



## Research Article

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### A COMPARATIVE CLINICAL STUDY OF RAASNA GUGGULU AND RAKTAMOKSHANA WITH RAASNA GUGGULU IN GRIDHRASI (SCIATICA)

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#### ABSTRACT

The incidence of Gridhrasi has increased over time because of human beings' changing lifestyles. In allopathic science, its treatment is mainly focused on relieving pain by using analgesia, muscle relaxants, etc., all of which have some side effects. Raktamokshana using modified Shringa Yantra and Raasna Guggulu drug, were selected for this study. Aim: The present study aimed to compare the impact of Raasna Guggulu (orally) alone and Raktamokshana by modified Shringa Yantra and Raasna Guggulu (orally) in Gridhrasi. Settings and Design: It was an open comparative clinical trial conducted on 36 patients of Gridhrasi, divided into two equal groups based on a computer-generated randomisation chart. The duration of the trial was 18 months. Materials and Method: Patients were selected according to the inclusion and exclusion criteria after obtaining written informed consent. Statistical analysis: The Wilcoxon Signed Rank Test, and Mann Whitney U tests were used to test significance in each group and inter-group comparison. Result: The results showed that the effect of Raktamokshana by modified Shringa Yantra and Raasna Guggulu (orally) is more than that of Raasna Guggulu (orally) alone in Gridhrasi. Conclusion: Both the interventional modalities used were found effective in Gridhrasi, and no side effects were observed during or after the study so they can be safely used as an alternative to other modalities with multiple side effects.

**Keywords:** Gridhrasi, Sciatica, Raktamokshana, Modified Shringa Yantra, Raasna Guggulu

#### INTRODUCTION

Gridhrasi is one of the eighty Nanatmaja Vatavyadhi mentioned in various Ayurvedic texts, caused by aggravated Vata dosha<sup>1, 2</sup>. Low back pain is the main symptom of Gridhrasi, and its incidence has increased over time due to modern human lifestyle changes. According to the World Health Organization (2023), LBP affects approximately 619 million people globally, and it is estimated that the number of cases will increase to about 843 million by 2050<sup>3</sup>. In this way, this disease is now becoming a significant threat to the working population. Based on the similarity in signs and symptoms, it can be equated with the Sciatica in modern. Its treatment is mainly symptomatic (aims at relieving pain) using analgesics, muscle relaxants or physiotherapy, and even surgery in certain cases. However, none of these treatment modalities is devoid of adverse effects. In Ayurveda, various methods have been mentioned for treating Gridhrasi, which are simple, safe, and cost-effective. Among these, Raktamokshana and Raasna Guggulu were selected for this clinical study.

Raktamokshana (therapeutic bloodletting), a para-surgical procedure, was selected for the study because Gridhrasi is a ruka pradhan (pain dominating) Vatavyadhi, and it gives instant relief in pain and causes cheerfulness of mind (by relieving psychological factors associated with pain). Among different methods of Raktamokshana, Shringa Yantra was selected after some modifications as Shringa (cow horn) availability is currently challenging due to various reasons, and there is a risk of infection transmission during the sucking of blood by mouth. Moreover, Shringa is a biological component; it cannot be

sustained for an extended period, and its regular sterilisation is also challenging, so to overcome these challenges, Shringa Yantra was replaced with a modified Shringa Yantra in this study, which is easily accessible in surgical shops and can be sterilised easily.

The drug selected for the trial was Raasna Guggulu, mentioned in Chakradatta in the Vatavyadhi chikitsa chapter<sup>4</sup>. It was selected for the trial because it is directly indicated for the treatment of Gridhrasi, and the contents of Raasna Guggulu, i.e., Raasna and Guggulu, are the best drugs for the pacification of vitiated Vata and Kapha dosha mentioned by Acharyas<sup>5, 6</sup> and Gridhrasi is caused by vitiated Vata and Kapha doshas.

