

Lumbosacral Dislocation with Cauda Equina Syndrome: A Case of Alif - Laminectomy Treatment

Mouhamadou Moustapha Ndongo¹, Yakhya Cisse^{1*}, Mohameth Faye², Locko Daniel¹, Diana Diop¹, Roger Ilunga Mulumba¹, Fatou Sene¹, Momar Code Ba¹

¹Neurosurgery Department, Fann's national teaching hospital center, Dakar, Senegal.

²Neurosurgery Department, Idrissa Pouye General Hospital, Dakar, Senegal.

*Corresponding Author: Yakhya Cisse, Cisse (Fann's national teaching hospital center of Dakar, BP 5035, Dakar, Senegal).

Received date : November 26, 2025 ; Accepted date : December 15, 2025 ; Published date : December 22, 2025

Citation : Mouhamadou M. Ndongo, Yakhya Cisse, Mohameth Faye, Locko Daniel, Diana Diop, et al, (2025), Lumbosacral Dislocation with Cauda Equina Syndrome : A Case of Alif - Laminectomy Treatment, *J. Neuroscience and Neurological Surgery*, 18(3) ; DOI :10.31579/2578-8868/393

Copyrights: © 2025, Yakhya Cisse. This is an open-access article distributed under the terms of The Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited

Abstract

Introduction: Lumbosacral dislocation revealing cauda equina syndrome is relatively uncommon. Although various treatment strategies have been reported, no consensus has been reached regarding the best surgical approach.

Case Presentation: We report the case of a 35-year-old patient with no previous history, admitted for lumbosacral trauma with acute urine retention and neurological deficits in both legs. The CT scan revealed an anterolisthesis of the 5th lumbar vertebra (L5) on the 1st sacral vertebra (S1). The patient was operated on with a posterior approach followed by ALIF. The patient's neurological recovery was almost complete.

Conclusions: Lumbosacral dislocation is a rare cause of compression of the cauda equina. This case report presents our first experience with a posterior approach followed by an anterior ALIF approach between L5 and S1.

Keywords : alif ; dislocation ; lumbosacral ; anterior approach

Introduction

Posttraumatic lumbosacral dislocation is a rare, high-energy injury characterized by displacement of the 5th lumbar vertebra in relation to the sacrum [1,2]. Lumbosacral dislocation is generally the result of high-energy trauma and is often associated with a fracture of the isthmus [1]. The lumbosacral region is surrounded by important bone and ligament structures that protect important neural elements controlling lower limb function, as well as bladder and sexual functions [3]. Patients typically present with complicated injuries with wide-ranging neurological deficits below the level of trauma [4]. Most published reports and clinical series have shown that these injuries are commonly associated with motor vehicle accidents and are more prevalent in men than in women [2,3,5]. The surgical treatment strategy for traumatic lumbosacral joint dislocation remains controversial, no consensus has been reached regarding the best surgical approach [1,6]. We report a rare case of lumbosacral dislocation, revealing cauda equina syndrome, and our first experience with a posterior approach followed by an anterior approach of the ALIF type to reduce, stabilize and fuse this lesion.

Case Report

M.D 35-year-old patient without any medical or surgical history was admitted for lumbosacral trauma following an accident on the public road. He was a passenger in a car that had rolled over.

The patient's history revealed no signs of head trauma (initial loss of consciousness, headache, vomiting or posttraumatic convulsive seizure). The patient complained of severe low back pain, rated at 7 on the Graphical Rating Scale (GRS) ref associated with paresthesia and cramps of the lower limbs. The physical examination revealed hypoesthesia in the buttock, paralysis of both lower limbs, diminished osteotendinous reflexes in the lower limbs and a negative Babinski sign. Elsewhere, a bladder globe was present, and rectal tone was normal.

Urinary retention required indwelling catheter drainage. Hemodynamic and respiratory functions were stable.

A CT scan of the lumbar spine revealed anterolisthesis of L5 on S1, which was classified as Meyerding grade III with bilateral isthmic lysis of L5 (Figure 1). An angioscan of the iliac vessels was performed to assess the level of bifurcation of the iliac vessels (Figure 2).



