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A comparative clinical study to evaluate the efficacy of Dashamoola Niruha Basti with Rasna-Erandadi Niruha Basti in the management of Gridhrasi vis~a~vis sciatica

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ABSTRACT

Gridhrasi is one among Shoola Pradhana Vatavyadhi, mentioned under Vataja Nanatmaja Vyadhi. Sciatica is defined as radiating pain along the course of sciatic nerve and is felt in the back, buttocks, posterior of the thighs, legs and foot caused due to disc protrusion, the nerve roots most frequently affected are L4, L5, and S1. The pain is severe, sharp and shooting type associated with other symptoms such as numbness, tingling sensation, weakness, and sensitivity to touch. The signs and symptoms of Gridhrasi are similar to sciatica. The present study is comparative clinical study with pre and post test design with sample size 50 subjects with 25 subjects in each group. The intervention of Group A was Katibasti, Dashamoola Niruha Basti in Yoga Basti pattern for first 8 days and Group B, Katibasti, Rasna Erandadi Niruha Basti in Yoga Basti pattern for first 8 days followed by Erandabija Payasa as Shamanaoushadi, both the groups for next 16 consecutive days. The results obtained on assessment parameters like Ruk, Stambha, SLR test, Bragard's sign, and Functional ability scale value with the significance "P" value of 0.000 in the management of Gridhrasi vis-à-vis Sciatica. Hence, it was inferred that the selected intervention Group B (trial group) Rasna Erandadi Niruha Basti showed better results than Group A (control group) Dashamoola Niruha Basti in the management of Gridhrasi vis-à-vis Sciatica.

Key words: Gridhrasi, Sciatica, Katibasti, Dashamoola Niruha Basti, Rasna Erandadi Niruha Basti, Erandabija Payasa.

INTRODUCTION

Gridhrasi is one among the Shoola Pradhana Vatavyadhi and is mentioned under Vataja Nanatmaja Vyadhi.^[1] Gridhrasi is defined as pain radiating from Sphik Pradesha to Kati, Prushta, Uru, Janu, Jangha, pada in an order.^[2] Sciatica is defined as radiating pain along the course of sciatic nerve and is felt in back, buttocks, posterior of the thighs, legs and foot.^[3] It is

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caused due to disc protrusion, the nerve roots most frequently affected are L4, L5, and S1.^[4] The pain is severe, sharp and shooting type associated with other symptoms such as numbness, tingling sensation, weakness, and sensitivity to touch.^[5]

The signs and symptoms of *Gridhrasi* are similar to that of sciatica. Sciatica peak incidence occurs at fourth decade of life. Life time incidence reported between 10-40% with the annual incidence of 1-5%. Occupational predisposition has been shown in machine operators, truck drivers, and jobs where workers are subjected to physically awkward positions.^[6] Management in contemporary system of medicine includes administration of analgesics, NSAID'S, muscle relaxants including tricyclic antidepressants and physical modalities like heat therapy. Surgery for low back pain is indicated only in 1% of those affected.^[7]

The line of management adopted in Gridhrasi is Sira Vyadha, Agni karma and Basti Karma.^[8]

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In the present study *Rasna Erandadi Kashaya* was used for *Niruha Basti*, the ingredients possesses *Vata Shamaka, Shoolahara* properties specially indicated in *Jangha, Uru, Trika, Prushta, paarshwagata Shopha*.^[9]

Kshirabala Taila is indicated in all types of Vata Vikara mentioned in Sahasrayogam.^[10] Dashamoola Kwatha was used for Niruha Basti, the ingredients of Dashamoola having Tridoshagna, Vedana Sthapaka and Shothagna properties^[11] and Saindavadhya Taila is specifically indicated in Gridhrasi in Yogaratnakara^[12] and Chakradutta.^[13] Erandabija Payasa^[14] with ingredients like Eranda Bija and Kshira, and it is indicated in Gridhrasi. Eranda possess Balya and Vatahara properties.^[15]

Hence the present study was undertaken to compare the efficacy of Dashamoola Niruha Basti with Rasna Erandadi Niruha Basti in the management of Gridhrasi vis-a-vis Sciatica. The present study was comparative clinical study with pre and post- test design. The subjects fulfilling the diagnostic criteria of Gridhrasi was assigned into two groups viz., Group A (Kati Basti, Dashamoola Niruha Basti, Erandabija Payasa) and Group B (Kati Basti, Rasna Erandadi Niruha Basti, Erandabija Payasa). Total of 50 subjects, 25 individuals in each group. Assessment was done based on the following objective parameters like SLR test, Bragard's sign, Ruk, Stambha and Functional ability scale. Ruk and Stambha were taken as subjective parameters and the study consists of three assessments i.e., on 0th day, 9th and 25th day. In the present study, assessment of overall effect of intervention was done based on reduction in the symptoms of Gridhrasi i.e., Ruk, Stambha and improvement in the SLR value and Bragard's sign, quality of life assessed through Functional Ability (Sugarbaker and Barofsky Clinical Mobility scale) scale value with the significance "P" value of 0.000. On comparision between the groups, there was a significant result shown between the groups with "P" value 0.000.

