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Case Study

A CASE REPORT ON AYURVEDIC MANAGEMENT OF LUMBAR INTERVERTEBRAL DISC PROTRUSION WITH SCIATICA

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ABSTRACT

Low back pain ranks first for disability and sixth for overall burden on world health with an annual approximate cost of $135 billion. It is a highly debilitated condition and one of the major causes of low back ache is sciatica. According to the severity it causes significant reduction in quality of life and ability to carry out day to day activities of those affected. The overuse of NSAIDs and analgesics by the public raises concerns, highlighting the need for effective, non-invasive alternatives like Ayurveda. This case study deals with the case of a 40-year-old married man who visited a tertiary care Ayurvedic hospital for low back pain radiating to bilateral lower limbs (left>right) since three months. He was a diagnosed case of sciatica with lumbar spine MRI findings of posterocentral intervertebral disc protrusion at L5-S1 level, anterior thecal sac indentation, narrowing of the bilateral lateral recess and moderate stenosis of the bilateral neural foramen. After undergoing Ayurvedic treatments, including *Samana* medicines and *Panchakarma* procedures, the patient experienced reduced pain and improved mobility, demonstrating the effectiveness of Ayurvedic management for sciatica.

INTRODUCTION

Sciatica is a clinical condition characterized by pain that radiates along the path of the sciatic nerve, which extends from the lower back, through the buttocks, and down the posterior aspect of the legs. This condition is not a disease by itself but rather a symptom indicative of underlying nerve compression or irritation.[1] It is a relatively common condition with a lifetime incidence varying from 13% to 40%. The corresponding annual incidence of an episode of sciatica ranges from 1% to 5%.[2] A total of 3.8% of working subjects and 7.9% of nonworking subjects has sciatica; men more often affected than women.[3] The most common aetiologies include lumbar disc herniation, spinal canal stenosis, degenerative disc disease, and piriformis syndrome.

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Here it is due to lumbar disc protrusion. A disc prolapse (slipped disc) is a condition in which there is a tear in the annulus fibrosis through which the gelatinous nucleus herniates out, thereby compressing the neural elements in the spinal canal usually occurring from youth into the 3rd decade of life. The nucleus comprises of approximately 90% water by weight. Gradually over the next 4 decades the water content decreases approximately 60%. The resultant desiccated disk is not that flexible and strong and tend to give way and herniate especially in presence of predisposing factors which include smoking, obesity, sedentary lifestyle, lifting of a heavy weight, squatting, too much of bending forward, involvement in contact sports and driving on bumpy roads. Failure generally tends to begin at the cartilaginous end plates. The most common site for a disc prolapse is the lumbar spine (L4-L5>L5-S1). Next in frequency comes the cervical spine (C5-C6 >C6-C7). Thoracic discs seldom prolapse due to the result provided by the presence of strong rib cage in the region.[4]

Clinically, sciatica presents as a unilateral radiating pain, often accompanied by sensory disturbances such as numbness, paraesthesia, or weakness in the affected lower extremity. The severity of symptoms can range from mild discomfort to debilitating pain, significantly impairing daily activities and quality of life.

Diagnosis is typically clinical, supported by history-taking and physical examination, including tests such as the straight leg raise (SLR). Imaging modalities like magnetic resonance imaging (MRI) or computed tomography (CT) may be employed to identify the underlying cause of nerve compression. Management of sciatica involves a multimodal approach, including pharmacological treatments (e.g., non-steroidal anti-inflammatory drugs, muscle relaxants, corticosteroids), physical therapy, and, in severe or refractory cases, surgical intervention.

