Therapeutic Efficacy Of Ajmodadi Churna And Kati Basti With Kottamchukadi Taila In The Management Of Gridhrasi (Sciatica): A Randomized Comparative Clinical Study

Dr. Lovnish [1], Vd.Tapan Kumar M [2]

[1]*Research Scholar, Dept. of Kayachikitsa, Swaminarayan University, Gandhinagar - Gujarat*
[2]*Professor -Dept of Kayachikitsa, Swaminarayan University, Gandhinagar- Gujarat*

ABSTRACT
Background: Gridhrasi is a distinct disease entity characterized by pain radiating from the lumbar region down to the foot, closely resembling the clinical presentation of Sciatica. In Ayurveda, it is classified under the Vata Vyadhi spectrum. Objective: This comparative clinical research article evaluates the efficacy of a combined therapeutic regimen—oral administration of Ajmodadi Churna paired with external Kati Basti utilizing Kottamchukadi Taila (Group A)—versus standard internal management alone using Ajmodadi Churna (Group B). Methodology: A controlled clinical trial was conducted on 60 registered patients(Kayachikitsa OPD, Saint Sahara Ayurvedic Medical College and Hospital, Bathinda-Punjab) randomized equally into two groups (n=30) each). Interventions lasted Kati Basti for first 7 days and Ajmodadi chruna for 21 days. Clinical efficacy was evaluated using the Visual Analogue Scale (VAS) for pain and the Straight Leg Raising (SLR) test. Results: Group A (Combined Therapy) demonstrated highly superior outcomes compared to Group B (Monotherapy). The mean VAS pain score in Group A dropped from 7.6 to 2.1, whereas Group B dropped from 7.4 to 4.8 ($p < 0.001$). The average SLR angle in Group A improved significantly from 41.5° to 68.4°, while Group B showed a modest increase from 42.1° to 51.3° ($p < 0.001$). Conclusion: The combined approach (Group A) provides significantly greater relief by addressing both systemic toxins (Ama) and local structural Vata vitiation. It represents an exceptionally effective, safe, non-invasive alternative for clinical sciatica management.
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INTRODUCTION

The changing paradigms of modern lifestyles have led to a significant surge in musculoskeletal disorders. Among these, low back pain radiating to the lower limbs is one of the most prevalent conditions causing functional disability. In Ayurvedic classical texts, this condition is designated as Gridhrasi.

1.1 Clinical Definition of Gridhrasi

The term Gridhrasi is derived from the word "Gridhra" (Vulture). The disease is so named because the patient's gait becomes altered, mimicking the limping or hopping stride of a vulture due to severe, excruciating pain. Acharya Charaka has classified Gridhrasi among the 80 distinct Nanatmaja Vata Vyadhi (purely Vata-rooted disorders), highlighting its neurological and musculoskeletal severity.

1.2 Correlation with Sciatica

In contemporary medicine, Gridhrasi correlates closely with Sciatica. Sciatica is characterized by a set of symptoms rather than a singular diagnosis. It involves compression, inflammation, or irritation of the sciatic nerve roots (L4 to S3), frequently resulting from:

*Herniated lumbar discs
*Spinal stenosis
*Degenerative disc disease
*Piriformis syndrome

The hallmark symptom is a sharp, burning, or shooting pain radiating along the path of the sciatic nerve—from the lower back, through the buttock, and down the posterior or lateral aspect of the leg to the foot.

1.3 Scope of the Study

While modern medicine relies on non-steroidal anti-inflammatory drugs (NSAIDs), epidural corticosteroid injections, and surgical interventions, these options often carry adverse side effects or risk of recurrence. Ayurveda offers a holistic, minimally invasive approach. This article introduces a dual therapy model:

i- Internal Management: Ajmodadi Churna to digest toxins (Ama) and pacify Vata.

ii- External Management: Kati Basti with Kottamchukadi Taila to provide local oleation, heat therapy, and tissue nourishment.