The selected intervention Group B (trial group) *Rasna Erandadi Niruha Basti* showed better results than Group A (control group) *Dashamoola Niruha Basti* in the management of *Gridhrasi* vis-à-vis Sciatica.

OBJECTIVE OF THE STUDY

Primary objective

To compare the efficacy of *Dashamoola Niruha Basti* with *Rasna erandadi Niruha Basti* in the management of *Gridhrasi* vis-à-vis Sciatica.

Secondary objective

- 1) To evaluate the efficacy of *Dashamoola Niruha Basti* in the management of *Gridhrasi* vis-à-vis Sciatica.
- To evaluate the efficacy of *Rasna erandadi Niruha Basti* in the management of *Gridhrasi* vis-à-vis Sciatica.

MATERIALS AND METHODS

Source of Data

Subjects were selected from the OPD and IPD of Government Ayurveda Medical College & Hospital and Government Hi-tech Panchakarma Hospital, Mysuru.

Study Design

Comparative clinical study with pre and post- test design. The study was completed on 50 subjects, 25 individuals in each group. Total 52 subjects were registered with 2 dropouts.

Inclusion Criteria

- Subjects of all gender between the age group of 25-65 years with the signs and symptoms of *Gridhrasi* vis-à-vis Sciatica were selected for the study.
- Both freshly detected and treated cases of Gridhrasi vis-à-vis Sciatica (with the flush out period of seven days) were taken for the study.

Exclusion Criteria

- 1. Sciatica with congenital deformities of spine.
- 2. Infective conditions of spine.
- 3. Neoplastic conditions of lumbar spine.
- A subject with history of recent fracture (< 1year) of lumbar spine was excluded.
- 5. Subjects suffering from diabetes mellitus, known hypertension (BP>150/100 mmHg) and other

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systemic disorders which interfere with the intervention was excluded.

- 6. Subjects who were unfit for administration of *Basti* karma.
- 7. Pregnant and lactating women were excluded.

Diagnostic Criteria

- Subjects with following symptoms of Gridhrasi were taken for the study- Ruk (pain), Toda (pricking sensation), Stambha (stiffness) and Spandana (twitching sensation) in Sphik, Kati, Prushta, Uru, Janu, Jangha and Pada.
- Presence of radicular pain that included sudden or gradual onset of low back ache, radiating to buttock, thigh, calf and foot.
- 3. SLR test as objective measure for diagnosis.
- 4. Positive Bragard's sign.
- 5. X-ray: AP & Lateral view of Lumbo-sacral spine.

Assessment

Subjective Parameters

1. Stambha (Stiffness)

- No stiffness STO
- Mild stiffness ST1
- Moderate stiffness ST2
- Severe stiffness ST3

2. Ruk (Pain)

- No pain RO
- Mild pain R1
- Moderate pain R2
- Severe pain R3

Objective Parameters

- 1. Straight leg raising test
 - <20 degree Severe</p>
 - 20-40 degree Moderate
 - 40-60 degree Mild

2. Bragard's sign - Positive/Negative

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Assessment of Functional Ability (Sugarbaker and Barofsky Clinical Mobility Scale) - Annexure -1

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Assessment Schedule

Pre test assessment - Oth day: before intervention.

Mid test assessment - 9th day: after completion of *Kati Basti* and *Niruha Basti*.

Post test assessment - 25th day: after completion of intervention.

Statistical Methods

- 1. Descriptive statistics
- 2. Chi-square test
- 3. 't' test
- 4. Cramer's V test
- 5. Repeated measure ANOVA

All the statistical analysis were done using windows SPSS software.

Intervention

Group A -_Katibasti, Dashamoola Niruha basti in Yoga basti pattern for first 8 consecutive days of intervention from 9th day to 25th day *Erandabija Payasa* 80ml in two equally divided dosage at morning and night after food was given.

Group B - Katibasti, Rasna Erandadi Niruha Basti in Yoga Basti pattern for first 8 consecutive days of intervention from 9th day to 25th day Erandabija Payasa 80ml in two equally divided dosage at morning and night after food was given.

