The nondetached retina uses the epiretinal membrane for analysis. RS1 indicates retinoschisin; center horizontal lines, mean, and error bars, standard error.

electroretinography. If RS1 has a key role in retinal remodeling after RD, the lack of RS1 could be one reason why treatment of RD in patients with XLRS would be particularly challenging. Further studies are needed to clarify the role of RS1 in the remodeling process following RD.

Figure. Quantitation of Retinoschisin in Vitreous From Newly Detached and Nondetached Retinas

Successful Management of Secondary Iris Cysts With Viscoelastic-Assisted Endophotocoagulation

The new clinical finding of an iris cyst can cause diagnostic and management uncertainty. Iris cysts are uncommon and can be primary or secondary as well as benign or malignant. Management options for benign secondary iris cysts include observation, drainage, surgical excision, cryoablation, photocoagulation, or even intracystic irrigation of a cytotoxic agent such as ethanol. We report a case series of 4 secondary iris cysts in 4 patients, all successfully managed with endophotocoagulation assisted with viscoelastic.

Report of Cases | The patients included 2 males and 2 females, with a mean age of 36.8 years (range, 4-83 years). Three cases had a definitive history of preceding trauma, and the other was uncertain. The cyst was located superiorly in 3 cases and inferonasally in the fourth. The largest cyst diameter ranged between 4 and 5 mm in all cases. The main indication for surgery was visual symptoms (Figure and Table).

All patients underwent initial surgical aspiration of the cyst for cytological analysis. Cyst drainage was accomplished with a 26-gauge needle on a syringe via a small paracentesis through clear cornea overlying the cyst midperiphery. The anterior chamber was maintained with balanced salt solution. The aspirated fluid was sent for cytological analysis, and no evidence of a malignant neoplasm was identified in any case.

One month later, the cyst was redrained via the original lateral corneoscleral incision. Two months after the initial aspiration, complete resolution of the cyst was observed. One patient attended his 6-month follow-up visit with complete resolution of his initial cyst.

Conflict of Interest Disclosures: None reported.

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tion of the cyst from the cornea and angle. All cysts were separated completely from surrounding structures using this approach. Viscoelastic was also used to apply compressive force to manipulate and deflate the cyst in conjunction with the external surgical drainage. When the cyst was flattened, a 20-gauge diode endolaser photocoagulator (Quantel Medical) was introduced via the second paracentesis.

Laser was applied to encircle the cyst and then was applied directly to the roof of the cyst, titrated to cause tissue shrinkage and closure of the potential space (mean, 184 spots; mean power, 215 mW [range, 50-440 mW]; duration, 50-100 milliseconds). Postoperative medications included topical antibiotics and corticosteroids for 2 weeks. One cyst had a small local recurrence near the peripheral angle after 4 months and was re-treated early and successfully with a further 67 laser spots (200 mW; 100 milliseconds). Last follow-up ranged from 31 to 50 months, with no evidence of recurrence (Figure and Table).

**Discussion** | Most primary iris cysts have a benign course. Treatment of secondary iris cysts is indicated when there is evidence of progression leading to visual symptoms or secondary glaucoma. The selected treatment should be the least destructive, carry minimal risk of secondary complications, and minimize recurrence. Cytological analysis to identify the presence of tumor cells is useful to direct subsequent treatment. Aspiration of the cyst limits dissemination of the contents, minimizes the surface area, and reduces the required laser treatment parameters. All reported treatments for iris cysts

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**Figure. Clinical Photographs**

Clinical photographs of iris cysts at presentation and following treatment with viscoelastic-assisted endophotocoagulation in patients 1 (A), 2 (B), 3 (C), and 4 (D).
have the risk of uveitis, hemorrhage, and iris atrophy, with varying rates of cataract and endothelial damage.\textsuperscript{2,5} There were no instances of any of these complications in our case series.

This case series supports the limited number of published reports on the management of secondary iris cysts with viscoelastic-assisted endophotocoagulation.\textsuperscript{2,5} We believe the adjuvant use of ophthalmic viscoelastic enables safe separation of the cyst from surrounding structures and aids controlled, external surgical drainage of the contents. This manipulation improves compression of the walls of the cyst and minimizes the potential internal cystic space between the iris tissues, optimizing the effectiveness of the endophotocoagulation. We document an excellent response to this treatment option and can recommend this technique as a minimally invasive treatment option.

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Author Contributions: Dr McGhee had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Study concept and design: Lockington, Altaie, McGhee.

Acquisition of data: Moore.

Analysis and interpretation of data: All authors.

Drafting of the manuscript: Lockington, Moore, McGhee.

Critical revision of the manuscript for important intellectual content: Altaie, Moore.

Administrative, technical, and material support: All authors.

Conflict of Interest Disclosures: None reported.


**Spontaneous Improvement in Visual Acuity in Age-Related Geographic Atrophy of the Macula**

Geographic atrophy (GA) from age-related macular degeneration (AMD) is generally regarded as a monotonically worsening disorder. Unlike exudative AMD, in which improvements in visual acuity (VA) can occur as fluid resolves and neovascularization involutes, photoreceptor loss causing VA worsening in GA is irreversible. Successful therapy that stops the progression of disease will not restore function to a blind area. However, spontaneous improvement in VA can occur over time in eyes with GA. Microperimetry has shown that improvement is associated with better use of the eccentric retina in eyes that could not place the object of interest on the seeing retina at baseline.\textsuperscript{1} In a study of patients with bilateral GA followed up for 3 years, 17% improved by 2 or more lines in the worse-seeing eye on this basis, while no better-seeing eyes of the patients improved. The same phenomenon has been observed in the first-affected eye of patients with bilateral disciform scars.\textsuperscript{2}

Recent reports of VA improvement in eyes with advanced macular disease in clinical trials of stem cell–derived retinal pigment epithelial cells\textsuperscript{3-4} may be misinterpreted as indicating a true treatment effect, while the reason for visual improvement may in fact be related to using the remaining seeing retina more effectively. The data from the National Institutes of Health–funded Wilmer prospective natural history study\textsuperscript{5} of GA associated with AMD were analyzed for the occurrence of spontaneous VA improvement at the shorter time frames characteristic of clinical trials. This study was approved by the Johns Hopkins University School of Medicine Institutional Review Board. Written informed consent was obtained.

**Methods** Sixty patients with bilateral GA without exudative AMD who had 2-year follow-up data are included. They were thoroughly described in previous publications.\textsuperscript{5} A protocol re-fracture and measurement of best-corrected Early Treatment Diabetic Retinopathy Study VA were performed at baseline and at each annual visit. Descriptive statistics of improvement of VA at 1 and 2 years are provided.

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Table. Clinical Details, Treatment, and Outcomes of 4 Eyes With Secondary Iris Cysts Before and After Viscoelastic-Assisted Endophotocoagulation

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