



TRAUMATIC FAR OUT SYNDROME: A CASE REPORT

TRAVMATİK ÇIKIŞ SENDROMU: OLGU SUNUMU

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SUMMARY:

This study presents a report on the traumatic far-out syndrome with L5 radiculopathy caused by vertically unstable sacral fracture. It is found that the associated L1 burst fracture makes the neurologic examination of sacral fracture more complicated. The L5 radiculopathy should be examined in patients with unstable alar fractures. An MRI examination should be planned in the existence of neurologic insult. In light of findings of this case report, we concluded that immediate traction was a useful method for early management of the traumatic far-out syndrome.

Key words: Sacrum fracture, impingement syndrome, far out spinal stenosis

Level of Evidence: Case report, Level IV.

ÖZET:

Bu çalışmada vertikal instabil sakral kırık nedeniyle L5 radikülopatisi olan travmatik far out sendromu sunulmuştur. Beraberinde L1 patlama tarzı kırık olması sakral kırığın nörolojik muayenesini karmaşıktırmaktadır. Bu nedenle L5 radikülopatisi instabil alar kırıklı hastalarda muayene edilmelidir. Nörolojik yaralanma halinde manyetik rezonans görüntüleme yapılmalıdır. Bu olgu sunumunun verileri ışığında, travmatik çıkış sendromu olan hastaların tedavisinde acil traksiyonun yararlı bir metot olduğu fikri elde edilmiştir.

Anahtar Kelimeler: Sakrum kırığı, sıkışma sendromu, çıkış zonu spinal stenozu

Kanıt Düzeyi: Olgu sunumu, Düzey IV.

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INTRODUCTION:

The main characteristic of the far-out syndrome is compression of the L5 nerve root after exiting the foramen. It was pointed out by Wiltse et al that the L5 nerve root may be compressed 'far-out' by impingement of the L5 transverse process against the ala of the sacrum in spondylolisthesis ⁽¹⁰⁾. Later, Ichihara described cases of impingement of the L5 nerve root by a bony spur at the articulation between the transverse process of a transitional vertebra and sacrum ⁽⁶⁾. The traumatic impingement of the L5 nerve root between the displaced sacral ala and the transverse process of L5 in sacral fractures called 'traumatic far-out syndrome' were first described by Denis et al ⁽⁴⁾.

Neurologic deficit is an important problem in sacral fracture. This is especially true if the fracture is associated with another spinal injury which then complicates the diagnosis process. A case of traumatic impingement of L5 nerve root with unstable L1 fracture is reported in this study.

CASE REPORT:

A 45-year-old woman presented to the emergency department after a fall from height. The main complaint was low back pain with a

difficulty to move the left extremity. Neurologic examination of the patient revealed weakness of dorsiflexion of the left hallux (MRC Grade 2) and hypoesthesia in the L5 dermatome.

Standard radiographic images were obtained at the trauma bay. The radiographs of the lumbar spine and the pelvis revealed fractures through the left superior and inferior rami as well as a left sacral fracture with approximately 1 cm superomedial displacement, and a burst fracture of first lumbar vertebrae (Figure-1).

A CT scan was performed to confirm these injuries, which showed a canal compromise of 50%. Magnetic resonance imaging did not show impingement of the L5 nerve root with any damage or compression along its course.

Femoral skeletal traction with 7 kg was applied to the left extremity. Methylprednisolone was administered according to the NASCIS protocol. After 12 hours, she recovered some of her left hallux muscle strength (MRC Grade 3) with increased sensation. Operation was planned for L1 burst fracture, and observation with skeletal traction for the sacral fracture. Posterior instrumentation with fusion was performed from T11 to L2. The traction was continued for three weeks. The neurologic

