JAMA Ophthalmology Clinical Challenge

An Unusual Spontaneous Acute Deepening of the Anterior Chamber

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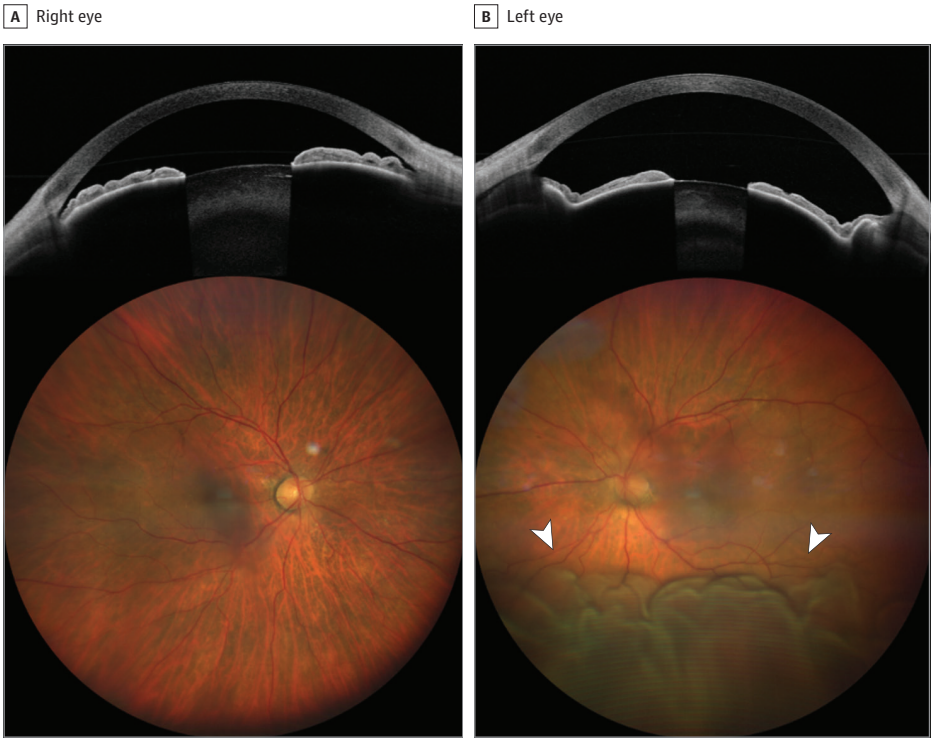

Figure 1. While anterior segment optical coherence tomography (AS-OCT) and fundus imaging were unremarkable for the right eye, the left anterior chamber was substantially deepened with a backbowing of the iris and an apposition to the lens, leading to a disappearance of the posterior chamber on AS-OCT scan. An inferior retinal detachment without any associated visible tear was present in the left eye (white arrowheads).

A 53-year-old woman presenting with a unilateral mild cortical and nuclear cataract associated with 20/32 visual acuity in her left eye was planning to undergo phacoemulsification. A few days before surgery, she noticed a sudden decrease in her left visual acuity measured at 20/80. Her eye specialist then observed a reverse pupillary block in her left eye and referred the patient to our department. At presentation, no other remarkable medical history was recorded and no precipitating factors identified. Slitlamp examination showed a unilateral deepening of the anterior chamber associated with signs of anterior uveitis (ie, keratic precipitates and severe aqueous flare, 3+) and posterior synechiae between the iris and the lens. In addition, fundus examination revealed an inferior retinal detachment without any associated visible tear. Intraocular pressure was 15 mm Hg in the right eye and 9 mm Hg in the left eye. Anterior segment optical coherence tomography images and fundus photographs of both eyes are shown in **Figure 1**.

WHAT WOULD YOU DO NEXT?

