Blebitis at Early Post-Trabeculectomy Period

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ABSTRACT

In this case study, we presented diagnosis and management of a patient diagnosed with pseudo-exfoliative glaucoma who developed blebitis at the postoperative month 2. This patient was presented to our clinic with ocular pain on month 2 after trabeculectomy with mitomycin C for pseudo-exfoliative glaucoma. In biomicroscopy, it was seen that there were dens hyperemia on the bleb and infiltration adjacent to limbus and at end of suture located at temporal aspect of bleb. Intraocular pressure was measured as 4 mmHg and Seidel test was positive. Based on these findings, patient was diagnosed with blebitis and methicillin-sensitive S. aureus growth was detected in conjunctival swab culture test. The patient with blebitis was prescribed subconjunctival and topical antibiotics. In conclusion, it is highly important to have the knowledge of the risk factors for blebitis, plan regular and optimal postoperative control visits and select an adequate therapy plan depending on the severity of the clinical symptoms.

Keywords: Blebitis, Hypotonia, Pseudoexfoliation, Glaucoma, Trabeculectomy.

INTRODUCTION

Currently, trabeculectomy is the most frequently preferred method in the surgical treatment of glaucoma. Trabeculectomy is a penetrating surgical technique. In trabeculectomy, early complications include hypotonia, pupillary block, suprachoroidal effusion, decompression retinopathy, loss of fixation, bleb failure, malignant glaucoma, shallow anterior chamber, elevated IOP, deep anterior chamber and blebitis. The bleb-related infection may occur at early and late postoperative period. In particular, use of anti-fibrotic agents during surgery, postoperative hypotonia and open sutures increase risk for infection.[1] Here, we discussed risk factors and treatment in a case diagnosed as blebitis after trabeculectomy with mitomycin C.

CASE REPORT

A 72-years old man presented with impaired vision in right eye. In his history, it was found out that the patient was diagnosed as pseudo-exfoliative glaucoma 4 years ago and topical anti-glaucomatous treatment was initiated with fixed combination of timolol maleat plus dorzolamide, brimonidine tartrate and bimatoprost. In the ophthalmological examination, the visual acuity was 0.9 in the left eye but there was no light perception in the right eye. On biomicroscopy, it was seen that there was pseudo-exfoliative material over anterior surface of lens in both eyes. IOP was measured as 24 mmHg in the right eye and 21 mmHg in left eye with anti-glaucomatous treatment and oral acetazolamide therapy. In gonioscopy, iridocorneal angle was found to be open in both eyes while glaucomatous changes was detected in fundus examination and c:d ratio was measures as 10/10 in the right eye and 9/10 in the left eye.

As it was failed to reduce IOP to target pressure in left eye, trabeculectomy was performed in the left eye. Under local anesthesia, limbus-based conjunctival exposure was achieved. After cauterization of surgical field, a scleral flap (4x4 mm in size at 1/2 scleral thickness) was harvested from superior nasal quadrant. A mitomycin C embedded sponge was placed to surgical field for 3 minutes. After irrigation, trabecular block (2.5x1.5 mm) was removed and peripheral iridectomy was performed. At both tips of scleral flap, 10/0 nylon suture (n=1 for each) was placed. Conjunctiva was sutured using 10/0 Vicryl.

Additional sutures were placed to scleral flap as hypotonia and excessive filtration were detected on postoperative days 1 and 2. Needling was performed on month 1 as bleb encapsulation was detected.

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The patient presented with pain on postoperative month 2. In examination, visual acuity was measured as 0.3 in left eye. In biomicroscopy, it was seen that there were dens hyperemia on the bleb and infiltration adjacent to limbus and at end of suture located at temporal aspect of bleb. Seidel test was positive. Cornea showed mild edema; Tindal is negative and anterior chamber was shallow (Figure 1). IOP was measured as 4 mmHg; no cell was detected in vitreous.

Figure 1: *Image of bleb infiltration detected at initial examination.*

A swab sample was obtained from bleb site and empirical therapy was given. Topical fortified vancomycin and fortified gentamicin eye drops were given hourly in an alternate manner while amphotericin b eye drop (hourly) and cyclopentolate eye drop (3x1) were also initiated. In addition, subconjunctival treatment with ceftazidime (0.1cc at morning) and vancomycin (0.1 cc at evening) was added as he was a high-risk patient with single eye. Seidel test was negative on day 2 after treatment. On day 3, methicillin-sensitive S. aureus growth was detected in conjunctival swab culture test; thus, topical amphotericin B was discontinued. Subconjunctival treatment was discontinued on day 5 while topical treatment was continued over 14 days.

