Clinical Research

A clinical study of Nirgundi Ghana Vati and Matra Basti in the management of Gridhrasi with special reference to sciatica

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Abstract

Gridhrasi can be equated with sciatica, where pain, weakness, numbness, and other discomforts along the path of the sciatic nerve often accompanies low back pain. It is a common affliction of adults, costing billions of dollars in healthcare and resulting in more lost days of work than any other illness but the common cold. A herniated disc, spinal stenosis, piriformis syndrome, etc., can all cause sciatica. The treatment available for sciatica in modern medicine is not very satisfactory. The role of research in Ayurveda is to elucidate the underlying principles and to explain them in modern parameters. The present study was aimed at establishing clinically the effect of Nirgundi (Vitex negundo) Ghan Vati (dried water extract) alone as well as in combination with Matra Basti in the management of Gridhrasi. A total of 119 patients were registered for the study, out of which 102 patients completed the treatment: 52 patients in group A (Nirgundi Ghan Vati) and 50 in group B (Nirgundi Ghan Vati + Matra Basti). The results show that both treatments had an effect on Gridhrasi, but there was better relief of the signs and symptoms in group B. Matra Basti and Nirgundi Ghan Vati might both contribute to different extents in the recovery of the patient.

Key words: Gridhrasi, sciatica, Nirgundi Ghana vati, Vitex negundo, therapeutic enema, Matra Basti

Introduction

The most common musculoskeletal disorder affecting the movement of leg is low back pain. Among the affected patients, 40% have radicular pain and these cases can be classified under the umbrella term of sciatic syndrome. Low back pain is extraordinarily common, second only to the common cold. About 50% of working adults experience a back injury each year. The prevalence of sciatica ranges from 11%–40%. The role of research in Ayurveda is to elucidate the underlying principles and to explain them in modern parameters. A herniated disc, spinal stenosis, piriformis syndrome, etc., can all cause sciatica. The treatment available for sciatica in modern medicine is not very satisfactory.

Prof Shukla was the first to introduce Nirgundi in the oral form under his guidance in IPGT and RA following work was done for joint disorder. All the scholars have reported that Nirgundi is very effective when given orally, possessing specific properties that can check the Samprapti of joint disorders such as rheumatoid arthritis and osteoarthritis. Shodhana therapy has already been established as being better than Shamana. Matra Basti in the form of Nirapada Basti can be used as an OPD level procedure level for long time without any complication.

Hence, Nirgundi Ghan Vati and Matra Basti by Nirgundi Taila were selected for the present study. The Tila used for Nirgundi Taila preparation possess Vatashamaka properties.

Aims and Objectives

• To assess the efficacy of Nirgundi Ghan Vati and Matra Basti in the management of Gridhrasi.

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• To find a simple, effective, and cheap drug that can be used for outpatient treatment of Gridhrasi.
• To assess any side effect during the course of treatment.

Materials and Methods

A total 119 patients of Gridhrasi from among the outpatients and inpatients of Kayachikitsa and Panchakarma Department, Institute for Post Graduate Teaching and Research in Ayurveda, Jamnagar, were selected for the study.

Inclusion criteria

Subjective parameters
• Presence of Ruk, Toda, Stambha, and Spandana in the Spikh, Kati, Uru, and Puda
• Tenderness along the course of the sciatic nerve
• Patients in the age-group of 20–60 years

Objective parameters
• SLR test in affected leg as objective measure for diagnosis and assessment of improvement in treatment
• Popliteal compression test, knee jerk, and ankle jerk

Exclusion criteria
• Benign or malignant tumor of the spine or tuberculosis of the vertebral column
• Uncontrolled diabetes mellitus, cardiovascular disease, and pregnancy

Investigations
Routine investigations were done in all cases included hemoglobin, total leukocyte count, differential leukocyte count, erythrocyte sedimentation rate, fasting blood sugar, and RA factor; routine examination of urine and stool; and x-ray of lumbosacral region (anteroposterior and lateral view).

Posology

Drugs
1. Nirgundi Ghana Vati (oral), each tablet 500mg
2. Matra Basti and local Abhyanga by Nirgundi Taila.

Grouping

Patients were randomly divided into two groups:

Group A: Nirgundi Ghana Vati, 2 tablets thrice daily after meals (i.e., 3 gms/day)
Duration: 30 days; Anupana: with lukewarm water; local Abhyanga and Swedana: for 21 days; in three sittings, each sitting of 1 week duration, followed by a 3-day interval.