- **A.** Perform peripheral iridotomy
- **B.** Perform full-thickness sclerectomy
- **C.** Administer intravenous corticosteroids
- **D.** Schedule combined phacoemulsification-vitrectomy surgery

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Diagnosis

Iris retraction syndrome

What to Do Next

D. Schedule combined phacoemulsification-vitrectomy surgery

Discussion

Iris retraction syndrome is a rare entity initially described by Campbell[1] in 1984. The proposed pathogenesis is that the retinal pigment epithelium (RPE) excessively absorbs aqueous humor and acts as a pump in the posterior segment. This overabsorption could be secondary to exposure of RPE through a peripheral retinal tear, but retinal breaks, although present in most cases, are not always noted.[2] The misdirected flow of aqueous humor can lead to an inversion of the pressure gradient between the anterior and posterior chambers. This in turn can lead to a reverse pupillary block and its associated proinflammatory consequences.[3] The associated exudative retinal detachment could be related to the absorption of the aqueous humor by the RPE toward the suprachoroidal space and to inflammation.[4] The aim of the treatment is, one the one hand, to lyse posterior synechiae between the iris and the lens and, on the other hand, to drain the subretinal fluid and to treat the tear—when found—through pars plana vitrectomy. In some cases, medical treatment alone with topical atropine and steroids may be sufficient.[2] Peripheral iridotomy (choice A) might be a dangerous option, as the iris is wedged to the lens and would not modify the misdirection of the aqueous humor flow. Sclerotomy (choice B) to drain fluid likely would not be appropriate, as the initial mechanism is not related to uveal effusion. Corticosteroid therapy (choice C) typically would not be useful, as the primary cause is not inflammatory.[1,4] Iris retraction syndrome requires surgical management (choice D) to stop misdirected flow of aqueous humor toward the posterior segment. A topical treatment combining atropine and corticosteroids can be prescribed while awaiting surgery.

Patient Outcome

While awaiting surgery, topical atropine and topical corticosteroids were prescribed, but the retinal detachment progressed toward the posterior pole, confirming the necessity of vitrectomy. Combined phacoemulsification and vitrectomy were performed without complications. No retinal peripheral tears were identified. The accumulated subretinal fluid was aspirated through a punctate retinotomy, and sulfur hexafluoride was used as an internal tamponade at the end of the procedure. The outcome appeared favorable with complete retinal reattachment, while visual acuity returned to 20/20 in both eyes as shown in **Figure 2**.

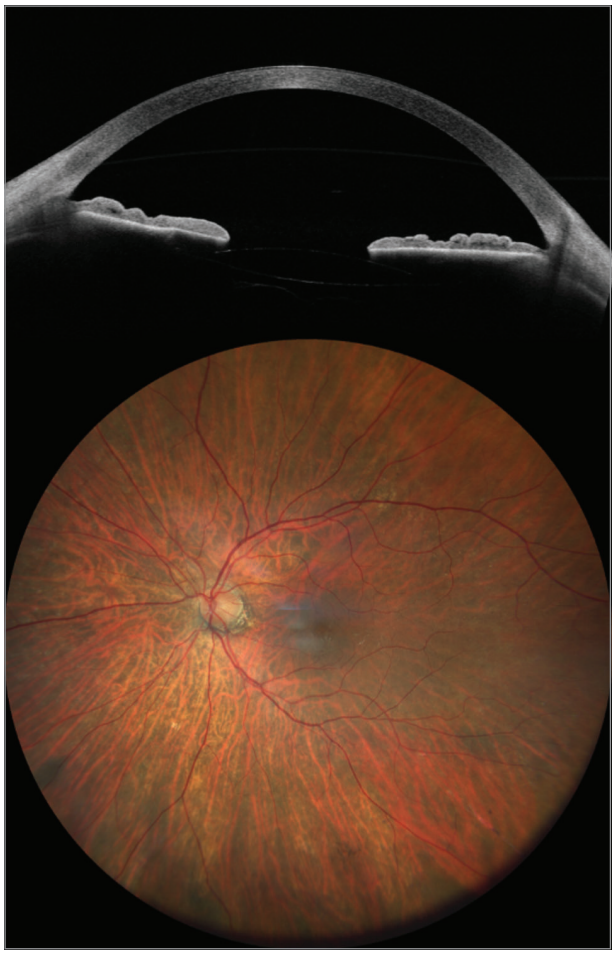

Figure 2. In 1-month postoperative anterior segment optical coherence tomography and fundus images of the left eye, anatomy of the anterior segment appeared normal, and the retinal detachment had resolved. Visual acuity had returned to 20/20.

ARTICLE INFORMATION

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