

Rebound Iritis With a Well-circumscribed Anterior Chamber Fibrin Mass After Uncomplicated Cataract Surgery

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Brief report

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Abstract

Purpose:

To describe a case of bilateral rebound iritis complicated by a subacute, transient, well-circumscribed anterior chamber mass.

Methods and Observations:

Observational case report of a 59-year-old female with recent ocular history of bilateral cataract surgery and poor post-operative medication compliance who was found to have bilateral rebound iritis and a globular, pedunculated anterior chamber mass attached to the posterior chamber intraocular lens in the right eye. Slit lamp photographs were taken, and after three days of topical steroid administration, the mass resolved with only a mild, residual iritis.

Conclusions and Importance:

Post-operative fibrinous exudates are occasionally encountered immediately after intraocular surgery, however, there have been no reports in the literature to the best of our knowledge of a subacute anterior chamber mass in such a well-circumscribed configuration as we report. This case study raises awareness of a peculiar structural form in which a subacute, post-operative fibrin clot may present.

Summary Statement

Here the authors report a case of a sharply-circumscribed, globular, fibrinous mass that occurred two months after routine cataract surgery and completely resolved after a short course of topical corticosteroids.

Introduction

Fibrinous anterior chamber (AC) reaction is a well-known entity that, when associated with intraocular surgery, typically occurs in the immediate post-operative period in conditions such as toxic anterior segment syndrome or acute exogenous endophthalmitis. In the subacute and chronic period, fibrinous reaction of the anterior segment may be attributed to a delayed-onset endophthalmitis such as that caused by *Propionibacterium acnes*, in which case posterior segment inflammation would also be present. When limited to the anterior segment only, one must consider more common etiologies of post-operative inflammation such as rebound iritis, which is the most likely case in the unique presentation of the patient described in this report.

Case Report

A 59-year-old female presented with a complaint of bilateral eye pain, redness, and blurry vision two months after uncomplicated cataract extraction (CE) and posterior chamber intraocular lens (PCIOL)

insertion in the right eye (OD), and three months after CE and PCIOL insertion in the left eye (OS). Her past medical history was significant for systemic lupus erythematosus, alcoholic cirrhosis complicated by hepatorenal syndrome, asthma, chronic obstructive pulmonary disease on home oxygen, anti-thrombin III deficiency complicated by multiple deep vein thromboses and pulmonary emboli status-post inferior vena cava filter currently on systemic anticoagulation, hypothyroidism, panhypopituitarism, and peripheral vascular disease.

Intraoperatively, a Malyugin ring had been deployed OD due to poor pupillary dilation, however the remainder of the surgery was uneventful. On the first postoperative day, 3 + mixed cell and pigment in the AC without fibrin reaction was observed, which resolved by the second postoperative week with topical prednisolone acetate 1% eye drops every two hours. The patient was subsequently lost to follow up until presentation and was non-compliant with her steroid taper.

Eight weeks later, the patient presented with bilateral eye pain. On exam, her corrected visual acuity was 20/40 OD and 20/30 OS. Her pupils were equal, round, and reactive to light without relative afferent pupillary defect (RAPD). Her intraocular pressures (IOP) were within normal limits in both eyes (OU). Slit lamp biomicroscopy OD was remarkable for 1 + diffuse injection of the conjunctiva, trace Descemet's folds, 3 + mixed AC cell and pigment, and a sharply-circumscribed, globular, partially opaque mass with smooth borders and a well-demarcated stalk attached to the anterior surface of the PCIOL (Fig. 1A and 1B). Slit lamp biomicroscopy OS was remarkable only for trace conjunctival injection and 2 + white cell reaction of the AC. No hypopyon was visualized in either eye. The PCIOLs were noted to be centered OU without posterior capsular opacification. Dilated fundus examination OU was unremarkable.