Sciatica is correlated with *Gridhrasi* mentioned in Ayurvedic classics. Acharya Charaka has mentioned *Gridhrasi* as one of the 80 *Nanatmaja vata vyadhi* in *Maharogaadhyaya.* He classified it into 2 varieties; *Vata* and *Vata Kaphaja*. *Vataja gridhrasi* presents with symptoms of *Stambha, Ruk, Toda, Muhuspandana, Grahana* of *Spik, Kati, Prushta, Uru*, *Janga, Janu* and *Paada* while in *Vata-kaphaja* type along with the above symptoms *Tantra, Gaurava* and *Arochaka* is seen. According to Acharya Vagbhata and Sushruta, *Sakti utkshepa nigrahana* is present i.e., the restriction in extension or lifting of the lower limb. Due to the *Nidanas vata prakopa* occurs and the vitiated *Vata* gets *Stana samshraya* in *Kandara* of *Sakti* where a *Khavaigunya* is already present due to the *Nidanas.* Simultaneously *Dosa dushya sammoorchana* takes place in the form of vitiation of *Rakta, Mamsa, Meda, Asthi* and *Majja* which in turn produces *Sakti utkshepa nigraha*. In case of *Vata kapha* type there will be separate *Nidana* for *Kapha dushti*. Its management is mentioned in the *Vata vyadhi chikitsa*. *Vasti, Agnikarma* and *Siravyedha* is explained by all *Acharyas* in its management along with *Vata vyadhi upakramas* like *Sneha, Sweda* etc.

According to its severity, sciatica can interfere with a person's everyday activity and lower their quality of life. In the present scenario where people are reluctant to take analgesics and undergo surgical management, Ayurveda can offer an alternative for many these cases. This article is about one such case of sciatica in which considerable relief was obtained after Ayurvedic Management.

Case Presentation

Patient Information

A 40-year-old short-statured male with a lower middle-class background, residing in a rural area, presented to the outpatient department with a 3-month history of low back pain, radiating to both lower limbs (more pronounced on the left side). The pain was described as shooting, associated with numbness, weakness, and a tingling sensation. It was continuous throughout the day and worsened with movement, particularly during sitting, walking, or mechanical exertion. The pain intensity was severe, significantly impairing his ability to perform daily activities.

The patient's past medical history revealed a traumatic fall at the age of 12, during which he sustained an injury to the lower back. The pain from this incident resolved spontaneously without medical intervention. At the age of 20, he experienced another episode of low back pain, for which he consulted a physician and was prescribed medications that provided symptomatic relief. Due to his occupation as an auto-rickshaw driver, which involved prolonged sitting and repetitive mechanical stress on the lumbar spine, the patient reported recurrent episodes of low back pain over the years, with each episode being managed with analgesic medications.

However, the patient noted a significant aggravation of symptoms 3 months prior, prompting him to undergo magnetic resonance imaging (MRI), which led to a diagnosis of sciatica, due to anterior thecal sac indentation, posterocentral disc protrusion at L5-S1 level and narrowing of bilateral lateral recess. Despite the diagnosis and the recommendation for surgical intervention, the patient was hesitant to undergo surgery and sought alternative treatment options at our outpatient facility.

On Examination

Inspection

Antalgic gait

Difficulty to sit continuously for 5 minutes

Mild swelling over L5-S1 region and corresponding paraspinal muscles.

No spinal deformities were noted.

Palpation

Tenderness grade 3 over L4, L5, S1 region

Muscle tone - Normotonic

Muscle power

3/5 on left and 4/5 on right lower limbs

Range of Movements

Table 1: Range of Movement of Lumbar Spine

Movements of Lumbar Spine	Observation
Forward flexion (measured from the tip of finger to ground)	30cm above ground with pain
Extension (using goniometer)	10 degrees with pain
Right lateral flexion (using goniometer)	15 degrees with pain
Left lateral flexion (using goniometer)	10 degrees with pain

Table 2: Reflexes

Reflex	Left	Right
Knee jerk	3+	3+
Ankle jerk	Diminished	1+
Plantar reflex	Normal	Normal

Table 3: Special Tests

Test	Left Side	Right Side
Straight Leg Raise (SLR)- Active	Positive at 30 degrees	Negative
Bragard's test	Positive	Negative
Femoral Nerve Stretch Test (FNST)	Positive	Negative
Heel walking	Unable to perform due to pain	
Toe walking	Unable to perform due to pain	

Investigations

MRI (13/05/2023)

Posterocentral disc protrusion, mild facet joint degenerative change at L5-S1 level, causing anterior thecal sac indentation, narrowing of the bilateral lateral recess (left>right), subtle abutment of the left transversing nerve root, moderate stenosis of bilateral neural foramen. The MRI image is given as Figure 1,2,3

