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An Integrated Approach in Lumbar Spondylosis Utilizing Naturopathy and Yoga Interventions - A Case Study

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ABSTRACT

Lumbar spine spondylosis (LS) is a degenerative condition of the lumbar spine between adjacent discs, vertebra, and nerves that results in the clinical pain syndromes within the axial spine and related nerves. One of the main symptoms of LS is low back pain (LBP), which affects 60–85% of adults at some point in their lives. A 38-year-old man came into our outpatient department on 20-10-2023 after enduring low back pain for the previous 18 months that radiates to both heels, causing stiffness in the toes and pricking pain in both soles. He was admitted to the inpatient ward on 20-October-2023. Patient received INYT for duration of 10 days. Results of the study showed improvement in assessments of erythrocyte sedimentation rate (ESR) from 9.5 mm/hr to 7.9mm/hr, visual analogue scale (VAS) from 10 (worst possible pain) to 4 (Moderate), Oswestry disability index (ODI) from 24 (moderate disability) to 8 (mild disability) and standard toe touch test (TTT) score from 19 cm poor to nearly fair 10 cm respectively. The result of this study shows that INYT might lessens low back pain, disability and enhances muscle relaxation, quality of life and speeds up healing.

KEY WORDS: Low back pain, Lumbar spondylosis, Naturopathy, Yoga.

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INTRODUCTION:

Lumbar spondylosis (LS) is a degenerative disorder affecting the lumbar spine, causing frequent changes and nerve interference. This results in clinical pain syndromes in the axial spine and related nerves. Symptoms can be symptomatic or asymptomatic, with low back pain being a primary symptom [1]. Back pain is the second most common cause of human pain, is predicted to affect

85% of individuals at some point in their lives [2]. A recent study using lateral plain film radiographs suggests that lumbar spondylolysis may manifest in adulthood, despite extensive research on the symptomatic population and its importance in adults [3]. A study found that low back pain affects 80% of patients over 40, but it was found in 3% of 20–29-year-olds and 60-85% of all adults [1] which has to be taken care.

Yoga and Naturopathy is a drugless medical system that uses non-invasive methods to treat a variety of illnesses. They are safe and have not been shown to have any negative side effects [4] and considered as the most suited complementary and alternative medicine (CAM) for metabolic and other non-communicable diseases [5]. The combined intervention utilizing Yoga have shown there is reduction in functional disability, pain intensity and the likelihood of taking painkillers [6], Acupuncture [7] and massage therapy [1] also found helpful in relieving persistent or chronic low back pain. Hence, this study aims to evaluate the effectiveness of integrated Naturopathy and Yoga therapy (INYT) in the management of LS.

PATIENT INFORMATION:

A 38-year-old man came to our outpatient department with the complaint of persistent low back pain for the past 18 months that has history of radiating pain to both heels, causing stiffness in the toes and also has pricking pain in both soles. He was diagnosed with LS two years ago with the help of MRI report. His occupational history was identified to be one of the reasons for the radiating pain as he driving minimum of 80 kilometres per day on two/four-wheeler vehicle. He has been undergoing occasional allopathic self-medication for managing pain. He was admitted to the inpatient ward of Government Yoga and Naturopathy Medical College and Hospital, Arumbakkam, Chennai 600106; on 20-October-2023; almost for 10 days he underwent the therapies.

Clinical findings:

On examination all systemic functions are normal except the presence of numbness in posterior aspect of lower limbs in long standing and long duration of sitting, but no motor deficit noted in nervous system examination. One of the most common physical examinations for individuals with low back pain is the straight leg raise test (SLR) (Pesonen et al., 2021). It has undergone extensive research in an effort to detect lumbar disc herniation, for which it has a high sensitivity and a variable or low specificity. The leg raise is stopped and the test is deemed negative if no responses are elicited by the hip flexion angle reaching 90 degrees [8]. SLR test shown positive as pain starts at 45 degrees in both lower limbs, while raising lower limbs from floor in supine position. Based on the clinical examination, the patient suspected to have LS and confirmed with his previous radiological reports. He was admitted to the inpatient (IP) ward on 20-October-2023.

DIAGNOSTIC ASSESSMENT:

Erythrocyte sedimentation rate (ESR):

Red blood cells adhere to one another when there is an inflammatory process going on, which increases the ESR due to the blood's high fibrinogen content. ESR is 10 mm/h on average in healthy individuals under 40 years of age and 18 mm/h on average in those over 60 years of age. As high as 25 mm/h is possible in the normal range [9].

