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A clinical study to evaluate the efficacy of *Raktamokshana* with *Ghati Yantra* in *Gridhrasi* w.s.r. to Sciatica

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ABSTRACT

Gridhrasi, one among the *Vatavyadhi*, is characterised by *Stambha*, *Ruk*, *Toda*, *Grahana* and *Spandhana*. It starts from *Sphik pradesha* and radiates down through the *Prushtabhaga* of *Kati, Uru, Janu, Jangha* and *Pada*. *Kandara* gets afflicted by the vitiated *Vata* to produce the clinical features of *Gridhrasi*. The two *Kandara*, one extending distally from *Paarshni* to toes and other extending above from the *Paarshni* to the *Vitapa* are involved. Sciatica is defined as a radiating pain along the course of the sciatic nerve and is felt in the back, buttocks, posterior of the thigh, legs and the foot. Sciatica has been reported to occur in 1 to 10% of the population, most commonly in the age group of 25 - 45 years. Single sitting of *Raktamokshana* was carried out and the parameters were reviewed after 7 days, 14 days and 21 days and changes in parameter were documented. There was significant reduction in the subjective symptoms such as pain, stiffness, numbness, twitching, functional disability and improvement in functional ability. Further, there was improvement in the objective parameters such as SLR test, Lasegue Test, femoral nerve stretch test and there was increased range of movements like flexion and extension when compared to before treatment. *Raktamokshana* using *Ghati Yantra* has proven effective both clinically and statistically in relieving the symptoms thus providing promising results in *Gridhrasi.*

Key words: *Ghatiyantra, Gridhrasi, Kandara, Raktamokshana, Sciatica.*

INTRODUCTION

Gridhrasi is mentioned in the 80 types of *Nanatmaja Vatavyadhi.*[1] *Acharya Sushruta* also explained it as one among the *Vatavyadhi*[2] It is opined that in *Gridhrasi* the gait of the patient becomes altered and resembles the walk of a vulture, hence the name *Gridhrasi.*

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Sciatica is defined as a radiating pain along the course of the sciatic nerve and is felt in the back, buttocks, posterior of the thigh, legs and the foot.[3] Worldwide 2% to 40% of people have sciatica. The severity of the disease hampers the quality of life of individual and affects the day to day activities. In modern medicine there is conservative treatment which provides short-term relief in pain and surgical intervention with varying results and associated with significant side effects. The recurrence rate is about 72-90 % within six months with non- surgical or conservative care and within a year there is about 15- 35% chance of recurrence of pain.[4]

Rakta nourishes all *Dhatu* and maintains the complexion of the body as well as it eliminates the toxic and waste materials from cells and tissue and hence also considered as the basis for maintenance of life in the physical body. So being a treatment modality to purify the most essential *Dhatu* of the body. *Raktamokshana* is one among the *Shodana* procedure.

ISSN: 2456-3110 ORIGINAL ARTICLE September 2023

Raktamokshana is less interventional, economical, provides immediate symptomatic relief and associated with least adverse effects when compared to the prolonged usage of NSAIDs and also the complications caused due to the abuse of NSAIDS.

Raktamokshana by *Siravyadha* has been explained in the treatment of *Gridhrasi*[5] and *Ghatiyantra* is indicated in *Avagadathararaktadushti.*[6] Hence this study has been undertaken to understand the effect of *Raktamokshana* with *Ghatiyantra* in the management of *Gridhrasi.*

This was an open label randomized single blind clinical study carried out with pre test and post test design. For this clinical trial, 30 patients were selected from the OPD and IPD of Shalyatantra Department, SDM Ayurveda Hospital Udupi. In the selected patients, *Raktamokshana* was carried out and findings were documented in the proforma designed for the study. Single sitting of *Raktamokshana* was carried out and the parameters were reviewed after 7 days, 14 days and 21 days and changes in parameter were documented.

Aim and Objectives

1. To evaluate the efficacy of *Raktamokshana* with *Ghatiyantra* in management of *Gridhrasi*
2. To review the literature related to the disease *Gridhrasi*

Materials and Methods

Study Design

An open label single group clinical study with pre-test and post-test design

Source of data

30 patients diagnosed with *Gridhrasi* were selected from the IPD and OPD of Shri Dharmasthala Manjunatheshwara College of Ayurveda Hospital, Kuthpady, Udupi.

