

# A Case Report on Lumbar Stenosis Secondary Intervertebral Disc Prolapse on to IVDP L4/L5 Associated with Hypertension and Hypothyroidism in Female

Arumugam MuthuKumar\*, Rajaram Gayathri, Deepam Pradhan, Pelden Dema, Rumana Khatija, Mohan Sellappan

Department of Pharmacology, Krupanidhi College of Pharmacy, Bangalore, Karnataka, INDIA.

Department of Pharmaceutics, Karpagam College of Pharmacy, Coimbatore, Tamil Nadu, INDIA.

## ABSTRACT

The chief clinical indication of Spinal Stenosis is persistent pain, severe stenosis, weakness and even including regional anesthesia in patients. One of the major impediments of critical Lumbar spinal stenosis (LSS) is Central cord syndrome which indeed is a cervical spinal cord injury. It may further extend the injury and also resulting in the osteoarthritic spine. Patients with LSS become typical with pain, nervous disorder, formication or neurologic negotiation causing discomfort. As per few studies and natural history around 146 patients with LSS were not suggested for surgical method. This was mainly due to adequate symptom levels. This condition is prevalent in people (40-60years). Whereas, it is seen very commonly in case of geriatric patients (usually above the age of 60). This is a case of a 63-year-old female known hypertensive, hypothyroidism with complaints of paresis because of severe lumbar spinal stenosis. Based on the patient's complaint and disease state the patient was advised to undergo related tests and procedures for further specification of the treatment. In the world, today

about 1 per 1000 persons older than 65 years and about 5 of every 1000 persons older than 50 years are seen to acquire such condition like lumbar spinal stenosis. Therefore 60-85% of patients having such condition are known to have fulfilling improvements due to surgical treatments.

**Key words:** Lumbar Spinal Stenosis, Paresis, Spondylosis, Osteoarthritis, Degenerative disc disease, Central cord syndrome, Formication.

## Correspondence

**Dr. Arumugam MuthuKumar**

Department of Pharmacology, Krupanidhi College of Pharmacy, Bangalore-560035, Karnataka, INDIA.

Phone: +91 9976696000

Email: mkpharmacologist@gmail.com

DOI: 10.5530/jyp.2020.12.78

## INTRODUCTION

Lumbar spinal stenosis (LSS) is a medical condition that is known to narrow as well as compress the nerves along with blood vessels, especially at the lumbar vertebrae.<sup>1,2</sup> Apart from causes like degenerative arthritis or degenerative disc disease, LSS can also be developed by trauma, tumor or various dysplasia's (abnormal development of cells within tissues/organs). It can be even caused by a condition that reduces the spinal canal or vertebral foramen. It can affect the thoracic region that leads to the development of thoracic spinal stenosis.<sup>3-5</sup> Few major side effects caused due to LSS are numbness in feet, legs, thighs, or buttocks. Some of the symptoms characterized by LSS include pseudo-claudicating (impingement or sensation of inflammation from the spinal cord along with inducing leg pain due to walking or prolonged standing). These above conditions are seen to be relieved with sitting, lying down and forward bending.<sup>6,7</sup> The medical experts generally diagnose LSS based on the patient physical examination, medical history and even imaging.<sup>8</sup> Despite all these, there is generally no precise standard diagnosis for LSS. Sometimes even the radiographic results show poor compatibility with patient symptoms. Therefore various electro-diagnostics and radiological test are carried out. Hence the health care centers need to provide an accurate diagnosis for better patient compliance.<sup>9-11</sup>

## CASE REPORT

A 63-year-old female presented with signs of LSS was referred to a hospital in Bangalore. There was no history of any metabolic disorder or other diseases in the past until April 2019, she was taken to the hospital due to sudden symptoms like fatigue, shortness of breath, chest pain

etc which was later confirmed to be caused by hypertension. The blood pressure observed initially was 130/90 mmHg. The patient was also directed for ECHO cardiograph in which the following were observed, M-moderate measurements- the left ventricular diastolic was 4.5 cms and systolic was 2.6cms. The right ventricular diastolic was 2.9cms, left atrium 2.7cms and TAPSE was 2. Further 2D study and Doppler study was also carried out: (Figure 1)

The patient was also found having hypothyroidism (TSH-0.23) along with Dyslipidemia (low HDL) and VIT D Deficiency (plasma Vitamin D 12.6). While the medication was going on for the above-mentioned diseases just a couple of weeks later the patient again complained of having right Hemiparesis along with radicular pain in the right lower limb (LL). One month back afternoon she had a sudden onset of right lower limb weakness which made it difficult to walk. Also, low backache since a month radiating till ankle and increased with walking. After the physical tests according to the complaints made by the patient, it was found that she was having an extruded disc at L4-L5. CT done in May 2019 showed a left basal ganglionic infarct.

