

Case Report

MULTILEVEL LUMBAR SPONDYLOSIS WITH SPINAL STENOSIS

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ABSTRACT

Narrowing of the spinal canal or foramina is a common finding in spine imaging of the elderly. We present a case of multilevel lumbar spondylosis with spinal stenosis. Mr X, 79-year-old male with underlying Diabetes Mellitus, hypertension and minor coronary artery disease presented to the hospital with low back pain radiating to lower limb for 4 years, progressively worsening, affecting the ability to walk steadily for prolonged period, and the worst pain score is 9/10, and the least pain score is 4/10. It was associated with intermittent neuropathic symptoms like numbness from waist downwards, nocturnal claudication, and weakness. Otherwise, he had no fever, no vomiting, no headache, no chest and abdominal pain, no respiratory distress, palpitations, and no urinary incontinence. Management includes continue insulin as patient has diabetes mellitus, nonsteroidal anti-inflammatory drugs (NSAIDs), antidepressants, anti-seizure drugs, opioids, and start physical therapy. Most patients have a progressive presentation and are offered non operative management as first treatment strategy.

INTRODUCTION

Spinal stenosis is one of the most common neurosurgical diseases and a leading cause of pain and walking disability [1]. In elderly, with lumbar stenosis afflicting 103 million people worldwide generally [2]. Epidemiological data showed an incidence of 1 case per 100 000 for cervical spine stenosis and 5 cases per 100 000 for lumbar spine stenosis [1]. Symptomatic spinal narrowing can be congenital, or, more frequently, acquired. Acquired spinal narrowing may be the result of systemic illnesses, such as endocrinopathies (example Cushing disease or acromegaly), calcium metabolism disorders (including hypoparathyroidism and Paget disease), inflammatory diseases (such as rheumatoid arthritis) and infectious diseases. Physical examination is more often abnormal in cervical spondylotic myelopathy whereas in lumbar spinal stenosis it is typically normal. Therefore, spinal stenosis diagnosis relies on the clinical picture corresponding to conspicuous causative changes identified by imaging techniques, most importantly CT and MRI.

CASE PRESENTATION

Patient experience long standing radicular low back pain which affecting his both lower limb especially the right lower limb. It is progressively worsening, affecting his ability to walk steadily for prolonged period. For

pain score, the worst pain is 9/10, and the least pain is 4/10. It was associated with intermittent neuropathic symptoms like numbness from waist downwards, nocturnal claudication, and weakness. The pain aggravated by prolonged posture and activities, and patient will rest in supine position to relieve it. In 2018, he done spine MRI due to the same problem, and found there is lumbar stenosis with ligamentum flavum thickening at L4/L5. Otherwise, he had no fever, no vomiting, no headache, no chest and abdominal pain, no respiratory distress, palpitations, and no urinary incontinence.

He had no chest pain, palpitations, ankle swelling, paroxysmal nocturnal dyspnoea (PND), orthopnoea and reduced effort tolerance. He also had no cough, haemoptysis and shortness of breath. For gastrointestinal, he had no dysphagia and rectal bleeding. He had no problem with urinary system such as urinary urgency, incontinence, increased urinary frequency, haematuria and dysuria. He had no joint pain, muscle pain and problem during walking.

He has Diabetes Mellitus, hypertension and minor coronary artery disease. Currently is on Gabapentin 600mg AM and 900mg ON. He is compliant to his medications. Furthermore, patient know type of drug, dosage and indication of medication prescribed. He underwent surgery (TURP) and radiotherapy in 2004 for CA prostate. Currently in

remission. He has allergy to erythromycin and penicillin based drug (developed itching). Otherwise no allergies on seafood or other food. There is no family history of malignancy or similar medical illness. He is non-smoker, not a drug abuser and does not drink alcohol.

His blood pressure (BP) is 142/71 mmHg, pulse rate 92 beats per minute, regular rhythm, and good volume, SpO2 99% under room air and afebrile with temperature 36.9 °C. For neurological examination, patient is alert and conscious. There is numbness from waist downwards. Power, tone, and reflexes are normal on upper and lower limbs bilaterally.

MRI Lumbosacral Spine findings were normal vertebral bodies heights and marrow signal intensity. There was a loss of normal signal intensity involving L2/L3 till L5/S1 intervertebral discs. Disc space is still maintained. Posterior disc bulge involving L4/L5 intervertebral disc. There was no fracture noted, posterior elements and facet joints are intact. Spinal cord ends at L1 level. No abnormal cord signal intensity (Figure 1).

Specifically at level L1/L2 – L4/L5: Mild circumferential disc bulge (level L1/L2 – L3/L4). Diffuse circumferential disc bulge with central protrusion compressing the spinal canal (L4/L5). Spinal canal is completely obliterated. Both lateral recesses and neural foramina are also completely obliterated. Bilateral traversing nerve roots are compressed. Bilateral exiting nerve



Figure 1: MRI Spine - Sagittal T2 Lumbar Sacral: L1/ L2 - L4/ L5 : circumferential disc bulge

roots escape well. Bilateral ligamentum flavum hypertrophy. No facet joint arthropathy. All findings suggest multilevel lumbar spondylosis with spinal stenosis.

