



# ASOT NEWS



## The American Society of Ophthalmic Trauma Newsletter

*Rachel Israilevich, BS, and Allison Rizzuti, MD*

### ASOT 3rd Annual Meeting

We are about 30 days away from ASOT's 3rd Annual Meeting. Register today! The meeting will be held on Saturday, June 3rd 2023 at Columbia University Irving Medical Center in NY, New York. Following the meeting please join us for a cocktail reception in the Vagelos Center. Scientific research presented in both paper and poster format will be featured. This meeting will display learning opportunities to promote skills and knowledge for providing excellent care for eye trauma patients. A limited amount of discounted hotel rooms in the local area for those attending the ASOT Annual meeting will be available. Make your reservations by May 9, 2023, to take advantage of the discounted rate. We look forward to seeing you there!



### ASOT Board Applications are Now Open for Medical Students and Residents

The ASOT Board of Directors recognizes and values the involvement of residents and medical students within the Society. As such, the opportunity exists for Residents and Medical Students to serve as nonvoting members of the Board. Two seats will be available for both Residents and Medical Students for a total of four seats.

**Term:** 1-2 years – starting in July 2023 (terms would be staggered)

**Submission Materials:**

- A 250-word paragraph on why the candidate would like to join the ASOT Board
- A copy of the candidate's CV
- A Letter of Recommendation from a faculty member from the candidate's university or medical institution

**Submission and Deadline:** Full application materials must be sent to the ASOT Executive Office [info@theasot.com](mailto:info@theasot.com) no later than 24.00H on Thursday, June 1, 2023.

# HOT OFF THE PRESS HIGHLIGHTS

## Epidemiologic Pattern and Injury Mechanism of Intimate Partner Violence-Related Ocular Trauma in the US

<https://jamanetwork.com/journals/jamaophthalmology/article-abstract/2803106>

This retrospective cross-sectional analysis identified the most common epidemiological pattern of ocular injury following intimate partner violence (IPV), examining the role of sex, substance misuse, race, ethnicity, age, social support, and access to economic resources. Of the 2589 IPV-related ocular traumas requiring hospitalization from 2017-2019, 62.3% involved female survivors, and 41.5% of trauma victims had a positive alcohol screen during admission. By race, White survivors accounted for 52.3% of ocular injuries, with Black survivors at 24.2%, but results may be negatively skewed by historic underreporting and not seeking medical attention.

Additionally, survivors with Medicaid and Medicare accounted for a greater proportion of IPV ocular trauma compared to private insurance, indicating that lower socioeconomic groups have higher IPV-related injury prevalence. Overall, orbital fractures were the most common IPV-related ocular injuries. This study highlights the need for appropriate screening guidelines as many social determinant factors could play a crucial role in identifying risk for IPV-related ocular traumas.

## Open-Globe Injury Repairs in the American Academy of Ophthalmology IRIS® Registry 2014 through 2018: Incidence, Risk Factors, and Visual Outcomes

<https://pubmed.ncbi.nlm.nih.gov/36924850/>

This retrospective cohort study examined the incidence, demographic risk factors, and visual acuity (VA) outcomes of open-globe injuries requiring surgical repair (OGR) using the IRIS Registry, highlighting the racial and ethnic disparities in both risk for OGR and poor VA outcomes within 1 year after OGR. Of the total 13,766 OGRs identified, OGR was 1.6 times more likely in patients aged 21-40 years compared to <21 years. OGR was associated with male patients (2.8 times more likely), Black versus White patients (1.3 times more likely), Hispanic versus non-Hispanic patients (1.7 times more likely), and South versus Midwest regions (1.4 times more likely).

