



A CASE STUDY ON - A CONSOLIDATED PHYSIOTHERAPY MANAGEMENT FOR LUMBER SPINAL STENOSIS

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ABSTRACT

Background

The term Spinal Stenosis is defined as the 'narrowing of the Spinal canal with Encroachment on the neural structures by surrounding bone and soft tissue. Number of treatment approaches is effective in LSS. An intervention physiotherapy protocol has been employed in this case.

Case Description

A 20-year-old male presenting with a complaint of pain in the lower back region which was radiating to both lower limbs. he also had difficulty to perform household work like bending, sitting and standing.

DIAGNOSIS TREATMENT PROTOCOL

physiotherapy management with phases wise gave to the patient from day 1 to day 28.

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 20-year-old male with Lumbar spinal stenosis along with hypertension and hypothyroidism. There for in LSS the pt management in phases is wise is effective in pain relief and in mobility it is highly recommended for the patients with LSS to go through initial proper medication than to be undergoing surgical treatment.

KEY WORDS

LSS-Lumbar spinal stenosis, IEP-Integrated Exercise Protocol, QOL, neural flexibility, Lumbar ROM.

INTRODUCTION

Lumbar canal stenosis was first described by Antoine Portal in 1803. However, Verbiest^[1,2] was the first to associate changes in the diameter of the vertebral canal with the clinical features and neurogenic claudication. The reduced canal diameter was only correlated to the disc degenerative process by Kirkaldy-Willis, when the authors demonstrated that disc degeneration was directly related to the changes that lead to the physiopathology of reduced vertebral canal diameter^[3].

The term Spinal stenosis is defined as the 'narrowing of the Spinal canal with encroachment on the neural structures by surrounding bone and soft tissue^[4].

According to Farfan ^[5], the degenerative process starts with minor trauma, which, repeated over several years, leads to spondylosis. A few years later, Farfan et al. ^[6] described how each segment of the lumbar spine is composed of a complex triad: two zygapophyseal joints and the disc. Because those three joints work in tandem, any disease that affects the disc will eventually compromise the joint and vice versa. The chief lesion mechanisms are torsional forces and compression overload ^[7].

According to clinical medicine lumbar spinal stenosis is defined as “buttock or lower extremity pain which may occur with or without the low back pain Associated with diminished space available for the neural and vascular elements in the lumbar spine.” This definition Includes two aspects of the morphological abnormalities and clinical manifestations ^[8]. Multiple factors can cause the narrowing of the spinal canal; it can be degenerative Changes of the spine which typically involved facet joint Hypertrophy, disc bulging, protrusion and ligamentum Flavum is thickening.

The zygapophyseal joints are diarthrodial, having an articular surface, a synovial membrane, and a capsule made of collagen; they are filled with synovial fluid ^[9]. Their degenerative process follows a sequence described by Lewin in 1964 ^[10]: it starts with a synovial reaction, followed by fibrillation of the joint surface, gross degeneration of the cartilage, osteophyte formation, joint process fracture, and finally loss of the joint’s natural shape, leading to instability.

MRI and Computed Tomography (CT) scan are widely Used diagnostic mode for LSS which confirms the presence of spinal stenosis, but MRI is preferred ^[11]. When the diameter is less than or equal to 12 mm in lumbar spine it is Found to be central canal stenosis ^[12].

There are two different modes of treatment with LSS i.e. conservative and surgical treatment. Conservative, non-operative therapy includes NSAIDS and exercise programs to strengthen abdominal musculature ^[13]. Physiotherapy Is accepted and effective treatment for spinal disorders in General which includes flexion exercise, pain relieving modalities and orthosis ^[14]. For the patient having moderate and severe symptoms of lumbar canal stenosis, different Conservative and surgical treatment modalities are recommended ^[15].

The aim of the present study is to analyse the effect of Integrated Exercise Protocol on a patient with Lumbar spinal stenosis in improving pain intensity, lumbar and ROM.

CASE DESCRIPTION

A 20 year male presenting with a complaint of Pain in the lower back region which was radiating to both lower limbs (right) since two months. He had difficulty to perform household work like bending, sitting and standing due to pain. He also felt difficulty in walking, sitting and running, playing and sports. After the onset of pain, no treatment was taken by one month from the beginning, but the pain was gradually increasing then he consults in the doctor a Rama hospital. Medication and advise him for rest. The patient was taking Medication regularly from the 2nd month of the onset but didn’t get any relieved. Then patient came to OPD. Rama University Kanpur for physiotherapy services Where he was advised to for an MRI of a low back region for diagnosis purpose. The Magnetic Resonance Imaging (MRI) report reviles Grade I anterolisthesis of L4-5, associated with canal stenosis of L5-S1 (spinal diameter = 11mm). The L4-5 disc with posterior-inferior osseous of L4 body is together causing anterior thecal sac compression. Mild disc bulge at L2-L3 and L3-L4 level causing mild narrowing of neural foramen, Lumbar facet joints show hypertrophic

degenerative changes with the silver of effusion at the L4-L5 level and irregular outline of ligamentum flavum. There was no previous history of pain in the low back region and trauma in pathological evaluation the RA factor was also positive.

