

Bilateral L5 Transverse Process Fracture Implications: What Every Spine Surgeon Must Know

¹Harnarayan Singh, ²Kapil Agarwal, ³Hemant Sharma, ⁴Rohit Lamba

ABSTRACT

Isolated fracture of transverse process does not imply mechanical instability and is managed conservatively. However, bilateral transverse process fractures have a high association with pelvic fractures. This warrants a high index of clinical suspicion for pelvic injuries in such patients.

Keywords: Bilateral L5 transverse process fractures, Transverse process fractures and abdominal injuries, Transverse process fractures and pelvic fractures.

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Sir,

It is very common to find transverse process fractures in lumbar spine during routine imaging of polytrauma patients. Isolated fracture of transverse process does not imply mechanical instability and is managed conservatively.

Transverse process fractures are, therefore, often passed on as clinically irrelevant. Bilateral fracture of fifth lumbar vertebra (L5) is a very rare radiological finding, and it led us to review the existing literature. A 30-year-old female was hit by a four wheeler. She had lost consciousness transiently and also had an episode of seizure after the injury. Her computed tomography (CT) scan of brain showed acute subdural hematoma, which was managed conservatively.

She complained of pain in pelvic area and an X-ray of pelvis revealed bilateral L5 transverse fractures and chip

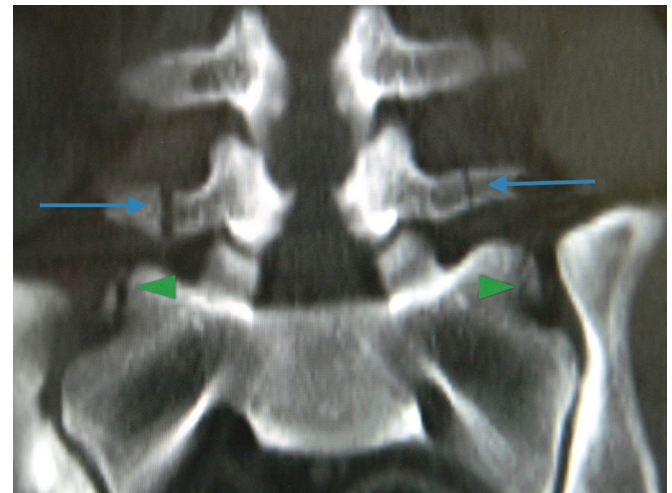


Fig. 1: The CT coronal image showing bilateral L5 transverse process (*long arrows*) and bilateral alar chip fractures (*short arrows*)

fractures of ala of sacrum. Her abdominal sonography showed some free fluid in the peritoneal cavity. The CT of the abdomen did not reveal any significant solid organ injury and confirmed the same bony injury in L5 and sacral ala (Fig. 1).

She was conservatively managed and improved with analgesics. She resumed all daily activities 1 week after the injury. Transverse process fractures of L5 are postulated to be because of avulsion from the iliolumbar ligament.¹ The iliolumbar ligament is a very tough ligament that passes from the L5 transverse process tip to the inner lip of the iliac crest posteriorly. The ligament provides stability to the lumbosacral and the sacroiliac joints.

Though not well documented, fracture of the transverse process of L5 vertebra is believed to be a predictor of pelvic fracture instability.^{1,2} Starks et al,² found that 40% of unstable pelvic fractures in their retrospective study of pelvic fractures had an associated L5 transverse process fracture. Sometimes, these fractures can also be associated with solid organ abdominal injuries. Miller et al³ found patients with transverse process fractures had significantly higher associated abdominal injuries than patients with nontransverse process lumbar fractures (48 vs 6%). They suggested that lumbar transverse process fractures should not be thought of as minor injuries as they are likely to be caused by large forces of trauma.

Patten et al⁴ also found a very statistically significant association of such fractures with intra-abdominal injuries. In their study, 51% of patients with transverse

¹⁻⁴Consultant

¹Department of Neurosurgery, W Pratiksha Hospital, Gurugram Haryana, India

²Department of Neurology, W Pratiksha Hospital, Gurugram Haryana, India

^{3,4}Department of Orthopedics, W Pratiksha Hospital, Gurugram Haryana, India

Corresponding Author: Harnarayan Singh, Consultant Department of Neurosurgery, W Pratiksha Hospital, Gurugram Haryana, India, Phone: +919560171009, e-mail: drsingh.harnarayan@gmail.com

process fractures had associated abdominal injuries. While managing patients with isolated transverse process fractures in lumbar vertebra, clinicians should always keep a possibility of associated pelvic fractures and intra-abdominal injury.

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