Furthermore, of the 1063 patients undergoing OGR with VA of 20/200 or worse at initial presentation, 35% of patients had no improvement of VA to better than 20/200. Overall, this study found the risk of OGR and poor visual outcomes within 1 year of OGR is associated with race, ethnicity, age, and sex, emphasizing future public health relevance and the need to acknowledge demographic differences in high-risk injury settings

## ASOT FEATURED CASE:

# Symptomatic Pigment Dispersion with Intraocular Pressure Elevation Attributed to Intracameral Moxifloxacin after Open Globe Injury

Yamiko Jessica Chanza, BS, Catherine Marie Marando, MD, Michael Vincent Boland, MD, PhD, Marisa Tieger, MD

### Introduction

Bilateral acute iris depigmentation (BADI) syndrome was first described by Tugal-Tutkun and Urgancioglu in 2005 and is characterized by an acute dispersion of pigment in the anterior chamber, depigmentation of iris epithelium and pigment deposition in the angle and posterior surface of the cornea.(1) Bilateral acute iris transillumination (BAIT) has manifestations that are similar to BADI in addition to distinctive iris transillumination defects and atonic pupil with sphincter paralysis.(2) BADI and BAIT are acute self-limiting conditions and have previously been associated with antibiotic use, specifically systemic fluoroquinolones. The precise etiology remains unknown, however some authors suggest a viral cause.(3)

Unilateral pigment dispersion following administration of both systemic and topical fluoroquinolones was reported by Kawali et al. in 2019, with two patients in their series developing symptoms after moxifloxacin use.(2) Sánchez-Sánchez et al. published the first case series of pigment dispersion following intracameral moxifloxacin after glaucoma surgery.(4) Pigment dispersion was detected in the anterior chamber of one patient at the two week post-operative visit, the second patient at the three-week post-operative visit and in two patients at the one month postoperative visit.(4) All patients included in this case series were asymptomatic and had normal intraocular pressures (IOPs), with the exception of one patient who developed a painless elevation in IOP three months post-operatively due to occlusion of the surgical sclerotomy with pigment.(4) We report a novel case of symptomatic pigment dispersion three weeks following intracameral moxifloxacin administration presenting with pain, redness, photophobia, elevated IOP, pronounced pigment liberation, iris transillumination defects and pigment deposition on the iris surface.

### Case Presentation

A 38-year-old woman presented to Massachusetts Eye and Ear (MEE) with a zone 1 open globe injury of the right eye due to trauma caused by a screw. Her preoperative visual acuity (VA) was 20/50 and initial exam showed a one-millimeter full thickness nasal paracentral corneal laceration. There was no violation of the iris or lens capsule. Pre-operative computed tomography (CT) did not reveal any intraocular foreign body (IOFB). The corneal laceration was repaired within 24 hours with a single 10-0 nylon suture and intracameral (IC) moxifloxacin was administered at the end of the case. On post-operative day one, the VA was 20/50, the IOP was 17 mm Hg, the wound was Seidel negative, and the patient had 0.5+ mixed cell and pigment in the anterior chamber. The external exam is depicted in Figure 1. She was started on prednisolone acetate 1.0% (1 drop 6 times daily), moxifloxacin 0.5% (1 drop 4 times daily), and atropine 1.0% (1 drop twice daily) drops as per the usual trauma protocol at Massachusetts Eye and Ear.(5)

IMAGE 1

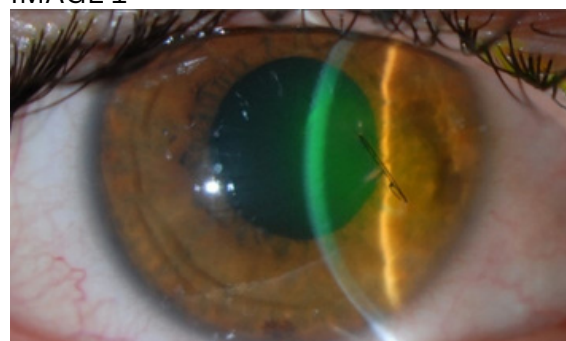
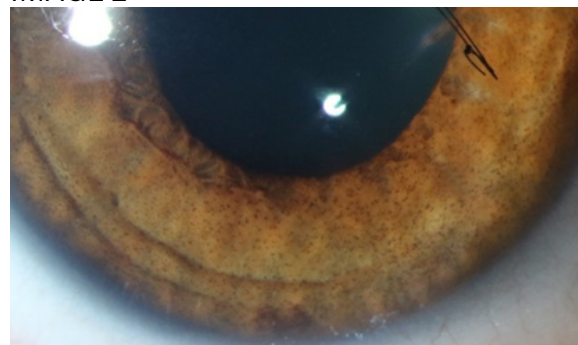


