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Management of sciatica (*gridhrasi*) through ayurvedic interventions - a literary review

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Abstract

Sciatica (or sciatic neuritis) is a set of symptoms, including pain that may be caused by either general compression or irritation of one of five spinal nerve roots and sciatic nerve. The symptoms of *Gridhrasi* can be compared with Sciatica, in which a form of radicular pain in the peripheral nervous system is defined. *Gridhrasi* (Sciatica) is one out of eighty types of *Vata Nanatmaja Roga* under severe distressing syndromes among all neurological disorders. This review's objective was to determine the applicability of the *Ayurveda* treatment modalities in *Gridhrasi Vyadhi* (Sciatica). All the ancient *Ayurveda* texts and modern databases were selected as data sources for this study. The present study exhibited the five types of exploratory diagnostic methods and principles of treatment modalities according to ancient works of literature. *Ayurveda*, *Snehana*, *Swedana*, *Vamana*, *Virechana*, *Basti*, *Siravedha*, *Raktamokshana*, *Viddha Karma*, and *Agnikarma* were found to be the most common primary treatment procedures for Sciatica.

Keywords: *Ayurveda* treatment, Sciatica, Lower back pain.

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Introduction

Sciatica is a painful condition in which pain commences from the buttock and radiates into the lower extremity along its posterior or lateral aspect, more or less comprising the area of distribution of the sciatic nerve. In addition to pain and radiation to the thighs, there may be numbness, muscular weakness, tingling sensation, and difficulty moving or controlling the leg. Sciatica is the highest in the third decade of life span worldwide with an incidence [1]. Pain associated with

lower back pain between 5% to 10 % will develop into chronic low back pain [2]. Prevalence is higher in males than females at a young age. Compared to middle age prevalence of Sciatica, females are higher than males due to menopause [3]. In *Ayurveda*, *Gridhrasi* is a similar disease condition that can be correlated with Sciatica. Thus, it affects almost the working population and is the most expensive benign medical complaint producing loss and absenteeism. The symptoms of *Gridhrasi* mentioned in ancient texts are *Ruka* (Pain), *Toda* (Pricking sensation), *Stambha* (Stiffness), and *Muhuspandana* (Twisting in the gluteal region) in *Kati*(waist), *Prishtha* (Low Back), *Uru* (thigh), *Janu* (Knee), *Janga* (Calf), and *Pada*(toes) [4]. The common diagnostic tool for determining Sciatica is the straight leg raising test. *Acharya Susruta* described it thousands

of years ago as *Sakthikshepa Nigraha* (Restriction against the lifting of the leg causes pain) [5]. When *Kandara* (ligaments) were affected by *Vata Dosha*, it contributed to restricting the hip joint's flexion.

The aim of focusing on the treatment is to reduce pain and other disease-related conditions. Treatments mentioned in contemporary medicine include conservative measures, analgesics, traction methods, and epidural injections, spine surgical interventions such as laminectomy and disc excision, automated percutaneous discectomy, foraminotomy hemilaminectomy, microscopic discectomy, ligamentotaxis, nucleoplasty, and Laser discectomy. Combined with several irreversible side effects, these treatments include spinal cord damage and even death. Ayurveda describes managing such kinds of diseases through conservative measures. These treatments have been recommended in *Ayurveda* to preserve health and overcome the disease. It can be done through various holistic treatment modalities with minimal adverse effects. Thus, this review's objective was to explore the applicability of the ancient knowledge of *Ayurvedic* treatments on different pathogenesis of Sciatica.

Methods: Information sources

Main Ayurvedic texts of *Susruta Samhita*, *Charaka Samhita*, *Astanga Hridaya Samhita*, *Astanga Sangraha*, *Bhava Prakashaya*, *Sharangadara Samhita*, *Baishajjaya*, *Ratnawali*, *Madhava Nidana*, *Chakradatta*, *Bhela Samhitha* were reviewed for the treatment modalities for *Gridhrasi* (Sciatica).

