

**IMAGES IN EMERGENCY MEDICINE**

## Imaging

**Pain in the back after fall**Bruce M. Lo MD, MBA<sup>1</sup>  | Leslie R. Kallevang MD<sup>2</sup> | Heidi A. Best MD<sup>1</sup><sup>1</sup> Department of Emergency Medicine, Sentara Norfolk General Hospital/Eastern Virginia Medical School, Norfolk, Virginia, USA<sup>2</sup> Department of Emergency Medicine, Eastern Virginia Medical School, Norfolk, Virginia, USA**Correspondence**

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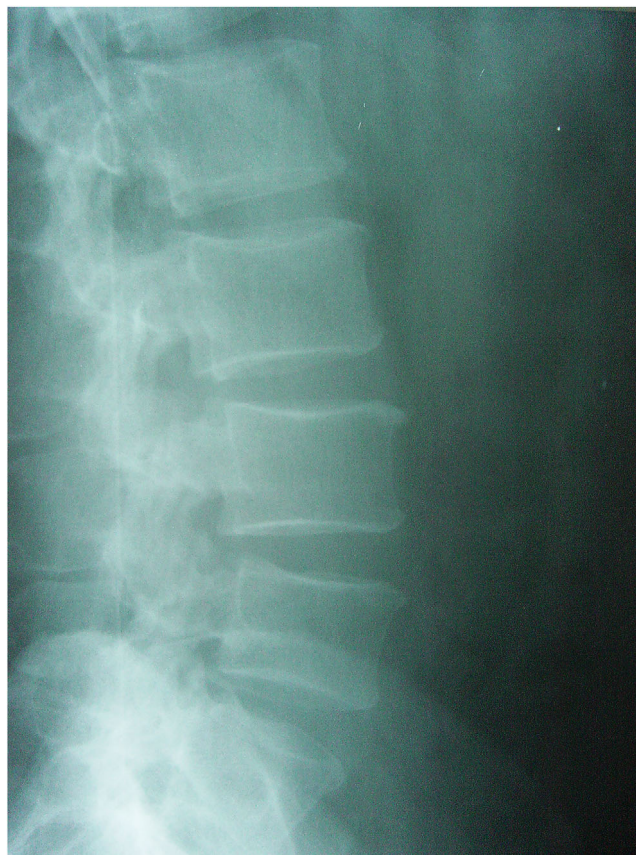
Email: [Brucelo1@yahoo.com](mailto:Brucelo1@yahoo.com)**CASE**

A 48-year-old male presents with low back pain after falling off a ladder. He states he was climbing up a ladder when he slipped and fell on his back. He denies abdominal pain or chest pain. He has tenderness to palpation of his lower back. His vital signs are stable. His neurological exam and rectal exam are normal. He has no abdominal tenderness. An initial radiograph is obtained of his lumbar spine (Figure 1). This was read as negative by the treating physician but inadequate by the radiologist. A repeat lumbar spine image was obtained (Figure 2). Patient was noted to have an L1 compression fracture, as well as a lumbarization of the sacrum giving the appearance of 6 lumbar vertebral bodies.

**DIAGNOSIS**

**Transitional vertebra showing lumbarization of the sacral spine.** The initial lateral L-spine radiograph shows 5 lumbar vertebral bodies and no evidence of fracture. The repeat lateral L-spine radiograph shows lumbarization of the sacrum, giving the appearance of a sixth lumbar vertebral body. L1 is visualized and shows a compression fracture. Adequate lumbar radiographs should show the lower portion of the thoracic spine.<sup>1</sup> T12 can be identified by the last rib coming off the last thoracic vertebral body.

Transitional vertebra is a common congenital finding of the L5-S1 junction with prevalence reported as high as 36% in the general population.<sup>2,3</sup> Definitive manifestation can either present as lumbarization of the sacrum (ie, first sacral segment with an anomalous articulation appearing as a lumbar vertebra) or sacralization of the lower lumbar spine (ie, fusion of L5 to S1), the latter being much more

**FIGURE 1** Lateral lumbar spine showing no injuries

common.<sup>2,3</sup> Physicians should be aware of this congenital defect in order to properly interpret spinal radiographs.

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**FIGURE 2** Repeat lumbar spine showing lumbarization of the sacrum giving the appearance of an L6. Black arrow points to an L1 compression fracture

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## REFERENCES

1. Ballinger PW, Frank ED. *Merrill's Atlas of Radiographic Positions and Radiological Positions*. 1999: 430.
2. Apazidis A, Ricart PA, Diefenbach CM, Spivak JM. The prevalence of transitional vertebrae in the lumbar spine. *Spine J*. 2011; 11(9): 858-862.
3. Uçar D, Uçar BY, Coşar Y, et al. Retrospective cohort study of the prevalence of lumbosacral transitional vertebra in a wide and well-represented population. *Arthritis*. 2013; 2013: 461425.

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