

Case Report

Favorable outcome after choroidal drainage for postoperative kissing suprachoroidal hemorrhage following trabeculectomy in a high myopic vitrectomised eye



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Abstract

A 39-year-old lady with past history of vitreoretinal surgery for retinal detachment and cataract surgery with Intraocular lens implantation was diagnosed as uncontrolled glaucoma. She had high myopia. She underwent Trabeculectomy and following which she presented with massive suprachoroidal hemorrhage in the first postoperative day with severe loss of vision. This case depicts the risk of suprachoroidal hemorrhage in a high myopic vitrectomised eye following glaucoma filtration surgery. It also demonstrates a favorable outcome following intervention for postoperative Suprachoroidal hemorrhage. At present, there is no evidence in literature of such event in a high myopic Vitrectomised eye following Trabeculectomy.

Keywords: Suprachoroidal hemorrhage, Trabeculectomy, Vitrectomised eye, High myopia

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Introduction

Suprachoroidal hemorrhage is a rare complication following glaucoma filtration surgery and is potentially vision threatening situation.^{1–6} Systemic and ocular risk factors include increased age, coagulation disorders, hypertension, glaucoma, myopia, pseudophakia or aphakia and pseudoexfoliation.³ The incidence of Suprachoroidal hemorrhage after glaucoma surgeries varies from 0.7% to 6.1%. Vaziri et al. have used a nationally pooled database containing data from all 50 states in united states and reported cumulative incidence rate of postoperative Suprachoroidal hemorrhage as 0.6–1.4% after Trabeculectomy and 1.2–2.7% after Tube Shunt procedures.¹ It has also been shown that 0.8% of

vitrectomized eyes developed delayed Suprachoroidal hemorrhage.^{7,8} The outcome of surgical management of massive Suprachoroidal hemorrhage after glaucoma filtration surgeries varies from perception of light to favorable outcome.

We report a case of immediate postoperative kissing Suprachoroidal hemorrhage after Trabeculectomy in a high myopic Vitrectomised eye. This case includes ocular risk factor of high myopia, status post vitrectomy surgery for retinal detachment, pseudophakia and glaucoma which was not reported earlier with favorable outcome. At present, there is no evidence in literature of such event in a high myopic pseudophakic vitrectomised eye following Trabeculectomy.

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Case report

A 39-year-old lady complained of decrease vision in right eye after Trabeculectomy on the first postoperative day. She was high myopic and gave history of undergoing retinal detachment surgery with silicone oil injection in right eye in 2008 followed by Silicone oil removal with scleral buckle removal in 2009. She also underwent peripheral barrage laser photocoagulation in left eye earlier. She underwent Cataract surgery with IOL implantation in right eye in 2011 followed by Yag Capsulotomy. The time difference between the last retinal surgery (Silicone oil removal) and trabeculectomy was 6 years.

On examination on first postoperative day, her visual acuity was Perception of light and inaccurate projection of rays in right eye and 0.3 (+2) (Over the contact lens refraction of $-2.0\text{ D} -0.75\text{ D} \times 5$). Anterior segment examination was unremarkable in left eye except contact lens in place. Right eye showed Quiet conjunctiva, flat bleb, clear cornea, deep

and quiet anterior chamber with silicone oil bubble, dilated pupil and peripheral iridectomy was present. There was no view of the fundus in right eye except retro-IOL Brownish lesion suggestive of choroidals was seen. Left eye showed clear ocular media, attached retina, peripapillary chorioretinal atrophy and peripheral laser marks. B Scan USG showed Kissing choroidal in right eye (Fig. 1 Top). Axial length of left eye was measured as 34.3 mm. Based on the clinical findings, a diagnosis of postoperative Suprachoroidal hemorrhage status post Trabeculectomy in right eye was made.

