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## Integration of Ayurveda and Physiotherapy in the management of Sciatica: A Case Report

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### ABSTRACT

Ayurveda and Physiotherapy were found highly efficacious in the management of Sciatica. But the integration of these two systems yields better outcomes; there is a lack of more evidence-based study that offers a deeper understanding. The aim of this study was to determine the effectiveness of an interdisciplinary treatment approach of Ayurveda and physiotherapy in sciatica. This is a case report of a 36-year-old sciatica patient, who was suffering from a lower back ache with pain radiating to the right lower extremity up to the two outer toes. The study lasted for four weeks. An Interdisciplinary team was formed. The Ayurveda treatments included: *Shodhana Chikitsa* and *Shamana Chikitsa* including *Panchakarma* treatments. The physiotherapy treatments included: manual therapy, McKenzie's exercises, muscle strengthening and stretching and balance/proprioception exercises. The patient reported positive outcomes after 4 weeks of treatment. There was a decrease in pain scores from 8 to 0 in the NPRS scale rating of pain (during rest) and 8 to 1-2 (during activity). Along with this, changes were noted in the p4 questionnaire indicating reduction in symptoms. The scores were decreased on the sensory and effective dimensions of pain in the short form McGill pain questionnaire. Present pain intensity (PPI) changed to mild. The onset of symptoms changed from 2 minutes to 8 minutes. The interdisciplinary approach of Ayurveda and physiotherapy resulted in a reduction of pain in sciatica patients.

**Key words:** Sciatica, Gridhrasi, Ayurveda, Physiotherapy, Interdisciplinary Approach

### INTRODUCTION

Sciatica is a common disorder that is highly prevalent in the modern world where health is being compromised by physical exertion and work-induced stress. The complication of sciatica includes weakness of back and abdominal muscles, bending and twisting, whole body vibration, monotonous tasks and poor

work relationships.

Intervertebral disc prolapse (IVDP) is the main factor that causes pain associated with sciatica. In 95% of the lumbar disc herniation, L4-L5 and L5-S1 discs are most commonly affected.<sup>[1]</sup> In IVDP, the pain may be located in the low back only or referred to a leg, buttock, or hip, which outlines the features of sciatica- syndrome. Sciatica is a striking pain, which causes difficulty in walking. It subsequently hampers the daily routine and will eventually deteriorates the quality of life of the patient.<sup>[2]</sup>

The signs and symptoms of "sciatica" found in modern medicine quietly mimic the condition of *Gridhrasi* mentioned in Ayurveda. *Gridhrasi* comes under *Nanatamja Vata Vyadhi*.<sup>[3]</sup> The gait of *Gridhrasi* patient resembles that of a vulture or *Gridha*, which is attributed to severe pain. The cardinal signs and symptoms of *Gridhrasi* are *Ruk* (pain), *Toda* (pricking

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sensation), *Muhuspandan* (Tingling sensation), *Stambha* (stiffness) in the *Sphik*, *Kati*, *Uru*, *Janu*, *Jangha*, and *Pada* in order.<sup>[4]</sup> and *Sakthikshepanigraha* (i.e., restriction in upward lifting of lower limbs).<sup>[5]</sup> In *Gridhrasi*, *Tandra* (Drowsiness), *Gaurav* (Heaviness), and *Aruchi* (Anorexia) may be present if *Kapha* is associated with *Vata*.<sup>[6]</sup>

An interdisciplinary approach was taken, where team members from different disciplines working collaboratively, with a common purpose, to set goals, make decisions and share resources and responsibilities.<sup>[7]</sup> A team of clinicians from different disciplines, together with the patient, undertakes assessment, diagnosis, intervention, goal-setting and the creation of a care plan.<sup>[8]</sup>

Here, we are emphasizing upon the successful management of sciatica with such an interdisciplinary team composed of physicians from different medical fraternities