## DIAGNOSIS

The patient was referred for spine surgery. Other important impressions made were as following, MILD CAD NIL CARDIAC COMPLAINTS NORMAL LV, CONCENTRIC LVH ECG-NSR, NON-DM/The blood pressure was noted to be 132/80 mmHg. HYPOTHYROID/H/O CVCA+NO ADDICTION/POSTMENOPAUSAL.<sup>12,13</sup>

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

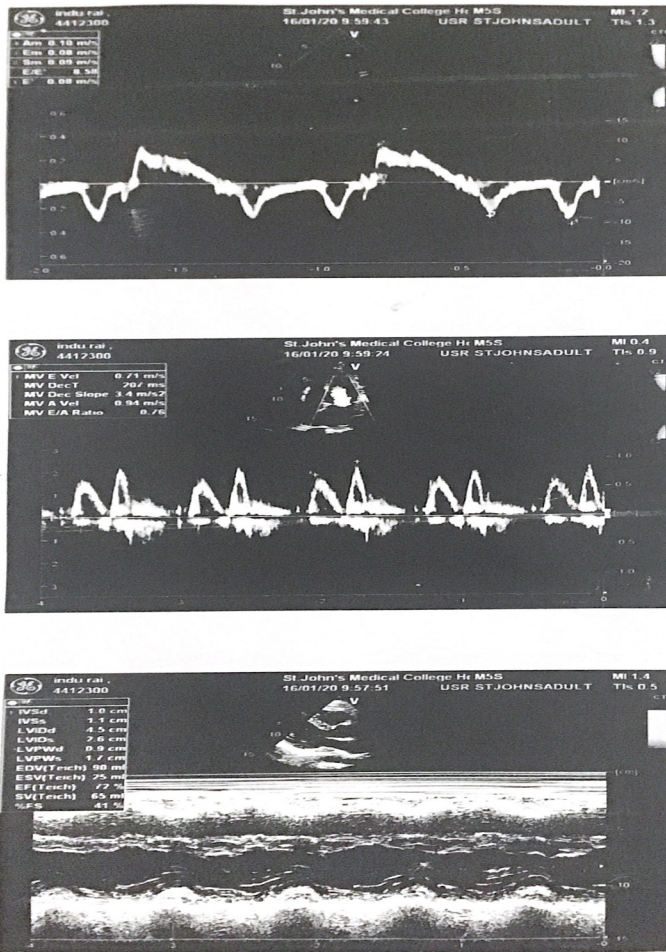


Figure 1: Pictures showing the ECHO cardiograph reports of the patient.

1. LMCA: Normal.
2. LAD: Mid Mild stenosis 25-49%. Proximal D1 focal severe stenosis (70-99%)
3. LCX: Co-dominant. Normal. 4. RCA: Co-dominant. Proximal RCA mild stenosis (25-49%).

### MANAGEMENT PLAN

The patient was prescribed with nutrition -Diet chart based on the disease state as the following were shown in (Figure 2).

Along with the diet plan, the patient has also prescribed with some medicines like Tab Telmisartan 40 mg, Metoprolol 50mg(1-0-0), Tab Amlodipine 5 mg(0-0-1), Tab Atorvastatin 10 mg+ clopidogrel 75 mg + Aspirin 75mg (0-0-2) with the instruction to check the BP (blood pressure) once every month. The patient should maintain BP <130/80 mmHg and restrict salt in the diet. The patient should also avoid any canned or fast food. Hence patient was given approval for the surgery/ procedure with due risk.<sup>14-16</sup>

