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BRIEF COMMUNICATION

Delayed-Onset *Streptococcus Pyogenes* Endophthalmitis Following Ahmed Glaucoma Valve Implantation

Zerrin Bayraktar, Ziya Kapran, Şükrü Bayraktar, Nur Acar, Yaprak Banu Unver, and Kemran Gok

Beyoglu Eye Research and Education Hospital, Istanbul, Turkey

Abstract

Background: To report a case of delayed-onset *Streptococcus pyogenes* endophthalmitis following implantation of an Ahmed glaucoma valve.

Case: A 10-year-old patient presented with acute endophthalmitis 1 year after Ahmed glaucoma valve implantation.

Observations: The conjunctiva and Tenon's capsule over the valve plate had been penetrated by one of the polypropylene fixation sutures. The valve was removed, and pars plana vitrectomy was performed. Vitreous specimens and removal of the discharge over the plate revealed *Streptococcus pyogenes*.

Conclusions: This is the first documented case of *Streptococcus pyogenes* endophthalmitis following Ahmed glaucoma valve implantation. We think the conjunctival buttonhole caused by the polypropylene suture provided an entry site for the infection. Jpn J Ophthalmol 2005;49:KB-BB © Japanese Ophthalmological Society 2005

Key Words: Ahmed glaucoma valve, endophthalmitis. *Streptococcus pyogenes*

Introduction

Endophthalmitis has been uncommon after glaucoma drainage implants, probably because of the relatively thick, posterior filtering blebs. Exposure of the implant's tube or plate has been suggested to be an important risk factor for endophthalmitis after implantation of a glaucoma drainage device.[1]

In this brief case study, we report a patient presenting with endophthalmitis 1 year after Ahmed glaucoma valve implantation. We think the case is interesting because vitreous cultures demonstrated the presence of *Streptococcus pyogenes,* a well-known cause of bleb-related endophthalmitis, but to our knowledge it has not been reported before in any endophthalmitis case following implantation of a glaucoma drainage device.

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Correspondence and reprint requests to: Zerrin Bayraktar, Emintas, Camlik Sitesi B Blok D:6 Merdivenkoy 81080, Istanbul, Turkey
e-mail: Eerrinbayraktar@yahoo.com

Case Report

A 10-year-old girl from Azerbaijan was referred to our hospital. She had acute endophthalmitis in her left eye. She was otherwise healthy and did not have any immunological deficiency. She had unilateral congenital glaucoma (buphthalmus) and had undergone unsuccessful goniotomy and trabeculectomy operations in Russia. One year earlier, in her native country, a valve had been implanted because her intraocular pressure could not be controlled despite maximum glaucoma medications. The seton surgery had been uneventful. All of the glaucoma medications were discontinued after the implantation and after intraocular pressure had been well controlled. Her medical records demonstrated that the patient had a visual acuity of counting fingers from 1 m because of the advanced optic nerve damage. She had not been using either antibiotic or corticosteroid eyedrops.

At the presentation, she had pain, mucopurulent discharge, and conjunctival hyperemia in the left eye. Visual acuity was only light perception. Her right eye was normal.

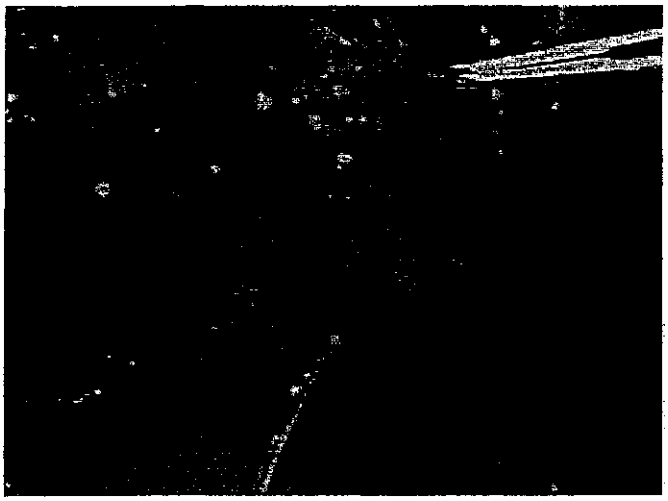

Figure L A polypropylene suture is shown penetrating the conjunctiva and Tenon's capsule in a 10-year-old girl with endophthalmitis in her left eye 1 year after receiving an Ahmed glaucoma valve implantation.