#### Aim

The study aimed to compare the effect of Raasna Guggulu (orally) alone and Raktamokshana by modifying Shringa Yantra along with Raasna Guggulu (orally) in managing Gridhrasi. The following Hypotheses were made before starting the study -

#### Null Hypothesis (H<sub>0</sub>)

There will be no significant difference between the effects of Raasna Guggulu (orally) alone and Raktamokshana by modified Shringa Yantra along with Raasna Guggulu in the management of Gridhrasi.

#### Alternate Hypothesis (H<sub>1</sub>)

The effect of Raasna Guggulu (orally) alone is more than the effect of Raktamokshana by modified Shringa Yantra along with Raasna Guggulu (orally) in the management of Gridhrasi.

### Alternate Hypothesis (H<sub>2</sub>)

The effect of Raktamokshana by modified Shringa Yantra along with Raasna Guggulu (orally) is more than the effect of Raasna Guggulu (orally) alone in the management of Gridhrasi.

### MATERIALS AND METHOD

Various Ayurvedic texts, medical texts, articles, research papers, etc., related to Gridhrasi were screened for information. A total of 36 patients (18 in each group) were selected for the study after obtaining written informed consent. Patients with classical signs and symptoms of Gridhrasi (Sciatica) attending the OPD and IPD (not medical camps) of Shalya Tantra department of Rishikul Campus, Uttarakhand Ayurvedic University, Haridwar, Uttarakhand, India, were selected according to the inclusion and exclusion criteria and were divided into two groups according to the computer-generated randomisation chart. This clinical trial was approved by the Institutional Ethical Committee (IEC approval letter No. UAU/RC/IEC/ 2022/PG/1-67 dated 27/05/2022) & registered in Clinical Trials Registry-India (No.: CTRI/2022/06/043416).

Following were the inclusion and exclusion criteria used for the study,

#### Inclusion criteria

Patients with classical signs and symptoms of Gridhrasi and an age group between 16-70 years were selected for the study after obtaining their written informed consent.

#### Exclusion criteria

Known cases of Pandu (anaemic, Hb<10 gm%), Shosha (tuberculosis), diabetes mellitus, uncontrolled hypertension, cardiac diseases, malignancy of the spine or other organs, history of spine fracture (trauma), pregnancy, HIV positive and Hepatitis A, B, C positive patients were excluded from the study. Patients willing to quit in between (due to aggravation of symptoms, personal matters, associated illness, or any other difficulties) were also allowed to withdraw themselves from the study and were excluded from the study.

#### Method of Treatment

In Group A, 18 patients were treated with Raasna Guggulu (orally) alone and in Group B, 18 patients were treated with Raktamokshana using modified Shringa Yantra along with Raasna Guggulu (orally). Raasna Guggulu (gudika, 500 mg each) were prepared using a tablet-making machine under aseptic conditions and was given to all patients of both groups, two tablets orally twice a day, after meals with lukewarm water. Raktamokshana was performed using modified Shringa Yantra in Group B patients at an interval of 14 days, and a total of 3 sittings were performed for each patient. The patient was well informed regarding the procedure, and written consent was obtained before the Raktamokshana procedure. Then, after adequately positioning the patient, Raktamokshana was done following all aseptic precautions. After the Raktamokshana, Haridra powder was applied to the site, and an aseptic dressing was done. After the procedure, the patient was observed and advised to rest for 15 to 30 minutes. During the trial period, assessment was carried out according to subjective and objective parameters at 14 days intervals for 28 days, i.e. on the 0, 14<sup>th</sup>, and 28<sup>th</sup> days to find out the efficacy of Raktamokshana and Raasna Guggulu in Gridhrasi (Sciatica).

