

Are your **MRI contrast agents** cost-effective?

Learn more about generic **Gadolinium-Based Contrast Agents**.



FRESENIUS
KABI

caring for life

AJNR

CT of bilateral lumbosacral facet dislocation.

V B Graves, J S Keene, C M Strother, L N Bennett, J C
Hackelthorn and L Houston

AJNR Am J Neuroradiol 1988, 9 (4) 809

<http://www.ajnr.org/content/9/4/809.citation>

This information is current as
of April 23, 2024.

CT of Bilateral Lumbosacral Facet Dislocation

Traumatic injuries to the lumbar spine that result in dislocation and locking of facet joints are unusual. Unilateral injuries of this type involving the lower lumbar spine, however, have been reported [1-3]. To our knowledge, the CT findings of bilateral facet dislocations at this level have not been described. In this report we describe the CT and surgical findings of two patients who had acute traumatic bilateral dislocation and locking of the facets of the lower lumbar spine. This type of dislocation with its associated ligamentous disruption may result in spinal instability even if it is not associated with fractures. Lack of recognition thus increases the risk of neurologic deficit in these patients.

Case Reports

Case 1

Admission radiographs of a 31-year-old man who had been in a motor vehicle accident showed fractures of the right forearm, the pelvis, and the transverse processes of L1-L5 and anterior dislocation of L5 on S1. His neurologic examination was normal, and except for pain related to his osseous injuries, he had no other symptoms. Because the relationship of the facets at the L5-S1 level could not be determined from the plain films, a CT scan was obtained (Fig. 1). At surgery, disruption of all posterior ligamentous structures, including the ligamentum flavum, was found. The dura was intact. The patient had an uneventful recovery, with no neurologic deficits.

Case 2

A 41-year-old man sustained multiple osseous and soft-tissue injuries as the result of a motor vehicle accident. Physical examination revealed no neurologic deficits, and except for pain related to the aforementioned injuries, he had no other symptoms. Radiographs obtained at admission showed a fracture of the left hand and a grade II spondylolisthesis of L4 and L5. A CT scan was obtained for further evaluation (Fig. 2). At surgery, disruption of all posterior ligamentous structures, including the ligamentum flavum, was found. The dura was intact. The patient had an uneventful recovery, and no neurologic deficits developed.

Discussion

Acute traumatic bilateral dislocation and locking of the facet joints of the lower lumbar spine or lumbosacral junction are unusual injuries; they occur more commonly at or near the thoracolumbar junction. Such injuries are usually the result of high-velocity impacts and seldom are associated with weight-bearing trauma (i.e., lifting) [4]. Fewer than 10 cases of this type of injury have been reported [1].

A combination of hyperflexion, distraction, vertical, and rotational forces are required to produce injuries of this nature [4, 5]. (We were not able to determine whether the patients were wearing lap-type seat belts.) Clinically significant ligamentous injuries may occur without associated fractures when the major force vector is resolved

horizontally and passes through the level of the intervertebral disk [6]. Recognition of this injury is often difficult on plain films and is accomplished more easily with CT. The combination of axial and reformatted sagittal images allows clear recognition of facet dislocations and locking, as well as any associated fractures that may be present. Previously reported surgical findings and those observed in our two cases emphasize the associated ligamentous disruptions that occur with this type of injury [4]. These are of clinical significance because unlike fractures, ligamentous injuries of the spine more commonly require internal fixation to prevent delayed or progressive neurologic deficits associated with spinal instability [5].

Open reduction of the dislocated and locked facets is the most effective method for decompression of the neural elements because it relieves both the anterior and posterior compression. Laminectomy alone will not accomplish decompression anteriorly. Internal fixation and posterior fusion provide the stability needed because of posterior ligamentous disruption.

These two cases illustrate the advantages of CT scanning over plain films in evaluating patients with these unusual injuries of the lumbosacral spine. In instances of acute trauma, when plain films indicate malalignment of the spine, CT should be done to evaluate the integrity of the articular facets.

