



# Large, star-shaped retinal tear associated with orbital cosmetic filler

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## ABSTRACT

**Purpose:** Presentation of a unique case of large, star-shaped retinal tear associated with orbital cosmetic filler injection.

**Observation:** A 55-year-old healthy female presented to emergency department with sudden onset of blurred vision on her left eye occurred after an orbital cosmetic filler injection containing hyaluronic acid (HA) performed by an aesthetic nurse. On fundus examination, the left eye showed a mild – moderate, unusual appearance vitreous haze and a large, star-shaped retinal tear temporal to macula. Optical coherence tomography (OCT) examination demonstrated a normal foveal contour without any structural damage on the retinal layers. Vitrectomy, endolaser and silicon oil tamponade were performed. Visual acuity was maintained at 6/7.5 following silicon oil removal at 6 weeks after the initial surgery.

**Conclusions and Importance:** In this particular case, immediate vitrectomy is key to avoid further complications such as retinal toxicity and detachment and to maintain optimal visual acuity. Importantly, facial cosmetic filler procedure should be performed by an adequately trained individual to avoid such complications.

## 1. Introduction

Orbital cosmetic filler has received increasing attention in the last few years due to its potential ophthalmic complications, which are mainly related to arterial embolism causing permanent visual loss.<sup>1–3</sup> However, ophthalmic complication associated with cosmetic filler procedure has never been reported.

## 2. Case report

A 55-year-old healthy female presented to emergency department with sudden onset of blurred vision on her left eye. Symptoms of decreasing vision occurred after she had an orbital cosmetic filler containing hyaluronic acid (HA) two days prior to her visit performed by an aesthetic nurse. She denied any floaters, flashes, or shadowing on her vision. On the examination, right visual acuity (VA) was 6/24 improving with pinhole to 6/9 whereas left VA was 4/60, improving with pinhole to 6/60. Intraocular pressure (IOP) was 14 and 11 mmHg for the right and left eye respectively. The anterior segment of both eyes and fundus examination of the right eye were normal. Fundus examination of the left eye showed a mild – moderate, unusual appearance vitreous haze

and a large, star-shaped retinal tear temporal to macula (Fig. 1). Optical coherence tomography (OCT) examination demonstrated a normal foveal contour without any structural damage on the retinal layers.

We performed 25 gauge, pars plana vitrectomy within 48 hours and found a significant amount of jelly-like material in the vitreous and at sub-retina adjacent to the retinal tear. There was also an evidence of small, round, needle-size full-thickness scleral laceration in the middle of the tear. Routine vitrectomy and 360-degree peripheral vitreous trim was done under wide viewing lens, whereas removal of sub-retinal jelly-like material was performed more meticulously using soft-tip cannula under high magnification viewing lens. We treated the tear with laser during fluid air exchange and filled the eye with 1300 silicon oil tamponade at the end of the surgery (Fig. 2 and Supplemental video).

We left the silicon oil for 5 weeks and removed the silicon oil at week 6 from the initial surgery. At one week following the silicon oil removal, left visual acuity was 6/12, further improving with pinhole to 6/7.5. The IOP was 12 mmHg and the retinal tear remained attached (Fig. 3).