Total duration of intervention : 25 days

Assessment Schedule

Pre test assessment - 0th day: Before the commencement of intervention.

Mid test assessment - 9th day: After completion of *Kati Basti* and *Niruha Basti*.

Post test assessment - 25th day: After completion of intervention.

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OBSERVATION AND RESULTS

The data was collected from subjects based on the scoring given to each symptom as mentioned in the assessment criteria and results were analyzed statistically.

Results on Straight Leg Raising Test (SLR)

The change in mean value was assessed of SLR value in both groups, the difference in mean was found in Group A- 25 units (0th day-53.4, 9th day- 64.8, 25th day 78.4) Group B -28.4 units (0th day- 49.2, 9th day-60.2, 25th day-77.6) with significance of "P" value both groups 0.000.

The average SLR test result difference of mean value of Group- B was improved to 77.6 degree, it can be inferred that Group-B has slight advantage over Group A.

Results on Bragard's Sign

In Group A 25(100.0%) subjects and Group B 25 (100.0%) subjects had Bragard's sign positive in pre test assessment. In mid test Group A 15(60.0%) subjects remained positive and 10 (40.0%) subjects showed negative Bragard's sign, Group B 12 (48.0%) subjects remained positive and 13 (52.0%) subjects showed negative Bragard's sign. In post test assessment Group A 2 (8.0%) subjects showed Bragard's sign positive and 23 (92.0%) subjects showed Bragard's sign negative, Group B all 25 (100.0%) subjects showed Bragard's sign negative.

Both the groups were statistically highly significant with "P" value 0.000. Group B showed 100.0% results, i.e., Bragard's sign was negative in all 25 subjects and Group A showed 92.0% results, 2 subjects remained with positive Bragard's sign after completion of intervention.

Results on Ruk Parameter

In Group A on 0th day assessment, 12 (48.0%) subjects had severe pain, moderate pain in 13 (52.0%) individuals and Group B 17 (68.0%) subjects had severe pain, moderate pain in 8 (32.0%) subjects. On 9th day, mid test assessment Group A 13 (52.0%) subjects had moderate pain and 12 (48.0%) subjects had mild pain and Group B 18 (72.0%) subjects had moderate pain and 7 (28.0%) subjects had mild pain. On 25th day, post test assessment Group A 13(52.0%) individuals had mild pain and 12 (48.0%) individuals had no pain, Group B 1(4.0%) subjects had moderate pain, 18 (72.0%) subjects had mild pain and 6 (24.0%) subjects had no pain. Both the Groups were statistically highly significant results with "P" value of 0.000.

Results on Stambha Parameter

In Group A 0th day, pre test assessment of stiffness was severe in 5 (20.0%) subjects, moderate in 14 (56.0%) subjects and mild in 6 (24.0%) subjects and Group B severe stiffness in 4 (16.0%) subjects, moderate in 21 (84.0%) subjects. On 9th day mid test assessment, Group A moderate stiffness in 6 (24.0%) subjects, 15 (60.0%) subjects had mild stiffness and 4 (16.0%) subjects had no stiffness and Group B, moderate stiffness in 6 (24.0%) subjects, 19 (76.0%) subjects had mild stiffness. On 25th day post test assessment, Group A 8 (32.0%) had mild stiffness and 17 (68.0%) subjects had no stiffness and Group B 6 (24.0%) had mild stiffness and 19 (76.0%) subjects had no stiffness. Both Groups showed statistically highly significant results with "P" value of 0.000.

Group- B showed 76.0% improvement and Group -A showed 68.0% improvement with *Stambha* parameter, hence Group B showed better results than Group A.

Results on Functional Ability Scale Value

The Functional ability scale value was assessed in both groups, the difference in mean was found in Group A-5.68 (0th day- 15.16, 9th day-19.64, 25th day-20.84) and Group B -5.92 (0th day-16.080, 9th day-18.32, 25th day 22.00). The difference of mean value of Group- B showed 0.24 units greater as compared to Group -A, hence Group B showed better results than Group A.

Results Based on Overall Assessment

The overall results of study, 12(48.0%) subjects in Group A and 13(52.0%) in Group B got complete relief. Marked improvement in Group A- 9(36.0%) subjects and Group B- 10(40.0%) subjects. Group A- 2(8.0%) individuals and Group B- 2(8.0%) subjects got

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moderate relief and Group A- 2(8.0%) subjects got mild relief of symptoms of *Gridhrasi*.

Hence it can be inferred Group B showed slightly better results than Group A.

