Micropulse transscleral diode laser cyclophotocoagulation an option for refractory glaucoma

Advantages include a good safety profile and minimal postoperative inflammation and hypotony.

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Glaucoma can be a difficult management problem in a subset of patients, even for the most experienced glaucoma specialists. The treatment spectrum includes drugs, trabeculoplasty, microincision glaucoma surgery and traditional glaucoma surgery.

While many use glaucoma medications as their initial treatment modality, others use selective laser trabeculoplasty for the initial IOP control. The majority of glaucoma patients' IOPs may be controlled with one or more topical medications, but there is a subset of patients whose IOPs are not adequately controlled even on maximum medical therapy. Additionally, some patients have limited choice of glaucoma medications due to allergy to glaucoma medications, and others may have compliance issues, all of which may contribute to elevated IOPs and progressive visual field loss. This subset of patients with uncontrolled IOP and/or progressive visual loss often requires surgical intervention.

Surgical interventions are primarily divided into those that facilitate egress of aqueous from the eye to the exterior and a few procedures that focus on decreasing the ingress of aqueous. Excessive egress of aqueous often introduces multiple postoperative complications including hypotony, maculopathy, corneal edema and other surgery-related complications such as hyphema and infection. Previously, the main procedure that decreased ingress of aqueous was cyclocryotherapy, but because it was often not adequately titratable with regard to the level of IOP reduction and it was associated with increased postoperative inflammation, it became a less desirable procedure for ophthalmic surgeons.

In this column, I describe a relatively new surgical technique, namely micropulse transscleral diode laser cyclophotocoagulation for glaucoma management, which decreases IOP with a possible dual mechanism of targeting the ciliary processes and increasing the uveoscleral outflow.

Laser system

A transscleral diode laser, the Cyclo G6 laser system (Iridex) with a P3 probe, is used for this procedure. The laser settings are 2,000 mW at 80 second arc treatment each, with a total of two arcs to complete the treatment.

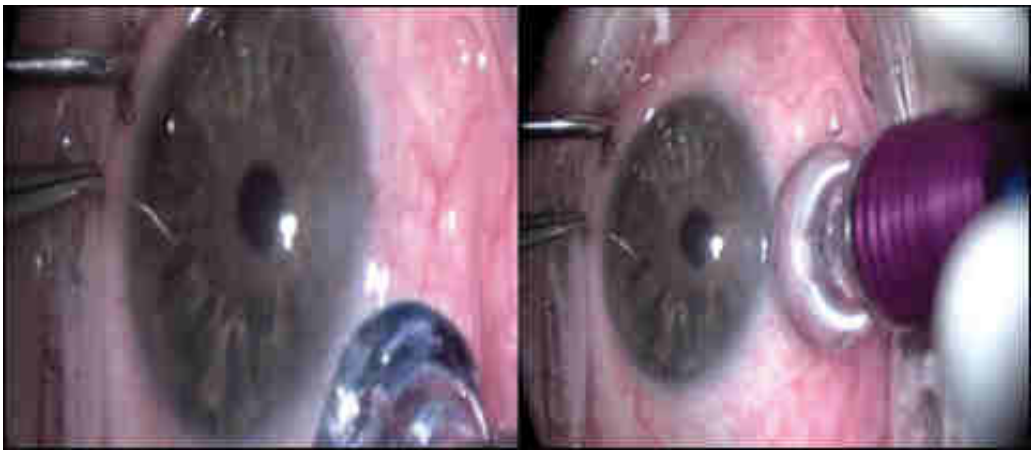

Figure 1. Inferior half is treated using the P3 probe.

