



Review Article

**STUDY OF GRIDHRASI AS SCIATICA AND ROLE OF SCIATICA NERVE (GRIDHRASI)**

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**ABSTRACT**

*Gridhrasi* is such an entity enumerated into eighty types of *Nanatmaja Vataj Vyadhies*. It is characterized by its distinct pain emerging from buttock and goes towards the heel of afflicted area. On the basis of symptom complex it can be broadly correlated with disease sciatica in modern science. Ayurveda is a simple practical science of life and its principles are universally applicable to each individual for day to day life. Ayurveda speaks of every elements and facts of human life. Each and every human being desires to live happy and comfortable life but it is not possible owing to multiple factors related with changing lifestyle, environmental factors etc. As the advancement of busy professional and social life improper sitting posture in offices, factories, continuous and over exertion, jerk movements during travelling and sports. All these factors create undue pressure to the spinal cord and play a chief role in producing low back ache and Sciatica.

**KEYWORDS:** *Nanatmaja Vataj Vyadhies*, Posture, Sciatica, *Gridhrasi*.

**INTRODUCTION**

*Gridhrasi* is derived from the word or name of a bird *Gridhra*. *Gridhra* is a bird who is fond of meat and eat flesh of an animal in such a fashion that he deeply pierce his beak in the flesh then draws it forcefully, such type of pain in *Gridhrasi* and hence the name<sup>[1]</sup>. Further as in this disease the patient walks like bird *Gridhra* and his legs become tense and slightly curved so due to the resemblance with gait of Vulture. According to Acharya Sushruta, *Gridhrasi* is a condition in which *Vata* invading the *Kandaras* of ankle and toes producing *Kshepan* in the thighs this disease is known as *Gridhrasi*. According to Acharya Charaka, in *Gridhrasi Nitamba* (gluteal region), *Kati* (lumbar), *Purushtha* (posterior of thigh), *Uro* (knee), *Jangha* (calf) and *Pada* (foot) are affected<sup>[2]</sup>.

**Nidana of Gridhrasi**

In classics of Ayurveda disease are grouped under two main heading.

1. *Samanaja*
2. *Nanatmaja*

*Nanatmaja* disease results due to vitiation of a particular *Dosha* and only *Gridhrasi* is such an entity enumerated under eighty types of *Nanatmaja Vataj Vyadhies*<sup>[3]</sup>. As for as *Nidana* are concerned there is no description available regarding it, but *Gridhrasi* is said to be *Nanatmaja vata Vyadhi* hence general

*Vataprakopakanidana* can be taken as *Gridhrasi nidana*<sup>[4]</sup>.

**Lakshna of Gridhrasi**

*Lakshana* of *Gridhrasi* are following:

1. *Vedana*
2. *Pada stambha*
3. *Ruka*
4. *Toda*
5. *Muhuspandanam*
6. *Sakthanah Kshepam Nigriharniyata*
7. *Janu Madhya Vedana*
8. *Uru Madhya Vedana*
9. *Kati MadhyaVedana*
10. *Dehapravakrata*
11. *Saphurana*
12. *Suptata*
13. *Tandra*
14. *Gaurava*
15. *Arochaka*
16. *Agnimandya*
17. *Mukhapraseka*
18. *Bhaktadwesh*
19. *Staimitya*

The cardinal signs and symptoms of *Gridhrasi* are *Ruk* (pain), *Toda* (pricking sensation), *Muhuspandhana* (tingling sensation) *Stambha* stiffness in the *Sphik, Kati, Uru, Janu, Jangha* and *Pada* in order and *Sakthikshepingraha*, restriction in upward lifting of lower limbs<sup>[5]</sup>.

#### **Chiktsa of Gridhrasi**

According to Acharya Charakabasti, *Sira vedha* and *Agni karma* have mentioned as line of treatment.<sup>[6]</sup> Acharya Sushruta has mentioned general *Vatavyadhi Chiktsa* and many oral preparation have been described in classics<sup>[7]</sup> while *Chakrapani* has mentioned as surgical procedure for *Gridhrasi*<sup>[8]</sup>. Along with all these *Snehasvedna* and *Virechna* are also indicated for the management of disease *Gridhrasi* on the basis of symptom complex the disease *Gridhrasi* can be correlated with disease sciatica in modern science<sup>[9]</sup>. Symptomatology of sciatica is same as given in *Charaka Samhita*. Sciatica Syndrome is rather than a disease resulting due to neuritis of sciatic nerve.<sup>[10]</sup>

Acharya Charaka has mentioned that in *Gridhrasi* there is severe pain from *Kati-pradesha* to *Padanguli* (foot).<sup>[11]</sup> In various *Samhita* of Ayurveda there are lots of references regarding *Gridhrasi* and elaborated as a separate disease with specific management.