2 weeks later, B Scan USG of right eye was done which showed liquefaction of suprachoroidal hemorrhage (Fig. 1 Bottom). She underwent Choroidal drainage, removal of Silicone oil bubble from Anterior chamber and Fluid Gas Exchange. During surgery, posterior sclerotomy was made in the highest area of choroidal elevation (Fig. 2A) and supra-choroidal dark colored hemorrhage was drained (Fig. 2B and C). Sclerotomy was sutured with 8-0 vicryl once drainage was found to be adequate. This was done with AC



Fig. 1. B Scan ultrasonography of right eye showing diffuse echogenicity of SCH with apposition of wall suggestive of kissing choroidals (Top) on first postoperative day; bottom shows clearing of the SCH within two weeks.

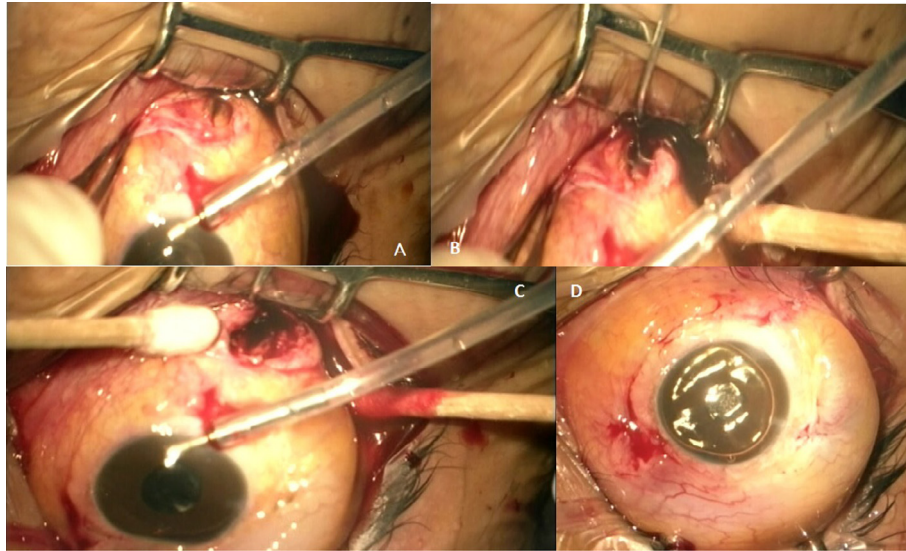


Fig. 2. (A) Shows the sclerotomy for choroidal drainage in the inferonasal quadrant. (B and C) Showing dark colored Suprachoroidal blood; (D) end of the procedure with intraocular gas in the vitreous cavity. Intraocular air can be seen in the anterior chamber.

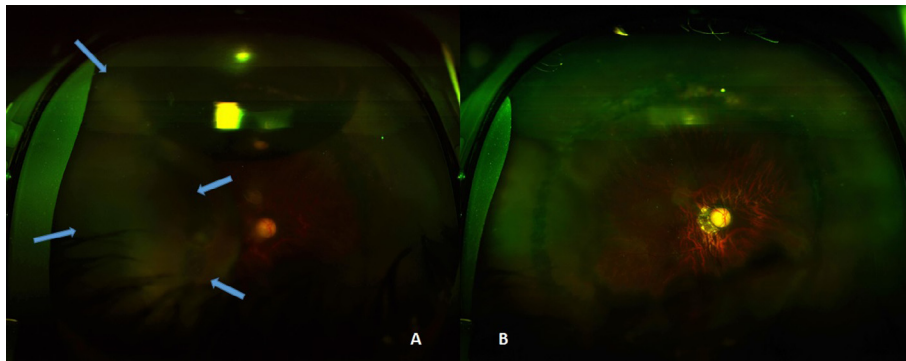


Fig. 3. Ultra-Wide Field Fundus pictures showing (A) intraocular gas, attached retina and temporal residual choroidal detachment (Arrows); (B) showing attached retina and complete resolution of SCH at the end of 1 month.

maintainer in place. Then 3 port 23G trocar cannula was inserted and Fluid Gas exchange with Non-expansile SF₆ was done (Fig. 2). First postoperative day showed very shallow choroidals in the temporal zone which was slightly posterior (Fig. 3A). This gradually resolved over time.