Search strategy

The search was done for treatment modalities bringing forward, including low back pain related including, *Gridhrasi*, *Sciatica*, *Khalli*, *Raktavata*, *Siragata Vata*, *Urusthamba*, *Snayugata Vata*, *Dhatugata Vata*, *Siravedha*, and *Raktamokshana*. PubMed, Scopus, Cochrane, Ayush portal, and google scholar were searched to access data. The keywords used for the search include Pain, *Shul*, *Gridhrasi*, and *Sciatica*, management through *Ayurveda*.

Selection process

Relevant information related to *Sciatica* and *Gridhrasi* was collected, recorded, analyzed, and reported.

Samprapthi (Pathogenesis of Sciatica According to the Ayurveda concept) [6].

According to *Ayurveda*, the pathogenesis of *Gridhrasi* can be described in four main ways of *Amothpattijanita Khavaigunya* (Defective Metabolic power),

Margavarodhita Janya Khavaigunya (Channel obstruction, I.e Intervertebral disc prolapse), *Abhighataja Khavaigunya* (Traumatic injuries to the lumbo-sacral vertebra, I.e wedge fractures), and *Kshaya Janya Khavaigunya* (Degenerative changes of lumbosacral vertebra). It is briefly described in flow chart 1.

Pathological components of *Gridhrasi* (*Samprapthi Ghataka*) [7].

Observation are presented in table 1.

Table 1- Pathological Components of Sciatica

Se no	<i>Samprapthi Ghataka</i>	Contents
1.	<i>Dosha</i>	<i>Vata</i> (mainly <i>Apana</i> and <i>Vyana Vayu</i>), <i>Kapha</i>
2.	<i>Dushya</i>	<i>Rasa</i> , <i>Rakta</i> , <i>Mamsa</i> , <i>Asthi</i> , <i>Majja</i> , <i>Kandara</i> , <i>Sira</i> , <i>Snayu</i>
3.	<i>Srotasa</i>	<i>Raktavaha</i> , <i>Mamsa</i> , <i>Meda</i> , <i>Asthi</i> , <i>Sira</i> , <i>Kandara</i> , <i>Snayu</i>
4.	<i>Srothodusti Prakara</i>	<i>Sanga</i> , <i>Margavarodha</i>
5.	<i>Agni</i>	<i>Jatharagni</i> and <i>Dhatwagni</i>
6.	<i>Utthavastana</i>	<i>Pakvashaya</i>
7.	<i>Sancarasthana</i>	<i>Rasayani</i>
8.	<i>Adhithana</i>	<i>Kandara</i> of <i>Parsani</i> , <i>Pratyyanguli</i> and <i>Prstha</i> , <i>Kati</i> , <i>Sphik</i> , <i>Janu</i> , <i>Janga</i> , <i>Pada</i>
9.	<i>Rogamarga</i>	<i>Madhyama</i>
10.	<i>Vyakti</i>	<i>Ruka</i> , <i>Toda</i> , <i>Stambha</i> in <i>Uru</i> , <i>Janu</i> , <i>Janga</i> , <i>Pada</i> , <i>Arochaka</i> , <i>Tandra</i> , <i>Gaurava</i>
11.	<i>Bheda</i>	<i>Khanjata</i> and <i>Pangutha</i>
12.	<i>Yakta Rupa</i>	<i>Chirakari</i>

Samprapthi Vighatana (desist of pathogenesis) is the preliminary concept of the *Chikithsa* (treatment). Recognizing the underlying pathology and conducting the therapeutic intervention using an individualistic approach is much more effective than following a generalized treatment protocol. Observations of treatment availability based on individualized pathology are presented in table 2.

