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Assessment Of Grudhrasi Kwath In The Treatment Of Grudhrasi (Sciatica)

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ABSTRACT

Background: Grudhrasi, described in Ayurveda as one of the eighty types of Vatavyadhi, is clinically correlated with Sciatica in modern medicine. According to standard classification, its codes are ICD-10: M54.3 (Sciatica), ICD-11: ME84 (Sciatica), and NAMC Code: AYU-VAT-0603 The purpose of the present study is to evaluate the therapeutic efficacy of Grudhrasi Kwath in the management of Grudhrasi, focusing on symptomatic relief and functional improvement, thereby providing evidence-based support for Ayurvedic intervention in this condition.

AIM- Assessment of the effect of the Grudhrasi Kwath in patient of Grudhrasi

OBJECTIVES-1. To prepare & analyse formation (Grudhrasi Kwath) in laboratory.
2. To study the side effect of Grudhrasi kwath.
3. Methodology- A single- arm open label clinical trial conducted on 40 patients with diagnosed Grudhrasi (Sciatica) based on ayurvedic symptoms & SLR test, Waking Time Test, Coin test. Patient received Grudhrasi Kwath (40 ml BD) for 30 days. & follows- up at regular intervals (0th 7th,14th,21th,28th,30th days). Data will be collected based on symptom severity using VAS; within-group analysis will use Wilcoxon's Signed Rank test (subjective) and Paired t-test (objective), while between-group analysis will use Mann-Whitney test (subjective) and Unpaired t-test (objective).

Results- Treatment with Grudhrasi kwath resulted in Significant improvement across all parameters. Symptoms like Ruk(pain)88.33%, Stambha (Stiffiness)88.66%, Spandan 1pain)95.89%, Gaurava (Heaviness)92.86%, Straight Leg Raise Test 83.67 %, Waking Time Test 85.26 %, Coin Test97.50 %, Vas scales 84.23% show improvement was observed.

All improvement were statistically significant $p<0.05$). importantly no adverse effect was observed during this study.

Conclusion-Grudhrasi Kwath is effective in management of Grudhrasi.

Therefore H0 (null hypothesis) is a Rejected & H1 (Alternative Hypothesis) is accepted.

Grudhrasi Kwath show positive Results in management of Grudhrasi.

No adverse effects found.

KEYWORDS: Sciatica, Grudhrasi Shaman Chikitsa.

ABBREVIATIONS- SLR, Waking time, Coin test B. T (Before Treatment), A.T (After treatment)

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INTRODUCTION

Among the eighty Vata-nanatmaja disorders described in the *Charaka Samhita*, Gridhrasi is considered one of the most common[3]. The stresses of modern lifestyle such as long working hours, irregular postures in offices and factories, sedentary habits, overexertion, sudden movements, heavy lifting with incorrect posture, and jerky activities during travel or sports, contribute significantly to the worsening of this condition[4].

The term *Gridhrasi* (Sciatica) is derived from "Grudhraus," extended with the "Din" pratyaya[5]. The name indicates the characteristic gait of patients suffering from this disease, in which the stiff, slightly bent legs create a walk resembling that of a vulture. The symptoms include *stambha* (stiffness), *ruk* (pain), *toda* (pricking sensation), and *spandana* (tingling)[6], which

correlate closely with the clinical features of Sciatica such as radiating pain, numbness, tingling in the lower limbs, and restricted mobility.

From a clinical perspective, Gridhrasi corresponds with Sciatica. According to international standards, it is classified under ICD-10: M54.37 (Sciatica), ICD-11: ME84 (Sciatica)[7], and NAMC: AYU-VAT-06038 (Gridhrasi – Vata Vyadhi)[8]. The disease manifests with pain, pricking sensations, stiffness, and tingling radiating across the hip, back, waist, thigh, knee, calf, and foot. If Kapha is associated with Vata, symptoms may extend to drowsiness (*tandra*), heaviness (*gaurava*), and loss of appetite (*aruchi*)[9]. Sciatica, in modern terms, refers to pain radiating along the sciatic nerve, often accompanied by numbness, stiffness, or prickling sensations. Ayurveda identifies Gridhrasi as a *Kricchrasadhya Vyadhi* (difficult-to-cure disorder)[10]. Epidemiological data suggest that Sciatica affects up to 7.9% of the non-working population and about 3.8% of the working population, with the highest prevalence in individuals in their 40s and 50s. Men are affected more commonly than women. Low back pain, closely related to Sciatica, is recognized as the fifth most common reason for hospitalization and the third most frequent basis for surgery[11].