Virgil B. Graves
James S. Keene
Charles M. Strother
Lawrence N. Bennett
University of Wisconsin, Clinical Science Center
Madison, WI 53792
John C. Hackethorn
Columbus Hospital
Great Falls, MT 59405
Lanning Houston
Suburban Radiologists Consultants
Minneapolis, MN 55437

REFERENCES

- Morris BDA. Unilateral dislocation of a lumbosacral facet. *J Bone Joint Surg [Am]* 1981;63-A:164-165
- Zoltan JD, Gilula LA, Murphy WA. Unilateral facet dislocation between the fifth lumbar and first sacral vertebrae. *J Bone Joint Surg [Am]* 1979;61-A:767-769
- Samberg LC. Fracture-dislocation of lumbosacral spine. *J Bone Joint Surg [Am]* 1975;57-A:1007-1008
- Kafer H, Hayes JT. Lumbar fracture-dislocation. *J Bone Joint Surg [Am]* 1966;48-A:712-730
- Roaf R. A study of the mechanics of spinal injuries. *J Bone Joint Surg [Am]* 1960;42-B:810-823
- O'Callaghan JP, Ullrich CG, Yuan HA, Kietter SA. CT of facet distraction in flexion injuries of the thoracolumbar spine: the "naked" facet. *AJNR* 1980;1:97-102

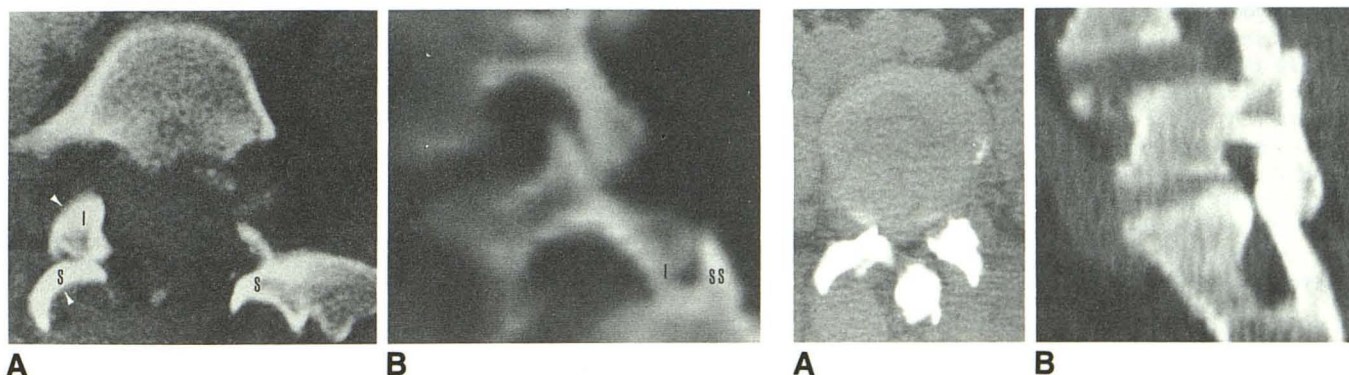


Fig. 1.—Case 1.

A, Axial CT scan shows a previously undetected facet fracture and dislocated facets. Right inferior facet of L5 (I) is anterior to superior articular facet of S1 (S). "Naked facet" is shown (arrowhead).

B, Parasagittal reformation through right L5-S1 articular joint shows locked facets with abnormal posterior position of superior sacral facet (SS) and anterior dislocation of inferior facet (I) of L5.

Fig. 2.—Case 2.

A, Axial CT scan shows dislocation of inferior facets of L4 and superior facets of L5 at level of L4-L5 disk.

B, Parasagittal reformation through L4-L5 facet joint shows abnormal dislocated and locked position of L4-L5 facets, spondylolisthesis of L4 on L5, and superior anterior endplate fracture of L5 vertebral body.