



Case Study

EXPLORING AYURVEDIC MANAGEMENT AND OUTCOMES OF A SPONDYLOLISTHESIS

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ABSTRACT

Background: Spondylolisthesis refers to the forward, sideways, or backward movement of one vertebral body over another. Mechanical low back pain is especially linked to jobs that require heavy lifting, bending or twisting, such as manual work and extended periods of driving. Spondylolisthesis is one of the mechanical factors contributing to low back pain. "Degenerative spondylolisthesis is most common in adults, with risk increasing as age progresses." In the Indian population, the incidence of low back pain has reported to range from 6.2% (in the general population) and 92% (in construction workers). "Lumbar spondylolisthesis can be compared to *Grdhrasi* in Ayurveda due to similar clinical features." It is included under *Vataja nanatmaja vyadhi*. This case study explores Ayurvedic management and outcomes in a 68-year-old female patient with severe low back pain and stiffness.

Methods: Assessment parameters included symptoms grading scores of range of movement, posture, and pain, functional scores such as the Oswestry Disability Questionnaire, and changes in MRI grading. Management included *Vata hara* and *Brimhana* measures such as *Kati vasti*, *Abhyanga*, *Nadisweda*, *Matra vasti*, *Tiktaksheeravasti*, *Patrapottali pinda sweda*, *Ksheeravaitarana vasti*, and *Salvana upanaha*, along with some disease palliative medications for two months with a break in between.

Results and conclusion: The patient showed improvement in subjective symptoms, rating scales, and MRI findings, shifting from grade 2 to grade 1 spondylolisthesis.

INTRODUCTION

Spondylolisthesis involves the displacement of one vertebra over another, leading to spinal instability and neurological symptoms. It is likened to *Grdhrasi* in Ayurveda due to similar symptoms such as stiffness, pain, pricking pain, and tingling^[1], initially affecting the buttocks and lumbosacral region and radiating to the thigh and foot. This case study explores the Ayurvedic management of spondylolisthesis.

A single case of spondylolisthesis was selected from the Government Ayurvedic Hospital, Erragadda, for the present study. A female patient aged 68 presented herself at the Government Ayurvedic

hospital on 10/11/23 with complaints of severe and progressive low back pain and stiffness radiating to both lower limbs (left and right) along with numbness and aching sensation in the lower limbs for 2 years. The patient is an agricultural laborer; her daily routine includes forward bending, lifting weights, and standing for long hours. Pain got worsened and exacerbated two years ago.

She consulted a nearby allopathy hospital, where she was diagnosed with spondylolisthesis after an MRI of the lumbar spine and advised surgery. To avoid surgical intervention and for some alternative management, the patient opted for Ayurvedic treatment.

Past medical history

The patient is non-hypertensive, non-diabetic, and has no history of allergy to any drug or food item. There is no record of any surgeries, and no significant illnesses have been reported in the past.

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Diagnostic Considerations

Clinical symptoms such as Pain, Stiffness, Tingling sensation of lower limbs, MRI changes which are suggestive of Grade 2 Spondylolisthesis.

Ayurvedic diagnosis: *Gridhrasi vata*

Therapeutic intervention

Following Ayurvedic treatment modalities were employed over a two-month period.

Shamana Oushadis

Given for a period of 2 months

1. Tab. *Rasnadi guggulu*^[2] two tablets twice daily after food
2. Tab. *Citrakadi vati* one tablet twice daily before food
3. Tab. *Ashwagandha* two tablets twice daily with *ksheera* after food
4. Tab. *Vatagajankusa ras* one tab twice daily after food