One month after surgery, her visual acuity was 0.16 in right eye. Anterior segment examination showed mild conjunctival congestion with flat bleb and PCIOL was in place with patent PI in right eye. Intraocular pressure was 18 mm Hg on 2 topical antiglaucoma medication. Fundus examination showed attached retina, peripheral laser marks and Myopic fundi in right eye (Fig. 3B). 6 months later, her best corrected visual acuity was 0.4 in right eye and 0.5 in left eye. Her intraocular pressure was 19 mm Hg in right eye. On 12 months follow up, her visual acuity was maintained at 0.4 in right eye and 0.5 in left eye with intraocular pressure of 18 mm Hg in right eye. Retina was remained attached seen at 6 and 12 months.

Discussion

Most often Suprachoroidal hemorrhage (SCH) is associated with unfavorable visual outcome inspite of surgical intervention. Vaziri et al.¹ have shown that postoperative SCH was

almost two times more likely to occur after tube shunt than after Trabeculectomy. This has also been shown by other authors.^{9,10} It is also known that SCH during pars plana vitrectomy has better prognosis than other causes. The cause of SCH is not very clear, however, physical health of the patient, systemic risk factors and ocular risk factors potentially contribute to the occurrence of SCH.

In a retrospective study of 3342 with primary vitrectomy, Ghoraba et al.¹¹ have shown that Suprachoroidal hemorrhage were observed in 4 patients. 2 occurred near the end of vitrectomy and 2 in first postoperative day. 4 patients were myopic of which 2 were more than 7 diopters. Of these, 2 were pseudophakic and 2 were aphakic. All patients at the end of follow up (6–24 months) had vision of more than 20/400. In this series of 4 patients, the risk factors were old age, high myopia, aphakia or pseudophakia, retinal detachment and scleral buckling.

Delayed Suprachoroidal hemorrhage can also occur after pars plana vitrectomy. Reibaldi et al.⁷ in their 5 years results of retrospective multicenter cohort study have shown 0.8% incidence of Vitrectomised eye. They included all patient who underwent primary vitrectomy over 5 years that developed Suprachoroidal hemorrhage within 48 h of end of vitrectomy. 39 patients developed Suprachoroidal

hemorrhages. Multivariable logistic regression analysis showed that significant risk factors included advancing age (OR 2.22; $P < 0.001$), longer axial length (OR 2.57; $P < 0.001$), presence of Rhegmatogenous retinal detachment (OR 3.27; $P = 0.005$), extensive intraoperative photocoagulation (OR 4.94; $P < 0.001$) and emesis postoperatively (OR 24.39; $P < 0.001$).

Hacaoglu et al.⁸ have also shown the incidence and risk factors contributing to intraoperative and postoperative complications of eyes with previous pars plana vitrectomy (PPV) undergoing phacoemulsification and intraocular lens (IOL) implantation for cataract. They observed intraoperative and postoperative complications in 513 eyes of 485 patients. The median interval from PPV to cataract surgery was 15.7 ± 19.5 months. Following intraoperative complications were observed: posterior capsular plaque (9.7%), posterior capsule rupture (5.5%), loss of nuclear material into vitreous (3.3%) and zonular dialysis (2.3%). The main common postoperative complication was posterior capsule opacification (33.3%). Higher rates of postoperative IOL decentration and dislocation were also observed. The study also comments on sutureless phacoemulsification in Vitrectomised eyes was not associated with a higher incidence of Endophthalmitis, Suprachoroidal effusion or Suprachoroidal hemorrhage.