The patient was diagnosed with rebound iritis OU and a well-demarcated fibrin clot OD. She was started on prednisolone acetate 1% eye drops every two hours OD and every four hours OS, along with cyclopentolate 1% eye drops twice a day OU. The patient was examined three days later with improved corrected near visual acuity of 20/25 OD and 20/20 OS. There was complete resolution of the fibrin clot in the right eye (Fig. 2A and 2B) and improvement in AC inflammation to 1 + cell in both eyes. The patient endorsed significant improvement in her symptoms and was discharged on a tapering regimen of topical steroids, however, the patient was again lost to follow-up.

Discussion

The subacute post-operative anterior segment mass reported above most likely represents a fibrinous exudate secondary to rebound iritis given the non-compliance of our patient to the topical steroid regimen and the presence of inflammation in the fellow eye. Rebound and persistent iritis are well-known entities that may occur after cataract surgery. Neatrou et al¹ reported that pupil expansion devices such as a Malyugin ring, which was used in the case of our patient, portends a statistically significant increase in persistent (> 1 month) post-operative iritis.

Intraocular fibrinous exudates are occasionally encountered after intraocular surgery, more commonly after pars plana vitrectomy rather than uncomplicated cataract surgery.²⁻⁵ Jaffe et al² noted the presence of post-vitrectomy fibrin in the AC in nearly one-third of a total of 194 patients undergoing vitrectomy within a 10-month period with pre-operative risk factors being severe flare and the presence of a prior scleral buckle. Sebestyen et al³ defined an entity known as “the fibrinoid syndrome” which is characterized by thick transvitreal or retropupillary fibrin bands that develop in patients with proliferative diabetic retinopathy after undergoing multiple intraocular surgeries.

Fibrin reaction has also been reported after anterior segment surgery, particularly combined cataract and glaucoma surgery in the setting of iris manipulation in patients on long-term miotic therapy, as well as in uveitic patients.⁴ Following routine cataract surgery, Miyake et al⁶ reported a 4.4% overall incidence of pupillary fibrin membrane formation in Japanese patients, typically around post-operative day five. Interestingly, the authors found a statistically significant increase in the incidence of fibrin reaction after cataract surgery in the second eye, especially when the two operations took place within five months of each other. Remarkably, our patient did not develop a fibrin reaction until 10 weeks post-surgery and only showed a unilateral reaction despite having bilateral surgery one month apart.

The pathophysiology of post-operative fibrin clots is thought to be secondary to a transient lowering of IOP and disruption in the blood-aqueous barrier during CE, which results in the leakage of fibrinogen-rich fluid from arterial plasma into the AC, eliciting a fibrinoid reaction.⁷⁻⁹ Multiple studies have shown benefit in using intracameral tissue plasminogen activator to rapidly melt the fibrin clot.^{4,7,8} If untreated, this fibrin can consolidate and result in a dense pupillary membrane and decrease in vision. One could surmise that an underlying hypercoagulable condition and collagen vascular disease, such as antithrombin III deficiency and systemic lupus erythematosus seen in our patient, may portend an increased risk for fibrinous iritis, although this has not been reported in the literature.

Although AC fibrin clots have been previously reported in the literature, they have been described mostly after pars plana vitrectomy, typically in complex eyes or complicated surgeries, occurrence within the first postoperative week, and with irregular borders with varying degrees of opacity and web-like projections. Our patient not only had a delayed (10 week post-surgical) presentation, but the clot itself had the atypical appearance of a globular mass with a round, smooth border and a sharply-demarcated stalk connecting to the anterior surface of the PCIOL. Although a biopsy was not taken for definitive diagnosis, the lesion was suspected to be fibrin due to its associated AC reaction and rapid resolution on topical steroid therapy.

To the best of our knowledge, this is the first report in the ophthalmic literature of a post-operative anterior uveitic mass in such a well-circumscribed configuration that completely resolved after a short course of topical steroids. We surmise that this mass represents a peculiarly-shaped fibrinous exudate secondary to a subacute rebound iritis; ophthalmologists should be aware of this rare and unique presentation after intraocular surgery.

