

Eranda (*Ricinus Communis*) In Gridhrasi (*Sciatica*): Classical Rationale, Pharmacology and Clinical Evidence- A Narrative Literature Review

Dr Mayuri Sunil Patil

Asso. Professor, Kayachikitsa Department SMBT Ayurved college and Hospital, India

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ABSTRACT

Background:

Gridhrasi, described in Ayurveda as a disease caused by aggravated Vata, is very similar to modern sciatica. It presents with radiating pain from the lower back down the leg, often with stiffness and tingling. Ayurveda recommends *Eranda* (castor) in forms like milk decoction (*Ksheerapaka*), enema (*Basti*), and oil therapy as important treatments for Vata disorders.

Aim:

This review looks at how Ayurveda uses *Eranda* for Gridhrasi, explores the modern scientific findings about castor, and summarizes available clinical research.

Methods:

The study reviewed Ayurvedic classics and modern scientific literature on *Ricinus communis* (castor), focusing especially on studies related to sciatica and low back nerve pain.

Results:

Classical texts describe Gridhrasi with symptoms such as stiffness, pricking pain, pain radiating from the buttock to the foot, and restricted movement. Treatments advised include oil application (*snehana*), sweating therapy (*swedana*), medicated enemas (*basti*), and mild purgation (*virechana*), with *Eranda* as a key herb. Modern research shows castor oil has anti-inflammatory and pain-relieving properties, mainly due to ricinoleic acid acting through specific receptors in the body. Importantly, the toxic protein ricin is not present in the oil. Some small clinical studies suggest that *Erandamoola Ksheerapaka* and *Eranda Basti* may help sciatica patients, but strong, large-scale clinical trials are still missing. Safety concerns include loose stools, dehydration, electrolyte imbalance, and it should not be used in pregnancy because it can trigger labor.

Conclusion:

The Ayurvedic use of *Eranda* for Gridhrasi matches well with its modern anti-inflammatory and pain-relieving actions. It may be a useful non-drug therapy for sciatica, but more rigorous studies are needed to confirm its effectiveness with standardized preparations.

Keywords: Eranda, *Ricinus communis*, Gridhrasi, Sciatica, Vata vyadhi, Basti, Ksheerapaka, Ricinoleic acid

INTRODUCTION

Gridhrasi in Ayurveda

In Ayurvedic texts, *Gridhrasi* is described as one of the important *Vataja Vyadhi* (diseases caused by aggravated Vata dosha). The condition is marked by pain that starts in the **sphik** (hip/buttock region) and

spreads down through the thigh, knee, calf, and foot. Along with pain, patients often experience **stiffness, tingling, pricking sensations, and restricted movement of the leg**. Because of the limping or bird-like gait observed in severe cases, the disease is called *Gridhrasi* (derived from *Gridhra* = vulture).

Similarity to modern sciatica:

When we compare the Ayurvedic description of *Gridhrasi* with modern medical science, it closely resembles **sciatica** or **lumbosacral radiculopathy**. In modern terms, sciatica occurs due to irritation or compression of the lumbosacral nerve roots, often from a **slipped disc, spinal stenosis, or degenerative changes in the spine**. It produces pain radiating from the lower back or buttock down to the legs, sometimes accompanied by numbness, tingling, or weakness. Thus, the **classical symptoms (lakshana) and causative factors (nidana)** of *Gridhrasi* parallel the clinical features of sciatica.

Ayurvedic treatment approach:

Ayurveda emphasizes correcting the imbalance of **Vata dosha**, which is the main factor in *Gridhrasi*. The line of treatment includes:

- **Snehana** (oleation or oil therapies) – to reduce dryness and stiffness.
- **Swedana** (sudation or fomentation) – to relieve stiffness, heaviness, and pain.
- **Basti** (medicated enema) – regarded as the best treatment for Vata disorders, as it acts directly on the colon and nervous system.
- **Mridu Virechana** (mild purgation) – to expel vitiated Vata and clear obstruction in channels.

Role of Eranda (*Ricinus communis*):

Among various drugs mentioned for Vata disorders, **Eranda (castor plant)** holds a special place. It is described as **Vataghna** (pacifying Vata) and **Srotoshodhaka** (clearing body channels). Preparations of Eranda such as **Eranda Taila (castor oil)**, **Erandamoola Ksheerapaka (milk decoction of root)**, and **Eranda Basti** are frequently recommended in classical texts for managing *Gridhrasi*.