Table 1: Overall Assessment of Results

Assessment	Group A	Group B	Total
Complete Relief	12 (48.0%)	13 (52.0%)	25 (50.0%)
Marked Improvement	9 (36.0%)	10 (40.0%)	19 (38.0%)
Moderate Improvement	2 (8.0%)	2 (8.0%)	4 (8.0%)
Mild Improvement	2 (8.0%)	0	2 (4.0%)
No Improvement	0	0	0
Total	25 (100.0%)	25 (100.0%)	50 (100.0%)

DISCUSSION

Snehana is important line of treatment of Vatavyadhi. Gridhrasi is disease caused due to Vata Dosha and Dhatu Kshaya Nidana hence Snehana acts as Vatahara (alleviates Rukshata, Laghuta and gives Snigdhata to body) helps in nourishment of Dhatu and alleviates the symptoms.

Abhyanga is done to Kati Pradesha and Adhoshaka with Kshirabala taila. Taila acts as Vatahara, Dhatuposhaka and alleviates the symptoms. Sushruta Samhita has mentioned the duration of Abhyanga, after 900 Matra Kala (285 sec) Sneha can reach the Majja Dhatu. It signifies action of Sneha on Asthi, Majja Dhatu which are involved in Gridhrasi.

In the present study *Katibasti* with *Kshirabala Taila* and *Sthanika Abhyanga, Nadi Sweda* to *Kati Pradesha*, both lower extremities were done prior to *Niruha Basti. Sthanika Nadi Sweda* relieves *Stambha, Gourava* and also acts *Vatahara, Vedana Sthapaka* by improving the local blood circulation and thereby increasing the pain threshold.

Basti karma is mentioned as important Chikitsa Upakrama for Gridhrasi. The ingredients of Niruha Basti in the present study possess therapeutic action of alleviating the Vata and Kapha Dosha. Rasna Erandadi Niruha Basti was selected for the study as it is Vata Shamaka, Vedana Sthapaka and has Shulahara properties, specially indicated in Jangha, Uru, Trika, Prushta, Parshwagata Shopha.

Dashamoola Niruha Basti, having Tridoshagna, Vatashamaka, Vedana Sthapaka and Shothagna properties.

In the present clinical trial the *Basti* was administered in *Yoga basti* pattern. *Katibasti* with *Kshirabala Taila*. *Erandabija Payasa* for oral administration was selected, as it is indicated in *Gridhrasi*. *Eranda* is having *Balya* and *Vatahara* properties.

The procedural effect of *Katibasti* seems to produce *Sthanika Snehana* and *Swedana* effect.

The hypothetical procedural effect can be understood as follows

Katibasti has *Swedana* effect by retaining and maintaining the temperature of oil throughout the procedure and relieves spasm of the muscles, improves the blood circulation to the local area, thereby increases the pain threshold and reduces pain.

Katibasti by virtue of its *Snehana* property nourishes the *Asthi Dhatu, Sira, Snayu* and strengthens nerves.

Pakwashaya is the Mula Sthana of Vata Dosha, Niruha Basti acts on Pakwashaya alleviates the Vata dosha which is the main causative factor of Gridhrasi. Basti Dravya resides in Pakwashaya, draws the Dosha from all over the body through its Virya reaching into minute channels by Sukshma Guna and Vata dosha is pacified by Ushna and Snigdha Guna of the Basti Dravya.

The *Basti* selected for the study have the therapeutic properties of *Vata-Kapha Hara, Amahara*.

The Ushna, Tikshna Guna does Dosha Vilayana, which in turn decreases the Sroto Abhishyandana. Gomutra is Kapha-Vata Hara, it possesses the properties like Agnidipana, Shulahara, Shothahara also does the Srotovishodhana which inturn leads to Vatanulomana

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thus, normalize the *Apana Vata Gati* and expels vitiated *Vata Dosha, Ama* and *Kapha Dosha* from the body.

In Anuvasana Basti, Kshirabala Taila and Saindavadhya Taila were used. Taila due to its Snigdha quality destroys the Rukshata of Vata Dosha and because of Guru and Ushna quality destroys Laghu and Shita Guna of Vata dosha respectively. Saindavadhya Taila mainly possess Katu Rasa, Tikshna Guna and Ushna Virya, it does Vata-Kapha Hara with actions such as Shulahara, Shothahara, Dipana and Pachana properties.

Kshirabala Taila possess the quality of Madhura Rasa, Snigdha Guna and Madhura Vipaka and acts as Vatahara and Brimhana. Kshirabala Taila has Asthi Poshaka, Vedana Stapaka properties.