- *Siravyadha*
- *Agni karma*
- *Basti karma*
- *Snehna*
- *Swedana*
- Oral medication

#### **Sciatica**

Sciatica is the term given to pain down the leg where the nerve passes through the lower bone of spine i.e., lumbar vertebrae the causative factor of sciatica are mostly degenerative arthritis and disc prolapse. There is irritation at 4<sup>th</sup>, 5<sup>th</sup> Lumbar and 1<sup>st</sup> sacral roots which forms the sciatic nerve, causes the sciatic syndrome due to main pathological lesions in the intervertebral disc of lumbosacral region<sup>[12]</sup>. The severity of pain makes an individual wretched. Sciatic Syndrome is rather a disease resulting due to neuritis of Sciatic nerve. Sciatic nerve is the largest nerve in human body. Previously this disease was mentioned as 'Cotugno' disease.

Tumour of Cauda equina, Protrusion of intervertebral disc, Pott's disease spondylosis, Osteomyelites, Fracture of Lumbar Vertebra, Neurofibroma, Tuberculosis, Gluteal bursitis, neoplasm of Sacrum and pelvic bones and

penetrating injury to Sciatic Nerve are known as chief causes of Sciatica<sup>[13]</sup>.

#### **Sciatic Nerve**

The sciatic nerves are the largest as well as longest in the body reaching about the size of your thumb in diameter and running down the back of each leg, each sciatic nerve is composed of five smaller nerves that leave the spinal cord from lower spinal column join together and then travel down each leg<sup>[14]</sup>. It then divides into many smaller nerves that travel to the thigh, knee, calf, ankle, foot and toes.

When these nerves are irritated or affected by the inflammation of nearby soft tissues, doctor refers to this as sciatica. The sciatic nerve - a branch of the Sacral Plexus (L4 L5 S1 S2 S3), the largest in diameter in the body measure at its commencement 2cm in breadth. It passes through the greater sciatic foramen below the piriformis, descends between the greater trochanter, of the femur and the tuboristy of the ischium and along the back of thigh to about its lower one third where it divides into two large branches named tibial and common peroneal nerves. Sciatic nerve also gives off articular and muscular branches.

**Tibial Nerve:** The larger terminal branch of the sciatic nerve, the tibial nerve arises in the lower third of the thigh. It runs downward through the popliteal fossa lying first on the lateral side of the popliteal artery then posterior to it and finally medial to it. The popliteal vein lies in between the nerve and artery throughout its course. The nerve enters the posterior compartment of the leg by passing beneath the soleus muscle

Its branches are as below:

- **Cutaneous:** The sural nerve descends between the two heads of the gastrocnemius muscle and is usually joined by the sural communicating branch of personal nerve. Numerous small branches arises from the sural nerve to supply the skin of the calf and the back of the lateral malleolus and is distributed to the skin along the lateral border of the foot and the later all side of the little toe.
- **Muscular:** Muscular branches of tibial nerve supply both heads of the gastrocnemius and the plantaris, soleus and popliteus.
- **Articular:** These branches supply the knee joint.

The smaller term in a branch of the sciatic nerve- the common peroneal nerve arise in the lower third of the thigh it runs downwards through the popliteal fossa, closely following the medial border of the blacks muscle. It leaves the fossa by crossing superficially the lateral head of the gastrocnemius muscle. It then passes behind the head of the fibula,

winds lateral around the neck of the bone, pierces the peroneus longus muscle and divides into two terminal branches.

- 1) Superficial peroneal nerve.
- 2) Deep peroneal nerve

**Sciatica Nerve Distribution:-** L4-5(S1-2-3 )

**Motor distribution**

- The hamstring in the thigh.
- The superficial and deep muscles of the calf by the medial popliteal and posterior tibial nerve.
- The sole muscle by the medial and lateral plantar nerve.
- The anterior compartment by the deep peroneal.

**Sensory distribution**

- The entire sole.
- The dorsum of the foot.
- The lateral aspect of leg and lateral half of calf. The medial side of the calf and foot are paired. If the posterior cutaneous nerve of the thigh is involved there is loss of sensation at the back of thigh.

**Causes of Sciatica:** The cause of sciatica can be grouped under the two broad headings viz.,

- Affections of the nerve roots, lumbo-sacral plexus and sciatic nerve.
- Extraneural disease.

**Affection of the nerve root lumbosacral plexus and sciatic nerve:**

- **Cauda Equina:** Neurofibroma or other tumor, backward protrusion of intervertebral disc, irritation of the meninges by hemorrhage infection and hydatid cyst, postherpetic neuralgia.
- Lumbar vertebral- disc lesions spondylosis, pott's disease, osteomyelitis, tumours, fracture, dislocation and spondylolisthesis.
- Lumbo sacral plexus- cysts and tumours of pelvic adnexa and rectum the uterus during labour pelvic inflammation.
- Sciatic nerve- Neurofibroma penetrating injuries.

