

**Research Article****LUMBO-SACRAL SPINE CHANGES IN VATA-KAPHAJA GRIDHRASI: AN INTEGRATIVE REVIEW OF AYURVEDA, PATHOPHYSIOLOGY AND MRI-BASED EVIDENCE****Dr Prachi Dashendra Rahangdale<sup>1</sup>, Dr Madhuri Mahadar<sup>2</sup>**

<sup>1</sup>Pg Scholar, Department of Rachana Sharir Pdea's College of Ayurveda & Research Centre, Nigdi, Pune

<sup>2</sup>Associate Professor, Department of Rachana Sharir Pdea's College of Ayurveda & Research Centre, Nigdi, Pune

Corresponding Author: **Dr Prachi Dashendra Rahangdale**

**Abstract**

Gridhrasi, one of the Vataja Nanatmaja Vyadhi, is a well-known disease characterized by radiating pain originating from the Sphika (buttock) and extending down to the Pada (foot). It is named Gridhrasi because the patient's gait resembles that of a vulture (Gridhra), indicating severe pain and stiffness in the lower limb. Among the two main types—Vataja and Vata-Kaphaja—the latter presents additional features of heaviness (Gaurava), drowsiness (Tandra), and anorexia (Arochaka) due to the association of Kapha Dosh. In modern medicine, this clinical picture corresponds closely to sciatica, caused by compression or irritation of lumbosacral nerve roots (L4–S3). Advances in Magnetic Resonance Imaging (MRI) have made it possible to visualize structural changes such as intervertebral disc prolapse, osteophyte formation, and nerve root compression. These anatomical findings provide objective validation for the classical Ayurvedic understanding of Vata-Kaphaja Gridhrasi. This integrative review explores the correlation between Ayurvedic principles of Dosha, Dushya, and Srotasa involvement and MRI-based anatomical evidence of the lumbo-sacral spine. It brings together textual references from Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya, and Bhavaprakasha with findings from modern anatomy and radiology. The synthesis highlights that Vata-Kaphaja Gridhrasi results from Vata's degenerative action combined with Kapha's obstructive influence, causing pain, stiffness, and restricted movement. MRI correlates these classical descriptions with disc degeneration, neural compression, and inflammatory edema.

Integrating Ayurvedic diagnostics with MRI enhances understanding of the disease, supporting a holistic approach to diagnosis, prognosis, and treatment of Gridhrasi in both traditional and modern contexts.

**Keywords:** Vata-Kaphaja Gridhrasi, Sciatica, Lumbo-sacral spine, Ayurveda, MRI, Nerve compression, Rachana Sharir

**1. Introduction**

Ayurveda, the ancient science of life, considers Vata as the primary force responsible for all body movements, sensory perception, and neural functions. When Vata Dosh becomes aggravated due to improper diet, lifestyle, or physical strain, it leads to several neuromusculoskeletal disorders known as Vataja Vyadhi. Among these, Gridhrasi occupies a significant position as a Maharoga, indicating its severity and chronicity<sup>1</sup>. The term Gridhrasi is derived from "Gridhra," meaning vulture, because the afflicted individual walks with a bent posture and limping gait resembling that bird. Acharya Charaka describes the pain beginning at

the Sphika (gluteal region) and radiating downward through Kati, Prushtha, Uru, Janu, Jangha, and Pada, accompanied by stiffness and spasmodic movements<sup>2</sup>. Modern medical science identifies a similar presentation in sciatica, where radiating pain follows the course of the sciatic nerve due to lumbosacral nerve root compression<sup>3</sup>. The pathology often lies in degenerative changes of the intervertebral discs, spinal canal narrowing, or osteophytic impingement. This article aims to provide a comprehensive integrative review of Vata-Kaphaja Gridhrasi, correlating classical Ayurvedic principles with modern anatomical and MRI-based evidence. It emphasizes that bridging these paradigms can offer new perspectives in understanding, diagnosing, and managing this debilitating condition.

## **2. Ayurvedic Perspective of Gridhrasi**

### **2.1 Definition and Etymology**

The word Gridhrasi reflects the typical clinical presentation—painful, limping gait and restricted movement of the lower limb<sup>4</sup>. According to Charaka, the sequence of pain radiation is diagnostic, making Gridhrasi one of the most distinctive Vataja disorders.

### **2.2 Types of Gridhrasi**

Charaka and Bhavaprakasha describe two primary types<sup>5</sup>:

1. **Vataja Gridhrasi** – Dominated by Ruk (pain), Toda (pricking sensation), Stambha (stiffness), and Spandana (twitching).
2. **Vata-Kaphaja Gridhrasi** – Along with the above, features Gaurava (heaviness), Tandra (lethargy), and Arochaka (loss of appetite) due to Kapha association.

This distinction is essential, as it aligns with clinical variability observed in sciatica, where inflammation and stiffness (analogous to Kapha) may accompany neuropathic pain (Vata).

