

Successful Surgical Management of Massive Suprachoroidal Haemorrhage Complicating Phacoemulsification

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Abstract

Purpose: To report a case of right eye massive suprachoroidal haemorrhage complicating phacoemulsification, which was treated successfully with drainage sclerotomy and pars plana vitrectomy.

Results: A 79-y old lady's right eye vision improved from light perception to 6/60 following vitreoretinal surgery for massive suprachoroidal haemorrhage from phacoemulsification.

Conclusion: A relatively good visual outcome may be achieved with proper pre-operative, intra-operative and post-operative management of suprachoroidal haemorrhage.

Keywords: Suprachoroidal haemorrhage; Intraoperative high pressure; High intraocular pressure; Suprachoroidal haemorrhage; Systemic risk factors

Introduction

Suprachoroidal haemorrhage is a potentially devastating complication of intraocular surgery. Massive suprachoroidal haemorrhage can occur intraoperatively or as a delayed complication of intraocular surgery and is generally associated with poor visual outcomes. We report a case of successful surgical management of suprachoroidal haemorrhage complicating phacoemulsification.

Case Report

A 79-y old lady with grade 4 cataract of the right eye with vision of underwent planned phacoemulsification under local anaesthesia. Intraoperatively, after irrigation and aspiration of cortical matter and intraocular lens (IOL) implantation, the globe felt tense with persistent iris prolapse through the corneal wound. The surgeon then performed a limited pars plana vitrectomy to enable iris reposition. Blood started oozing from the sclerotomy wound and darkening of red reflex was observed. Suprachoroidal haemorrhage was recognized to be the cause. Corneal wound was immediately closed with nylon 10/0 sutures. No attempt was made to drain the suprachoroidal blood. Post-operative funduscopy and B scan confirmed massive choroidal haemorrhage involving 3 quadrants with breakthrough vitreous haemorrhage.

Patient complained of right eye pain with nausea and vomiting. Aqueous release was done at the slit lamp. She was started on oral acetazolamide and prednisolone, with topical prednisolone, moxifloxacin and timolol 0.5%. Her vision at the time was only light perception. She was then referred to a vitreoretinal surgeon. She presented at day 6 post op with painful right eye, blurring of vision with headache and vomiting.

On examination, right eye vision was perception to light and relative afferent pupillary defect was positive. Intraocular pressure was

39 mmHg. The right conjunctiva was congested; cornea was oedematous with descemet folds. The anterior chamber was deep with inflammatory cells. The posterior chamber intraocular lens was stable in the bag. On fundus examination, a dark brown mass was seen posterior to the intraocular lens with vitreous haemorrhage.

B scan showed hyperechoic dome shaped elevation of the choroid with heterogeneous vitreous acoustic.

The intraocular pressure of the right eye was first managed by a stat dose of intravenous acetazolamide followed by oral dose of acetazolamide with 2 topical IOP lowering agents, timolol and latanoprost. Patient was also on oral prednisolone 40 mg BD, topical moxifloxacin, dexamethasone and atropine. She was then re-assessed after a week.

The intraocular pressure of the right eye has normalised. Repeat B scan showed lower and more homogenous internal reflectivity indicating liquefaction of the earlier blood clots.

After 14 d, the patient was scheduled for drainage sclerotomy and pars plana vitrectomy. The infusion cannula was placed more anteriorly than the standard pars plana site because of the choroidal detachment. A sclerostomy was done at superotemporal pars plana and dark red blood gushed out. Pars plana vitrectomy was then carried out to clear the vitreous haemorrhage. When the media became clear, an inferonasal rhegmatogenous retinal detachment was observed with retinal breaks at 4 and 9 o'clock. Silicone oil was injected for prolonged endotamponade.

Post-operative day 1, right eye vision was hand movement with intraocular pressure of 7 mmHg. Anterior chamber was deep with inflammatory cells. The fundus was silicone oil filled with hazy view but the posterior pole appeared flat. Patient was then discharged home.

Subsequent review at 1 week post-surgery, her right eye vision improved to counting finger 2 feet. The intraocular pressure was 20 mmHg. Fundus examination showed clear media with a completely flat retina. There was pre-retinal membrane at the superotemporal arcade. Review after 6 weeks, her vision was 6/60 and retina is flat.

Discussion

Suprachoroidal haemorrhage is a feared complication for all types of intraocular surgery. It is typically associated with severe visual loss, and this has prompted efforts to better understand the pathology and identify the risk factors to further improve management of this complication.

