

## Traumatic Lumbar Fracture-Dislocation Related to Spina Bifida Occulta: Case Report

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### ABSTRACT

Traumatic lumbar fracture-dislocation is a rare condition. Congenital spinal deformities may facilitate the occurrence of this case. We diagnosed spina bifida occulta accompanied at the same level by a L2 anterior dislocation which resulted from a vehicle in-site traffic accident in a 35-year-old female patient.

Posterior intervention was carried out during therapy, and reduction and stabilization were performed by means of a T12-L1 and L2-L3 trans-pedicular screw. In patients with a congenital spinal anomaly the effect of spinal traumas may be greater than normal. Therefore, spinal traumas in patients with a congenital spinal anomaly should be assessed more carefully.

**Key words:** *Spina bifida occulta, Traumatic lumbar fracture-dislocation*

Traumatic lumbar fracture-dislocations are a rare condition<sup>10</sup>. Commonly, such injuries occurs due to traumas with a high energy<sup>4,14</sup>. Early diagnosis and intervention is very important for saving the patient's life and for deficit. Open reduction and fusion is recommended for surgical therapy<sup>12,14</sup>. We assumed that a lumbar fracture-dislocation that developed after trauma in an adult female patient was related to spina bifida occulta and have presented the case because of its extraordinariness.

### CASE REPORT

A 35-year-old female patient was referred to our emergency clinic due to a vehicle-in-site traffic accident. The patient had severe lumbar pain and sensitivity at the waist. Neurological examination was normal. Prior to the traffic accident there had been no characteristic features in the medical history of the patient. Direct spinal graphs and computerized tomography (CT) displayed anterior fracture-dislocation at vertebrae L2 and spina bifida (Figs. 1, 2). The patient was hospitalized in our clinic and then operated on. During therapy the patient was interfered at the posterior and reduction and stabilization were carried out by means of T12-L1 and L2-L3 trans-pedicular screws and rod system (Fig. 3). No complication occurred due to surgery. Post-operative neurological examination of the patient was normal. The patient was mobilized by means of a thoracic-lumbar girdle at the

3<sup>rd</sup> day of hospitalization.

The lumbar pain of the patient diminished. The patient was discharged from the clinic on the 7<sup>th</sup> postoperative day. Now, she is in the 3<sup>rd</sup> month of follow-up and is symptom and sign free.

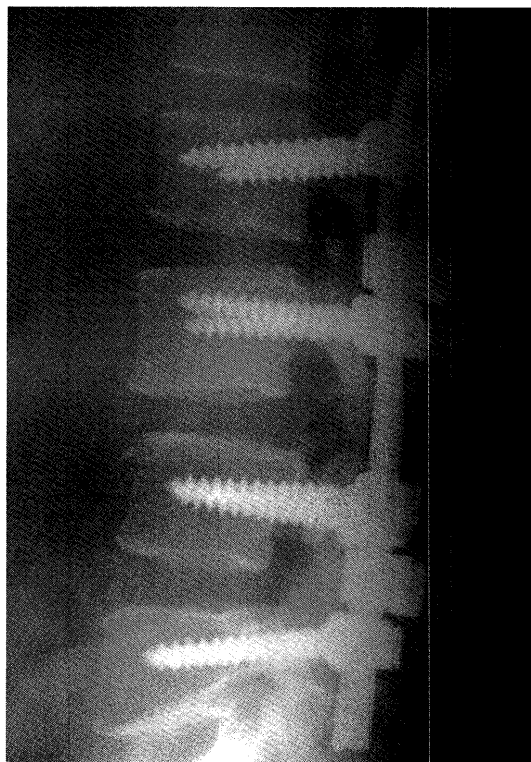
### DISCUSSION

Traumatic lumbosacral dislocations were first described by Watson-Jones<sup>15</sup> as a secondary developed condition due to hyperextension mechanism. Nevertheless, according to the report issued by Samberg the most likely mechanism for such types of injuries are hyperflexion and rotation<sup>1,6</sup>. Traumatic lumbosacral dislocations are scarce<sup>4,13,14</sup>, because intrinsic stability is provided strongly at this zone by means of muscles and potential iliolumbar ligaments<sup>2</sup>. The condition is considered more rare when a congenital anomaly is the source of its occurrence<sup>9</sup>. In the present case, we found that traumatic lumbar fracture-dislocation was closely related to a L2 spina bifida which was determined after trauma. This type of fracture is always associated with neurological deficit of the lower extremities<sup>5,7</sup>.

Traumatic lumbar fracture-dislocation is commonly seen at the lumbosacral resultant at the lower lumbar zone. Such dislocations may occur anterior or posterior according to the strength of the vector of the trauma<sup>4</sup>. Anterior dislocations are more widespread. However, traumatic posterior dislocations are quite uncommon<sup>11</sup>. In the pre-



**Fig. 1.** Direct lumbar lateral graph image of L2 anterior dislocation



**Fig. 3.** Image of postoperatively improved and stabilized lateral direct graph of the L2 dislocation.



**Fig. 2.** Image of the spina bifida occulta at the lumbar BT (bone window).

sent case anterior dislocation at L2 was diagnosed. This condition is far less common than dislocations seen at the lumbosacral zone.

Identifying and managing emergent issues should still be the first priority<sup>10</sup>. Fusion of the affected level during surgical therapy is considered as a gold standard<sup>9</sup>. Burkus et al applied hemilaminectomy, pseudo-arthrosis excision and bilateral fusion in three patients suffering from unilateral spondylolisthesis and spina bifida occulta<sup>3</sup>. The recommended therapy modality in traumatic lumbosacral dislocations is posterior reduction by means of a pedicular screw after fusion at the anterior lumbar interbody<sup>13</sup>. Closed reduction is often unsuccessful, because, they

often involve all three columns in hyperextension injuries of the lumbar spine<sup>7</sup>. In our case dislocation was diagnosed at L2, anterior location. We successfully applied reduction and stabilization by fixation with a trans-pedicular screw by posterior intervention.

Early diagnosis is very important in traumatic lumbar fracture-dislocation cases and therefore a cautious clinical examination and a careful estimation of the condition is necessary, while CT and magnetic resonance (MR) imaging can be very helpful<sup>12</sup>. In addition to spinal AP and lateral direct radiographic images during diagnosis, defective parts can be easily displayed by CT. CT is superior when the bone anatomy is studied,

when the study is being planned and when fixation by screw is required<sup>9)</sup>.

The stability of the spine in a patient with spina bifida may easily become affected by spinal traumas as the backbone may be weaker than a normal one.

We presented a young patient with a traumatic lumbar fracture-dislocation developed before the diagnosis of spina bifida. We thought that the lumbar fracture-dislocation was related to spina bifida. The effect of spinal traumas in patients with a congenital spinal anomaly may be occur more severe than in normal conditions. Therefore, spinal traumas in patients with spinal anomaly must be assessed closely and carefully.

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