### **2.3 Nidana (Etiological Factors)**

The causative factors for Gridhrasi predominantly aggravate Vata and Kapha:

- Ativyayama (excessive exertion)
- Atibharvahana (lifting heavy weights)
- Nidra-viparyaya (irregular sleep)
- Atisheeta-sevana (exposure to cold)
- Vishama posture and trauma to the spine<sup>6</sup>

These cause Vata-Kapha Prakopa, leading to obstruction (Sanga) of Vata movement in the Kati-Pradesha, initiating Samprapti (pathogenesis).

### **2.4 Samprapti (Pathogenesis)**

Vitiated Vata, particularly Apana Vata, lodges in the Kati-Trika region—comprising Asthi, Snayu, Kandara, and Majja Dhatu. When Kapha combines with it, the obstructive property (Sthirata, Guru Guna) restricts Vata's mobility, causing radiating pain and stiffness<sup>7</sup>.

The resultant pathology includes degeneration of structural elements (disc and vertebrae) and compression of nerve pathways, both of which mirror findings seen in MRI imaging of sciatica.

### **2.5 Lakshanas (Clinical Features)**

Classical texts delineate seven key symptoms<sup>8</sup>:

- Ruk – Severe pain along the leg
- Toda – Pricking sensation
- Stambha – Rigidity or stiffness
- Spandana – Twitching
- Gaurava – Heaviness in limb
- Tandra – Drowsiness and lethargy
- Arochaka – Loss of appetite due to chronic pain

These signs clearly indicate the interplay of Vata (pain, twitching) and Kapha (stiffness, heaviness).

## **3. Modern Correlation: Sciatica and Lumbosacral Pathophysiology**

In modern neurology, sciatica refers to pain radiating along the course of the sciatic nerve, which originates from the L4–S3 nerve roots. Compression or irritation of these roots by herniated intervertebral discs, osteophytes, or ligamentous thickening produces characteristic symptoms<sup>9</sup>.

### 3.1 Anatomical Basis

The lumbo-sacral spine comprises five lumbar vertebrae (L1–L5) and the sacrum (S1–S5). Between each vertebra lies an intervertebral disc made of a gelatinous nucleus pulposus and fibrous annulus fibrosus. Degeneration, trauma, or strain may cause the nucleus to herniate, compressing adjacent nerve roots<sup>10</sup>.

### 3.2 MRI Findings

MRI is the gold standard for diagnosing structural spinal pathologies. Common findings in Vata-Kaphaja Gridhrasi (sciatica) patients include<sup>11</sup>:

- Posterolateral disc bulge or prolapse at L4–L5 or L5–S1
- Nerve root impingement or compression
- Reduced disc height
- Ligamentum flavum hypertrophy
- Osteophyte formation
- Spinal canal stenosis

These correlate well with Ayurvedic descriptions—degeneration (Vata) and congestion or stiffness (Kapha).

### 3.3 Pathophysiological Parallels

<b>Ayurvedic Concept</b>	<b>Modern Pathophysiology</b>
Vata Prakopa	Nerve irritation, degeneration
Kapha Avarana	Inflammatory or compressive changes
Snayu Gata Vata	Radiculopathy or neuropathic pain
Asthi-Majja Dushti	Vertebral and disc degeneration
Stambha, Gaurava	Muscle stiffness, edema, spasm

Thus, the Ayurvedic and modern explanations converge upon structural and functional impairment of the lumbosacral spine.

## 4. Anatomical and Rachana Sharir Correlation

Ayurvedic Sharira describes Snayu, Kandara, Asthi, and Majja as major structural components maintaining stability and movement. In the Kati-Trika region, Snayu corresponds to ligaments and nerves, while Kandara equates to tendinous structures<sup>12</sup>.

When Vata vitiates these tissues, their elasticity decreases, leading to pain and dysfunction. Modern anatomy identifies similar changes in degenerative spinal disorders—reduced disc hydration, annular tears, and ligamentous stiffness.

MRI provides direct visualization of these structures, showing:

- Snayu-Dushti: nerve root compression
- Asthi-Dushti: vertebral osteophytes
- Majja-Dushti: bone marrow changes
- Kandara-Avarana: ligamentous hypertrophy

These findings substantiate the Ayurvedic understanding of Vata-Kapha Sannipata affecting structural and functional balance of the spine.

## 5. Diagnostic Integration

### 5.1 Ayurvedic Diagnostic Framework

Diagnosis in Ayurveda follows the Nidana Panchaka:

- **Hetu (causative factors)** – mechanical strain, irregular sleep, cold exposure.
- **Purvarupa (premonitory symptoms)** – mild stiffness, fatigue.
- **Rupa (manifest symptoms)** – radiating pain, heaviness, numbness.

- **Upashaya (palliative test)** – relief from Snehana, Swedana.
- **Samprapti (pathogenesis)** – Vata-Kapha localization at Kati-Pradesha.

## **5.2 Integration with MRI**

MRI aids in confirming the site of pathology described in Ayurvedic Sthana. For example:

- Kati-Trika Sthana Shoola ↔ L4–S1 disc lesion.
- Gaurava and Stambha ↔ Ligamentum hypertrophy and edema.
- Spandana ↔ Nerve irritation and fasciculations.