PHYSIACAL ASSESSMENT

The patient is a college student. The characteristic of pain was constant and dull in nature and aggravated by prolonged sitting and standing and relieved only by rest. The pain was more in the morning hours associated with stiffness in the low back region. The severity of pain was assessed on a scale of six during any functional activity and Four at rest.

On observation, the patient body built was ectomorphic, and in a postural evaluation, his lumbar lordosis was increased with anterior pelvic tilt. The patient respiratory Pattern was thoracoabdominal and using accessory muscle in normal breathing. On palpation, localized tenderness was seen and graded as 2 (Tenderness with a grimace) at L4, L5 and S1 level of the spine.

On sensory examination, all superficial and deep sensations were checked at the dermatomal level and found to be intact. The patient also experiences numbness and paresthesia in right limbs which was on and off in nature. On motor examination, the ROM of the lumbar Spine was assessed by Modified Schober test (MST) which was found to be 17 cm. The flexibility of nerve tension was evaluated by SLR and slump test of right and left the side. The SLR right side and the left side was 70° and 75° respectively and Slump test on both sides was 25° for both sides.

The deep tendon reflex for knee and ankle jerk was found to be normal on both side and graded as 3+ (normal response).

According to ICF model (international classification of Functioning), the effect of low back pain on functional activity / Quality of life (QOL) and social participation was assessed by Oswestry Disability Questionnaire (ODQ) scale. The total percentage obtained by the patient was 71% which signifies disability level as Crippled on ODQ interpretation.

DIAGNOSIS AND ASSESSMENT

From history, investigation reports and examination a Provisional Clinical diagnosis of L4-5 and L5-S1 lumbar spinal stenosis due to thecal compression was made. After assessing the main problem areas, the physiotherapy treatment goal was formulated as follows:

1. To reduce pain and tenderness.
2. To reduce muscle tightness and improve range of motion and neural flexibility.
3. To promote relaxation
4. To measure mobility of spine.
5. To modify/prevent the activity that provokes the symptom
6. To regain functional independence.



INTERVENTION PROTOCOL

Session day	Goals of treatment	Intervention	Method	Days of patient management
Days 1 to 7	To maintain pain management	<ul style="list-style-type: none"> . For local pain management SWD . For reading TENS 	<ul style="list-style-type: none"> . SWD pads will be placed on lumbar region parallel to each other. . TENS electrode will be placed on L1 to S1 region On Transverse process . 	<ul style="list-style-type: none"> Twice a day Approximately 10-20 minutes.
Days 8 to 14	. Muscle instability	<ul style="list-style-type: none"> . CAT / CAMEL EX. . Trunk Hob blank myppeal Release 	<ul style="list-style-type: none"> . Manually Take a deep inhale & lift your Lower rib hoge. 	<ul style="list-style-type: none"> There a day . On a time.

			. Vitamin firm abdominal exhale & lower your test towards the floor.	
Days 15 to 21	To return of activity Daily Living.	. Gait training . Balance training maintain figure of 8 walking.	. Round your back . Round your neck . Sitting down . Lifting leg . One leg stand	. Thrice a day . Same as above
Days 22 to 28	Strengthening of lower muscle	. MS . Soft tissue mobilization . Tapping	Will use stretching and deep pressure to break up rigid muscle tissue.	Once in a 2 days of required or pain in press

DISCUSSIONS

Dehghan and Farahbod (2014) also used cryotherapy as a pain relieving modality and concluded that it was helpful in reducing in decreasing intensity of pain among Low back pain [11]. Creighton et al (2006) finds that lumbar flexion exercises and manipulation help in increasing the thoracolumbar Flexion mobility on Schober test [12]. By the Reiman Et al. in (2009) the significant improvement was seen on the SLR and Slump test after the administration of intervention. They suggest that the neural flexibility and the manual interventions show significant improvement in the ROM Of SLR [14]. The Range of motion of SLR has affected by many factors like Age, sex, and activity level, so knowing The inter-limb differences as evaluated in the present study was helpful in providing normative values that was not influenced by these factors [15]. Creighton et al., (2006) and Fritz et Al., (1997) shows significant physiotherapy intervention had effect in

improvement of Quality of life among LSS Patient [16]. Whitman et al., (2003). They concluded that the lumbar flexion exercise has been helpful in improving Quality of life of LSS patient [17]. A 20 year-old male known (May 2019), hypothyroidism, old cerebrovascular accident (CVA) le capsuloganglionic (May 2019) came with the above-mentioned complaints.

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 20-year-old male with Lumbar spinal stenosis along with hypertension and hypothyroidism. There for in LSS the pt management in phases is wise is effective in pain relief and in mobility it is highly recommended for the patients with LSS to go through initial proper medication than to be undergoing surgical treatment.

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