Surgical Decision-Making in Patients With UGH Syndrome

A discussion of the options for glaucoma management.

BY ROYA GARAKANI, DO

During the acute phase of uveitis-glaucoma-hyphema (UGH) syndrome, elevated IOP from the mechanical rubbing of an IOL or capsule on the iris and ciliary body can lead to obstruction of the trabecular meshwork by debris.[1,2] Repositioning or exchanging the IOL is the definitive treatment to relieve the chafing. Medical therapy may be used as a bridge to manage IOP and inflammation until surgery can be performed.[2] The efficacy of conservative medical therapy alone, however, is significantly worse than when it is combined with IOL surgery, which has been shown to improve both visual and IOP outcomes.[1] Medical therapy is primarily a temporizing measure, not a definitive solution, in this patient population.[2]

A unique challenge is that many of these individuals require glaucoma therapy after UGH syndrome has been resolved with IOL repositioning or exchange. A review by Armonaite and Behndig analyzed 71 patients with UGH syndrome and found that 51% of those without preexisting glaucoma subsequently required ongoing glaucoma treatment after the resolution of UGH syndrome. Patients with an IOP of 22 mm Hg or higher during their first hyphema episode were at increased risk of needing long-term glaucoma therapy (P = .002, area under the curve = 0.8).[1] Permanent damage to the aqueous outflow pathways that may occur during active UGH episodes can result in elevated IOP, even after mechanical chafing has been resolved.[1]

The decision of whether to proceed with glaucoma surgery in patients with UGH syndrome requires carefully balancing the need for further IOP reduction with the risks of performing surgery on an inflamed eye. Performing the lens procedure first (considerations for combined surgery are discussed later in this article) is often beneficial for inflammation control. The success of glaucoma surgery in an eye that has not undergone IOL surgery is often compromised by ongoing inflammation.[3]

> *The decision of whether to proceed with glaucoma surgery in patients with UGH syndrome requires carefully balancing the need for further IOP reduction with the risks of performing surgery on an inflamed eye."*

SURGICAL OPTIONS

If a patient with UGH syndrome requires glaucoma surgery in addition to an IOL procedure, various approaches may be utilized.

Laser Peripheral Iridotomy

Laser peripheral iridotomy (LPI) can successfully reduce elevated IOP in eyes with UGH syndrome that results from reverse pupillary block. In a case series of six eyes, LPI resolved UGH syndrome in all of them, and the mean IOP decreased from 30.5 to 15.5 mm Hg postoperatively.[4]

Although LPI is an excellent approach to reverse pupillary block, the procedure does not have a role in eyes where the chafing of iris and ciliary body tissue occurs by a different mechanism. This highlights the importance of a careful examination, anterior segment OCT, and ultrasound biomicroscopy to guide the surgical approach to patients with UGH syndrome.[4]

MIGS Procedures

There is a lack of published literature on MIGS outcomes in patients with UGH syndrome. Hypothetically, MIGS might have a role in such cases because it would spare the conjunctiva in patients who are at high risk of requiring multiple glaucoma interventions in their lifetime.

Gonioscopy-assisted transluminal trabeculotomy in particular has been shown to be effective for IOP management in eyes with uveitic glaucoma, which has an underlying mechanism similar to the chronic IOP elevation observed with UGH syndrome. The procedure was reported to achieve surgical success in 71.8% of eyes with uveitic glaucoma, and the mean IOP decreased from 31.4 to 13.8 mm Hg at 1 year.[5,6]

Conventional Filtration Surgery

Glaucoma drainage devices may be considered for patients with UGH syndrome and extremely high IOP that is refractory to medical therapy. Compared with trabeculectomy, tube shunt surgery is less susceptible to failure due to inflammation.[7] In patients with uveitic glaucoma, a recurrence of inflammation caused lower rates of surgical failure in the tube shunt group compared with the trabeculectomy group.[3] Additionally, valved tube shunts may mitigate the risk of hypotony after the resolution of inflammation related to UGH syndrome.