FIGURES

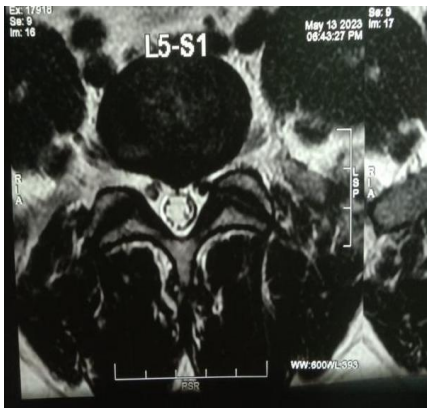

Figure 1

Figure 2

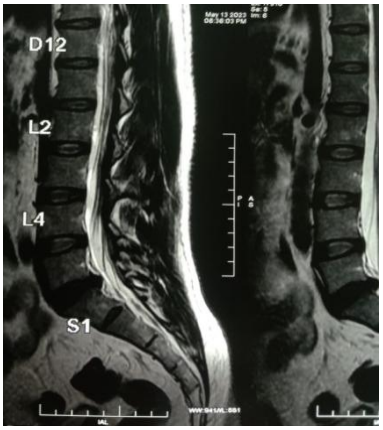

Figure 3

Dimension of neural canal

L1-L2-15mm

L2-L3-15mm

L3-L4-14mm

L4-L5-13mm

L5-S1-11mm

Table 4: Laboratory Investigations (12/07/2023)

Hb	14.3 g/dL
Total WBC Count	10700 cells/cumm
Lymphocyte	43%
Basophil	0%
Monocyte	0%
Polymorph	52%
Eosinophil	5%
ESR	35mm/hr
S Uric Acid	6.4 mg/dL

Diagnosis

Provisional Diagnosis – *Vatavyadhi*

Final Diagnosis – *Vata Kapha Gridhrasi*/sciatica

Differential Diagnosis

1. Spondylolisthesis- no anterior or posterior slipping of vertebra in the imaging studies.
2. Deep vein thrombosis- present with leg pain, swelling and warmth usually localized while sciatica causes radiating pain from lower back down the leg.
3. Peripheral arterial disease (PAD)- claudication mimicking sciatica but associated with diminished pulses and no neurological deficit.
4. Ankylosing spondylitis- no morning stiffness, no involvement of other joints, SI joints are not involved, and the inflammatory markers are within normal limits.

Therapeutic Interventions

Table 5: Internal Medications

S.No.	1st Course of medicines	Time of Administration
1	*Rasnasapthakam* Bottle *Kashaya* (10 ml) + *Adhareesahachardi Kashaya* prepared (90 ml)	6 am before food 6 pm before food
2	Tab. *Trayodasanga guggulu*	1-0-1 along with *Kashaya*
3	*Sinduvara eranda Tailam*	1 tsp HS with hot water
4	*Dasamoolarishtam+ Punarnavasavam*	30 ml BD A/F
	2nd Course of Medicines	
1	*Adareesahacharadi kashaya* 10 ml + *Ashtavargam kashaya* -90 ml	TDS before food
2	*Maharajaprasarini tailam*	10 drops along with *Kashaya*
3	*Balarishtam+ Dasamoolarishtam*	20 ml BD A/F
4	*Hinguvachadi choorna*	1 tsp BF at noon
	Discharge Medicines	
1	*Adareesahacharadi kashayam*	90 ml BD before food
2	*Sahachardi mezhukupakam*	2.5 ml BD along with *Kashaya*
3	*Maharajaprasarini taila*	10 drops along with *Kashaya*
4	*Balarishtam+ Aswagandharishtam*	20 ml BD A/F
5	*Lasuna Ksheeram + Sindhuvara erandam*	100 ml *Ksheeram* with 5 drops of *Tailam* HS
6	*Satahwadi taila*	For external application