Following were the gradings of different parameters used for assessment,

#### Grading for the assessment of Ruka (Pain/Discomfort)

The severity in intensity was assessed based on the VAS scale (Visual Analog Score)

Grade 0 - No pain

Grade 1 - Mild pain but no difficulty in walking

Grade 2 - Moderate pain and slight difficulty in walking

Grade 3 - Severe pain with severe difficulty in walking

#### Grading for the assessment of Stambha (Stiffness)

Grade 0 - No Stambhata

Grade 1 - Stambhata for a few minutes after sitting for a long duration but relieved by mild movements and routine works are not disturbed

Grade 2 - Stambhata lasting for more than 1 hour or many times a day mildly affecting the daily routine

Grade 3 - Episodes of Stambhata lasting for 2-6 hours daily and daily routines are hampered severely

#### Grading for the assessment of Aruchi (dislike/aversion of food)

Grade 0 - Normal taste in food, feeling to eat food in time

Grade 1 - Anannabhilasha – not feeling to take food even if hungry

Grade 2 - Bhaktadvesha – irritability to touch, smell, seeing and listening about food

Grade 3 - Complete aversion to food because of anger, stress, etc.,

#### Grading for the assessment of Spandana (Throbbing / Pulsating)

Grade 0 - No Spandana at all

Grade 1 - For a few minutes occasionally, which is relieved spontaneously

Grade 2 - Daily at least once for a few minutes without affecting the daily routine

Grade 3 - Many times in a day affects daily routine

#### Grading for the assessment of Gaurava (Heaviness / Lassitude)

Grade 0 - No feeling of Gaurava

Grade 1 - Occasional feeling of Gaurava not affecting the normal movements

Grade 2 - Frequent feeling of Gaurava affecting the normal movements

Grade 3 - Feeling of Gaurava throughout the day severely affecting the normal movements

#### Grading for the assessment of the SLR test

Improvement in the range of movement was measured by a Goniometer.

Grade 0 - SLR angle equal to 90<sup>0</sup> or > 90<sup>0</sup>

Grade 1 - SLR angle 71<sup>0</sup> - < 90<sup>0</sup>

Grade 2 - SLR angle 51<sup>0</sup> - 70<sup>0</sup>

Grade 3 - SLR angle 31<sup>0</sup> - 50<sup>0</sup>

Grade 4 - SLR angle equal to 30<sup>0</sup> or <30<sup>0</sup>

#### Criteria for overall assessment

After the assessment of relief in subjective and objective parameters on the 0<sup>th</sup>, 14<sup>th</sup> and 28<sup>th</sup> day, the overall assessment was done based on the following criteria:

Complete remission - 100 % relief in signs and symptoms

Marked remission - < 100 - 75 % relief in signs and symptoms

Moderate remission - < 75 - 50 % relief in signs and symptoms

Mild remission - < 50 - 25 % relief in signs and symptoms

Unchanged - < 25 % relief in signs and symptoms

**Follow-up study**

The patients were asked to come for follow-up at 14 days, for one month after completion of therapy.

**Statistical Analysis**

After gathering information based on various parameters, statistical analysis was carried out using the Wilcoxon signed rank test to check significance in each group (as described in Tables 1 & 2) and using the Mann-Whitney U test for inter-group comparison (as described in Table 3).

**OBSERVATIONS**

A total of 36 (18 in each group) patients were registered for the clinical study; among them, all the registered patients completed their trials. Among 36 patients, the maximum patients belonged to middle age group 40-60 years (38.89 %), male (55.56 %), married (75 %), lower middle class (41.67 %), moderate physical workers (52.78 %), literate (69.44 %) and urban areas (77.78 %). The maximum number of patients in this study had a decreased appetite (69.44 %), irregular bowel habits (58.33 %), disturbed sleep (86.11 %), and worried psychological status (55.56 %). According to observations made on Ayurvedic parameters, a maximum number of patients had Kapha-Vataja prakriti (52.78

%), madhyam samhanana (63.89 %), madhyama satva (77.22 %), vishmashana type dietic habits (58.33%), and avara vyayama shakti (55.56%). The maximum number of patients had an insidious onset of disease (52.78 %) and chronicity of disease for more than one year (52.78 %). In the end, no side effects of both interventional therapies were reported during and after the study (during follow-up visits).