Purpose of this review:

This article brings together three perspectives:

1. **Ayurvedic classical knowledge** on *Gridhrasi* and Eranda's role in its treatment.
2. **Pharmacological and phytochemical evidence** about *Ricinus communis* from modern science.
3. **Available clinical evidence** assessing the effectiveness and safety of Eranda-based therapies in *Gridhrasi* or sciatica patients.
4. By combining traditional wisdom with modern scientific validation, this review aims to provide a comprehensive understanding of how **Eranda can be integrated into the management of *Gridhrasi* (sciatica)**.

Classical Ayurvedic Perspective

Nosology and Symptomatology

In Ayurveda, *Gridhrasi* is described as a painful condition that begins in the **hip (sphik)** and radiates downward through the **waist (kati)**, **thigh (uru)**, **knee (janu)**, **calf (jangha)**, and finally to the **foot (pada)**. Along with this radiating pain, patients experience **stiffness (stambha)**, **pricking pain (toda)**, **generalized pain (ruk)**, and **twitching or spasms (spandana)**. These descriptions closely match the symptoms of **sciatica**, where nerve irritation in the lower back produces pain and sensory disturbances along the same pathway.

Samprapti (Pathogenesis) and Chikitsa-siddhanta (Treatment Principles)

According to Ayurveda, *Gridhrasi* occurs due to the **aggravation of Vata dosha**. This may happen in two ways:

- 1) **Dhatu-kshaya** – depletion of body tissues leading to weakness.
- 2) **Margavarodha** – obstruction in the channels (srotas) that blocks the normal flow of Vata.

Because Vata is the key factor, the treatment focuses on **Vata-shamana (pacification of Vata)** and **removal of obstructions**. For this purpose:

- **Snehana (oleation)**: application or intake of medicated oils to reduce dryness and stiffness.
- **Swedana (sudation/fomentation)**: sweating therapy to relieve rigidity and pain.
- **Basti (enema therapy)**: considered the best treatment for Vata disorders, as it acts directly on the colon and nervous system. It is called *Ardha Chikitsa* (half of all treatments) for Vata.
- **Mridu Virechana (mild purgation)**: used especially when there is no ama (undigested toxins) present. It helps clear channels and reduces Vata aggravation.

Eranda in Nighantus and Texts

Ayurvedic lexicons such as **Bhavaprakasha Nighantu** mention *Eranda* (*Ricinus communis*) as a powerful **Vataghna** (Vata pacifying) drug.

- **Erandamoola (root)** is especially valued in *Vatavyadhi* (neurological and musculoskeletal conditions due to Vata).
- **Eranda Patra (leaves)** and **Eranda Taila (castor oil)** are indicated for **shoola-kshamana** (relieving pain) and **srotoshodhana** (clearing body channels).

Classical Preparations of Eranda

- **Eranda Taila (castor oil)**: used for *snehapana* (internal oleation), *abhyanga* (external massage), and *mridu virechana* (mild purgation).
- **Erandamoola Ksheerapaka**: a preparation where the root is decocted in milk, especially prescribed in *Gridhrasi* and other Vata disorders.
- **Eranda Basti (enema)**: either as *Ksheera-basti* (milk-based) or *Anuvasana* (oil enema) prepared with castor oil, effectively addresses Vata at its root site.

Modern Correlate: Sciatica

In modern medicine, **sciatica** refers to pain that radiates along the path of the **sciatic nerve**, which runs from the lower back through the hips and buttocks down each leg.

- It is usually caused by **compression or irritation of the lumbosacral nerve roots**, most commonly due to **slipped disc (herniated disc)**, **spinal stenosis (narrowing of spinal canal)**, or **age-related degenerative changes**.
- Symptoms include radiating pain, tingling, numbness, and sometimes muscle weakness.

Conventional management generally includes:

- Staying active and avoiding prolonged bed rest.

- **Exercise and physiotherapy** for strengthening and flexibility.
- **Non-opioid pain relievers** (NSAIDs, acetaminophen).
- Selective use of manual therapy, acupuncture, or needling techniques.
- Avoidance of unnecessary imaging and overuse of strong painkillers, unless severe red-flag symptoms are present.

