

Case Report on Lumbar Spinal Stenosis (LSS)

Ruchita S. Barhate¹, Ms. Bhawana Dhanvij², Shital Telrandhe³, S. R. Kapse⁴

1. Ruchita S. Barhate, Florence Nightingale Training College of Nursing, Sawangi Meghe, Wardha, Maharashtra; Email: ruchitabarhate169@gmail.com, MobileNo-9373497607

2. Ms. Bhawana Dhanvij, Nursing Tutor, Florence Nightingale Training College of Nursing, Sawangi Meghe, Wardha, Maharashtra; Email: dhanvijbhawna@gmail.com, MobileNo-8378025836

3. Shital Telrandhe, Research Consultant, Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences, Sawangi (M), Wardha.

4. S. R. Kapse, Dept. of Computer Technology, Yeshwantrao Chavan College of Engineering, Nagpur. Email: smitakapse@gmail.com

ABSTRACT:

Introduction: Lumbar Spinal Stenosis is a clinical syndrome characterised by discomfort in the buttocks or lower extremities, which may or may not be accompanied by back pain and is linked to a lack of room in the lumbar spine for neuronal and vascular elements. According to the exercise or positionally produced neurogenic claudication that is relieved by forward flexion (i.e. radiating leg soreness when walking or standing for a long time), sitting, and/or lying down is common when symptomatic, according to the North American Spine Society. Despite these distinguishing characteristics, there is no universally recognised "gold standard" for diagnosing LSS. In addition, radiographic findings frequently do not correspond to the patient's complaints. As a result, a variety of clinical, electrodiagnostic, and radiographic examinations are performed. Lumbar spinal stenosis is a narrowing of the spinal canal in the lower part of the back. The spinal cord or the nerves that go from it to your muscles might be compressed by The narrowing of the spinal canal is known as stenosis. Spinal stenosis can damage any part of your spine, although it most usually affects the lower back.

Main symptoms and important clinical findings: A 66 year old male admitted in AVBRH Hospital on date 11/07/2021 with chief complaint of weakness in foot , pain and cramping in one leg when stand for long periods and also black pain. present case visited/ deposited in AVBRH Hospital in OPD bases on data with complaint of weakness in a foot , pain and cramping in a leg , back pain since 2 month.

The main diagnosis, therapeutic interventions and outcome: After physical examination and investigation this case was diagnosed lumbar spinal stenosis medical management was provide to the patient inj. Naproxen BD , inj. Amitriptyline OD , Tab. Lyrica, Tab. Oxycodone. **Nursing perspective:** Fluid replacement DNS,RL, monitored vital sign.

Conclusion: Lumbar canal stenosis is a complicated condition marked by degenerative changes in the lumbar spine. This deterioration can develop to a painful and restrictive clinical condition, which should always be explored by reviewing all imaging results thoroughly.

Keywords: Lumbar Spinal Stenosis, Diagnosis, Pain, Cramping.

Introduction:

A pathologic narrowing of Lumbar spinal stenosis is caused by compression of the thecal sac and nerve roots in the spinal canal. Mechanical and metabolic changes inside the intervertebral disc promote Due to disc space collapse and facet joint hypertrophy, the space available for the thecal sac and nerve roots is limited, Osteophyte development and soft-tissue infolding Claudication, back and leg pain, and trouble walking are all symptoms of lumbar spinal stenosis. Lumbar spinal stenosis has a significant impact on one's quality of life, as well as the potential for death.¹

Lumbar Spinal stenosis is a narrowing of the spinal canal in the lower back. The spinal cord or the nerves that go from it to your muscles might be compressed by stenosis, or narrowing of the spinal canal. Spinal stenosis can damage any part of your spine, but it is most common in the lower back

commonly affected. LSS has a number of different diagnoses, including vascular claudication, transferred Compression fractures, lumbar and/or radicular discomfort, and hip dysplasia. osteoarthritis, which frequently coexist in elderly people, add to the confusion. The chiropractor's diagnosis is crucial since it determines how these patients will be treated. Lumbar spinal stenosis can compress the spinal cord and nerves that go through it. Age-related changes are the most common cause. Leg cramps or pain can occur after long durations of standing or walking. When you bend forward or sit down, the pain normally goes away. Anti-inflammatories, physiotherapy, injections, and surgery are all options for treatment.

The whole lamina is rarely removed since the growth of the facet joint and ligamentum flavum, as well as intervertebral disc protrusion, are the primary causes of spinal stenosis. Around the turn of the century, several authors supported lumbar decompression methods to preserve the posterior midline tissues, including unilateral laminotomy for bilateral decompression (ULBD). In ULBD, complete bilateral decompression can be achieved with minimal injury to the midline tissue by conducting an ipsilateral hemilaminectomy instead of a bilateral laminectomy. It was first employed fifteen years ago in cancer surgery and has since become the gold standard.²

Patient Information :

Patient specific information: A 66 year old male admitted in AVBRH Hospital on date 11/07/2021 with chief complaint of weakness in foot , pain and cramping in one leg when stand for long periods and also black pain.