Trabeculectomy may have a role in eyes that have been quiescent for many months.[8]

Cyclodestruction

Cyclodestructive procedures such as transscleral cyclophotocoagulation (TSCPC) and endoscopic cyclophotocoagulation can be effective for the management of UGH syndrome. In a case report of TSCPC in a patient with UGH syndrome, no contact between the IOL and posterior iris was observed after treatment, indicating that TSCPC might have relieved areas of mechanical chafing by inducing contraction of the ciliary body.[9] In another case report, a patient with UGH syndrome who could not undergo an IOL exchange owing to extensive capsular fibrosis received endoscopic cyclophotocoagulation, after which their symptoms resolved.[10]

Although the benefits of CPC must be weighed against its known risks (hypotony, worsening of inflammation, vision loss, etc.), cyclodestructive procedures may serve a dual purpose in terms of lowering IOP and improving the anatomic relationship between the iris, lens, and ciliary body.

CONCLUSION

The management of glaucoma in patients with UGH syndrome requires a nuanced approach. Careful patient selection, the identification of the specific anatomic problems, and the timing of lens and glaucoma treatment are critical. ■

An AI language model (Gemini 3, Google) was used to assist with language editing. All content was reviewed, verified, and revised by the author, who assumes full responsibility for the accuracy and integrity of the manuscript. The AI tool was not used for data analysis, interpretation, or drawing scientific conclusions.

1. Armonaite L, Behndig A. Seventy-one cases of uveitis-glaucoma-hyphaema syndrome. *Acta Ophthalmol*. 2021;99(1):69-74.
2. Ramakrishnan MS, Wald KJ. Current concepts of the uveitis-glaucoma-hyphema (UGH) syndrome. *Curr Eye Res*. 2023;48(6):529-535.
3. Kwon HJ, Kong YXG, Tao LW, et al. Surgical outcomes of trabeculectomy and glaucoma drainage implant for uveitic glaucoma and relationship with uveitis activity. *Clin Exp Ophthalmol*. 2017;45(5):472-480.
4. Singh H, Modabber M, Safran SG, Ahmed II. Laser iridotomy to treat uveitis-glaucoma-hyphema syndrome secondary to reverse pupillary block in sulcus-placed intraocular lenses: case series. *J Cataract Refract Surg*. 2015;41(10):2215-2223.
5. Belkin A, Chaban YV, Waldner D, et al. Gonioscopy-assisted transluminal trabeculotomy is an effective surgical treatment for uveitic glaucoma. *Br J Ophthalmol*. 2023;107(5):690-697.
6. Bouhout S, Bachour K, Harasymowycz P, Jaworski L, Wang Q, Durr GM. Gonioscopy-assisted transluminal trabeculotomy in uveitis-related ocular hypertension and glaucoma. *J Glaucoma*. 2024;33(6):464-472.
7. Serhan HA, Ba-Shammakh SA, Hassan AK, et al. Effectiveness and safety of trabeculectomy versus tube shunt implantation for uveitic glaucoma: a systematic review and meta-analysis. *Am J Ophthalmol*. 2024;268:319-328.
8. Hill RA, Nguyen QH, Baerveldt G, Forster DJ, et al. Trabeculectomy and Molteno implantation for glaucomas associated with uveitis. *Ophthalmology*. 1993;100(6):903-908.
9. Liu Z, Zhang F, Wen Y, Du X, Pan X, Bi H. Diode laser transscleral cyclophotocoagulation for uveitis-glaucoma-hyphema syndrome: a case report. *Medicine (Baltimore)*. 2020;99(7):e18637.
10. Zhang L, Hood CT, Vrabec JP, Cullen AL, Parrish EA, Moroi SE. Mechanisms for in-the-bag uveitis-glaucoma-hyphema syndrome. *J Cataract Refract Surg*. 2014;40(3):490-492.

ROYA GARAKANI, DO

- John A. Moran Eye Center, University of Utah, Salt Lake City
- roya.garakani@hsc.utah.edu
- Financial disclosure: Consultant (Glaukos)