electroretinography.\textsuperscript{8,11} 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.

Sten Kjellström, MD, PhD
Fredrik Ghosh, MD, PhD
Camasamudram Vijayasarathy, PhD
Sten Andréasson, MD, PhD

Author Affiliations: Department of Ophthalmology, University of Lund, Lund, Sweden (Kjellström, Ghosh, Andréasson); National Institute of Deafness and Other Communication Disorders, National Institutes of Health, Bethesda, Maryland (Vijayasarathy).

Corresponding Author: Sten Kjellström, MD, PhD, Department of Ophthalmology, University of Lund, S 221 85, Lund, Sweden (sten.kjellstrom@med.lu.se).


Author Contributions: Dr Kjellström had full access to all 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: Kjellström, Ghosh, Andréasson.

Acquisition of data: Kjellström, Vijayasarathy.

Analysis and interpretation of data: All authors.

Drafting of the manuscript: All authors.

Critical revision of the manuscript for important intellectual content: Kjellström, Vijayasarathy.

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Successful Management of Secondary Iris Cysts With Viscoelastic-Assisted Endophotocoagulation

The new clinical finding of an iris cyst can cause diagnostic and management uncertainty.\textsuperscript{1-3} Iris cysts are uncommon and can be primary or secondary as well as benign or malignant.\textsuperscript{2,4} 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.\textsuperscript{5,6,6} We report a case series of 4 secondary iris cysts in 4 patients, all successfully managed with endophotocoagulation assisted with viscoelastic.\textsuperscript{2}

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 and a blunt tip needle. 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 paracentesis. A second peripheral corneal paracentesis, diagonally opposite the cyst, was fashioned to allow viscodissecc-
tion of the cyst from the cornea and angle. All cysts were sepa-
rated 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 ex-
ternal 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 ap-
plied 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 mil-
liseconds). Postoperative medications included topical antibi-
otics and corticosteroids for 2 weeks. One cyst had a small lo-
cal 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.3,4 Trea-
tment of secondary iris cysts is indicated when there is evi-
dence of progression leading to visual symptoms or second-
ary glaucoma.2,5 The selected treatment should be the least
destructive, carry minimal risk of secondary complications, and
minimize recurrence. Cytological analysis to identify the pres-
ence of tumor cells is useful to direct subsequent treatment.3
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

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.6,5 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.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 and can recommend this technique as a minimally invasive treatment option.

David Lockington, FRCOpth
Rasha Altaie, FRCSI(Ophth)
Sacha Moore, FRCOpth
Charles N. J. McGhee, PhD, FRCOpth

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

<table>
<thead>
<tr>
<th>Age, y/</th>
<th>Cause</th>
<th>Location</th>
<th>Largest Diameter, mm</th>
<th>Visual Acuity</th>
<th>Treatment</th>
<th>Episode No.</th>
<th>Spots, No.</th>
<th>Power, mW</th>
<th>Duration, ms</th>
<th>Recurrence</th>
<th>Follow-up, mo</th>
</tr>
</thead>
<tbody>
<tr>
<td>83/F</td>
<td>Post-surgical trauma (previous BRVO)</td>
<td>Superonasal</td>
<td>4</td>
<td>HM</td>
<td>HM</td>
<td>1</td>
<td>128</td>
<td>50-150</td>
<td>50</td>
<td>No</td>
<td>31</td>
</tr>
<tr>
<td>31/M</td>
<td>Post-blunt trauma</td>
<td>Superotemporal</td>
<td>5</td>
<td>20/100</td>
<td>20/16</td>
<td>1</td>
<td>211</td>
<td>200-250</td>
<td>100</td>
<td>Yes</td>
<td>4</td>
</tr>
<tr>
<td>4/F</td>
<td>Uncertain</td>
<td>Inferonasal</td>
<td>4</td>
<td>20/20</td>
<td>20/20</td>
<td>1</td>
<td>200</td>
<td>200-440</td>
<td>100</td>
<td>No</td>
<td>36</td>
</tr>
<tr>
<td>29/M</td>
<td>Post-penetrating eye injury</td>
<td>Superotemporal</td>
<td>4.8</td>
<td>20/16</td>
<td>20/16</td>
<td>1</td>
<td>197</td>
<td>200-250</td>
<td>100</td>
<td>No</td>
<td>50</td>
</tr>
</tbody>
</table>

Abbreviations: BRVO, branch retinal vein occlusion; HM, hand motions.
* All eyes achieved postoperative visual acuity of 20/20 or better except the 83-year-old woman who had compromised vision due to a preexisting BRVO involving the macula.

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.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.2

Recent reports of VA improvement in eyes with advanced macular disease in clinical trials of stem cell–derived retinal pigment epithelial cells3–4 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 study6 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.5 A protocol refraction 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.