

Suprachoroidal hemorrhage during phacoemulsification surgery in two cases with recent COVID-19

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May 3, 2022

Abstract

To report two cases of suprachoroidal hemorrhage (SCH) during otherwise uncomplicated phacoemulsification, in whom COVID-19 was documented with PCR about one month before the surgery.

INTRODUCTION

Suprachoroidal hemorrhage (SCH) is a rare complication of intraocular surgery that could be devastating and associated with permanent visual loss in some cases. The reported incidence of SCH during cataract surgery is 0.06-0.2%, usually occurred in patients with systemic or ocular risk factors ^[1]. Herein, we present two cases with a recent history of COVID-19 who developed SCH during uncomplicated phacoemulsification surgery.

CASE PRESENTATION

The first case was a 60-year-old man who underwent planned phacoemulsification cataract surgery in the left eye. His medical history was unremarkable. The patient had a documented positive polymerase-chain-reaction (PCR) for COVID-19 five weeks before the operation when he developed fever, cough, and body pain for a couple of weeks. The baseline characteristics of the patient are summarized in Table 1.

The operation was uneventful till the irrigation/aspiration phase, when the anterior chamber suddenly became flattened, the posterior capsule attached to the cornea, and the iris prolapsed from the main incision. Intraoperative indirect ophthalmoscopy revealed temporal choroidal hemorrhage without the involvement of the posterior pole. The main corneal incision was sutured, and IOL insertion was postponed after the complete resorption of choroidal hemorrhage. The SCH was resolved within four weeks without any significant sequel (Figure 1). The final visual acuity returned to 20/20.

The second case was a 71-year-old female (Table 1) who underwent planned phacoemulsification surgery in her right eye. She did not have any history of systemic diseases except for controlled stage-1 hypertension. The patient had a history of COVID-19 infection confirmed by positive PCR four weeks before the operation.

This patient also developed limited SCH in the inferior retina during the irrigation and aspiration phase. However, we could insert the IOL in the same theater. SCH was almost resorbed in three weeks. The final BCVA was 20/25.

DISCUSSION

Covid-19 exacerbation is partly attributed to a cytokine storm initiated by increasing levels of several pro-inflammatory cytokines^[2]. Meanwhile, significant endothelial cell injury increases vascular permeability and leakage^[3,4]. Although the lungs are the primary target for overwhelming inflammation and damage, several studies reported multiorgan failure due to systemic vascular involvement^[2].

The choroid is the most densely vascularized tissue in the body. Angiotensin-converting enzyme2 is a well-documented receptor for SARS-CoV-2 and is highly expressed in ocular vascular endothelial cells^[5]. So in principle, choroidal and retinal vessels could be affected by COVID19. In fact, recent studies reported ischemic retinal changes in hospitalized patients with COVID19^[5,6]. Although such involvements for choroidal vessels are not clinically supported so far, subclinical injuries from cytokine storm to these vessels are quite possible and might be a risk factor for SCH in patients undergoing intraocular surgery during the recovery phase of COVID19. This assumption is partly supported by the lack of known systemic or ocular risk factors of SCH in our patients and also their recent evident infection with COVID-19. In the same setting, we had a rate of approximately 0.03% for intraoperative SCH during phacoemulsification in the pre-COVID-19 era (all in patients with known risk factors), further increasing our suspicion of COVID-19 as a predisposing factor for SCH in patients mentioned above.

Recent COVID-19 infection might be a risk factor for SCH in patients undergoing cataract surgery. Although the two reported cases could not verify any cause-and-effect relationship, we should be vigilant about the possible association. Since COVID-19 has the potential to make many known and unknown changes to the human body, it is wise to postpone elective surgeries for several months after infection to let the body completely recovers itself.

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Figure Legends

Figure 1 *Left*, the B-scan ocular ultrasound image of case 1 obtained two days after the surgery indicating the area of the suprachoroidal hemorrhage (between arrows). *Right*, EDI-OCT image of the same patient took three weeks after the operation, showing normal macula with a subfoveal choroidal thickening.