DISCUSSION

Spinal stenosis is a condition where spaces between the vertebrae is narrow. The compression of these spaces puts pressure on the spine and nerves, resulting in numbness, weakness, and pain in the neck, arms, and legs [3]. While the definition for spondylosis is spine osteoarthritis. The degeneration of the bones in the spinal region is referred to as spondylosis. It can affect any part of the spine, including the cervical-neck, thoracic-mid back, and lumbar-lower back. Despite the fact that it can be excruciatingly painful and worsens with age, most people with spondylosis do not require spinal surgery.

While the two conditions are caused by different factors, the one factor that links both conditions is the cause. Age and genetics are important factors in the development of bone degeneration. And spondylosis is a type of spine arthritis. Arthritis can affect any part of the body, but the spine is the most frequently affected. Osteoarthritis is one of the most common causes of spinal stenosis. However, other potential causes of spinal stenosis include accident, fall, wear and tear of the bones and joints in the spine.

Magnetic resonance imaging is the preferred modality for evaluating stenosis and disc pathology. MRI has numerous advantages, including the fact that it is non-invasive, does not use ionizing radiation, has high sensitivity in diagnosing stenosis, has high soft tissue contrast, and best depicts cord, nerve roots, and bone marrow abnormalities [4]. Sagittal T1-weighted, T2-weighted, STIR, and proton density-weighted MRI sequences, as well as axial T1- and T2-weighted sequences, may be used in the lumbar spine. Furthermore, contrast enhanced MRI may be required for indications such as infection, tumour, and post-operative evaluation. It is important to note that the T2-weighted GRE sequence, which is commonly used in cervical spine imaging, may overestimate stenosis and should be correlated with other sequences. MRI was performed on a patient who had a history and physical examination findings consistent with degenerative lumbar spinal stenosis. In this patient, who had a history and physical exam findings consistent with degenerative lumbar spinal stenosis, MRI is recommended as the most appropriate, non-invasive test to confirm the presence of anatomic spinal canal narrowing or nerve root impingement.

Management includes continue insulin as patient has diabetes mellitus, nonsteroidal anti-inflammatory drugs (NSAIDs), antidepressants, anti-seizure drugs, opioids, and start physical therapy. Surgery is typically considered when all other treatment options have failed due to the complexity of spinal stenosis and the delicate nature of the spine.

Fortunately, surgery is not necessary for the majority of people with spinal stenosis. Treatment for symptomatic lumbar stenosis is usually surgical decompression. Medical treatment alternatives, such as bed rest, pain management and physical therapy, should be reserved for use in debilitated patients or patients whose surgical risk is prohibitive as a result of concomitant medical conditions [5,6].

CONCLUSION

Narrowing of the spinal canal or foramina is a common finding in spine imaging of the elderly. Only when symptoms of neurogenic claudication and/or cervical myelopathy are present is a spinal stenosis diagnosis made, either of the lumbar spine, cervical spine or both (only very rarely is the thoracic spine involved) [1]. Most patients have a progressive presentation and are offered non operative management as first treatment strategy. Surgery is indicated for progressive intolerable symptoms or, more rarely, for the neurologically catastrophic initial presentations. Surgical strategy consists mainly of decompression (depending on the anatomical level and type of narrowing: laminectomy, foraminotomy, discectomy, corporectomy) with additional instrumentation should spinal stability and sagittal balance be at risk.

REFERENCES

1. Melancia JL, Francisco AF, Antunes JL. Spinal stenosis. *Handb Clin Neurol* [Internet]. 2014 [cited 2023 Dec 27];119:541–9. Available from: <https://pubmed.ncbi.nlm.nih.gov/24365318/>
2. Jezek J, Sepitka J, Daniel M, Kujal P, Blankova A, Waldauf P, et al. The role of vascularization on changes in ligamentum flavum mechanical properties and development of hypertrophy in patients with lumbar spinal stenosis. *Spine J*. 2020 Jul 1;20(7):1125–33.
3. Alvarez JA, Hardy RH Jr. Lumbar spine stenosis: a common cause of back and leg pain. *Am Fam Physician*. 1998 Apr 15;57(8):1825-34, 1839-40. PMID: 9575322.
4. Schönström N, Willén J. Imaging lumbar spinal stenosis. *Radiol Clin North Am* [Internet]. 2001 Jan 1 [cited 2023 Dec 27];39(1):31–53. Available from: <https://pubmed.ncbi.nlm.nih.gov/11221505/>
5. Binder DK, Schmidt MH, Weinstein PR. Lumbar spinal stenosis. *Semin Neurol*. 2002 Jun;22(2):157–65.
6. Kreiner DS, Shaffer WO, Baisden JL, Gilbert TJ, Summers JT, Toton JF, et al. An evidence-based clinical guideline for the diagnosis and treatment of degenerative lumbar spinal stenosis (update). *Spine J* [Internet]. 2013 [cited 2023 Dec 27];13(7):734–43. Available from: <https://pubmed.ncbi.nlm.nih.gov/23830297/>