

Natural Course of Spontaneously Reduced Lumbo-sacral Fracture-Dislocation

— A Case Report —

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We present a case of lumbosacral fracture-dislocation, which was spontaneously reduced during radiological examination. Such rapid reduction is, however, not reliable for long-term stability. We would like to report this case briefly because spontaneous reduction of lumbosacral fracture-dislocation has not been reported previously.

Key Words: *Lumbosacral fracture-dislocation, Spontaneous reduction, Instability, Spine, Trauma*

INTRODUCTION

Lumbosacral fracture-dislocation is an unusual injury. Although the dislocation could be reduced by closed methods (Newell, 1977, Zoltan et al., 1979), surgical intervention is usually required to achieve successful treatment (Bauer and Errico, 1991, Boger et al., 1983, Carl and Blair, 1991, Das and McCreath, 1981, Dewey and Browne, 1968, Fardon, 1976, Griffin and Sutherland, 1980, Herron and Williams, 1984, Miz and Engler, 1988, Morris, 1981, Samberg, 1975, Wilchinsky, 1987). Most authors (Bauer and Errico, 1991, Boger et al., 1983, Carl and Blair, 1991, Das and McCreath, 1981, Griffin and Sutherland, 1980, Herron and Williams, 1984, Miz and Engler, 1988, Samberg, 1975) advocate open reduction and internal fixation with bone grafting. Conservative treatment has been only partially successful, and attempts at closed reduction considered to be futile (Das and McCreath, 1981). We recently experienced a case of lumbosacral fracture-dislocation, which was spontaneously reduced during radiological examination on the second hospital day. We would like to re-

port this case briefly because spontaneous reduction of lumbosacral fracture-dislocation has not been reported previously and such reduction is not reliable for long-term stability.

CASE REPORT

This 32-year-old man fell from a ladder accidentally. He could not recall the exact circumstances of his landing. Examination in the emergency room disclosed tenderness around the lumbosacral region. He complained of severe low back pain with sciatica radiating to the left lower extremity. The plain roentgenograms of the lumbosacral spine showed rotational deformity of lumbosacral articulation with a true anteroposterior view of the sacrum and a 10%olisthesis of L5 on the sacrum (Fig. 1). Also present were transverse process fractures of L4-L5 on the left. To clarify the fracture, we tried to get true anteroposterior and lateral views of the lumbosacral spine under direct fluoroscopy on the second hospital day. We rolled the patient from side to side to obtain better images. The dislocation, however, was reduced spontaneously (Fig. 2). We investigated the dislocation by computerized tomography(CT). CT scan demonstrated fractures of the inferior articular processes of L5 on both sides (Fig. 3). The bony fragment impinged on the left lateral recess. There were no fractures of the sacrum or of the body of L5. There were no significant associated injuries.

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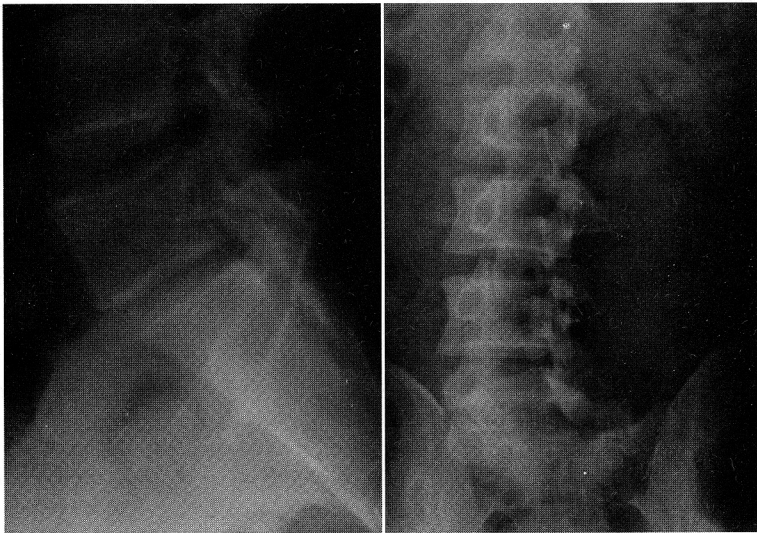


Fig. 1. The plain roentgenograms of the lumbosacral spine show right lateral dislocation and the rotational deformity of lumbosacral articulation and a 10% olisthesis of L5 on the sacrum (distance of anterior displacement /anteroposterior diameter of L5 X 100). Also present are transverse process fractures of L4-L5 on the left.

