

Cervical Spine Injury: An Evidence-Based Evaluation Of The Patient With Blunt Cervical Trauma

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This issue of Emergency Medicine Practice addresses cervical spine injuries by providing a systematic approach that optimizes resource utilization and minimizes identification failure. For a more detailed discussion of this topic, including figures and tables, critical appraisal of the literature, and risk management pitfalls, please see the complete issue at www.EBmedicine.net.

EVIDENCE-BASED CLINICAL RECOMMENDATIONS FOR PRACTICE

Key Points	References*	Comments
Spinal immobilization is not without potential complications such as aspiration, pressure necrosis, and respiratory compromise.	3	While clinical and biomechanical evidence suggest that spinal immobilization limits pathologic motion of the injured spinal column, there is no rigorous evidence to support the need for spinal immobilization in all patients following trauma.
Rapid sequence intubation is the preferred airway management in a patient with a potential cervical spine injury.	28,29	Credible case reports of neurologic deterioration as a result of direct laryngoscopy and orotracheal intubation with manual in-line stabilization are rare. Cricothyrotomy is the ultimate procedure for a failed airway. Equipment for this procedure must be readily available any time an intubation is attempted.
The NEXUS criteria or the Canadian Cervical Spine Rule can be used to determine which patients may not need to be examined radiographically; caution must be used in elderly patients (>65 years old) and young children.	58	The NEXUS-based assessment of 5 criteria can be applied to all blunt trauma patients. The Canadian Cervical Spine Rule is more complex, relies on a series of evaluations, and has several inclusion criteria that limit its application in some patient groups, including children and pregnant women.
Cervical spine injuries are missed due to inadequate radiographs, false negative plain films, misinterpretation of the plain films, or lack of suspicion, such as patients with intoxication or distracting injuries.	46,47,77	One of the most common reasons for missed cervical spine fracture is technically inadequate plain films. Over 40% of patients injured in motor vehicle collisions and falls are intoxicated at the time of injury. If there is any doubt if an injury is distracting, obtain radiographs of the patient's cervical spine.
The standard 3-view cervical spine series is adequate in most patients; oblique views and flexion/extension views add little information in the acute setting. Be systematic in film interpretation – remember the ABCs.	78	A=alignment B =bony abnormalities C=cartilage/space assessment S =soft tissues
CT scan of the cervical spine is indicated as the initial imaging modality in trauma patients with a high-energy mechanism of injury.	90-92	Many centers have reported CT scanning in moderate-risk to high-risk trauma patients to be a more cost-effective screening modality than plain radiography when the costs of missed injuries are taken into account.
The baseline neurological examination is key in spinal injury patients and should be well-documented.	49	Areas of preserved sensation within an affected dermatome or below the level of apparent total dysfunction, even in patients with complete paralysis, indicates that the patient has a very good chance of functional motor recovery.
Emergent MRIs are for patients with normal plain films and a normal CT who also have concerning neurologic signs or symptoms.	108	MRI is considered to be the gold standard to diagnose cervical spine instability in the absence of bony injury.
CT angiography and MR angiography are the best studies available in detecting blunt injury to the carotid or vertebral arteries.	134	In a prospective study of 216 patients, the combination of CT and MR angiography was directly compared to standard angiography. CT angiography was 47% sensitive for CAI and 53% sensitive for VAI. MR angiography was 50% sensitive or CAI and 47% sensitive for VAI.

* See reverse side for reference citations.

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These references are excerpted from the original manuscript. For additional references and information on this topic, see the full text article at ebmedicine.net.

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