IMAGE 2



## ASOT Featured Case: Moxifloxacin and PDS

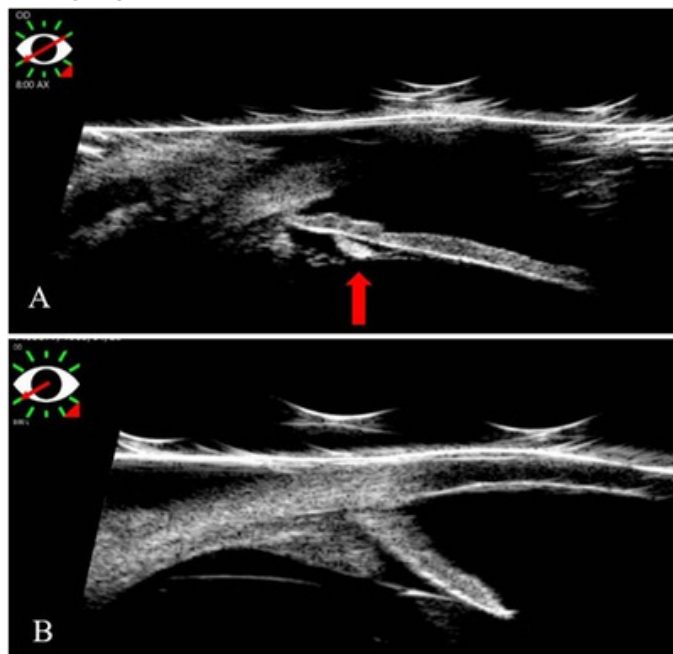
(continued)

On post-operative day nine, the patient reported minimal discomfort and her exam revealed a VA of 20/25, an IOP of 16 mm Hg, and 2+ pigment in the anterior chamber. A small superficial foreign body was noted on the surface of the cornea that was removed without complication utilizing a 30-gauge needle. On post-operative day 15 the patient presented with worsening pain and redness of the right eye. At this time, her VA was 20/40, IOP was 11 mm Hg, and 2-3+ pigment was noted in the anterior chamber. The following day, she was noted to have worsening 4+ pigment in the anterior chamber; otherwise, her VA and IOP were stable. An ultrasound of the right eye and ultrasound biomicroscopy (UBM) of the angle did not reveal any vitritis or retained foreign body.

On post-operative day 19, she continued to have worsening eye pain, redness, and photophobia. Her VA was 20/40 and her IOP was elevated to 58 mm Hg with diffuse corneal edema and persistent pigment in the anterior chamber. She was started on IOP lowering drops and oral acetazolamide in clinic which reduced her pressure to 28 mm Hg. On re-examination four days later, VA was 20/30 and her IOP was improved to 22 mm Hg on topical IOP lowering therapy. New numerous deposits of dark pigment were noted on the iris (Figure 2). Gonioscopy of the right eye at this time was open to scleral spur with dense pigment in the trabecular meshwork and her iris showed numerous new transillumination defects (TIDs). Repeat UBM showed a highly reflective and irregular interface with a thin membrane overlying it in the sulcus with concern for cyst versus IOFB (Figure 3A). The UBM was repeated three days later by the same trained ophthalmic sonographer, and the reflective material was no longer present (Figure 3B), which suggested a transient agglomeration of pigment. Importantly, the iris was not concave on UBM, as is typically seen with pigment dispersion syndrome resulting from irido-zonular contact.

