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EFFECTIVENESS OF ARTHROTHERMIA IN THECAL SAC NARROWING DUE TO LUMBAR SPINAL STENOSIS: A CASE REPORT ON AN AYURVEDIC APPROACH

Ayurveda

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ABSTRACT

Background: Lumbar spinal degeneration leads to progressive narrowing of the thecal sac, resulting in chronic low back pain (Katishool), mobility restrictions, and neurological symptoms. Conventional treatments, including allopathic medication and surgery, often provide limited relief. In Ayurveda, such conditions fall under Nanatmaja Vatavyadhi, which is managed using Shaman Chikitsa and therapeutic heat-based interventions. Arthrothermia, a novel Ayurvedic therapy conceptualized by Dr. Prerak Shah, integrates alkaline cautery (Ksharkarma) and indirect micro-thermal cautery (Agnikarma) to improve spinal health. **Aims:** To evaluate the Effectiveness of Arthrothermia in reducing thecal sac narrowing and improving functional outcomes in a patient with lumbar spinal stenosis. **Material And Methods:** A 61-year-old female with chronic lower back pain for 10 years was treated at Ayulink Ayurveda OPD. The patient underwent six sessions of Arthrothermia along with Shaman Chikitsa (Yogaraj Guggulu, 250 mg, BID for 1 month). The assessment was done using the Oswestry Disability Index (ODI) and MRI-based measurements of the thecal sac diameter before and after treatment. **Observations And Results:** Pre-treatment, the ODI score was 29 (58%) – Severe Disability, which improved to 18 (36%) – Moderate Disability, showing a 22% improvement. MRI findings revealed an increase in the thecal sac diameter, with L3-L4 space expanding from 6.2 mm to 8.3 mm, and L2-L3 from 7.9 mm to 9.1 mm, indicating reduced nerve compression. The patient reported significant pain relief, improved mobility, and ease in walking and stair climbing. **Conclusion:** Arthrothermia demonstrated rapid symptomatic relief and structural improvements in lumbar spinal stenosis. This suggests that non-invasive Ayurvedic therapies can enhance spinal flexibility, reduce nerve compression, and improve functional outcomes. Further studies with larger sample sizes are needed to validate its long-term efficacy as a potential alternative to conventional pain management and surgical interventions.

KEYWORDS

Arthrothermia, Canal Stenosis, Disc Degeneration, Ayurvedic Pain Management

INTRODUCTION

Spinal degeneration is a progressive condition that occurs in three stages, leading to structural and functional impairment of the spine. The first stage, known as dysfunction, involves changes in spinal curvature, misalignment, and weakening of spinal muscles and ligaments. At this stage, symptoms are often mild or absent, making early diagnosis challenging. The second stage is marked by disc dehydration, shrinkage, and the formation of bone spurs, leading to roughening of joint surfaces, reduced mobility, and the onset of pain. In the third and final stage, severe joint space narrowing, spinal canal stenosis, and nerve compression result in chronic pain, tingling, numbness, and mobility restrictions, significantly affecting daily activities.

Common causes of spinal disc degeneration include aging, trauma, disc bulging, spondylolisthesis, and spinal arthritis. These conditions can lead to Katishool (low back pain), restricted movement, walking difficulties, and neurological symptoms such as tingling or numbness in the lower limbs. Severe cases may progress to disc bulging, spondylolisthesis, arthritis of spine, spinal canal stenosis, where nerve root compression causes significant disability.

In Ayurveda, such conditions are classified under Nanatmaja Vatavyadhi, a group of 80 disorders caused by Vata vitiation (1). Ayurvedic treatment focuses on restoring spinal stability, improving circulation, and reducing nerve compression through specialized therapies. This case study explores the effectiveness of Arthrothermia, an innovative Ayurvedic approach combining alkaline cautery and indirect micro-thermal cautery, in managing Katishool associated with lumbar spinal degeneration and thecal sac narrowing.

