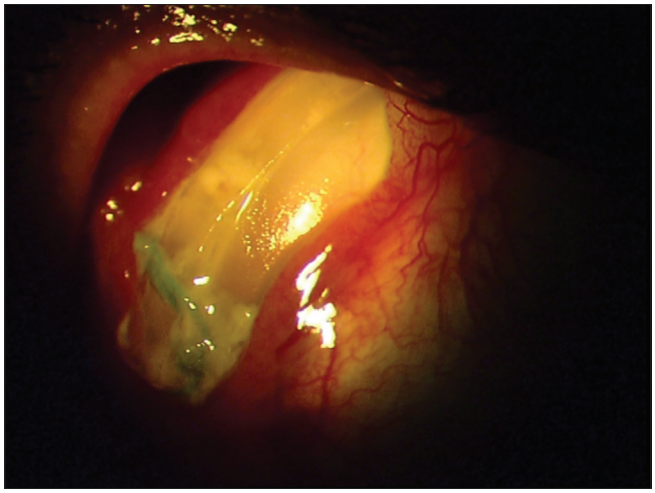

Figure 1: Slit-lamp image of the right eye showing severe injection and chemosis of the bulbar conjunctiva with retraction of the conjunctiva in superotemporal quadrant and exposure of the buckle and Dacron suture with mucopurulent discharge

Table 1: Antibiotics sensitivity pattern

Antimicrobial	Sensitivity
Amikacin	Sensitive
Gentamicin	Sensitive
Tobramycin	Sensitive
Ciprofloxacin	Resistant
Gatifloxacin	Resistant
Moxifloxacin	Sensitive
Cefoxitin	Sensitive
Ceftriaxone	Sensitive
Ceftazidime	Resistant
Chloramphenicol	Sensitive
Piperacillin	Sensitive
Imipenem	Sensitive
Meropenem	Sensitive
Vancomycin	Resistant

Case Report

A 54-year-old male presented to our institute with severe pain, redness, swelling, and reduced vision in the right eye of 2 weeks duration. Eight years before, he had undergone RD surgery with a scleral buckle. The following year, he underwent cataract surgery with intraocular lens implantation, but there was no significant improvement in vision. Both these surgeries were done at a different center and the patient did not have any documents related to these. A year prior to presentation to our institute, he suffered from a blunt injury following which there were chronic watering and foreign body sensation in the right eye. Since then, the patient was using ciprofloxacin eye drops on and off. He admitted being a chronic alcoholic. At presentation, the best-corrected visual acuity in the right eye was 20/400 and left eye was 20/20. There was mechanical ptosis with eyelid edema in the right eye. Slit-lamp examination of the

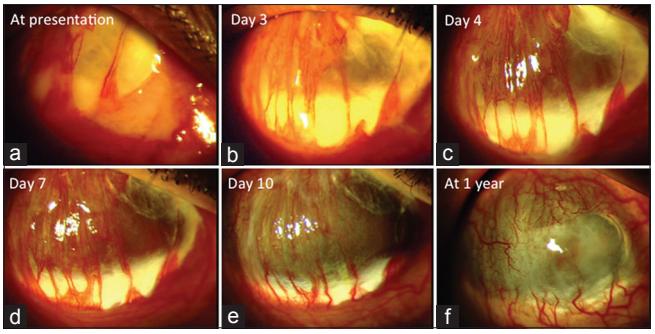

Figure 2: Series of slit-lamp images showing resolution of scleral abscess. (a) Image at presentation showing large superior scleral abscess. (b, c) Image at days 3 and 4 showing clearing of exudates with extreme scleral thinning and exposure of uveal tissue as scleral abscess started responding. (d) Image at day 7 showing episcleral vessels bridging the thinned out area. (e) Image at day 10 showing thin fibrous sheet covering the exposed uveal tissue with bridging episcleral vessels. (f) Image at 1 year showing large ciliary staphyloma

