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(CASE REPORT)

Lumbar spinal stenosis: A case series

Israe ALMAGHRIBI *, Abdoullah TOUNSI, Mustapha HEMAMA, Nizare EL FATEMI and Moulay Rachid EL MAAQILI

Department of Neurosurgery, Hospital IBN SINA-Rabat, Mohammed V University of Rabat, Morocco.

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Abstract

Introduction: The term "degenerative lumbar spinal stenosis" describes the narrowing of the spinal canal brought on by degenerative alterations in the ligamentum flavum, intervertebral discs, and spinal joints. Main clinical signs include neurogenic claudication, lower extremity radiating pain, low back discomfort, and impaired urination and defecation may manifest as the area around the neurovascular tissue gets smaller. Increased buttock or lower limb pain that may get worse with prolonged walking or standing (neurogenic intermittent claudication) is one of the clinical signs, along with a decrease in lower extremity tiredness and feeling.

Objective: To investigate the epidemiological, clinical, paraclinical, and therapeutic profile of lumbar spinal stenosis, while conducting a literature review comparing our results with those reported, as well as different therapeutic techniques.

Materials and Methods: In our retrospective study conducted at the Neurosurgery Department of the Ibn Sina University Hospital in Rabat, we reviewed 120 of patients operated on for lumbar spinal stenosis between January 2011 and October 2022.

Results: The mean age was 55.9 years, ranging from 18 to 77, with a sex ratio of 0.52. Clinical symptoms included low back pain in 94.93% of cases, radiculalgia in 94.93%, intermittent radiculomedullary claudication in 56.96%, and genitosphincter disorders in 13.9%. On examination, motor deficits were observed in 35.44% of cases and sensory deficits in 15.18%. Standard lumbar spine X-rays were performed in 59.49% of patients; lumbar CT was performed in 40.5%, lumbosacral MRI in 89.87%, and a CT/MRI combination in 30.3%. In the absence of neurological deficits, medical treatment was initially administered to 82.27% of patients. All operated patients underwent laminectomy, while 8.86% underwent foraminotomy. The postoperative course was generally favorable, with a positive outcome

Keywords: Lumbar spinal stenosis; Intermittent spinal claudication; Laminectomy; degenerative; Ibn Sina

1. Introduction

Lumbar spinal canal stenosis is defined by a decrease in the physiological diameter of the spinal canal or intervertebral foramina in the lumbar region. Most commonly observed in the elderly, this condition can have congenital or acquired origins.

Lumbar canal stenosis causes spatial conflict between the container (osteodiscoligamentous structures) and the contents (vascular and nervous structures). This conflict is responsible for various clinical symptoms such as lower back pain, radicular pain, neurogenic intermittent claudication, and cauda equina syndrome. Diagnosis is primarily based on imaging tests, including computed tomography and/or magnetic resonance imaging of the lumbar spine [1-2].

* Corresponding author: Israe ALMAGHRIBI

Depending on the clinical presentation, treatment of lumbar spinal canal stenosis begins with a medical approach, which may be supplemented with surgery if results are unsatisfactory[3-4].

The objective of our work is to make a retrospective descriptive analysis of a series of 120 cases followed for CLE and treated in the neurosurgery department of the Ibn Sina University Hospital in Rabat in order to highlight the epidemiological, clinical and radiological characteristics of this pathology. In addition, to highlight the importance of surgical treatment and discuss the role of some prognostic factors that can influence therapeutic results, based on data from the literature to explore the different therapeutic techniques used.

2. Clinical Presentation

Between January 2011 and October 2022, 120 cases were treated for lumbar spinal stenosis, diagnosed and operated on at the Neurosurgery Department of AVICENNE Hospital in RABAT, with the following results:

The mean age was 55.9 years, ranging from 18 to 77, with a sex ratio of 0.52.

Clinical symptoms included low back pain in 94.93% of cases, radiculal pain in 94.93%, intermittent radiculomedullary claudication in 56.96%, and genitosphincter disorders in 13.9%.

