Sir,
Delayed retrobulbar haemorrhage after Ahmed glaucoma implant: a case report

Ahmed glaucoma valve is one of the commonest glaucoma implant used. However, many intraoperative and postoperative complications have been reported with this implant. Some of these complications resolve spontaneously but some may require surgical intervention. We present a case of delayed onset of retrobulbar haemorrhage after Ahmed glaucoma valve implantation, which to the best of our knowledge, has not been reported.

Case report

A 70-year-old Chinese male who had no history of systemic hypertension, blood diseases or long-term use of drugs including aspirin and Gingko biloba suffered from bilateral primary open-angle glaucoma. Despite trabeculectomies performed to both eyes 2 years ago, the intraocular pressures (IOP) remained uncontrolled and required glaucoma drainage device. Ahmed glaucoma valve implantation was performed to the right eye combined with cataract extraction and intraocular lens implantation under retrobulbar anaesthesia. There was no intraoperative complication. As a result of the large pre-existing bleb and extensive scar tissues in the superior quadrant of the eye, the Ahmed valve implant was deliberately inserted closed to the 9 o'clock instead of the conventional 10–11 o'clock position (Figure 1). The plate of the implant was fixed at 8 mm beyond the limbus with two 9-O nylon sutures. Postoperative 0.1% dexamethasone and 0.5% chloramphenicol eyedrop mixture was prescribed for a period of 6 weeks. Oral paracetamol was also given for analgesia. No aspirin or any nonsteroid anti-inflammatory drug was prescribed. No vomiting, prolonged coughing, or strenuous exercise was noted in the postoperative period.

The IOP was 15 mmHg and there was a reduction of Snellen visual acuity from 0.3 (20/60) to 0.1 (20/200) on the first postoperative day. The Ahmed glaucoma implant was in position with a well-formed bleb. The extraocular movement was full. On the fourth day, the patient complained of a sudden onset of right eye swelling associated with bloody discharge. Ocular examination revealed ptosis, periorbital swelling, and bruising without proptosis (Figure 2). There was limitation of extraocular movement especially on abduction. The IOP was 20 mmHg and the visual acuity remained at 0.1 (20/200). The anterior chamber was deep without hyphaema and the glaucoma implant was in position. Broad-spectrum intravenous antibiotics were started in fear of orbital cellulitis. Blood tests reviewed

normal cell and platelet count and normal clotting profile. Urgent contrast enhanced computerized tomography of orbits showed increased density of the retrobulbar fat suggestive of recent retrobulbar haemorrhage (Figure 3). The patient was treated conservatively and the periorbital swelling resolved spontaneously in 10 days with full recovery of the extraocular movement. The IOP remained under control without the use of antiglaucomatous eyedrops. His visual acuity gradually returned to 0.3 (20/60) in 5 weeks.

Discussion

Various complications have been reported following glaucoma implant surgery. Early postoperative complications include hypotony, flat anterior chamber, choroidal effusion, suprachoroidal haemorrhage and decompression retinopathy.^{1,2} Late postoperative complications include tube block and migration, implant

Figure 1 Slit-lamp photograph showing tube of the glaucoma implant at the 9 o'clock position.

Figure 2 External appearance of the right eye with retrobulbar haemorrhage.

Figure 3 CT scan orbit showing increased retrobulbar fat density.

exposure, motility disturbance, infection, and corneal decompensation.^{1,2}

Orbital haemorrhage can occur spontaneously, in patients with blood diseases, after trauma and following blepharoplasty.^{3–6} Delayed onset of orbital haemorrhage can occur after cataract, strabismus, endoscopic sinus surgery, and blepharoplasty.^{7–10}

In our case, the delayed onset of retrobulbar haemorrhage following glaucoma implant surgery made its attribution to retrobulbar anaesthesia less likely. No precipitating factor attributed to the haemorrhage could be identified. Our postulation is that the position of the implant, being very close to the lateral rectus muscle, might have traumatized the long posterior ciliary arteries and nearby vessels. Despite suturing the implant to the sclera, slight horizontal movement which can cause damage to the vessels is still possible. The movement of the plate may be aggravated by eye movement, rubbing of eyes, and during application of postoperative eyedrops. The damage to the vessel may have caused seeping of blood to the retrobulbar space. Since the swelling and bruises resolved and the extraocular movement recovered spontaneously, we did not attempt to reposition the glaucoma implant. We suggest that glaucoma drainage devices should be placed in the superotemporal region between the two rectus muscles whenever possible. A paediatric-sized implant may have to be used in case of extensive conjunctival scarring. Postoperative periorbital swelling and ophthalmoplegia following glaucoma drainage device are often attributed to orbital cellulitis or retrobulbar haemorrhage related to anaesthetic injection. However, the rare possibility of retrobulbar haemorrhage caused by malpositioning of the drainage device should be included as one of the differential diagnosis.

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CHY Chan¹, JSM Lai^{1,2} and SY Shen¹

¹Department of Ophthalmology, United Christian Hospital, Kowloon, Hong Kong

²Department of Ophthalmology and Visual Sciences, The Chinese University of Hong Kong, Hong Kong

Correspondence: CHY Chan, Department of Ophthalmology, United Christian Hospital, 130, Hip Wo Street, Kwun Tong, Hong Kong
Tel: +852 3513 4202;
Fax: +852 2942 8055.
E-mail: chanhy901@yahoo.com

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