Table 1: Intervention

S.no	Duration	Treatment
1	14 days	<i>Mrdu abhyanga</i> (external oleation), <i>Nadi sweda</i> (external fomentation for specific area), <i>Kati vasti</i> with <i>Tila taila</i> (retaining <i>Taila</i> in low back area for specific time), <i>Matra vasti</i> with <i>Ksheera bala taila</i> and <i>Sahacharadi taila</i> (medicated oil enema)
2	7 days	<i>Patra pottali sweda</i> - Special type of fomentation performed using <i>Pottali</i> /bundle of <i>Vata-kapha hara patra</i> i.e., leaves of <i>Eranda</i> , <i>Arka</i> , <i>Chincha</i> , <i>Sigru</i> , <i>Nirgundi</i> , Grated coconut, lemons, <i>Saindhava lavana</i> , <i>Rasna</i> , <i>Satapuspa</i> are added and fried together. Then it should be applied over the affected area with mild pressure for 30-45 minutes.
3	3days	<i>Mrdu virechana</i> with <i>Gandharvahastadi taila</i> ^[3] along with lukewarm water or <i>Ardrak swaras</i>
4	5days	<i>Tikta ksheera vasti</i> (a special type of medicated enema) - <i>Makshika</i> (honey)-100 ml - <i>Saindhava lavana</i> (rock salt)-6 grams - <i>Sneha (Pancha tikta guggulu ghrta)</i> -100 ml - <i>Kalka (Guduchi, Yastimadhu, Nimba, Patola, Manjistha)</i> - each 20 grams - <i>Kwath-dashamoola ksheera paka</i> -300 ml
Therapy Gap of One week		
4	14 days	<i>Mrdu abhyanga</i> (external oleation) <i>Nadisweda</i> (external fomentation for specific area) <i>Kati vasti</i> with <i>Tila taila</i> (retaining <i>Taila</i> in low back area for specific time) <i>Matra vasti</i> with <i>Ksheera bala taila</i> and <i>Sahacharadi taila</i>
5	7 days	<i>Patra pottali sweda</i> Special type of fomentation performed using <i>Pottali</i> /bundle of <i>Vata-kapha hara patra</i> i.e., leaves of <i>Eranda</i> , <i>Arka</i> , <i>Chincha</i> , <i>Sigru</i> , <i>Nirgundi</i> , Grated coconut, lemons, <i>Saindhava lavana</i> , <i>Rasna</i> , <i>Satapuspa</i> are added and fried together. Then it should be applied over the affected area with mild pressure for 30-45 minutes.
6	5 days	<i>Ksheera vaitarana vasti</i> (a special type of medicated enema) - <i>Saindhava lavana</i> (rock salt)-6 grams - <i>Guda</i> (jaggery)-24 grams - <i>Chincha svaras</i> (fruit juice of seedless <i>Tamarindus indicus</i> l.)-48 ml - <i>Brhat saindhavadi taila</i> -50 ml - <i>Ksheera</i> (milk)-200 ml
7	7 days	<i>Salvana upanaha</i> - Application of poultice prepared with <i>Rasna</i> , <i>Devadaru</i> , <i>Satapushpa</i> , <i>Vacha</i> , <i>Yastimadhu</i> etc meat, <i>Taila</i> , <i>Amladravya</i> (lemons, <i>Dadhi</i>), more quantity of <i>Lavana</i> . This is made into a warm paste and applied to affected part for specific time around 8 hours.

Follow-up: Regular follow-up assessments was conducted to track the progress of the patient post-treatment.

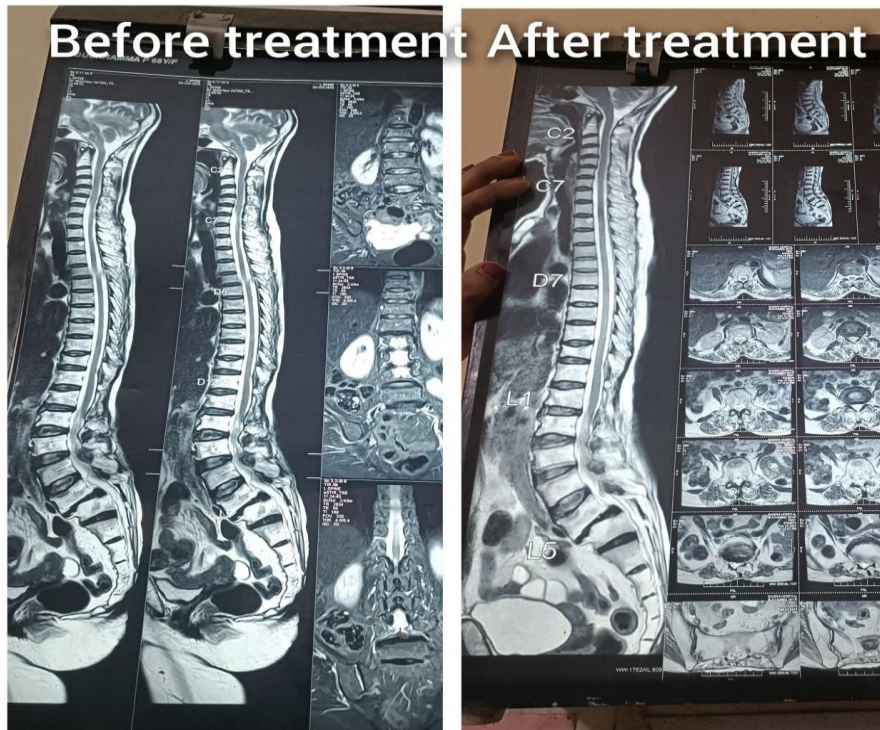
Outcome Measures: Functional outcomes evaluated using standardized assessment tools such as Oswestry Disability Index (ODI), Visual Analog Scale (VAS) for pain, and patient-reported quality of life measures.