Table 1 shows that the p-value was less than 0.001 in all assessment parameters. Hence, it was concluded that the effect of interventional therapy observed in Group A was highly significant for all parameters.

Table 2 shows that the p-value was less than 0.001 in all assessment parameters. Hence, it was concluded that the effect of interventional therapy observed in Group B was highly significant for all parameters.

After applying the Mann Whitney U test, it was observed that the p-value for most parameters like ruka, stambha, spandana, gaurava, and SLR test was less than 0.05. Hence, the effect of Group B's interventional therapy was greater than that of Group A's in these parameters. For aruchi, the p-value was more than 0.05, indicating the result of the comparison of interventional therapies was not significant in this parameter. (Table 3

**Table 1: Effect of therapy in Group A (Effect of Raasna Guggulu)**

Group A	Median		Average of difference	SD of difference	Z Value	p Value	Result
	BT	AT					
Ruka	2.5	1	-1.722	.461	-3.882	P < 0.001	HS
Stambha	2	0	-1.944	.416	-3.976	P < 0.001	HS
Aruchi	2	0	-1.833	.786	-3.691	P < 0.001	HS
Spandana	3	1	-2	.485	-3.920	P < 0.001	HS
Gaurava	2	0	-1.667	.485	-3.851	P < 0.001	HS
SLR test	3	1	-2.167	.383	-3.977	P < 0.001	HS

BT: Before Treatment, AT: After Treatment

**Table 2: Effect of therapy in Group B (Effect of Raktamokshana along with Raasna Guggulu)**

Group A	Median		Average of difference	SD of difference	Z Value	p Value	Result
	BT	AT					
Ruka	2	0	-2.167	0.383	-3.977	P < 0.001	HS
Stambha	3	0	-2.389	0.502	-3.829	P < 0.001	HS
Aruchi	2	0	-1.778	0.808	-3.673	P < 0.001	HS
Spandana	3	0	-2.444	0.511	-3.816	P < 0.001	HS
Gaurava	2	0	-2.111	0.471	-3.921	P < 0.001	HS
SLR test	3	0	-2.667	0.485	-3.851	P < 0.001	HS

BT: Before Treatment, AT: After Treatment

**Table 3: Comparison between Group A (Raasna Guggulu) and Group B (Raktamokshana along with Raasna Guggulu)**

Parameters	Group	N	SD	Sum of Ranks	Mann-Whitney U	p Value	Result
Ruka	Group A	18	0.46	268.5	97.5	P < 0.05	S
	Group B	18	0.38	397.5			
Stambha	Group A	18	0.42	268	97	P < 0.05	S
	Group B	18	0.50	398			
Aruchi	Group A	18	0.78	340	155	P > 0.05	NS
	Group B	18	0.81	326			
Spandana	Group A	18	0.48	269	98	P < 0.05	S
	Group B	18	0.51	397			
Gaurava	Group A	18	0.49	270	99	P < 0.05	S
	Group B	18	0.47	396			
SLR test	Group A	18	0.38	252	81	P < 0.05	S
	Group B	18	0.48	414			