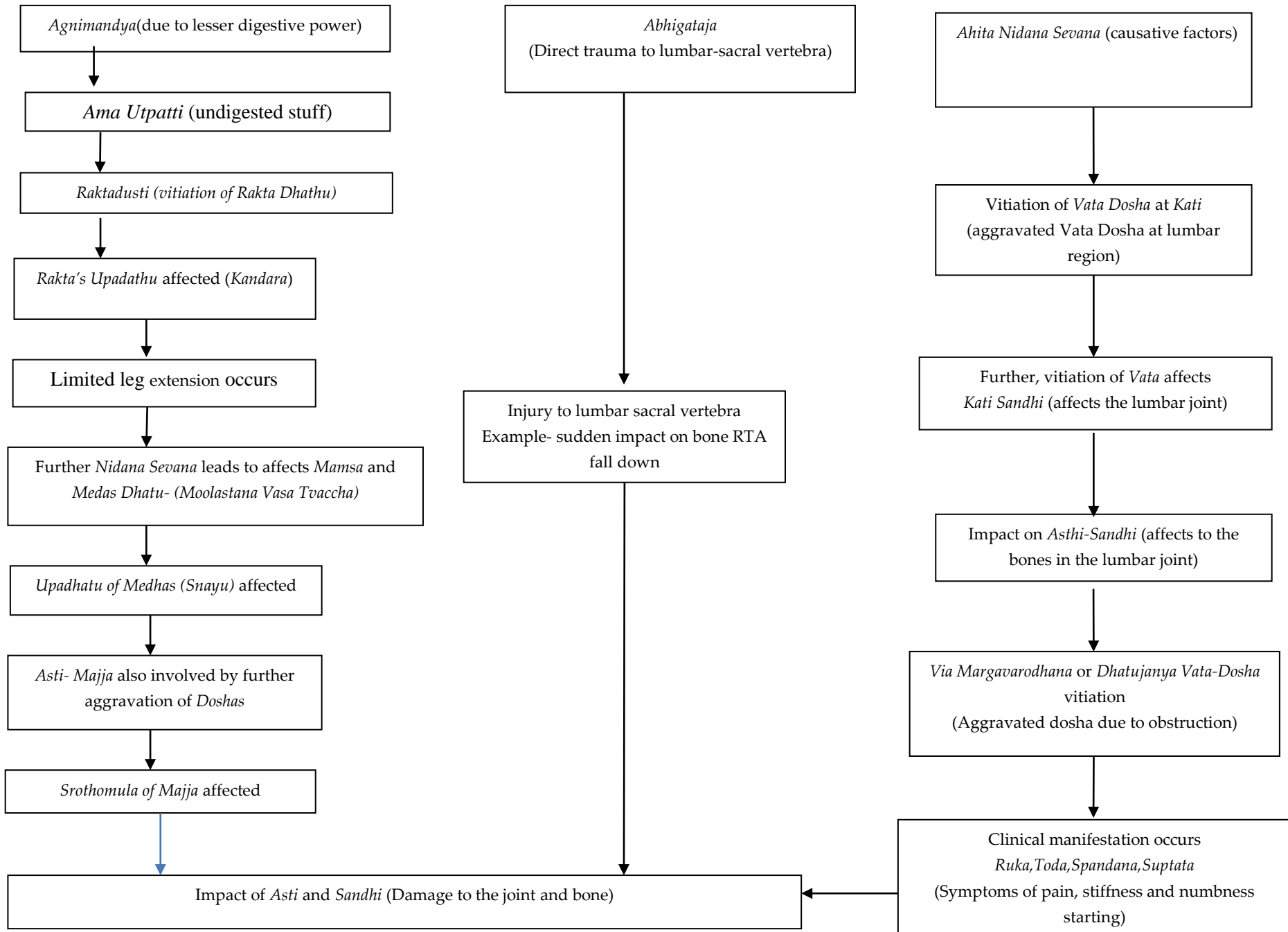


Table 2-Treatment availability based on individualized pathology

Number	Causative Factors	Treatment method	The outcome of the treatment
1	Defective Metabolic power (<i>Amothpattijanita Khavaigunya</i>)	<i>Deepana, Pachana, Snehana (Eranda Sneha Prayoga)</i>	Restore the digestive power and desist the pathogenesis.
2	Channel obstruction due to inflammation and Intervertebral disc prolapse (<i>Margavarodhita Janya Khavaigunya</i>)	<i>Snehana, Swedana Shasra Karma- Viddha Karma Sira Vedhana (bloodletting) Agni Karma (cauterization) Sneha Virechana</i>	<i>Snehana</i> provides nutrition to the <i>Majja Dhathu</i> hence securing the properties of <i>Asthi Dhathu</i> being a strength. <i>Swedana</i> liquifies the <i>Doshas</i> along with the sweat and eliminates endotoxins. <i>Sira Vedhana</i> is the best way to eliminate the <i>Shakagata</i> vitiated <i>Doshas</i> . <i>Agni Karma</i> and <i>Viddha Karma</i> remove the <i>Avarana Vikrithi</i> and improve Blood Circulation.
3	Traumatic injuries to the lumbosacral vertebra, I,e wedge fractures (<i>Abhighataja Khavaigunya</i>)	<i>Snehana, Swedana, Basti Karma, and Virechana</i>	<i>Snehana and Swedana</i> increase blood circulation and removes unnecessary cellular metabolites. <i>Basti</i> pacifies the <i>Vata Dosha</i> and strengthens the organs. <i>Virechana</i> removes <i>Avarana Janya Dosha</i> and restores <i>Dosha</i> equilibrium.
4	Degenerative changes of the lumbosacral vertebra (<i>Kshaya Janya Khavaigunya</i>)	<i>Snehana, Swedana, and Basti Karma</i>	As the origin of <i>Roga</i> is concerned <i>Pakwashaya</i> , pacifying the <i>Vata Dosha</i> occurs by <i>Basti (Niruha and Anuvasana)</i> <i>Snehana</i> nourishes the <i>Athi Dhathu</i> -related structures and Breakdown the ongoing degeneration.

Administration of Ayurveda treatment of Sciatica