RESULTS

The patient showed significant improvement in symptoms and MRI findings, with a shift from grade 2 to grade 1 spondylolisthesis. The ODI score improved from 44 to 24, VAS scale for pain decreased from 7 to 2, indicating a 40% and 70% improvement, respectively.

Table 2: Result

Parameter	BT	AT	Improvement
Oswestry Disability index(ODI)	44 (completely disabled)-88% [Back pain impinges on all aspects of patient’s life]	24(moderate disability)-48% [patient can usually be managed by conservative means]	40%
Visual analogue score (VAS) for pain	7 (intense, dreadful pain)-70%	2 (mild, annoying)-20%	70%
Lumbar spinal canal dimensions/ diameter	L2-L3- 9.5 mm L3-L4 :7.8 mm L5-S1:7.4 mm S1-S2 :6.5 mm	Spinal canal dimensions are within normal limits	
MRI lumbar spine with whole spine screening Grading	Grade2 spondylolisthesis (Anterolisthesis) of L5 over S1	Grade1 spondylolisthesis (Anterolisthesis) of L5 over S1	



Patient Perspective

Patient was comfortable with occasional pain while walking and there was considerable reduction of stiffness and tingling sensation to her legs. She feels better as compared to before, pain has reduced, there has been a significant increase in walking ability, numbness and aching sensation have been reduced.

DISCUSSION

The female patient diagnosed with anterior spondylolisthesis, an agricultural laborer with a history of working on uneven surfaces and lifting heavy weights, exhibits features of *Vata Prakruthi*. Her condition resulted from prolonged low back strain and aggravation of *Vata dosha* due to factors like

inadequate diet and excessive work. The pathogenesis involves vitiated *Vata* and *Kapha doshas* affecting the lower back and associated structures. Degenerative spondylolisthesis, typically age-related, involves facet joint and disc degeneration leading to instability and forward displacement of a vertebra. It causes localized pain or radicular pain from nerve root or spinal cord compression. Pain worsens with movement, particularly flexion and extension.

Conventional treatment includes conservative methods such as NSAIDs, heat therapy, physical activity, traction, and braces, or surgical options like decompression, fusion, or interbody fusion.

In the present case of grade 2 degenerative lumbar spondylolisthesis (L5 over S1), surgery was recommended due to degeneration. The condition resembles *Grdhrasi*, a *Vataja* disorder, with symptoms like low back pain, stiffness, and aching.

Management focused on *Vata*-pacifying treatments including *Abhyanga*, *Nadi Sweda*, *Mrdu virechana*, *Kati Vasti*, *Matra Vasti*, *Tikta Ksheera Vasti*, *Patrapottali Pinda Sweda*, *Ksheera Vaitarana Vasti*, and *Salvana Upanaha*.

Therapy Principles Adopted

Sneha, *Sweda*, *Mrdu virechana/Sodhana* and *Basti Karma*

Therapy Modalities Employed

1. *Abhyanga*: In cases of spondylolisthesis, only *Mrdu Abhyanga* (gentle massage) should be performed. High-pressure massage may cause vertebral collapse or exacerbate the condition. *Mrdu Abhyanga* helps alleviate pain and reduce local muscle stiffness^[4].

