



ISSN 2456-3110

Vol 9 · Issue 1

January 2024

Journal of
**Ayurveda and Integrated
Medical Sciences**

www.jaims.in

JAIMS

An International Journal for Researches in Ayurveda and Allied Sciences



Maharshi Charaka
Ayurveda

Indexed

Promising effect of Ayurveda in the management of *Gridhrasi* - A Case Study

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ABSTRACT

Nowadays, the most prevalent ailment affecting human body is backache, which has an impact on everyday routine. Human life styles have altered dramatically over time due to over exertion, improper sitting and standing postures in work place, jerky movements during travel etc invariably causes jerks to the spinal column leading to Sciatica etc. spinal disorders. Its prevalence is 1.2% to 43% Worldwide which affects person's age group of 30-60 years. Currently it seen in younger adults also with equal ratio in both genders. In *Ayurveda* it can be correlated with *Gridhrasi*. The word *Gridhrasi* is derived from - *Gridhrampi Syathi*. So, which means the disease where gait of the affected person resembles like a *Gridhra* which means Vulture. *Gridhra* is a bird which is fond of meat. This bird pierces the meat with its beak and pulls out; which gives severe pain to the prey similarly this type of pain is felt by affected person hence it is named as *Gridhrasi*. The present case is single case study which is about 20 days, where patient came with complaints of pain and stiffness in lower back region radiating to right lower leg, difficulty to sit normally, etc. since 3 months. The Patient was treated with peculiar combinations like only *Niruhabasti*, *Kukkutanda Sweda* along with *Shamanaushadhis* and reported with evident result in this case.

Key words: *Gridhrasi*, *Sciatica*, *Sciatic Neuritis*, *Sciatic Neuralgia*, *Lumbar Radiculopathy*, *Ayurveda*

INTRODUCTION

Excessively aggravated *Vata* enters the *Kandaras* of the ankles & toes causing *Kshepa* (inability to extend) in the thighs is known as *Ghridhrasi*.^[1] The patient walks like a vulture (*Gridhra*) and hence the name is given.^[2]

Ghridhrasi is comparable to various terms of the conventional system of medicine as sciatica, sciatic neuritis, sciatic neuralgia, or lumbar radiculopathy. It is a set of symptoms rather than a disease; including pain

caused by general compression or irritation of one of the five lumbar nerve roots of each sciatic nerve or by compression or irritation of the left or right or both the sciatic nerves. Symptoms include lower back pain, buttock pain, numbness, pain or weakness in various parts of the leg & foot. Other symptoms include pins and needles sensation, tingling sensation, and difficulty in moving or controlling the leg. Typically, symptoms only manifest on the side of the body. The pain may radiate above the knee but does not always. This type of pain along the distribution of the sciatic nerve occurs due to inflammation of the sciatic nerve.

Types - There are two types of *Gridhrasi*

1. *Vataja Ghridhrasi*
2. *Vata-Kaphaja Gridhrasi*

Vataja Gridhrasi

There is severe pricking pain and bending of the body on the affected side. There are contractions and stiffness in the pelvic region, thigh and knee.

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Submission Date: 05/11/2023 Accepted Date: 17/12/2023

Access this article online

Quick Response Code



Website: www.jaims.in

DOI: 10.21760/jaims.9.1.43

Vata-Kaphaja Gridhrasi

There is decreased digestive power, drowsiness, heaviness, increased salivation and loss of appetite.

Samprapti Ghataka

- *Dosha: Vata* - especially *Vyana* and *Kapha*.
- *Dushya: Rasa, Rakta, Mamsa, Meda, Asthi, Majja*.
- *Srotas: Rasavaha, Raktavaha, Mamsavaha, Medovaha, Asthivaha, Majjavaha*.
- *Srotodushti Prakara: Sanga, Margavarodha*.
- *Agni: Jatharagnimandya* and *Dhatwagnimandya*.
- *Aama: Jatharagnimandyajanya* and *Dhatwagnimandyajanya*.
- *Udbhavasthana: Pakwashaya*.
- *Sanchara Sthana: Rasayanis of Apanakshetra*.
- *Adhithana: Kandaras of Parshni and Pratyanguli* and *Sphik, Kati, Uru, Jangha, Pada*.
- *Vyakta Rupa: Ruka, Toda, Stambha* in *Adhosakthi, Uru, Jangha* and *Pada, Arochaka, Tandra, Gaurava*.

