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Pathophysiological Understanding and Management of Sciatica in Gridhrasi W.S.R. in the Context of Holistic Approach

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Abstract
Gridhrasi can be compared to the condition known as Sciatica in modern terminology based on its symptoms. Sciatica is characterised by a particular type of pain that is distributed throughout the sciatic nerve and is frequently linked to lumbago. The disease Gridhrasi, which is frequently observed in society and was highlighted by Charak in the second century B.C. as a significant issue, causes the patient to become unable to perform his daily tasks due to excruciating pain from Kati-Pradesha to Padanguli (foot). It is unnecessary to mention that the patient's options in other medical sciences for treating sciatica are limited to symptomatic relief and a few surgical techniques that carry a risk of negative side effects.

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Introduction

The most common Ayurvedic parasurgical procedures nowadays are Agnikarma, Siravyadha, Ksharakarma, and Jalaukavacharana. Nidana is not specifically mentioned in any Ayurvedic literature, although it is included in Vataja Nanatmaja Vyadhi, along with generic Vata Prakopaka Hetus, which should be taken into account. Gridhrasi is a part of Vataja and Nanatmaja Vyadhi, and Acharya Charaka also regarded it as a Mahagada.

By using the Siravyadha technique, the primary symptoms of Gridhrasi, such as Toda, Spandana, Graha, and Supti, are naturally eased. According to a source mentioned in the Sushruta Samhita, siravyadha has been performed at the locations of four Angulas above or below Janu Marma. There are many treatment options for sciatica in contemporary medicine, including

- conservative approach
- Physiotherapy
- an epidural steroid injection
- Radicular perifilament infiltration

Each of them has its own drawbacks and negative effects. On the other hand, the poor, especially in developing nations, cannot afford any of these management instruments. There are many different ways employed as a line of treatment in Ayurvedic scriptures, some of which are efficient, straightforward, secure, and affordable for the patients, like

- Agnikarma
- Snehana
- Swedana

In this condition, according to Acharya Sushruta, ailments do not respond as rapidly to Snehana and Lepanadi measures. In order to get better results, Siravyadha uses emergency management (Su. Sha. 8/22).Similar to Basti in Kayachikitsa, Siravyadha is likewise regarded as half of the therapeutic measure in Shalya Tantra (Su. Sha. 8/23).Among the several techniques outlined in Indian Classical Surgery, Siravyadha has been one of the most widely used. At one point, bleeding was employed in emergency situations even in straightforward cases of high fever in France due to the popularity of this surgical procedure.

Review of Literature

'Gridhra' is the root of the term 'Gridhrasi'. The word "Gridhra" is made up of the syllables "Gridhu" dhatu "Karan" pratyaya, "Susudhangridhibhyaha Kran," and finally, "K & N." The Gridhu dhatu is Sanskrit for wanting something and pursuing it with greed.

Modern Era

- The first time a disc tumour was removed from sciatica patients was by Dandy (1929).
- Myelography was initially explained in 1922.
- Finally, Barr (1932) identified the herniated lumbar disc as the cause of sciatica.
- Barr (1934) offered surgery as a form of disc excision therapy.
- Enzymatic disc dissolution was proposed by Layman Smith in 1963.
- Ageing, according to Kirkaldy-Willis, is the main theory behind disc disease.

Pathological Aspect

Overindulgence in dravyas, which have vata-like characteristics, causes vata to become vitiated. Depending on the level of vitiation and the location where the doshas are localised, the vitiated vata can lead to a variety of ailments in the body.In the classics, various aetiological causes of vata vitiation are noted. Ruksha consumption, sheeta consumption, laghu ahara, excessive sexual behaviour, prajagarana, upavasa, excessive activity, physical trauma, excessive walking, vegadharana, carrying large loads, etc. are significant. The vataprakopaka hetus are seasonal variants such as sheeta, varsha ritu, jirnannakala, etc.

Gridhrasi and Vata

One of the 80 nanatmaja vatavyadhis, or ailments only brought on by vitiated vata, is gridhrasi. The disease's primary symptoms are hence vataprakopaka lakshanas, such as shoola, supti, stambha, etc. Other than Harita's reference of it in vyanaprakopaja illnesses, there is no direct mention of apana and vyana vayu involvement in Gridhrasi. The sthanasamshraya that affects the leg's kandara occurs in Gridhrasi in the sphikaa, kati, and pristha. Here, it's important to note the anatomical significance of these structures.

Sphika: It is categorised as a pratyanga and is the posterior muscular portion of the kati.14

Sakthi: Sakthi begins at Kati and goes all the way to Padanguli.15 The term "sakthi" refers to the entire lower limb.

Janu: Janu is the sandhi of Jangha and Uru.16 Knee joint, that is.