Despite advances in modern medicine, a definitive cure for Sciatica remains elusive. In contrast, Ayurveda offers promising management strategies through herbal and herbo-mineral formulations. In *Sharangdhar Samhita – Madhyam Khand*, a preparation called Gridhrasi Kwatha is described under *Kwatha Kalpana Adhyaya* for the management of this disease. The decoction comprises *Dashamoola*, *Hingu*, and *Erandamoola*. It may be administered in the form of *Kwatha* (decoction) or *Arishta* (fermented preparation).

Traditionally, these formulations have been employed for managing pain syndromes including arthritis, headaches, fever, abdominal bloating, and costochondral pain. Dashamoola, consisting of ten herbs, is understood to possess diverse roles such as adjuvant, stabilizer, and carrier. Its ingredients have demonstrated notable anti-inflammatory and analgesic properties in experimental models[11]. *Hingu* (asafoetida) is identified with properties like *Katu rasa* (pungent taste), *Laghu* (lightness), *Snigdha* (unctuousness), *Teekshna guna* (sharpness), *Ushna veerya* (hot potency), and *Katu vipaka* (pungent post-digestive effect). As per *Charaka Samhita*, it is included under *Deepaniya*, *Swashara*, and *Sangyasthapan Mahakashaya*. Pharmacologically, it is described as acrid, thermogenic, carminative, cardiotonic, anti-inflammatory, digestive, anodyne, expectorant, and aphrodisiac. It is chiefly used to pacify Vata and Kapha doshas and to relieve disorders such as *hikka* (hiccups), *shwasa* (dyspnea), and *parshva shoola* (side pain)[12]

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MATERIAL & METHODS

Material- patient with *Grudhrasi* symptoms were included in this study. The selections of patients based on *Grudhrasi* sign & symptoms such as, Ruk, Stambha, *Spandana, Aruchi, Tandra, Toda, Gaurava* which corresponding to Clinical manifestations of ayurveda.

The *Kayachikitsa* Departments Outdoor patient department (OPD)& indoor patient departments (IPD) at Bharati Vidyapeeth (Deemed to be) University college of Ayurved & Hospital Pune. Based on Prevalence Rate of *Grudhrasi* seen in hospital OPD/IPD as a total sample size 40 patients was established.

Drugs-
Grudhrasi kwath is a traditional Ayurvedic decoctions prepared by *Dashmoola Bharad, Erandmoola churna,Hinga choorna* was the therapeutic interventions employed in this investigation to guarantee excellent quality and authentically, both natural ingredients were purchased from pharmacies with GMP certifications. The ayurvedic pharmacopeial standards were followed during authentications procedure.

Standardizations of Drug- in order to ensure uniformity and therapeutic effectiveness, *Grudhrasi kwath* was prepared in accordance with standard operating procedure (SOP)

Method of preparation[13]- Ingredients- 20 Gram of *Dashamoola Bharad, 3 Gram Erandamoola Churna, 1 Gram Hinga churna.*
Method of Decoctions- 320 ml of water containing 16 times the weight of *Dashmoola Bharad* was cooked at low heat until the mixture had decreased to 40 ML, or 1/8th of its capacity.

Erandamoola churna, Hinga churna powder was added to brew once it had cooled to room temperature.
To Guarantee compliance, this preparatory technique was explained to patients in writing using straightforward, local language.

METHODOLOGY

Screening and Selection of Patients – Patients were screened based on**:**
• Classical Ayurvedic symptoms of *Grudhrasi*
• Severity of symptoms measured through the Visual Analog Scale (VAS)
Positive of Straight leg raise test, waking time test, coin test.
Only those meeting the inclusion criteria and providing informed consent were enrolled in the study.

Inclusive & Exclusion Criteria-
Inclusion criteria- Patients of age between 18-70 years of both Gender
Patients with presence of *Ruk*(pain), *Toda* (Pricking Pain), *Stambha* (Stiffness), and *Spandan* (Twitching) in the *Spik, Kati* (Waist) *Uru, Janu* (Knee joint), *Jangh* (calf muscles) and *Pada* (feet).