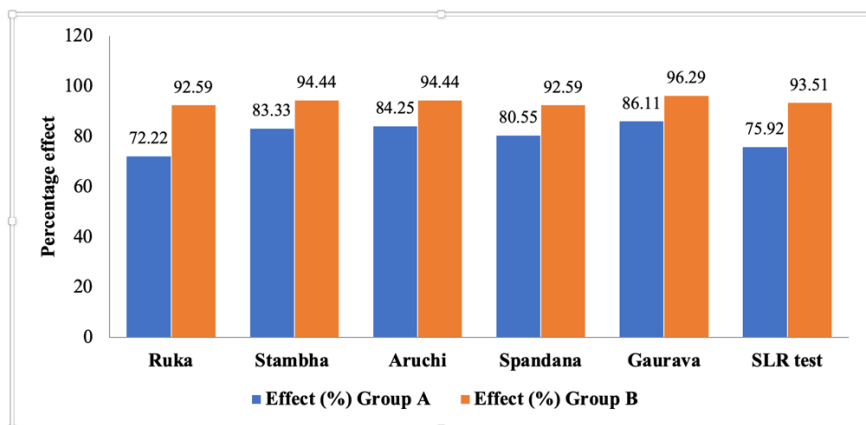


Figure 1: Percentage effect of interventional therapies in both Groups

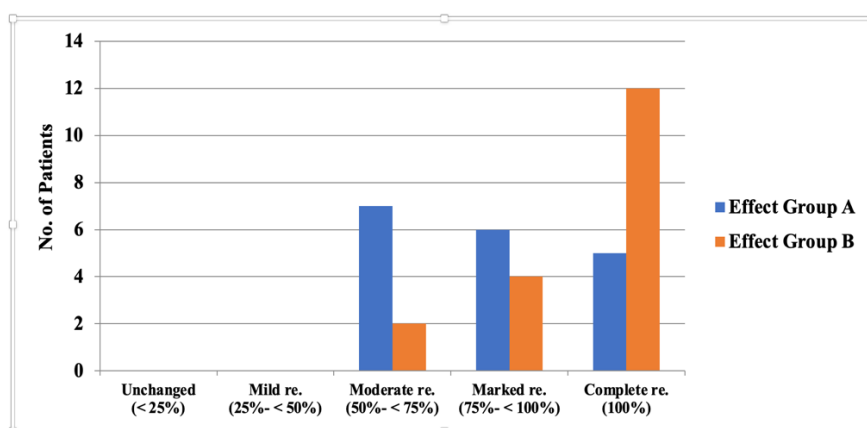


Figure 2: Overall effect of interventional therapies in both Groups

## RESULT

After applying the statistical tests described above, the percentage effect of interventional therapies in both groups on different parameters (as described in Figure 1) and the overall effect in both groups (as described in Figure 2).

The above diagram shows that nine patients (seven in Group A and two in Group B) showed moderate remission, ten patients (six in Group A and four in Group B) showed marked remission, and seventeen patients (five in Group A and twelve in Group B) got complete remission in signs and symptoms. No patients remained unchanged after the completion of the therapy in either group.

## DISCUSSION

According to the distribution based on age group, a maximum (38.89 %) of patients belonged to the middle age group 40-60 years. This is because middle-aged people are more exposed to mechanical solid forces and heavy work than children and old age. Also, this is the phase when gradual loss of dhatus and shareera bala occurs, as described by Acharya Sushruta<sup>7</sup>, which vitiates Vata dosha, which is the leading cause of Gridhrasi. Maximum (55.56%) patients were male, and (44.44%) patients were female, which shows that females and males are almost equally prone to Gridhrasi. In the present world, both are similarly exposed to improper postural strain during weight lifting, sitting, and sustained non-neutral posture during their daily work at home and in the workplace. These inappropriate postures are predisposing factors for causing Gridhrasi. According to the distribution based on socio-economic status, the maximum