Primary concern and symptoms of the patient : present case visited/ deposited in AVBRH Hospital in OPD bases on data with complaint of weakness in a foot , pain and cramping in a leg , back pain since 2 month

Medical, family and psycho – social History : patient suffering from diabetes since 2 year, congestive heart failure , and right hip joint osteoarthritis , present case belongs to nuclear family in his family belongs to middle class family. He was mentally stable his oriented to date, time and place and he maintain a good relationship with family members.

Relevant past intervention with outcomes : Not reported

Clinical Findings : State of health was unhealthy, thin body built, The Hight of patient is 160cm and weight 70kg. Vital sign are normal and his heart sound is murmur. The patient was conscious and well oriented.

Timeline : Patient was visited in AVBRH hospital on OPD bases with chief complaint back pain, weakness in a foot and pain and cramping in a leg. Patient general condition is poor.

Diagnostic Assessment : Back discomfort and leg tightness are both apparent throughout the physical assessment and inquiry. All basic blood tests were performed in blood, and HB was found to be normal.

After L4–S1 arthrodesis surgery, an X-ray of the lumbar spine is taken.

Sagittal lumbar spine MRI: Sagittal lumbar spine MRI exhibiting lumbar stenosis at L2–S1.

The axial slice of an MRI of the lumbar spine reveals narrowing of the spinal canal at levels (A) L4–L5 and (B) L5–S1.

The doctor discovered a case of lumbar spinal stenosis.

Therapeutic Intervention : : Medical management was provided to the patient. The initial care of the patient was with intravenous normal saline, Present case took the medical management was

provide to the patient inj. Naproxen BD , inj. Amitriptyline OD , Tab. Lyrica, Tab. Oxycodone. No changes in therapeutic intervention

Nursing perspective: Fluid replacement DNS,RL, monitored vital sign, maintained iv fluid, maintained patients daily basis care.

Follow-up and outcomes : Patient condition was improved. To prevent the progression of disease and trying to reserve any sign and symptoms, doctor advised follow up after 1 month for routine check-up.

Intervention adherence and tolerability: He followed the dietician advise. Dietician advised oil free content food and rich in protein supplementation. His interventional adherence was satisfactory.

Adverse and unanticipated event : No adverse event were noted.

Discussion:

The main complaint of a 66-year-old obese guy was low back and lower extremities pain on the left side. He characterised it as a persistent aching that ran "Pins and needles" down his thigh to his mid-shin accompanying it. Along his right anterolateral thigh, he also complained of "numbness." Lumbar stenosis affects between 1.7 and 8% of the general population, and it gets more prevalent after the fifth decade.

It can be categorised based on its aetiology or anatomy. Congenital stenosis and acquired/degenerative stenosis are the two forms of stenosis that can occur. Congenital The narrowing of the spinal canal produced by stenosis is called stenosis an idiopathic or achondroplasia-related bone defect. Acquired/degenerative stenosis can be caused by metabolic illnesses (such as Paget's disease), cancers, infections, osteoarthritic alterations, or instability with or without spondylolisthesis.³

By identifying precise stenosis spots, the anatomical classification serves as a "roadmap" for surgical decompression. Central stenosis, lateral recess stenosis, foraminal stenosis, and extraforaminal stenosis are some of the several types of stenosis. are the four forms of stenosis.

Adult degenerative lumbar stenosis, like this one, is nearly invariably accompanied segmental instability causes osteophytic/degenerative alterations in the facets of the joint. This degenerative process is thought to begin with intervertebral disc degeneration, which is subsequently followed by disc space collapse.

One of the most prevalent side effects of decompression without lumbar arthrodesis is spondylolisthesis. As a result, all patients who develop instability as a result of decompression joint facets being removed should have lumbar spine arthrodesis with autologous grafts and transpedicular screw fixation. Lumbar arthrodesis is required for patients with lumbar stenosis, spondylolisthesis, or degenerative scoliosis.⁴

