

ALGORITHM FOR EVALUATION AND MANAGEMENT OF THE RUPTURED GLOBE IN AN ADULT

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Ruptured globe/open globe = full thickness disruption of sclera or cornea

History

When returning the consult call:

- mechanism of injury
- non-ocular injuries? Ensure patient is stabilized prior to any transfer.
- need for neuro clearance? (head/neck trauma, LOC, decreased mental status)

Exam

Signs:

- penetrating lid injury
- chemosis, bullous subconjunctival hemorrhage
- shallow anterior chamber
- hyphema
- peaked pupil (points towards the wound)
- loss of red reflex (vitreous hemorrhage, retinal detachment)
- prolapsed uveal tissue
- vitreous streaming just posterior to lens (posterior rupture)

- check for APD (traumatic optic neuropathy, visual prognosis)
- consider Seidel test to identify corneal or scleral lacerations (perform with caution)
- if clearly a ruptured globe: do not place pressure on the eye (avoid checking EOMs, IOP, gonio, B-scan), defer further exam until time of surgical repair
- examine the other eye, including dilation

First Steps

- **place Fox shield (no patch) at all times**
- ask about time of last meal; keep NPO
- tetanus immunization (if not up to date)
- bed rest; no bending/lifting/Valsalva
- consent/pre-op paperwork for OR; if patient sedated or unable, attempt to discuss with family member

- IV pain medication PRN
- IV anti-emetics
- IV antibiotics (see below) – do not delay until after repair
- Note: ok to initiate First Steps on the phone with ER/transferring MD

Imaging

CT scan of brain and orbits with thin cuts (1.5mm or less) (**NOT MRI**) to evaluate for:

- intraocular foreign body (IOFB) – if wood suspected, obtain MRI after CT
- orbital fractures
- other head trauma

If CT not immediately available, obtain plain X-ray of orbits pre-operatively and CT (as above) post-operatively.

No IOFB

Antibiotic Guidelines:[‡]

- IV fluoroquinolone x 2-3 days (unless contraindicated – allergy, myasthenia gravis) **OR** IV vancomycin and ceftazidime x 2-3 days (unless contraindicated – allergy, renal function)
- then PO cipro/levofloxacin x 7 days

IOFB

Antibiotic Guidelines:[‡]

- consult retina; intravitreal antibiotics per retina recommendations
- IV vancomycin and ceftazidime x 2-5 days (unless contraindicated – allergy, renal fxn)
- then PO cipro/levofloxacin x 7-10 days

Surgery and Admission

- Surgical repair: Emergent. General anesthesia preferred. Use Jaffe-style eyelid speculum.
- Admission x 2-3 days at least (for IV antibiotics)[‡]

Note: If no view posteriorly, obtain B-scan within 1 week post-op, once eye stabilized, to determine presence of vitreous detachment, vitreous or choroidal hemorrhage, or RD. Perform through closed lids, no undue pressure.

‡There is no “gold standard” for endophthalmitis prophylaxis or hospital admission after a ruptured globe injury, and no large, randomized, long-term studies have been performed to determine the benefit or preferred route of administration of prophylactic antibiotics after penetrating eye trauma. The above recommendations are based on review of the literature and faculty consensus.

References:

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