Jangha: The region of the leg between Janu and the Gulf is known as Jangha.17 It's referred to as Pratyanga.18

Uru: The leg's portion that runs from vankshana sandhi to janu is referred to as uru. 19 It is the adhashakha pratyanga.

Discussion

SLR (Straight Leg Raising) Test

The patient is instructed to lie entirely relaxed. Now raise the entire leg while gripping the knee with one hand, extending the knee joint fully. Sciatica causes a limitation of rising, with the degree of the constraint roughly proportionate to the intensity of the pain. In comparison to impurely skeletal diseases, restriction of SLR is typically significantly more pronounced in lesions involving the nerve roots.

This test provides a valuable indication of the severity of the sciatica, and the ability to stand up straight without experiencing any pain is a useful objective indicator of progress.

Laseague's Sign

When the leg is extended at the knee joint after the knee and hip joints have been flexed to about 900, the patient feels discomfort in the thigh along the path of the sciatic nerve. One can passively dorsiflex the foot or even the great toe at this point, which causes the pain to worsen.

Browstring Sign

This symptom is a crucial marker of underlying tension or discomfort. SLR is performed by the examiner until the patient feels some discomfort in the sciatic nerve's distribution. At this position, the patient's knee can flex and their foot can rest on the examiner's shoulder. The popliteal nerve in the popliteal fossa must be subjected to abrupt, forceful pressure during the test.

Investigations

A thorough history and physical examination are typically followed by a clinical diagnosis of sciatica. Expensive testing, such as an MRI or CT scan, is only performed when a patient has serious neurological impairment or does not improve after receiving conservative treatment.

1. Laboratory Investigations

An erythrocyte sedimentation rate (ESR) test is particularly useful for screening for myeloma or infection. serum protein, calcium phosphate, uric acid, alkaline phosphate, acid phosphate, tuberculin test, rheumatoid arthritis factor test, cerebrospinal fluid examination (C.S.F. proteins raised in intra spinal neoplasm), and serum protein electrophoresis (myeloma proteins) are all measurements that should be taken.

2. C.T. Scan

When paired with the injection of water soluble contrast material, computed tomography (C.T.) offers excellent definition of a narrow canal, destructive lesions of the posterior elements and vertebral bodies, or the presence of para-vertebral soft tissue mass. Disc herniation can also be detected using appropriate computerised reconstruction techniques, often even more precisely than the myelogram. For enhanced lesion delineation, a C.T. scan and myelogram can be combined (C.T. Myelogam).

Others

The H & F response (H-reflexes of the tibialis posterior nerve and F-reflexes of the peroneus profundus nerve) and electromyography (E.M.G.) can be used to confirm proximal motor and sensory nerve root illness. To identify an aortic aneurysm or any pelvic or rectal pathology, abdominal and pelvic ultrasound or CT scan, aortic arteriography, intravenous pyelography, and barium enema may be required.

Management

It's critical to seek treatment right away for sciatica, no matter the underlying cause. Too many people wait in the hope that the discomfort will go gone or improve on its own. But when an issue first arises, treatment is frequently simpler. Many

people suffer needlessly by waiting until the discomfort is intolerable. This delay in getting therapy could lead to long-term nerve damage.

Heat: The use of ultrasound, short- or microwave diathermy, hot packs, and infrared radiation can all produce deep heat. The use of deep heat and moist heat is more efficient.
Heat causes the blood flow to the injured or inflamed tissue to rise, removing toxic metabolites and supplying the area with oxygen. Additionally, it improves collagen tissue's capacity for stretching. Heat should not be used during the acute phase of injury because it increases vasodilatation, which could lead to an increase in edoema.
Traction: On the basis of the idea that loosening the muscles and separating the vertebrae will benefit the disc, traction has also been used to treat low back pain. According to one theory, separating the vertebra will cause a "dislocated" disc to reappear in the disc space.
Exercise: After the acute phase of pain has passed, progressive workouts are very helpful in restoring strength to weaker muscles and improving the mobility of the damaged area of the spine. Stretching exercises are the only ones used in the early phases of training because they reduce muscle spasm and increase spine mobility without putting too much load on the spine. Later, as the patient is able to tolerate it, muscle-strengthening exercises are gradually added. In order to keep the spine in the least stressful physiological posture while sitting, standing, walking, and engaging in other activities, it is crucial to have strong abdominal, back, pelvic, and lower extremity muscles. This will stop the discs from further degenerating.
The William's flexion programme and the Mckenzie's hyperextension programme are the two well-liked low back floor workout routines. The William programme aims to increase abdominal strength and lessen lumbar lordosis, which in turn helps to enlarge the exiting foramen and open the facet joints. The Mckenzie programme aims to increase paraspinal muscular strength and move the nucleus pulpous forward in the disc cavity to lessen strain on the nerve roots and posterior annulus. An efficient extension programme "centralises" pain, i.e., lessens leg discomfort and heightens back pain in the centre. The William programme can then be used to alleviate this pain transmission. The McKenzie programme is more effective for leg pain that is aggravated by sitting, and the William flexion programme is more useful for back discomfort that occurs with walking and standing.