### DISCUSSION

A 63-year-old female known (May 2019), hypothyroidism, old cerebrovascular accident (CVA) left capsuloganglionic (May 2019) came with the above-mentioned complaints. MRI brain showed encephalomalacia changes in left thalancapsular regions. MRI LS spine showed IVDP with severe narrowing at L4 L5. As a part of stroke work up 2D echo was done normally. CTA WAS planned and to be done on

FOODS	RESTRICT	ALLOWED
Vegetables	Potato, yam, tapioca, sweet potato *Cabbage, cauliflower, radish, soybean, turnip, spinach, Broccoli	All other vegetables.
Fruits	Banana, seethphal, sapota, avocado *strawberries	All other fruits.
Milk	Cheese, Paneer, butter, condensed milk, khoa, cream.	Milk, buttermilk, curds, skim milk powder in moderation.
Meat	Kidney, liver, brain portion of meat, mutton, pork, beef, egg yolk, sausages, ham etc.	Chicken, fish, egg white in moderation.
Fats	Butter, ghee, margarine, coconut oil, vanaspathi, dalda.	Safflower oil, sunflower oil, groundnut oil in moderation. [1/2 lit/ Person/ month]
Miscellaneous	Sugar, sweets, jaggery, honey, chocolates, ice cream pepsi, soda, coca-cola.	Tea, coffee in moderation.
Instant food	Bournvita, horlicks, soups, pickles, sauces, papads.	
Bakery food	Bread, buns, puffs, cakes, biscuits.	
Fried foods	Chips, mixtures, vada, bonda, murukku, bajji, fried meats.	

#### Advice:

- Have whole grams, green leafy vegetables at least twice a week.
  - remove cream from milk, buttermilk and curd.
  - Reduce the usage of oil, salt and coconut in cooking.
  - Reduce consumption of strong tea, coffee, spices.
  - increase the consumption of water to 2 1/2-3 Its per day.
  - Have small but frequent meals that are evenly spaced and only at specified times.
  - Do not have meals while watching TV.
  - Avoid eating out frequently and stop eating just before you feel full.
  - Serve yourself only once and take your time to eat (chew well).
  - Choose the right foods while you are shopping.
  - Have regular timings for meals and have your last meal 1 1/2 hours prior to sleep.
  - Start a walk initially for 15 mins and gradually increase it to 30 mins daily and remain active throughout the day.
- \* Goitrogens are naturally-occurring substances that can interfere with the function of the Thyroid glands. Most goitrogens are destroyed on cooking.

Figure 2: Diet chart of the patient

OPD basis. Neurosurgery opinion was taken and they have advised 4<sup>th</sup> level stabilization Dexa Scan. TSH was 0.23 and hence thyronorm dose was reduced to 62.5 mcg. As the surgery was planned tab aspirin (75mg) + clopidogrel (75mg) was changed to ecospirin and the patient was advised to follow up in neurosurgery after a week.<sup>17-19</sup>

### CONCLUSION

Lumbar spinal stenosis is a crucial cause of painful and immobilizing radiculitis that has been treated habitually with the rising population, although spinal imaging inspections are available. Herein, we documented the case of a 63-year-old female with Lumbar spinal stenosis along with hypertension and hypothyroidism. Therefore it is highly recommended for the patients with LSS to go through initial proper medication than to finally be undergoing surgical treatment.<sup>20-22</sup>

### ACKNOWLEDGEMENT

We take this opportunity to express our gratitude and respect thanks to our beloved Dr. Suresh Nagpal, Chairman Krupanidhi Group of Institutions Bangalore. Dr. Amitkumar Das Principal, Krupanidhi College of Pharmacy, Bangalore and the faculty members who provided us the support and assistance to this research work.

### CONFLICT OF INTEREST

The authors declare no conflict of interest.

### ABBREVIATIONS

LSS: Lumbar spinal stenosis; HDL: high density lipoprotein; LL: Lower Limb; CT: Computed Tomography; CAD: Coronary Artery Disease; LV:

Left Ventricle; **LVH**: Left Ventricular Hypertrophy; **ECG**: Echo Cardio Gram; **NSR**: Normal Sinus Rhythm; **NON-DM**: Non Insulin Dependent Diabetes Mellitus; **LMCA**: Left Main Coronary Artery; **LAD**: Left Anterior Descending; **LCX**: Left Circulflex; **MRI**: Magnetic Resonance Imaging; **BP**: Blood Pressure; **CVA**: Cerebrovascular accident; **OPD**: Out patient Department; **CTA**: Computed Tomography Angiography.