Case Report

A 61 years old female came to Ayulink Ayurveda, OPD, with complaints of (Katishool) lower back pain, pain increases while walking and stair climbing over past 10 years with both knee OA.

On examination

General condition of patient was good, No pallor seen
Pulse-68/min
BP: 128/66mm
CNS: Conscious well oriented

Medical History

- H/O both knee Osteo Arthritis
- H/O received allopathy medicines for above complaint with minimal relief.
- H/O DM
- NO H/O HTN, Thyroid disorder, IHD.

Personal History

- Diet-vegetarian, very rare consuming Fast food – Junk food – Cold food
- Time and frequency of intake-regular
- Appetite-Normal
- Sleep – Normal
- Addiction-no specific addiction
- Bowel-Normal

Clinical Examination

A) Local examination

- No local swelling, muscle wasting,
- No change seen in curvature of spine.
- Gait: normal, Can walk hardly 15-20 steps
- Very much difficulty in using stairs (up and down)

B) Pre-treatment Radiographic Investigations:

MRI findings shows (Date: 17.06.2024),

- Diffuse posterior and left foraminal bulging of L4-L5 intervertebral disc with central and lateral canal stenosis at L4-L5 level causing compression over ventral dural theca, left existing and bilateral traversing nerve roots with clumping of intrathecal nerve roots (Schizas Grade D)
- Diffuse posterior bulging of Posterior bulging of L2-L3, and L3-L4 intervertebral disc with early central and lateral canal stenosis causing compression over ventral dural theca and bilateral traversing nerve roots (Schizas Grade B to Grade C)
- Diffuse posterior bulging of L1-L2 & L5-S1 intervertebral disc causing indentation of ventral dural theca.

Diagnosis:

Degeneration of lumbar spine
(In Ayurvedic terms Katishula)

Assessment Criteria

As criterion of assessment it was decided to use 'Oswestry Disability Index'.(2) It contains questionnaire for low back pain and disability its important tool to measures patient's functional disability and it is considered as 'Gold standard' scale for low back pain functional

outcome tools, this contains 10 sections (questions). Each question is rated on 6 points (0-5) scale measuring daily activities like walking, personal care, pain intensity, sitting, social life etc. Before treatment, assessment carried out by asking questionnaire and after treatment.

Table 1: Shaman Chikitsa

Medicine	Dose	Duration
Yogaraj Guggulu	250 mg - 2 tab BDS	1 month

Table 2: Arthrothermia treatment

Days	Date	Procedure
Day 1	18/06/2024	Arthrothermia
Day 2	19/06/2024	Arthrothermia
Day 3	20/06/2024	Arthrothermia
Day 4	21/06/2024	Arthrothermia
Day 5	22/06/2024	Arthrothermia
Day 6	24/06/2024	Arthrothermia

Observations Before And After Treatment

Before treatment Oswestry disability questionnaire score was 29 (58%) – Severe disability and after the complete treatment patient reported relief in symptoms of pain (shul), stiffness (stambha). While score for walking – sitting – standing and sleeping were significantly reduced and post treatment score was only 18 (36%). Improvement of 22% on 'Oswestry disability questionnaire' was seen. Flexibility and mobility of lower extremities have much improved. Walking, sitting - standing and Stair climbing are pain free.

Table 3: Thecal Sac Spinal Canal Measures:

	Before Treatment (MRI dated 17/06/2024)	After Treatment (MRI dated 24/06/2024)
L1 – L2	10.8 mms	11.4 mms
L2 – L3	7.9 mms	9.1 mms
L3 – L4	6.2 mms	8.3 mms
L4 – L5	2.3 mms	2.7 mms
L5 – S1	9.5 mms	10.2 mms

DISCUSSION

The symptoms observed in this case closely resemble Vatavyadhi, as described in classical Ayurvedic texts. Considering the degenerative and inflammatory nature of the condition, a combination of Shaman Chikitsa and Arthrothermia therapy was implemented to achieve both symptomatic relief and structural improvement.