Sadhya-Asadhyata

Acharya Sushruta considers the *Vata Vyadhi* as *Mahagada*^[3] due to its tendency to be fatal or incurable. *Acharya Vagbhata* calls it *Maharoga*.^[4] Most of the *Acharyas* are of the opinion that *Vata Vyadhi* generally is very difficult to cure.

It may be said that *Gridhrasi* in which the vitiated *Vata* is seated in *Majja Dhatu* is accompanied with *Khuddavata, Angashosha* and *Stambha* etc. which may or may not be cured even after careful treatment. But if this condition occurs in a strong person, is of recent origin and without any associated disease then it is curable.

Upadrava

Shotha, Suptata, Bhagna, Kampa Adhmana is *Updrava* of *Vata Vyadhi*.

If *Vata Vyadhi* exist with any of these *Upadras* then in such patient disease come under the heading, *Asadhya* (incurable) category.

Chikitsa^[5]

- **Shodhana Chikitsa** - In all stages of *Gridhrasi*, expect in *Aamavastha*, oil preparations are suggested, both externally and internally. But in *Aama* and *Vata Kapha Gridhrasi*, *Sneha Prayoga* will not give any positive result. In this, *Ruksha Prayoga* should be advised. Generally, *Snehana, Swedana, Vamana, Virechana, Niruha* and *Anuvasana Basti, Siravedha, Raktamokshana, Agnikarma* and *Shastrakarma* are advised by different *Acharyas*.
- *Acharya Charaka* explained *Siravedha* at the site of *Antara-Kandara-Gulpha*. *Acharya Sushruta* and *Vagbhata* indicated *Siravedha* at four *Angula* above and four *Angula* below at the site of the knee joint. *Acharya Chakradatta* explained the site of *Agnikarma* in *Gridhrasi* as *Pada Kanistika Anguli* (little toe of the affected leg).
- *Shamana Chikitsa* - *Vedanashamaka Chikitsa, Vatahara Chikitsa, Kaphahara Chikitsa, Deepana & Pachana Chikitsa*.
- *Ajamodadi Vati, Vartaka Yoga, Eranda Phala Payasa, Rasanadi Gutika, Shephalika Kwatha,*

Sciatica Neuralgia

It is pain in the distribution of the sciatic nerve or its component nerve. The exact cause of sciatica is not fully understood but is commonly thought to involve slipped or herniated discs.^[6]

The syndrome now has been accepted as caused by lumbar disc prolapse in the maximum cases. But there are some predisposing factors towards herniation such as degenerative changes in the vertebral column and a history of some kind of trauma in 90% of cases.^[7] Age, sex and climate also play role but sciatica can occur due to true sciatic neuritis.

The causes are grossly divided in the following manner.

- True Sciatic Neuritis: Leprosy, Polyarteritis nodosa, nerve injury due to injections, trauma, Post-herpetic neuralgia, Mechanical Pressure on the Nerves or Roots, or Referred Pain.

- In the Spinal Cord: Tumours of cauda equina, Arachnoiditis, rarely Thrombosis Haemorrhage, or infection irritating meninges of the cord.
- In the Cord Space: Protruded intervertebral disc, Extramedullary tumors.
- In the Vertebral Column: Arthritis, Tuberculosis, Spondylolisthesis, Ankylosing spondylitis, Primary bone tumors, Secondary carcinoma.
- In the Back: Fibrositis of posterior sacral ligaments. Compression is where the nerve leave the pelvis in those who lie immobile on a hard surface for a long time (a form of Saturday night palsy).
- In the Thigh and Buttock: Fibrositis, Sacro-sciatic band, Hip joint or Sacroiliac Joint disease, Neurofibroma, Haemorrhage within or adjacent to nerve sheath in blood dyscrasia and anticoagulant therapy, Misplaced therapeutic injection.
- In the Pelvis: Sacroiliac arthritis or strain. Hip disease, Infection of prostate or female genital tract, rectal impactions, of lumbosacral plexus.