Figure 1: CT-Scan of lumbosacral spine in bone window, sagittal reconstruction showing L5 listhesis on S1



Figure 2: Angioscan of the iliac vessels

Double-approach arthrodesis was indicated. The patient underwent surgery 12 days after the trauma. Initially, a posterior approach was used to perform hemi-laminectomy of L5 and S1, followed by the placement of 4 monoaxial pedicle screws in L5 and S1 and two rods secured with nuts. Second, we performed anterior lumbar interbody fusion (ALIF): our patient was placed in a supine position with the head on a log and the log under the iliac crest and popliteal fossa. A horizontal subumbilical incision was made, the fascia and muscles of the anterior abdominal wall were opened, and the peritoneum was identified. We performed a retroperitoneal approach down to the prevertebral fascia while identifying the iliac vessels and the lumbar spine. After scoping the L5-S1 disc, we performed an L5-S1 discectomy. An iliac graft was placed in the L5-S1

interbody and secured with a screw plate (Figure. 3). A reduction was observed after the combination of these two techniques. Our patient's immediate postoperative course was straightforward. The results of the follow-up CT scan were satisfactory (Figure. 4), and the patient was exteated on the 7th postoperative day, with a lumbosacral corset prescribed.

The urinary catheter was renewed every 7 days and removed at 1 month postop. The patient recovered from his bladder independence and deficit after several sessions of physiotherapy.

In consultation at M1 postop, we noted an improvement in pain symptoms and almost complete neurological recovery. He is still followed up in consultation.



Figure 3: Intraoperative iconography of the “ALIF” with visualization of the screwed plate



Figure 4: Postoperative CT scan of double-approach arthrodesis

Discussion

Under our working conditions, L5-S1 lumbosacral dislocation is a rare cause of compression of the cauda equina roots. This posterior approach followed by an anterior ALIF approach is our first experience in Senegal, but it has several limitations. This is a unique case, so it will be difficult for us to draw any conclusions.

There are few cases of lumbosacral fracture-luxation, which usually clinically manifests as cauda equina syndrome, as in our case [7,8]. They were first described by Watson-Jones in 1940, and the mechanism of injury is considered to be correlated with high hyperextension forces [9]. In our case, the patient probably suffered a violent impact on the lumbosacral region during vehicle rollover, which may have resulted in severe hyperflexion in this region and led to fracture-luxation of the bilateral inferior articular processes of L5 anterior to the S1 vertebra.

The main surgical treatment for lumbosacral dislocation is posterior instrumentation, decompression of the cauda equina roots and interbody fusion. Anatomical reduction of the L5 vertebra and repair of the dural sac in cases of dural breach are very important, and reliable fusion of the vertebrae is crucial for stabilization of the spine after surgery [10,11]. In our patient, decompression was performed. Reduction and fusion were

achieved via a dual approach (posterior arthrodesis followed by anterior arthrodesis, hence anterior lumbar interbody fusion (ALIF)). The main advantage of the anterior approach to spinal fusion is that it allows access to the entire intervertebral disc. The main risks associated with ALIF are related to damage to vascular or neural structures encountered during the approach [12].

Hence, preoperative angioscanning of the iliac vessels was important in our case. When L5-S1 is approached via the bifurcation of the great vessels, we can cross the middle sacral artery and vein. These can be very difficult to visualize and must be carefully sought out and ligated to avoid hemorrhage [13]. In our case, the vessels were identified and preserved, and the approach was cautious to avoid damaging the vessels. A discectomy was performed. We harvested an iliac graft that was incarcerated intersomatically and then fixed it with a screw plate. Identification of the sympathetic chain was also necessary to avoid damage to it.

The most feared complication of this approach is sexual dysfunction (14), which was not found in our patient at the M1 postoperative follow-up. Caution and informed consent of adult males are recommended, as in our case.

Some reports suggest that the time to decompression, the degree of slippage and the extent of neurological deficits prior to surgery are the main factors influencing the recovery of neurological function [2,15]. In our case, the patient underwent surgery at 12 days after the trauma, given that the preparation for surgery was considerably onerous in psychological, physical and financial terms for the patient and given the challenge of the operation for the surgical team. The patient nevertheless recovered from his bladder independence, and an almost complete recovery of his motor deficit at L5 was observed 1 month later. This is our first experience with the double approach to the lumbosacral spine. The patient is satisfied with the treatment since he has had a recovery of motor functions. But the cost of the treatment was expensive for him, since he did not have medical insurance.