## CASE REPORT

The patient was a 36-year-old male who complained of low backache for one year. He got injured in his lower back region in the year 2020 while performing karate. His job involves travelling for long hours through off road conditions in vehicles, which exacerbated his symptoms. He took medical treatment, and after taking medications, his symptoms resolved over time. The patient again got injured in his lower back in December 2020. This was associated with pain radiating to the right lower extremity. He described that the pain started from the lateral right hip which radiated through the outer side of the legs up to the two outer toes. He had his magnetic resonance imaging (MRI) taken which revealed a herniated nucleus pulposus at the L5-S1 level, as well as a mild bulging disc at the L4-L5 level (Fig. 1). The patient received physiotherapy treatment for two weeks in his home country, which gave him considerable relief, but his symptoms were not resolved completely. He approached our hospital for more reliable and sustainable results.



**Fig. 1: Magnetic resonance imaging of the subject**

### *Nidana Panchak*

#### *Hetu* (etiology or causative factors)

*Ahara*: *Ruksha* and *Katu Rasatmak Ahara*

*Vihara*: *Vata Prakopa* due to travelling, jerky movements during travelling, overexertion due to karate practice.

#### *Samprapti Ghatak*

*Dosha* - *Vata and Kapha*

*Dushya* - *Rasa, Rakta, Asthi, Majja, Sira, Kandara* and *Snayu*

*Srotas* - *Rasavaha, Asthi Vaha, Majja Vaha, and Purisha Vaha*

*Srotodushti* - *Sanga*

*Rogamarga* - *Madhyama*

*Agnimandya* - *Ama, Jatharagni Mandya, and Dhatvagnimandya*

*Udbhavasthana* - *Kati and Prushthavamsha*

*Adhishtana* - *Pakvashaya*

*Vyaktasthana* - *Sphik, Kati, Prushtha, Uru, Janu, Jangha, and Pada.*

#### Final Diagnosis

Diagnosis: *Vata Kaphaja Gridhrasi* (sciatica due to IVDP)

**Diagnostic assessments**

Physical assessments and patient satisfaction were taken into consideration: -

Palpation to assess the tenderness and muscle tone was done

Posture of the patient was observed

Range of Motion (ROM) of each of the joints were analysed

Special Lumbar Tests

Lumbar Dermatomes to analyse the Sensations were taken

Lumbar Myotomes were analysed

Single Leg Stance Test was done

Multiple Scales to score the pain (0-10)

**Therapeutic interventions****Ayurveda Management**

Ayurveda treatments included *Sodhana* and *Samana Chikitsa*. *Chikitsa Sutra* (treatment principle) of *Gridhrasi* involves *Basti Karma*, *Siravyadha*, and *Agnikarma Chikitsa*. The treatment protocol, which was planned for this patient can be divided into *Shodhana Chikitsa* with *Basti Karma* along with *Shamana Chikitsa*. The treatment principles applied for the management of this disease condition are *Vedanasthapana Chikitsa* (analgesic), *Shothahara* (anti-inflammatory), and *Vata Dosh* pacifying treatment along with strengthening and nutritive therapy for the various musculatures and structures in lumbar region and lower extremities.

**Sodhana Chikitsa**

The patient was given *Dhanyamla Dhara* for the first 3 days

*Choorana Pinda Sweda* (CPS) was given after 3 days

*Patra Pottali Sweda* (PPS)

*Yoga Basti* was done which included *Vaitarana Basti* (as *Kashaya Basti*) and *Anuvasana Basti* with *Sahacharadi Thailam*.

*Kati Basti* with *Dhanwantaram*, *Sahacharadi Tailam* and *Karpooradi Thailam* for 4 days.

*Pizhichil* with *Dhanwantaram*, *Sahacharadi Tailam* and *Karpooradi Thailam* for 4 days.

**Shamana Chikitsa**

*Dasamoolakaduthrayam Kashayam* - 15mL + 45mL hot water twice - Before food

*Sahacharadi Kashayam* - 15mL + 45mL hot water twice - Before food

*Mukkadi Gulika* - 1BD

*Chandraprabha Gulika* - 2BD

*Ostikot* tablet - 1BD

*Lumbogest* tablets - 1BD

**Physiotherapy Management**

The patient was educated about sciatica and physiotherapy plan of care. He was also informed about proper body mechanics and posture along with certain positions to avoid. The short-term goals included decreasing pain, increasing R.O.M, improving posture, and increasing lumbar lordosis. Long-term goals included increasing muscle strength in lower extremities Treatment duration was set to 45 minutes per day and was a one-on-one session.