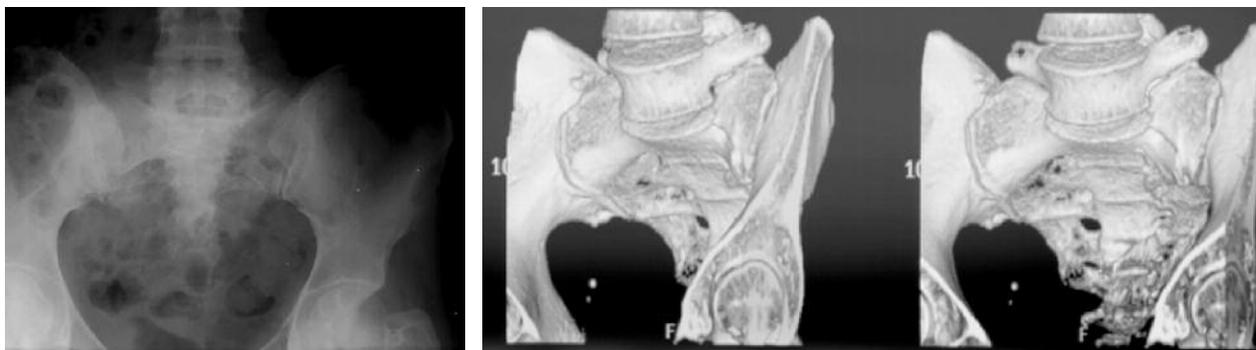


Figure-1. (a) Anteroposterior radiograph of the pelvis and (b) 3D reconstruction of pelvis CT images showing displaced left alar fracture resulting in impingement of the L5 root.

deficit was completely resolved at the end of the first week. She was allowed to walk in the sixth week.

At 24 months follow-up, she was pain free with an Oswestry score of 92 %, and had a visual analogue scale (VAS) score of 1.

DISCUSSION:

Sacral fractures are common injuries in patients who have sustained high energy trauma and who are associated with a high rate of neurologic deficit ⁽⁶⁾. Dennis ⁽⁴⁾ classified sacral fractures into three zones: Zone I injuries which are entirely lateral to the neural foramen; Zone II injuries which pass through and involve the neural foramen; Zone III injuries which extend into the spinal canal via the primary or associated fracture lines. It is known that neurologic damage often occurs in Zone II and III fractures and that it is rarely associated with Zone I fractures ^(2,4,11). The L5 roots are most commonly injured in Zone I injuries because of their vulnerable location along the sacral ala ^(2,4,11). Particularly in vertically unstable alar fractures, the L5 root may become entrapped between a superiorly displaced alar fragment and the L5 transverse process ⁽⁴⁾. Therefore, neurologic examination of the L5 root should be performed in patients with unstable alar fractures.

L1 vertebral fracture is rarely associated with L5 nerve root deficit ⁽⁸⁾. Tezer et al have shown that isolated L1 osteoporotic vertebral fracture can cause bilateral L5 radiculopathy owing to spinal cord compression at the L1 level ⁽⁸⁾. In addition, retropulsed fragment separated from vertebral body may cause spinal cord compression. Consequently, an MRI examination should be planned in the presence of neurological symptoms or physical findings in patients with lumbar fractures.

Dennis advocated that early management of traumatic far-out syndrome causes immediate powerful traction and allows closed reduction of the fracture as well as decompression of the root ⁽⁴⁾. Ayoub advised early decompression and anatomical reduction for improving the recovery, particularly with displacements of more than 1cm; however, he also reported that posterior displacement of more than 1cm is associated with less neurological recovery ⁽¹⁾. Nevertheless, the role of surgical decompression in sacral fractures is controversial. Numerous reports have supported the surgical and nonsurgical treatment of these fractures ^(1-4,6,9,11). Recently, the treatment of closed reduction with percutaneous sacroiliac screw fixation for these injuries is gaining increasing popularity worldwide ⁽⁶⁾. It has been shown to be a reliable and reproducible method which significantly reduces the complications of open exposures without compromising on the stability ⁽⁷⁾.

In this case study, the alar displacement was less than 1cm and foot-drop showed good recovery after traction. However, anatomical reduction could not be achieved with traction treatment. Therefore, a surgery should have been planned for anatomical reduction and percutaneous placement of iliosacral screw to fix fracture fragments.

In conclusion, the presence of associated spinal injuries makes the neurologic examination more complicated in sacral fractures. The L5 radiculopathy should be examined in patients with unstable alar fractures. Immediate traction is a useful method for early management of the traumatic far-out syndrome.

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