Conclusion

L5-S1 lumbosacral dislocation is a rare cause of compression of the cauda equina roots and usually results from high-energy trauma. Surgery consisted of a posterior approach followed by an anterior ALIF approach to reduce, stabilize and fuse this rare pathology.

List of abbreviations

ALIF: anterior lumbar interbody fusion

L5: 5th lumbar vertebra

S1: 1st sacral vertebra

References

- Castillo J, Soufi K, Rodriguez F, Ebinu JO. (2023). Traumatic bilateral lumbosacral facet dislocation without fracture : illustrative case. *J Neurosurg Case Lessons*, 10 :6(2) : CASE23261.
- Moon AS, Atesok K, Niemeier TE, Manoharan SR, Pittman JL, Theiss SM. (2018). Traumatic Lumbosacral Dislocation : Current Concepts in Diagnosis and Management. *Adv Orthop*, 2018 :6578097.
- Lehman RA, Kang DG, Bellabarba C. (2012). A new classification for complex lumbosacral injuries. *Spine J*, 1 :12(7) :612-628.
- Scott KW, Arias J, Tavanaiepour K, Tavanaiepour D, Rahmathulla G. Combined Posterior-Anterior Interbody Fusion in the Management of Traumatic Lumbosacral Dissociation : A Case Report and Review of Literature. *Cureus*. 12(2) :7089.
- Kang DG, Cody JP, Lehman RA. (2012). Combat-related lumbopelvic dissociation treated with L4 to ilium posterior fusion. *Spine J Off J North Am Spine Soc*, 12(9):860-861.
- Lu X, Hou C, Yuan W, Zhang Z, Chen A. (2009). Complete traumatic anterior dislocation of the lumbosacral joint : a case report. *Spine*, 15 :34(14) :488-492.
- Murata Y, Lee M, Mimura M, Murata A, Shimizu S. (1999). Partial avulsion of the cauda equina associated with a lumbosacral fracture-dislocation. A case report. *J Bone Joint Surg Am*, 81(10):1450-1453.
- Newell RLM. (1977). Lumbosacral fracture-dislocation : a case managed conservatively, with return to heavy work. *Injury*, 1 :9(2) :131-134.
- Watson-Jones R. (1955). The classic: "Fractures and Joint Injuries" by Sir Reginald Watson-Jones, taken from "Fractures and Joint Injuries," by R. Watson-Jones, Vol. II, 4th ed., Baltimore, Williams and Wilkins Company, *Clin Orthop*. 1974:(105):4-10.
- Tang T, Liu Y, Cao J, Wu T, He D, Cheng X, et al. (2023). Case report : Traumatic lumbosacral spondyloptosis with locked L5 inferior articular process. *Front Surg*, 10 :1174169.
- Vialle R, Charosky S, Rillardon L, Levassor N, Court C. (2007). Traumatic dislocation of the lumbosacral junction diagnosis, anatomical classification and surgical strategy. *Injury*, 38(2):169-181.
- Kain C, Giesler B, Hochschuler SH. (1993). Anterior lumbar interbody fusion : lumbar approach, complications, and their prevention. *Oper Tech Orthop*, 1 :3(3) :225-231.
- Mobbs RJ, Phan K, Malham G, Seex K, Rao PJ. (2015). Lumbar interbody fusion : techniques, indications and comparison of interbody fusion options including PLIF, TLIF, MI-TLIF, OLIF/ATP, LLIF and ALIF. *J Spine Surg Hong Kong*, 1(1) :2-18.
- Flynn JC, Price CT. (1984). Sexual complications of anterior fusion of the lumbar spine. *Spine*, 9(5) :489-492.
- Tracz JA, Judy BF, Sacino AN, Bydon A, Witham TF. (2022). Management of traumatic sacral spondyloptosis: illustrative case. *J Neurosurg Case Lessons*, 18 :4(3) : CASE22221.



This work is licensed under Creative Commons Attribution 4.0 License

To Submit Your Article Click Here:

Submit Manuscript

DOI:10.31579/2578-8868/393

Ready to submit your research? Choose Auctores and benefit from:

- fast, convenient online submission
- rigorous peer review by experienced research in your field
- rapid publication on acceptance
- authors retain copyrights
- unique DOI for all articles
- immediate, unrestricted online access

At Auctores, research is always in progress.

Learn more <https://auctoresonline.org/journals/neuroscience-and-neurological-surgery>