Abbreviations

1. AC
anterior chamber
2. CE
cataract extraction
3. PCIOL
posterior chamber intraocular lens
4. OD
right eye
5. OS
left eye
6. RAPD
relative afferent pupillary defect
7. IOP
intraocular pressure
8. OU
both eyes

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

Written informed consent for publication of their clinical details and/or clinical images was obtained from the patient. A copy of the consent form is available for review by the Editor of this journal.

Availability of data and materials

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

WY evaluated the patient during the initial post-operative visits. NR and JK worked together to diagnose and provide treatment for the patient during the acute phase. NR compiled the images and was primary author of the case report. GK provided additional consultation during the write-up. All authors read and approved the final manuscript.

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References

1. Neatrou K, McAlpine A, Owens TB et al. Evaluation of the etiology of persistent iritis after cataract surgery. *J Ophthal Inflamm Infect.* 2019; 9(4)
2. Jaffe GJ, Schwartz D, Han DP et al (1990) Risk factors for postvitrectomy fibrin formation. *Am J Ophthalmol* 109:661–667
3. Sebestyen JG (1982) Fibrinoid syndrome: A severe complication of vitrectomy surgery in diabetics. *Ann Ophthalmol* 14:853–856
4. Lesser GR, Osher RH, Whipple D, Abrams GW, Cionni RJ (1993) Treatment of anterior chamber fibrin following cataract surgery with tissue plasminogen activator. *Journal of Cataract Refractive Surgery* 19(2):301–305
5. Lewis H, Han D, Williams GA (1987) Management of fibrin pupillary block glaucoma after pars plana vitrectomy with intravitreal gas injection. *Am J Ophthalmol* 103:180–182
6. Miyake K, Maekubo K, Miyake Y, Nishi O (1989) Pupillary fibrin membrane: a frequent early complication after posterior chamber lens implantation in Japan. *Ophthalmology* 96:1228–1233
7. Siatiri H, Beheshtnezhad AH, Asghari H, Siatiri N, Moghimi S, Piri N (2005) Intracameral tissue plasminogen activator to prevent severe fibrinous effusion after congenital cataract surgery. *Br J Ophthalmol* 89:1458–1461
8. Wu TT, Wang HH (2009) Intracameral recombinant tissue plasminogen activator for the treatment of severe fibrin reaction in endophthalmitis. *Eye* 23:101–107
9. Da Rocha Lima B, Pichi F, Nucci P, Srivastava SK, Lowder CY (2014) Fibrin Reaction after Uveitic Cataract Surgery: Treatment and Prevention. *Eur J Ophthalmol* 24(4):626–628

