



ADDRESSING *KATIGRAHA* (W.S.R. LUMBEGO AND LUMBER CANAL STENOSIS) THROUGH ARTHROTHERMIA[®] AN AYURVEDIC APPROACH – A CASE STUDY

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Abstract:

Objective: This case report explores the potential of Arthrothermia[®], a novel non-invasive thermal therapy, in managing Lumbago / *Katigraha* associated with Lumbar Canal Stenosis (LCS). **Methods:** A 40-year-old female patient with severe lower back pain due to LCS was treated with Arthrothermia[®] (combining *Ksharkarma* and *Agnikarma*) for 6 days (per day 1 session). Pre- and post-treatment assessments included physical examination, MRI scans, and patient-reported outcomes. **Results:** Treatment resulted in complete pain resolution, improved spinal flexibility and mobility, and increased walking and stair climbing capacity. MRI showed significant increases in spinal canal diameters, indicating reduced stenosis. **Discussion:** Arthrothermia[®] aligns with key Ayurvedic principles, addressing pain, inflammation, *Vata* imbalance, and circulation. This case suggests its potential effectiveness in managing Lumbago/*Katigraha* and LCS, although further research is needed. **Conclusion:** Arthrothermia[®] presents a promising non-invasive approach for managing spinal conditions associated with pain and stenosis. Large-scale studies are warranted to validate its efficacy and establish its optimal role in clinical practice.

Key words: Arthrothermia[®], Lumbar Canal Stenosis, *Katigraha*, Non-invasive therapy, Pain Resolution

I. Introduction:

Lumbago, the equivalent of *Katigraha* in Ayurveda, presents a significant global health concern affecting millions¹. Characterized by chronic low back pain and functional limitations, *Katigraha* arises from *Vata Dosh* imbalance in the *Katipradesh*², the lumbar region. While conventional management options exist, limitations and a desire for non-invasive approaches remain.

Ayurveda offers unique insights into *Katigraha* and its management. This case report explores the potential of Arthrothermia[®], a ground-breaking non-invasive thermal therapy, in addressing Lumbago/ *Katigraha* associated with Lumbar Canal Stenosis (LCS). Drawing inspiration from ancient practices like *Kshar-karma*³ and *Agnikarma*⁴, Arthrothermia[®] presents a novel targeted approach.

Kshar-karma, utilizing medicated alkaline substances, eliminates diseased tissues⁵ and promotes healing, aligning with Ayurveda's emphasis on removing *Kapha* dominated blockages⁶. *Agnikarma*⁷, applying focused micro-thermal energy, enhances circulation and reduces inflammation, mirroring the *Vata* balancing principles of Agni therapy. Arthrothermia[®] seamlessly combines these benefits, delivering controlled heat deep within affected tissues for pain relief, improved mobility, and reduced inflammation.

This report presents a compelling case study showcasing potential of Arthrothermia[®] in managing Lumbago/ *Katigraha* with LCS. A 40 year old female patient experiencing significant pain and limitations due to LCS achieved remarkable improvements in pain, mobility, and quality of life following Arthrothermia[®] treatment.

By examining Arthrothermia[®] through the lens of Ayurveda, we contribute to the growing interest in non-invasive, *Vata* balancing therapies for *Katigraha* and LCS. This case report offers a valuable addition to the field, paving the way for further investigation and wider adoption of Arthrothermia[®] as a promising treatment option for this debilitating condition.

II. Materials and Methods:

Case Summary:

A 40-year-old female architect presented with a four-year history of severe lower back pain, exacerbated by walking and climbing stairs. Despite analgesic medication, the pain persisted, prompting her to seek Ayurvedic treatment. She had no relevant family, surgical, genetic, or psychological history, was vegetarian, and had no addictions. Her main complaint was the aforementioned progressive pain.

MRI revealed lumbar canal stenosis with significantly reduced bilateral lateral canal diameters at L4-L5 and L5-S1 levels. Clinical examination supported the diagnosis of *Katigraha*, as confirmed by the treating Ayurvedic physician.