number of fifteen (41.67%) patients belongs to lower-middle-class families; this shows the incidence of Gridhrasi is higher in lower middle-class families, which can be because they are more exposed to heavy workloads, poor nutrition, stressful work, etc. in search of their livelihood and all these are important risk factors for the prevalence of sciatica<sup>8</sup>. According to the distribution based on appetite, it was observed that a maximum of twenty-five (69.44%) patients had decreased appetite. Improper and irregular diet habits are more common in today's population and are primary reasons for reduced appetite, leading to mandagni (which causes improper digestion), vitiation of doshas, and decreased nutrition, which decreases the strength of the body. So, appetite, which depends on jatharagni (digestive power), has a role in causing and aggravating the symptoms in Gridhrasi. According to the distribution based on bowel habits, it was observed that a maximum of twenty-one (58.33%) patients had irregular bowel habits. This shows that the incidence of Gridhrasi was high in the patients having irregular bowel habits. Irregular bowel habit is caused by vitiated Apan Vayu. Vitiated Apan Vayu has a direct adverse effect on Gridhrasi, as it is Vata predominant disease. According to the distribution based on sleep, it was observed that the maximum number of thirty-one (86.11%) patients had disturbed sleep, which may be due to discomfort or pain and disturbed psychological status of the patients due to persistent pain and stiffness. It also reflects the association of Vata dosha in Gridhrasi (Sciatica) as improper sleep at night will further cause vitiation of Vata dosha<sup>9</sup>. According to the distribution based on psychological status, it was observed that the maximum number of twenty (55.56%) patients had worried psychological status. Studies have shown that there is a close relationship between pain and disturbed psychological status<sup>8,10</sup>. Pain always has

multidimensions; it affects personal and social life, leading to anxiety, stress, etc., causing worried and depressed psychological status.

All these factors directly affect Vata prakopa, which further aggravates symptoms. These psychological factors lead to prolonged contraction of back muscles or persistent hyperactivity of muscles even in the resting phase, which leads to fatigue and pain in the lower back<sup>11</sup>. It also shows the need for satvajya chikitsa (counselling) for Gridhrasi patients. According to the distribution based on diet habits, it was observed that a maximum of twenty-one (58.33%) patients had vishmashana diet habits. According to Acharya Vagbhata, these irregular diet habits, i.e., samashana and vishmashana, are responsible for the vitiation of doshas by causing mandagni, leading to the manifestation of diseases. According to the distribution based on vyayama shakti, it was observed that the maximum number of twenty (55.56%) patients had avara vyayama shakti; it may be because the intensity of pain increases on exertion to avoid painful episodes patients further limit their movements and prefer doing rest. Although rest relieves symptoms, continued rest worsens the condition as muscle strength decreases, and in severe cases, it may lead to muscle wasting due to prolonged disuse.

**Effect of interventional modalities on Ruka (pain):** Ruka (pain) is the main presenting complaint of patients of Gridhrasi, and according to Acharya Sushruta, pain occurs due to the vitiation of Vata dosha. Constituents of Raasna Guggulu, i.e., Raasna and Guggulu, are described as the best drugs for the pacification of Vata dosha by Acharyas and along with these drugs have anti-inflammatory and analgesic properties<sup>12,13</sup> due to various chemical constituents present in them, which will help in relieving pain. Raktamokshana at the localised site will cause anuloma gati of vitiated Vata dosha (by removing margaavrodha caused due to accumulation of vitiated dosha), which will cause pacification of pain. According to allopathic, the main causative factor for sciatica is undue stress on the spine due to bad postural habits. This undue stress on the spine, like anywhere in the body, provokes a body reaction at biochemical levels that may lead to the accumulation of inflammatory mediators causing pain at that site.

Moreover, the pathogenesis of pain also includes interstitial hypertension and an increased amount of neurotransmitters, such as substance P and its receptor, calcitonin gene-related peptide and other neurotransmitters in afferent nerves. Based on that, applying Shringa Yantra at these localised sites will remove localised fluids, clear interstitial spaces, and decrease interstitial hypertension, leading to pain pacification. Application of Shringa Yantra also modulates pain via Pain Gate Theory by activating larger  $\beta$  nerve fibres.

**Effect of interventional modalities on Stambha (stiffness):** Stambha is also caused by vitiated Vata dosha, and sheeta & ruksha guna of Vata are mainly responsible for its manifestation. Its pathogenesis also includes altered neuromuscular control and muscle fatigue due to a localised decrease in blood circulation and tissue damage. Both the drugs present in Raasna Guggulu have ushna veerya, which is opposite to sheeta guna of Vata dosha. Moreover, Raasna has spasmolytic action due to its chemical constituents<sup>12</sup>, thus helping relieve stiffness. Raktamokshana relieves stiffness by removing pathogenic substances accumulated due to muscle fatigue, and it improves fresh blood circulation to that area, causing the fast recovery of damaged muscle tissue.

