an intermittent pneumatic compression device intraoperatively and postoperatively may be considered.\(^5\)

**Amy Zhang, MD**
**Majid Moshirfar, MD**
**Yousuf M. Khalifa, MD**

**Author Affiliations:** Flaum Eye Institute, University of Rochester, Rochester, New York (Zhang, Khalifa); Moran Eye Center, University of Utah, Salt Lake City (Moshirfar).

**Corresponding Author:** Yousuf M. Khalifa, MD, Flaum Eye Institute, University of Rochester, 601 Elmwood Ave, Box 659, Rochester, NY 14642 (yousuf_khalifa@urmc.rochester.edu).

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**Sudden Bilateral Vision Loss and Brain Infarction Following Cosmetic Hyaluronic Acid Injection**

Periocular and paranasal injections of hyaluronic acid are increasingly common because it is purported to be a safe material for cosmetic implantation. Because of the multiple anastomoses between the vascular supply of the face and orbit, the potential for retrograde embolization of substances does exist.\(^4\)

To our knowledge, we report the first case involving sudden bilateral vision loss and brain infarction following an injection of hyaluronic acid.

**Report of a Case** A 52-year-old woman received hyaluronic acid in the glabellar area as a cosmetic procedure for augmentation of the glabellar region by a local plastic surgeon. A few minutes after the injection, she suddenly had eye pain, headache, and vision loss. She was transferred to the emergency department of another medical center. The site of the initial injection was shown to have erythematos, violet reticular discoloration (Figure 1A). Fundus examinations showed the typical appearance of central retinal artery occlusion in the right eye and normal appearance of the left eye. Visual acuity was no light perception OD and 0.8 OS. Brain magnetic resonance imaging showed acute infarction in the right frontal, occipital, and parietal lobes (Figure 2A). Visual field examination disclosed a left hemianopia in the left eye (Figure 2B). The clinical features of the patient were consistent with brain infarction and central retinal artery occlusion in the right eye due to an injection of hyaluronic acid. The patient was treated with topical timolol maleate, oral acetazolamide (500 mg), and aspirin (100 mg) daily. The skin lesion at the site of the initial injection began to fade during the ensuing 7 days, and the patient was then discharged. She visited our clinic 1 month later. She remained blind in her right eye and a left hemianopia was noted in the visual field examination of the left eye. Funduscopic examination showed a pale optic disc as well as marked retinal ischemia and multiple emboli in retinal arterioles (Figure 1B).

**Discussion** Hyaluronic acid gel is purported to be a very safe material for cosmetic implantation. It has been available worldwide and is popular among clinicians in cosmetic surgery procedures as a filler material. Hyaluronic acid was shown to cause local skin necrosis in 1 case.\(^3\) A case of retinal branch artery occlusion\(^3\) and another case of central retinal artery occlusion combined with long posterior ciliary artery occlusion\(^6\) following the use of hyaluronic acid gel at glabellar areas have also been reported. For augmentation of the glabellar region, the material is injected intradermally using a 27- to 30-gauge needle with the opening of the needle facing upward.\(^3\) The dorsal nasal artery, which supplies the glabellar region, is a peripheral branch of the ophthalmic artery. It is possible that the mate-

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**Figure 1. Injection Site and Fundus Photograph**

A. The site of initial injection showed erythematous, violet reticular discoloration during the ensuing days. B. Pale optic disc and retinal whitening associated with the blood column are interrupted because of intra-arterial plugs after hyaluronic acid injection.
rial of the embolus enters ocular circulation and the internal carotid artery through retrograde arterial flow after the inadvertent injection of hyaluronic acid into the dorsal nasal artery. Under the injection pressure of a syringe, the material is forced retrograde into the ophthalmic artery and internal carotid artery with subsequent distal movement into brain arteries. This peculiar case should be seen as a warning to all ophthalmologists and plastic surgeons that such widely performed simple procedures can cause devastating damage. To minimize this risk, intradermal injection for augmentation of the glabellar region should be given superficially and mediately, and aspiration is also recommended. Patients should be informed of the possibility of this rare complication. Headache and ocular pain after injection could be warning signs of this complication, and physicians should be alert to stop further injections immediately if issues should arise while performing such procedures to minimize the damage.

Ming-Shan He, MD
Min-Muh Sheu, MD
Zei-Lun Huang, MD
Chen-Hsin Tsai, MD
Rong-Kung Tsai, MD, PhD

Author Affiliations: Department of Ophthalmology, Buddhist Tzu Chi General Hospital, Hualien, Taiwan (He, Sheu, Huang, R.-K. Tsai); Department of Ophthalmology and Visual Science, Tzu Chi University, Hualien, Taiwan (He, Sheu, Huang, R.-K. Tsai); Department of Ophthalmology, Taipei Medical University Hospital, Taipei, Taiwan (C.-H. Tsai).

Corresponding Author: Rong-Kung Tsai, MD, PhD, Department of Ophthalmology, Buddhist Tzu Chi General Hospital, Tzu Chi University, Ste 707, Section 3, Chung Yung Road, Hualien 970, Taiwan (rktsai@tzuchi.com.tw).

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Choroidopathy Associated With AIDS
Ciliochoroidal effusions occur when fluid accumulates within the suprachoroidal space. Inflammatory effusions causing bilateral angle-closure glaucoma have been reported as an exceedingly rare manifestation of the human immunodeficiency virus (HIV).1-3 We describe a patient with AIDS-associated bilateral choroidal effusions with a clinical course marked instead by ocular hypotony.

Report of a Case | A 47-year-old man with AIDS (CD4 cell count, 33/μL; viral load, >1 × 10^6/mL) visited the ocular emergency department with bilateral, painless peripheral vision loss. Findings on a previous workup at an outside hospital were unremarkable (negative rapid plasma reagin and fluorescent treponemal antibody absorption tests, negative hepatitis panel, negative urine and blood cultures, negative Epstein-Barr virus and cytomegalovirus serum antibody titers, normal brain magnetic resonance imaging findings). Visual acuity was 20/20 OU and intraocular pressure was 6 mm Hg OU. Anterior segment examination findings were significant for trace anterior chamber cell on the right and pseudophakia in both eyes. Posterior segment examination findings were notable for trace vitritis on the right and bilateral ciliochoroidal effusions nasally (Figure 1A and B). A purified protein derivative test, Bartonella species serum...