Visual analogue scale (VAS):

A validated subjective measure for both acute and chronic pain is the visual analogue scale (VAS). Based on self-reported measures of symptoms, scores are calculated. These measures are recorded with a single handwritten mark at one location along a 10-cm line, which represents a continuum between the two ends of the scale: "no pain" on the left end (0 cm) and "worst pain" on the right (10 cm) [10].

Oswestry disability index (ODI):

The ten-item ODI measures how much back pain has interfered with one's ability to function in daily life. The ten parts address the pain and day-to-day functioning (pain intensity, self-care, walking, lifting, sitting, standing, sleeping, social life, travel, and work/homemaking). Every item is rated on a 6-point rating system (0–5), where a higher score indicates a higher degree of LBP-related disability [11]. Which, when added together, show that 0–4 indicates no disability, 5–14 indicates mild disability, 15–24 indicates moderate disability, 25–34 indicates severe disability, and 35–50 indicates complete disability.

Standard toe touch test (TTT):

One of the most widely used tests to evaluate posterior muscular chain flexibility is the toe-touch test (TTT), also called the fingertip-to-floor test. It is a simple, easy-to-perform test that only needs a measurement tape. The participant begins the TTT standing up straight. Next, while maintaining extended knees, the participant is instructed to flex their trunk in an attempt to touch their toes. The test's result is the linear separation between the hallux and the third finger. The maximum length of the posterior muscular chain is assumed to be represented by it. Long finger-to-toe lengths and enlarged ankle or hip angles would indicate shortened muscles [12]. When measuring the distance from the tip of the finger to the floor, 1–8 cm is considered fair, 9–20 cm is considered poor, and 20 cm or more is considered very poor.

THERAPEUTIC INTERVENTION:

Patient received INYT; yoga sessions including simple *Asana* (yogic postures), *pranayama* (breathing practices), *pawanmuktasana* series I (antirheumatic group), deep relaxation technique (DRT), and Naturopathy therapies in morning and evening given daily. and the Naturopathy intervention includes alternate compress and massage to back, neutral spinal bath, hot foot bath, manipulation of reflex areas in both soles and acupuncture. And uncooked vegetarian diet provided throughout the treatment period. These details are provided in table 1.

Table 1: Details of the intervention:

Interventions	Specific therapies	Duration (mins)	Frequency
Yoga therapy	*Nadishodhana pranayama*	15 rounds, 5 mins	Everyday
	Bhramari pranayama	15 rounds, 5 mins	Everyday
	Pawanmuktasana series I	25mins	Everyday
	Deep relaxation technique (DRT)	20mins	Everyday
	Back bending asanas (A*rdha chakrasana, Bhujangasana, Setubandhasana*)	15mins	Everyday

	Shava/ Supta udharakarshanasana	5mins	Everyday
Hydrotherapy	Alternate compress to spine & whole back	15mins	Every alternate day
	Neutral spinal bath	20mins	Every alternate day
	Hot foot bath	20mins	Every day before going to bed
	Steam bath	7mins	Once
Mud therapy	Mud pack to abdomen and eyes	25mins	Every day
Acupuncture	Acupuncture with moxibustion	20mins	Every day
	Reflex to both soles	5mins	Every alternate day
	Dry cupping	2mins	Every alternate day
Manipulative therapy	Partial massage to both lower limbs	15mins	Every alternate day
	Full body massage	40mins	Once
	Partial massage to spine and whole back	15mins	Every alternate day

Diet Therapy

Timings	**Food Items**	**Quantity**	**Servings/day**
07:30 AM	Juice made by any one food of the followings (Ashgourd, Amla, Lemon with mint, Plantainpith, Raddish, Curryleaves, Bottlegourd, Cucumber, Tomato, mint with coriander, carrot with beetroot, wheatgrass, carrot, beetroot, orange).	200 ml	1
09:30 AM	Vegetable salad made by mixer of 2/3 of the followings (carrot, beetroot, snake gourd, bottle gourd, ivygourd, chow-chow, coconut, groundnut, cucumber, cabbage, capsicum, onion, tomato, mango)	120 g	1
	Fruits salad made by mixer of 2/3 of the followings (pineapple, papaya, muskmelon, orange, mosambi, sapota, watermelon, pomegranate, gooseberry.)	180 g	1
12:00 Noon	Juice made by any one food of the followings (Ashgourd, Amla, Lemon with mint, Plantainpith, Raddish, Curryleaves, Bottlegourd, Cucumber, Tomato, mint with coriander, carrot with beetroot, wheatgrass, carrot, beetroot, orange.)	200 ml	1
02:00 PM	Fruits salad made by mixer of 2/3 of the following (pineapple, papaya, muskmelon, orange, mosambi,	180 g	1