Figures

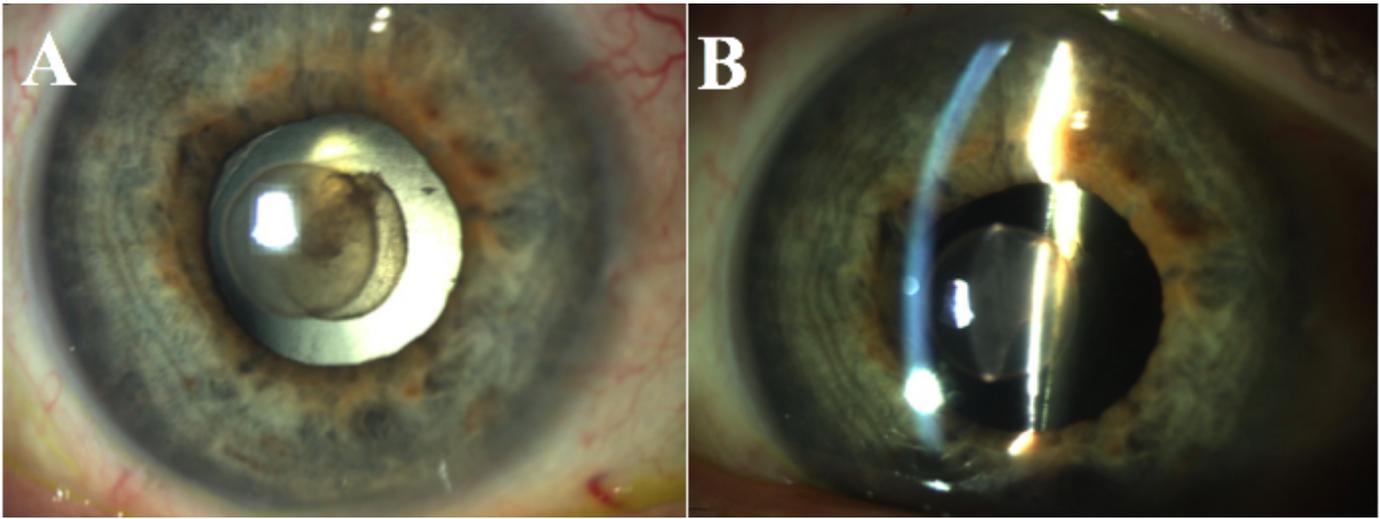


Figure 1

Sharply-circumscribed, globular, partially opaque mass with a round, smooth border and a conical stalk attached to the anterior surface of the PCIOL in retro-illumination (A) and direct illumination (B).

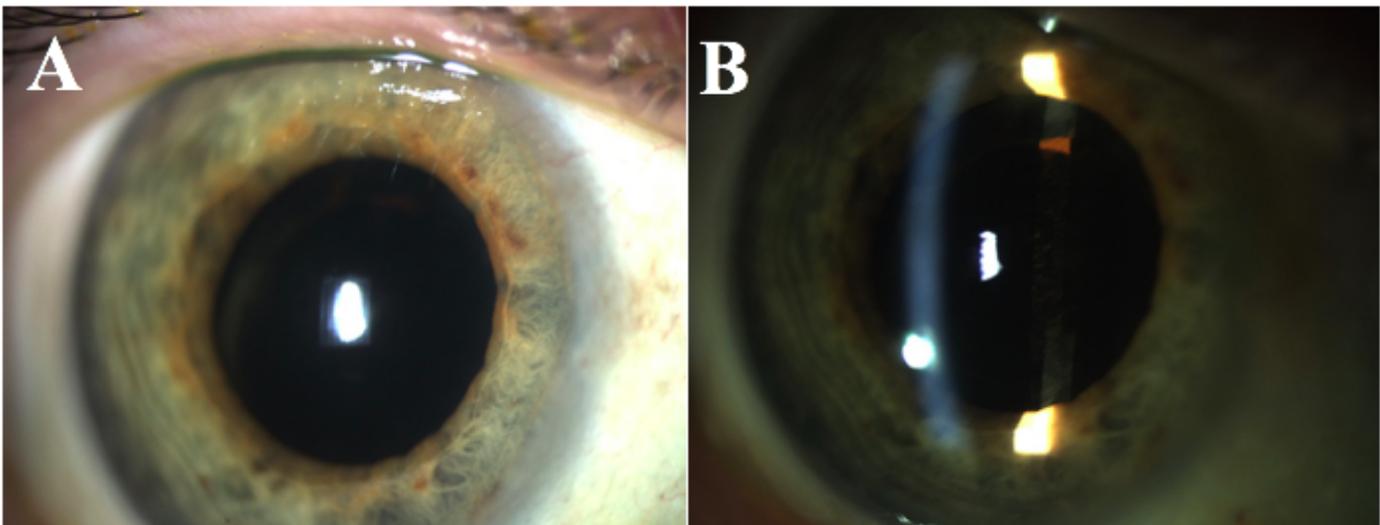


Figure 2

Complete resolution of the AC mass after three days of topical steroids (A, B).