

Delayed suprachoroidal hemorrhage after cataract surgery

A case report and brief review of literature

Wei Song, MD, PhD, Yongjie Zhang, MM, Hongming Chen, BM, Cheng Du, BM*

Abstract

Rationale: To report a case of 44-year-old man with delayed suprachoroidal hemorrhage (DSCH) 2 days after cataract surgery.

Patient concerns: The patient developed sudden onset of ocular pain and reduction of visual acuity on his left eye 2 days after receiving conventional cataract operation.

Diagnoses: The ocular conditions were accessed by best-corrected visual acuity, intraocular pressure, slit lamp examination, fundus photography, and B-scan ultrasound. Fundus color photograph revealed a raised choroidal mass and extensive subretinal hemorrhage. B-scan ultrasound also confirmed features of choroidal hemorrhage. Thus, he was diagnosed as DSCH.

Interventions: He received conservative treatments for 1 month.

Outcomes: The involved eye recovered well.

Lessons: DSCH is a rare but dreaded complication occurring in intraocular operations. Conservative managements or surgeries may be beneficial for the recovery of visual acuity.

Abbreviations: BCVA = best-corrected visual acuity, DSCH = delayed suprachoroidal hemorrhage, IOP = intraocular pressure, PPV = pars plana vitrectomy, SCH = suprachoroidal hemorrhage.

Keywords: cataract surgery, delayed suprachoroidal hemorrhage, steroid

1. Introduction

Suprachoroidal hemorrhage (SCH) is a rare but a vision-threatening complication in intraocular surgeries, including trabeculectomy, cataract surgery, pars plana vitrectomy (PPV), and keratoplasty, and so on.^[1–3] SCH is caused by rupture of posterior ciliary arteries or vortex veins and characterized by blood in suprachoroidal space.^[4] It is thought to be a result of acute hypotony or large fluctuation of intraocular pressure (IOP) during surgeries.^[5] There are 2 types of SCH, the 1 of which

occurs during surgery is termed as “acute expulsive SCH,” and the other develops hours or days postoperatively is “delayed SCH (DSCH).”^[6,7]

DSCH is an ocular emergency condition characterized by sudden onset of severe eye ocular pain, sharp reduction of visual acuity, development of shallow anterior chamber, and elevation of IOP.^[8] As reported, most of DSCH occurred after antiglaucoma surgeries,^[8–11] with the incidence varies from 1.6% to 6.1% by different the surgery types and diagnostic criteria.^[12,13] DSCH is also a rare but serious complication of PPV^[3] and keratoplasty.^[14,15] However, only a very few cases were reported after cataract surgery^[1,16] with no prevalence currently available. In presented case study, a high myopia patient with DSCH 2 days after cataract surgery was reported. We also provided a brief literature review on this ocular condition.

2. Case presentation

The study was approved by the Institutional Review Board for the Protection of Human Subjects of Jiaying Traditional Chinese Medicine Hospital and adhered to the tenets of the Declaration of Helsinki. Informed consent was obtained from the patient.

A 44-year-old man with visually significant cataract received a phacoemulsification with in the bag intraocular lens placement on his left eye on July 10, 2017. The patient had a history of high myopia with axial length of 35.24 mm. The postoperative best-corrected visual acuity (BCVA) was 0.60 (LogMAR) and the IOP was 3.1 mm Hg on the 1st day of follow-up. The slit lamp

Editor: N/A.

WS and YZ contributed equally to the present case study and should be co-first authors.

The authors have no conflicts of interest to disclose.

Department of Ophthalmology, Jiaying Traditional Chinese Medicine Hospital Affiliated to Zhejiang Chinese Medical University, Jiaying, China.

* Correspondence: Cheng Du, Department of Ophthalmology, Jiaying Traditional Chinese Medicine Hospital Affiliated to Zhejiang Chinese Medical University, Zhongshan East Road 1501, Nanhui District, Jiaying 314000, Zhejiang Province, China (e-mail: zjxducheng@163.com).

Copyright © 2018 the Author(s). Published by Wolters Kluwer Health, Inc. This is an open access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 (CCBY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

Medicine (2018) 97:2(e8697)

Received: 5 October 2017 / Received in final form: 26 October 2017 / Accepted: 27 October 2017