Aushadis are categorized into three main streams as *Antah-Parimarjana* (internal medicines), *Bahir-Parimarjana* (external medicines), and *Shashtra Pranidhana* (surgical procedures) based on the route of administration [8]. Observations are presented in table 3.

Table 3- Treatment protocol according to administration

Se. Nu.	Internal Treatment	External treatment	Surgical procedures
1	Includes <i>Shamana Aushadhas (Pacifactory Measures)</i>	<i>Snehana – Murdha Taila Prayoga</i>	<i>Sira Vedhana</i> (Bloodletting by puncturing)
2	<i>Vata Shamaka Kwatha-Rasna Saphthaka, Dashamulibala rasnadi, Sephalika Patra Kwatha</i>	<i>Abhyanga, Parisheka, Pichu, and Kati Basti accordingly I,e Kubjaprasarani Taila, Mahanarayana Taila, Saindavadi, Mahavishagarbha Taila</i>	<i>Agni Karma</i> (cauterization therapy)
3	<i>Deepana and Pachana Aushadhi</i>	<i>Swedana – Sarvanga, Nadi Swedana, Pizzichil</i>	<i>Viddha Karma</i> (puncturing)
4	<i>Vata-Kapha Shamaka Aushadhi-Vati, Gutika, Guggulu, Eranda Phala Payasa</i>	<i>Wet Sudation- In the Vatika types Dry Sudation- In the Vata-Kaphaja conditions</i>	<i>Pracchana Karma</i> (bloodletting by doing multiple incisions)
5	Use of <i>Gritha</i> and <i>Taila</i> Use of Purgatives- <i>Eranda Taila prayoga</i>	<i>Upanaha- use of medicated paste on affected site of injury</i>	
6	By Anal route- <i>Basti Treatment- Niruha and Anuvasana</i>		

Panchakarma treatment modalities for Sciatica (Gridhrasi)

Panchakarma Chikitsa (treatment) principle, external and internal administration should be possessed. If *Ama* is located in *Kosta*, *Deepana* (Enhancing *Agni Bala*), *Pachana* (stimulating digestive power), *Vamana* (Therapeutic emesis), *Virechana* (Therapeutic Purgation), *Basti* (therapeutic enema) can be beneficial. In the case of *Shakagata Dosh*, the *Raktamokshana* is the potent treatment modality that can be used to eliminate the aggravated *Dosh*as with the least harm to the body's *Dosh*a equilibrium. Different *Acharyas* for Panchakarma for *Gridhrasi* are described in table 4.

