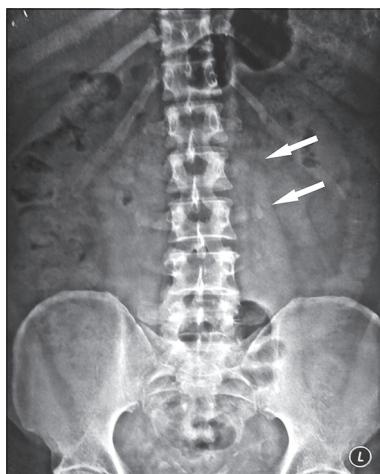


## Pitfalls in the radiographic diagnosis of the transverse processes fracture of the lumbar vertebrae

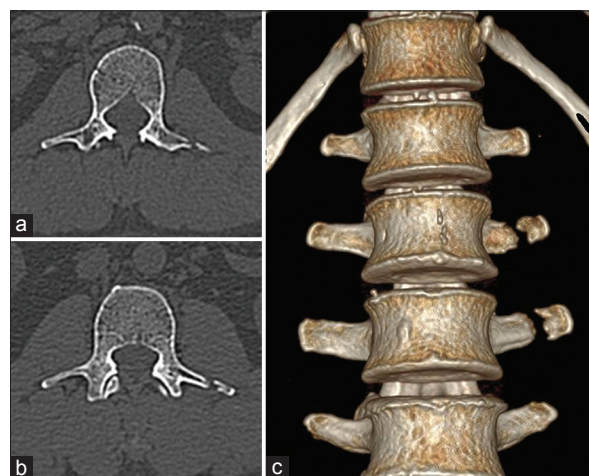
Dear Sir,

Transverse process fractures of the lumbar spine are considered benign fractures which can be caused by the direct trauma or psoas muscle avulsion.<sup>[1-5]</sup> A 40-year gentleman sustained injuries in a road traffic accident while overturning of the vehicle. There was history of loss of consciousness for 30 minutes. There was no history of vomiting, seizures or oral bleed. Abdominal examination was soft and non-tender. Bowel sound was normal and there was no hepato-splenomegaly. The patient was conscious, alert and oriented to time, place and person. At the time of examination, the patient was conscious, alert and oriented (GCS-E4V5M6). Pupils were bilateral equal and reacting. Cranial nerves were normal. Motor and sensory examination was normal. Vital signs and general examination was unremarkable. Computed tomography (CT) scan brain was normal. X-ray abdomen and pelvis was interpreted as normal [Figure 1]. The patient was managed conservatively and was apparently well. However, he was complaining of low back pain, non-radiating and minimal relief with analgesics. An MRI of the dorso-lumbar spine was performed and it was normal. Finally the patient underwent a CT scan of the dorso-lumbar spine and it showed the fractures of the L2 and L3 transverse processes [Figure 2]. The patient was advised best rest and brace for 6 weeks. At follow-up he is doing well.



**Figure 1:** Plain radiograph of abdomen and pelvis AP view showing psoas shadows and bowel gas apparently masking the fracture fragments (arrows)

Transverse processes fractures of the lumbar vertebrae can result from direct trauma, violent lateral flexion-extension forces, avulsion of the psoas muscle and Malgaigne fractures of the pelvis.<sup>[6-9]</sup> Usually these injuries were considered as stable and minor injuries that little need for intervention, however, many studies have recognized that these injuries are caused by high energy trauma and heavy impact and can be associated with significant associated visceral and skeletal injuries.<sup>[6,7,9-12]</sup> These patients can have persistent low back pain following trauma and to make a diagnosis of the transverse process fracture a high index of suspicion is needed.<sup>[13]</sup> Although these are the minor injuries however in literature there is a statistically significant association between transverse process fractures, intra-abdominal injuries and associated skeletal injuries.<sup>[6,9,11,14]</sup> Plain radiographs is initial investigation provide and make the diagnosis of transverse processes fracture quite simple and straight-forward.<sup>[13]</sup> However conventional radiography can be relatively insensitive in the diagnosis of transverse process fractures of the lumbar spine particularly in patient with multiple injuries, and where there are subtle fractures of the transverse processes.<sup>[11]</sup> In cases where there is high index of suspicion and plain radiographs looks apparently normal, it may be supplemented by technicium 99 m bone scintigraphy and CT.<sup>[6,8,13,15]</sup> As we observed in present case the presence of bowel gas shadow made the initial detection of the fracture difficult,<sup>[6,11]</sup> and the literature recommends the helical CT scan provided the greater details of the fractures.<sup>[6,11,15]</sup> The magnetic resonance imaging (MRI) scan is very sensitive to detect stress fractures at an early stage.<sup>[13]</sup> The fracture of the lumbar transverse spine fracture usually takes about 6 weeks and complete reset is recommended to achieve the union.<sup>[16]</sup> The cases of nonunion also settle and become asymptomatic over a period of time and with time.<sup>[13]</sup>



**Figure 2:** Helical CT scan with 3D reconstruction describing the finer details of the fractured fragments

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