

Teresa S. Wu, MD, Paul Dommer, DO, Thomas C. Pearson, BS

From the Department of Emergency Medicine, Maricopa Medical Center, Phoenix, AZ (Wu, Dommer, Pearson); and the Department of Emergency Medicine, University of Arizona, College of Medicine-Phoenix Campus, Phoenix, AZ (Wu).

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Figure 1. Physical examination findings.



Figure 2. Ocular ultrasonographic findings.

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A 42-year-old woman was brought in by ambulance after a moderate-speed motor vehicle crash on the freeway. She was the unrestrained driver of a compact car that rear-ended another vehicle. The patient's vital signs were stable in the emergency department, and her trauma survey was significant only for facial lacerations, a nasal fracture, and right orbital swelling and ecchymosis (Figure 1). Bedside, focused, ocular ultrasonography was performed before the patient was transported to radiology for her computed tomography (CT) scans (Figures 2 and 3).

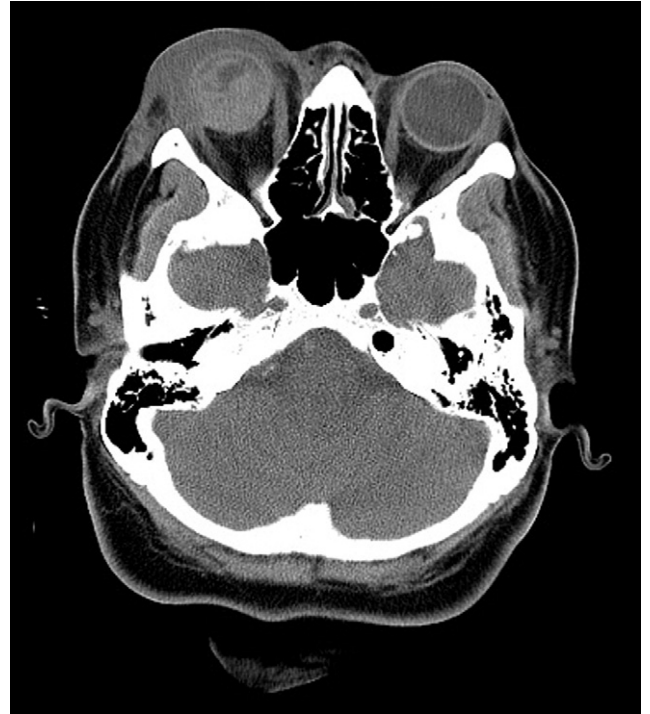


Figure 3. CT of the orbits. Used with permission of Teresa S. Wu, MD, Department of Emergency Medicine, Maricopa Medical Center, Phoenix, AZ.

For the diagnosis and teaching points, see page 708.

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DIAGNOSIS:

Partial globe rupture. Bedside ultrasonography demonstrated a partial globe rupture on the right, with hyperechoic blood mixed with anechoic vitreous humor. The weakened sclera showed “buckled” irregular borders, and the anterior chamber appeared compressed and flattened. The patient’s CT scan of her orbits confirmed the diagnosis, and ophthalmology was consulted for emergency surgical intervention. Globe ruptures can be difficult to diagnose according to physical examination findings alone. Findings such as a hyphema, irregular pupil, and flattened anterior chamber are difficult to visualize if the patient has developed significant orbital swelling after the injury. Care must be taken to minimize the amount of pressure applied to the globe during the examination. If ultrasonography is going to be performed to evaluate for possible globe rupture, images should be acquired by floating the transducer gently over a large bed of gel applied to the closed eyelid.¹ Applying inadvertent pressure to the globe can cause extrusion of intraocular contents.² Sonolucent ocular shields are currently being developed to aid in this bedside ultrasonographic application.

REFERENCES

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