Home exercise programs were advised, which the patient did in his room. First-week of physiotherapy sessions started focusing initially on decreasing pain, increasing mobility of joints and decreasing muscle tightness. These included passive and active stretching, joint mobilizations, soft tissue mobilization and trigger point release. McKenzie's exercises focussed on correcting the left lateral shift, initially and then increasing lumbar extension. A detailed treatment chart is explained in table no.1.

Home exercise programs were advised, which the patient did in his room.

Passive and active stretching

Joint mobilizations<sup>[9]</sup>

Soft tissue mobilization and trigger point release



McKenzie exercises<sup>[10]</sup>

Mulligan mobilization with movement (MWM)

Grade 3 and 4 mobilizations

Soft tissue mobilization

Gluteus maximus trigger points identified were released

Abdominal hollowing was taught to the patient in the first week

Hollowing with chin tuck and later on, advanced to further progressions.

### OBSERVATIONS/TREATMENT OUTCOMES

The patient reported relief in symptoms throughout the plan of care. His symptoms centralized partially at week 2. After 4 weeks of treatment, the NPRS scale rating of pain during activity decreased from 8 to 1-2. Also, pain at rest changed from 3/10 to 0/10. His onset of pain after activity decreased from 2 minutes to 8 minutes. P4 intensity initial scores changed from 33/40 to 5/40. In the short form McGill pain questionnaire, the sensory dimension scores of pains changed from 12 to 5. The effective dimension scores changed from 3 to 1. The patient reported present pain intensity (PPI) to be 'mild' which used to be 'horrible' during the initial assessment. With this interdisciplinary approach, the patient was able to return to his work after 4 weeks of treatment. Detailed improvements are mentioned in table.2.

### DISCUSSION

There are multiple studies done on sciatica in both *Ayurveda* and physiotherapy, respectively. This was the first case study to analyse the effectiveness of an interdisciplinary approach to *Ayurveda* and physiotherapy in a sciatica patient. The plan of care was created based on previous research, the clinician's prior experience and patient preference. As the patient had only 4 weeks for treatment, the aim of the treatment was to achieve maximum pain reduction within the shortest time possible.

*Dasamoolakaduthrayam Kashayam* is hot in potency, anti-inflammatory in nature, it balances *Vata* and

*Kapha Dosha* in the body. It is also helpful in the management of pain as well as stiffness in the joints. *Sahacharadi Kashayam* helps to relieve the stiffness of the joints of the lower body, it relieves the pain and is highly effective in the management of sciatica, LBA, disc prolapse and joint pain. *Mukkadi Gulika* is mainly indicated as *Ama Pachana* and used in the treatment of fever. *Chandraprabha Gulika* is anti-inflammatory in nature, used for the treatment of diseases of the urinary tract, kidney, pancreas, bones and joints. *Ostikot* tablet is used in the treatment of osteoarthritis as an anti-inflammatory and pain reliever. *Lumbagest* tablets are indicated in back pain, sciatic nerve pain and lumbago. It reduces inflammation, relieves oedema and helps to heal muscular strain.

The major finding of this case study was that *Ayurveda* combined with physiotherapy decreased sciatic pain considerably with no side effects or discomfort. Therefore, it is a viable treatment approach in reducing pain in patients with sciatica. But there is limited evidence to conclude that this collaborative approach yielded better results in short duration when compared to previous studies. This is because there is a lack of studies that use the same outcome measures. Most of the studies were using ODI and QOL as the outcome measures. The pain scales also lacked clarity about the initial and final reported pain except for one. In one of the studies by Therault et al.<sup>16</sup> where the intervention was only physiotherapy, the pain decreased from 10/10 to 3/10 in the NPRS scale within 8 weeks. In contrast with our study, the patient's pain decreased from 8/10 to 0/10 with no activity and 1-/10 with activity. In another study by Pooja Rani et al.<sup>15</sup> 15 days of *Ayurveda* treatment resulted in the reduction of pain from 4 to 2.

