

Argon Laser Peripheral Iridoplasty for Plateau Iris Syndrome

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CASE PRESENTATION

A 60-year-old white female presented for the management of angle-closure glaucoma (ACG) in her left eye. She had a history of acute ACG in that eye treated with laser peripheral iridotomy in April 2007. Despite a patent peripheral iridotomy, acute ACG recurred 10 days after the procedure.

On examination, her BCVA measured 20/30 OD (plano) and 20/40 OS (+3.00 D). The patient had round, regular pupils, centrally deep anterior chambers, and bilaterally patent peripheral iridotomies. Her IOP measured 23 mm Hg OD and 26 mm Hg OS. Gonioscopy revealed bilaterally narrow angles with Shaffer's grades of 1 to 2 in all four quadrants and plateau iris configuration. Anterior segment optical coherence tomography (AS-OCT with the Visante OCT [Carl Zeiss Meditec, Inc., Dublin, CA]) (Figure 1) and ultrasound biomicroscopy (UBM with Paradigm model P40; Paradigm Medical Industries, Inc., Salt Lake City, UT) (Figure 2) demonstrated iridociliary apposition with anteriorly displaced and elongated ciliary body processes that were pushing the peripheral iris forward. We diagnosed plateau iris syndrome and recommended argon laser peripheral iridoplasty, which the referring general ophthalmologist performed.

During a follow-up visit, gonioscopy revealed persistently narrow angles with plateau iris configuration, findings that were confirmed by AS-OCT. Although peripheral iridoplasty laser spots of 200 μ m in diameter were visible throughout the iris, they were located mostly in the midperiphery (Figure 3). The patient underwent repeat iridoplasty using the following parameters: 500- μ m spot size; 0.5-millisecond duration; and 500 to 600 mW of power. The treatment used a contact lens, with spots placed at the far periphery of the iris. Widening of the angle was noted during the procedure and confirmed with gonioscopy and AS-OCT (Figure 4).



Figure 1. AS-OCT demonstrates a plateau iris configuration.

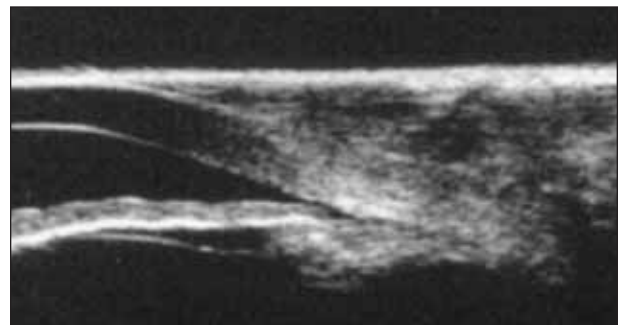


Figure 2. UBM shows anterior rotation of the ciliary processes in the patient's left eye.

Comments on Management

SD: What causes a plateau iris?

FAM: The plateau iris configuration is caused by an anteriorly positioned ciliary body that maintains the iris root in close apposition to the trabecular meshwork. In true plateau iris syndrome, the angle remains appositionally closed or occludable after laser iridotomy, as in this case.^{1,2}

SD: What are the roles of AS-OCT and UBM in the management of plateau iris syndrome?

RNW: Both of these imaging instruments can demonstrate the plateau iris configuration. UBM may have

an advantage over AS-OCT, however, in providing better visualization of the ciliary body to demonstrate the anteriorly rotated ciliary processes.^{2,3}

SD: How does argon laser peripheral iridoplasty work, and what parameters do you normally use?

RNW: Argon laser peripheral iridoplasty works by contracting the peripheral iris and pulling it away from the angle.^{4,5} The laser's application can also shrink the ciliary processes, thus allowing the peripheral iris to fall posteriorly. I prefer a spot size of 500 μm and an exposure time of 0.5 seconds, although I reduce the spot size and decrease the initial power in eyes with dark irides. The power should be adjusted to achieve visible contraction of the iris.

SD: What type of lens do you use?

RNW: I often use the Abraham lens. In eyes with a very steep plateau, however, I favor a mirrored lens. It makes the spots' placement in the far periphery easier, although they appear oval instead of round.

SD: What will be the next step in the management of this patient if the angles are still narrow after argon laser peripheral iridoplasty?

RNW: One must assess the location of the spots and try to place them more peripherally.

FAM: Extracting the crystalline lens may be beneficial if there is an associated phacomorphic component pushing the iris forward. One study, however, showed that the lens' extraction in general does not change the iridociliary apposition in plateau iris syndrome.⁶

SD: Another important aspect of the management of this patient is to make her aware of the increased prevalence of plateau iris configuration in close family members.⁷

RNW: Patients with plateau iris syndrome need close, regular follow-up, because they are at risk of chronic ACG and increases in IOP that may need further management.

CONCLUSION

Plateau iris syndrome is an uncommon cause of ACG. Its presence is confirmed by the persistence of narrow or



Figure 3. A photograph of the anterior segment shows that the laser spots were incorrectly placed in the midperiphery of the iris.

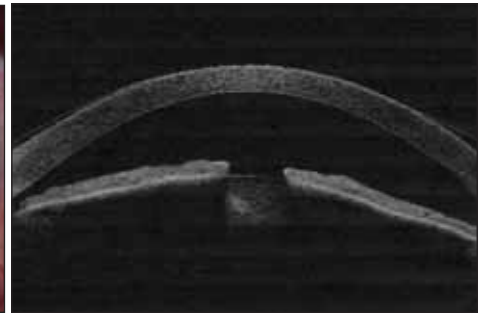


Figure 4. AS-OCT of the patient's left eye after argon laser peripheral iridoplasty shows widening of the angle.

occludable angles following laser iridotomy.¹ UBM plays a crucial role in the detection of this condition by showing the anterior rotation of the ciliary processes.^{2,3} Argon laser peripheral iridoplasty is an effective treatment for plateau iris syndrome.^{4,5} The laser spots should be large and placed as peripherally as possible with a long duration of application. The surgeon should adjust the laser's power to achieve visible contraction of the iris and increase the angle's width. □

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