



## International Journal of Medical and Pharmaceutical Case Reports

11(4): 1-6, 2018; Article no.IJMPCR.45467  
ISSN: 2394-109X, NLM ID: 101648033

# Post Traumatic L5-S1 Dislocation

Drissi Ghassen<sup>1\*</sup>, Farid Harrar<sup>1</sup> and Mohamed Khaled<sup>1</sup>

<sup>1</sup>Department of Orthopedic Surgeon, Faculty of Medicine, University of Tunis, La Rabta Hospital, Tunisia.

### Authors' contributions

This work was carried out in collaboration between all authors. Author DG designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors FH and MK managed the analyses of the study. Authors HF and MK managed the literature searches. All authors read and approved the final manuscript.

### Article Information

DOI: 10.9734/IJMPCR/2018/45467

#### Editor(s):

(1) Dr. Hayrettin Ozturk, Professor in Pediatric Surgery and Pediatric Urology, Department of Pediatric Surgery, Abant Izzet Baysal University, Bolu, Turkey.

#### Reviewers:

(1) Brian R. Subach, The Virginia Spine Institute, USA.

(2) Jonas Lenzi de Araujo, Brazil.

Complete Peer review History: <http://www.sciencedomain.org/review-history/27898>

Case Report

Received 13 September 2018

Accepted 25 November 2018

Published 21 December 2018

## ABSTRACT

Lumbosacral dislocations are rare disorders. We report here the case of a 66-year-old man victim of a heavy load crush with right lumbar impact point causing lumbar trauma. The examination showed a lumbar swelling corresponding to a subcutaneous hematoma. There were no signs of spinal nerves injury. Radiographic examination showed L5-S1 anterolisthesis grade II with staged breaks of the transverse processes of L2 to L5. Computed Tomography Scan confirmed these findings and also revealed a bilateral anterior and asymmetric anterior dislocation of the L5 vertebra on the sacrum without evidence of disc herniation. The patient underwent surgery within 24 hours. After L5 laminectomy, L5-S1 discectomy and segmental reduction and stabilisation by lumbo-sacro-iliac arthrodesis. After 10-month follow-up, the patient was satisfied and did not show any discomfort.

**Keywords:** Post traumatic; L5-S1 anterolisthesis; grade II; laminectomy; lumbo-sacro-iliac arthrodesis.

\*Corresponding author: E-mail: [drissi.ghassen@yahoo.fr](mailto:drissi.ghassen@yahoo.fr);

## 1. INTRODUCTION

Post traumatic lumbosacral dislocation with or without fracture is uncommon [1–8]. It results from high energy mechanisms of injury that involve hyper-flexion, rotation and compression. In most cases, they are associated with other injuries such as transverse processes fractures. In many cases, the lesion goes initially unnoticed and this is due to its low incidence and atypical localisation [4]. Until now, no consensus has been established for the circumstances of the surgical treatment, but most of the time open reduction and internal fixation are necessary because of a three-column injury [5]. In this paper, we report on a case of post traumatic lumbosacral dislocation treated by lumbo-sacro-iliac arthrodesis.