Transcutaneous electrical nerve stimulation (TENS): A TENS device is fastened to the patient's right belt line and stimulates electrode pads on the patient's right thigh and low back. In the CNS, it theoretically closes gates. Transcutaneous electrical stimulation of peripheral nerves causes the larger, faster-conducting myelinated A-alpha nerve fibres to get activated, preventing the smaller, slower-conducting unmyelinated C-fibers from transmitting their nociceptor impulses.

Prognosis
In moderate cases of sciatica, the stage of intense pain only lasts for 2–3 weeks, and the patient recovers with conservative treatment in one or two months. However, he may occasionally suffer hurting along the path of the nerve, and stooping may still cause some discomfort in the afflicted leg. Relapses are highly prevalent despite symptomatic improvement since the underlying pathology, such as disc protrusion, osteophytes, etc., seldom changes without surgical intervention.
Relapses can happen often in some situations, although they can also happen ten years or more after the initial episode. In less common but more severe cases, there may be a small improvement after a few weeks, but the disease subsequently stabilises and the patient continues to experience terrible pain that changes in intensity and is prolonged for months or years at a time. These patients are frequently rendered helpless by their illness, which motivates them to look for alternative treatments and miraculous cures.
Surgery provides good results in a properly chosen patient population, with 90% of patients experiencing a significant improvement. Selection of the right patients is crucial. Relapses can be observed in 10% of individuals following surgery, nevertheless. It is then quite challenging to handle such circumstances. In these situations, a further MRI, C.T., or myelogram is performed to check for disc disease or rupture at any other levels, or whether all of the disc material may not have been removed during the prior procedure. One does not know if the pain is brought on by an injury from the initial rupture or after the surgery if there is radiculopathy evidence but no disc material or scar tissue. Then, a number of possible reasons are suggested, including lumbar arachnoiditis, facet syndrome, radiculitis, etc.

- **Maintain Proper Posture When you Sit**

The seat of a good chair shouldn't irritate your knees or thighs' backs while yet supporting your hips comfortably. A rolled towel or pillow should be positioned behind your back if the chair does not accommodate the lower spine's natural curve. When working at a computer, position your chair so that your feet are flat on the floor and your arms rest on your desk or the chair's arms with your elbows at a straight angle. Even a little walk around your office will suffice as a break. When you are driving, make sure your seat is adjusted so that your knees and hips are at the same height, and move it forward to prevent reaching too far for the pedals.

- **Use Good body Mechanics**

Maintaining the health of your back can be greatly aided by being mindful of how you stand, carry heavy objects, and even how you sleep. This is due to the fact that bad posture strains your back, causing weariness as well as stress on your joints and nerves. If you stand for a long time, take occasional breaks to put your foot up on a stool or small box. Hold reading material at eye level while standing as opposed to bending forward. Make a plan for where and how you'll get there before lifting anything heavy. To make your legs perform the lifting, bend at the knees rather than the back. Carry things that are near to your body, ideally at waist level.
To avoid lifting things over your head or bending down too much, if at all possible, set the object down on a surface that is between shoulder and knee height. Avoid twisting at the waist. Instead, swivel your feet to make a turn. When handling big objects, employ caution because weariness can make you move clumsily. The riskiest loads are heavy, so be aware of your limits. For the optimal sleeping position, don't try to lift anything you feel is above your strength; instead, get a firm mattress. Use pillows to support yourself, but avoid using one that tilts your head up sharply.

Conclusion
Gridhrasi is a painful issue that society frequently sees as being major. Regarding Nidana and Samprapti, no specific

references are made. The disease's manifestation is crucially influenced by Vyana Vayu. Acute low back pain is a common occurrence that almost everyone will go through at least once in their lifetime. These episodes can be excruciatingly painful and create a great deal of disturbance in a person's life, but the most of them will pass with time (between 2 and 12 weeks), and if they don't, the pain may diffuse and radiate into both legs, which can result in Gridhrasi.

In contemporary terms, gridhrasi is comparable to sciatica. Sciatica treatment should be viewed as an integral part of daily life rather than an after-work activity. Different back workouts are very helpful for both disease prevention and treatment. Regular blood, urine, and stool tests as well as a plain x-ray of the LS spine taken after treatment typically show no notable changes. M.R.I., a spine CT scan, and other radiological studies should be done to precisely see the changes.

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