**Extraneural disease**

S.No.	Sign and Symptoms	L5 Root	S1Root
1	Pain	Lateral thigh, calf outer ankle	Posterior of leg to heel
2	Paraesthesia	Outer calf dorsum of foot big toe	Outer edge of foot and two lateral toes
3	Reflex Change	None	Ankle jerk decreased or absent
4	Sensory loss	Dorsum of foot between first and second toe, lateral part of calf	Outer edge of foot outer sole, heel two lateral toes posterior of calf
5	Hypotonia	Peroneal muscles Hamstring buttock muscles	Calf muscles

- Sacroiliac joints subluxation tuberculosis and non-tubercular arthritis ankylosing spondylitis and other spondylarthropathies.
- Sacrum and pelvic bones- Primary and secondary neoplasm.
- Soft tissue- Gluteal bursitis.

**Prodromal Symptoms:** The onset of sciatica may be preceded by recurrent attacks of pain in the lumbar region often sufficient severity to produce locking of the back in the flexed position.

**Symptoms of Sciatica:** Lumbago- lumbar pain and its onset is subacute and disease is preceded by lumbar pain due to injury, strain or fall there may be latent interval of days or even weeks.

After two or three days pain in lumbar spine the pain radiate down to back of one leg from the buttock to the ankle. Pain in the back, aching in character and intense by spinal movements, pain deep in the buttock and thigh also aching or gnawing in character and influenced by posture of the limb pain radiating to the leg and foot and momentarily increased by coughing and sneezing when the first sacral root is compressed the pain was radiated to the outer border of the foot when the pressure is upon the fifth lumbar root pain spreads from the outer aspect of the leg to the inner border of the foot. In general, pain is intensified by stooping, sitting and walking. The patient being usually most comfortable lying in the bed on the sound side with the slight flexion of affected leg at the hip and knee there is often a feeling of numbness, heaviness or deadness in the leg especially along the outer border there are muscular hypotonia and slight wasting not only of the muscular supplied by the sciatic nerve but also the gluteal and sometimes of all the muscle of lower limb. There is tenderness on pressure in buttock and thigh, straight leg raising is limited by pain and stretching the sciatica nerve by extending the knee with hip, flexed cause severe pain 'Lasegue' sign.

Protrusion of disc in between L5 and S1 between L4 and L5 is common hence effects of compression of nerve roots are enlisted below:

6	Motor Weakness	Dorsal flexion and eversion at ankle, dorsiflexion of big toe, knee flexion slightly	Plantar flexion at ankle eversion at slight in knee and heap flexion
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### Investigations for Sciatica

- 1) Imaging of spine
- 2) CSF test
- 3) Electromyography
- 4) C.T. Scan
- 5) MRI
- 6) Histopathological examination of disc

### Management of Sciatica According to Modern Point of View

#### A) Symptomatic sciatica

##### 1) Acute Stage

- a) Rest in bed with necessary support to the back.
- b) Analgesics as required
- c) Heat
- d) Injection of 2% procaine or Lignocaine in the Sciatica nerve or epidural space to give dramatic relief.

##### 2) Chronic Stage: Management will depend on cause.

#### In high sciatica

- a) Injection with 5% procaine
- b) Outer irritation, heat massage
- c) Active and passive exercise

#### In low Sciatica

- a) Stretching of Sciatic nerve
- b) Injection of novocaine into or as near as possible to the sheath of the nerve.

#### Conservative Treatment

- a) Complete rest in bed supine for 3 to 6 weeks
- b) When pain relieved, plaster jacket to immobilize the lumbar spine for 3 to 6 months.
- c) A lumbar corset worn at all time during the day.

#### CONCLUSION

In sciatica, there is pain in distribution of sciatic nerve which begins in lower back and radiate through posterior aspect of the thigh and calf and to the outer border of foot. *Gridhrasi* is included under 80 types of *Nanatmaja Vata Vikara*. Sushruta has emphasized the involvement of *Antara Kandara Gulpha* producing the disease *Gridhrasi*. Acharya Sushruta has described treatment *Vatavyadhi Chikitsa*. Acharya Charaka has described *Siravyadha*, *Basti Karma* and *Agnikarma* in the management of *Gridhrasi*.

Sciatica pain (*Gridhrasi*) is a painful condition and mainly *Vata Vyadhi chikitsa* has been advocated. *Gridhrasi* is commonly seen in society as prominent problem. Sciatic nerve located in buttock behind the hip joint is responsible for the sciatic pain. The sciatic

nerve may be effected any where during travel in the leg clinical feature are mainly low back ache, radiculopathy (distribution of sciatic nerve). Conservation treatment, surgery is indicated in modern and *Vata vyadhiher chikitsa* is indicated in Ayurveda. Lumbar Spine is the site of most expensive orthopedic problem for world. It is the seat of miracles. The central nervous system as well as autonomic nervous system work through the spine and entire nervous system. Sciatic nerve located in buttock behind the hip joint is responsible for the sciatica pain. Sciatica or Sciatica Syndrome a condition described in modern medicine resembles with *Gridhrasi*.

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