Acute Angle-Closure Glaucoma in a Patient With Acquired Immunodeficiency Syndrome Successfully Treated With Argon Laser Peripheral Iridoplasty

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ABSTRACT
Laser iridectomy relieves pupillary block and is the procedure of choice for angle-closure glaucoma. Since not all cases of angle closure glaucoma are due to this mechanism, iridectomy is not always curative. Argon laser peripheral iridoplasty causes a contraction of peripheral iris away from the trabecular meshwork, and is useful in these circumstances. We successfully treated bilateral acute angle-closure glaucoma in a patient with acquired immunodeficiency syndrome with this procedure.

Bilateral angle-closure glaucoma has been reported in two patients with acquired immunodeficiency syndrome (AIDS). The mechanism was attributed to anterior rotation of the ciliary body following development of a choroidal effusion. Ultrasonographic findings were consistent with posterior scleritis and choroidal detachments. One patient was successfully treated with cycloplegics, while a second required surgical sector iridectomy with choroidal drainage and an anterior chamber deepening procedure. We successfully used argon laser peripheral iridoplasty (ALPI) to treat medically unresponsive bilateral acute angle-closure glaucoma in a patient with AIDS.

CASE REPORT
A 45-year-old homosexual male with AIDS was referred because of bilateral ocular pain and decreased vision for 1 day. He reported excellent visual acuity prior to the onset of symptoms. His past ophthalmic history was unremarkable.
Initial visual acuity was hand motions in each eye. Intraocular pressures (IOPs) by applanation tonometry were 47 mm Hg RE and 52 mm Hg LE. The pupils were 4 mm in diameter and unreactive to light. The corneas demonstrated significant microcystic edema. The anterior chambers were shallow peripherally, but moderately deep centrally without
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a bombé configuration. The angles were closed for 360° in each eye and could not be opened with indentation. Fundoscopy was not possible. Treatment was instituted with intravenous acetazolamide and mannitol, and topical 0.5% timolol and prednisolone acetate. A single dose of 2% pilocarpine was administered to each eye without significant change in IOP, pupillary size, or anterior chamber depth.

Sixteen hours later the examination was unchanged and IOPs were 42 mm Hg RE and 47 mm Hg LE. B-scan ultrasonography revealed normal posterior segments. Due to hazy media, laser iridectomy was not possible. The patient was treated with ALPI, using 24, 500-μm burns, at 300 mW, and 0.5-second duration over the extreme periphery of the iris, circumferentially in both eyes through the button of an Abraham lens.

One hour after treatment, IOPs were 24 mm Hg RE and 26 mm Hg LE. Gonioscopy revealed areas of visible trabecular meshwork. Over the next several days, IOPs fell to the low teens and laser iridectomies were performed in both eyes to eliminate any contribution of pupillary block to the acute attack. Twelve days after the initial event, visual acuity was 20/80 RE and 20/25 LE. The anterior chambers were deep and quiet, and both lenses were clear. There was no vitreous inflammation in either eye. The angles in both eyes were wide open, with extensive low-lying peripheral anterior synechiae to the posterior trabecular meshwork. Fundoscopy revealed healthy appearing optic nerve heads with a cup-to-disc ratio of 0.4, normal vessels, and a flat, normal appearing retina to the ora serrata in all quadrants.

DISCUSSION

ALPI is effective in the treatment of angle-closure glaucoma recalcitrant to conventional medical therapy and laser iridectomy. These situations include angle-closure resulting from plateau iris configuration, forward lens movement secondary to intumescence or subluxation, and anterior rotation of the ciliary body following central retinal vein occlusion, panretinal photoagulation, or scleral buckling. ALPI also may relieve medically uncontrollable acute angle-closure glaucoma in cases where laser iridectomy is not technically feasible due to hazy media or extreme shallowing of the anterior chamber. Occasionally, ALPI is useful prior to argon laser trabecu-

loplasty to further open the angle and facilitate the procedure. The surgical technique consists of applying long-duration, low-power laser applications circumferentially on the peripheral iris to contract and thin the surrounding iris stroma, mechanically pulling open the iridocorneal angle. Burn placement must be close to the iris insertion to maximize contraction of the iris away from the trabecular meshwork of the procedure will be ineffective. This requires that the laser energy be directed through the limbal cornea, often through an arcus senilis. Gonioscopy is performed following the procedure to evaluate the result.

The duration of effect of iridoplasty is variable and certain patients may require retreatment. Frequent gonioscopy to detect recurrence of angle-closure is necessary to spot early synechial angle-closure and the need for reevaluation of the glaucoma management.

Angle-closure in which pupillary block plays no or only a minor role is exacerbated by miotics, which further shallow the anterior chamber by constricting the ciliary muscle and relaxing the zonular apparatus. Cycloplegia permits the lens to move posteriorly as the ciliary body relaxes and zonules tighten, but it is often unsuccessful, and its effect on lens position may be counterbalanced by angle-crowding by the iris secondary to pupillary dilation.

REFERENCES