

Simple Suturing Procedure to Manage a Flat Anterior Chamber Secondary to a Malfunctioned Ahmed Glaucoma Valve

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ARTICLE INFO	ABSTRACT
<p>Article type: Case Report</p> <hr/> <p>Article history: Received: 11-Oct-2014 Accepted: 1-Nov-2014</p> <hr/> <p>Keywords: Ahmed glaucoma valve Flat anterior chamber Hypotony 5.0 nylon suture</p>	<p>Introduction: Presenting a case with repeated episodes of flat Anterior Chamber (AC) after Ahmed valve implantation, and suggesting a simple suturing procedure to manage these recurrences.</p> <p>Case: A 65-year-old woman presented to our clinic with uncontrolled Neovascular Glaucoma (NVG) in her left eye due to advanced Proliferative Diabetic Retinopathy (PDR) despite full medication to reduce Intraocular Pressure (IOP). After Ahmed valve implantation, anterior chamber became flattened spontaneously on postoperative day one. Therefore, we filled the AC with air at the first attempt but this procedure failed a day later. Then, we filled the AC with an ocular viscoelastic device. Because of these procedures failed to keep the AC formed, we hypothesized that it may be a malfunctioned valve. Therefore, we inserted 5-0 Nylon in Ahmed tube through AC and fixed it to the subconjunctiva two days after the second procedure. Anterior chamber remained deep and its shallowing did not occur despite removing the suture two weeks after the insertion. The IOP was controlled well with a functional filtering device at the last follow-up visit four months after the surgery.</p> <p>Conclusion: Spontaneous episodes of flat AC after Ahmed valve implantation in an eye can be well managed by inserting a removable suture into the Ahmed valve tube.</p>

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Introduction

Many different types of devices have been developed to aid filtration by shunting aqueous to a site away from limbus, such as the equatorial subconjunctival space.

Aqueous shunts, or glaucoma drainage devices, generally have a tube placed into the anterior chamber, in the ciliary sulcus, or to the pars plana into the vitreous cavity (1).

Early over-filtration in an eye with the shunt in anterior chamber results in a flat chamber and shunt-cornea touch. Flat Anterior Chamber (AC) and hypotony caused by over-filtration are uncommon complications of these surgeries. Untreated hypotony and flat AC may lead to vision-threatening complications, including Peripheral Anterior Synechia (PAS) formation, cataract, corneal decompensation, choroidal effusion, suprachoroidal hemorrhage, endophthalmitis, and hypotony maculopathy.

Hypotony and flat AC can be avoided by the use of valve device, an occlusion technique, or viscoelastic

agents. However in some cases, flat AC is related to valve malfunction (2).

Case

We present a 65-year-old woman with repeated episodes of flat AC immediately at the postoperative period after Ahmed Glaucoma valve implantation for neo-vascular glaucoma. The eye had previously undergone deep vitrectomy. The patient underwent an uncomplicated Ahmed valve surgery in her left eye and the tube was covered with scleral patch graft, and the conjunctiva and tenon water-tightly sutured at the end of operation. AC was formed and there was no leakage around the conjunctiva. On the examination at the first postoperative day, flat AC was observed without any leakage from the incisions or conjunctival wound, and the Intraocular Pressure (IOP) was low.

The patient was returned to the operation room and AC was filled with a large air bubble, and then closure

of the incisions was ascertained. A few hours later, AC was spontaneously flattened again. At this time, AC was formed with a viscoelastic agent. On the examination at the first postoperative day, AC was flattened again. With the diagnosis of valve malfunction, the patient returned to operating room for the third time. We decided to obliterate the Ahmed tube with a removable suture. Therefore, we made a stab incision at the limbus and inserted 5-0 Nylon suture through the stab incision into the Ahmed tube and fixed the other end of the suture to the subconjunctiva and covered it with conjunctiva (figure 1).

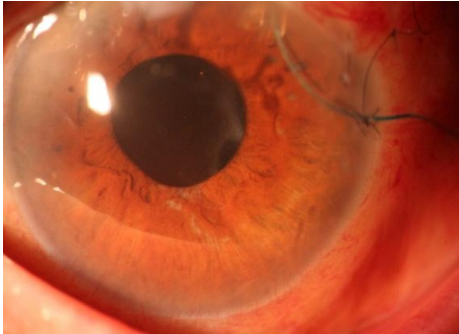


Figure 1: 5-0 nylon suture into AGV tube and subconjunctiva.

The conjunctiva was sutured with 10-0 Nylon. After this procedure, AC was formed on the first postoperative day. Two weeks after the surgery, AC was found to be formed and IOP was 10mmHg. Thus, we removed the 5-0 releasable sutures without any complication. Anterior chamber remained deep. At the last follow up visit, four months after the surgery, the IOP was controlled well with a functional (filtering) device (figure 2).



Figure 2: four months postoperation.

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Discussion

Different devices have been developed that filtrate aqueous to a site away from limbus such as the equatorial subconjunctival space (1).

Similar types of implants are generally reserved for different glaucoma cases in which conventional filtering surgery has failed or is likely to fail.

Although aqueous shunts differ in design, the basic techniques for implantation are similar. For the non-valve devices, there are a number of techniques to restrict flow in the early postoperative days, such as stenting the tube lumen or ligating the tube with a suture (1).

For the valve devices, restricting the flow is not necessary with devices that contain a flow restrictor, although hypotony and a flat AC can still sometimes occur with them (2).

Flat AC and hypotony caused by over-filtration are avoided by using valve device, an occlusion technique, or viscoelastic agents. However in some cases, flat AC is related to valve malfunction.

The valve mechanism is very sensitive and if the valve touches with a forceps during implantation, it might cause damage. It could also be damaged by forceful irrigation (3, 4).

Our case report shows that in case of valve malfunction, placing Nylon 5-0 suture into the tube shunt (removable suture) could be helpful to restrict the aqueous flow and give time to the fibrosis to work against over-filtration.

Conclusion

Spontaneous episodes of flat AC after Ahmed valve implantation in an eye can be well managed by inserting a removable suture into the Ahmed valve tube. Another benefit from this technique was decrease risk of Ahmed Glaucoma Valve (AGV) exposure because tenon was very thin and conj very fragile too.

So we decided to new operation site and did not remove previous sutures.

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