Inclusion criteria

1. Patients with features of *Gridhrasi* such as pain over the *Sphik* (gluteal region) *Katiprishta* (back), *Uru* (thigh), *Janu* (knee), *Jangha* (calf region) extending up to *Pada* (foot); *Stambha* (stiffness), *Toda* (pricking pain), tingling and numbness of limbs, difficulty in walking.
2. Patients with positive SLR test (straight leg test) or Patients with positive Lasegue test or Patients with positive Femoral nerve stretch test

Exclusion criteria

1. Patients contraindicated for *Raktamokshana*
2. Patients with uncontrolled diabetes mellitus and hypertension.
3. Patients with congenital deformities or acquired skeletal deformities.
4. Patient with spondylolisthesis, sacroiliac arthritis, herpis simplex infection causing radiating pain.
5. Patients with spinal tuberculosis, neoplasm.
6. Any cyst compressing the nerve root.
7. Patients with any bleeding disorders.
8. Patients with rheumatoid arthritis.

Procedure

Purvakarma

- Consent of the patient was taken after explaining the procedure.
- Vitals was checked and recorded. (BP, Pulse, temperature, respiratory rate).
- After proper examination tender points were marked and cleaned with antiseptic solution.
- Cups of appropriate size depending on the site of maximum tenderness was taken and cleaned by gauze using spirit.

Pradhana Karma

- The site of maximum tenderness was cleaned with spirit.
- Cups were attached to the tender point by creating vacuum
- After 1 minute all cups were removed

ISSN: 2456-3110 **ORIGINAL ARTICLE** September 2023

- 8 superficial pricks were done with the help of disposable sterile needle no.18
- Again, the cups were placed and vacuum was created on the marked area for complete oozing of blood and till the blood clots. The amount of blood collected was recorded and the area was cleaned with sterile gauze dipped in spirit.

Paschat Karma

- *Haridra Choorna* was sprinkled over the site and dressed
- Patients were advised to take light diet and not to take spicy and oily food, day sleep and cold bath.

Duration of treatment: One day single sitting

Observation period

Study period: 7 days

Follow up on 14th day after study period.

Assessment criteria

Study Period			Follow Up
Day 1		Day 7	Day 21
BT	AT 1	AT 2	AT 3

Subjective symptoms

- *Ruja* (Pain)
- *Stambha* (Stiffness)
- *Supti* (Numbness)
- *Spandana* (Twitching)

Were scored as follows

1. No - grade 0
2. Mild - grade 1
3. Moderate - grade 2
4. Severe - grade 3

Subjective signs

- Functional Ability - Sugar baker and Barofsky Clinical Mobility Scale
- Functional disability - Oswestry disability assessment questionnaire
- Visual Analog Scale

Objective signs

- Tenderness
- Range of motion
- Straight Leg Raising Test

Degree of Straight leg raising

1. More than 90 degree - Grade 0
2. Between 71 to 90 degree - Grade 1
3. Between 51 to 70 degree - Grade 2
4. Between 31 to 50 degree - Grade 3
5. 30 degree and below - Grade 4

Extension, Forward Flexion, Lateral Flexion and Rotation is scored as:

1. Cannot extend / flex forward/laterally flex/rotate - Grade 0
2. Can extend/flex forward/laterally flex/rotate with difficulty - Grade 1
3. Can easily extend/flex forward/laterally flex/rotate - Grade 2

OBSERVATIONS AND RESULTS

Effect of subjective criteria (Wilcoxon test)

Parameters	Mean score	P value	
Pain 0th day	2.86	0-7th day	0.001
7th day	1.50	0-21st day	0.001
21st day	0.80		
Stambha 0th day	2.56	0-7th day	0.001
7th day	1.39	0-21st day	0.001
21st day	0.86		
Supti 0th day	2.40		
7th day	1.16	0-7thday	0.001
21st day	0.60	0-21st day	0.001

ISSN: 2456-3110 **ORIGINAL ARTICLE** September 2023

Spandana 0th day	2.50	0-7th day	0.001
7th day	1.20	0-21st day	0.001
21st day	0.70		

Effect of objective parameters

Parameters	Mean score	P value	
Tenderness 0th day	2.34	0-7th day	0.001
7th day	1.20	0-21st day	0.001
21st day	0.48		
SLR test 0th day	2.96	0-7th day	0.001
7th day	1.70	0-21st day	0.001
21st day	0.93		
Lasegue test 0th day	3.03	0-7th day	0.001
7th day	1.77	0-21st day	0.001
21st day	1.00		
Femoral nerve stretch0th day	2.88	0-7th day	0.001
7th day	1.74	0-21st day	0.001
21st day	1.00		

Comparing the results before and after the intervention using Wilcoxon signed rank test, reveals that it is statistically highly significant with the p value being 0.001.