**Effect of interventional modalities on Aruchi (dislike/aversion of food):** Aruchi is a classical symptom mainly found in the Vata-

Kaphaja type of Gridhrasi. It occurs due to mandagni, caused by the vitiation of Kapha dosha and irregular dietary habits. Raktamokshana at the localised site probably has no direct role in aruchi. But Raasna and Guggulu have tikta rasa and ushna virya, so their Kapha shamaka properties will aid in relieving aruchi. Guggulu has deepan pachana karma<sup>13</sup>, which will also cause relief in aruchi by increasing agni. On comparing the effect of interventional therapies in both groups on aruchi, percentage relief was higher in Group B than in Group A, and it is because the number of patients belonging to the age group 60-70 was more as compared to Group A and age has a definite role in determining the appetite of an individual.

**Effect of interventional modalities on Spandana (throbbing/pulsating):** It is one of the cardinal features of Gridhrasi, occurring due to excessive vitiation of Vata dosha. It is found due to compression of the sciatic nerve at the site of its origin. Along with Vata shamaka properties, both constituents of the drug have rasayana karma, and Guggulu have nadibalya properties<sup>13</sup>; due to these, they will help in increasing the natural strength of the body. Raktamokshana at that site causes relaxation of the ligament and muscles in the lower back, and it also increases fresh blood flow to the tissues, which keeps them healthy and improves muscle strength and bulk.

**Effect of interventional modalities on Gaurava (heaviness/lassitude):** Gaurava means a feeling of heaviness. Acharya Charaka has included it under Kapha nanatmaja vikara and is a feature of Vata-Kaphaja Gridhrasi. Gaurava is one of the characteristic features of Sama, and Raasna Guggulu has deepan pachana, Kapha shamaka properties, and medohara properties<sup>6</sup>, which provide better relief in gaurava, as this symptom occurs mainly due to vitiation of Kapha & accumulation of excessive meda dhatu. Raktamokshana at the localised site will directly remove vitiated doshas and Rakta from that area, causing laghuta<sup>14</sup> and leading to the pacification of symptoms.

**Effect of interventional modalities on S.L.R (Straight Leg Raising) test:** In the present study, SLR was the only objective criterion used for assessment. SLR is aimed at assessing the lumbosacral nerve root irritation. It is a susceptible test for Sciatica. In the present clinical study, during the local examination, SLR was found positive in all the patients of Gridhrasi (Sciatica). Both interventions increase the SLR angle by reducing inflammation stiffness and increasing muscle strength, relieving sciatic nerve compression or irritation.

**Probable mode of action of Raasna Guggulu:** Both the constituents of Raasna Guggulu have Vata and Kapha dosha pacification properties due to their rasa, guna, veerya and vipaka.

Both drugs possess tikta rasa, which has sleshma-upshosa (lower Kapha dosha) properties<sup>15</sup>; they will help to alleviate symptoms like tandra, gaurava, and arochaka, which arise due to the vitiation of Kapha dosha. Similarly, Guggulu's katu rasa will work by lowering Kapha dosha (sleshmanam shamyati). Additionally, because of its vrananavsadyati qualities<sup>15</sup>, it will reduce pain and other Gridhrasi symptoms by reducing tissue damage and promoting the healing of localised tissue. By the action of its guna, Raasna has guru guna, and Acharyas have described the characteristics of guru guna as briahna (nourishing dhatu)<sup>16</sup>. Thus, it will help alleviate kshaya janya Vata dushti, enhance the healing of locally injured tissue, and strengthen lower back muscles. Because of its laghu and ruksha guna, Guggulu will pacify Kapha dosha; its tikshana and sara guna will pacify both Vata and Kapha dosha. Additionally, according to Acharya Sushruta, laghu guna possesses ropana qualities<sup>17</sup>, which means that because of its sukshma guna, it can penetrate deeper tissues