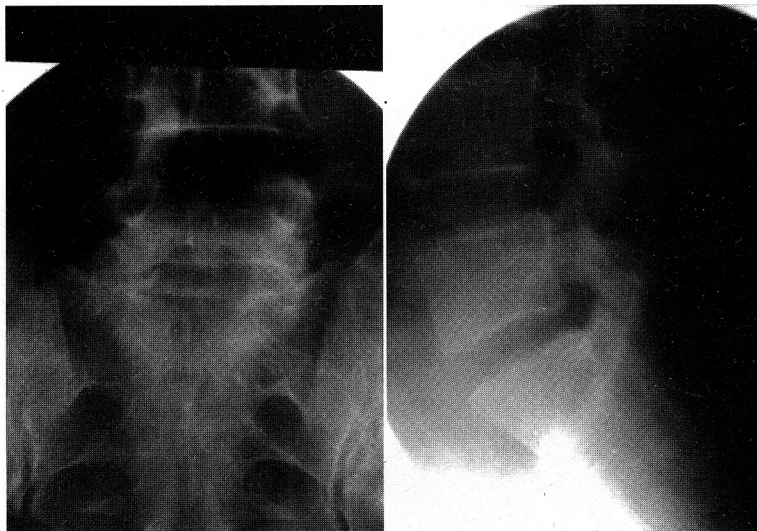


Fig. 2. The plain roentgenograms of the lumbosacral spine show reduction of the lumbosacral fracture-dislocation.

He could ambulate with a Knight-Taylor brace from the 15th hospital day. He refused an operative intervention and was discharged on the 20th hospital day.

He was re-admitted due to sustained paresthet-

ic pain in the left lower extremity about two months later. Electromyography showed left L5, S1, radiculopathy with marked active axonal degeneration. He underwent an operation to relieve the symptoms. A posterior midline approach similar to



Fig. 3. CT scan demonstrates fractures of the inferior articular processes of L5 on both sides. The bony fragment impinges on the left lateral recess.

a microlumbar discectomy was performed on the left side. After partial hemilaminectomy of L5 lamina, a triangular shaped small bony fragment was removed. The patient was able to ambulate and was discharged on the fourth postoperative day. He went back to work normally without significant discomfort up to a one year follow-up period. However, on the last radiological examination (15 months after the injury), there was a 20% olisthesis of L5 on the sacrum (Fig. 4).

DISCUSSION

Traumatic fracture dislocation of the lumbosacral spine is an unusual injury which usually results from major trauma (Bauer and Errico, 1991). Less than 20 cases have been well documented in the literature (Bauer and Errico, 1991, Boger et al., 1983, Carl and Blair, 1991, Das and McCreath, 1981, Dewey and Browne, 1968, Fardon, 1976, Griffin and Sutherland, 1980, Herron and Williams, 1984, Miz and Engler, 1988, Morris, 1981, Newell, 1977, Samberg, 1975, Zoltan et al., 1979, Wilchinsky, 1987). The mechanisms of this unusual injury are flexion, rotation, and compression producing either a pure dislocation or a dislocation with facet fracture (Bauer and Errico, 1991). It can be unilateral (Boger et al., 1983, Carl and Blair, 1991, Das and McCreath, 1981, Miz and Engler, 1988, Morris, 1981, Samberg, 1975, Zoltan et al., 1979,) or bilateral (Dewey and Browne, 1968, Fardon, 1976, Griffin and Sutherland, 1980, Herron and Williams, 1984, Newell, 1977, Wilchinsky, 1987). As a rule, ligamentous injury and multiple transverse process fractures are present with varying degrees of traumatic spondylolisthesis. Locking of the facets is very hard to reduce by closed methods even under anesthesia (Das and McCreath, 1981, Dewey and Browne, 1968, Herron and Williams, 1984, Samberg, 1975, Wilchinsky, 1987).

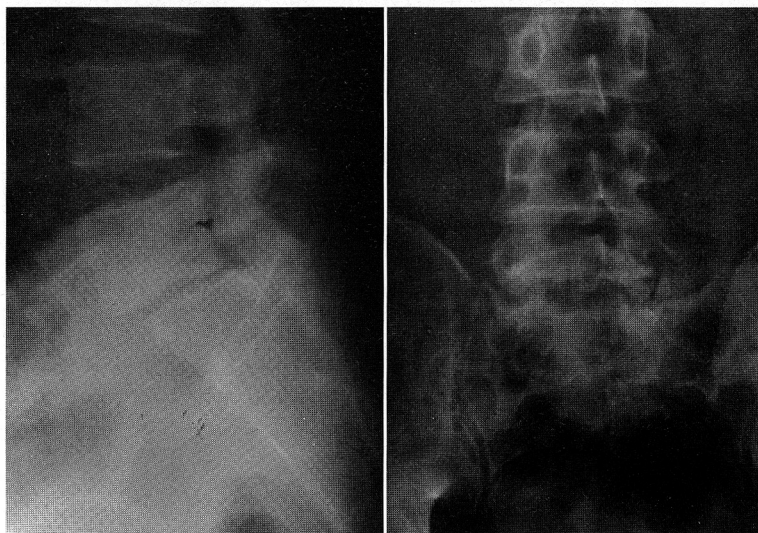


Fig. 4. The plain roentgenograms of the lumbosacral spine 15 months after the injury show absorbed L5-S1 disc space and a 20% olisthesis of L5 on the sacrum.