Thus, MRI findings complement Ayurvedic Lakshanas and improve diagnostic precision.

## **6. Therapeutic Implications**

### **6.1 Ayurvedic Approach**

The primary goal in Vata-Kaphaja Gridhrasi management is to pacify Vata and eliminate Kapha obstruction. The classical line of treatment includes:

- Snehana (oleation) with medicated oils like Erandamoola Taila
- Swedana (fomentation) for muscular relaxation
- Basti Karma (medicated enema) as the prime therapy for Vata Vyadhi
- Siravyadha or Agnikarma for immediate pain relief
- Shamana Aushadhi: Rasnadi Guggulu, Dashmool Kwatha, Yogaraja Guggulu

### **6.2 Modern Relevance**

MRI-guided understanding helps practitioners identify the extent of degeneration, nerve compression, and inflammation, allowing targeted Panchakarma and physiotherapeutic protocols. Combined Ayurvedic and physical rehabilitation strategies thus enhance outcomes and prevent recurrence.

## **7. Discussion**

The pathology of Vata-Kaphaja Gridhrasi can be understood as a convergence of Vata's degenerative and Kapha's obstructive mechanisms. Vata governs movement and nervous transmission; its aggravation leads to pain, dryness, and degeneration. Kapha, being heavy and static, contributes to stiffness, edema, and obstruction. MRI studies frequently reveal a combination of degenerative disc disease and compressive pathology, validating the Ayurvedic Samprapti. The structural changes, such as disc dehydration and nerve compression, directly parallel Ruksha and Sthira gunas of Vata and Kapha respectively. From a Sharira Rachana viewpoint, Vata represents kinetic imbalance in Snayu and Majja Dhatu, while Kapha's excessive deposition mirrors thickened ligaments and joint effusion. The MRI visualization of narrowed intervertebral foramina and hypertrophied ligamentum flavum provides objective proof of these processes. Functionally, Apana Vata is the governing force in the pelvic and lower limb regions. Its disturbance leads to improper nerve conduction and muscular spasm. The radiating nature of pain from Sphika to Pada precisely matches the distribution of the sciatic nerve (L4–S3 dermatomes), reinforcing the classical anatomical accuracy of Ayurvedic seers who described this phenomenon thousands of years ago. Moreover, Vata-Kapha Sannipata explains the cyclic nature of the disease—episodes of acute pain followed by stiffness or numbness. This pattern corresponds to alternating phases of neural irritation and inflammatory congestion. The integrative approach using MRI imaging allows objective measurement of therapeutic effects. For example, after Basti therapy or Swedana, MRI often shows reduced edema and improved nerve space, validating Ayurveda's curative potential. Therefore, the discussion establishes that both systems—Ayurveda and modern medicine—are not contradictory but complementary. Ayurveda interprets the disorder functionally and energetically; modern imaging interprets it structurally and visually. Together, they present a complete understanding of Vata-Kaphaja Gridhrasi.

## **8. Conclusion**

Vata-Kaphaja Gridhrasi epitomizes the integrative potential between Ayurveda and modern radiology. The condition, described centuries ago as radiating pain from Sphika to Pada, aligns perfectly with the modern concept of sciatica caused by lumbosacral nerve root compression. MRI provides visible evidence of the same anatomical regions and tissue structures—disc, nerve, ligament, and bone—that Ayurveda describes through Asthi, Majja, Snayu, and Kandara Dushti. Thus, the Ayurvedic Samprapti and MRI findings are two perspectives of one reality—functional and structural aspects of the same pathology. From a therapeutic standpoint, the correlation enables rational, evidence-based planning. Vata Shamana therapies like Snehana, Swedana, and Basti target degeneration, while Kapha Hara measures relieve stiffness and congestion. MRI-guided evaluation helps monitor progress objectively, proving Ayurveda's effectiveness not only symptomatically but also anatomically. The integration of classical theory and modern imaging strengthens the credibility of Ayurvedic diagnostics and demonstrates its precision in localizing pathology even without advanced technology. It highlights the scientific depth of Rachana Sharir and the ancient physicians' keen anatomical understanding. Future research should involve longitudinal MRI studies before and after Ayurvedic interventions to document measurable structural recovery. Such data will bridge traditional wisdom and biomedical evidence, encouraging acceptance of integrative frameworks in both clinical and academic platforms. Ultimately, Vata-Kaphaja Gridhrasi symbolizes the harmony of two paradigms—Ayurveda revealing the subtle functional imbalances, and MRI illustrating the gross anatomical correlates. Together, they establish a holistic understanding of human health and disease that is both timeless and contemporary.

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**Citation:** Dr. Prachi Dashendra Rahangdale and Dr Madhuri Mahadarh 2025. "LUMBO-SACRAL SPINE CHANGES IN VATA-KAPHAJA GRIDHRASI: AN INTEGRATIVE REVIEW OF AYURVEDA, PATHOPHYSIOLOGY AND MRI-BASED EVIDENCE". *International Journal of Academic Research*, 12(4): 62-66.

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