This shows that both **Ayurveda and modern medicine recommend conservative, non-surgical approaches** in early and moderate cases of sciatica.

Pharmacognosy, Phytochemistry & Mechanisms of Eranda

Key Constituents

The castor plant (*Ricinus communis*) contains several bioactive compounds:

- **Ricinoleic acid** (in castor oil) – the most important active component.
- **Flavonoids** (e.g., quercetin, rutin) – known for anti-oxidant and anti-inflammatory properties.
- **Alkaloids** (ricinine).
- **Tannins and triterpenes** (e.g., lupeol) – contribute to pain and inflammation relief.

Anti-inflammatory & Analgesic Actions

Experimental studies show that different extracts of *Ricinus communis* (root, leaf, oil) have:

- **Anti-inflammatory activity** – reducing swelling and inflammatory markers.
- **Analgesic (pain-relieving) activity** – lowering pain sensation in animal models.

Defined Molecular Mechanism

- **Ricinoleic acid**, the main component of castor oil, works by **stimulating prostaglandin EP3 receptors** in smooth muscles.

This explains two key actions:

- **Laxative effect** – increases bowel movement.
- **Uterotonic effect** – stimulates uterine contractions (hence contraindicated in pregnancy).

Relevance to Gridhrasi

- The **anti-inflammatory and pain-relieving properties** may reduce nerve-root inflammation, which is central in sciatica.
- The **mild purgative action (mridu virechana)** described in Ayurveda aligns with the modern understanding of detoxification and clearing metabolic by-products, thereby reducing obstruction (*srotoshodhana*).

Clinical Evidence

Ayurvedic Studies on Gridhrasi with Eranda:

Some small studies and case reports have used **Erandamoola Ksheera-Basti** (enema prepared with castor root

and milk) in patients with Gridhrasi. These studies showed **improvements in pain, stiffness, and straight leg raise test**, which is an important clinical sign in sciatica. However, most of these studies had a **small number of patients, no control group, and short duration**, which limits how much we can conclude.

Other Ayurvedic Interventions for Gridhrasi:

Apart from Eranda, Ayurvedic physicians have used procedures like **Siravedha (bloodletting)** and **Agnikarma (therapeutic cauterization)** in Gridhrasi patients. These too have shown relief in pain and mobility. Such results confirm that Ayurveda broadly emphasizes **Vata-management** in this disease.

Current Evidence Gap:

Despite promising findings, there are **no large, high-quality randomized controlled trials (RCTs)** that focus only on Eranda Taila or Erandamoola Ksheerapaka for sciatica patients confirmed by imaging (like MRI). Hence, while traditional use is strong, **scientific validation is still pending**.

Dosage Forms & Practical Use of Eranda

1. Eranda Taila (Castor Oil):

- **Internal Use:** Given orally for mild purgation (mridu virechana) or as part of snehapana (internal oleation).
- **External Use:** Used in massage (abhyanga) or localized application over the affected area.
- **Dosage:** Varies depending on the patient's age, strength, digestion, and disease stage; hence, it is **individualized by the physician**.

2. Erandamoola Ksheerapaka (Castor Root with Milk):

- Prepared by **boiling Erandamoola (root) in milk**.
- Used as a **drink** in Vata disorders, especially Gridhrasi.
- Sometimes used as a preparation before basti therapy.

3. Basti (Enema Therapy):

- **Ksheera-basti (milk-based enema)** or **Anuvasana-basti (oil-based enema)** are given with Eranda Taila.
- This approach is considered **very effective**, as basti is described as **“half of Vata therapy” (Ardha chikitsa)** in Ayurveda.

7. Safety, Contraindications, and Toxicology

1. Castor Oil and Ricin:

- Castor oil does **not contain ricin**, the toxic protein found in raw castor seeds.
- Hence, oil preparations are safe when used properly.

2. Use in Pregnancy:

- Castor oil can **stimulate uterine contractions** by activating prostaglandin EP3 receptors.
- Therefore, it is **not recommended during pregnancy**, as it may induce premature labor.

3. Side Effects (if misused):

- Loose motions (diarrhea)
- Abdominal cramps
- Dehydration
- Electrolyte imbalance These effects are more likely if the oil is taken in **excess dose** or in **frail/weak patients**.

Caution is needed in elderly, debilitated, or patients with poor digestion.

