

INFLUENCE OF HVLAT AND MULLIGAN TECHNIQUE IN THE TREATMENT OF PIVD IN L4-L5 Level: A case study

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Abstract:

We reported a case of 30 years old male having prolapsed intervertebral disc at L4-L5 level. He was having the symptoms of low back ache and bilateral radicular pain in both lower limbs. Patient was treated with mulligan's approach of movement with mobilization at level of L4 and L5 level and SNAGs at articular facet level at L4 and L5 level with the rule of four on the beginning day, along with the high velocity low amplitude thrusts (HVLATs) at L4-5. Afterwards shortwave diathermy and interferential therapy was applied in lower lumbar level for 20 minutes and 15 minutes successively. At last patient was taught spine extension exercises and hip extension exercise at home. The patient exercise program. After treatment schedule of 3 weeks patient is symptomless without any problem and now back to work

Keywords: -Physical therapy, Mulligan technique, High velocity low amplitude thrusts (HVLATs)

INTRODUCTION:

Prolapsed intervertebral disc (PIVD) is a discrete clinical entity where in the posterior longitudinal ligament gives way and thus the disc material herniates into the spinal canal. PIVD means prolapsed intervertebral disc, when the protrusion or extrusion of the nucleus pulposus through a pressure in the annulus fibrosus, resultant prolapsed intervertebral disc (PIVD). [1] Disc prolapse is more frequently seen in the lumbar region as compared to any other region and most common at L4-L5 and L5 –s1 level.[2]. Low back pain (LBP) is a heterogeneous group of musculoskeletal disorders that affect 65-85% of the population globally. prevalence is higher in men as compare to women and most of the individuals are between 30 and 50 years of age. Lumbar PIVD results in significant disability ,pain , and loss of productivity .[2] the main causes of this condition are wrong posture ,sedentary lifestyle ,work burden, carrying heavy objects ,obesity (creating more pressure on the vertebral disc),ageing, smoking (may contributes to the degeneration of discs),incorrect lifting of heavy weights and repetitive strenuous activity ,traumatic injuries like a fall or an accident that puts pressure on the



disc and causes its displacement .It is observed that this may be the mechanism for the increased prevalence of lower back pain and herniation in younger individuals that live sedentary lifestyle .[3] Lumbar prolapsed intervertebral disc can be extremely painful and cause significant morbidity and loss of function [4] it can lead to substantial radicular symptoms, intervertebral disc in lumbar spine are complex structure that are subjected to significant axial loading along with shearing forces because of these biomechanical demands along with the inability to remodel owing to avascular nature , herniation of the lumbar intervertebral are common .[4] there is also one of the reasons of the lumbar disc herniation ; there is a failure of the posterior annulus fibers which has the limited support with the posterior longitudinal ligament good alignment.

In India incidence of low back pain (LBP) has been reported to be 23.09% and has a lifetime prevalence of 60-85%. [5,6] Causes of LBP with or without radiating pain are idiopathic, degenerative, traumatic, inflammatory, congenital, neoplastic, metabolic, postural, gynecological, renal, rectal or systemic. Prolapsed intervertebral disc (PIVD) is the most common cause of lumbar radiculopathy.[7] PIVD is collective term, describing a process in which the rupture of annular fibers allows for a displacement of nucleus pulposus within the intervertebral space, most commonly in posterior or postero-lateral direction.8]. The sequences of changes occurring in PIVD are stage of nucleus degeneration, stage of nuclear displacement (Stage of protrusion, extrusion, sequestration) & stage of fibrosis9] the periphery of the disc is nociceptive innervated, the degenerative and or traumatic process of disc herniation may produce discogenic pain by the excessive mechanical strain on the outer annular fibers. PIVD can also cause radicular commonly in pain. The clinical manifestations following nerve root compression depends on the involvement of nerve root. 10] There are various physiotherapy intervention for treatment of prolapsed intervertebral disc are available such as intermittent lumbar traction, therapy, shortwave diathermy, interferential therapy, transcutaneous electrical nerve stimulation and manual therapy interventions. Brian Mulligan has developed a most ingenious compilation of manual techniques. His principal techniques are sustained natural apophyseal glides (SNAGS) and mobilization with movement (MWMs). SNAGS were the first example of group of techniques known as mobilization with movement which Mulligan developed to restore pain free unrestricted movement for most joints in body[11].Mulligan stated that movement with mobilization correct minor bony positional faults, non-palpable or visible on X ray[12].SNAGS causes repositioning of articular facets allowing normal pain free function and as such are thought primarily mobilize zygapophyseal joints, and influencing the entire spinal functional unit, including the intervertebral disc[13].

CASE STUDY

A male patient aged 30 years, works as a computer operator with nature of prolong sitting, and to work on computer for 12-14 hours daily. He was also a regular gym exerciser with lifting heavy weights. His problem also arises heavy

lifting. Patient was having low back ache and bilateral radicular pain in both limbs (L>R). Initially hr. was under medical treatment by a Neuro physician for last 3 months treated with analgesics and strict bed rest. Then the patient visited physiotherapy department of CSJM University, Kanpur. his treatment was started initially with nervous tissue mobilization for sciatic nerve with set of 3 repetition for both legs with 10 second's holds. Then he was switched over to Mulligan's technique with movement with mobilization at L4 and L5 level at



spinous process and facet joints. Then SNAGs at the facet joints of L4 and L5 vertebrae with rule of four on the day first. Then electrotherapy treatment was given followed by short wave diathermy and international therapy for 20 minutes and 15 minutes sequencely. The client was instructed for spinal extension exercise and hip extension exercise with 15 secs hold for 4-6 repetition and further progress to 20-30 secs hold as pain reduces. He was advice to take treatment for 6 days in first week. Since he was getting relief in symptoms in the second week, he was called on alternate days and in the next week for a day only. Now the patient is symptom free and back to work.

CONCLUSION

In conclusion, the present case study provided evidence to support the use of manual therapy

technique Mulligan's mobilization (SNAGS, MWMs) approach in relieving pain, improving ROM and reducing functional disability in subjects with PIVD with bilateral radiculopathy. In addition, home exercise program with spinal extension exercises and hip extension exercise provide strength to spine for future prospects.

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Fig: MRI findings of the patient

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