at the cellular level and aid in rebuilding damaged tissue at the cellular level. The ushna veerya of Raasna and Guggulu has Vata and Kapha shamaka karma. According to the descriptions of Acharyas, ushna causes pachana, vilayana (to melt), and swedana. Therefore, as a result of these acts, srotas dusti caused due to Kapha dosha is removed and will lead to anuloma gati of Vata dosha, resulting in the pacifying symptoms such as ruksa, toda, stambha, spandana, etc. Guggulu can also relieve aruchi, which occurs due to agnimandya, because of its deepana karma. Raasna Guggulu potency can be further increased by using shuddha Guggulu, and for that, shodhana of Guggulu is done using various Vata-Kaphahara dravyas described by Acharyas like Nirgundi Patra Swarasa, Triphala Kwatha, etc<sup>18</sup>.

According to modern parameters, Raasna has anti-inflammatory, anti-oedema, spasmolytic and analgesic properties. So, it causes relief in pain due to its anti-inflammatory and analgesic properties, and stiffness is due to its spasmolytic properties. Similarly, Guggulu, due to its pharmacological properties like anti-inflammatory, analgesic, Ca<sup>2+</sup> antagonist activity, hypolipidemic, anti-arthritis, etc., causes relief in various symptoms of Gridhrasi.<sup>12,13</sup>

**Probable mode of action of Raktamokshana:** Raktamokshana is a unique para-surgical procedure described by ancient Acharyas, popularly used to manage various ailments due to Rakta dushti. Rakta has been considered as chaturtha dosha<sup>19</sup> by Acharya Sushruta, indicating its significance in the emergence of many diseases. Similarly, Rakta has been mentioned as the primary dushya (aashrya sthana) in all types of disorders<sup>20</sup> by Acharya Vagbhata. So, it can be concluded that Raktamokshana will aid in removing dushita Rakta and dosha, leading to the pacification of various signs and symptoms of the disease. Removing margaavrodha and the direct removal of dushita dosha helps in the anuloma gati of Vata dosha, leading to its pacification. In addition to this, Shringa Yantra also helps in the pacification of Vata dosha due to its properties as it possesses snigdha and ushna guna, which are opposite to ruksha and sheeta guna of Vata dosha, and has madhura rasa, which also pacify vitiated Vata dosha. Shallow pricks are given over the selected site during Raktamokshana using modified Shringa Yantra to initiate the oozing of dushita Rakta and dosha. This process of bloodletting is which is further aided by negative pressure created inside Shringa due to the sucking of air by a manual pump. By using Shringa Yantra, dushita Rakta can be removed from the site of application and surrounding tissue up to 10 angula around the site of its application<sup>21</sup>.

So, due to the direct removal of dushita Rakta and vitiated dosha, dilution occurs in that area, leading to the pacification of symptoms occurring due to them. Vitiated Rakta and Kapha dosha causes margaavrodha of Vata dosha; during Raktamokshana, there occurs removal of Kapha dosha along with vitiated Rakta from that site, which leads to the removal of margaavrodha causing anuloma gati of dosha leading to pacification of various symptoms occurring due to its margaavrodha.

## CONCLUSION

It can be concluded that the effect of Raktamokshana by modified Shringa Yantra along with Raasna Guggulu (orally) was more than the effect of Raasna Guggulu (orally) alone in the management of Gridhrasi (Sciatica), Alternative Hypothesis (H<sub>2</sub>) was accepted. Both the treatment modalities were found safe as no side effects of the interventional therapies were observed during and after the study. It can be said that Raktamokshana gives instant relief in acute pain and stiffness so it can be used as a daycare procedure without any side effects.

**Key Messages:** Raktamokshana can be done quickly using Shringa Yantra with some modifications in the present era on an OPD basis without any side effects.

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