

## Case Report

### Anterolateral Fracture-Dislocation of Lumbosacral Junction

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**Fracture-dislocation of lumbosacral junction is rare. It usually affects the patients with multiple trauma. In all reported cases, anterior or posterior displacement of L5 on S1 have been reported, but anterolateral displacement has not been reported yet.**

**Herein, we report delayed diagnosis of fracture-dislocation of L5-S1 with anterolateral displacement of L5 on S1, which was treated successfully with surgery (open reduction, posterior fusion, and instrumentation).**

*Archives of Iranian Medicine, Volume 9, Number 4, 2006: 422 – 425.*

**Keywords:** Anterolateral • delayed diagnosis • fracture-dislocation • lumbosacral junction

#### Introduction

Fracture-dislocation of lumbosacral junction is a rare injury. Less than 50 cases have been reported in the literature.<sup>1,2</sup> All reported cases have had anterior or posterior displacement, but anterolateral displacement has not been reported yet.

The lesion may not be diagnosed during the initial evaluation, because it is rare and has atypical presentation.<sup>3 - 5</sup> The lesion is unstable because all three columns of vertebrae are involved. Therefore, the current therapeutic tendency is for surgical treatment.<sup>6-7</sup>

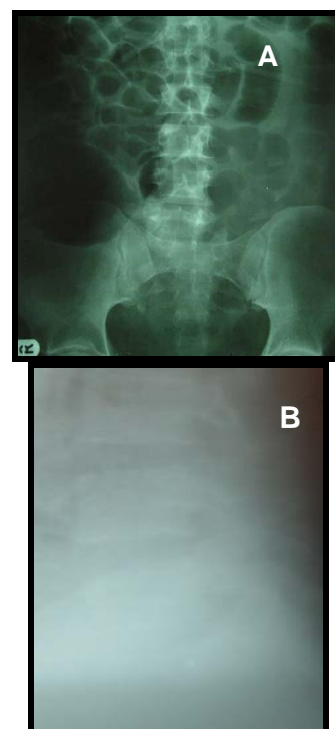
This is the report of a patient with anterolateral fracture-dislocation of lumbosacral junction. The correct diagnosis was not made initially, but the patient was operated successfully after the diagnosis.

#### Case Report

A 22-year-old man, a victim of road traffic accident, who was hit on his left side referred to our hospital after 3 weeks. The patient complained

of lumbosacral and abdominal pain. He was hemodynamically stable and had no neurologic deficits.

The initial anteroposterior radiography showed



**Figure 1.** Radiographs of the lumbar spine, anteroposterior view, showing fractures of the transverse processes of L1-5 (A); and lateral view inadequate for diagnosis of spondylolisthesis (B).

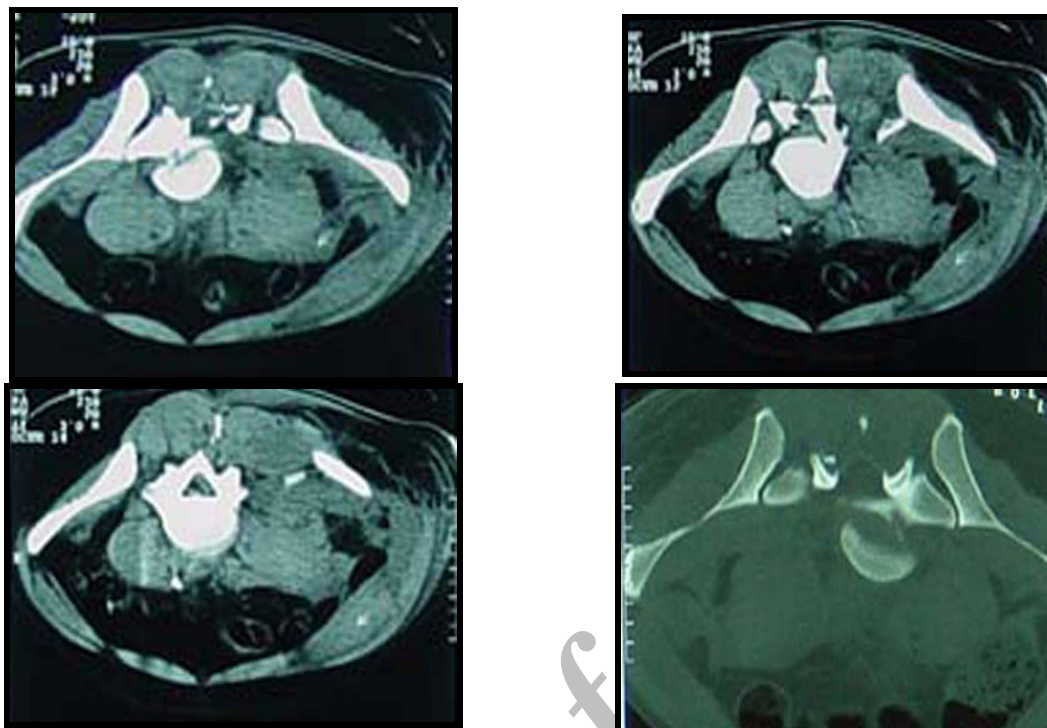
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Accepted for publication: 10 January 2006



