



Cataractous remnants form a free-floating cystic structure in a unicameral pediatric eye

Rebecca G. Edwards Mayhew, Thérèse M. Sassalos, Michael J. Huvad, Cagri G. Besirli, Adam Jacobson*

W. K. Kellogg Eye Center, University of Michigan, Ann Arbor, MI, USA

1. Case report

An 11-year-old girl with a history of Marfan's syndrome complicated by a subluxed crystalline lens, status post lensectomy six years prior, and resulting aphakia of her right eye presented for follow up. Ten months after her lensectomy, she developed panuveitis with retinal granulomas; systemic workup was positive for *Toxocara* antibodies. Despite three rounds of treatment with albendazole and oral corticosteroids, and chronic topical corticosteroid use, her inflammation remained poorly controlled. She developed band keratopathy, proliferative vitreoretinopathy, and a chronic tractional retinal detachment requiring repair. Systemic immunosuppression with methotrexate was initiated. At current follow up, she presented with her baseline uncorrected vision of hand motion in the right eye and no eye discomfort. Examination revealed a free-floating cystic structure in the anterior chamber, chronic anterior chamber and vitreous cell, and stable residual band keratopathy (Fig. 1). The cyst-like structure fell posteriorly into the vitreous chamber shortly after photographs were taken.

The decision was made to surgically remove the mass. The patient was seated upright in the preoperative area, the mass was visualized, and 1% pilocarpine eyedrops were administered to trap the mass in the anterior chamber. It was then successfully removed *en bloc* via a clear corneal incision. Histopathologic analysis revealed a 0.3 mm by 0.3 mm by 0.2 mm structure of cataractous remnants of anterior capsule surrounding cortical lens material with adherent pigmented neuroepithelial cells. After removal, the patient's vision and intraocular inflammation improved. She was successfully weaned off topical corticosteroids and is currently being weaned off systemic immunosuppression.

2. Discussion

Free-floating iris cysts in the anterior chamber have been reported in

children and young adults. An anterior chamber cyst of squamous epithelium has also been reported in an adult patient after cataract surgery.¹ In our patient, the free-floating structure removed was not a true epithelial-lined cyst, but rather an aggregate of retained lens material. Retained lens material after lensectomy may cause prolonged inflammation, corneal edema, and secondary glaucoma. The retained lens material in this case may have contributed to our patient's recalcitrant intraocular inflammation, which dramatically improved after surgical removal.

A recent study of 2.3 million patients who underwent cataract surgery in the United States reported a rate of retained lens material of 0.18%.² There are no large studies estimating its occurrence in the pediatric population. Older age, shallow anterior chamber depth, and thicker lens have been shown to be risk factors for retained anterior chamber lens fragments in adults.³ Several factors may increase the risk of unnoticed retained lens fragments in children: trauma/capsular violation is a frequent indication for lens removal; posterior capsulotomy is often employed to prevent visual axis opacification; and examination of young patients, especially of the angle and retinal periphery, may be limited unless done under anesthesia.

3. Conclusion

Clinicians should be vigilant for retained lens and capsular material after lensectomy in the pediatric population.

Consent

Consent to publish this case report has been obtained from the patient's parents in writing.

* Corresponding author.

E-mail address: adajac@med.umich.edu (A. Jacobson).

<https://doi.org/10.1016/j.ajoc.2023.101870>

Received 8 March 2023; Received in revised form 24 May 2023; Accepted 12 June 2023

Available online 29 June 2023

2451-9936/© 2023 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

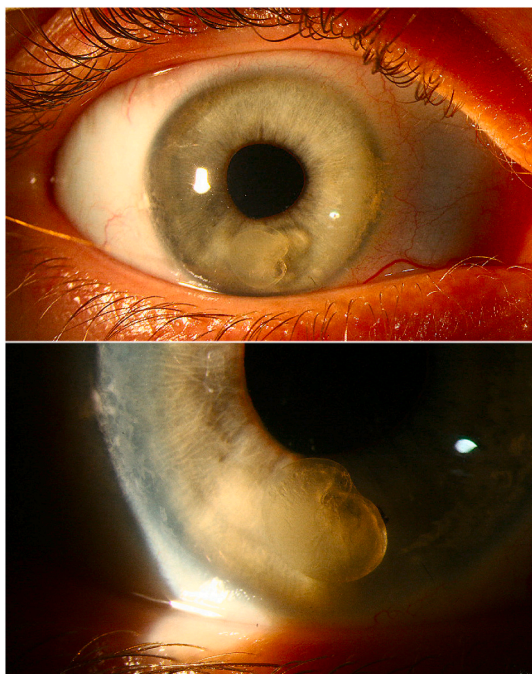


Fig. 1. Slit-lamp photograph of a cystic structure in the anterior chamber of a unicameral eye.

Funding

No funding was received for this work.

Author declaration

We wish to confirm that there are no known conflicts of interest associated with this publication and there has been no significant financial support for this work that could have influenced its outcome.

Intellectual property

We confirm that we have given due consideration to the protection of intellectual property associated with this work and that there are no impediments to publication, including the timing of publication, with respect to intellectual property. In so doing we confirm that we have followed the regulations of our institutions concerning intellectual property.

Research ethics

We further confirm that any aspect of the work covered in this

manuscript that has involved human patients has been conducted with the ethical approval of all relevant bodies and that such approvals are acknowledged within the manuscript.

Written consent to publish potentially identifying information, such as details or the case and photographs, was obtained from the patient(s) or their legal guardian(s).

Authorship

All listed authors meet the ICMJE criteria.

We attest that all authors contributed significantly to the creation of this manuscript, each having fulfilled criteria as established by the ICMJE.

We confirm that the manuscript has been read and approved by all named authors.

We confirm that the order of authors listed in the manuscript has been approved by all named authors.

Contact with the editorial office

This author submitted this manuscript using his/her account in EVISE.

We understand that this Corresponding Author is the sole contact for the Editorial process (including EVISE and direct communications with the office). He/she is responsible for communicating with the other authors about progress, submissions of revisions and final approval of proofs.

We confirm that the email address shown below is accessible by the Corresponding Author, is the address to which Corresponding Author's EVISE account is linked, and has been configured to accept email from the editorial office of American Journal of Ophthalmology Case Reports.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

None.

References

1. Malta JBNS, Banitt M, Soong HK. Free floating cyst in anterior chamber after cataract surgery. *Br J Ophthalmol.* 2008;92:911.
2. Salabati M, Mahmoudzadeh R, Wakabayashi T, Hinkle JW, Ho AC. Indications for surgical management of retained lens fragments. *Curr Opin Ophthalmol.* 2022 Jan 1;33(1):15–20. <https://doi.org/10.1097/ICU.0000000000000823>. PMID: 34743089.
3. Moshirfar M, Lewis AL, Ellis JH, McCabe SE, Ronquillo YC, Hoopes Sr PC. Anterior chamber retained lens fragments after cataract surgery: a case series and narrative review. *Clin Ophthalmol.* 2021 Jun 21;15:2625–2633. <https://doi.org/10.2147/OPHTH.S314148>. PMID: 34188441; PMCID: PMC8232887.