Table 6: Panchakarma Procedures

	Procedure	Duration
1.	*Lepa* using *Kolakulathadi choorna + Dhanyamla* + Local *nadi sweda* with *Dasamoola kashaya* + *Doshahara vasti*	Until the tenderness subsided 7 days
2.	*Jambeera Pinda Sweda* dipped in *Dhanyamla*	7 days
3	*Achasnehapana Sahacharadi mezhukupakam*	5 days
4	*Abhyanga* + steam (*Kottamchukkadi+ Sahacharadi taila*)	3 days
5	*Virechana* using *Sinduvara eranda Taila* 30ml and based on the *Suddhi samsarjana karma* was done for 5 days	1 day
6	*Patrapottali sweda* *Abhyanga- Sahacharadi taila+ Kottamchukkadi taila* Frying: *Eranda taila* *Talam: Nimbamrita eranda + Rasnadi choornam*	7 days
7	*Pizhichil* with *Kottamchukkadi taila* and *Sahacharadi Taila + Yoga vasti* *SV- Sahacharadi mezhukupakam* (75ml) *KV- Erandamooladi nirooha vasti*	7 days 8 days
8	*Shastika shali pinda sweda*	7 days

OBSERVATION

By the end of treatment, the patient experienced a significant reduction in the shooting pain, stiffness, heaviness, and tingling sensation. One of the first noted changes was that he could sit in the chair which was in contrary to how he stood in OPD as he was unable to sit. The range of motion of the lumbar spine improved considerably, allowing him to carry out daily activities more easily. His gait also became normal. No radiological tests were conducted after the treatment was completed. Both subjective and objective measures, including the Oswestry Disability Index, were assessed before and after the treatment. On follow-up, the patient was able to resume his work as a driver, which was previously discontinued due to the pain.

Table 7: Details of Assessment Parameters Before and After Treatment

S.No		Criteria	Before Treatment	After Treatment
1	Subjective Criteria	Radiating pain from lumbar region to left leg	8+	1+
2		Pain while walking and sitting	8+	2+
3	Objective Criteria	Straight leg raise test Left leg Right leg	 Positive (30°) Negative	 Negative Negative
4		Bragard's test Left Right	 Positive Negative	 Negative Negative
5		On forward flexion	Limited to 30cm above the ground with pain	15cm above ground without pain
6		Left lateral flexion (using goniometer)	10° with pain	20° without pain
7		Right lateral flexion (using goniometer)	15° with pain	20° without pain
8		Extension (using goniometer)	10° with pain	15° without pain
9		Oswestry low back pain disability questionnaire	75.56%	17.78%

DISCUSSION

On Disease

Sciatica following lumbar disc herniation and neural canal stenosis is on a rise due to the changing lifestyles and occupational demands. So an effective treatment in any system of medicine would be a benefit to society.

On *Shamana* Medicines

Here initially, the aim was to reduce the acute pain and swelling. For tackling the *Aavruta avasta* of *Vata* by *Kapha* and reducing *Aama,* initial medicines were *Vata kapha hara*, *Rooksha* and *Vatanulomana* in nature.

At the time of admission *Rasnasaptakam Kashaya* along with *Adareesahachardi kashaya* was administered. *Rasnasapthakam kashaya* is mentioned in *Amavata adhikara* of *Chakradatta* and has specific indication in *Janga ooru prshta trika parswa soola* and most of the ingredients are of *Ushna virya*. *Adareesahachardi kashaya* is a modified form of *Sahacharadi kashaya* with the addition of *Adaree* (*Acasia pennata*) which is a potent analgesic and anti-inflammatory drug. In practice it is used in the treatment of *Kateegraha, Gridhrasi, Adhakayavata vyadhi* and *Siragrandhi*. *Punarnavasavam* on the other hand is having *Sarvanga Shodhahara* and *Soolahara* action. Its drugs are *Tikta rasa* predominant and *Vata kapha hara*. So together they will act as anti-inflammatory and analgesic in the initial phase of treatment. *Trayodasanga guggulu* is a *Guggulu* preparation mentioned in *Bhaishajya ratnavali vatavyadhi adhikara* and has specific indication in *Kateegraham* and *Gridhrasi,* especially when *Vata* resides in joints, bones, bone marrow and ligaments, and it promotes strength of bones and joints. It is *Vata kapha samana* in action and is used along with the lukewarm *Kashaya. Sinduvara eranda* is a proprietary medicine prepared using *Nirgundi* (vitex negundo) with *Erandataila* as the base. It was used here for the purpose of mild *Anulomana* and *Sodhana* action. *Nirgundi* contains many polyphenolic compound, terpenois, glycosidic indoids and alkaloids making it a good choice in managing acute pain and deep tissue inflammation[5]. *Balaristam* mentioned in *Vatavyadhi* and *Sodha* was also used for the neurogenic pain.