2. *Nadi Sweda*: This therapy helps reduce stiffness (*stambha*) and liquefy accumulated *Doshas*^[5]. Medicated steam application provides relief from stiffness and spasms to a certain extent.

3. *Patra Pottali Sweda*: This involves the application of heated leaves from medicated herbs such as *Nirgundi*, *Eranda*, *Shigru*, *Arka*, and *Chincha* for local fomentation. It is a form of *Sweda karma* designed to alleviate symptoms.

4. *Kati Vasti*: This procedure retains medicated, warm oil over the affected lumbar segment. It helps relieve pain and stiffness, leading to localized muscle relaxation. The oils used in *Kati Vasti* enhance local blood flow and provide a gentle to moderate pain-relieving effect.

5. *Matra Basti*: A primary Ayurvedic treatment modality, *Matra Basti* is considered an important aspect of treatment. It is believed to distribute its effects throughout the body, similar to how water sprinkled at a tree's root nourishes the entire tree. Initially recommended due to the *Vata* predominance

and degenerative nature of the disease, *Matra Basti* utilizes different oils such as *Ksheera Bala Taila*, *Sahacaradi Taila*, and *Chinchadi Taila* to promote strength, reduce pain, and alleviate *Vata*-related conditions^[6].

6. *Tiktaksheera Basti*: This type of *Basti*, with its *Mridu* (mild) *Vata-Pitta* balancing properties, is advised when there is involvement of bone or bone affecting disorders. Ingredients such as *Ksheera*, *Ghruta*, and *Tikta Dravyas* target joint lesions and aid in repairing bone and cartilage degeneration^[7].

7. *Ksheera Vaitarana Vasti*: This therapy addresses aggravated *Vayu* and *Dhatu-kshaya* (tissue depletion) by using ingredients with *Madhura* (sweet) *rasa*, *Ushna* (warm) *Veerya*, and *Snigdha* (unctuous) *guna*. It helps pacify vitiated *Vata dosha* and assists in treating conditions like sciatica and lumbosacral swelling^[8].

8. *Salvana Upanaha*

It helps reduce *Vata* disorders affecting the nerves, joints, and bones^[9]. This method involves applying a paste made from *Kakolyadivatahara dravyas*, *Amla dravya*, and *Anupa-oudaka mamsa* to the affected site for a specific duration^[10]. *Salvana Upanaha* is notable for its extended contact time (over ten hours), making it a significant aspect of therapy in spondylolisthesis.

Outcome Evaluation

Following the described therapy protocol, the Oswestry Disability Index (ODI) score improved from 44 (88%) before treatment to 24 (48%) at discharge, indicating a 40% improvement in low back disability. Oswestry Disability Index is an extremely important tool to measure a patient's functional disability and it is considered as the "gold standard" of low back functional outcome tools. This is composed of 10 questions. Each question is rated on 6 points (0-5) scale measuring activities like, personal care, pain intensity, lifting, walking, sitting, standing, sleeping, social life, travelling and homemaking/employment^[11,12]. The Visual Analog Scale (VAS) for pain decreased from 7 (70%) before treatment to 2 (20%) at discharge, reflecting a 50% reduction in pain. MRI results showed a reduction in spondylolisthesis from grade 2 to grade 1 after 69 days of treatment. These results support the efficacy of Ayurvedic treatment for spondylolisthesis.

CONCLUSION

Spondylolisthesis is a condition of the spine where one vertebra slips over the other and causes pain and other neurological symptoms. If left untreated, sometimes it may lead to a fracture of the vertebra involved. Rest and surgery are the only options left for patients with listhesis in contemporary medicine. Till now, there was no specific treatment

module for spondylolisthesis in Ayurveda. The female patient, diagnosed with grade 2 spondylolisthesis despite being advised surgery, opted for Ayurvedic panchakarma procedures. The therapeutic interventions utilized in treating spondylolisthesis, which are the combination and extended usage of various forms of *Sweda karma* (medical steam therapies) and *Basti karmas* (medical enema therapies), not only helped in reducing signs and symptoms but also showed a shift of grade 2 spondylolisthesis to grade 1, which was evident in MRI findings. Ayurvedic management demonstrated effectiveness in treating spondylolisthesis, with notable improvements in symptoms and MRI grading. This case study highlights the potential of Ayurveda for managing spondylolisthesis and improving patient outcomes.

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