right eye revealed an anteriorly migrated exposed scleral buckle with mucopurulent discharge in the superotemporal quadrant [Fig. 1]. The cornea had a small epithelial defect and 360° peripheral vascularization. Fundus examination of the right eye showed an attached retina. Left eye examination was clinically unremarkable. A diagnosis of right eye buckle infection with pseudophakia was made. The patient was operated under local anesthesia to remove the infected buckle on the same day. A superior peritomy was done. A segmental buckle 277 was seen along the superotemporal and superonasal quadrant of 6 o'clock hours' length along with an encirclage 240 band. The band, buckle, scleral sutures, and overlying exudates were removed and sent for microbiology evaluation. The underlying scleral bed was severely inflamed and there was marked thinning. The scleral bed was irrigated with 0.3% povidone-iodine solution. No microorganisms were seen on 10% potassium hydroxide wet mount preparation or Gram's stain of the necrotic tissue material. The patient was started on empirical treatment with oral moxifloxacin 400 mg once a day and topical moxifloxacin 0.5% 1 hourly. On the second day, cultures revealed colonies of *Moraxella* spp. that were sensitive to moxifloxacin [Table 1]. There was a gradual improvement of the clinical signs over the next 2 weeks, with a decrease in pain, clearing of conjunctival congestion, and resolution of anterior chamber inflammation.

However, after 2 weeks, he again presented with severe pain, swelling, and watering in the right eye of 2 days duration. On examination, his visual acuity was the perception of light. There was a large scleral abscess involving whole superior quadrant [Fig. 2a]. Anterior chamber showed cells 4+. Fundus examination showed an attached retina with 360-degree peripheral choroidal detachment. He was treated with intravenous ceftriaxone 1 g 8 hourly in addition to oral moxifloxacin. Topical 5% ceftriaxone was also added. Scleral abscess showed signs of improvement on the third day [Fig. 2] and oral prednisolone 60 mg was added. Systemic antibiotics were continued for 3 weeks until the clinical signs resolved completely. A year later, the visual acuity was 20/200. The patient was asymptomatic. There was a large ciliary staphyloma in the right eye [Fig. 2f].

Discussion

Common organisms causing buckle infections are coagulase-negative *staphylococci*, *Mycobacterium chelonae*, *Proteus mirabilis*, gram-positive cocci, and acid-fast bacilli.[1,2] *Moraxella* spp. are well-known causative agents of bacterial keratitis, conjunctivitis, and angular blepharitis but have rarely been isolated in buckle infection.[3-5] Corneal infections with *Moraxella* usually occur in patients who are alcoholics or immunocompromised.[3] In our case, possibly trauma is the initiating factor for buckle extrusion causing chronic foreign body sensation and watering and chronic alcoholism with poor nutritional status could be the factor responsible for inoculation of *Moraxella* spp., leading to buckle infection.

Scleral abscess after scleral buckling surgery is rare today. It is likely that replacing diathermy with cryotherapy, non-drainage technique, and better aseptic precautions are responsible for rare occurrence of scleral abscess.[6] Thus, the occurrence of scleral abscess despite removal of the buckle in our patient was unexpected. We postulate four possible reasons for this: first, chronic alcoholism in our patient predisposed to *Moraxella* infection; second, the poor penetration of antibiotics into the nearly avascular sclera and propensity of microorganisms to persist in the avascular intrascleral lamellae for long periods of time;[7] third, the possibility off cross-resistance within fluoroquinolone groups as the patient was chronically self-medicating with ciprofloxacin despite Kirby–Bauer sensitivity test report of moxifloxacin sensitivity; and lastly, the possibility of infection persisting despite systemic antibiotic therapy because of the presence of the scleral sheath surrounding the buckle and associated biofilm formation that has been previously postulated.[8]

Most of the available literature report *Moraxella* spp. to be sensitive to fluoroquinolones and aminoglycosides.[3] Tan *et al*. in a cohort of 93 patients with *Moraxella* keratitis reported 100% susceptibility to chloramphenicol and cefuroxime, 99% to ciprofloxacin, 98% to gentamycin, and 88% to ofloxacin.[9] Most of the patients with *Moraxella* keratitis are treated with fluoroquinolone monotherapy but some patients might also require dual therapy because of worsening clinical picture or poor response to fluoroquinolones.[10] Contrary to other reports in our case, *Moraxella* spp. were resistant to ciprofloxacin, which may indicate a change in susceptibility patterns. In India, ciprofloxacin is commonly available without a prescription and our patient had used it intermittently to treat his symptoms of chronic irritation.

Conclusion

In conclusion, *Moraxella* can lead to buckle infection, especially in chronic alcoholic and immunocompromised patients. The clinician should look carefully for breach in the conjunctiva over a suture or its knot and subtle signs such as subconjunctival hemorrhage as a sign of chronic infection that should alert the clinician for a closer follow-up. In buckle infection, infected buckle along with sutures should be immediately removed and antibiotic treatment should be based on bacterial culture and antibiotic susceptibility tests. Despite adequate therapy, the recrudescence of infection remains a possibility. Dual antibiotics therapy may be required to cure infections in resistant and nonresponsive cases.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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