

Blebitis

Differential diagnosis and management.

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CASE PRESENTATION

A 52-year-old black female who had advanced primary open-angle glaucoma presented with a 1-day history of conjunctival injection and mild discomfort in her left eye. This eye had undergone a trabeculectomy with mitomycin C (MMC) 6 years earlier and cataract extraction 3 years before presentation. Her visual acuity was 20/40 OS.

Slit-lamp biomicroscopy revealed an elevated, avascular bleb without leakage or infiltrates. There was mild conjunctival hyperemia with papillary reaction. One to two cells per high power field were visible in the anterior chamber, but the anterior vitreous was quiet. The IOP measured 9 mm Hg OS. The attending ophthalmologist diagnosed viral conjunctivitis, prescribed topical antibiotic therapy, and recommended re-examination the next day.

On the following day, the patient's symptoms were unchanged, but examination revealed increased conjunctival hyperemia and infiltrates in the bleb (Figure 1). Cellularity in the anterior chamber had increased (grade 3), and cells were also visible in the anterior vitreous (grade 1).

The diagnosis made was bleb-related endophthalmitis. The treating physician performed aqueous and vitreous taps, administered intravitreal vancomycin and ceftazidime, and prescribed hourly topical, fortified tobramycin and vancomycin drops.

Comments on the Differential Diagnosis of a Red Eye After Trabeculectomy

RNW: What is blebitis, and how does one differentiate it from endophthalmitis?

CAG: Blebitis is an infection limited to the filtering bleb, whereas bleb-related endophthalmitis is an intraocular infection that includes the vitreous. Inflammatory cells may spill over into the anterior chamber in blebitis, but the vitreous is quiet. The presence of inflammatory cells within the vitreous is key for differentiating blebitis from bleb-related endophthalmitis.

RNW: Distinguishing between blebitis and endophthalmitis can be difficult. With blebitis, there may be cells

within the anterior chamber, but there typically are no vitreous cells. At the other extreme, a large number of inflammatory cells within the vitreous clearly indicates the presence of endophthalmitis. In between these extremes, one often cannot be certain of the diagnosis, but differentiating between the two entities does have important therapeutic implications.

Comments on the Management of Blebitis and Bleb-Related Endophthalmitis

CAG: There is no consensus on the management of blebitis, and glaucoma specialists have a variety of practice patterns.¹ My preferred treatment for blebitis is an hourly topical, fortified antibiotic (vancomycin and either gentamycin or ceftazidime). The prognosis for isolated blebitis is good.

JGC: If there is an infiltrate in the bleb, cells in the anterior chamber, or hypopyon and cells in the vitreous, I will proceed as for endophthalmitis. I will perform aqueous and vitreous taps and administer intravitreal antibiotics. In aphakic or pseudophakic eyes, because there may be less of a mechanical barrier to the spread of infection into the



Figure 1. The patient's left eye was injected and had a focal, avascular, thin-walled bleb with a visible infiltrate.

vitreous, my threshold for treating cases as endophthalmitis is even lower.

CAG: More cells may also spill into the vitreous in aphakic or pseudophakic eyes. The line differentiating these cells from vitreous infection is often not clearly demarcated. It is important, however, to have a high level of suspicion with all eyes that have injected blebs and intraocular inflammation. In eyes with small pupils, one may not be able to view the anterior vitreous clearly, and B-scan ultrasound may be helpful.

“Using 5-fluorouracil rather than MMC, in conjunction with a large dissection/treatment area, may reduce the incidence of focal avascular blebs.”

JGC: How useful are specimens from the anterior chamber tap in identifying the infectious agents?

RNW: Forster et al² demonstrated more than 25 years ago that the yield of organisms from the anterior chamber tap is frequently less than the yield obtained from vitreous taps. Similar findings were reported subsequently in the Endophthalmitis Vitrectomy Study.³

Comments on Trabeculectomy Technique

RNW: Thin-walled, avascular blebs and leaking blebs are at increased risk of infection.^{4,5} How can a surgeon minimize the formation of these blebs?

CAG: A large subconjunctival dissection with a broad intraoperative application of an antimetabolite encourages the posterior flow of aqueous humor and the development of diffuse filtering blebs.

RNW: For more than a decade, I have dissected Tenon's tissue to obtain a large area for the application of an antimetabolite. During the past several months, I have been impressed by how the Blumenthal dissector (Katena Products, Inc., Denville, NJ) facilitates the dissection.

CAG: The intraoperative application of MMC often is associated with the formation of an avascular bleb and an increased risk of endophthalmitis,⁶ but avascular blebs can also develop after surgery with the intraoperative application of 5-fluorouracil. Using 5-fluorouracil rather than MMC, in conjunction with a large dissection/treatment area, may reduce the incidence of focal avascular blebs.

RNW: Paying attention to pre- and postoperative lid hygiene is another potential means for reducing the risk of postoperative infection. Identifying and treating lid-margin disease and dry eye in patients with thin-walled blebs, in

particular, is likely beneficial. In addition, blebs that have a focal leak should be repaired.⁷ What about managing thin avascular blebs that have mild, diffuse oozing of aqueous humor?

CAG: There is no clear evidence that prophylactic antibiotics are effective, and I generally do not use them. Anyone with an avascular bleb like that should be made aware of the signs and symptoms of infection and know to seek medical attention immediately in the event of pain, decreased vision, or discharge.

FOLLOW-UP

The patient responded well to the combination of intravitreal and topical antibiotics. Her visual acuity has remained at 20/40 OS for 3 months since treatment. □

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