Table 4: Different Acharya opinions on Gridhrasi (Sciatica) in Panchakarma

Se. Nu.	Texts	Treatment modality	Description mentioned	Mode of administration
1.	<i>Charaka Samhita</i> [9], <i>Haritha Samhita</i> , <i>Bhela Samhita</i> [10], <i>Chakkradatta</i> [11]	<i>Bahira Snehana</i>	<i>Abhyanga</i> , <i>Pizhichhil</i> , <i>Avagaha</i> , <i>Parisheka</i> , <i>Sarvangadhara</i> <i>internal Snehana</i>	External
		<i>Abyantara Sneha</i>	<i>Castor oil intake</i> [12]	Internal- oral
2.	<i>Charaka Samhita</i> [13], <i>Haritha Samhita</i> , <i>Chakkradatta</i>	<i>Swedana</i>	<i>Avagaha Sweda</i> , <i>Pizhiccil</i> , <i>NadiSweda</i> , <i>Patrapinda</i> , <i>Upanaha Sweda</i> <i>In Vata Kaphaja Gridhrasi- Baluka Swedana</i>	External
3.	<i>Bhavaprakasha</i> [14] <i>Chakkradatta(vatavyadhi)</i> [11]	<i>Vamana Basti Virechana</i>	<i>In Vata Kaphaja Gridhrasi</i> , <i>After Snehana and Swedana</i> , <i>performed Shodhana Karma</i>	Internal-oral/Per Rectal
4.	<i>Charaka Samhitha</i>	<i>Virechana</i>	<i>Administration of Eranda Sneha</i>	Internal-oral
5.	<i>Charaka Samhita</i> [15], <i>Susruta Samhita</i> [16], <i>Chakkradatta</i>	<i>Basti</i>	As the origin of <i>Roga</i> is concerned <i>Pakwashaya</i> , pacifying the <i>Vata Dosh</i> a occurs by <i>Basti (Niruha and Anuvasana)</i>	Per -Rectal
6.	<i>Charaka Samhita</i> [17], <i>Susruta Samhita</i> [18], <i>Vagbhata Samhita</i> [19]	<i>Sira Veda</i>	<i>Charaka explained that Siravyedha at Antara-Kandara Gulpha</i> , <i>Acharya Sushruta</i> , and <i>Vagbhatta</i> indicated four <i>Angula</i> above and four <i>Angula</i> below at the site of the knee joint. (<i>Siravedha at Janu after Sankochana (flexion)</i>) <i>Four Anguli below the Indramarma Basti</i>	External
7.	<i>Susruta</i> [20], <i>A. H.</i> [21]	<i>Agni Karma</i>	<i>Harita</i> : Four <i>Angula</i> above the <i>Gulpha</i> in <i>Tiryak Gati</i> .	External
8.	<i>Chakkradatta</i> [22]	<i>Sastra Karma</i>	<i>Sneha</i> , <i>Sweda</i> followed by extraction of <i>Granthi</i>	Intermuscular

Discussion

In modern science, the treatment of Sciatica is conferring conservative treatment and surgery. It includes epidural steroid injection for the acute phase of Sciatica, periradicular infiltration, and spine surgical treatment, including microscopic discectomy, laser discectomy, and other similar treatments. The effective treatment of *Gridhrasi* cannot be similar for everyone, as the pathology involves multiple varying factors, and individuals need customized treatments. The vitiated *Vata* association of *Kapha Dosh*a stems from the *Pakwashaya*, and it is afflicting the *Asthi Dhatu*, *Snayu*, and *Kandara*, producing the illness of Sciatica. Therefore, the procedures mainly aimed at adapting the

