A Surgical Nightmare: Suprachoroidal Hemorrhage

This rare complication was suspected despite no obvious obscuration of the red reflex.

BY KJELL U. SANDVIG, MD, PhD; RALF ØVERGAARD, MD; JON K. SLETTEDAL, MD, PhD; AND PANAGIOTIS SALVANOS, MD, FEBOPHTH

This case report describes a rare complication of cataract surgery in a patient with an interesting and complex history. This 82-year-old woman had previously been treated for bilateral ocular hypertension with argon laser trabeculoplasty in 2002 and selective laser trabeculoplasty with the Selecta laser (Lumenis) in 2010. These procedures lowered her intraocular pressure (IOP) to about 24 mm Hg in both eyes.

The patient’s medical history included treatment for systemic hypertension, and she was taking aspirin due to a cerebral infarction some years earlier. She was skeptical about all topical and systemic medications, partly due to widespread intolerance to many of them.

The patient had developed bilateral nuclear brunescent cataracts and had scheduled and canceled surgery multiple times due to a variety of reasons. The most recent cancellation was made because of her uncontrolled systemic hypertension. After her blood pressure was controlled under the care of her general practitioner, the patient was prepared for cataract extraction.

Her preoperative BCVA was 0.75 (Snellen decimal) in the right eye and 0.60 in the left. The operation was performed under topical anesthesia through a 2.2-mm main limbal incision and two sideport incisions. After Healon GV (Abbott Medical Optics, Inc.) was instilled, a continuous curvilinear capsulorrhesis was created. As expected, the nucleus was hard, and it was emulsified using the stop-and-chop technique.

Relatively shortly after the start of the operation, the patient began complaining of ocular discomfort and pain; this was initially attributed to anxiety, as the patient continued to experience pain without any instruments touching her eye.

Because of the hard nucleus fragments, Viscoat (Alcon) was instilled to protect the posterior capsule before aspiration of the last fragments. Immediately thereafter, without any surgical maneuver or ocular contact, the patient experienced acute pain in the operated eye, followed by a loss of vision in the operated eye.

Figure 1. Fundus image with fibrosis along the inferior temporal arcade and a healthy optic nerve head.
eye, and a capsular tear appeared, followed by immediate vitreous prolapse.

An anterior vitrectomy was planned, but it had to be canceled because the eye became hard. Suprachoroidal hemorrhage was suspected, even though there was no obvious obscuration of the red reflex. The operation was completed without suturing the corneal incisions, as the wounds showed no sign of leakage. She was given acetazolamide orally and transferred to the vitreoretinal unit at Oslo University Hospital.

At hospital admission, the patient’s IOP was under control with topical medication and acetazolamide tablets; however, touching or so-called kissing choroidal effusions from opposite sides of the eye were seen on ophthalmoscopy. The kissing effect had significantly decreased by the next day, and surgery was deferred until further liquefaction of the suprachoroidal blood had occurred. The patient’s IOP was closely monitored during this period, and several adjustments of the local regimen were required.

Pars plana vitrectomy (PPV) combined with removal of the lens fragments and use of perfluorocarbon liquid to help drain suprachoroidal blood was performed under general anesthesia 1 week later. The early postoperative course was complicated with hyphema and blood in the vitreous cavity coming from the suprachoroidal space, as well as significantly increased IOP (50–60 mm Hg) from blockage of the trabecular meshwork by erythrocytes. The choroidal detachment was no longer obvious on ultrasound B-scan examination. The IOP-lowering medication had to be increased to control the pressure.

The IOP did not normalize, and the patient was therefore reoperated 2 weeks later with irrigation of the anterior chamber and new PPV with removal of the vitreous hemorrhage. The postoperative course was uncomplicated, and she was discharged from the department of ophthalmology a couple days later. Follow-up continued on an outpatient basis.