After the correction of the *Aavarana* stage, it is in *Kevala vata avastha*, and thus medicines that are more *Brimhana* are used to normalize the vitiated *Vata. Ashtavargam Kashayam* mentioned in *Kashaya prakarana* of *Sahasrayoga* which is *Anilapaham* was started. *Maharajaprasarini taila* is mentioned in *Bhaishajya Ratnavali Vatavyadhi chikitsa*. Ingredients include *Satavari, Aswagandha, Bala, Ketaki* etc which are *Brimhana* in nature*. Ajamamsa, Kanji* and *Ksheera* are also added during its preparation. It is used in all *Vata* related diseases especially ones of neurological origin. *Balarishtam* was continued with *Dasamool arishtam* which is *Pustijanaka* and *Balaprada. Hinguvachadi choorna* mentioned in *Gulma chikitsa* was used to relieve *Vatavinmutrasanga* i.e., it has the property of correcting the *Apana vata vaigunya* and normalize the *Pakvashayagata vata* involved in the *Samprapti* of the disease. *Sahacharadi mezhukapakam* has similar properties of *Sahacharadi taila* which is mentioned in *Vatavyadhi chikitsa* of *Ashtanga Hridaya* and its property includes *Seelitham hanti vata*. It is widely used in neurological conditions like sciatica.

Discharge medicines were aimed at strengthening his body tissues preventing further recurrence of the disease. *Sahacharadi mezhukupakam* was used as internal *Snehapana* in small dose daily owing to its *Vatahara* and *Soshahara* property. *Maharajaprasarini taila* was asked to be continued for 2 more weeks. *Aswagandharistham* was given owing to its antioxidant and nourishing nature. It is *Ojo vardhaka* and cause *Dhatupushti. Lasuna ksheerapaka* was also advised from a *Rasayana* aspect. Properties of *Lasuna* are told as *Bhagnasandhanakrut, Balavarnakrit* and *Rasayana* by *Bhavaprakasha.* It is an antioxidant and is known to strengthen bones and associated structures.

On *Panchakarma* Treatment

Considering an *Avarana* in the initial phase, *Rukshana chikitsa* followed by *Brimhana chikitsa* in *Kevala vata avastha* was adopted here. Emphasis was given for *Vedana samana* treatment.

In the initial phase, *Nadi sweda* was done with *Dasamoola kashaya*. *Nadi Sweda* is a type of *Agnisweda* in which sudation is done by giving steam. Steam is known to retain more heat and thus the procedure is good for deep tissue inflammation. Here the patient in the initial phase was having grade 3 tenderness making it difficult to start other *Rooksha kriyas* which led to the choice of *Nadi sweda*. Drug of choice *Dasamoola* is mentioned by *Charaka* in *Sodhahara gana*. *Bhavaprakasha* has also elicited that it has quality of *Tridosagna, Tantra, Sodha* and *Parswa peeda harana* which can reduce the acute pain and inflammation experienced by the patient in the initial phase[6]. Along with *Nadi sweda*, *Doshahara vasti* was administered for 7 consecutive days. *Vasti* as a procedure have direct action in *Pakvashaya* which is *Vata sthana* and thus direct involvement in the *Samprapti vighattana* of the disease. *Doshahara vasthi* is an unexplored *Vasti* with all ingredients having properties of *Vatakapha samana, Laghu-tikshna guna, Katu-tiktha rasa* and *Ushna virya*. *Vasti* was prepared

with *Sahacharadi mezhupaka taila, Kalkam* (*Vacha, Satahwa, Hingu, Suradaru, Rasna*) and *Erandamoola kashayam* as per *Ashtanga Hridaya*.[7] *Lepa* was done using *Kolakulathadi choorna* and *Dhanyamla* from the initial days till the subsiding of tenderness.