## 2. CASE REPORT

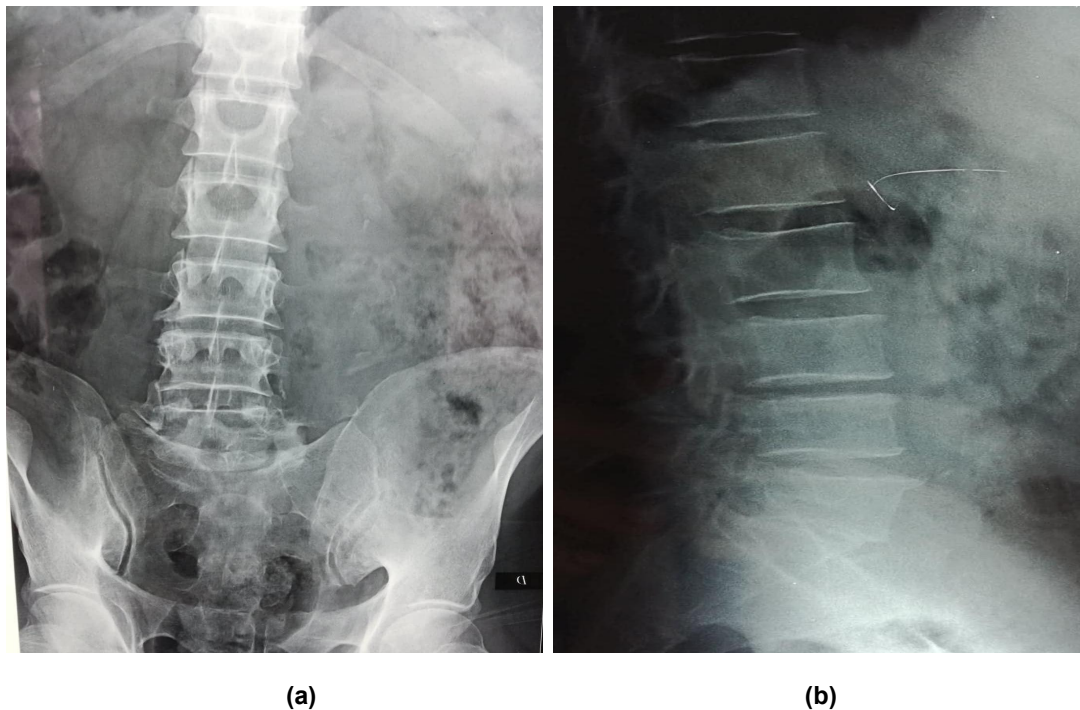
We are reporting the case of a 66-year-old formerly healthy man, crushed by his van while he was changing the wheel, victim of isolated right lumbar impact point. The physical examination revealed a right lumbar dermabrasion associated to a swelling facing the lumbar spine corresponding to a subcutaneous hematoma (Fig. 1).



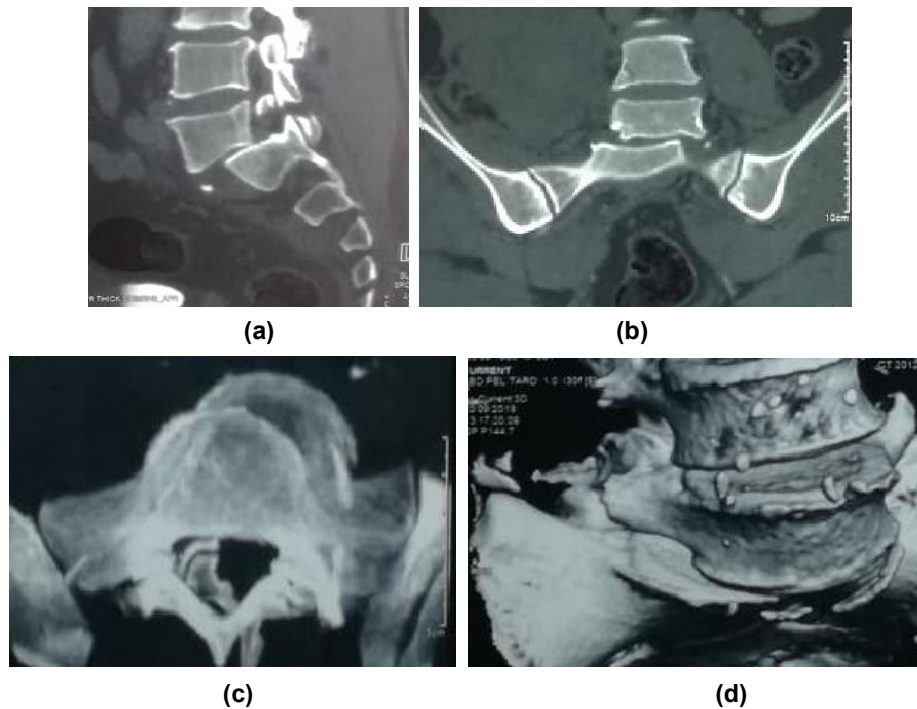
**Fig. 1. Right lumbar dermabrasion associated to a subcutaneous hematoma**

There were no signs of spinal nerves injury. Standard radiography showed staged fractures of L2 to L5 left transverse processes associated with L5-S1 anterolisthesis grade II (Fig. 2).

Computed Tomography Scan confirmed these findings and also revealed an isthmic spondylolisthesis in consequence of isthmus fracture grade II of Meyerding and a retroperitoneal haematoma of average abundance without evidence of disc herniation (Fig. 3).