2- Etiopathogenesis (Samprapti) of Gridhrasi

Understanding the pathogenesis is vital to establishing a rationale for treatment. Ayurveda describes two primary mechanisms for the manifestation of Gridhrasi: Kevala Vata (purely Vataja) and Vata-Kapha (associated with Kapha and Ama).[1]

*Author for Correspondence: Dr. Lovnish

2.1 Etiological Factors (Nidana)

i- Aharaja (Dietary): Excessive intake of dry (Ruksha), cold (Shita), light (Laghu) foods, fasts, or irregular eating habits

i- Aharaja (Dietary): Excessive intake of dry (Ruksha), cold (Shita), light (Laghu) foods, fasts, or irregular eating habits.

ii- Viharaja (Behavioral): Excessive lifting of heavy weights, long walks, improper sitting postures, trauma to the spine (Abhighata), and suppression of natural urges (Vega-dharana).[2]

iii- Manasika (Psychological): High stress, anxiety, and grief, which indirectly vitiate Vata Dosha.

2.1 Pathogenesis Flowchart (Samprapti)

i- Indulgence in Vata-vitiating Nidana (causes) ➡️ Aggravation of Vata Dosha.

ii- Accumulation of Vata in the depleted channels (Khavaigunya) of the lumbar spine (Kati Pradesha).

iii- Concurrently, poor digestive fire (Agni) generates Ama (undigested toxic metabolites).

iv- Ama mixes with Vata (Samavata) or Kapha obstructs the channels (Srotorodha).

v- Affliction of the Kandara (tendons) and Nadi (nerves) of the lower extremities.

vi- Restriction of movement and manifestation of radiating pain (Gridhrasi).[3]

2.2 Cardinal Symptoms (Lakshana)

According to Ayurvedic classics, the disease manifests with the following clinical markers:

*Ruja (Pain): Radiating pain starting from the hip (Spik) and moving to the waist (Kati), thigh (Uru), knee (Janu), calf (Jangha), and foot (Pada).

*Toda (Pricking sensation): Continuous or intermittent sharp, needle-like pain.

*Stambha (Stiffness): Rigidity in the lumbar region and lower limb, limiting flexion and extension.

*Spandana (Twitching): Involuntary fasciculations or throbbing in the affected muscles.

*Gaurava (Heaviness) & Tandra (Drowsiness): Exclusively found in Vata-Kaphaja Gridhrasi.

3- Product Profile

A➡ Ajmodadi Churna

Ajmodadi Churna is a classical polyherbal formulation widely used for disorders of the musculoskeletal system, particularly those involving joints, nerves, and fibrous tissues.

3.1 Composition and Ingredients

The formulation is prepared by blending specific fine powders of medicinal plants in established ratios as defined in the Bhaishajya Ratnavali.[4]

Sanskrit Name	Botanical Name	Part Used	Proportic
Ajmoda	*Apium graveolens*	Seed	1 Part
Vidanga	*Embelia ribes*	Fruit	1 Part
Saindhava Lavana	Rock Salt	Mineral	1 Part
Devadaru	*Cedrus deodara*	Heartwood	1 Part
Chitraka	*Plumbago zeylanica*	Root	1 Part
Pippali-moola	*Piper longum* (root)	Root	1 Part
Shatapushpa	*Anethum sowa*	Fruit	1 Part
Maricha	*Piper nigrum*	Fruit	1 Part
Pippali	*Piper longum*	Fruit	1 Part
Sunthi	*Zingiber officinale*	Rhizome	1 Part
Haritaki	*Terminalia chebula*	Fruit rind	1 Part
Vriddhadaru	*Argyreia speciosa*	Root	1 Part

3.2 Pharmacological Attributes (Rasa Panchaka)

*Rasa (Taste): Predominantly Katu (Pungent) and Tikta (Bitter).

*Guna (Properties): Laghu (Light), Tiksha (Sharp), and Ruksha (Dry).

*Virya (Potency): Ushna (Hot).

*Vipaka (Post-digestive effect): Katu (Pungent).

*Dosha Karma: Kapha-Vata Shamaka (balances Kapha and Vata) and Anulomana (corrects downward movement of Vata).