The reported incidence rates of Suprachoroidal hemorrhage after glaucoma filtration procedure vary in various studies been reported.¹ Vaziri et al.¹ reviewed 27,440 glaucoma surgical procedures and has found that 3 month cumulative incidence rate of SCH was 0.6–1.4% after trabeculectomy and 1.2–2.7% after tube shunt. Tuli et al.¹³ reviewed postoperative Suprachoroidal hemorrhage in 2285 patients who underwent glaucoma filtration procedures over 4 years. 66 patients (2.9%) were identified to have developed delayed SCH. While comparing these 66 eyes with those who did not have Suprachoroidal choroidal undergoing the glaucoma filtration procedures, authors evaluated the incidence and risk factors. Suprachoroidal hemorrhage developed in 9/615 (1.5%) trabeculectomies without antimetabolites, 30/1248 (2.4%) trabeculectomies with antimetabolites, 2/72 (2.8%) valve tube shunt implantations and 25/350 (7.1%) non-valved tube shunt implantations. The increased incidence of SCH after tube shunts compared with trabeculectomy associated delayed SCH was significant ($P < 0.0001$). The risk factors included white race ($P = 0.012$), anticoagulation ($P = 0.034$), severe postoperative hypotony ($P = 0.033$) and aphakia/anterior chamber intraocular lens ($P = 0.002$). The fluorouracil filtering surgery study group have shown that the risk of SCH was strongly associated with preoperative intraocular pressure.¹⁴

Cases of spontaneous resolution of SCH with good visual outcome was also reported.¹⁵ Massive SCH requires timely and appropriate surgical intervention to achieve favorable outcome and avoid persistent hypotony.¹⁶ The most effective surgical intervention is drainage of SCH and reformation of anterior chamber. Frenkel et al.¹⁶ have recommended several preventive measures, preoperative and intraoperative, for decreasing the incidence of SCH following filtration surgery. It has also been shown the value of intravitreal gas injection with ahmed valve implantation in the prevention of SCH in aphakic, aniridic and Vitrectomised glaucomatous eyes in a pilot study by El Said et al.¹⁷ In their series of 5 patients with traumatic secondary glaucoma. Vitrectomy

was performed in all patients for vitreous hemorrhage. Ahmed valve implantation and complete filling of vitreous cavity with non-expansile C3F8 (12%) was performed 2 ± 0 . 2 months after vitrectomy. In spite of the risk factors like aniridia, aphakia and vitrectomized eyes, no patient developed postoperative hypotony or SCH. Additionally maintaining the intraocular pressure during filtration surgery probably is the key to prevention of SCH in eyes with risk factors like high myopia, Vitrectomised eye, old age, aphakia or pseudophakia, high preoperative intraocular pressure and other systemic factors.

In contrast to reported incidence of SCH either during vitrectomy in high myopic eyes or filtration procedure performed in high risk eyes with intact vitreous,^{1–17} the present case underwent filtration procedure 6 years after the vitreous surgery for retinal reattachment surgery. The potential risk factors were presence of glaucoma, high myopia contributing to the thin sclera and consequent less support to choroidal vessels, pseudophakia and Vitrectomised eye for retinal reattachment surgery. Possibly absence of vitreous contributed to further hypotony during Trabeculectomy. Huang et al.¹² have reported 3 cases of SCH in Vitrectomised eyes and achieved good result without surgical intervention. Most often visual outcome even surgical intervention for SCH is relatively poor especially if massive.^{1–6,9}

In this case, surgical intervention was done within 2 weeks after liquefaction of Suprachoroidal blood and maintained intraocular pressure with intraocular gas in the vitreous cavity at the end of choroidal drainage showed a very favorable anatomical and functional outcome. Such SCH with favorable outcome following Trabeculectomy in a high myopic Vitrectomised eye has rarely been reported. This case highlights that performing glaucoma filtration surgery in a high myopic Vitrectomised pseudophakic eye has potential risk to develop SCH.

Conflict of interest

The authors declared that there is no conflict of interest.

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