At 3 months, the patient’s anterior chamber was quiet, and her pupil was round and reactive to light. The retina was attached with no sign of peripheral breaks, and a pucker involving the macula and inferior temporal arcade was seen on ophthalmoscopy. The patient refused to undergo further operations to remove the epiretinal membrane. The patient’s end result, 9 months after cataract surgery, is a BCVA of 0.4 with aphakic correction. Her IOP is well controlled to 21 mm Hg with pilocarpine, as other more modern medications have been stopped due to intolerance and/or mistrust by the patient. For the moment, she continues to decline further surgery.

**DISCUSSION**

Suprachoroidal bleeding is a rare complication of cataract surgery. In a review, Chu et al reported incidences of 0.06% to 0.20%. The case described in this article was the second time the surgeon (Dr. Sandvig) had encountered suprachoroidal hemorrhage in his career of almost 15,000 cataract surgeries. Dr. Sandvig encountered his first suprachoroidal hemorrhage in the 1980s, also in an elderly woman with known glaucoma. Thus, both cases were consistent with reports in the literature stating that risk factors for suprachoroidal hemorrhage include advanced age, atherosclerosis, taking at least one cardiovascular medication, and elevated IOP.

This complication is thought to be caused by sudden surgical decompression resulting in transient hypotony, which increases choroidal transmural venous pressure followed by serous effusion within the suprachoroidal space. As this accumulates, the short and long posterior ciliary vessels that traverse the suprachoroidal space become stretched. A suprachoroidal hemorrhage occurs when these vessels rupture from excessive stretching.

As always, when complications occur, it is normal to ask if they could have been avoided. In this case, the patient’s blood pressure was confirmed to be well regulated by her general practitioner a few days prior to surgery. However, there could have been an increase during surgery. Yap et al have previously shown that there can be a significant rise in systolic blood pressure, especially during phacoemulsification performed under local anesthesia.

Should perhaps general anesthesia be recommended if or when this patient’s other eye eventually needs surgery? Should we have stopped her treatment with aspirin preoperatively? Probably not in this case, as there was a strong indication for its use (previous cere-
bral infarction), and the risk of perioperative bleeding is extremely low. Ling et al\(^1\) found in a case-control study that aspirin was not a significant risk factor for suprachoroidal hemorrhage.

Was there an indication for performing a primary sclerotomy? The role of this technique is controversial because it can prolong bleeding, a blood clot may be difficult to drain through the sclerotomy, and further complications can occur. With modern small-incision cataract surgery, the risk for expulsion of intraocular contents is low, and it is far easier to end the primary operation and postpone further surgery than with previous techniques. This case also shows that the prognosis can be relatively good with a more conservative approach, as the patient still has useful vision and potential for improvement. One more lesson learned from this case is this: Suspect the possibility of suprachoroidal bleeding if the patient complains of pain when you are not touching the eye.

Kjell U. Sandvig, MD, PhD, practices at Oslo Eye Center in Norway. Dr. Sandvig states that he is a paid lecturer for Alcon, but has no financial interest in the products or companies mentioned. He is a member of the CRST Europe Editorial Board. Dr. Sandvig may be reached at tel: +47 22 93 12 60; fax: +47 22 93 12 70; or e-mail: kusandvig@gmail.com.

Ralf Øvergaard, MD, is a Consultant Ophthalmologist at the Vitreoretinal Unit at Oslo University Hospital. Dr. Øvergaard states that he has no financial interest in the products or companies mentioned.

Jon K. Slettedal, MD, PhD, is a Consultant Ophthalmologist at the Anterior Segment Unit at Oslo University Hospital and Associate Professor at the University of Oslo. Dr. Slettedal states that he has no financial interest in the products or companies mentioned.

Panagiotis Salvanos, MD, FEBOphth, is a Consultant Ophthalmologist at the Vitreoretinal Unit at Oslo University Hospital. Dr. Salvanos states that he has no financial interest in the products or companies mentioned.