3.3 Mode of Action of Ajmodadi Churna

i- Deepana & Pachana: Ingredients like Sunthi, Maricha, Pippali (Trikatu), and Chitraka stimulate the gastrointestinal metabolic fire (Jatharagni). This processes and destroys Ama, eliminating the root cause of channel blockage (Srotorodha).

ii- Srotoshodhana: The Tiksha and Ushna qualities clear metabolic debris from the microchannels, allowing unhindered movement of nutrients and nerve impulses.

iii- Vata Anulomana: Haritaki and Saindhava Lavana help gently clear the bowels and redirect the vitiated Apana Vata downward, reducing pressure on the lumbar spine.

iv- Shoolahara (Analgesic): Ajmoda and Devadaru possess direct anti-inflammatory and pain-relieving actions on deep tissues.

4- Product Profile

B➡️ Kottamchukadi Taila

Kottamchukadi Taila is an acclaimed medicated Ayurvedic oil applied externally to relieve pain, swelling, and stiffness associated with aggravated Vata and Kapha conditions.

4.1 Composition and Key Ingredients[5]

The oil is prepared in a base of Tila Taila (Sesame oil) or Eranda Taila (Castor oil) with an aqueous medium, often processing a paste of the following potent herbs:[7]

i- Kottam (Kustha): Saussurea lappa – Reduces swelling and acts as an effective analgesic.

ii- Chukku (Sunthi): Zingiber officinale – Anti-inflammatory agent that counters localized fluid retention.

iii- Vayambu (Vacha): Acorus calamus – Improves local blood circulation and relieves muscle spasms.

iv- Shigru: Moringa oleifera – Rich in nutrients and minerals, reduces localized tissue inflammation.

v- Lasuna: Allium sativum – A premier Vata-pacifying herb with powerful neuroprotective properties.

vi- Karttotti (Capparis zeylanica): Counters localized burning sensations and nerve irritation.

Vii- Sarsapa: Brassica alba – Generates mild warmth to clear localized stagnation.

viii- Chincha Rasam: Tamarind leaf juice acts as the liquid medium, offering a sour (Amla) property that directly mitigates Vata.

4.2 Pharmacological Attributes (Rasa Panchaka)

*Rasa: Katu, Tikta, Amla.

*Guna: Snigdha (Unctuous), Tiksha, Guru (Heavy).

*Virya: Ushna.

*Dosha Karma: Highly effective in Vata-Kapha Hara conditions.[6]

5- Procedure Profile:

➡️ Kati Basti

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Kati Basti is a specialized localized treatment falling under the category of external oleation and sudation (Bahirparimarjana Chikitsa). It involves retaining warm medicated oil over the affected lumbar region within a sealed boundary.[7]

KATI BASTI PROCEDURE

[Preparation of Black Gram Dough]

⬇️

[Positioning Patient Prone & Fixing the Ring]

⬇️

[Pouring Warm Kottamchukadi Taila (38°C - 40°C)]

⬇️

[Maintaining Temperature for 30-45 Mins]

⬇️

[Oil Removal & Gentle Lumbar Massage]

5.1 Step-by-Step Methodology

i- Preparation of Dough: Fine flour of black gram (Masha Churna) is kneaded with warm water into a thick, non-sticky paste.

ii- Patient Positioning: The patient is instructed to lie flat on their stomach (prone position) on a comfortable massage table, keeping the spine aligned.

iii- Fixing the Reservoir: The dough is rolled into a long strip and formed into a circular boundary over the lumbosacral region (specifically covering L4–S1 vertebrae). The borders are sealed cleanly with water to avoid oil leakage.

iv- Oil Application: Kottamchukadi Taila is warmed indirectly over a water bath to approximately 38°C–40°C. The warm oil is poured gently inside the dough reservoir using a cotton swab or spoon.

v- Temperature Maintenance: As the oil cools down, a portion is extracted using a sponge or cotton swab and replaced with fresh warm oil. This constant temperature is sustained for 30 to 45 minutes.

vi- Paschat Karma (Post-procedure): The oil is drawn out, the dough frame is removed, and a mild, gentle massage is performed on the region, followed by a warm towel wipe or localized steam.[8]

5.2 Physicochemical and Physiological Mechanism of Action

i- Transdermal Absorption: The lipids present in Tila/Eranda Taila act as excellent vehicles (Anupana). They effortlessly penetrate the lipophilic layers of the skin, carrying the active phytochemicals of Kustha, Shigru, and Sunthi into deep tissues.