Suprachoroidal haemorrhage is defined as blood in the suprachoroidal space, caused by rupture of the short or long posterior ciliary arteries or vortex veins or their tributaries. It has been reported to occur in all types of intraocular surgeries including cataract extraction, penetrating keratoplasty, glaucoma filtering surgery and vitreoretinal surgery. The incidence of suprachoroidal haemorrhage in cataract extraction surgery has reduced in the advent of phacoemulsification, topical anaesthesia and clear corneal incision techniques. [1] Eriksson et al. found the difference in incidence of suprachoroidal haemorrhage in Extracapsular Cataract Extraction (ECCE) and phacoemulsification, 0.13% and 0.03% respectively, to be statistically significant [2]. This is thought most likely due to less manipulation of the globe with less pronounced fluctuations of intraocular pressure during small incision phacoemulsification surgery. Suprachoroidal haemorrhage is also found to be limited in phacoemulsification due to the self-sealing wound which allows rapid closure and provides effective tamponade against the developing suprachoroidal haemorrhage [3].

Several risk factors for suprachoroidal haemorrhage complicating cataract surgery have been identified by previous studies which includes both ocular and systemic factors. Statistically significant risk factors included older age, taking at least one cardiovascular medication, peripheral vascular disease, hyperlipidemia, glaucoma, elevated pre-operative intraocular pressure, sub-tenon local anaesthesia, topical local anaesthesia, the lack of orbital compression following local anaesthesia, posterior capsule rupture before suprachoroidal haemorrhage, elective extracapsular cataract extraction and phacoemulsification conversion [4]. Other highly significant risk factors include high myopia, glaucoma and diabetes. There was no significant relationship between suprachoroidal haemorrhage with gender, side of cataract, history of ocular trauma or inflammation and there was no difference in incidence between extracapsular or intracapsular cataract extractions [5]. Results of multiple studies suggest the cause of suprachoroidal surgery during cataract extraction surgery is multifactorial thus good pre-operative assessment and identification of patients who are at risk may help prevent complications or better prepare the surgeon for possible unwanted events.

In this case, though the only risk factor noted preoperatively was older age, there could have been an increase in patient's systemic blood pressure during surgery. Yap et al. have previously shown that there is a significant rise in systolic blood pressure especially in females during topical phacoemulsification [6].

Early recognition of suprachoroidal haemorrhage intraoperatively is very important to ensure immediate measures to salvage the globe. In this unfortunate case, the globe was tense after IOL implantation with subsequent persistent iris prolapse; both are early signs of suprachoroidal haemorrhage. Immediate management should be

closing the wound immediately with nylon 10/0 suture. The role of primary sclerostomies at the time of acute event is controversial. The blood in suprachoroidal space clots rapidly and may not drain through the sclerostomy. Furthermore, the oozing of blood through the sclerostomy would hinder the tamponade effect of increasing intraocular pressure, causing further hypotony and re-bleed. Lakhanpal et al. has concluded in his study that sclerostomies made during acute event are detrimental to eyes [7].

Indications for surgical intervention of suprachoroidal haemorrhage includes persistent flat anterior chamber, lens-cornea touch, central retinal apposition, massive choroidal haemorrhage with severe pain, persistently elevated intraocular pressure, suprachoroidal haemorrhage under macula, extension of haemorrhage into sub-retinal space or vitreous cavity and significant vitreous or retinal incarceration.

Surgical drainage is ideally done after liquefaction of the suprachoroidal haemorrhage (approximately 7-14 d post-surgery). Surgical approach typically involves drainage of the haemorrhage and to re-establish normal intraocular pressure. Another approach is by combination vitreoretinal surgery with a drainage procedure to remove vitreous haemorrhage and to re-establish normal anatomic configuration of the posterior segment. If rhegmatogenous retinal detachment is present, the retinal break is treated with retinopexy (photocoagulation or cryopexy). Internal tamponade with a long acting intraocular gas or silicone oil may be required.

In our case, surgical drainage with pars plana vitrectomy was performed 14 d after the acute event and blood clot has liquefied as confirmed by B scan.

We report this case to highlight that though suprachoroidal haemorrhage is one the most feared and devastating complications in cataract surgery, the prognosis need not be poor if proper preoperative, intraoperative and postoperative management was done. A thorough understanding of suprachoroidal haemorrhage not only helps the surgeon to recognize the complication early, but also to treat it with fairly good results.

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