<http://dx.doi.org/10.1097/MD.0000000000008697>

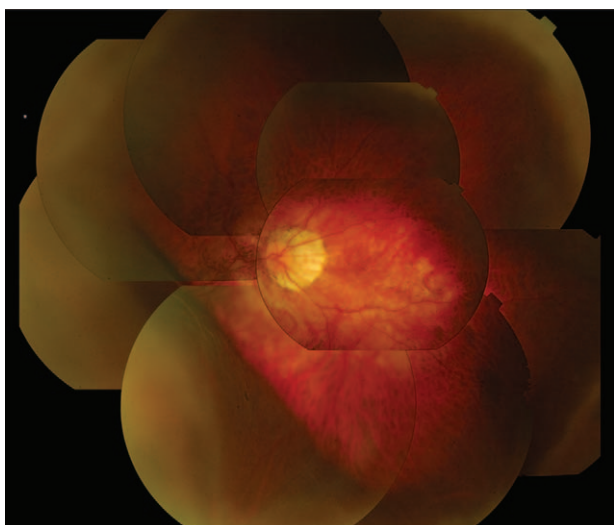


Figure 1. Fundus color photography. Fundus color photography revealed a raised choroidal mass and extensive subretinal hemorrhage, which encompassed almost 360°.

examination indicated shallow anterior chamber with mild wound leakage. The corneal incision was sutured with 10 to 0 nylon. The BCVA of the 2nd day follow-up improved to 0.40 (LogMAR) and the IOP raised to 12.3 mm Hg. Slit lamp revealed no leakage from the incision.

However, the patient developed sudden onset of eye pain and acute reduction of visual acuity on the 3rd day postsurgery. The BCVA decreased to 1.00 (LogMAR), whereas the IOP jumped to 38.0 mm Hg. Slit lamp examination showed a moderate corneal edema and a shallow anterior chamber. Fundus color photography showed a typical peripapillary and chorioretinal atrophy. Notably, a choroidal mass and extensive subretinal hemorrhage was found, which encompassed almost 360° (Fig. 1). B-scan confirmed the choroidal hemorrhage on this eye (Fig. 2A). The patient was then diagnosed with DSCH.

Intravenous injection of 20% mannitol (250 mL) was given to reduce the IOP. He also received systemic (dexamethasone, 15 mg intravenously daily for 5 days, followed by 10 mg daily for

5 days, and 5 mg daily for another 5 days) and topical corticosteroids (tobramycin/dexamethasone, Tobradex, Novartis, Switzerland). Other treatments included 1% atropine eye drop twice a day and brinzolamide eye drop combined with brimonidine tartrate eye drop 3 times a day. He was closely followed up daily with routine BCVA and IOP measurements. Within the next 2 weeks, there was a gradual reduction in the anterior inflammation. By the meantime, the eye pain on his left eye gradually relieved daily. At the most recent visit (1 month after surgery on August 10, 2017), his BCVA improved to 0.50 (LogMAR) while the IOP was also stabilized at 15.5 mm Hg. B-scan confirmed the hemorrhage in the suprachoroidal space was completely absorbed (Fig. 2B).

3. Discussion

DSCH shared similar pathogenic mechanisms with acute expulsive SCH, but the risk factors of them are somehow different. Studies have been performed in glaucoma surgeries and PPV, trying to determine the risk factors. In glaucoma surgeries, low postoperative IOP, aphakia, hypertension, and anticoagulation increased the incidence of DSCH.^[9] Old age, longer axial length, presence of rhegmatogenous retinal detachment, extensive intraoperative photocoagulation, and emesis postoperatively are closely related to the development of DSCH in PPV.^[3] In the current case, the patient has a history of high myopia that might contribute to the occurrence of DSCH. In addition, low postoperative IOP resulted from wound leaking may be also relevant.

Therapies for DSCH include conservative managements and surgeries. Sclerotomy is widely used to drain the blood from suprachoroidal space for such patients.^[1,17] Sclerotomy combined with vitrectomy is also an option in some cases.^[15,16] It is usually recommended to proceed with drainage within 1 to 2 weeks after diagnosis to allow blood liquefaction.^[18] Pakravan et al^[19] reported that surgical drainage of SCH immediately after diagnosis might be an alternative approach with a better visual outcome. Conservative management using systemic steroids together with topical application of intensive steroids is also beneficial for visual acuity improvement.^[20,21] In the present study, the systemic and topical steroids instead of SCH surgical drainage were administrated for 2 weeks and the BCVA got recovered.

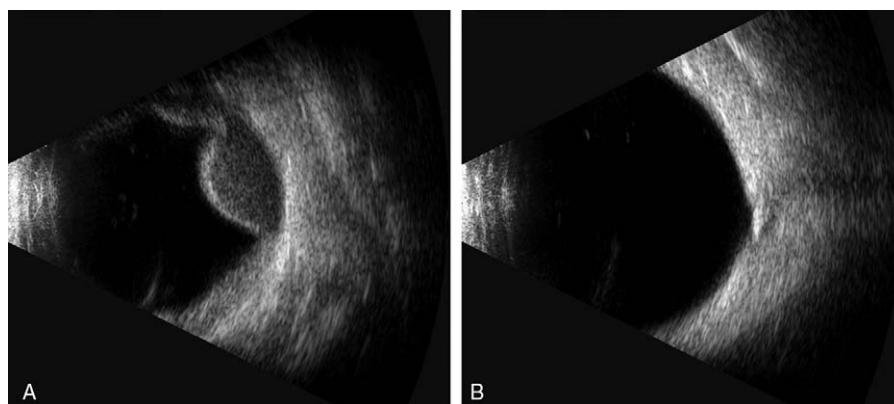


Figure 2. B-scan (A) The 2nd day postsurgery, the B-scan ultrasound indicated the features of choroidal hemorrhage. (B) After 1 month of treatment, the B-scan confirmed complete resolution of SCH. SCH = suprachoroidal hemorrhage.