imbalances of *Vata Dosh*a and *Kapha Dosh*a around the lumbar region and the affected areas. The treatment protocol of *Abhyanga* performs on the skin; it pacifies the *Vata Dosh*a. *Acharya Sushruta* has calculated the time in which *Sneha* in *Abhyanga* infiltrates into consecutive *Dhatu* levels. It is said that *Sneha* applied on the skin for 900 *Matra Kala* (approx. 3-5 minutes) can reach up to *Majja Dhatu* [24], which is responsible for supplying nutrition to the bones (*Asthi Dhathu*). Thus, it can reduce the speed of the degenerative process. *Swedana* pacifies the *Vata*, *Kapha Dosh*as[25], which causes rigidity and stiffness of its *Ruksha* and *Sheeta Guna*; moreover, *Swedana* removes its *Ushna Guna*. *Swedana* also increases cellular function at the *Dhatwagni* level, thus

assimilating *Ama Dosh*a to the body. *Swedana* also has its characteristic property of reducing the *Gaurava* (heaviness) and *Stambha* (stiffness). Since *Guruta* (heaviness) emerged due to *Prithvi* and *Jala Mahabhuta*s, this *Jala Mahabhuta* is superfluous in sweat during *Swedana* and cellular waste products, influencing *Vata Dosh*a. *Basti* is administered through the anal route and enters into the *Pakvashaya* and evacuates the feces and engorged vitiated *Vata Dosh*a, which is the principal causative factor of the pathogenesis of the *Gridhrasi*. Apart from this localized action, *Basti* effects on generalized manner. A tree moistened at its root level accomplishes nutrition for the whole tree; likewise, *Basti* drugs are given through *Guda* (Ano-rectal route), which is ridiculous of blood vessels, lymphatic & nerves (Gut-brain axis) nourishes up the body in the cellular level. [26] Studies showed the effectiveness of *Basti Karma* in reducing pain, stiffness, numbness, and quality of life.[27] In managing *Vata-Kaphaja Gridhrasi*, *Vamana* plays an essential role in subsiding the sciatica-related symptoms I, e *Aruchi* (loss of appetite), and *Tandra* (drowsiness). Vitiated *Kapha* is removed from the body through an upper channel. *Amashaya* being the central place of *Kapha- Dosh*a, if it is controlled by proper therapeutic emesis, the *Kapha dosha* of all other parts of the body also get controlled. Whereas, after completion of *Vamana*, *Karma Jatharagni* and *Dhatwagni* increased in their places. Before inducing *Vamana Karma*, it is essential to perform *Snehana* and *Swedana* to eliminate the various kinds of endogenous toxins produced due to pathogenic inflammatory changes in vertebral discs. These toxins might be mixed or liquified with *Sneha Dravya*, comes in *Kostha*, and ultimately expelled out during *Vamana Karma*. When these endotoxins come out from the body, the inflammation process will be reduced, resulting in the relaxation of nerves that initially caused compression of the Sciatic nerve. *Raktamokshana* is the best method of eliminating the *Shakagata Dosh*a in the body. It is a therapeutic bloodletting procedure and purification procedure simultaneously. *Virechana* is also an effective treatment modality to produce the elimination of *Dosh*as from the anal route. *Virechana* leads to eliminating accumulated excreta and vitiated doshas using purification measures methodologically, which ultimately enhances strength, body luster, and longevity. *Viddha Karma* can also play a significant role in pain management in Sciatica, like acupuncture and moxibustion. In Sciatica, most patients suffer from pain, stiffness, and numbness. The gait of the patients was also hampered due to the pain. The line

of treatment of *Gridhrasi* includes the various treatment modalities that we have been practicing for thousands of years and can give more relief to the disease suffered patients and enhance their quality of life.

Conclusion

Ayurveda acts towards the individualistic approach to managing diseases. Understanding the disease's underlying pathology through the symptoms manifesting from the patient allows the physician to incline the treatments to benefit the patient. These treatments are selected according to the status of the *Dosh*as of the affected area of the lumbar region and the status of the *Dosh*a of the body. Various treatment protocols are available in *Ayurveda*, and according to the stage and status of the *Dosh*a level, we can select the best treatment protocol. These treatment protocols have been practiced for more than 4000 years, and further well-designed studies like randomized clinical trials are needed to establish, validate, and explore the beneficial effects of these treatment protocols.

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