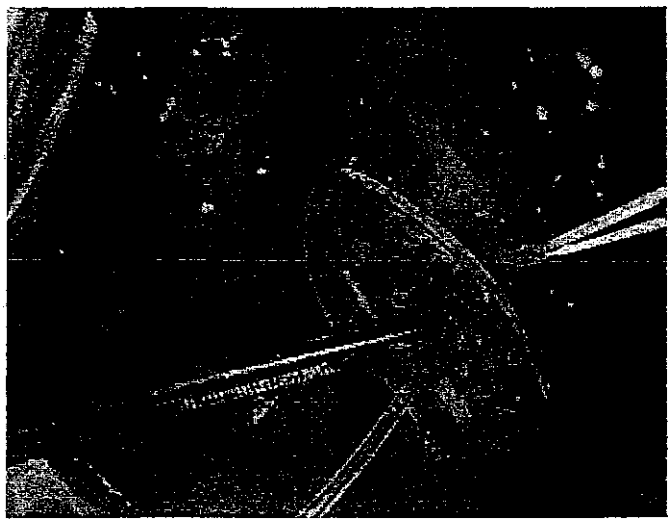

Figure 2. Ahmed glaucoma valve plate covered with purulent material.

Biomicroscopic examination of the left eye revealed chemosis, subconjunctival hemorrhages, corneal edema, hypopyon, and fibrinoid reaction, obscuring the pupillary area. The fundus could not be visualized. B-mode ultrasonography was performed, and the vitreous cavity was found to be completely filled with hyperechoic material.

Immediate pars plana vitrectomy and intravitreal antibiotic administration were planned. During surgery, a blue-colored polypropylene suture was found to penetrate both the Tenon's capsule and the conjunctiva covering the plate of the Ahmed glaucoma valve (Fig. 1). It was one of the two sutures used for the fixation of the device's plate to the underlying sclera. The plate of the Ahmed drainage implant was completely covered by purulent material (Fig. 2). The valve was removed. The vitreous was found during surgery to be completely opacified. The retina was covered with exudates and hemorrhages. A purulent abscess had formed over the macula. The optic nerve head was pale. There was dense retrolental condensation over the posterior surface of the crystalline lens, and, therefore, lensectomy was carried out in order to remove it completely. After completion of the vitrectomy, 20ug ceftazidime and lOOug vancomycin were administered intravitreally. The patient was also treated with topical fortified cefazolin and tobramycin eye drops and ciprofloxacin tablets (500 mg twice daily) for 2 weeks.

The microorganism *Streptococcus pyogenes,* resistant to metmcillin, was isolated from both vitreous and conjunctival cultures.

We were able to reexamine the patient 3 months after the operation. Visual acuity was hand motions only, because a dense retropupillary membrane had developed, and the optic nerve was completely pale. The retina was attached and intraocular pressure was 4mmHg.

Because there were no complaints and she had only limited visual potential, subsequent surgical intervention was not recommended. The patient returned to her country and was lost to follow-up.

Comments

Two cases of endophthalmitis following Ahmed glaucoma valve implantation have been reported. *Propionibacterium acnes* was isolated in the first and *Haemophilus influenzae* in the other.[2,3] In our patient, the tube was not exposed, but one of the two polypropylene sutures securing the plate had penetrated the overlying conjunctiva and Tenon's capsule. We suggest that the conjunctival buttonhole caused by the suture provided the necessary entry site for *Streptococcus pyogenes.* A similar pathogenesis was reported responsible for endophmalmitis following intraocular lens implantation with suture fixation to the sclera and subsequent suture exposure.[4]

A recent case report described *Streptococcus pneumoniae* endophthalmitis after a Bearveldt implant; a small conjunctival buttonhole caused by the suture securing the plate to the sclera was thought to be the entry site.[5]

In conclusion, we recommend avoiding the use of polypropylene sutures for securing a device plate or for embedding it into the sclera by rotation because the cut ends of those sutures can easily break the overlying Tenon's capsule and/or conjunctiva.

References

1. **Gedde SJ, Scott IU,Tabandeh H, et ai. Late endophthalmitis associated with glaucoma drainage implants. Ophthalmology 2001;108: 1323-1327.**

Gutierrez-Diaz E, Montero-Rodriguez M, Mencia-Gutierrez E, Fernandez-Gonzalez MC, Perez-Blazquez E, *Propionibacterium acnes* endophthalmitis in Ahmed glaucoma valve. Eur J Ophthalmol 2001;11:383-385.

Al-Torbaq AA, Edward DP. Delayed endophthalmitis in a child following an Ahmed glaucoma valve implant. J AAPOS 2002;6: 123-125.

4. **Scott IU, Flynn HW Jr, Feuer W. Endophthalmitis after secondary intraocular lens implantation. A case-report study. Ophthalmology 1995;102:1925-1931.**
5. **Francis BA, DiLoreto DA Jr, Chong LP, Rao N. Late-onset bacterial endophthalmitis following glaucoma drainage implantation. Ophthalmic Surg Lasers Imaging 2003;34:128-130.**