

BURST FRACTURE OF THE FIFTH LUMBAR VERTEBRA (A Case Report)

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Burst fracture of the fifth lumbar vertebra is a rare injury. A case of this fracture is reported and the treatment discussed. The patient were treated surgically because of the neural deficit. The lordosis between the fourth lumbar vertebra and sacrum was 0 degree after the injury and 9 degrees postoperatively but it decreased to 3 degrees in a year despite the use of instrumentation.

Key Words: Burst Fracture, fifth lumbar vertebra.

Burst fractures of the spine were first described by Holdsworth (15) who explained that stability was provided by the presence of intact ligaments both anteriorly and posteriorly. Denis (7) has defined the three column classification system and focused attention to the middle column. He emphasized that if two of the three columns were disrupted, the fracture was unstable. The majority of burst fractures occur at the thoracolumbar area, usually between T10-L2 (6, 8, 9). Burst fractures of fifth lumbar vertebra is rare. There are four published reports regarding with burst fractures of the fifth lumbar vertebra in the literature (5, 13, 14, 17).

CASE REPORT

A 16-year-old man was thrown out of the tractor turning over. He sustained a burst fracture of fifth lumbar vertebra and left ankle fracture and was admitted to our hospital. Neurologic examination showed right EHL 2+, right ankle dorsiflexors 2+, right ankle dorsiflexore 2+, right evertors 1+. Sensory loss was present on the right L5 and S1 dermatoms. Neurologic function in the left leg was difficult to evaluate because of the ankle injury, but there was reduced power in the ankle dorsiflexors and slight decrease in sensation. There was no anal and bladder sphincter control. Roentgenograms showed that the L5 vertebra had been compressed anteriorly to 60% of its normal height and that the lordosis between L4 and sacrum was measured 0 degree. A CAT scan demonstrated the burst fracture of L5 and 50% obliteration of the spinal canal. Because of the neural deficit the patient underwent surgery in the following day after the accident. The posterior ligaments between the L4 and L5 and dura were

found to be lacerated. The dura was repaired and the posterior Alici spinal instrumentation applied. Postoperatively the lordosis between the L4 and sacrum was measured 9 degrees. Within two weeks the anal and bladder sphincter control returned to normal. The patient was mobilized by wheelchair a week after the operation. Final follow-up was 1 year after injury, at that time he has complained mild back pain. Roentgenograms showed 3 degrees of lordosis between L4 and sacrum, with no change in vertebral height.

DISCUSSION

Burst fractures of fifth lumbar vertebra is extremely rare (2,5,13,14,17,18). Fredrickson et al. (15) reported four cases Court-Brown and Gertzbein (5) three cases, Finn and Stauffer (13) seven cases, Mick et al. (17) eleven cases.

The surgical stabilization of the burst fractures provide earlier mobilization and rehabilitation of the patients, anatomic restoration and, at times, improvement in neurologic function (1,8,10,11). Burst fractures of the fifth lumbar vertebra should be distinguished from those at thoracolumbar junction. The low location of L5 within the pelvic rim helps to protect it from injury. At the level of fifth lumbar vertebra, the large spinal canal tolerates bony retropulsion without significant neurologic deficits. Two-thirds of lumbar lordosis exists between L4 and the sacrum (3). The loss of lumbar lordosis occurs in the burst fracture of the fifth lumbar vertebra and cannot be restored both conservative and surgical treatment (2). Surgical stabilization of low lumbar burst fractures requires fusion to the sacrum, complicated by failure of fixation, iatrogenic flatback and high pseudarthrosis rates (12, 16, 18). Progressive or severe neural deficit are indications for exploration and decompression. The dural tears in patients with neurologic deficit frequently occur on the posterior surface (4). In addition, fixation anteriorly

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for L5 is difficult (16). For these reasons posterior approach is recommended for the burst fractures of the fifth lumbar vertebra with neurologic deficits.

Fredrickson et al. (14) reported four patients who had a fracture of the fifth lumbar vertebra. The author emphasized that internal fixation added no benefit. They recommended that the patient be kept at full bed rest in a pantolon cast for twelve weeks. Court-Brown and Gertzbein (5) reported that three patients who had a burst fracture of the fifth lumbar vertebra. They suggested conservative treatment until lumbosacral instrumentation to be improved. Finn and Stauffer (13) treated seven patients who had a fracture of fifth lumbar vertebra conservatively by immobilization for six to eight weeks in body-jacket cast and obtained a good clinical result. Mick et al. (17) compared the nonoperative and operative treatment and emphasized internal fixation with pedicle screws restored spinal stability and allows rapid mobilization.

In our case, the patient were operated because of the severe neural deficit. The lacerated dura was repaired and the posterior A1C1 spinal instrumentation applied. He was allowed early mobilization and rehabilitation. There was no failure of instrumentation. The patient suffered from low back pain although full neurologic function has returned a year after injury. The lumbar lordosis could not be restored despite the use of instrumentation.

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