On day 14, visual acuity and IOP were measured as 0.9 and 10 mmHg, respectively. Also, it was seen that there was regression in bleb infiltration and conjunctival hyperemia (Figure 2). The patient was discharged by moxifloxacin eye drop (8x1) and cyclopentolate eye drop (3x1).

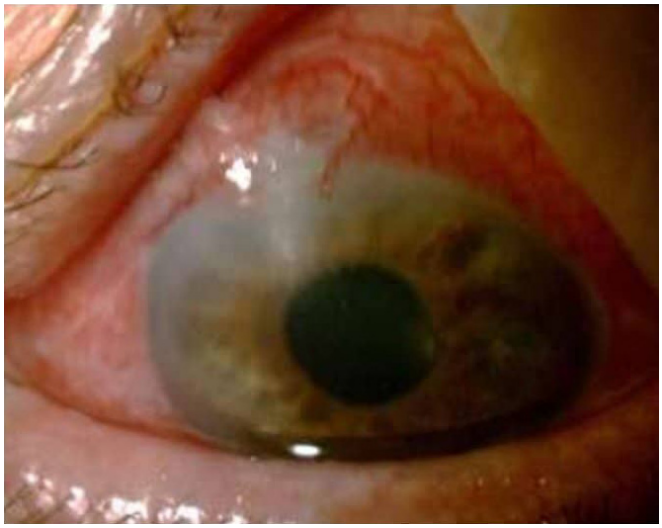

Figure 2. *Image of bleb infiltration after 2 weeks of treatment.*

DISCUSSION

Blebitis is one of the serious complications of trabeculectomy. Ayala et al. reported blebitis rate as 0.2-1.5% after trabeculectomy.[2] In the literature, the known risk factors for blebitis are metabolite use during and after surgery, limbus-based conjunctiva exposure, trabeculectomy performed at inferior quadrant and postoperative hypotonia.[3]

Peroperative MMC or 5-fluorouracyl (5-FU) used to improve success and sustainability of filtering surgery can lead avascular blebs or bleb leakage. In thin avascular blebs, decreased number of epithelial cells and goblets cells, which regulate metabolic turnover of conjunctiva and act as barrier, and increased number of inflammatory cells lead ischemia. As a result, adherence, proliferation and penetration of exogenous pathogens and normal flora are facilitated.[4] In previous studies, it was shown that MMC use increased blebitis risk by 3-folds when compared to 5-FU and that infection risk is increased by 50% for each 3 mmHg reduction in IOP in eyes with postoperative hypotonia.[5]

Our patient presented with pain, foreign body sensation and impaired vision 2 months after trabeculectomy. In ophthalmological examination, conjunctival hyperemia and infiltration at bleb and surrounding tissues were observed; thus, the patient was diagnosed as blebitis. In our case, limbus-based conjunctival opening, peroperative mitomycin C use and early hypotonia were considered as risk factors for infection.

The most common pathogens causing blebitis are coagulase-negative staphylococci and S. aureus at early period and Streptococcus strains, P. Acnes and H. influenza at late period.[6] In the literature, other organisms have also been reported to cause blebilits in rare instances.[7]

Reynolds et al. proposed a staging system defined treatment protocols based on clinical findings in patients with blebitis.[8] Accordingly, erythema around bleb and a milky, white bleb was defined in Stage 1 while cell, flare and hypopyon presence in anterior chamber was defined in Stage 2. In Stage 3a, there is mild vitreous inflammation in addition to findings in Stage 2 while marked vitreous inflammation in stage 3b. In that study, authors proposed management approach according to stage of blebitis. In Stage 1, subconjunctival vancomycin, topical cefamenoxim (hourly) and levofloxacin (hourly) eye drop are recommended while topical cefamenoxim (hourly) and levofloxacin (hourly) eye drop intracamaral vancomycin or ceftazidime and systemic antibiotic are recommended if needed. In Topical cefamenoxim (hourly) and levofloxacin (hourly) eye drop, intravitreal vancomycin, ceftazidime, systemic antibiotic and topical and sysemic steroid after sufficient antibiotic therapy are recommended in Stage 3a while topical cefamenoxim (hourly) and levofloxacin (hourly) eye drop, early vitrectomy, vitreous irrigation with vancomycin and ceftazidime, systemic antibiotic and topical and sysemic steroid after sufficient antibiotic therapy in Stage 3b.[9]

In conclusion, blebitis is most important postoperative complication of filtering glaucoma surgery. As there is always bleb-related infection risk after trabeculectomy and it may result in endophtalmitis, it is important to better understanding of clinical presentation and treatment. The early diagnosis and appropriate treatment will prevent spread of infection and continuity of filtration.

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