**Fig. 2. Front X-ray (a) of the lumbar spine showing unilateral fractures of transverse processes from L2 to L5; lateral view radiograph (b) showing the anterolisthesis of the L5 vertebra on S1**



**Fig. 3. Sagittal (a), axial (b), coronal (c) and 3-dimensional CT (d) asymmetric anterolisthesis of L5 vertebra on the sacrum**

The patient underwent surgery within 24 hours. The posterior approach was performed. In peroperative, at L5-S1, a significant subaponeurotic detachment was found. The interspinous and yellow ligament were torn also the dural sac was directly visible. Afterwards, the yellow ligament was resected and the L5-S1 channel was explored.

We made an L5 laminectomy, L5-S1 discectomy and a resection of the bone fragment compressing the left L5 root. An anatomic reduction of lumbosacral dislocation was made with facetectomy. The stabilisation was done by a L3-S2 lumbo -sacro-iliac screw fixation. Autologous bone obtained from the L5 lamina was used for posterior fusion (Fig. 4).

Postoperatively, the patient did not show any neurological deficits and radiography revealed good reduction. The patient was cured without postoperative incidents. A lumbo-sacral corset was worn for 3 months. After 10-month follow-up the patient was asymptomatic without neurological deficit and has resumed normal activity (Fig. 5).

### 3. DISCUSSION

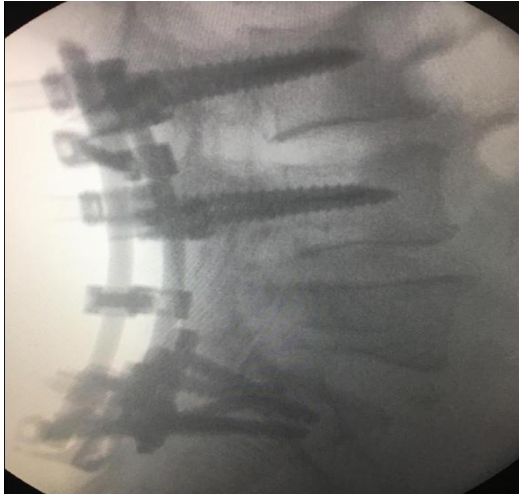
Lumbosacral dislocation is uncommon, and it may be due to the orientation of the anterior

faces and the intrinsic stability afforded by the musculature and iliolumbar ligaments [2,7].



**Fig. 4. Peroperative picture of the L3-S2 lumbo -sacro-iliac screw fixation**

Mostly this type of traumatism happens after a violent trauma and has often been associated with other injuries. Transverse fractures were found in almost all patients. This lesion was reported for the first time by Watson-Jones, who concluded that the main mechanism of this lesion was the hyperextension [1].



**Fig. 5. Peroperative lateral radio-graph**



**Fig. 6. Computed tomography scan after surgery showing good reduction of L5 anterolisthesis**

However, for most authors a combination of hyper-flexion with a compression or lateral translation for fracture-dislocations [2-4].

In the case of our patient, during the trauma, the spine and the hip were flexed. It is clear that the most common mechanism is hyperflexion of this injury.

Most of the previously reported cases have fractures of the transverse apophyses associated, a sign that should lead us to look for a lumbosacral dislocation in patients victim of a severe trauma [2-4].

However, Emergency x-rays are often poorly done and this may allow this lesion to pass. Following severe trauma or fracture of transverse processes, which serve as sentinel fractures, patients should be screened for lumbosacral dislocation [2-4].

To identify a L5-S1 dislocation a lumbar spine scan should be done because it easily reveals locked or fractured facets, laminar fractures and sacral lesions [3].

Moreover, lumbosacral dislocations are extremely unstable lesions often associated with disc herniation. This instability requires either an intraoperative exploration or a preoperative MRI to assess the L5-S1 disc lesion, ligamentous and spine damage [2-5].

In our case, there were no sign of nerve injury and the instability was clear so we did intraoperative exploration.

However, early surgical treatment is necessary and can also affect the surgical outcome especially in the presence of neurological signs [3].

Several methods of management have been described, the orthopedic treatment consist in an immobilisation without reduction or in an immobilisation following a reduction by external maneuvers. But authors have found a high risk of a progressive low back pain, deformity and, and neurologic sequelae and deterioration with conservative treatment [4].

Of the same Hilibrand [11] reported the failure of non-operative treatment in three of four patients and recommends surgical treatment for every lumbo-sacral dislocation.

Lately open reduction with posterior fixation is the most described method. It has been postponed the need to reduce dislocation to explore the vertebral canal even with

the availability of a preoperative high quality MRI [2].

