Intraocular injury

Nurses working in emergency care often have to manage patients with undifferentiated and previously undiagnosed conditions. This month, *Emergency Nurse* continues to look at how emergency nurses across the UK have tackled the unusual and unexpected.

Ophthalmic conditions account for more than 5 per cent of all minor injury unit and emergency department (ED) presentations in the UK (Ezra et al 2005). Yet Tan et al (1997) observe that junior medical staff lack competence and confidence in managing ocular emergencies, which can lead to suboptimal care.

Emergency nurse practitioners (ENPs) now manage a large proportion of so-called ‘minor injuries’, including ophthalmic problems, and anecdotal evidence suggests that there is a similar level of concern among those with limited ophthalmic experience.

The following case study highlights the importance of accurate history taking in ophthalmic examinations.

**Case study**

A 48-year-old male construction worker attended the minor injury service late one evening complaining of irritation in his right eye. He was experiencing minimal discomfort. The onset of discomfort was first noticed after he had been drilling into a steel structure about ten hours earlier. He admitted that he had not worn protective goggles.

On examination, an intraocular foreign body (FB) was discovered on the iris at about the nine o’clock position.

Other investigations revealed that:

- No diplopia, blurred vision or photophobia were found
- The visual fields were normal
- The pupils were equal and reacting to light
- A full range of ocular movements and red reflex were present
- Lid eversion showed no evidence of injury or associated subtarsal FBs
- Staining with fluorescein showed a corneal defect and an apparently self-sealing wound at the site of the FB
- Seidel’s test for leakage of aqueous humor was negative.

The ENP referred the patient to the on-call ophthalmic registrar at the local specialist centre, who advised a chloramphenicol ointment and use of an eye shield before transfer. The patient’s tetanus status was checked and he was transferred to the ophthalmic centre.

The FB, a 2mm metal fragment, was removed on the following day, while the patient was under a general anaesthetic. After a three-day inpatient stay, the patient was discharged home. On discharge, his visual acuity in both eyes was 6/6 unaided. It is suspected that, in the future, he will wear protective goggles when performing risky tasks.

**Discussion**

Comprehensive history taking and ophthalmic examinations are required for all patients presenting with eye injuries. Mechanisms of injury need to be established and a high index of suspicion for penetration potential needs to be maintained.

Objects that penetrate the eye may leave only small entry wounds, and Wesley et al (1987) caution that patients affected in this way can have normal vision and their eyes can appear normal on examination.

Although penetration and perforation of the eye may not cause pain however, absence of pain does not mean that severe injury has not occurred.

![Intraocular injury](image-url)
For patients experiencing pain or discomfort, anaesthetic drops will provide significant pain relief and facilitate examination.

In the Seidel’s test, a fluorescein film is applied to a suspected corneal injury and then examined under cobalt blue light.

Any aqueous humor leaking from the wound will appear as dark streaks on the film, indicating a positive Seidel’s test result. A negative result, however, would not exclude the possibility of a corneal wound because these can comprise small lacerations that can seal quickly, as was the case with the patient in this study.

Failure to suspect and diagnose penetrating eye injuries can have devastating and lasting consequences. Most FBs can be detected with slit lamp ophthalmoscopy. For FBs that are not readily visible on examination, ENPs should consider requesting soft tissue orbital radiographs if it is suspected that the FBs are radio opaque (Fig. 1).

Raby et al (2005) recommend two orbital views with upward and downward gaze. If an FB is present, its movement during upward and downward gaze will indicate whether it is located inside or outside the globe.

If FBs are non-radio opaque, ultrasound or computerised tomography (CT) may aid confirmation and location. Many consider CT scans to be the ‘gold standard’ although advanced imaging requests are sometimes made, usually at the request of ophthalmic teams, after patient referral.

Visual acuity can be the most useful guide to whether eye conditions are minor or serious, and is usually the subject of one of the first questions asked by specialists when making telephone referrals.

Flitcroft et al (1995) observe however that failure to record visual acuity occurs in 44 per cent of cases in which patients present to general EDs, compared to only 4 per cent in which patients attend specialist ophthalmic EDs.

Greven et al (2000) suggest that, in patients with intraocular FBs, the results of visual acuity tests at presentation are the strongest predictors of final visual acuity. Failure to record visual acuity is therefore a critical part of any medicolegal review of clinical notes.

On a positive note, Ezra et al (2005) observed ENPs to be more accurate in history taking, recording visual acuity, describing ocular anatomy, and making provisional diagnoses than ED doctors, and they suggest that all eye emergencies should be seen by ENPs.

**Conclusion**

A systematic and standardised approach to history taking, examination and investigation reduces anxiety relating to the assessment of ophthalmic injuries.

Safe practice and robust risk management can be ensured by keeping a high index of suspicion with a low threshold of referral, while basic competencies in essential assessment skills can be gained from time spent with accomplished ophthalmic practitioners.

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**References**