Exclusion criteria-

- Patients suffering from several traumatic injury, spinal tumours and spinal deformity.
- Patients of *Grudhrasi* associated with any of following disorder will be excluded from study such as- Rheumatoid arthritis, auto immune disease.
- Any other inflammatory disorder like Tubercular Arthritis Septic Arthritis, Tuberculosis of spine.

Consent: Prior to starting the intervention, written informed consent was acquired from each participant. The consent procedure placed a strong emphasis on the patient's comprehension of the goals, methods, and possible dangers or advantages of the study.

Intervention –
The study intervention involved the administration of *Grudhrasi Kwath* as follows:
• **Dosage:** 40 mL, twice daily.
• **Timing (Kala**): Before lunch and dinner.
• A**djunct (Anupana):** Lukewarm water was provided post-administration to improve palatability if necessary.
• **Treatment Duration**: 30 days
. • **Follow-Up Visits**: Scheduled on the 0^{th},7th, 14th, 21st, 28th, and 30th days to monitor patient compliance and assess symptom progression.

Parameter	Details
Number of Patients	40
Medicine	*Grudhrasi Kwath (DashmoolaBharad + Erandamoola churna + Hinga Churna)*
Dose	40 ml Twice a Days
Timing (Kala)	Before meals
Route of Administration	Oral
Adjunct (Anupana)	Lukewarm water
Treatment Period	30 Days
Follow-Up Days	7th, 14th, 21st, 28th, and 30th day

For clarity and repeatability, Table 1: Intervention Schedule provides a summary of the intervention's specifics, including medication preparation, dose schedule, and follow-up protocols**.**

Study Design
Due to the intentional single-arm, open-label clinical trial design, *Grudhrasi Kwath* therapeutic effects may be directly observed without the need for a control group. The goal of the study design was to follow ethical research procedures while offering first information on the safety and effectiveness of the intervention. For transparency and credibility, the trial was registered with the Clinical Trials Registry-India (CTRI/2024/02/063363) and ethical clearance was received (Ref. Project BVDUCOA/EC/MD/KC/2023-24).

ASSESSMENT PARAMETERS-

Subjective parameter:[14., 15]

1} *Ruka* (pain):

Parameters	**Grade**
No pain	0
Occasional Pain	1
Mild pain but no difficulty in walking	2
Moderate pain but Slight difficulty in walking	3
Severe pain with Severe difficulty in walking	4

2}*Toda* (Pricking Sensation):

No pricking sensation	0
Occasional pricking sensation	1
Mild pricking sensation	2
Moderate pricking sensation	3
Severe pricking sensation	4

3} *Stambha* (Stiffness)

No stiffness	0
Sometime for 5-10 min	1
Daily for 10-30 min	2
Daily for 30-60 min	3
Daily more than 60 min	4

4} *Spandana* (Twitching)

NO Twitching	0
Sometime for 5-10 min	1
Daily for 10-30 min	2
Daily for 30-60 min	3
Daily more than 60 min	4

5} *Aruchi: (Anoroxia)*

No Anoroxia	0
Mild Anoroxia	1
Moderate Anoroxia	2
Severe Anroxia	3

***6} Tandra* (Drowsiness)**

No Tandra	0
Mild Tandra	1
Moderate Tandra	2
Severe Tandra	3

7} *Gaurava* (Heaviness)

No Gaurava	0
Mild Gaurava	1
Moderate Gaurava	2
Severe Gaurava	3

Objective parameters

1. S.L.R test (Straight leg Rasing Test[16])

Straight leg Raise	90º	0
Straight leg Raise	60º	1
Straight leg Raise	30º	2
Straight leg Raise	0º	3

