

## Ocular examination without 'eye opening'

### CASE

A 30-year-old man presented to the emergency department (ED) after hitting his head against a boulder when he fell from a motorbike. The primary survey was normal. On secondary survey revealed multiple lacerations on the face and severe left eyelid oedema. Since the patient could not open his left eye, an emergency bedside ocular ultrasonography was performed (figure 1).

### QUESTION

What is the most appropriate diagnosis and its management?

- Diagnosis: foreign body in the retrobulbar space.  
Management: surgical removal
- Diagnosis: retrobulbar haematoma.  
Management: emergent lateral canthotomy.
- Diagnosis: retrobulbar air because of maxillofacial fracture  
Management: conservative management
- The ultrasound picture is artefactual.

*For answer see page 2.*

*For question see page 1.*



**Figure 1** Ocular ultrasonography showing a thin rim of hypoechoic retrobulbar structure.

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**Figure 2** Ocular ultrasonography showing a thin rim of hypoechoic retrobulbar structure, suggesting retrobulbar haemorrhage (as indicated by the white arrow).

## DISCUSSION

### Correct answer: B

A crescent-shaped hypoechoic shadow posterior to the globe in the left eye suggests a retrobulbar haemorrhage (RBH) (figure 2, white arrow). RBH is a rare vision-threatening complication of orbital trauma that may progress to ‘orbital compartment syndrome’, wherein increased intraorbital pressure leads to retinal detachment and optic nerve ischaemia.<sup>1</sup> Hence, an emergency orbital decompression performed within 60–90 min of injury is crucial for salvaging vision.<sup>2,3</sup> Clinically, RBH can be suspected when a patient presents with painful proptosis, lid oedema and impaired vision following trauma to the eye. The gold standard for a definitive diagnosis is a non-contrast CT of the face which, however, has the limitations of being more time-consuming and exposing the patient to radiation. A quick bedside ultrasound evaluation of the retro-orbital space in the

ED itself can yield an early diagnosis of anRBH, allowing emergent lateral canthotomy to be performed quickly.<sup>3</sup> We performed an emergency lateral canthotomy in the ED within 1 hour of injury. The patient was discharged from the hospital after 10 days with a vision of 20/30 in the affected eye.

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