Eranda has the properties *Madhura, Katu* and *Kashaya Rasa, Tikshna, Sukshma* and *Snigdha* quality and *Ushna Virya* helps in penetrating the minute channels. It is best *Kapha-Vatahara* and *Vrushya* indicated in all *Vata* disorders like *Gridhrasi, Katishula*. The drug possesses anti-inflammatory, analgesic activity.

Eranda Bija due to its *Snigdha* quality decreases the *Ruksha Guna* of *Vata Dosha* and acts as *Vata Anulomana* hence, thereby maintaining the normal *Gati* of *Vata Dosha*.

In the present study 80 ml of *Erandabija Payasa* was administered in two equally divided dosage at morning and night after food, it was found that few subjects had loose stools 2-3 times a day and subject with irregular bowel habits had regular passage of stools.

CONCLUSION

Gridhrasi is a *Vataja Nanatmaja Vyadhi*, *Dushya* such as *Asthi*, *Majja* and *Snayu*, *Srotas* such as *Astivaha*, *Majjavaha* plays an important role in the pathogenesis of the disease. Sciatica is a painful condition of low back ache radiating to bilateral foot, often there is a history of trauma to lowback, weight lifting, intervertebral disc prolapse, degenerative changes in disc etc. The intervention was found to be effective in both the groups. Disc bulge is due to degenerative changes which is indicative of *Vata Prakopa* hence *Basti* may be considered as best treatment. The drugs chosen for the study were having Ushna Virya, Kapha-Vata Shamaka, anti-inflammatory and analgesic properties was useful in relieving the pain and inflammation of the nerve helped in the management of Gridhrasi. The overall assessment of intervention was done based on reduction in the symptoms and improvement in the SLR value and Bragard's sign, also there was improvement in the quality of life assessed through Functional Ability (Sugarbaker and Barofsky Clinical Mobility scale). Both the groups showed statistically significant results with "P" value of 0.000. The difference of mean score of SLR value of Group-B showed 0.24 units greater when compared to Group -A and Functional ability scale value of Group- B showed 28.4 units and Group -A showed 25 units. This shows that Group B showed better results than Group A. The overall study revealed that the selected intervention Group B (trial group) Rasna Erandadi Niruha Basti showed better results than Group A (control group) Dashamoola Niruha Basti in the management of Gridhrasi vis-à-vis Sciatica.

ANNEXURE - I

Rating Mobility Finding parameter 0 Upright Does not stand posture 1 Stands only with personal (how assistance patient functions Stands with the assistance of a 2 hand-held appliance (crutch, cane, with or without walker) prosthesis) 3 Stands without assistance Walking Does not walk 0 (how Walks only with personal 1 patient assistance functions with or Walks with the assistance of a 2 hand-held appliance (crutch, without prosthesis) cane, walker) 3 Walks without assistance

Assessment Of Functional Ability (Sugarbaker and Barofsky Clinical Mobility Scale)

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Gait (how patient functions with or without prosthesis)	 Walks slowly or not at all 	0
	 Walks at a moderately slow pace 	1
	 Walks briskly 	2
	 Can jog or run 	3
Sitting (how patient functions with or without prosthesis)	 Sits only for short periods of time and prefers to lie down 	0 1
	 Sits without discomfort for short periods of time (1hr) 	
	 Sits without discomfort for longer periods of time (over 1 hr) 	2
	Sits without discomfort	3
Stair	 Cannot climb stairs 	0
climbing (how patient	 Climbs stairs with assistance of another person 	1
functions with or	 Climbs stairs with assistance of hand rail /crutches 	2
without prosthesis)	 Climbs stairs unassisted 	3
Hand-held appliances (crutches and canes)	 Cannot use crutches or cane 	0
	 Must use crutches 	1
	 Uses single crutch or cane or two crutches intermittently 	2
	 Uses no hand-held appliance 	3
Wheelchair	 Moves with the aid of wheelchair most of time 	0
	 Moves with the aid of wheelchair only for long distances 	1
	 Occasionally uses wheelchair 	2
	 Never uses wheelchair 	3
Time usage	 Spends most day in bed or on couch at home 	0
	 Spends most of day in chair at home 	1
	 Spends most of day ambulatory but confined to the house 	2
	 Spends most of day ambulatory 	3

Mobility assessment score = points for upright posture +points for walking + points for gait + points for sitting + points for stair climbing+ points for hand-held

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appliances + points for wheelchair + points for time usage

Interpretation:

Minimum score = 0 - 8

Moderate score = 8 - 16

Maximum score = 16 - 24

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