Images: John T

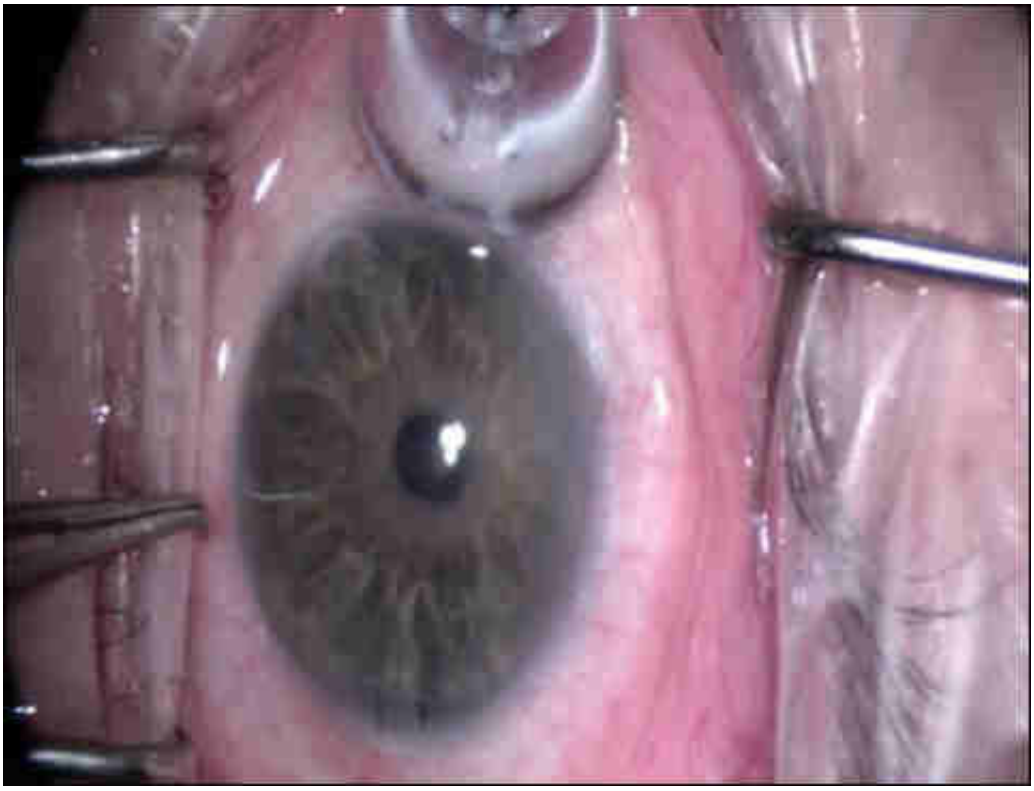

Figure 2. Distal extent of treatment of the inferior half, and then it is repeated until 80 seconds of treatment has been delivered.

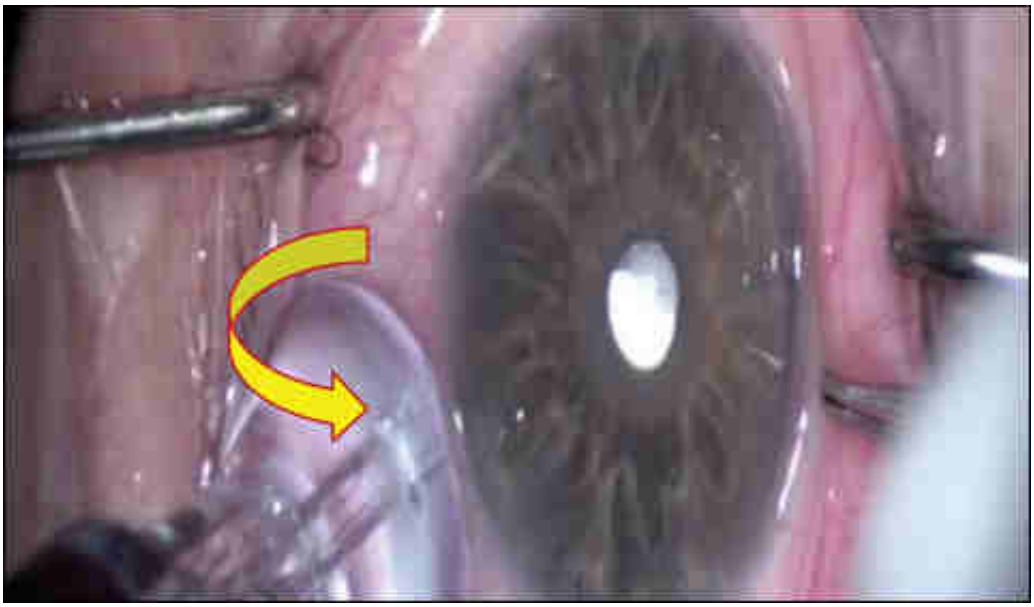

Figure 3. Superior half is treated with the notch of the probe (arrow) aimed toward the central cornea, while the base is seated on the conjunctival surface at the limbus.