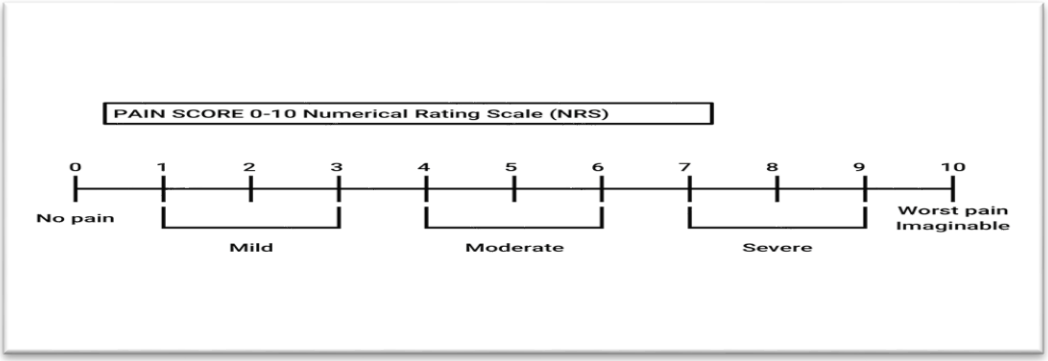
2: Walking Time:[17]

Walking Time	**Grade**
Up to 20 second	0
21 sec to 40 second	1
41 second- to 60 second	2
More than 60 second	3

3: **Coin Test**:

0	Absent
1	Present

VAS scale [visual Analogue scale]:



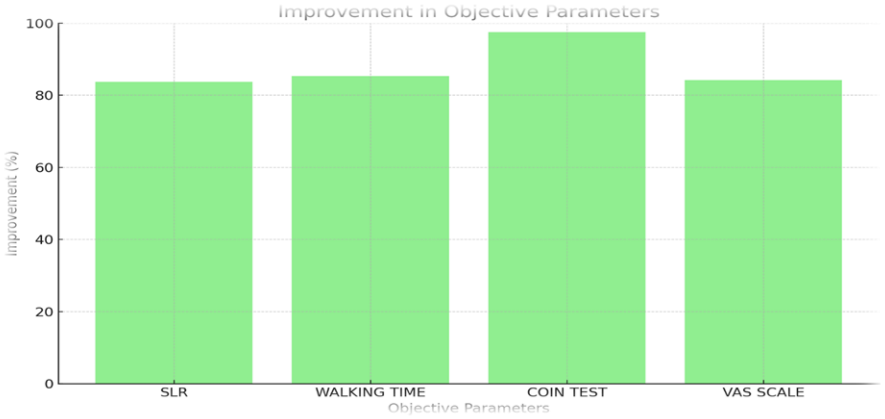
Statistical Analysis

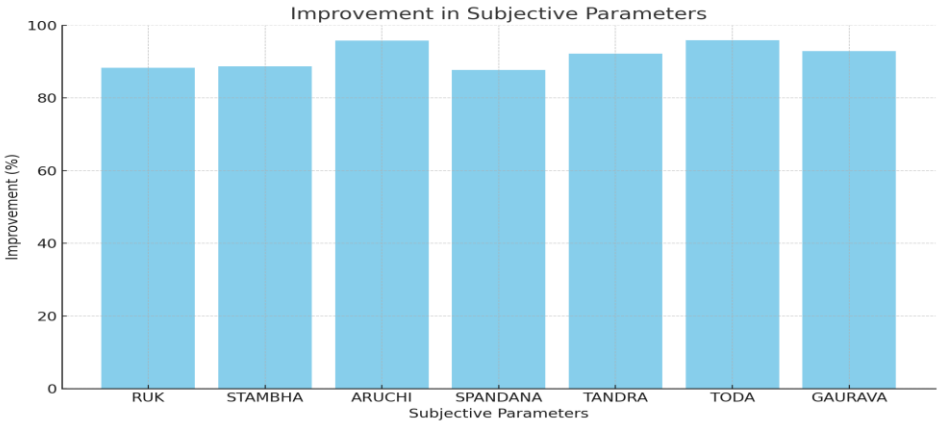
Appropriate statistical technique was used to asse the result

The Wilcoxon signed – Rank Test, a non- parametric test, is used to evaluate ordinal data. Including degree of subjective symptoms as assessed by Vas scales**.**

Parametric test (Paired t-test) used to evaluate changes before & after treatment for quantitative data**.**

STATISTICAL OBSERVATIONS





Overall Analysis and Interpretation – Subjective Criteria

The subjective parameters, which include pain (*RUK*), stiffness (*STAMBHA*), anorexia (*ARUCHI*), twitching (*SPANDANA*), drowsiness (*TANDRA*), pricking pain (TODA), and heaviness (*GAURAVA*), showed significant improvement after treatment with *Grudhras*i *Kwath*. The improvement ranged from 88.33% to 95.89%, indicating substantial relief from symptoms. The statistical analysis ($p < 0.05$) confirms that the observed reductions in symptoms are significant and not due to chance. This suggests that *Grudhrasi Kwath* is highly effective in alleviating the subjective discomforts associated with *Grudhrasi* (sciatica).