The patient was diagnosed with pigment dispersion likely due to IC moxifloxacin. The fellow eye had no signs of pigment dispersion, such as a posteriorly bowed iris, trabecular meshwork pigmentation, or iris TIDs. Diamox was discontinued and she was monitored on topical therapy. At the patient's follow up four months post operatively, her eye pain resolved, the VA improved to 20/15 and the IOP was well controlled on latanoprost. The anterior chamber pigment resolved, however the pigment deposition on the iris surface as well as the transillumination defects persisted.

IMAGE 3



### Discussion

To our knowledge, this is the first case of symptomatic unilateral pigment dispersion with elevated IOP, iris transillumination defects and pigment deposition on the iris surface following intracameral (IC) moxifloxacin administration. Unilateral pigment dispersion following IC moxifloxacin has only been reported in one other case series published in February 2020.<sup>(4)</sup> Distinctively, all patients described in this case series were asymptomatic and only one patient had an elevated IOP.



## ASOT Featured Case: Moxifloxacin and PDS

(continued)

It is unclear whether other potential IOP elevations were masked by prior glaucoma filtering surgery. In contrast, the patient we report developed classic signs and symptoms of pigment dispersion including eye pain, photophobia, marked elevation in IOP, pigment deposition in the trabecular meshwork, iris transillumination defects and a unique finding of pigment deposits on the anterior iris surface.

Fluoroquinolone affinity of ocular melanocytes is well documented. Potential underlying mechanisms for fluoroquinolone-induced melanocyte phototoxicity have previously been described in human skin melanocytes and include inhibition of melanization by binding to tyrosinase (TYR), a critical regulator of melanin synthesis.(6, 7) Mahanty et al. described the effect of moxifloxacin and ciprofloxacin on human iris pigment epithelium in vitro and demonstrated significant toxicity for doses of moxifloxacin greater than 2500µg/mL.(8) However, the aqueous humor samples treated with 2.5–5.0 µg/mL of moxifloxacin showed TYR activity that was equivalent to the bovine serum albumin control, which indicated little or no toxicity to iris melanocytes. Notably, 0.1 mL of a 5mg/mL solution of moxifloxacin is standard for intraoperative administration.

The data available to define this novel syndrome are limited. The majority of relevant literature describe bilateral pigment dispersion resulting from systemic fluoroquinolone administration and has been termed BADI or BAIT; the latter diagnosis if iris TIDs are present.(9, 10) Other reports have described pigment dispersion after application of topical moxifloxacin and a single study has reported pigment dispersion following intracameral moxifloxacin.(2, 4)

The use of intracameral antibiotics after intraocular surgery is trending upward as reported by the American Society of Cataract and Refractive Surgery (ASCRS) 2014 survey which revealed that 50% of cataract surgeons were using intracameral antibiotics after cataract surgery, compared to the 30% of respondents in 2007.(11)

### Conclusion

Symptomatic unilateral pigment dispersion with IOP elevation following intracameral moxifloxacin is a rare entity, but it is a crucial complication for clinicians to be aware of as intracameral antibiotic use following intraocular surgery becomes more frequent.

**ASOT IS ON  
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# ASOT UPCOMING EVENTS - SAVE THE DATE!



**June 3, 2023:**

ASOT's 3rd Annual Meeting  
New York City, NY



**August 4-5, 2023:**

The International Society of  
Ophthalmic Trauma  
Cartagena  
de Indias, Colombia.



American Society of Ophthalmic Trauma

**OFFICE ADDRESS:**

1935 County Road B2 W, Ste 165,  
Roseville, MN 55113

**EMAIL:**

[info@theasot.com](mailto:info@theasot.com)

**WEBSITE:**

[www.theasot.com](http://www.theasot.com)