



AAST Acute Care Surgery Didactic Curriculum

Blunt Neck Trauma

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Diagnosis and management

Highlights:

- Awake, examinable, asymptomatic patients: Canadian Cervical-Spine Rule (CCR) is more sensitive and specific than NEXUS and it reduces the need for radiographic evaluation in comparison to NEXUS. If the patient meets no high-risk CCR criteria, does not meet the low-risk CCR criteria, and has no pain with active range of motion, the cervical spine may be cleared without imaging.
 - Canadian C-Spine Rule Criteria
 - High-risk:
 - Age \geq 65 years
 - Dangerous mechanism
 - Fall from \geq 3 ft or 5 stairs
 - Axial load to head
 - MVC with high speed (>100 km/hr), rollover, or ejection
 - Motorized recreational vehicles
 - Bicycle struck or collision
 - Paresthesias
 - Low-risk:
 - Simple rear-end MVC
 - Sitting position in the ED
 - Ambulatory at any time
 - Delayed onset neck pain (not immediate)
 - Absence of midline c-spine tenderness
- Awake, examinable, symptomatic patients: There is no consensus regarding the need for MRI after negative CT imaging of the cervical spine in symptomatic patients. It is left to the physician's discretion to determine if MRI should be performed when there is concern for a ligamentous injury or high-risk changes in the cervical spine or if the physical exam and imaging are incongruent (eg pain out of proportion or ongoing neurological deficits with negative imaging).
- Unexaminable or obtunded patients: High-quality CT imaging (1-3 mm cuts) has a negative predictive value of 99.7-100%, a sensitivity of 93.7-99.9%, and a specificity of 99.9%. In a meta-analysis by Badhiwala et al, MRI imaging obtained after negative CT imaging of the cervical spine did not alter surgical or non-operative (cervical collar)

management for any patients. MRI cervical spine imaging after negative CT imaging for obtunded or unexaminable patients is only recommended in the instance of suspected neurological deficits (eg patient not seen moving an extremity prior to intubation).

- Older adults: One interesting study by Healey et al found that amongst patients with cervical spine fractures, 20% of patients older than 55 years of age were asymptomatic. Asymptomatic patients > 55 years old and symptomatic patients had similar operative rates indicating that imaging for asymptomatic patients > 55 years old significantly impacts management. No guidelines currently exist that recommend routine CT imaging of the cervical spine in trauma patients between 55-65 years old. However, this study warrants further investigation to delineate guidelines for older patients.