

## Visual Diagnosis in Emergency Medicine

### ULTRASOUND IMAGING OF PENETRATING OCULAR TRAUMA

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#### CASE REPORT

An adult Iraqi male of unknown age arrived at a forward surgical unit with multiple shrapnel wounds sustained in an IED (improvised explosive device) attack that had occurred < 1 h previously. On arrival, the patient had stable vital signs and a Glasgow Coma Scale score of 15. On initial examination, the patient was noted to have multiple shrapnel wounds to the head, face, and left lower extremity.

On secondary examination, the patient was found to have a right corneal defect with a visual acuity of bare fingers count at 1 foot. A Seidel test was performed with negative results. An ultrasound of the globe was performed over the upper eyelid using a SonoSite 180 (SonoSite Inc., Bothell, WA) with 10–5-MHz broadband linear array transducer (Figures 1, 2). The image obtained demonstrated an intraocular foreign body and probable retinal hemorrhage. The affected eye was subsequently patched and the patient was evacuated to the Combat Support Hospital for further evaluation and treatment.

Ophthalmologic examination at the Combat Support Hospital confirmed the evaluation made in the field. The patient was diagnosed with a full thickness corneal laceration and traumatic cataract with anterior dislocation of the lens and vitreous prolapse. A retained intraocular foreign body was noted with a computed tomography (CT) scan. The patient underwent an operative repair of the corneal laceration with a Weck cell vitrectomy. On

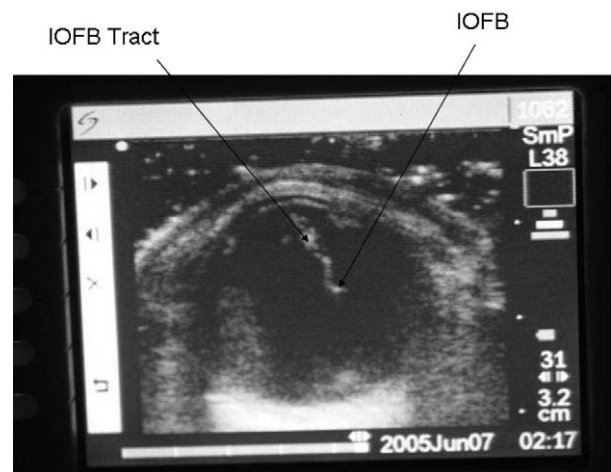
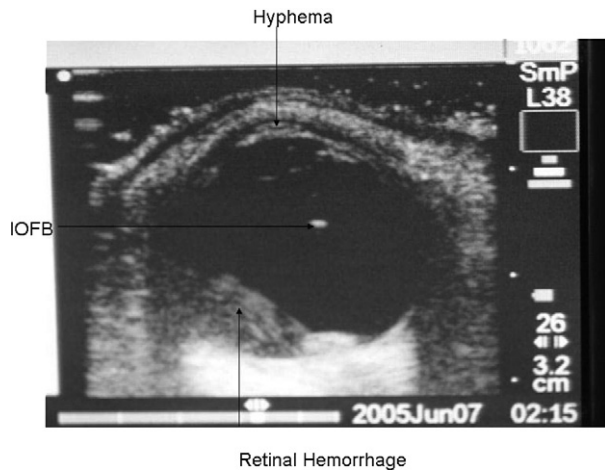


Figure 1. Initial ultrasound image right orbit. IOFB = intraocular foreign body.

post-operative day 2, the patient required an anterior chamber paracentesis for elevated intraocular pressure. On day 3, the patient was transferred to the local Iraqi hospital for definitive care to include removal of the cataract and the retained intraocular foreign body, but was lost to further follow-up.

#### DISCUSSION

The Seidel test consists of instilling fluorescein in the tear layer; a bright-green streaming appearance is



**Figure 2.** Repeat ultrasound image right orbit. IOFB = intraocular foreign body.

considered pathognomonic for a ruptured globe (1). The test may be negative if the wound has sealed. A Water's view radiograph or orbital thin-slice CT scan are the usual studies used to evaluate this type of injury. This case demonstrates how ultrasound can be used as another diagnostic tool when these other imaging modalities are not available or delayed (2).

## REFERENCES

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2. McNicholas MM, Brophy DP, Power WJ, Griffin JF. Ocular trauma: evaluation with US. *Radiology* 1995;195:423–7.