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Journal

Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health, 12(1)

ISSN

1936-900X

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Publication Date

2011

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Peer reviewed

Neurologically Intact Lumbar Spine Displaced Fracture with Ankylosing Spondylitis

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Supervising Section Editor: Sean Henderson, MD

Submission history: Submitted: August 19, 2010; Accepted August 23, 2010.

Reprints available through open access at http://escholarship.org/uc/uciem_westjem

[West J Emerg Med. 2011;12(1):142-143.]



Figure. Sagittal computed tomography of the lumbar spine without contrast demonstrating fracture and severe anterior displacement of the lumbar spine at the lumbar four (L4) level. Osteoproliferation and syndesmophyte formation are seen consistent with ankylosing spondylitis.

A previously healthy 46-year-old male presented to the emergency department with the sole complaint of lower back pain after being struck by a car while walking. Physical examination revealed the patient to be hemodynamically stable and in moderate distress secondary to back pain. Maintaining spinal precautions, the patient was log-rolled and found to have midline lumbar spine tenderness with a visible step off. The patient was neurologically intact with equal strength and sensation in his lower extremities. Computed tomography revealed a transverse comminuted fracture of the lumbar four (L4) vertebral body with severe anterior displacement of the spine (Figure). In addition, syndesmophytes were noted throughout the spine consistent with previously undiagnosed ankylosing spondylitis.

Ankylosing spondylitis increases the risk of clinical vertebral fractures secondary to osteoproliferation and syndesmophyte formation which makes the spine more rigid.¹ While osteoporosis is also common in patients with ankylosing spondylitis, vertebral fractures appear to be more closely related to the duration and structural severity of the disease as compared to bone mineral density.² Physicians must have a high index of suspicion for vertebral fractures in patients with ankylosing spondylitis as the stiff and brittle nature of the spine predisposes them to fracture, even with minimal trauma.³

While most injuries in patients with ankylosing spondylitis occur in the cervical spine, this case involves the lumbar spine. Although less common, thoracolumbar fractures are four times more common in patients with ankylosing spondylitis than in the general population.⁴ The incidence of associated neurologic deficit is relatively high, occurring in over half of patients with thoracolumbar fractures.^{3,5} Delays in diagnosis of vertebral fractures in patients with ankylosing spondylitis can lead to the development of secondary neurological deficits during movement for tests and procedures. These patients require tailored spinal precautions

in order to maintain their kyphotic curvature and prevent relative hyperextension.

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Conflicts of Interest: By the WestJEM article submission agreement, all authors are required to disclose all affiliations, funding sources, and financial or management relationships that could be perceived as potential sources of bias. The authors disclosed none.

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