The physiotherapy intervention included mobility exercises<sup>[5]</sup>, McKenzie exercises, strengthening exercises<sup>[5,6]</sup> and balance and proprioception exercises. Mobility exercises mainly included stretching tight musculature and joints. During the first week, stretches were mostly passive and then progressed to active stretching.

This was a case study with one subject. Therefore, the extent to which the data can be generalized to other

subjects or a population is lower. Better research is needed to compare the efficacy of both treatment approaches versus either Ayurveda or physiotherapy.

**CONCLUSION**

The interdisciplinary approach of *Ayurveda* and physiotherapy is an effective treatment option for sciatica. More research is needed to find out whether this collaborative approach is superior to treatments with *Ayurveda* and physiotherapy alone.

**Table 1: Physiotherapy managements**

Intervention	Week 1	Week 2	Week 3	Week 4
<b>Mobility</b>	Kneeling hip flexor static stretch (20 second hold x3)	Kneeling hip flexor static stretch (20 second hold x3)	Kneeling hip flexor static stretch (20 second hold x3)	Kneeling hip flexor static stretch (20 second hold x3)
	TFL passive stretch (20 second hold x3) GN passive stretch (20 second hold x3) Piriformis SMR and passive stretch (20 second hold x3) Sciatic nerve glides (10x3)	TFL active stretch (20 second hold x3) Standing GN stretch (20 second hold x3) Piriformis pigeon stretch (20 second hold x3) Sciatic nerve glides (10x3)	TFL active stretch (20 second hold x3) Standing GN stretch (20 second hold x3) Piriformis pigeon stretch (20 second hold x3) Sciatic nerve glides (10x3)	TFL active stretch (20 second hold x3) Standing GN stretch (20 second hold x3) Piriformis pigeon stretch (20 second hold x3) Sciatic nerve glides (10x3)

<b>Manual Therapy</b>	Mulligan MWM for I.R Hip extension mobilization STM lumbar paraspinals Trigger point release gluteus maximus Rt	Mulligan MWM for I.R Hip extension mobilization STM lumbar paraspinals	Mulligan MWM for I.R	
<b>McKenzie Exercises</b>	Standing left side glides (10x3) Prone Rt side bending position (30 seconds hold x3) Sitting lumbar extension (10x3) Prone on elbow (30seconds x3)	Prone press up on hand (10x3) Prone lumbar extension on 2 pillows (30 seconds duration x3)	Prone press up on hand (10x3) Prone lumbar extension on 3 pillows (30 seconds duration x3)	Prone press up on hand (10x3) Prone lumbar extension on 3 pillows (30 seconds duration x3)
<b>Strengthening</b>	Abdominal hollowing 1 second hold (10x3) Rt leg SLR at pain free range (10x3) Gluteus maximus activation	Abdominal hollowing with chin tuck 1 second hold (10x3) Gluteus maximus strengthening Resisted clamshell	Abdominal hollowing with chin tuck and shoulders off the bed 1 second hold (10x3) Gluteus maximus	Abdominal hollowing with chin tuck and shoulders off the bed 3 second hold (10x3) Gluteus maximus

	and strengthening exercises Clamshell Exs TA strengthening with theraband yellow Prone leg raise and arm raise (10x3)	yellow theraband TA strengthening with theraband red Prone alternating leg and arm raise (10x3)	strengthening Resisted clamshell red theraband TA strengthening with theraband red Quadruped leg raise and arm raise (10x3) Quadruped alternating leg raise and arm raise (5x3)	strengthening Standing LL abduction with 1 kg weight (10x3) TA strengthening with theraband blue Quadruped alternating leg raise and arm raise (10x3)
<b>Balance/ Proprioception</b>		Weight bearing Lt EO 2 sec x10	Weight bearing Lt leg EO 5 sec x 10 Weight bearing Lt leg EC 2 sec x 10	Weight bearing Lt leg EO 10 sec x 10 Weight bearing Lt leg EO 5 sec x 10