Group B: Same treatment as in group A + Matra Basti with 60 ml of Nirgundi Taila for 21 days; in three sittings, each sitting of 1 week duration, followed by a 3-day interval.

Follow-up: 1 month

Criteria for assessment

The data presented as general observations viz. age sex, religion, etc. Nidana and Lakshana. The result of therapy was evaluated on the basis of improvement in subjective parameters on various rating scales. For statistical analysis, we calculated means, standard deviations and standard errors, and percentages.

Student’s paired ‘t’ test was used for assessing the differences between groups. The obtained results were interpreted as: nonsignificant: P>.05, significant: P<.01, and highly significant P<.001. The chi-square test was used for subjective parameters. The total effect of therapy was assessed taking into consideration the overall improvement in signs and symptoms and was calculated by the formula:

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\frac{\text{Total BT} - \text{Total AT}}{\text{Total BT}} \times 100 \times \text{Total BT}
\]

The obtained results were classified as:
Marked improvement: 75%–100% relief
Mild improvement: 51%–75% relief
Mild improvement: 26%–50% relief
Unchanged: <25% relief

Observation and Results

Out of 119 patients, 64 patients were registered in group A and, of these, 52 patients completed treatment and 12 discontinued treatment. In Group B, 55 patients were registered: 50 patients completed treatment and 5 patients discontinued treatment. Important features were as follows: 37.81% were from the age-group of 31–40 years, 64.70% were females, 91.59% were married, 91.59% were Hindus, 57.96% were housewives, 97.95% were from urban areas, 22.68% of the women were of menopausal age, 24.36% of the women had history of caesarean delivery, 60.48% were Vata-Kaphaja type, 39.48% were Vataja type, 39.48% had Vata-Pitta Prakriti, and 33.60% had Pitta-Kapha Prakriti. Among Nidana, 54.6% had Mithya Ahara, 45.36% had Katu Rasa Sevaya, 38.64% had Ritu Viparita Ahara, 57.96% had Vishamacheshtha, 18.48% had Aticheshtha, 12.70% had Bharana, 11.99% had Abhigghata, 45.36% had Chinta, 26.88% had Shoka, 45.36% had habitual constipation, and 21% had obesity. Cardinal symptoms of Ruk, Toda, and positive SLR test were found in all the patients (100%). Aruchi was seen in 74.76%, Gaurava in 46.2% Tandra in 29.45%, Spandana in 25.23%, and Dehasyapi Pravakrata (functional scoliosis) in 18.48% patients. In Dushya, involvement of Kandara-Sira-Snayus was found in 88.37%, Rasadsuhti in 81.39%, Raktaadushti in 54.88%, Mamsadsuhti in 78.90%, Medadsuhti in 50.23%, and Asthi and Majjadushti in 59.53% of patients each.

Both groups showed improvement, but group B showed better results in the chief complaints and also in the neurological findings. In group B there was relief in Ruka (62.20%), Toda (63%), Stambha (71%), SLR test (56%), and walking time (59.82%). We assessed the effect of therapy on Dosha involvement: In group A, relief in Vataja Gridhrasi was 28.84%, while it was 71.15% in Vata-Kaphaja. In group B, relief in Vataja Gridhrasi was 44%, while it was 56% in Vata-Kaphaja. Among the two groups result effect of therapy was found better in Vata-Kaphaja type of Gridhrasi and were better having chronicity less than 1 year in both groups, where most patients 68% were from group B.

The chi-square test showed good improvement (statistically highly significant; P<.001) in parameters like Ruk, Toda, and walking time in both groups; the improvement in Spandana was also significant (P<.01). Treatment did not produce significant improvement in any of the other symptoms. When the total effect of therapy is considered, treatment with Matra Basti was slightly better than Nirgundi Ghana Vati, though the difference was statistically nonsignificant (P>.05) [Table 1].
Discussion

Among the study subjects, 37.08% were in the age-group of 31–40 years and 32.77% in the age-group of 41–50 years. Thus, the 4th decade of life appears to be the initial stage of Vata Prakopa. According to modern science, there is progressive decrease in the degree of hydration of the intervertebral disc with age, leading to the cycle of degeneration. Hence, the prevalence of sciatica is high in middle-aged people. This theory is supported by the present study. Most of the patient’s (97.5%) were from urban areas; this is because of fast lifestyles and hazards associated with industrialization. A large proportion of the patients (57.96%) were housewives. Household work involves working in abnormal posture for long periods and so there is much wear and tear and higher loads on their spine. Labourers too show relatively high prevalence (8.4%) because of the heavy work they do.