Aihara [12] concluded that the posterior fusion between the lumbar vertebrae is more difficult in case of lumbosacral dislocation, that's why it is recommended to make anterior lumbar fusion after a posterior reduction with pedicle screw.. However, some cases which have been reported have benefited from a combined fixation anterior and posterior.

However, Verlaan [13] demonstrated that a posterior fusion between vertebrae using bone grafting associated with posterolateral instrumentation is appropriate. In the case of our patient; with traumatic lumbosacral anterolisthesis grade II we did a lumbo-sacro-iliac fusion for maximum stability.

We agree with the authors that lumbosacral dislocation should be considered a three-column injury with an L5-S1 disc lesion and that solid circumferential segmental arthrodesis is therefore required to enhance fusion rate [2,4].

#### 4. CONCLUSION

Lumbosacral dislocation is a very rare injury, usually associated to neurological signs, and is due to a high energy trauma. It may be missed in the initial examination. So, a careful exploration of the X-ray and CT scan is required. Because it is a three-column unstable lesion, open reduction and internal fixation are indicated for the management of lumbosacral dislocation. We think that anterior approach or PLIF technique could be better than a single posterior approach due to lesion to the disk. It's the only way to achieve stability with interbody fusion.

#### CONSENT

As per international standard or university standard, patient's written consent has been collected and preserved by the authors.

#### ETHICAL APPROVAL

It is not applicable.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

#### REFERENCES

1. Watson-Jones R. Fractures and joint injuries. Williams & Wilkins, Baltimore, Maryland, USA; 1940.
2. Katsuhiko Tofuku, Hiroaki Koga, Kazunori Yone, Setsuro Komiya. Traumatic lumbosacral dislocation treated with posterior lumbar interbody fusion using intersomatic cages hindawi publishing. Corporation Case Reports in Medicine 2009;4:Article ID 727041. DOI:10.1155/2009/727041
3. Kei Shinohara, Shigeru Soshi, Yoshikuni Kida, Akira Shinohara, Keishi Marumo. A rare case of spinal injury: Bilateral facet dislocation without fracture at the lumbosacral Joint J Orthop Sci. 2012;17:189–193. DOI: 10.1007/s00776-011-0082-y
4. Andrew S. Moon, Kivanc Atesok, Thomas E. Niemeier, Sakthivel R. Manoharan, Jason L. Pittman, Steven M. Theiss. Traumatic lumbosacral dislocation: Current concepts in diagnosis and management advances in orthopedics. 2018;7:Article ID 6578097.
5. Vialle R, Wolff S, Pauthier F, Coudert X, Laumonier F, Lortat-Jacob A, Massin P. Traumatic lumbosacral dislocation: Four cases and review of literature. Clin Orthop Relat Res. 2004;419:91–7.
6. Veras del Monte LM, Bago J. Traumatic lumbosacral dislocation. Spine. 2000; 25(6):756–9.
7. Grobler LJ, Novotny JE, Wilder DG, Frymoyer JW, Pope MH. L4-5 isthmic spondylolysis thesis: A biomechanical analysis comparing stability in L4-5 and L5-S1 isthmic spondylolisthesis. Spine. 1994;19(2):222–227.
8. De Das S, McCreath SW. Lumbosacral fracture-dislocations: A report of four cases. J Bone Joint Surg Br. 1981;63-B(1):58–60.
9. Samberg LC. Fracture-dislocation of the lumbosacral spine: A case report. J Bone Joint Surg. 1975;57(7):1007–8.
10. Wilchinsky ME. Traumatic lumbosacral dislocation: A case report and review of the literature. Orthopaedics. 1987;10(9): 1271–4.
11. Hilibrand AS, Urquhart AG, Graziano GP, Hensinger RN. Acute spondylolytic spondylolisthesis. Risk of progression and

- neurological complications. The Journal of Bone & Joint Surgery. View at Publisher. View at Google Scholar. View at Scopus. 1995;77(2):190–196.
12. Aihara T, Takahashi K, Yamagata M, Moriya H. Fracture-dislocation of the fifth lumbar vertebra. The Journal of Bone and Joint Surgery. British. 1998;80(5):840–845.
13. Verlaan JJ, Oner FC, Dhert WJA, Verbout AJ. Traumatic lumbosacral dislocation: Case report. Spine. 2001;26(17):1942–1944.

© 2018 Ghassen et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

*Peer-review history:*  
*The peer review history for this paper can be accessed here:*  
<http://www.sciencedomain.org/review-history/27898>