Delayed Suprachoroidal Hemorrhage Following Viscocanalostomy

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Abstract. Delayed suprachoroidal hemorrhage is a rare complication of conventional glaucoma surgery. Viscocanalostomy is one of the new surgical techniques used in glaucoma surgery that may theoretically protect against suprachoroidal effusion and hemorrhage due to the nonpenetrating nature of the procedure. Delayed suprachoroidal hemorrhage developed in a 92-year-old white woman following viscocanalostomy. This case demonstrates that the risk of suprachoroidal hemorrhage may not be completely eliminated after a nonpenetrating glaucoma procedure such as viscocanalostomy. [Ophthalmic Surg Lasers Imaging 2003;34:209-211.]

INTRODUCTION

Nonpenetrating glaucoma surgery, which does not involve globe penetration during surgery, is a new glaucoma surgical approach to reduce intraocular pressure (IOP). This prevents intraoperative decompression and hypotony, which in turn may theoretically protect against suprachoroidal effusion and hemorrhage. Viscocanalostomy is one of the surgical techniques used in nonpenetrating glaucoma surgery. To the best of our knowledge, no previous case of intraoperative or postoperative suprachoroidal hemorrhage has been reported in the literature following viscocanalostomy. We describe a case of delayed suprachoroidal hemorrhage following this procedure in one of our patients.

CASE REPORT

A 92-year-old white woman with well-controlled hypertension and good general health underwent phacoemulsification with lens implantation under peribulbar anesthesia. The surgery was complicated by posterior capsule rupture, vitreous loss, and dislocation of nuclear fragments into the vitreous cavity. The patient underwent pars plana vitrectomy for removal of retained nuclear fragments 10 days later. The procedure was uncomplicated, and a flexible loop anterior chamber lens was also inserted during this procedure.

The postoperative course was uneventful until several months after surgery, when her IOP was noted to be elevated on several occasions. Eight months after surgery, her visual acuity was 20/50, IOP was 32 mm Hg, and evidence of early glaucomatous cupping was noted with a cup-to-disc ratio of 0.5. Topical antiglaucoma therapy, including dorzolamide hydrochloride 2%–timolol maleate 0.5% and latanoprost 0.005%, was initiated, which controlled IOP to satisfactory levels. Forty months after initial cataract surgery, IOP gradually increased and glaucoma surgery was planned in view of progressive cupping and glaucomatous visual field loss. Immediately prior to surgery, her visual acuity was 20/40, IOP was 24 mm Hg, and there were no signs of intraocular inflammation.

Viscocanalostomy was performed under peribulbar anesthesia. The procedure involved creating a scleral flap 5 mm deep at the superotemporal limbus. Deep scleral resection and deroofing of Schlemm's canal was performed using Healon GV (Pharmacia Corporation, Peapack, NJ). No gross microperforations, hemorrhage, transudation, or leakage of aque-
ous were noted during the procedure. The flap was tightly sutured with six 10-0 monofilament nylon sutures and the conjunctiva was secured with 8-0 polyglaactin 910 sutures.

The patient's ocular condition was satisfactory in the immediate postoperative period, with visual acuity of 20/100, IOP of 16 mm Hg, a deep anterior chamber, and no evidence of significant changes in the posterior segment of the eye. No microcysts or filtering blebs were noted in the conjunctiva. She presented with sudden reduction of vision 5 days after the glaucoma procedure. Her ocular examination revealed visual acuity of light perception, absence of red reflex, and an IOP of 19 mm Hg. Fundus examination revealed a vitreous hemorrhage with retropupillary dark, dome-shaped elevations visible. Ultrasound B-scan (Figure) confirmed hemorrhagic suprachoroidal effusion involving the nasal aspect of the retina. The suprachoroidal space was filled with opacities, denoting clotted blood. In view of the advanced age of the patient and the uncertain prognosis, no further surgical intervention was planned.

DISCUSSION

Although suprachoroidal hemorrhage has been reported in all types of intraocular procedures, including cataract surgery, penetrating keratoplasty, glaucoma surgery, and vitreoretinal surgery, it is a rare event in the postoperative period. The systemic risk factors for development of suprachoroidal hemorrhage include advanced age, hypertension, atherosclerosis, diabetes mellitus, and blood dyscrasias. Ocular conditions such as glaucoma, myopia, aphakia, pseudo-phakia, recent intraocular surgery, and postoperative inflammation also predispose to this condition.

The incidence of delayed suprachoroidal hemorrhage following conventional glaucoma surgery is 1.6% to 2.0%, which is tenfold greater than that of intraoperative suprachoroidal hemorrhage. This complication following glaucoma surgery is likely to be precipitated by prolonged hypotony and postoperative inflammation, which trigger the cascade of choroidal vascular engorgement, suprachoroidal serous effusion, tearing of ciliary arteries, and suprachoroidal hemorrhage. Other factors such as anticoagulation, white race, and aphakia or anterior chamber intraocular lens are also associated with delayed suprachoroidal hemorrhage.

Nonpenetrating glaucoma surgery, such as visco-canalostomy, is an extraocular procedure and is less likely to result in postoperative hypotony, inflammation, and infection. This may therefore reduce the risk of intraoperative and delayed suprachoroidal hemorrhage, an effect similar to the advent of phacoemulsification, which has halved these episodes in cataract surgery due to fewer intraoperative and postoperative fluctuations in IOP. However, inadvertent microperforations of the trabecular meshwork may occur in up to 30% of cases of nonpenetrating glaucoma procedures, resulting in overdrainage and hypotony, which may still predispose to suprachoroidal hemorrhage.

Although our patient did not have hypotony, which usually precedes suprachoroidal hemorrhage in conventional glaucoma filtration procedures, she had delayed suprachoroidal hemorrhage. This may be due to other contributing factors in our patient, such as advanced age, hypertension, atherosclerosis, glaucoma, aphakia or anterior chamber intraocular lens, and previous intraocular surgery. Despite the apparent safety of nonpenetrating glaucoma surgery, surgeons must remain alert to the risk of suprachoroidal hemorrhage so that appropriate measures can be undertaken to prevent and treat this condition in patients undergoing this procedure.

REFERENCES