Fig. 1

Fig. 2

Fig. 3

DISCUSSION

Effect on Pain

Statistical analysis showed that the mean score which was 2.86 before the treatment was reduced to 1.50 after the treatment. After the follow up it became 0.80 and there is statistically highly significant change (P<0.001)

Summary

Pain over the low back region was taken for the study and after *Raktamokshana,* there was overall improvement in the pain. This suggests that removal of the *dushitarakta* at the vicinity of the disease has significant therapeutic effect on the disease process.

Effect on Stiffness

Statistical analysis showed that the mean score which was 2.56 before the treatment which reduced to 1.39 after the treatment. After the follow up it became 0.86 and there was statistically highly significant change (P<0.001)

ISSN: 2456-3110 ORIGINAL ARTICLE September 2023

Summary

Out of 30 patients, this symptom was present in only 23 patients. It has been observed that severity of the symptom was reduced gradually after *Raktamokshana.* Significant reduction was observed in the second week after the intervention.

Effect on Numbness

Statistical analysis showed that the mean score which was 2.40 before the treatment was reduced to 1.16 after the treatment. After the follow up it became 0.60 and there is statistically highly significant change (P<0.001)

Summary

This symptom was present in 25 patients, there was overall improvement in this symptom. Thus, proving the efficacy of *Raktamokshana.*

Effect on Twitching

Statistical analysis showed that the mean score which was 2.50 before the treatment was reduced to 1.20 after the treatment. After the follow up it became 0.70 and there is statistically highly significant change (P<0.001)

Summary

This symptom was present in only 10 patients; it has been observed that severity of the symptom was reduced gradually after *Raktamokshana.*

Effect on Tenderness

Statistical analysis showed that the mean score which was 2.34 before the treatment was reduced to 1.20 after the treatment. After the follow up it became 0.48 and there is statistically highly significant change (P<0.001)

Summary

After the intervention, there was significant improvement in the symptoms.

Effect on SLR Test

Statistical analysis showed that the mean score which was 2.96 before the treatment was reduced to 1.70 after the treatment. After the follow up it became 0.93 and there is statistically highly significant change (P<0.001)

Summary

Dalhana explained that because of the ill effect on *Parshnikandara* the movement of the leg is restricted, as *Kandara* is the *Upadhatu* of *Rakta, Raktamokshana* can be justified.

Effect on Lasegue Test

Statistical analysis showed that the mean score which was 3.03 before the treatment was reduced to 1.77 after the treatment. After the follow up it became 1.00 and there is statistically highly significant change (P<0.001)

Effect on Femoral Nerve Stretch Test

Statistical analysis showed that the mean score which was 2.88 before the treatment was reduced to 1.74 after the treatment. After the follow up it became 1.00 and there is statistically highly significant change (P<0.001)

Discussion on mode of action

- *Ghati Yantra* (modified cupping instrument) is used to draw the blood from the affected site. *Ghati Yantra Raktamokshana* (Blood-letting) is one of the type of *Ashastrakruta Raktamokshna.*
- According to the modern science, it can be compared with wet type of cupping therapy in which first superficial skin incision will be taken at the affected site then a bell-shaped instrument is applied to create a vacuum so that blood is withdrawn from the affected site.
- There is no proven physiological mechanism for the effectiveness of cupping. One commonly inferred theory of cupping is that as a result of increasing blood flow to an area assist in the healing process.
- The tensile stress created from the suctioning of the skin is thought to be enough to rupture blood vessels and increase blood flow.
- Another proposed theory states that cupping has a similar mechanism to that of Acupressure in which the nervous system is activated.

ISSN: 2456-3110 **ORIGINAL ARTICLE** September 2023

- Like acupressure, cupping is thought to release chemical transmitters to block pain messages and activate the gate control theory of pain. This is theorized to occur from the vasoconstriction /dilatation occurring under the cup surface.

CONCLUSION

Raktamokshana using *Ghati Yantra* has proven effective both clinically and statistically in relieving pain, stiffness, numbness, twitching and increased range of movements like flexion and extension with promising results in *Gridhrasi.* No untoward effects were observed in any of the cases during the study. Hence this less interventional, economical method, which provides immediate symptomatic relief and associated with least adverse effects using cups and suction pumps can be adopted instead of *Ghati Yantra* to treat the diseases produced by *Vatakaphadushita rakta* in clinical practice.

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