The purpose of presenting this case is to emphasise that this was a patient with lumbar spine pathological/surgical antecedents who presented with severe stenosis involving multiple levels of the lumbar spine and was successfully treated with two different decompression techniques in the same surgical procedure. He struggled to get out of a chair (Minor's sign) and walked with a left-sided antalgic limp, according to the exam. When he was seated, his lumbar spine range of motion was restricted by 50% in extension, 50% in left rotation, and 25% in right and left lateral flexion. His lumbar

spine range of motion was restricted by 50% in extension, 50% in left rotation, and 25% in right and left lateral flexion when he was seated. Motion palpation on the left side revealed sacroiliac joint limitation, as well as tension in the lumbar paraspinal and gluteal muscles. Despite the fact that Nachlas' quadriceps muscles were bilaterally tight, various orthopaedic tests increased his left-sided low back and leg pain, including the Straight Leg Raise, Double Leg Raise, Yeoman's, and seated Kemp's. Reduced Achilles tendon reflexes were scored as +1 on the right and 0 on the left, with the exception of lessened Achilles tendon reflexes. In terms of sensory, Babinski, and vibratory tests, the lower limb neurologic exam was ordinary. Based on his age, history, and physical examination findings, the working diagnosis was LSS. Other co-morbidities must be addressed before a clear diagnosis may be made. His good scores on the Straight Leg Raise and Double Leg Raise tests, as well as MRI findings of foraminal stenosis in L3–4 and L4–5, suggested lumbar radiculopathy as the underlying diagnosis.⁵ He had type 2 diabetes and congestive heart failure in his medical history, therefore vascular claudication and/or peripheral neuropathy were likely differentials. He also had significant and painful osteoarthritis in his left hip and was waiting for total hip replacement surgery.

According to Sackett et al., “evidence-based medicine is the intentional, explicit, and reasonable use of the current best evidence in making decisions for the care of specific patients.”⁵ A number of related studies were reported⁶⁻¹¹. In this case, a 66-year-old man presented with indications and symptoms of LSS, as well as a variety of co-morbidities. Two recent systematic studies, however, were used to make a more reliable diagnosis of LSS, namely their specificities and LRs.

Conclusion:

Lumbar canal stenosis is a complex disorder characterised by lumbar spine degeneration. This deterioration can lead to a painful and restrictive clinical condition, which should always be investigated by thoroughly examining all imaging results.

References:

1. Kang T, Park SY, Kang CH, Lee SH, Park JH, Suh SW. Is biportal technique/endoscopic spinal surgery satisfactory for lumbar spinal stenosis patients?: a prospective randomized comparative study. *Medicine*. 2019 May;98(18).
2. Lai MK, Cheung PW, Cheung JP. A systematic review of developmental lumbar spinal stenosis. *European Spine Journal*. 2020 Jul 4:1-5.
3. Siebert E, Prüss H, Klingebiel R, Failli V, Einhäupl KM, Schwab JM. Lumbar spinal stenosis: syndrome, diagnostics and treatment. *Nature Reviews Neurology*. 2009 Jul;5(7):392-403.
4. Gunzburg R, Mayer M, Szpalski M, Aebi M, editors. *Arthroplasty of the Spine*. Springer Science & Business Media; 2003 Dec 2.
5. Borg A. Cost-effectiveness and quality of life after treatment of Lumbar Spinal Stenosis with the interspinous distractor device (X-Stop) or laminectomy: a randomised control trial (Doctoral dissertation, UCL (University College London)).
6. Angachekar, D., Deshpande, S., Gudhe, M., Samal, N., Khan, S., Gupta, S., 2020. Clinical and functional outcome analysis of posterior decompression and spinal fusion surgery in the management of lumbar and sacral listhesis: A prospective cohort study. *Journal of Datta*

- Meghe Institute of Medical Sciences University 15, 407–413. <https://doi.org/10.4103/jdmimsu.jdmimsu.24520>.
7. Gawande, V., Saoji, K., Nair, A., Saoji, K., 2020b. Radiological findings of spinal neurocysticercosis. *International Journal of Current Research and Review* 12, 164–168. <https://doi.org/10.31782/IJCRR.2020.121824>
 8. Gupta, A., Dhande, R., 2020. Role of magnetic resonance imaging in the evaluation of spinal trauma. *Journal of Datta Meghe Institute of Medical Sciences University* 15, 192–196. <https://doi.org/10.4103/jdmimsu.jdmimsu.1520>
 9. Tikale, S., Umate, K., Tiwari, M., Mahakalkar, C., 2020. Management of lumbar canal stenosis through Panchakarma: Case study. *Indian Journal of Forensic Medicine and Toxicology* 14, 6381–6385. <https://doi.org/10.37506/ijfmt.v14i4.12602>
 10. Abbafati, C., Abbas, K.M., Abbasi-Kangevari, M., 2020a. Global burden of 369 diseases and injuries in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. *The Lancet* 396, 1204–1222. [https://doi.org/10.1016/S0140-6736\(20\)30925-9](https://doi.org/10.1016/S0140-6736(20)30925-9)
 11. James, S.L., Castle, C.D., Dingels, Z.V., 2020b. Global injury morbidity and mortality from 1990 to 2017: Results from the global burden of disease study 2017. *Injury Prevention* 26, 196–1114. <https://doi.org/10.1136/injuryprev-2019-043494>.