On examination, motor deficit was observed in 35.44% of cases, and sensory deficit in 15.18%.

Standard lumbar spine X-rays were performed in 59.49% of patients, while lumbar CT was performed in 40.5%, lumbosacral MRI in 89.87%, and CT/MRI in 30.3%.

- In the absence of neurological deficits, medical treatment was initially administered to 82.27% of patients.

All operated patients underwent laminectomy (100%), while 8.86% underwent foraminotomy.

- The postoperative course was generally favorable, with a positive outcome.

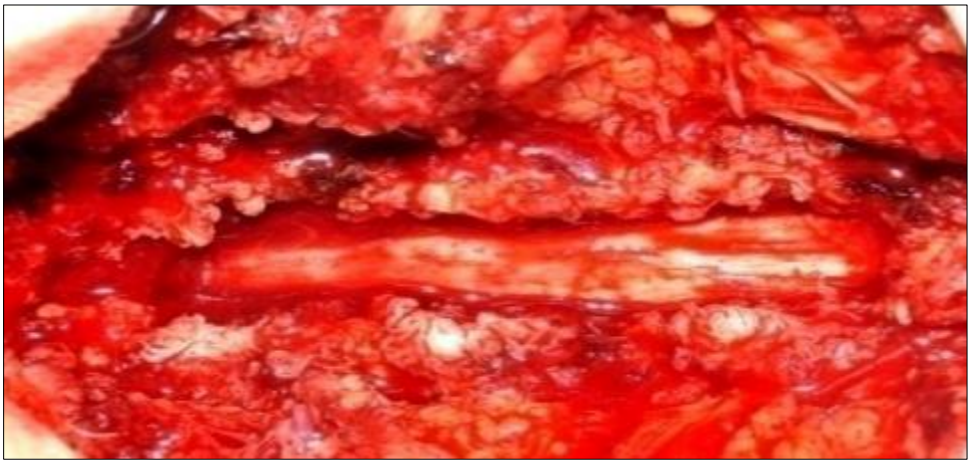

Figure 1 Intraoperative view of a lumbar laminectomy performed on three levels in one of our patients

3. Discussion

Lumbar spinal stenosis is the main indication for spinal surgery in the elderly. Surgery is recommended in clinical guidelines if non-surgical treatments have failed [5].

A precise anatomical definition, based on six parameters (etiology, location, severity and extent of the stenosis, static or dynamic nature of the stenosis, and whether the stenosis is responsible for bone or disc-ligamentous elements), is crucial for determining an appropriate surgical strategy [6-10].

Clinically, neurogenic claudication is the most prevalent symptom. The patients report lower leg, thigh, and buttock pain or discomfort that comes on after walking a specific distance, resulting in reduced walking capacity and functional impairment. lumbosciatica also remain the predominant symptoms, while extreme clinical presentations such as cauda equina syndrome remain rare and appear to be associated with an advanced stage of the disease [11-12].

Diagnosis is confirmed by radiological examinations. CT scans are traditionally preferred as first-line treatment, although MRI is gaining popularity. The LSS (Lumbar Spinal Stenosis) is frequently confirmed by MRI. Many writers suggest using the MRI, which excels in soft tissue observation, to identify LSS [13-14]. When MRI is not accessible or is contraindicated, CT will be performed for certain patients who may have suspected ossification [15].

Suspected by clinical examination and confirmed by radiological images, CLE is treated surgically if medical treatment fails [16]. Total laminectomy is considered the gold standard, providing favorable postoperative results. However, partial laminectomy, performed by several authors, appears to guarantee spinal stability with comparable results [17-18].

Endoscopic techniques offer potential advantages, such as reducing the length of patient hospital stay. However, they are sometimes associated with prolonged operative times. Opinions differ on the need for spinal fusion in cases of lack of pre- or intraoperative stability [19-23].

4. Conclusion

Lumbar spinal stenosis is most often acquired and linked to spinal degeneration. When it becomes symptomatic, conservative medical treatment should initially be initiated. If this fails, surgery is required if there is real functional discomfort consistent with the history and imaging.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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