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### 4. Postoperative endophthalmitis

Postoperative endophthalmitis (PE) is a potentially devastating complication of ophthalmic surgery and is characterized by infection and inflammation of the eye. It occurs most frequently after cataract surgery, with an incidence of approximately 0.05%.<sup>1</sup> Awareness of the condition is important—delay in diagnosis can result in permanent blindness.

Most commonly, PE presents acutely in the first 2 weeks following surgery. Patients typically report symptoms such as a red eye, pain, decreased vision, and discharge in the affected eye, all of which might be rapidly progressive.<sup>2</sup> Headache and photophobia might also occur. Common clinical signs seen during examination include decreased visual acuity (often severe), swelling of the eyelid, conjunctival and corneal edema, hypopyon, anterior chamber cells and flare, a blunted red reflex, blurred view of retinal vessels on ophthalmoscopy, and vitreous and retinal inflammation.<sup>2,3</sup>

Most cases of PE are thought to occur because of introduction of the patient's normal periocular flora into the eye during surgery. Gram-positive bacteria are isolated in more than 90% of cases, with the most common species being coagulase-negative staphylococci.<sup>3,4</sup> Other frequently isolated bacteria include *Staphylococcus aureus*, streptococcus species, and Gram-negative bacteria; however, these are typically associated with worse prognoses.<sup>3</sup> Fungal endophthalmitis is exceedingly rare and typically presents weeks to months after surgery, although it too can present in the first few days postoperatively.<sup>5</sup>

### Management

Endophthalmitis should be suspected in any eye with inflammation greater than expected in the postoperative period.<sup>2</sup> Immediate referral to the ophthalmologist who performed the surgery is imperative. The management strategy will then be directed according to the presenting visual acuity in the affected eye. If vision is better than light perception, aqueous and vitreous samples should be obtained with both an aqueous tap and either a vitreous tap or a vitreous biopsy (with a cutting and aspiration probe).<sup>3</sup> Samples are sent for Gram stain, culture, and sensitivity. Empiric antibiotics are then administered, usually in the form of a single intravitreal injection of vancomycin and ceftazidime.<sup>2</sup> Patients should be closely followed up and if no clinical improvement is seen within 48 hours, a repeat injection might be warranted (although the risk of retinal toxicity should be considered).<sup>2</sup>



For patients presenting with a visual acuity of light perception only or worse, the Endophthalmitis Vitrectomy Study Group showed an improved outcome with immediate vitrectomy.<sup>3</sup> Vitrectomy not only allows for collection of samples, but also has other benefits, including improvement of antibiotic distribution and reduction of infecting organisms, toxins, and opacities.<sup>2</sup> Antibiotics are administered at the time of surgery.

The prognosis of PE is variable and depends on the type of organism isolated as well as the degree of inflammatory damage to the eye. Outcomes range from excellent visual acuity to blindness and even loss of the eye altogether.

### Recommendations

Postoperative endophthalmitis must be considered for any patient complaining of substantial pain, redness, or decreased vision following cataract surgery. Urgent referral to the cataract surgeon is necessary. ✱

Mr Johnson is a third-year medical student at Queen's University in Kingston, Ont. Dr Sharma is an Associate Professor in the Department of Ophthalmology at Queen's University.

#### Competing interests

None declared

#### References

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