Next treatment was *Dhanyamla nimajjitha jambeera pinda sweda*. *Jambeera* owing to its *Amla rasa* is known for its *Moodavatanulomana* and *Srotoshodhaka* properties, this along with the other medicinal powders added helps in reducing the pain and inflammation. To ensure the *Rooksha guna*, it was done by dipping in *Dhanyamla*. *Dhanyamla* is indicated for *Ashitivataroganam* (*Chikitsamanjari*), and is *Laghu* and *Vata kaphapaham*. Following these treatments, there was significant reduction in pain and stiffness of lower back.

In *Pakwasaya gata vata kopa*, the main treatment principle is *Sneha virechanam*. For this purpose, *Sodhananga snehapana* was done with *Sahacharadi mezhukupakam* which has its action in *Adhakaya rogas*. After attaining *Samyak snigdha lakshanas*, *Virechana* was given using 30ml of *Sindhuvara erandam. Virechana lakshanas* were observed and number of *Vegas* were 12 which led to conclusion that patient had *Madhyama suddhi* and *Samsarjana krama* was done according to that for 5 days.

Next treatment was *Patra Pinda Sweda* which is used for painful conditions caused mainly by *Vata Dosha*, usually in degenerative diseases. *Vatahara patras* leaves that pacify *Vata* are used in the bolus for pacifying inflammatory diseases of joints and soft tissues.

Kayasekam was done with *Kottamchukkadi taila* and *Sahacharadi taila*. It is a combination of *Sneha* and *Sweda* and can be grouped under *Parisheka sweda*. Hence it is considered suitable for vitiation of *Vata*. In a study conducted before, the local application of *Kottamchukkadi taila* was found to be effective in relieving pain, stiffness and improving the mobility[8]. Along with this, *Yoga vasti* was also done as it is *Kapha vata hara* (as per *Kasyapa samhitha*). *Erandamooladi Kashaya vasthi* which is particularly indicated in *Janga, Uru, Pada, Trika, Prishta shoolam* and in conditions of *kaphavruta vata* was selected as *Kashaya vasti dravya*[9]. *Sahacharadi Mezhukupaka* was selected as *Sneha dravya*. After completion of *Vasti,* patient had considerable relief in pain and stiffness. Shooting pain and numbness were also reduced and he told about increased strength of both lower limbs.

And towards the end *Shashtika shali pinda sweda* was adopted. It is one among the *Snigdha sankara sweda*. *Acharya Charaka* has explained the property of *Shastika* to be *Sthiratmaka* and *Balya*. It gives strength and increases the muscle bulk thus aiding in preventing recurrence of the disease.

After 45 days of treatment, the patient experienced significant relief from shooting pain and stiffness, improved range of motion, normalized gait, and regained the ability to perform daily activities.

He was asked to follow strengthening exercises like pelvic tilt, bridging exercise, partial crunches clamshell exercise, wall sits and side lying leg lifts. Precautions advised were to avoid prolonged sitting or standing, maintain proper posture, take frequent breaks to change position or walk in every 30-60 minutes, avoid heavy weight lifting, strenuous exercises and to limit activities that strain the lower back.

CONCLUSION

Sciatica is a common condition that significantly impairs a person's ability to perform daily activities. This case report presents the case of a patient who was able to resume daily tasks independently after *Panchakarma* therapy and *Shamana Chikitsa*. Initially *Rooksha kriyas* that are *Amahara*, *Sophahara*, and *Soolahara* were done followed by *Snigdha kriyas,* which focused on strengthening and revitalizing the affected structures. The patient showed noticeable improvement in both objective and subjective measures. Conducting a study with a larger sample size to evaluate the effectiveness of this Ayurvedic treatment protocol across different stages of sciatica could help reduce reliance on analgesics, NSAIDs, steroids, and other invasive interventions.

Patient Perspective

The patient and his family were satisfied with the treatment, assessment, and follow-up as he was relieved of pain to a level that he could carry on his daily activities without help and could restart his job while following the rehabilitation (strengthening) exercises and precautions.

Declaration of Patient Consent

The authors confirm that they have secured a consent form from the patient, allowing for the case to be reported in the journal. The patient is aware that his name and initials will not be disclosed, and steps will be taken to protect his identity, though complete anonymity cannot be assured.

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