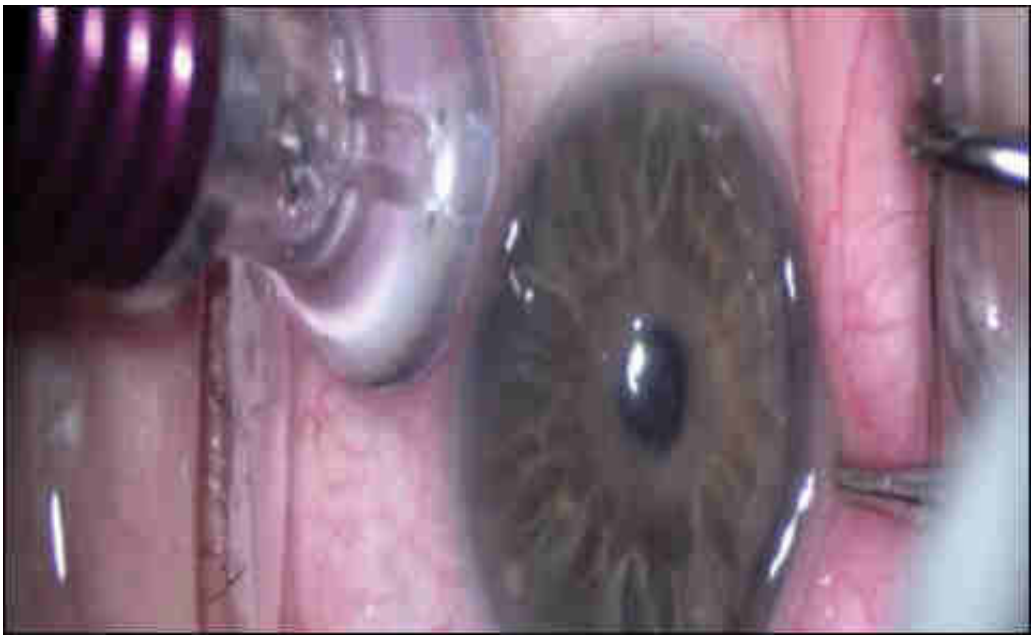

Figure 4. Superior half treated with the P3 probe.

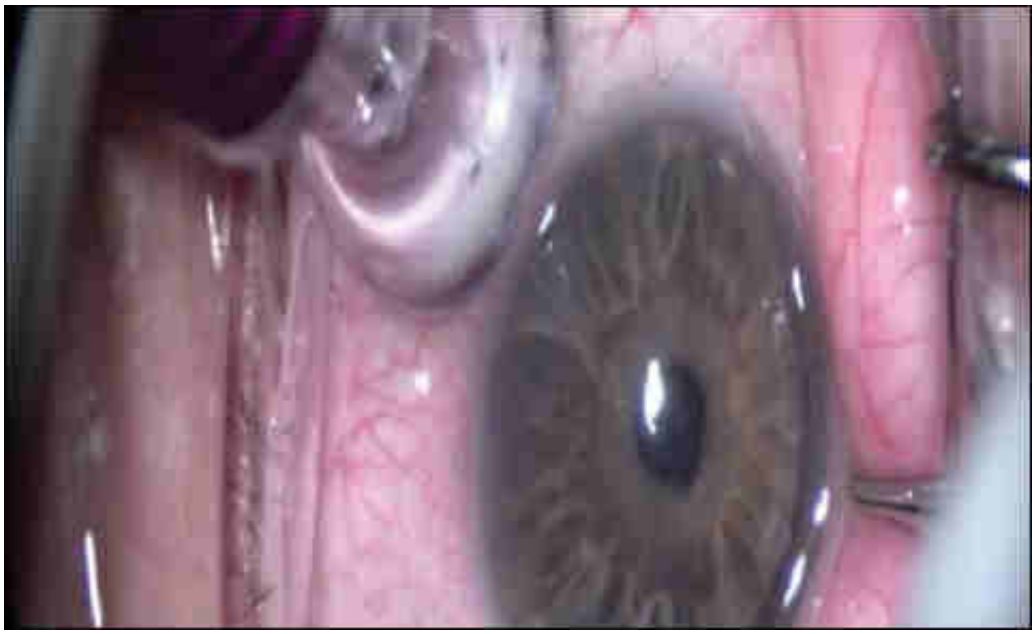

Figure 5. Superior extent of the arc treatment. This is then repeated for the total duration of 80 seconds.