## 3. Discussion

We reported a first ever, unique case of a large, iatrogenic star-

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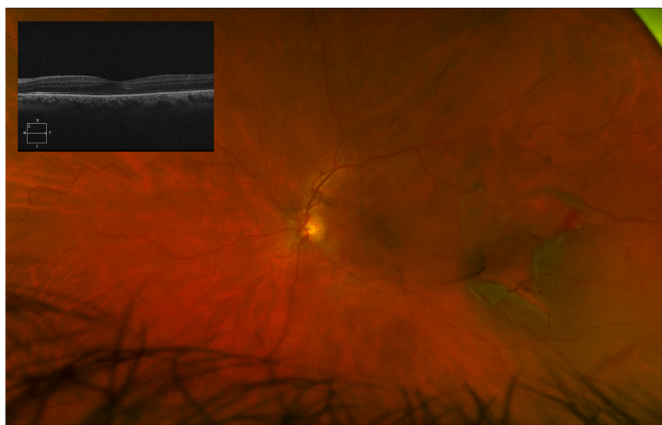
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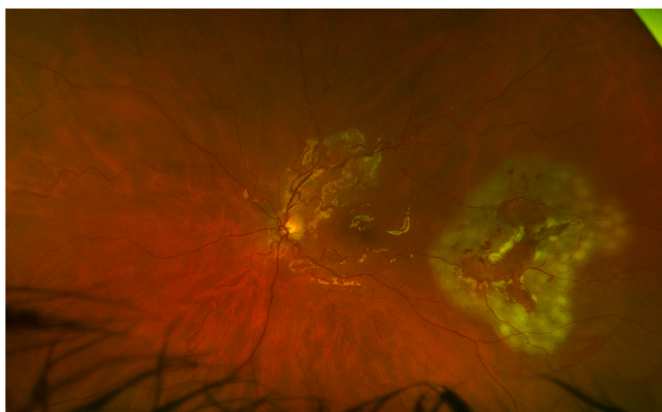
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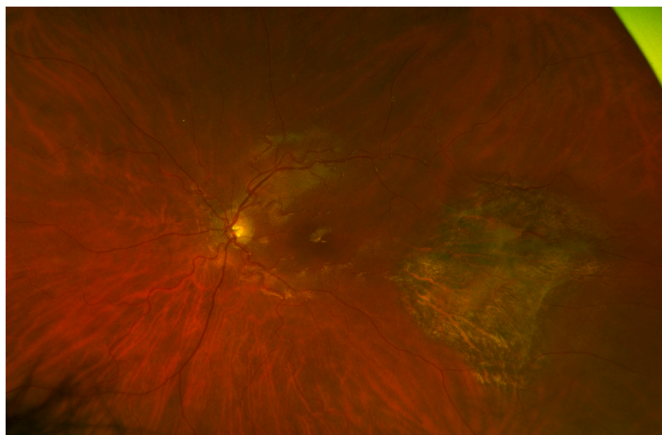
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**Fig. 1.** A large, star-shape retinal tear.



**Fig. 2.** Post-operative wide field retinal photograph.



**Fig. 3.** 6 weeks post initial presentation.

shaped retinal tear associated with orbital cosmetic filler injection containing HA. The cosmetic filler procedure was performed by an aesthetic nurse with inadequate training relevant to orbital and eye anatomy. Our case provided additional evidence of possible complication of orbital cosmetic filler besides ophthalmic artery embolism, which has been much reported.<sup>1,3</sup>

The key information in this case was the previous history of orbital filler injection. The patient had orbital filler injection with injection needle that went into the peribulbar space from temporal site adjacent, and slightly inferior to lateral canthus. The unusual appearance of

vitreous haze and the retinal tear directed our suspicion to a scleral puncture occurring at the time of the procedure from the injection needle. Subsequent injection of the filler materials led to filler accumulation in sub-retinal space and burst the retina causing a large retinal tear. The information was consistent with the location of puncture site and retinal tear, which was temporal to perimacular area.

At the initial presentation, it seemed that the tear could have been lasered easily because all retina was flat, and the location of the tear was easily accessible with laser. However, the large size, irregular shape of the tear which was markedly close to the macular area may cause a significant risk of retinal detachment involving the macula. More importantly, whilst retained intraocular HA could be naturally degradable,<sup>4</sup> our main concern was whether sub-retinal filler material would affect the retinal attachment if left unremoved. Therefore, we did not take risk to just perform laser treatment alone and the decision to surgically remove the filler materials was made. During the surgery, we found an evidence of needle-sized full-thickness scleral laceration and also that the vitreous and sub-retinal space was filled with jelly-like material. Vitrectomy, complete removal of filler material and laser treatment around the tear was the correct decision to reduce the risk of retinal detachment and retinal toxicity from the retained HA,<sup>4</sup> and maintain optimal visual acuity.

The reason we used silicon oil tamponade instead of gas was because we found significant amount of filler in the sub-retinal space. We aspirated and evacuated as much filler materials as possible but remained unsure how much amount of filler material left in sub-retinal space. Again, there was no evidence that can help justifying whether sub-retinal residual filler material will affect the attachment of the retina. For this reason, the preference was to put silicon oil over gas tamponade because silicon oil may provide longer and more stable tamponade than gas.

#### 4. Conclusion

In this particular case, thorough history taking was pivotal to establish the decision to perform immediate vitrectomy, which was the key in the management of this case. In addition, our case re-emphasizes the safety issue of facial cosmetic filler procedure when performed by less trained individual. Good knowledge and skills relevant to orbital anatomy and structure is required before performing such procedure to avoid similar complications in the future.

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#### Authorship

All authors attest that they meet the current ICMJE criteria for Authorship.

#### Declaration of competing interest

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#### Appendix A. Supplementary data

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.ajoc.2022.101342>.

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