On presentation in March 2023:

General appearance: Normal

Weight: 58.1 kg

Vital signs: BP 123/77 mmHg, pulse 87 bpm

Systemic Examination:

- Central Nervous System: Canal stenosis at L4-L5 and L5-S1 levels
- Cardiovascular System: Normal
- Respiratory System: Normal
- Gastrointestinal System: Normal
- Pre-treatment Assessments:

Physical Examination:

Range of Motion:

- Flexion: Painful
- Extension: Painful
- Walking: 50-100 steps
- Standing: 30 minutes

- Stairs: 1 floor (10-12 steps)

Lumbosacral Joint:

- Flexion: Painful
- Extension: Painful
- Straight Leg Raise Test: Painful at 70 degrees bilaterally

Initial Treatment:

- Tab. Yograj Guggulu, 2 tablets twice daily
- Follow-up MRI Lumbar Spine recommended

Special Investigations:

MRI Lumbar Spine (24.3.23): LS spine Spondylosis L5 level - grade 1 spondylolisthesis of L5 over S1 - Posterior herniation of L5-S1 with facet arthropathy and mild mechanical narrowing of both foramina resulting into compression over exiting descending nerve roots - Posterior bulging of L4-L5 intervertebral disc is seen causing indentation over dural theca.

Table 1: Right and Left Lateral Canal Measurements: (pre-treatment)

Level	Lateral Canal Diameter (Right) (mm)	Lateral Canal Diameter (Left) (mm)
L1-L2	7.0	7.2
L2-L3	7.2	7.8
L3-L4	7.5	7.4
L4-L5	7.5	7.5
L5-S1	7.0	7.4

Diagnosis:

Biomedical: Lumbar Canal Stenosis

Ayurvedic: *Katigraha*

Differential Diagnosis:

Posterior bulging of L4-L5 intervertebral disc

Treatment:

- Internal medicine: Tab. Yograj Guggulu, 2 tablets twice daily for 6 days.
- External therapy: Arthrothermia[®] (combining *Kshar-karma* and *Agnikarma*) applied for 6 sessions.
- *Pathyapathya* (Diet and Lifestyle):
 - No specific dietary restrictions provided.
- Lifestyle modifications recommended:
 - Avoid forward bending.
 - Avoid cross-legged sitting.
 - Avoid lifting heavy weights.

Prognosis:

Disc bulging can lead to long-term complications in some cases, particularly with severe symptoms or neurological deficits. This patient had endured four years of persistent lower back pain despite analgesic medications.

Following 6 days of Arthrothermia[®] treatment, the patient experienced:

- Complete resolution of pain

- Improved flexibility and mobility of the spine
- Enhanced walking and stair climbing capacity with increased comfort and reduced pain

Follow-up Assessments:

Physical examination:

- Range of motion: Pain-free flexion and extension
- Walking: 2 kilometres comfortably
- Standing: Up to 2 hours without discomfort
- Stairs: Ascending 2-3 floors effortlessly
- Lumbosacral joint: Normal flexion and extension
- Straight Leg Raise test: Negative (able to lift both legs without pain)
- No medication was required further.

MRI Findings (April 5, 2023):

A comparison of the pre- and post-treatment MRI scans revealed significant improvements in the spinal canal measurements:

Table 2: Right and Left Lateral Canal Measurements: (post-treatment)

Level	Lateral Canal Diameter (Right) (mm)	Lateral Canal Diameter (Left) (mm)
L1-L2	9.9 (↑)	7.7 (↑)
L2-L3	10.8 (↑)	8.3 (↑)
L3-L4	9.9 (↑)	9.8 (↑)
L4-L5	10.5 (↑)	10.6 (↑)
L5-S1	8.7 (↑)	10.1 (↑)

Note: ↑ indicates an increase in measurement compared to the pre-treatment MRI.

III. Results:

Clinician-based: Six sessions of Arthrothermia® therapy resulted in complete resolution of pain, improved spinal flexibility and mobility, and enhanced walking and stair climbing capacity with greater comfort and reduced pain.

Pre- and Post-treatment Comparison of Canal Stenosis:

The following table compares the pre- and post-treatment MRI measurements of the lateral canal diameters and the spinal canal at various levels for the 40-year-old female patient:

Table 3: Comparison of Left Lateral Canal Measurements (Before & After)

Level	Lateral Canal Diameter (Right) (mm)	Lateral Canal Diameter (Right) (mm)	Change (Right)	Lateral Canal Diameter (Left) (mm)	Lateral Canal Diameter (Left) (mm)	Change (Left)
L1-L2	7.0 (Before)	9.9 (↑) (After)	+2.9	7.2 (Before)	7.7 (↑) (After)	+0.5
L2-L3	7.2 (Before)	10.8 (↑) (After)	+3.6	7.8 (Before)	8.3 (↑) (After)	+0.5
L3-L4	7.5 (Before)	9.9 (↑) (After)	+2.4	7.4 (Before)	9.8 (↑) (After)	+2.4
L4-L5	7.5 (Before)	10.5 (↑) (After)	+3.0	7.5 (Before)	10.6 (↑) (After)	+3.1

L5-S1	7.0 (Before)	8.7 (After)	(↑)	+1.7	7.4 (Before)	10.1(↑) (After)	+2.7
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Note: ↑ indicates an increase in measurement compared to the pre-treatment MRI.