	sapota, watermelon, pomegranate, gooseberry)		
04:30 PM	Any one of the followings (Beetroot juice, curryleaves juice, lemonjuice, mintjuice, Grapesjuice, carrotjuice, buttermilk, amlajuice, Ragi milk.)	200ml	1
07:00 PM	Vegetable salad made by mixer of 2/3 of the following (carrot, beetroot, snake gourd, bottle gourd, ivygourd, chow-chow, coconut, groundnut, cucumber, cabbage, capsicum, onion, tomato)	120g	1
	Fruits salad made by mixer of 2/3 of the following (pineapple, papaya, muskmelon, orange, mosambi, sapota, watermelon, pomegranate, gooseberry)	180g	1

Table 2: Baseline and post assessments of the patient:

Parameters	**Pre (20th Oct)**	**Post (29th Oct)**
Height (cm)	160	160
Weight (Kg)	71	69
BMI (Kg/m^2)	27.7	26.9
ESR (mm/hr.)	9.5	7.9
Visual analogue scale (VAS)	10	4
Oswestry disability index (ODI)	24	8
Standard toe touch test (TTT)	19 cm	10 cm

Note: BMI-Body Mass Index; ESR-Erythrocyte Sedimentation Rate

RESULTS:

Results of the study showed improvement in assessments of erythrocyte sedimentation rate (ESR) from 9.5 mm/hr to 7.9mm/hr, visual analogue scale (VAS) from 10 (worst possible pain) to 4 (Moderate), Oswestry disability index (ODI) from 24 (moderate disability) to 8 (mild disability) and standard toe touch test (TTT) score from 19 cm poor to nearly fair 10 cm respectively, SLR was comfortable till the raise of 75-degree leg raising. However, the TTT score has not changed significantly, it may indicate some improvement over the course of the intervention. These details are provided in table 2.

DISCUSSION:

According to the trial's findings, INYT interventions for a week resulted in lower ESR, VAS, ODI, and TTT levels/scores in a patient with LS. This may have been due to the Soft-tissue manipulation in massage therapy relieves pain and discomfort, speeds up healing, lowers stress levels, and increases muscle relaxation by enhancing local circulation [13]. By decreasing nerve conduction velocity, raising pain threshold because tissue nociceptors activation threshold is lowered, and improving pain tolerance as a result of superficial nerve cooling, three mechanisms combine to produce a local anaesthetic effect known as cold-induced neuropraxia through superficial cold application. Additionally cold act at the spinal level to block the gate control theory of pain transmission, which prevents pain from being transmitted to higher centres. The superficial heat also lessens pain by reducing ischemia of the

injured tissue, increasing blood flow to deep tissues, and causing vasodilatation, which in turn decreases pain receptor activity. Has also been demonstrated to activate the cutaneous heat receptors, which blocks the transmission of pain to the spinal cords posterior horn via the gate control mechanism. Therefore, the above-mentioned mechanisms that apply heat and cold alternatively help to reduce disability and pain [14].

Yoga's positive effects in LBP are linked to elevated serum (brain derived neurotrophic factor) BDNF levels and sustained serotonin levels [15]. By reducing pain-related ion channel activation and suppressing the release of inflammatory cytokines and chemokines, acupuncture can inhibit neuronal activity caused by neuropathic pain. Moreover, it might raise brain or spinal neurotransmitter levels, including opioid peptides, norepinephrine (NE), and 5-hydroxytryptamine (5HT), to trigger the descending pain control system [16]. Eating fruits and vegetables lowers the level of C-reactive protein (CRP) because they are high in vitamins, minerals, and antioxidants. Moreover, it has an inverse relationship with oxidative stress and markers of inflammation [17]. The Strengths of this study may be this is a first case, reporting the effects of INYT in a patient with LS. It was well tolerated and no side effects were reported by the patient throughout the study period.

CONCLUSION:

INYT might help speed up the healing process and improve muscle tone & relaxation and also helps to prevent further degenerative changes in the bones. Additionally, it lessens the low back pain, disability and enhances the quality of life. Therefore, the INYT approach ought to be considered while managing lumbar spondylosis.

Limitations of this study:

Validity and reliability of this result may vary because this is a single case study, Hence, further well-planned studies with large sample size are required to validate our results.

