INTRODUCTION

One of the main advantages of non-perforating glaucoma surgery, including deep sclerectomy, is rapid visual recovery with minimal refractive change. It makes deep sclerectomy especially useful in emmetropic glaucoma patients with excellent preoperative uncorrected visual acuity (UCVA), like those who have undergone a refractive surgery procedure previously.

Descemetic detachment and formation of an intracorneal bleb is a rare complication after deep sclerectomy which is due to the passage of aqueous humor from the scleral space through the anterior edge of Descemet’s window into the sub-Descemet’s space. Descemetic detachment has been reported after both viscocanostomy and deep sclerectomy and it is considered a specific complication of non-penetrating filtering surgery opposite to trabeculectomy. Conservative medical treatment has been recommended for this unusual complication, but when the descemetic detachment remains for a sustained period of time, it may produce corneal irregularities and permanent loss of vision.

We call the attention of ophthalmologists performing this kind of surgery to recognise and treat this complication before permanent corneal damage is produced.

CASE REPORT

A 63-year-old pseudophakic woman with uncorrected visual acuity (UCVA) of 20/20 underwent uncomplicated deep sclerectomy for uncontrolled open-angle glaucoma in her right eye. Eight weeks after glaucoma surgery, the patient presented decreased visual acuity due to a descemetic bleb extending over the visual axis with resultant corneal edema. Initially conservative medical treatment was used, but the corneal edema progressed. Transcorneal fixing matters sutures and intracameral air injection were also unsuccessful. After YAG-laser puncture of the intact Descemet’s membrane, and an intracameral injection of isoexpansile 14% perfluoropropane (C3F8), the Descemet’s membrane rapidly reattached and the corneal edema cleared. One year after descematocectomy with C3F8, folds at the level of Descemet’s membrane were present producing loss of corrected-distance visual acuity (CDVA) to 20/30. Perfluoropropane should be considered for complicated cases of descemetic detachment after deep sclerectomy, but permanent loss of CDVA may result if the detachment stands for a long period of time.

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of the Schlemm canal were dilated using the Dahan trabecular meshwork scraper (Huco Vision, Blaise, Switzerland) so that the arms of the T-flux® implant could be easily introduced into the Schlemm canal. Intraoperative mitomycin C 0.2 mg/mL was used for two minutes under the superficial flap, and finally the flap was sutured using two 10/0 nylon.

Postoperative course was uneventful, and four weeks after surgery UCVA was 20/20 and IOP was 12 mm Hg. Eight weeks after surgery, the patient complained of blurred vision. At examination, UCVA was 20/50 and a descemetic bleb extending over the visual axis with adjacent edema was present (fig. 1). Intraocular pressure was 10 mm Hg. Initially medical conservative treatment with topical mydriatics and steroids was used, but the condition progressed and vision worsened to 20/100. Two transcorneal fixating matters sutures and an intracameral injection of air were performed, but the area of detachment progressed to affect the pupillary area completely, with the vision dropping to 20/400.

Three punctures of the intact Descemet’s membrane were made using a YAG-laser (power 2.0 µJ), and an intracameral injection of isoexpansile 14% perfluoropropane (C3F8) was performed to completely fill the anterior chamber. During the following days the corneal edema resolved and the descemetic bleb decreased in size. One year after deep sclerectomy folds were present at the level of the Descemet membrane, UCVA was 20/30 and IOP was 18 mm Hg. Descemet membrane has remained attached (fig. 2).

DISCUSSION

Descemetic detachment after non-perforating glaucoma surgery has been reported after viscocanalostomy and deep sclerectomy, with differences in pathogenesis, clinical presentation and course. Descemetic detachment after viscocanalostomy seems to be produced by improper cannula positioning during the injection of the viscoelastic material into the Schlemm canal, and the detachment is present since the first postoperative days at the operation site. In the case of deep sclerectomy, the descemetic detachment is produced by the passage of aqueous humor from the scleral space through the anterior edge of the descemetic window.
into the sub-Descemet’s space. It may present weeks to months after surgery and may progress to reduce visual acuity. The patient presented here shows that descemetic detachment after deep sclerectomy is a potentially dangerous complication and may decrease visual acuity permanently.

The surgical treatment of descemetic detachment includes transcorneal fixating sutures with or without intracameral injection of air, sodium hyaluronate or expansile gases. Suture fixation together with intracameral air injection failed to reattached the Descemet’s membrane in the present case, but when sustained compression of the bleb was exerted by an expansile gas, the Descemet membrane reattached quickly.

The incidence of descemetic detachment after deep sclerectomy is low; in our experience 2 out of 350 eyes (0.57%). Other authors have reported an incidence of about 1 out of 250 operated eyes (0.40%). The development of a descemetic bleb could be facilitated by an excessive anterior dissection of the trabeculo-descemetic membrane. In the present patient, a 2.5 x 3.5 mm trabeculo-descemetic window was created, but now we prefer to extend the anterior dissection of the trabeculo-descemetic window no more than 2 mm to decrease the risk of descemetic bleb formation, and since then we have no encountered a case of descemetic detachment after this kind of surgery.

In conclusion, the combination of YAG-laser descemetolysis and intracameral C3F8 should be considered for complicated cases of descemetic detachment after deep sclerectomy. Prompt treatment is essential to avoid permanent vision loss caused by corneal irregularities.

REFERENCES