**Figure 2.** Horizontal CT scans of L5 showing the comminuted fracture and anterolateral displacement of the vertebra.

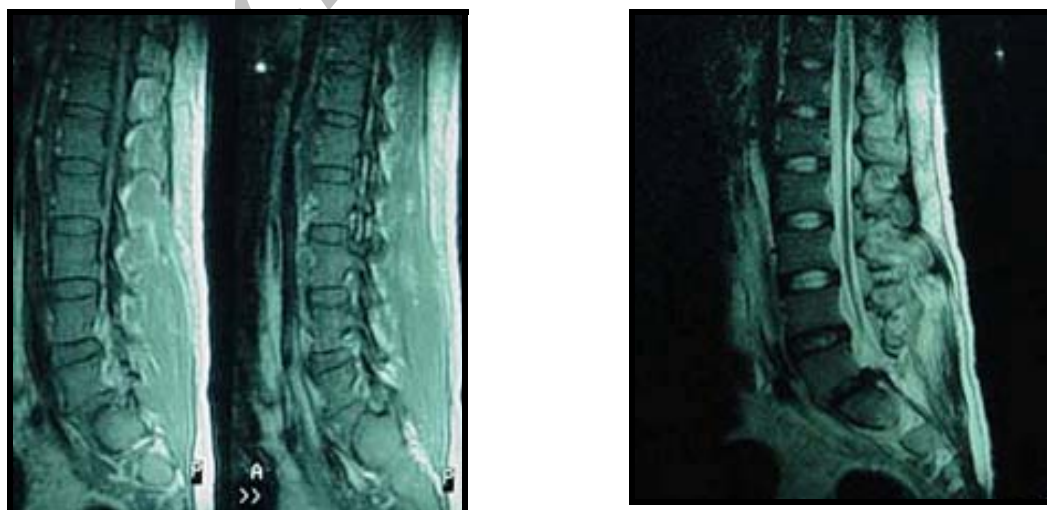
fracture of the left transverse processes of L1-5 vertebrae. Lateral radiography did not demonstrate any abnormality in the lumbosacral junction because the patient was very obese and we could not perform a good quality radiography (Figure 1).

Computerized tomography showed a comminuted fracture of the L5 with several fractures in the lamina, transverse process, spinous process, and anterolateral displacement of L5 on

S1 (Figure 2).

Magnetic resonance imaging (MRI) verified the lesion and revealed rupture of the intervertebral disc, posterior longitudinal ligament, and grade I spondylolisthesis (Figure 3).

We operated the patient after 25 days of the accident. The procedure was open reduction, posterior fusion, and L4-S1 posterior instrumentation. We could not reduce the lateral



**Figure 3.** Sagittal MRI showing the listhesis of L5-S1, rupture of L5-S1 disc, and posterior longitudinal ligament.

displacement completely because of delayed surgery and that the consolidation process had been begun (Figure 4).

The patient was mobilized on the third postoperative day. On the fifth day, he was able to walk with back support brace (lumbosacral orthosis).

We removed the brace three months after the surgery. The patient was asymptomatic and had resumed normal activities.

## Discussion

Fracture-dislocation of lumbosacral junction is almost exclusively the result of major trauma. The most probable mechanism of this injury is hyperflexion and rotation.<sup>1, 8, 9</sup> Fabris et al, and Roche et al believe that the forces producing the lesion are hyperflexion in combination with compression or axial translation.<sup>10, 11</sup>

In the presented case, the underlying mechanism might be hyperflexion combined with lateral left-to-right translation vector and rotation of the lumbar spine due to anterolateral displacement of L5 on S1.