A positive change in the lateral canal diameter signifies a decrease in stenosis, while a positive change in the spinal canal diameter suggests an increase in its size. The comparative chart clearly demonstrates increases in the lateral canal diameters at all levels measured, indicating a reduction in stenosis and subsequent decrease in nerve compression.

IV. Discussion:

While the term "*Katigraha*" may not be explicitly mentioned as a separate disease in the *Charaka Samhita* and *Sushruta Samhita (Bruhatrayee)*, these foundational Ayurvedic texts establish a clear link between the "*Vata Sthana*" (seat of *Vata Dosha*) in the *Kati* (lower back) and "*Vatavyadhi*" (diseases caused by *Vata* imbalances). This implies that lower back pain, including *Lumbago*, is often attributed to *Vata* imbalances in these ancient scriptures.

Sushruta Samhita, emphasizing the crucial role of *Vata* in pain generation, states that "*Shoola*" (pain) cannot arise without vitiated *Vata*. Similarly, *Gada Nigraha* elaborates on the *Vata*-stiffness relationship, explaining that "*Shoola*" occurs due to "*Stambha*" (stiffness), which itself arises from irregular *Vata* movement in the *Kati* region.

Therefore, even though not named explicitly, the concept of *Katigraha* aligns with the Ayurvedic understanding of *Lumbago/ Katigraha* as a symptom complex arising from *Vata* imbalances in the "*Kati Sthana*." This understanding provides a foundation for exploring how treatments targeting *Vata* and the *Kati* region, like *Arthrothermia*[®] could potentially address *Lumbago/ Katigraha*.

Arthrothermia[®] presents a novel non-invasive thermal therapy modality combining principles of *Kshar-karma* (localized alkaline cauterization) and *Agnikarma* (micro-thermal cauterization). This unique approach offers a multi-pronged attack on the underlying symptoms of *Lumbago/ Katigraha* through its alignment with several key Ayurvedic therapeutic principles:

- *Shothahara* (anti-inflammatory): The targeted heat and herbal cauterization of *Arthrothermia*[®] promote local tissue healing and reduce inflammation, addressing the pain and stiffness associated with *Lumbago/ Katigraha*.
- *Avaranahara* (obstruction removal): By improving blood circulation and lymphatic drainage, *Arthrothermia*[®] helps remove blockages around affected nerves and muscles, facilitating pain relief and improved mobility.
- *Vata Dosha* pacification: The *Ushna* (warming) properties of *Arthrothermia*[®] counter the *Sheeta* (cold) nature of *Vata Dosha*, believed to be a key contributor to *Lumbago/ Katigraha* pain and stiffness. This targeted *Vata* pacification further promotes pain relief and functional improvement.
- *Swedana* (therapeutic sweating): The mild heat generated by *Arthrothermia*[®] induces a *swedana* effect, improving blood flow and delivering fresh oxygen and nutrients to the affected tissues. This supports the healing process and enhances the overall therapeutic effect.

Therefore, the holistic approach of *Arthrothermia*[®], encompassing pain relief, anti-inflammatory action, *Vata* pacification, and improved circulation, makes it a well-suited and potentially effective treatment option for *Lumbago/ Katigraha*. This case report provides valuable evidence in bridging the gap between the Ayurvedic and modern understandings of this condition, paving the way for further research and exploration of *Arthrothermia*[®] as a promising therapeutic.

V. Conclusion:

This case report presents a promising example of potential of Arthrothermia® in managing lumbar canal stenosis and related spinal conditions. The significant improvements observed in the patient's pain, flexibility, and mobility following Arthrothermia® treatment suggests its potential effectiveness for similar cases. Notably, complete pain resolution and improved quality of life highlight the positive impact on this patient's well-being.

While surgery often presents the primary recommended option for spinal disc-related problems, Arthrothermia® offers a non-invasive alternative with potentially faster recovery times and fewer risks. As this emerging therapy shows promising results, further research is warranted to establish its broader efficacy and optimal role in managing spinal conditions.

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