Declaration of the patient:

By giving the patient explicit instructions on their involvement in this clinical observation, the authors confirm that consent was obtained. The participant also consented to have his case history and/or other details published in a publication, provided that his name or initials would not be used. The baseline and post data were gathered for future reference.

Conflict of interest: Author declares that there is no conflict of interest.

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REFERENCES:

1. Middleton K, Fish DE. Lumbar spondylosis: clinical presentation and treatment approaches. Curr Rev Musculoskelet Med. 2009;2(2):94–104.
2. Umeta RSG, Avanzi O. Techniques of lumbar-sacral spine fusion in spondylosis: systematic literature review and meta-analysis of randomized clinical trials. Spine J. 2011;11(7):668–76.
3. Brooks BK, Southam SL, Mlady GW, Logan J, Rosett M. Lumbar spine

spondylolysis in the adult population: using computed tomography to evaluate the possibility of adult-onset lumbar spondylosis as a cause of back pain. Skeletal Radiol. 2010 ;39(7):669–73.

4. Indira Devi S, Prashanth S, Krithika C. Effect of Integrated Yoga and Naturopathy therapies in the Management of Bell's palsy – A Case Report. Int J AYUSH CASE Report.2022;6(4):342–6.
5. Maheshkumar K, Venugopal V, Poonguzhali S, Mangaiarkarasi N, Venkateswaran ST, Manavalan N. Trends in the use of Yoga and Naturopathy based lifestyle clinics for the management of non-communicable diseases (NCDs) in Tamilnadu, South India. Clin Epidemiol Glob Health. 2020;8(2):647–51.
6. Williams K, Abildso C, Steinberg L, Doyle E, Epstein B, Smith D, et al. Evaluation of the Effectiveness and Efficacy of Iyengar Yoga Therapy on Chronic Low Back Pain: Spine. 2009 ;34(19):2066–76.
7. Urits I, Wang JK, Yancey K, Mousa M, Jung JW, Berger AA, et al. Acupuncture for the Management of Low Back Pain. Curr Pain Headache Rep. 2021;25(1):2.
8. Pesonen J, Shacklock M, Suomalainen JS, Karttunen L, Mäki J, Airaksinen O, et al. Extending the straight leg raise test for improved clinical evaluation of sciatica: validity and diagnostic performance with reference to the magnetic resonance imaging. BMC Musculoskelet Disord. 2021;22(1):808.
9. Park CH, Lee SH. Investigation of High-Sensitivity C-reactive Protein and Erythrocyte Sedimentation Rate in Low Back Pain Patients. Korean J Pain. 2010 ;23(2):147–50.
10. Delgado DA, Lambert BS, Boutris N, McCulloch PC, Robbins AB, Moreno MR, et al. Validation of Digital Visual Analog Scale Pain Scoring with a Traditional Paper-based Visual Analog Scale in Adults. JAAOS Glob Res Rev. 2018;2(3): e088.
11. Lee CP, Fu TS, Liu CY, Hung CI. Psychometric evaluation of the Oswestry Disability Index in patients with chronic low back pain: factor and Mokken analyses. Health Qual Life Outcomes. 2017;15(1):192.
12. Siqueira CM, Rossi A, Shimamoto C, Tanaka C. Balance highly influences flexibility measured by the toe-touch test. Hum Mov Sci. 2018; 62:116–23.
13. Crawford C, Boyd C, Paat CF, Price A, Xenakis L, Yang E, et al. The Impact of Massage Therapy on Function in Pain Populations-A Systematic Review and Meta-Analysis of Randomized Controlled Trials: Part I, Patients Experiencing Pain in the General Population. Pain Med. 2016 ;17(7):1353–75.
14. MS A, KJ S, Shetty P. Effect of revulsive compress on low back pain: a randomized controlled trial. Indian J Tradit Knowl. 2022 Apr 29 [cited 2024 Mar 18];21(2).
15. Chang DG, Holt JA, Sklar M, Groessl EJ. Yoga as a treatment for chronic low back pain: A systematic review of the literature. J Orthop Rheumatol. 2016;3(1):1–8.
16. Zhou J, Teng Y, Zhang X, Cheng S, Li X, Hu S, et al. Editorial: Acupuncture for pain management. Front Neurosci. 2023;17:1235111.
17. Navarro P, De Dios O, Jois A, Gavela-Pérez T, Gorgojo L, Martín-Moreno J, et al. Vegetable and Fruit Intakes Are Associated with hs-CRP Levels in Pre-Pubertal Girls. Nutrients. 2017;9(3):224.