Diagnosis of fracture-dislocation of lumbosacral junction depends on good quality radiographs; therefore, the lesion can be missed if the initial radiographs are inadequate.<sup>1, 2, 12</sup>

It is important to remember that transverse process fracture is a sign, which indicates thorough investigation of the lumbosacral junction

in patients with high energy trauma.<sup>13-15</sup>

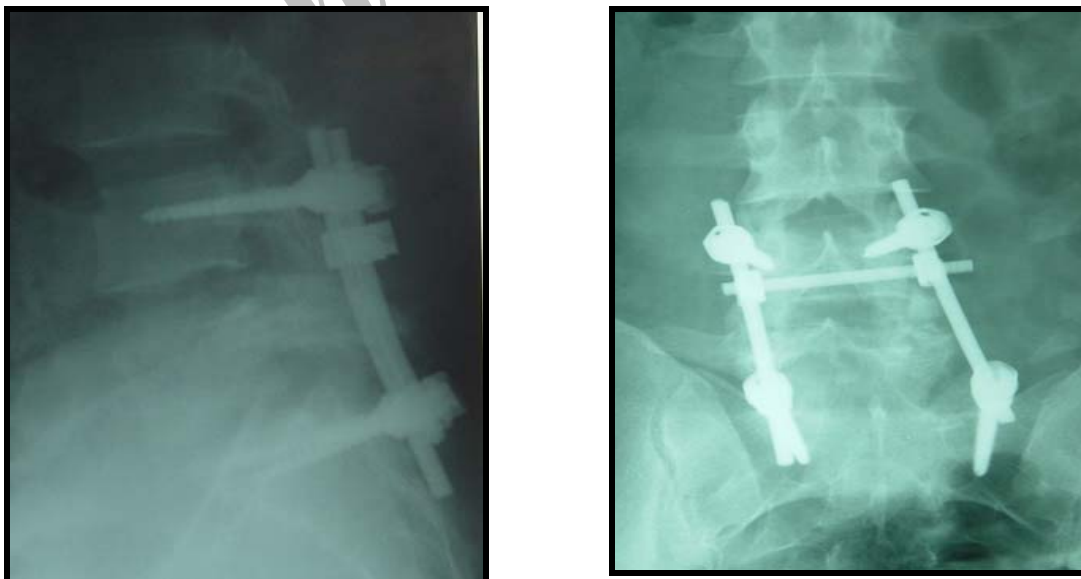
In this case, the initial plain radiographs did not clearly show a fracture-dislocation of L5-S1, but fractures of the left transverse processes of L1-5 were seen. The computerized tomography and MRI clearly demonstrated the injury. Therefore, this case report clearly shows the value of the additional information obtained by computerized tomography and MRI in a lumbosacral junction injury.<sup>7, 10</sup>

Less than 50 cases have been reported with fracture-dislocation of lumbosacral junction. All of them had anterior or posterior displacement of L5 on S1.<sup>16, 17</sup> But the case presented here was the first with anterolateral displacement of L5 on S1.

The fracture-dislocation of lumbosacral junction is extremely unstable, because it is a three-column lesion, and open reduction, posterior fusion, and instrumentation are indicated for its management.<sup>12-19</sup> However, there are some cases who have been treated nonsurgically.

Newell reported a case of anterior lumbosacral fracture-dislocation treated nonsurgically with good result.<sup>18</sup> Dewey and Browne described another case of L5-S1 fracture-dislocation treated nonsurgically by traction, but the treatment was not successful.<sup>12</sup>

Because of the instability of this lesion, we performed open reduction, posterior fusion, and instrumentation. As well as L4-S1 posterior fusion and instrumentation, because we found a rupture in posterior elements of L4-5 (supra- and interspinous



**Figure 4.** Radiographs of the lumbar spine after surgery (open reduction, posterior fusion, and L4-S1 posterior instrumentation).

ligaments) during the procedure.

The anterolateral fracture-dislocation of L5-S1 is a rare and very unstable lesion, and surgery (open reduction, posterior fusion- and instrumentation) is indicated for treatment.

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