Table 2: Results/Outcomes

SN	Type of Assessment	Before Treatment	After Treatment
1.	Palpation (for tenderness)	Bilateral lumbar paraspinal muscles	
2.	Palpation (for muscle tone)	Lumbar paraspinals (increased muscle tone)	None
3.	Posture	Decreased lumbar lordosis	Slight increase in lumbar lordosis

4.	Range Of Motion (ROM)				
	<i>Lumbar spine ROM</i>				
	Flexion (normal, n = 80°)	80°		80°	
	Extension (n= 30°)	20°		30°	
	Left lateral flexion (n= 35°)	35°		35°	
	Right lateral flexion (n= 35°)	35°		35°	
	Left rotation (n= 45°)	45°		45°	
	Right rotation (n= 45°)	45°		45°	
	<i>Lower Extremity ROM</i>	(Rt)	(Lt)	(Rt)	(Lt)
	Hip Flexion (n=100°)	100°	100°	100°	100°
	Hip Extension(n=30°)	10°	5°	10°	15°
	Hip Abduction(n=40°)	60°	65°	60°	65°
	Hip Adduction(n=20°)	20°	20°	20°	20°
	Hip External rotation(n=60°)	45°	45°	45°	45°
	Hip Internal rotation(n=40°)	10°	15°	45°	45°
	Knee Flexion(n=150°)	150°	150°	150°	150°
	Knee Extension(n=0°)	0°	0°	0°	0°
	Ankle Plantar Flexion(n=40°)	40°	40°	40°	40°
	Ankle DorsiFlexion(n=20°)	15°	15°	20°	20°
	Ankle Inversion(n=30°)	30°	30°	30°	30°
	Ankle Eversion(n=20°)	20°	20°	20°	20°
	Manual Muscle test (MMT)				
	<i>Lower Limb</i>	(Rt)	(Lt)	(Rt)	(Lt)

	Hip Flexion	4/5	4/5	4/5	4/5
	Hip Extension	3+/5	3+/5	4+/5	4/5
	Hip Abduction	3+/5	4/5	4/5	4+/5
	Hip Adduction	4/5	4/5	4/5	4/5
	Hip External Rotation	3/5	3/5	3/5	3/5
	Hip Internal rotation	3/5	3/5	4/5	4/5
	Knee Flexion	4+/5	4+/5	4+/5	4+/5
	Knee Extension	4+/5	4+/5	4+/5	4+/5
	Ankle Plantar Flexion	4+/5	4+/5	4+/5	4+/5
	Ankle dorsiflexion	4/5	4/5	4+/5	4+/5
	Ankle Inversion	3+/5	3+/5	3+/5	3+/5
	Ankle Eversion	3/5	3/5	3+/5	3+/5
	<i>Lumbar</i>				
	Flexion	2/2		2/2	
	Extension	1/2		2/2	
	Rotation RT	1/2		1/2	
	Rotation LT	2/2		2/2	
5.	Lumbar Special Tests SLR Slump Test	Positive on Right Positive on Right		Negative Negative	
6.	Mechanical Lumbar Spine Assessment (in standing) Repeated flexion in standing Repeated extension in standing	Increased pain No symptom Increased pain		No Symptom No symptom	

	Repeated right side bending Repeated left side bending	No symptom	No Symptom
7.	Lumbar Dermatomes (Sensation)	S1 Altered Sensation	Normal
8.	Lumbar Myotomes	Normal	Normal
9.	Single Leg Stance Test	Left Leg Stance - 30 seconds Right leg stance - 3 seconds	Left Leg Stance - 30 seconds Right leg stance - 15 seconds
10.	Numeric Pain Rating Scale (0-10)		
	Current pain level	3/10	0/10
	At worst	8/10	1 - 2/10
	At best	3/10	0/10
	Onset of pain after activity	2 minutes	8 minutes

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