To facilitate reduction, partial facetectomy is often required (Das and McCreath, 1981, Dewey and Browne, 1968, Herron and Williams, 1984, Samberg, 1975, Wilchinsky, 1987). Even though the dislocation has been reduced, ligamentous healing is unreliable and may lead to later instability (Boger et al., 1983). Thus, open reduction with internal fixation is usually recommended (Bauer and Errico, 1991, Boger et al., 1983, Carl and Blair, 1991).

We did not attempt to reduce the dislocation. However, the dislocation was reduced during the radiological examination. Such a rapid spontaneous reduction has not been reported previously. It seemed to be possible due to bilateral facet fractures. Bilateral facet fractures had the effect of a partial facetectomy, which could facilitate reduction. Although dislocation without facet fracture is usually accompanied by significant ligamentous injuries, bilateral facet fractures may lessen ligamentous injuries. Joint capsules should be torn for dislocation without fracture. If the facets were fractured, dislocation could develop without extensive capsular injuries. Thus, fractures of bilateral facets might facilitate reduction and lessen ligamentous injury, which could provide stability within such a short period in this patient.

However, such reduction could not provide long-term stability. Ligamentous healing without bony healing could not overcome the olithetic force derived from weight bearing. Within 15 months, progressive spondylolisthesis had developed. In this case, we recommend open reduction with internal fixation even though the dislocation has been spontaneously reduced.

REFERENCES

- Bauer RD, Errico TJ: *Thoracolumbar spine injuries*. In: Errico TJ, Bauer RD, Waugh T, eds. *Spinal Trauma*. J. B. Lippincott Company, Philadelphia, pp 195-269, 1991.
- Boger DC, Chandler RW, Pearce JG, Balciunas A: *Unilateral facet dislocation at the lumbosacral junction. Case report and literature review*. *J Bone Joint Surg* 65A:1174-1178, 1983.
- Carl A, Blair B: *Unilateral lumbosacral facet fracture-dislocation*. *Spine* 16:218-221, 1991.
- Das De S, McCreath SW: *Lumbosacral fracture-dislocations. A Report of four cases*. *J Bone Joint Surg* 63B:58-60, 1981.
- Dewey P, Browne PSH: *Fracture-dislocation of the lumbosacral spine with cauda equina lesion. Report of two cases*. *J Bone Joint Surg* 50B:635-638, 1968.
- Fardon DF: *Displaced fracture of the lumbosacral spine with delayed cauda equina deficit. Report of a case and review of literature*. *Clin Orthop* 120:155-158, 1976.
- Griffin JB, Sutherland GH: *Traumatic posterior fracture-dislocation of the lumbosacral joint*. *J Trauma* 20:426-428, 1980.
- Herron LD, Williams RC: *Fracture dislocation of the lumbosacral spine*. *Clin Orthop* 186:205-211, 1984.
- Miz GS, Engler GL: *Unilateral dislocation of a lumbosacral facet*. *Spine* 13:956-957, 1988.
- Morris BDA: *Unilateral dislocation of a lumbosacral facet*. *J Bone Joint Surg* 63A:164-165, 1981.
- Newell RLM: *Lumbosacral fracture-dislocation: A case managed conservatively, with a return to heavy work*. *Injury* 9:131-134, 1977.
- Samberg LC: *Fracture-dislocation of the lumbosacral spine. A case report*. *J Bone Joint Surg* 57A:1007-1008, 1975.
- Zoltan JD, Gilula LA, Murphy WA: *Unilateral facet dislocation between the fifth lumbar and first sacral vertebrae. Case report*. *J Bone Joint Surg* 61A:767-769, 1979.
- Wilchinsky ME: *Traumatic lumbosacral dislocation: A case report and review of the literature*. *Orthopedics* 10:1271-1274, 1987.
- Bauer RD, Errico TJ: *Thoracolumbar spine injuries*. In: Errico TJ, Bauer RD, Waugh T, eds. *Spinal Trauma*. J.