Symptoms

Sciatica doesn't have symptoms. It is a symptom itself consisting of pain, burning, tingling electric shock-like feelings in the path of the sciatic nerve. It usually results from injury to fibres that make up the sciatic nerve. So, in sciatica, there is a pain that begins in the back and radiates through the buttock, thigh, leg, calf, and occasionally the foot.

Spinal symptoms - A reduction of the normal lordosis in the region of the lumbar spine or even a lumbar kyphosis. Sometimes there may be even the appearance of lumbar scoliosis.

- Diminished mobility of the lumbar spine. The patient may be asked to bend backward and forward without flexion at the knee joints. Pain particularly localized over the region of the displaced disc; tenderness, on percussion.
- Muscle spasms and rigidity

Radicular symptoms - Presence of Laseague's and straight leg raising (S.L.R.) signs or any test purported to stretch the sciatic nerve.

- Tenderness over the course of the sciatic nerve after it exits from the pelvis.
- Sciatic pain aggravated by coughing, sneezing, straining, or pressure on the jugular veins; sometimes by movements of the head, trunk, or legs.
- Paraesthesia in the region of the affected dermatomes.
- Sensory loss in the region of the distribution of the nerve roots pressed upon.
- Paresis or weakness of dorsiflexion of the foot on the affected side in the case of displacement of L4, L5 disc and weakness of planter flexion, when the disc between L5 and S1 is herniated.

Management

Acute Stage

- Rest in bed with boards under the mattress to support the back.
- Analgesics as required.
- Heat
- Injection of 2% procaine or of lignocaine into the sciatic nerve or epidural space or tender spots in the sacroiliac region may give dramatic relief.

Chronic Stage - Management will depend on the cause.

Conservative Management

- High Sciatica
- Injection of tender spots with 5% procaine.
- Counter-irritation, heat, and massage.
- Epidural injection 10 ml. of 2% novocaine, followed by 80 to 100 ml. of normal saline.

Operative Treatment

Indications

1. Acute and incapacitating symptoms not relieved by rest in bed or even an immobilization plaster jacket.
2. Evidence of large prolapse causing pressure on cauda equina, or clinical evidence of severe root

compressions shown by marked motor and sensory changes. The operation consists of hemilaminectomy, removal of the protrusion, and curetting out nuclear material from the central part of the disc. It is the most effective cure.

Sciatica due To Inflammation of Muscular and Fascial Structures- Rest, local application of heat, and massage. If tender nodules, injection with 2% procaine solution. Treatment of sepsis.

CASE STUDY

History of present illness

A 40 year old female patient visited the OPD with complaints of severe pain in low back (lumbar region) radiating towards right thigh, calf region and down to the foot, difficulty and pain while walking and sitting, stiffness in lumbar region and numbness in the right leg since 3 months. Patient underwent several allopathy treatments but got only temporarily relief. Then patient came to the Kayachikitsa OPD of Ayurveda Mahavidyalaya, Hubballi, Karnataka on 04/07/2023. The patient was admitted on the same day for further Ayurvedic treatment.

Table 1: Chief complaints of patient.

Chief complaints	Duration
1. Sever pain in low back and radiating towards thigh, calf and down to foot.	3 months
2. Stiffness in lumbar region.	
3. Pricking sensation.	
4. Difficulty and pain while walking and sitting.	

Past History:

- No any specific surgical history.
- No any history of major illness.
- Menstrual history - Regular
- Obstetric history - P₅L₅ (All FTND - Last delivery-5½ years back - Twins)

General Examination:

Patient well oriented to time and place. Difficulty to sit.

BP: 110/80 mmhg

PR: 76/min

RR: 18/min

RS: B/L NVBS

CVS: S₁ & S₂ heard

P/A: Soft, Non-tender

Weight: 86 kgs

Temp.: 97.6 F

Table 2: Ashtavidha Pariksha

Nadi	76/min
Mala	2 times/day
Mutra	6-7 times/day
Jihva	Lipta
Shabda	Prakruta
Sparsha	Prakruta
Druk	Prakruta
Akruti	Madhyama

Neurological examination

Table 3: Neurological assessment.

