

Anterior-segment optical coherence tomography findings of endothelial precipitates secondary to silicone oil emulsification

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DESCRIPTION

The use of silicone oil (SO) as a surgical tamponade has become a standard technique for the treatment of several retinal pathologies. However, it can get emulsified leading to multiple postoperative complications.

A patient in his 50s presented with pain and redness for the last 1 week in his left eye. He did not have any systemic illness. He had undergone 23-gauge pars plana vitrectomy with 1000 centistokes SO tamponade for rhegmatogenous retinal detachment 3 months ago. His best-corrected visual acuity (BCVA) was 20/20 in the right eye and 20/80 in the left eye. His intraocular pressures (IOP) were 16 and 38 mm Hg, respectively. Right eye examination was normal. Left eye anterior segment examination showed conjunctival congestion, multiple large pigmented endothelial precipitates scattered throughout the corneal endothelium, a hyperoleon and a posterior-chamber intraocular lens (figure 1A,B). There were no posterior synechiae. Posterior segment examination showed an attached retina with multiple emulsified SO droplets lying over the retinal surface. Anterior-segment optical coherence tomography (AS-OCT) showed multiple hyperreflective large polygonal and fluffy lesions on the corneal endothelium (figure 2A).

The patient underwent an immediate SO removal with anterior chamber wash. After the surgery; his BCVA remained stable at 20/80, IOP reduced to 14 mm Hg, the endothelial precipitates resolved completely and the retina remained attached (figures 1C and 2B).

SO is made up of multiple units of siloxane. SO emulsification is described as the breakdown of the integrity of the large SO bubble into smaller bubbles.¹ It is facilitated by the presence of

surfactants. There was no evidence of presence of intrinsic surfactants like inflammation or haemorrhage. However, the presence of extrinsic surfactants in form of sterilisation detergents or chemicals present on the surgical instruments and tubing cannot be completely ruled out. The emulsified SO droplets may rarely get deposited on the corneal endothelium.^{2,3} These emulsified SO droplets may adsorb iris pigment granules and transform into pigmented globules, which may mimic granulomatous keratic precipitates (KPs).²

AS-OCT has been used to examine the morphology of KPs.^{4,5} Hashida *et al* described the characteristics of KPs found in different types of uveitis secondary to various infectious, non-infectious and neoplastic causes. They found that the large, pigmented KPs seen secondary to Varicella-zoster virus (VZV) uveitis had quadrilateral and elliptical patterns on AS-OCT.⁴ We found that the AS-OCT morphology of the endothelial precipitates secondary to SO emulsification in our case was similar to the KPs described by Hashida *et al* in VZV uveitis.

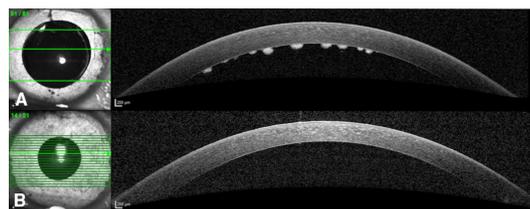


Figure 2 Anterior segment optical coherence tomography at (A) presentation showing multiple hyperreflective large polygonal lesions on the corneal endothelium and (B) after silicone oil removal showing no evidence of any lesion.

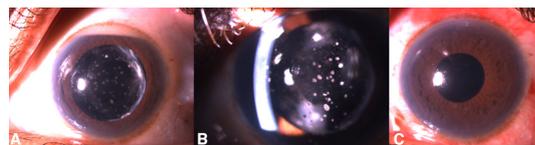


Figure 1 Slit lamp images of the left eye of the patient. (A) Diffuse illumination at presentation showing hyperoleon, (B) retroillumination at presentation showing large pigmented endothelial precipitates scattered throughout the corneal endothelium and (C) diffuse illumination after silicone oil removal showing the complete resolution of the endothelial precipitates.

Patient's perspective

I underwent a vitreoretinal surgery with silicone oil implantation for retinal detachment. However, I did not come for regular follow-up visits. As a result, a rare postoperative complication of silicone oil could not be timely identified. I had to suffer from pain and redness for few days. Also, few more imaging tests had to be performed to exclude other diseases. I recovered well after the oil was removed from the eye.



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Learning points

- ▶ Emulsified silicone oil bubbles can get intermingled with iris pigments and get deposited on the corneal endothelium, mimicking granulomatous keratic precipitates.
- ▶ A thorough history taking and examination can avoid multiple unnecessary investigations.
- ▶ The deposited emulsified silicone oil bubbles can be completely removed with the help of a thorough anterior chamber wash.
- ▶ Anterior-segment optical coherence tomography has been used to study the morphology of the keratic precipitates.

Emulsified SO intermingled with iris pigments can rarely get deposited on the corneal endothelium and mimic granulomatous KPs. Redness and pain, in addition, may point towards a uveitic aetiology. However, larger size, glistening reflex, diffuse distribution, absence of anterior chamber reaction, history of recent vitreoretinal surgery and presence of hyperoleon help distinguish endothelial precipitates secondary to SO emulsification from granulomatous KPs. The differentiation is important to avoid unnecessary uveitic workup.

To the best of our knowledge, this is the first report describing the AS-OCT findings of the endothelial precipitates secondary to SO emulsification.

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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