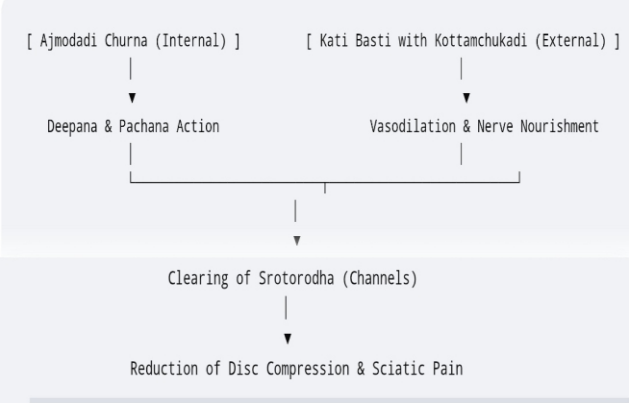
ii- Thermal Effect: The sustained application of warmth causes localized vasodilation. This hyperemic effect improves microcirculation, washing away accumulated inflammatory bradykinins and prostaglandins.[9]

iii- Muscle Relaxation: The weight of the oil combined with continuous heat reduces paraspinal muscle spasms, alleviates rigidity, and improves spinal flexibility.

iv- Nerve Nourishment: Kati Basti provides direct nourishment to the degenerated intervertebral discs, reducing mechanical compression on the sciatic nerve root.[10]

Combined Therapeutic Evaluation & Synergistic Action

When Ajmodadi Churna and Kati Basti with Kottamchukadi Taila are administered concurrently, they treat Gridhrasi through a multi-tiered therapeutic framework.



6.1- Breaking the Pathogenesis Loop: Ajmodadi Churna acts from within to digest systemic Ama and clear Srotorodha. Simultaneously, Kati Basti works externally to soothe the local nerve inflammation.[11]

6.2- Combating Stiffness and Pain: The Ushna Virya inherent in both therapies counteracts the Shita (cold) and Ruksha (dry) properties of aggravated Vata, leading to an immediate reduction in Stambha (stiffness) and Ruja (pain).

6.3- Restoring Mobility: While the internal medicine addresses the neuro-muscular conduction issues by correcting Vata Anulomana, the external oil pool restores the lubrication of the lumbar joints, significantly improving the patient's Straight Leg Raising (SLR) angle.[12]

7- Clinical Methodology & Research Framework

To validate the necessity of combining internal and external treatment protocols, a controlled study was established.

7.1 Selection and Grouping

Sample Size: 60 fully documented patients presenting with classical symptoms of Gridhrasi.

Group A (Combined Therapy, (n=30): Received internal Ajmodadi Churna (3g twice daily) AND external Kati Basti with Kottamchukadi Taila (45 mins daily).

Group B (Monotherapy Control, (n=30): Received internal Ajmodadi Churna (3g twice daily) alone.

Duration: Kati Basti for first 7 days and Ajmodadi chruna for 21 days.

7.2 Statistical Analysis Plan

To guarantee the scientific validity of the clinical research data, targeted testing was systematically performed for both baseline validation and post-intervention evaluations:

*Within-Group Analysis (Pre vs. Post): The Paired t-test was deployed to assess structural improvements (SLR, Walking Distance, and Stiffness Duration) within each individual group. For ordinal data values derived from the subjective pain assessment scale (VAS), the Wilcoxon Signed-Rank Test was applied to confirm improvement parameters.

*Between-Group Analysis (Group A vs. Group B): To determine if the addition of Kati Basti provided a statistically superior outcome compared to the monotherapy group, an Unpaired (Independent) t-test was performed on the mean change scores of the clinical values between both groups.