Bad posture, standing, forward bending, long walking, constant sitting were the aggravating factors in 80% of patients and a constipative diet in 45% patients. A high proportion of patients (39.48%) had Vata-Pittaaja and 33.60% had Pitta-Kaphaja Prakrita, while the rest (25.20%) had Vata-Kaphaja; this suggests that Vata plays a major role in the manifestation of Gridhrasi. In Nidana, 58.8% had Katu Dravyatisesevani; ingestion of food which are Raksha, Sheeta, Laghu; Ratri jagarana; Vegavidharana; and all such factors that lead to Dhatu Kshaya and Vata Prakopaka. Vega Sandharana (found in 19.32%) and Vishama Cheshtha (in 57.96%) may be precipitating factors of Gridhrasi as they cause strain on the spine. History of Abhighata was found in 11.99%, which indicates that the presence of a prior Kha-Vaiguonya increases the incidence of Gridhrasi. As much as 45.36% of patients had Mansik factors such as Atichinta, which reflects the role of tension in Vata Prakopa.

History of cesarean delivery was present in 24.36% of the women; possibly epidural anesthesia adversely affects the lumbosacral area. Among the female subjects, 22.68% had reached menopause, indicating that degenerative changes occur earlier in relation to male. Twenty-one percent of the women were obese; excessive pressure is exerted on the weight-bearing joints such as the lumbosacral joint, and the nerves originating from this area were affected. In x-ray findings, 10.08% had spondylosis and osteoporosis, 5.04% had sacralisation, 9.49% had spondylolisthesis at L5-S1, and 5.04% had Schmorl’s node and lumbar canal stenosis, where the spinal canal narrows and compresses the spinal cord or sciatic nerve roots. Patients with normal x-ray findings were included under pfiriforms syndrome.

Effect of therapy: Improvement of pain and Toda was more in group B (62.19%) in comparison to group A (38.69%). Pain is produced mainly by Vata Prakopaka, and Basti is the best treatment for Vata. Usna Virya of Nirgundi and Til-Sneha act synergistically to reduce pain and hence the better relief in group B. The analgesic and anti-inflammatory action of Nirgundi can be attributed to its flavonoid content, which are known to act through inhibition of prostaglandin biosynthesis.

Toda: This shows that nearly half of the patients who have disturbed Nidra by Toda as night is Vata Prakopaka Kala, so Toda might be aggravated during this Kala, group (group B) showed better improvement in Toda (62.90%) than group A (45.03%). Matra Basti acts as Vataanulomana and relaxes the spinal muscles controlling Apana Vayu. Spandana occurs due to Vata and is better relieved by Matra Basti.

Comparative relief in neurological findings (SLR test): Saktihikespanigrahya was measured by the SLR test. In group B, Nirgundi Ghan Vati and Matra Basti provided 55.97% relief, which was statistically highly significant (P<0.001). (Dehasya Pravakrata) Group B showed better (60%) relief than group A (P<0.001) [Figure 1]. With Matra Basti, all the patients were able to lift the leg higher due to reduction in muscular spasm. In group B, walking time were relieved (59.62%) and jerks (68.75%) better than group A [Figure 2] may be due to Vatkapha Shnak properties, Snidhga decrease Raksha of Vata and Vasti may help in breaking the Sanga and Margavrodi. Group B showed better results in the chief complaint and the neurological findings, as Matra Basti may be helping in controlling both Vata and Kapha and breaking the Samprapti.

Effect of therapy on Dosha involvement: In group B, Vataja types result was statistically highly significant (P<0.001) with relief of 56%; this was possibly due to the Vatahara effect of Sneha-Basti.

Effect of therapy on Dushya involvement: In group B, statistically highly significant result was found in the improvement of symptoms of Dushti of Rasa, Mamsa, Asthi, Majja, and Kandara-Sira-Snayu and significant result was found in the Dushti of Rakta and Meda in comparison to group A, proving the effect of Matra-Basti in combination with oral Nirgundi Ghan Vati. The overall effect of therapy is shown in Table 2. The therapy on follow-up showed that maximum number of patients (70.56%) had no recurrence of symptoms during the period of follow-up of 1 month. Recurrence was more common in group A than in group B, which shows that the combination of the oral drug and Matra Basti provides better radical cure.