References

- [1] Ghorayeb G, Khan A, Godley BF. Delayed suprachoroidal hemorrhage after cataract surgery. *Retin Cases Brief Rep* 2012;6:390–2.
- [2] Duke R, Ikpe A. Primary Congenital Glaucoma with delayed suprachoroidal hemorrhage following combined trabeculectomy and 5-fluorouracil. *Case Rep Ophthalmol Med* 2015;2015:163859.
- [3] Reibaldi M, Longo A, Romano MR, et al. Delayed suprachoroidal hemorrhage after pars plana vitrectomy: five-year results of a retrospective multicenter cohort study. *Am J Ophthalmol* 2015;160:1235.e1–42.e1.
- [4] Stein JD, Grossman DS, Mundy KM, et al. Severe adverse events after cataract surgery among medicare beneficiaries. *Ophthalmology* 2011;118:1716–23.
- [5] Speaker MG, Guerriero PN, Met JA, et al. A case-control study of risk factors for intraoperative suprachoroidal expulsive hemorrhage. *Ophthalmology* 1991;98:202–9.
- [6] Gressel MG, Parrish RK 2nd, Heuer DK. Delayed nonexpulsive suprachoroidal hemorrhage. *Arch Ophthalmol* 1984;102:1757–60.
- [7] Chu TG, Green RL. Suprachoroidal hemorrhage. *Surv Ophthalmol* 1999;43:471–86.
- [8] Tuli SS, WuDunn D, Ciulla TA, et al. Delayed suprachoroidal hemorrhage after glaucoma filtration procedures. *Ophthalmology* 2001;108:1808–11.
- [9] Jeganathan VS, Ghosh S, Ruddle JB, et al. Risk factors for delayed suprachoroidal haemorrhage following glaucoma surgery. *Br J Ophthalmol* 2008;92:1393–6.
- [10] Canning CR, Lavin M, McCartney AC, et al. Delayed suprachoroidal haemorrhage after glaucoma operations. *Eye (Lond)* 1989;3:327–31.
- [11] Frenkel RE, Shin DH. Prevention and management of delayed suprachoroidal hemorrhage after filtration surgery. *Arch Ophthalmol* 1986;104:1459–63.
- [12] Givens K, Shields MB. Suprachoroidal hemorrhage after glaucoma filtering surgery. *Am J Ophthalmol* 1987;103:689–94.
- [13] Paysse E, Lee PP, Lloyd MA, et al. Suprachoroidal hemorrhage after Molteno implantation. *J Glaucoma* 1996;5:170–5.
- [14] Koenig SB. Delayed massive suprachoroidal hemorrhage after descemet stripping automated endothelial keratoplasty. *Cornea* 2011;30:818–9.
- [15] Qian CX, Harissi-Dagher M. Delayed suprachoroidal haemorrhage following Boston Keratoprosthesis in two aniridic patients. *Br J Ophthalmol* 2011;95:436–7.
- [16] Jin W, Xing Y, Xu Y, et al. Management of delayed suprachoroidal haemorrhage after intraocular surgery and trauma. *Graefes Arch Clin Exp* 2014;252:1189–93.
- [17] Syam PP, Hussain B, Anand N. Delayed suprachoroidal hemorrhage after needle revision of trabeculectomy bleb in a patient with hairy cell leukemia. *Am J Ophthalmol* 2003;136:1155–7.
- [18] Chu TG, Cano MR, Green RL, et al. Massive suprachoroidal hemorrhage with central retinal apposition. A clinical and echographic study. *Arch Ophthalmol* 1991;109:1575–81.
- [19] Pakravan M, Yazdani S, Afroozifar M, et al. An alternative approach for management of delayed suprachoroidal hemorrhage after glaucoma procedures. *J Glaucoma* 2014;23:37–40.
- [20] Rao A. Visual restoration after suprachoroidal haemorrhage in glaucoma surgery. *BMJ Case Rep* 2014;2014: bcr2013203150.
- [21] Senthil S, Gupta S, Balijepalli P. Restoration of pretrabeculectomy visual acuity and a functioning filtering bleb in an eye with delayed suprachoroidal haemorrhage following trabeculectomy. *BMJ Case Rep* 2015;2015: bcr2015211846.