

Severe eye pain and reduced vision four days after cataract surgery

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If a patient develops eye pain and decreased vision in the early stages after cataract surgery, endophthalmitis must be assumed. Urgent ophthalmic review and treatment with intravitreal antibiotics need to be arranged.

Case presentation

Mrs M, a 75-year-old woman, underwent uncomplicated cataract surgery to the right eye. On the first postoperative day, the intraocular lens was well positioned and the eye uninflamed, and her visual acuity was excellent (6/6). She was treated with topical steroids and antibiotics, and her next review was scheduled for one week's time.

On the fourth postoperative day, however, she awoke with pain in the eye in the early hours of the morning and found that her vision was bad. She telephoned her ophthalmologist at 8 a.m.

Comment

When a patient develops eye pain and decreased vision in the early stages after cataract surgery, endophthalmitis must be assumed – that is, intraocular inflammation due to a bacterial or fungal infection. It is an emergency that has the potential to cause severe visual loss or even loss of the eye. Ophthalmic review and treatment need to be arranged urgently.

Acute postoperative endophthalmitis after cataract surgery occurs in approximately 1 in 1000 patients, and is more likely if the surgery has been prolonged or complicated. Most patients present within the first postoperative week with decreased vision, pain and a red eye. Earlier presentation suggests a more aggressive pathogen. Delayed onset endophthalmitis, which develops more than six weeks after surgery, is rare.

Cataract surgery is the most common cause of endophthalmitis, but it can also develop after glaucoma drainage surgery (trabeculectomy) or other eye surgery and is seen in approximately 10% of patients after penetrating eye trauma. Endogenous endophthalmitis (i.e. infection reaching the eye via the bloodstream) is rare, and typically seen in immunocompromised patients and intravenous drug users.

Examination

Mrs M was seen promptly by her ophthalmologist, who noted that she was

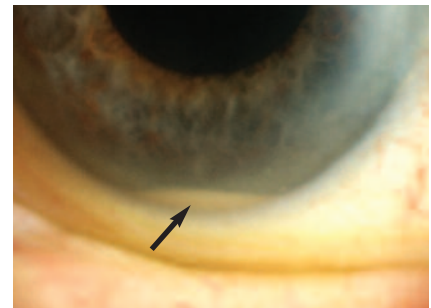


Figure. A hypopyon in a patient with endophthalmitis after cataract surgery.

distressed by severe eye pain. Her vision was 'count fingers', but there was no relative afferent pupillary defect. The eyelids were mildly swollen and the conjunctiva was intensely injected.

Slit lamp examination showed an intact corneal incision, mild corneal cloudiness resulting from mild corneal oedema and numerous inflammatory cells in the anterior chamber. A hypopyon (layering of pus cells in the lower part of the anterior chamber) was visible (Figure). A fibrin plaque was present over the intraocular lens, which was still well positioned. The red reflex from the fundus was decreased. After dilating the pupil, the view of the retina was poor because of the changes in the anterior chamber and vitreous haze, and the optic disc could only just be seen.

Comment

The triad of poor vision, a hypopyon in the anterior chamber, and a decreased red reflex after cataract surgery is diagnostic of infective endophthalmitis. Possible alternative diagnoses include noninfective inflammation after a complicated procedure or because of retained lenticular fragments. However, treatment of infective endophthalmitis must not be delayed, and equivocal cases must be treated as infective in the first instance.

Investigation and management

Mrs M was urgently referred to the eye emergency department. The severity of

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the situation was explained to her, and then samples of intraocular fluids were taken from the anterior chamber and vitreous cavity for culture and Gram staining. Intravitreal antibiotics (vancomycin and ceftazidime) were given immediately after anaesthetising the eye with a peribulbar injection of bupivacaine.

The eye was then padded and Mrs M was admitted to hospital, where she was placed on an intensive regimen of topical antibiotics (vancomycin and ceftazidime), dexamethasone and atropine. Oral ciprofloxacin and oral prednisone were also given.

The next morning, the patient's eye pain was much improved, but her vision remained poor and the hypopyon and anterior chamber inflammation were unchanged. There was still no view of the retina. Gram stain showed pus cells in both the vitreous cavity and anterior chamber samples, but no organisms were seen. There was a growth of α -haemolytic streptococcus from the vitreous sample only, which was sensitive to vancomycin.

The anterior chamber inflammation gradually subsided and the fibrin and hypopyon resolved. The vitreous inflammation and haze also slowly improved, with the optic disc and large retinal vessels becoming visible. After one week, the patient's vision had improved slightly and she was discharged home with eyedrops (vancomycin, ceftazidime, dexamethasone and atropine) and oral prednisone (to be tapered over three weeks).

Steady improvement continued over the next two months. The patient's visual acuity at three months was 6/12.

Comment

The cornerstone of treatment for endophthalmitis is the urgent administration of intravitreal antibiotics to rapidly achieve high and dependable intraocular concentrations. Treatment may be carried out in hospital or as an outpatient, depending on the patient's circumstances.

However, transfer must not delay administration of the intravitreal antibiotics.

For patients who have vision of 'hand movements' or better, samples are taken from the aqueous and vitreous and intravitreal antibiotics are given. For patients with poorer initial vision (light perception only), formal vitrectomy has been shown to give significantly better visual results; however, the surgery is extremely difficult in an acutely inflamed eye in which visualisation of the posterior segment is poor.

Organisms responsible for acute postoperative endophthalmitis generally arise from the patient's skin and eyelid flora. The most common pathogens are Gram-positive coagulase-negative staphylococci (45% of cases), followed by *Staphylococcus aureus* and streptococci. A combination of vancomycin and ceftazidime given into the vitreous cavity is effective against all the commonly encountered causative organisms.

The visual outcome for patients with acute postoperative endophthalmitis is reasonable, so they can be given hope at the time of their presentation. Approximately 50% gain visual acuity of 6/12 or better after one year; 10% have acuity of less than 6/60; and 5% have no light perception. The outlook is worse if the presenting acuity is light perception only. Causes of poor final visual outcomes include opacities of the cornea and vitreous, macular scarring and oedema, and retinal detachment.

Conclusion

Acute postoperative endophthalmitis is the most common form of endophthalmitis encountered in our community. Onset of severe pain and reduced vision in the first week after cataract surgery is typical, and examination reveals a red eye, hypopyon and decreased red reflex. Ophthalmic review and treatment must be arranged urgently. MT

DECLARATION OF INTEREST: None.