Tests	Right leg	Left leg
Straight leg raise test	Negative	Negative
FAIR test	Negative	Negative
FABER's test	Negative	Negative
Coin test - Positive (+++)		

Nidana Panchaka

Nidana (Causative factors): Aatichankraman (excessive walking), prolonged continuous standing and heavy weight lifting.

Poorvarupa (Prodromal symptoms): Pain and stiffness in lumbar and low back region.

Roopa (manifestation): Pain in the lumbar region radiating towards the right thigh, calf region and down to the foot, difficulty in walking and sitting, numbness in the right leg.

Samprapti (Pathogenesis)

Nidana Sevana



Vitiation of *Vata Dosha*



Formation of *Rukshata, Kharata* in lumbar vertebra



Loss of functioning of *Shleshaka Kapha*



Decrease in the functioning of joints in lumbar region



Disc herniation and compression of nerve i.e.,
“*Prakshobha of Vatavahini Nadi*”



Radiating pain towards low back, gluteal, right leg
with tingling numbness.

Samprapti Ghataka

- *Dosha: Vata* - especially *Vyana* and *Kapha*.
- *Dushya: Rasa, Rakta, Mamsa, Meda, Asthi, Majja*.
- *Srotas: Rasavaha, Raktavaha, Mamsavaha, Medovaha, Asthivaha, Majjavaha*.
- *Srotodushti Prakara: Sanga, Margavarodha*.
- *Agni: Jatharagnimandya* and *Dhatwagnimandya*.
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- *Udbhavasthana: Pakwashaya*.
- *Sanchara Sthana: Rasayanis of Apanakshetra*.
- *Adhithana: Kandaras of Parshni and Pratyanguli* and *Sphik, Kati, Uru, Jangha, Pada*.

- *Vyakta Rupa: Ruka, Toda, Stambha* in *Adhosakthi, Uru, Jangha* and *Pada, Arochaka, Tandra, Gaurava*.

Investigation

Patient already had reports of MRI lumbar-spine of recent date 21/02/2023.

L₄-L₅ : Mild diffuse disc bulge indenting over the thecal sac with no significant nerve root compression.

L₅-S₁ : Broad-based central and right paracentral disc protrusion indenting over thecal sac, causing b/l mild to moderate neural foraminal narrowing (Rt.>Lt.), impinging Rt. Traversing and abutting Rt. Exiting nerve roots with mild spinal canal stenosis (11.8mm).

Chikitsa (Treatment)

Chikitsa of *Gridhrasi* disease as per *Ayurvedokta Samhita* involves *Basti* with *Snehana, Swedana* i.e., *Shodhan Chikitsa* and *Shamana Chikitsa* which includes internal medicines.

Treatment plan

In this case study, the treatment plan for patient includes, *Valuka Sweda* and *Nadi Sweda* for 2 days, only *Nadi sweda* for 5 days, *Mrudu Abhyanga* with *Kottamchukkadi Taila* and *Nadi Sweda* followed by *Niruha Basti* for 8 days.

Details of treatment:

Abhyanga: Abhyanga was done on complete body with *Kottamchukkadi Taila* for 20 min. daily.

Swedana: Nadi Sweda was given to the lumbar and right leg region for about 20 minutes.

Basti (Therapeutic enema)

Niruha Basti was given for 8 days.

Table 4: Ingredients of Niruha Basti.

<i>Sahacharadi Kashaya</i>	75 ml
<i>Rasna Saptaka Kashaya</i>	75 ml
<i>Guggulu Tiktaka Ghruta</i>	30 ml
<i>Kalka Dravyas - Shatahva Churna</i>	10 gms
<i>Guduchi Churna</i>	10 gms

Ashvagandha Churna	10 gms
Musta Churna	10 gms
Saindhava Lavana	5 gms
Madhu	10 ml

Table 5: Schedule of Yoga Basti.