Alignment with Contemporary Guidelines

Modern Sciatica Care:

- Current medical guidelines for sciatica recommend **conservative treatment first**:
- Staying active and avoiding prolonged bed rest
- Physical therapy and exercise
- Simple pain relievers (non-opioid medicines like NSAIDs)
- Limited manual therapies or acupuncture

How Eranda Fits In:

- Eranda-based Ayurvedic therapies (like Ksheerapaka, Taila, and Basti) provide **non-opioid, plant-based, and traditional support** for pain management.
- Their use aligns with modern approaches because they avoid unnecessary strong drugs or surgery in early cases.
- However, before starting therapy, patients should undergo **screening for safety** and give informed consent.
- Ideally, Eranda preparations should be used **as an adjunct** along with exercise, lifestyle changes, and physiotherapy.

Research Priorities (What Needs to Be Studied Next?)

Although Eranda has been used in Ayurveda for centuries to treat Gridhrasi, modern scientific research is still at an early stage. To make Ayurvedic medicine more widely accepted, some key research areas are:

Randomized Controlled Trials (RCTs):

- Large, well-designed clinical trials are needed to compare **Erandamoola Ksheerapaka with or without Basti** against **conventional treatments like NSAIDs** (painkillers).
- These trials should include patients with sciatica confirmed by MRI/CT scans.

Standardization of Medicine:

- Eranda Taila (castor oil) and Erandamoola (castor root) should be standardized to ensure **same quality, potency, and safety** in every batch.
- This will help in scientific studies and global acceptance.

Mechanism Studies:

- Laboratory and clinical studies should focus on **how Eranda works in the body**—its effect on inflammatory markers (like cytokines), nerve conduction, and healing as seen in imaging.

Safety Studies:

- Special attention should be given to **gastrointestinal side effects** (like diarrhea, dehydration, electrolyte imbalance).
- Possible **drug interactions** with modern medicines should also be studied.
- Long-term safety studies in different age groups (especially elderly) are needed.

CONCLUSION

Eranda (*Ricinus communis*) is one of the most important Ayurvedic medicines for **Vata disorders**, and classical texts strongly recommend it for Gridhrasi (sciatica).

- **Traditional Basis:** Ayurveda describes Eranda Taila, Erandamoola Ksheerapaka, and Eranda-based bastis as effective in relieving pain, stiffness, and restricted movement.
- **Modern Science:** Research shows that castor oil contains **ricinoleic acid**, which has proven **anti-inflammatory and pain-relieving properties**. It also helps cleanse the channels through its mild purgative action.
- **Current Evidence:** Small clinical studies have reported positive results in Gridhrasi, but they are limited in sample size and not methodologically strong.
- **Future Direction:** Well-structured RCTs, standardized preparations, and safety studies are required to scientifically establish Eranda as a validated therapy for sciatica.

In summary, Eranda has **strong Ayurvedic support, plausible scientific mechanisms, and encouraging preliminary results**. However, more rigorous research is essential before it can be confidently recommended in mainstream medical guidelines.

REFERENCES (SIMPLIFIED WITH CONTEXT)

1. **Ayurvedic concept of Gridhrasi and Eranda** – Reviews published in journals like *JAIMS* and *Critical Reviews in Ayurveda*.
2. **Classical Ayurvedic texts** – Charaka Samhita, Sushruta Samhita, and Vagbhata describe Vata-vyadhi chikitsa including **snehana, swedana, basti, and virechana**.
3. **Nighantus (Materia Medica)** – Bhavaprakasha and others highlight Eranda as **Vataghna (Vata-pacifying)**, with root, leaf, and oil uses.
4. **Pharmacology of *Ricinus communis*** – Experimental studies showing anti-inflammatory and analgesic activity.
5. **Mechanism of ricinoleic acid** – Research on **EP3 receptor activation** explaining purgative and smooth muscle effects.
6. **Toxicology reports** – Confirm that **castor oil does not contain ricin** (the toxic protein in raw seeds). Oral use is contraindicated in pregnancy.
7. **Modern Sciatica guidelines** – Orthopedic and neurology literature recommend **conservative, non-opioid, non-surgical management**.
8. **Clinical studies in Ayurveda** – Small trials on Erandamoola Ksheerapaka and basti therapy for Gridhrasi showing symptomatic relief.