Probable mode of action of Nirgundi Ghan Vati

Vata and Kapha are the main chief causative factors for Gridhrasi; they can be pacified by Tikta and Katu Rasa present in Nirgundi Ghan Vati. Also, its Tikshna Guna and Usna Virya pacify vitiating Vata. Thus, Nirgundi controls both Kapha.

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**Table 1: Effect of therapy on chief complaints of 102 patients**

| Chief complaint | Chi-square value | P  | Chief complaint | Chi-square value | P  |
|-----------------|-----------------|----|-----------------|-----------------|----|
| Ruk             | 24.409          | <.001 | Aruchi         | 1.347           | <.5 |
| Toda            | 18.850          | <.001 | Gaurava        | 1.464           | <.5 |
| Stambha         | 0.886           | <.5  | SLR Test       | 1.777           | <.5 |
| Spandana        | 3.177           | <.10 | Walking time   | 14.61           | <.001 |

**Table 2: Overall total effect of therapy**

| Total effect of therapy | No. of patients |
|-------------------------|-----------------|
| Group A                 | Group B         |
| Mild improvement        | 31 (59.52%)     | 25 (50.00%)    |
| Moderate improvement    | 14 (26.8%)      | 16 (32.00%)    |
| Marked improvement      | 7 (13.44%)      | 9 (18.00%)     |
and Vata together and minimizes the process of pathogenesis. Fresh leaves of Vitex Negundo have anti-inflammatory and pain-suppressing activities, possibly mediated via inhibition of prostaglandin synthesis.\(^9\)

Due to the presence of Nirgundi Taila, Matra Basti can be considered as Laghu, Snigdha, Ushna, and Tikta, having Vata-Kapha Shamaka action that antagonises Kapha and Vata.\(^10\) Taila Snigdha Guna antagonises Ruksha of Vata and Tikshna Guna helps in removing Srotodhara due to 'Sanga' [Table 3]. Hence, Matra Basti directly pacifies Apan Vayu, restoring equilibrium of Agni which controls both Samana Vayu and Pran Vayu.

Just as destruction of the roots kills a plant, Vasti administration destroys disease. Moreover, Basti is best for Vatavyadhi also for Asthi Gata disease Vasti and Tikta drug is beneficial.\(^11\) Asthi being the site of Vata and Vasti materials purify the Purishadhara Kala.\(^11\) Asthi Vaha Srotas may be purified, and vitiated Vata get subsided. Pakwasha, in the main sites of Vata and Basti drug, i.e., mainly Sneha, possesses Vata Shamaka property. Here, it is noteworthy that the Nirgundi oil, used for Basti, possesses Vata Kapha Shamaka properties due to Ushna Virya, and thus suppresses the disease.

**Conclusion**

Both treatments have effect on Gridhrasi. Although Nirgundi Ghan Vati showed good results, Nirgundi Ghan Vati with Matra Basti provided better relief of the signs and symptoms. Nirgundi is cheap, easily available, free from controversy, and very effective in joint disorders.

Shamana therapy does not appear to be solely responsible for the end result. Therefore, Matra Basti and Shamana drug both might be contributing together to different extents in the recovery of the patient. Vasti clears the Srotas by removing Mala and Avarana, conquers the Ruksha of Vayu with Snigdha Guna, and also normalizes Apan Vayu which is the main culprit. The selected treatment does not work only to relieve symptoms, but it works at the level of Samprapti and minimizes the chances of recurrence of the disease. Thus, the benefits of treatment persisted during the follow-up period of 1 month. To prevent radiation hazards, MRI may be taken as objective parameter.\(^12\)

**Table 3: Pharmacodynamics of Nirgundi Taila in Matra Basti**

| Drugs      | Rasa          | Guna   | Virya | Vipaka | Doshghnata | Karma          |
|------------|---------------|--------|-------|--------|------------|----------------|
| Nirgundi   | Tikta, Katu,  | Laghu  | Ruksha| Ushna  | Vata-Kapha↓ | Shhopa-nashaka, Shulanashana, Deepana, Vatahare, Vedanasthapana, Antidiuretic |
| Tila       | Madhura, Kashaya, Tikta | Guru, Snigdha | Ushna | Madhura | Vata↓ |               |

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