Yogaraj Guggulu, a well-known Ayurvedic formulation, was administered as part of Shaman Chikitsa due to its anti-inflammatory, analgesic, and Rasayana (rejuvenative) properties. It plays a crucial role in managing chronic Vata disorders, alleviating pain (Shool), stiffness (Stambha), and inflammation while strengthening the musculoskeletal system. Additionally, its tissue- regenerating properties support structural recovery in degenerative spinal conditions.

This case study demonstrates the effectiveness of Arthrothermia therapy in improving both clinical symptoms and radiological parameters in a patient suffering from lumbar spinal stenosis.

The incorporation of Arthrothermia therapy provided significant benefits in terms of functional recovery and radiological improvement. The Oswestry Disability Index (ODI), a validated tool for assessing functional disability due to low back pain, score reduced from 29 (58%) – Severe Disability to 18 (36%) – Moderate Disability, indicating a 22% improvement in overall mobility and pain reduction. The patient reported significant relief in pain, improved flexibility, and the ability to walk, sit – stand and climb stairs without discomfort with only 6 sessions of the treatments in short period (6 days).

MRI findings showed notable increases in thecal sac diameter, with the L3-L4 space expanding from 6.2 mm to 8.3 mm and the L2-L3 space increasing from 7.9 mm to 9.1 mm, suggesting a reduction in nerve compression and spinal canal stenosis. These structural improvements correlate with clinical symptom relief, indicating that Arthrothermia can enhance spinal flexibility and contribute to tissue repair.

Arthrothermia:

Arthrothermia is an innovative Ayurvedic treatment conceptualized by Dr. Prerak Shah for managing osteoarthritis and neuromuscular disorders. This therapy integrates alkaline cautery (Ksharkarma) and indirect micro-thermal cautery (Agnikarma), both of which are ancillary surgical procedures described by Acharya Sushruta(3). Unlike conventional surgeries, these minimally invasive procedures do not cause bleeding and are particularly beneficial in cases where major surgical interventions are impractical.

The therapeutic heat generated through Arthrothermia enhances blood circulation to ligaments, tendons, and muscles, thereby reducing pain, stiffness, and tenderness while improving flexibility and mobility. This therapy follows a scientific amalgamation of herbal chemical heat (Ksharkarma) and mechanical heat (Agnikarma), providing targeted therapeutic action.

According to Ayurveda, provoked Vata Dosha, when lodged in Asthi (bones), Sandhi (joints), Sira (nerves), and Snayu (ligaments/tendons), leads to pain and restricted mobility. As Vata is Sheeta (cold) in nature, it needs to be counteracted with Ushna (heat) therapy. The heat generated by Arthrothermia pacifies Vata Dosha, effectively relieving pain, stiffness, and inflammation at the affected site.

By combining traditional Ayurvedic wisdom with modern application, Arthrothermia offers a safe, non-invasive, and highly effective treatment for degenerative joint diseases and neuromuscular disorders. This approach not only provides faster symptomatic relief but also supports long-term musculoskeletal health, making it a promising alternative for patients seeking non-surgical interventions.

CONCLUSION:

These findings suggest that “Arthrothermia” – a unique Ayurveda treatment approach (combination of alkaline cautery and indirect micro thermal cautery) has shown significant changes in very short time duration, in narrowing of thecal Sac diameters of Lumber Spinal discs. The observed improvement in thecal sac diameter, though modest, aligns with clinical symptom relief, indicating that non-invasive Ayurvedic therapies may contribute to structural as well as symptomatic recovery in spinal disorders.

Further studies with larger sample sizes and long-term follow-ups are needed to validate these findings and establish Arthrothermia as a potential alternative to conventional pain management and surgical interventions for lumbar spinal stenosis.

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