Days	1	2	3	4	5	6	7	8
Type of Basti	N	N	N	N	N	N	N	N

OBSERVATION

Table 6: Neurological assessment

Tests	Right leg	Left leg
Straight leg raise test	Negative	Negative
FAIR test	Negative	Negative
FABER's test	Negative	Negative
Coin test - Positive (+)		

DISCUSSION

In this present case, the disease *Gridhrasi* can be considered as *Vata-Kaphanubandhi* due to presence of *Gouravata*, *Tandra*, *Aruchi* along with *Ruja*, *Stambha Laxanas* etc. With proper understanding of *Dosha*, *Dhatu*, *Nidana*, *Laxana*, *Avastha*, *Rogibala*, *Rogabala* a different *Chikitsa Krama* is adopted viz *Mridu Sthanika Abhyanga* with *Nadi Sweda* is adopted due to involvement of *Vata* and *Kapha Dosha*; and later only *Niruha Basti* is advised and later with *Kukkutanda Pinda Sweda*.

Probable action of procedure and medications:

Abhyanga (Mridu Sthanika) - This helps to mobilize the *Dosha*, soften the body and mitigates *Vata*.

Kottam Chukkadi Taila - acts as *Shoola-Shothahara* and hence used in *Vatavyadhis* like *Gridhrasi*, *Amavata*, or in any neuropathic pain.

Nadi Sweda - It helps to relieve the stiffness of body & coldness and induces sweating and improves blood circulation and mitigates *Kapha-Vata*.

Basti - As *Basti* is considered as *Ardha Chikitsa* it mitigates *Tridoshas*. *Basti* potentiate the *Agni* thus decreases *Agnimandyata*, which inturn lowers the synthesis of *Ama*. It cleanses the channels and eliminates *Mala* and *Dushita Dosha*. Here the benefits of *Amapachana*, *Kapha Shodhana* and *Srotovishodhana* are facilitated by the *Ushna*, *Teekshna* and *Ruksha Guna* of *Basti*.

Niruha Basti - The *Niruha Dravyas* improves the *Vata Gati* thus helps in expulsion of the morbid *Kapha* and *Pitta* from *Pakvashaya*. *Madhu* added in *Basti* by its *Lekhana Karma* eliminates the *Doshas* which are causing *Upalepa* in *Srotas*. *Saindhava Lavana* does *Dosha Sravana* with its *Sukshma Guna* carries the *Dravya* to minute parts and disintegrates the *Avarodha*. *Guggulu Tiktaka Ghrita - Ruksha*, *Khara Guna* of *Tikta Dravya* along with *Ghrita Guna* nourishes the *Asthi Dhatu* and acts as *Vata-Shotha-Shoolahara* and thus indicated in Arthritis, rigidity, loss of function, degenerative disease of bones and joints. *Kalka Dravyas* used in *Basti - Guduchi* - it portrays strong anti-inflammatory and pain-relieving qualities thus acts as anti-arthritis. *Ashwagandha* - contains *Withaferin- A* and *Withnone* which helps in anti-inflammatory action. *Shatapushpa* is an essential ingredient in *Niruha Basti*, which aids in digestion and transferring of phytochemicals of *Basti* into the system of body and it acts as *Vatahara*. *Musta* helps in well absorption of medicine by its *Agnideepana* and *Amapachana* properties. *Kashaya - Sahacharadi Kashaya* - It acts as *Shoola-Shotha Hara* in joints and improves muscle strength. *Rasna Saptaka Kashaya* - It contains the 7 *Dravyas* i.e., *Rasna*, *Amrita*, *Devadaru*, *Aragwadha*, *Gokshura*, *Punarnava*, *Eranda* combinedly they act as *Shothahara* and *Shoolahara* and this *Yoga* is indicated in almost all type of *Vatavyadhi*.

Shephaleeka Patra Kashaya - by its properties of *Tikta Rasa*, *Laghu* & *Ruksha Guna*, *Ushna Veerya* & *Katu Vipaka* helps to achieve *Kapha-Vatagnata Karma*. Thus, helps in this *Vatakaphanubandhi Gridhrasi*.

Kaishora Guggulu - helps in reducing *Shotha* in Joint disorders by removing toxins from joints, it acts as *Rakta Shodhaka* thus improves blood circulation strengthens the joints and muscles.

Yogaraja Guggulu - It has very tremendous effect in all types of *Vatavyadhi*: mainly acts on *Asthi-Majjagata* conditions. It acts as *Tridoshashamaka*, *Balya*, *Agnideepaka* etc.

