

Neurotrauma Quick Reference

Head injury:

All adult patients with blunt traumatic brain injury should be classified according to the mBIG criteria. Neurosurgical consultation is indicated for all patients who are mBIG 3. mBIG 1 and 2 patients should be managed according to the pathway.

Penetrating traumatic brain injury mandates neurosurgical consultation.

Cervical spine:

All blunt trauma patients should be placed in cervical spine precautions until the cervical spine can be appropriately evaluated. The cervical spine can be cleared clinically using established criteria such as the NEXUS or Canadian C-spine criteria. If the cervical spine is imaged, a CT c-spine should be performed. If imaging identifies a cervical spine fracture, the remainder of the spine must be imaged and a CT angiogram of the neck must be performed. Spine must be consulted for all cervical spine fractures (including spinous processes and transverse processes).

If there is no cervical spine fracture, the cervical spine must be cleared by a clinical exam. If the patient has persistent pain on exam without fracture, a second attempt should be made to clear the cervical spine within 12-24 hours. If they still have pain, they can continue to wear a cervical collar and follow up in spine clinic in two weeks. MRI of the cervical spine should be reserved for patients where the presence of a c-collar may result in significant morbidity, such as elderly patients or those at risk for dysphagia. MRI c-spine should be approved by the trauma attending prior to ordering.

Blunt cerebrovascular injury:

Patients with the follow injuries require CTA neck to screen for BCVI:

- High-energy transfer mechanism
- Displaced midface fracture (Lefort II or III)
- Mandible Fracture

- Complex skull fracture/basilar skull fracture/occipital condyle fracture
- Severe TBI with GCS <6
- Cervical spine fracture, subluxation, or ligamentous injury at any level
- Near hanging with anoxic brain injury
- Clothesline type injury or seat belt abrasion with significant swelling, pain, or altered mental status
- TBI with thoracic injuries
- Scalp degloving
- Thoracic vascular injuries
- Blunt cardiac rupture
- Upper rib fracture

BCVI should be managed according to the grade of the injury (see pathway). Neurosurgery consultation is only absolutely required for grade 3-4 injuries.

Thoracic/Lumbar spine:

Spinous and transverse process fractures only require spine consultation if they meet the following criteria:

- 4 or more contiguous TP fractures / SP fractures
- Bilateral TP fractures / SP fractures (regardless of the # of fractures)
- All C-spine TP fractures / SP fractures

Fractures read as subacute or chronic should be discussed with the attending prior to consulting the spine service.

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