## REFERENCES

- Hinck VC, Gordy PD, Storing HE. Development stenosis of the cervical spinal canal: Radiological Considerations. *Neurology*. 1964;14(9):864-8.
- Sharma M, Langrana NA, Rodriguez J. Role of ligaments and facets in lumbar spinal instability. *Spine*. 1995;20(8):887-90.
- Weinstein PR. The application of anatomy and pathophysiology in the management of lumbar spine disease. *Clin Neuro-Surg*. 1980;27(Suppl 1):517-40.
- Papp T, Porter RW, Craig CE, Aspden RM, Campbell DM. Significant antenatal factors in the development of lumbar spinal stenosis. *Spine*. 1997;22(16):1805-10.
- Moreland LW, Lopez MA, Alarcon GS. Spinal stenosis: a comprehensive review of the literature. *Semin Arthritis Rheum*. 1989;19(2):127-49.
- Hall S, Bartleson JD, Onofrio BM, Jr Baker HI, Okazaki H, O'Duffy JD. Lumbar spinal stenosis: clinical features, diagnostic procedures and results of surgical treatment in 68 patients. *Ann Intern Med*. 1985;103(2):271-5.
- Dyck P, Pheasant HC, Doyle JB, *et al.* Intermittent cauda equina compression syndrome: its recognition and treatment. *Spine*. 1977;2(1):75-81.
- Simotas AC. Non operative treatment for lumbar spinal stenosis. *Clin Orthop*. 2001;384:153-61.
- Turner JA, Ersek M, Herron L, Deyo R. Surgery for lumbar spinal stenosis: Attempted meta-analysis of the literature. *Spine*. 1992;17(1):1-8.
- Grabias S. The treatment of spinal stenosis. *J Bone Joint Surg Am*. 1980;62:308-13.
- Pinsky Le, Wipro JE, Ramsey SD. Evidence-Based Clinical Practice: Concepts and approaches. Boston: Butterworth. 2000.
- Eisenstein S. Lumbar vertebral canal morphometry for computerised tomography in spinal stenosis. *Spine*. 1983;8(2):187-97.
- Verbiest H. A radicular syndrome from developmental narrowing of lumbar vertebral canal. *J Bone Joint Surg Am*. 1954;36(2):230-7.
- Porter RW. Central spinal stenosis: Classification and pathogenesis. *Acts Orthop Scand*. 1993;64(suppl 251):64-6.
- Rydevik B. Neurophysiology of cauda equina compression. *Acta Orthop Scand*. 1993;64(suppl 251):52-5.
- Teng P, Papatheodorou C. Lumbar spondylosis with compression of cauda equina. *Arch Neurol*. 1963;8(2):221-8.
- Knutsson B, Sanden B, Sjoden G, Jarvholm B, Michaelsson K. Body mass index and risk for clinical lumbar spinal stenosis: A cohort study. *Spine*. 2015;40(18):1451-6.
- Gene S, Atlas SJ. Lumbar spinal stenosis. *Best Pract Res Clin Rheumatol*. 2010;24(2):253-65.
- Turner J, Ersek M, Herron L, *et al.* Patient outcomes after lumbar spinal fusions. *JAMA*. 1992;268(7):907-11.
- Spinavak J. Degenerative lumbar spinal stenosis. *J Bone Joint Surg*. 1998;80(7):1053-66.
- Blau JN, Logue V. Intermittent Claudication of the cauda equina. *Lancet*. 1961;1:1081-6.
- Hayloft A. Factors in the development of spinal stenosis syndrome. *J Bone Joint Surg Br*. 1978;61(3):319-28.

**Article History:** Submission Date: 14-05-2020; Revised Date : 09-06-2020; Acceptance Date : 16-07-2020

**Cite this article:** MuthuKumar A, Gayathri R, Pradhan D, Dema P, Khatija R. A Case Report on Lumbar Stenosis Secondary Intervertebral Disc Prolapse on to IVDP L4/L5 Associated with Hypertension and Hypothyroidism in Female. *J Young Pharm*. 2020;12(3):288-90.