

3. CRANIOFACIAL, NECK & SPINE

E. Thoracic and Lumbar Spine Evaluation

OBJECTIVE:

To develop a guideline to assess thoracic and lumbar spine injury in order to standardize the approach to this clinical problem. In conjunction with Radiology, Orthopedic Surgery, and Neurosurgery, the division of Trauma Surgery has developed the following recommendations based on established collective practice patterns and review of current available literature. These guidelines are intended to assist in the evaluation of the trauma patient with suspected thoracic and/or lumbar spine injury.

GUIDELINE:

A. IDENTIFICATION OF PATIENTS AT RISK FOR THORACIC AND LUMBAR SPINE INJURY

1. All trauma patients should be suspected of having sustained thoracic and lumbar spine injury until proven otherwise. Patients who arrive with adequate spine immobilization in place should remain immobilized until evaluated by the treating physician. Patients who arrive without spine immobilization should be immobilized at the discretion of the treating physician based on mechanism of injury and clinical suspicion of injury.
2. All life-threatening hemodynamic problems should be addressed before a prolonged thoracic and lumbar spine evaluation is undertaken.

B. INDICATIONS FOR RADIOGRAPHIC EVALUATION OF THE THORACIC AND/OR LUMBAR SPINE

Trauma patients should undergo thoracic and/or lumbar imaging if they meet one or more of the following criteria:

- a. Presence of midline spine tenderness
- b. Presence of focal neurologic deficit and/or paresthesia
- c. Predisposing mechanism of injury:
 - Fall ≥ 10 feet
 - Ejection from motor vehicle in crash ≥ 50 mph
 - GCS ≤ 8

Patients without predisposing MOI and a low GCS may not require immediate evaluation of the thoracic and lumbar spine.

C. RADIOGRAPHIC EVALUATION OF THORACIC AND LUMBAR SPINE

1. Thoracic and lumbar spine images can be reformatted from torso CT images obtained for the diagnosis of injuries after trauma.
 - a. These reformatted images need to be separately ordered and reports will be dictated separately.
2. If Chest and/or Abdominal CT imaging is unnecessary, dedicated thoracic or lumbar CT imaging can be ordered.
3. Patients with focal neurologic deficits may require emergent or urgent MRI evaluation of the spinal cord, in addition to CT evaluation of the axial bony spine. MRI should be ordered in consultation with the Spine Service (orthopedic surgery or neurosurgery).

3. CRANIOFACIAL, NECK & SPINE

E. Thoracic and Lumbar Spine Evaluation

D. NEED FOR SPINE SERVICE CONSULTATION

1. If a radiographic abnormality is identified, spine immobilization should be maintained and the Spine Service consultation should be obtained.
 - a. Less than four isolated transverse process fractures may not require Spine Service consultation.
2. Any patient with neurologic deficit must remain immobilized independent of radiographic findings until evaluated by the Spine Service.

E. COMATOSE PATIENTS

Patients with altered level of consciousness who do not improve within 24 hours should undergo the following studies:

1. Reformatting of torso CT imaging to screen the thoracic and lumbar spine for injury within 24 hours of initial CT imaging.
2. Dedicated thoracic or lumbar CT imaging if reformatted images are not available.
3. If patient condition permits, the thoracic and lumbar spines should be cleared within 24 hours of admission.
4. Patients with minor mechanisms of injury may not require imaging of the thoracic and lumbar spine at the discretion of the trauma attending.

References:

1. Sheridan R, Peralta R, Rhea J, et al. Re-formatted visceral protocol helical CT scanning allows conventional radiographs of the thoracic and lumbar spine to be eliminated in the evaluation of blunt trauma patients. J Trauma 55:665-669, 2003.
2. Hauser CJ, Visvikis G, Hinrichs C, et al. Prospective validation of CT screening of the thoracolumbar spine in trauma. J Trauma 55:228-235, 2003.
3. Brandt MM, Wahl WL, Yeom K, et al. CT scanning reduce cost and time of complete spine evaluation. J Trauma 56:1022-1028, 2004.
4. Gestring ML, Gracias VH, Feliciano MA, et al. Evaluation of the lower spine after blunt trauma using abdominal CT scanning supplemented with lateral scanograms. J Trauma 53:9-14, 2002.
5. Meldon SW, Moettus LN. Thoracolumbar spine fractures: Clinical presentation and the effect of altered sensorium and major injury. J Trauma 39:1110-1114, 1995.
6. Frankel HL, Rozycki GS, Ochsner MG, et al. Indications for obtaining surveillance thoracic and lumbar spine radiographs. J Trauma 37:673-676, 1994.

Approved Date: 04/30/2013

Last Revised Date: 12/20/2023

To be Reviewed: 12/2026