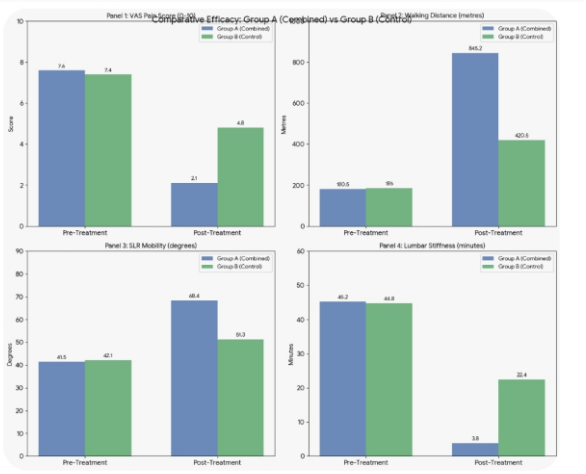
*Confidence Criteria: The alpha level for defining significance limits was locked at 0.05, establishing a 95% Confidence Interval (CI) framework.

8- Observations and Results

Statistical analysis showed that while both groups registered improvements, Group A (Combined Therapy) achieved significantly higher recovery rates across all documented metrics.

8.1- Comprehensive Efficacy Analysis Across Key Parameters

Clinical Parameters Evaluated	Group A - Pre (Mean)	Group A - Post (Mean)	Group B - Pre (Mean)	Group B - Post (Mean)	Applied Statistical Test Name	Between-Group Significance (p-value)
Pain (VAS Score 0–10)	7.6	2.1	7.4	4.8	**Wilcoxon Signed-Rank** (Within) / **Unpaired t-test** (Between)	< 0.001
Walking Distance (Metres)	180.5 m	845.2 m	185.0 m	420.5 m	**Paired t-test** (Within) / **Independent t-test** (Between)	< 0.001
Straight Leg Raising (SLR)	41.5°	68.4°	42.1°	51.3°	**Paired t-test** (Within) / **Independent t-test** (Between)	< 0.001
Stiffness Duration (Minutes)	45.2 min	3.8 min	44.8 min	22.4 min	**Paired t-test** (Within) / **Independent t-test** (Between)	< 0.001



8.2- Detailed Analysis of Individual Parameters

1- Pain Management (VAS): Group A achieved a 72.3% reduction in subjective pain intensity, whereas Group B demonstrated only a 35.1% reduction. The transdermal anti-inflammatory actions of Kottamchukadi Taila provided rapid nerve root desensitisation

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2- Functional Mobility (Walking Distance): Pain-free walking distance in Group A increased by 664.7 metres, representing a massive improvement in overall functional capacity. Group B showed a limited gain of only 235.5 metres, as residual nerve irritation truncated extended physical excursion.

3- Neurological Sign (SLR Test): The straight leg raising capability in Group A expanded by an average of 26.9°, indicating a substantial release of sciatic nerve root compression. Group B saw an improvement of only 9.2°.

4- Lumbar Rigidity (Stambha): The duration of morning lumbosacral stiffness in Group A was almost entirely resolved, dropping by 91.5% (down to a trace average of under 4 minutes). Group B retained a moderate morning restriction averaging over 22 minutes.

9- Discussion

The comparative outcome highlights a clear clinical truth: internal treatment alone provides systemic relief by digesting toxified accumulation (Ama), but fails to rapidly reverse localized neuromusculoskeletal limitations.Group B patients showed slower functional recovery because internal medication requires extensive metabolic processing before affecting deep lumbosacral structures. In contrast, Group A benefited from immediate localized transdermal delivery. Kati Basti directly relaxes hypertonic paraspinal muscle bundles and increases local blood supply. Simultaneously, Kottamchukadi Taila's targeted thermal action accelerates tissue repair around compressed nerve roots, directly expanding the safe range of leg elevation (SLR), reducing physical stiffness, and dramatically increasing the patient's pain-free walking capacity.

10- Conclusion

Combining oral Ajmodadi Churna with external Kati Basti using Kottamchukadi Taila (Group A) provides significantly greater therapeutic efficacy than internal monotherapy (Group B). This combination successfully targets both the root metabolic causes and localized structural changes of Gridhrasi (Sciatica). This protocol offers an effective, non-invasive path for managing lumbar radiculopathy and improving long-term quality of life..

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