Gokshuradi Guggulu - It is superiorly acts as *Shothahara* by its diuretic property & also acts as analgesic, antiarthritic and muscle relaxant.

Lohasava - helpful in Anemia; in addition, with helps in reducing swelling, inflammation and also improves digestion quickly.

Ajamodadi Churna - helps in reducing in *Amavata* *Ruja*, *Sandhipeda* etc. *Vata Rogas* mainly indicated in diseases like *Gridhrasi*, *Vishwachi* etc. and balances *Kapha* and *Vata*.

Kukkutanda Sweda - *Kukktanda Sweda* provides the dual benefits of *Snehana* and *Swedana* along with nourishing action of the bodily tissues. *Kukkutanda* itself has *Brihmana* and *Snigdha Guna* assists the action of *Snehana* which strengthens nerves by *Balya Guna* and removes nerve compression by *Snigdha Guna*. By *Ushna*, *Teekshna Guna* results in *Ushnata* thus causes vaso-dilation of localized blood vessels which further stimulate *Bhrajaka Pitta* & resulting in expulsion of *mala* by *Swedajanana*. Thus, further helps in absorption of active principles of *Dravyas* and nourishes the Body.

Thus, these treatment procedures are effective and plays key role in managing certain *Vatavyadhi*, muscle wasting etc. conditions by playing crucial function in Neurotransmission and Bone integrity.

CONCLUSION

Gridhrasi is a *Vata Pradhana Vyadhi* with involvement *Kapha Dosh*. Hence the selection of *Basti Kalpa* which includes only *Niruha Basti* along with other treatment modality has shown markedly result in this case of *Gridhrasi*. So, it can be concluded that there is no match for *Basti* in management of *Gridhrasi*. It's not

only glorified as *Ardha Chikitsa*; considered as *Poorna Chikitsa* in *Vatavyadhis*. As *Vatavyadhis* are manageable multiple sitting of treatment essential for fruitful condition of the Patient.

REFERENCES

1. Charaka, Agnivesha. Caraka Samhita- Hindi commentary, Edited by Vaidya Vidyadhar Shukla and Prof. Ravi Datta Tripathi, Vol. 1, Sutrastana, Chapter no 25, Yajjah Purusiyam, Verse no 40, Choukhambha Sanskrit Pratishthan-Delhi, Reprint – 2019, page no- 337-339.
2. Charaka, Agnivesha. Caraka Samhita- Hindi commentary, Edited by Vaidya Vidyadhar Shukla and Prof. Ravi Datta Tripathi, Vol. 1, Sutrastana, Chapter no 25, Yajjah Purusiyam, Verse no 40, Choukhambha Sanskrit Pratishthan-Delhi, Reprint – 2019, page no- 337-339.
3. Sushruta. Sushruta Samhita with Nibandha Sangraha Commentary of Shri Dalhanacharya, edited by Vidhya Jadavji Trikamji Acharya from beginning to 9th adhyaya of Chikitsa sthana & rest by Narayanrama Acharya Kavyatirtha, published by Chaukhambha Surbharti Prakashan, Edition 2008.
4. Vagbhata. Astanga Hridayam of Shrimad Vagbhata edited with Nirmala Indu commentary by Bramhananda Tripathi, published by Chaukhambha Sanskrit Pratishthan Delhi, Edition 1999.
5. Charaka, Agnivesha. Caraka Samhita- Hindi commentary, Edited by Vaidya Vidyadhar Shukla and Prof. Ravi Datta Tripathi, Vol. 1, Sutrastana, Chapter no 25, Yajjah Purusiyam, Verse no 40, Choukhambha Sanskrit Pratishthan-Delhi, Reprint – 2019, page no- 337-339.
6. Anthony S. Fauci. [et al.], Harrisons principle of internal medicine, Vol 2, part 13 , Chapter 48, 17th edition .
7. <https://en.wikipedia.org/wiki/Sciatica>

How to cite this article: Vibha M. Joshi, Triveni D, A. S. Prashanth. Promising effect of Ayurveda in the management of Gridhrasi - A Case Study. J Ayurveda Integr Med Sci 2024;1:275-281.
<http://dx.doi.org/10.21760/jaims.9.1.43>

Source of Support: Nil, **Conflict of Interest:** None declared.