Overall Analysis and Interpretation – Objective Criteria

The objective parameters, including the Straight Leg Raise test (SLR), Walking Time test, Coin test, and VAS scale, also demonstrated marked improvements ranging from 83.67% to 97.50%. The paired t-test results ($p < 0.05$) confirm that these improvements are statistically significant. These findings indicate that the treatment not only reduced symptoms but also improved functional abilities, such as movement and pain perception, thus supporting the effectiveness of *Grudhrasi Kwath* in enhancing physical performance and reducing disability in patients with sciatica.

RESULT

The study on *Grudhrasi kwath* showed significant improvement in key symptoms. Such as *Ruk, Sthambha, Sapandan, Toda, Aruchi*, Tandra Gaurav & Straight leg raise test, Waking time test, Coin test, vas scales with no any side effect.

Grudhrasi Kwath has shown significant therapeutic benefits in managing the cardinal symptoms of Grudhrasi. **Pain (Ruk),** the primary complaint comparable to sciatica, was markedly reduced due to the Shothahara (**anti-inflammatory**) and Vedanasthapaka (**analgesic**) action of Dashmoola, the Vatanulomana and Shoolaghna effects of Eranda Moola, and the Vata-Kapha Shamaka and Deepana property of Hingu. **Toda (pricking sensation)** improved as Dashmoola and Hingu alleviated Vata-Kapha obstruction, reducing nerve irritability and enhancing neuromuscular conduction. **Stambha (stiffness**) showed relief through the Srotoshodhaka and circulation-improving effect of Dashmoola and the Avarana-relieving property of Eranda Moola, thus restoring flexibility. **Spandana (twitching or throbbing)** was mitigated by the Vatahara property of the formulation, with Hingu reducing neuromuscular irritability and Eranda Moola pacifying localized Vata. **Aruchi** (loss of appetite) was relieved as Hingu acted as Deepana and Pachana to stimulate digestion, Dashmoola cleared Aamavastha, and Eranda Moola promoted Anulomana, thereby restoring proper appetite. **Tandra (drowsiness)** decreased due to Dashmoola's Aamapachana and Srotoshodhana effects, along with the Medhya property of Hingu, which enhanced alertness. **Gaurava (heaviness)** was notably reduced as Eranda Moola removed Kapha Avarana, Dashmoola cleared inflammation and obstruction, and Hingu balanced Vata-Kapha, leading to improved mobility. Supportive evaluations such as the **SLR Test** confirmed reduction in *Sakthik Shepanigraha* by pacifying vitiated Vata through Shoolaghna and Shothaghna effects; the **Waking Time Test** demonstrated that

Dashmoola balanced Kapha to relieve pain and stiffness, while Eranda Moola, with its potent Vatahara-Anulomana property, reduced nerve compression and Hingu corrected Vatanulomana imbalance; and the **Coin Test** highlighted Dashmoola's Vata-Kapha Shamaka property reducing nerve inflammation, Eranda Moola's action in relieving compression and improving nerve functions, and Hingu's role in removing Avarana and restoring normal nerve conduction. Together, these effects establish Grudhrasi Kwath as a comprehensive remedy for relieving pain, improving mobility, enhancing digestion, and restoring overall neuromuscular health in Grudhrasi patients.

DISSCUSION

Grudhrasi Kwath contains *Dashamoola, Erandamoola* and *Hingu Churna*. This all drugs having properties against Vata, Kapha Dosha i.e. ***Vatashamak, Vatanulomak, Shulprashamak, Kaphshamak, Dipan*** **and** ***Pachan.Dashamoola*** possess eight different drugs which are mainly acts on Vata Dosha, its vitiation which helps to reduces the ***Vedana, Shotha, Vatanulomana*** from the affected area. Dravyas in Dashamoola mostly having ***Katu, Tikta, Kashaya Rasa***, ***Ushna Virya*** **and** ***Katu Vipak***. All drugs were acts on *Vata* as well as *Kapha Dosha.*

Erandamoola is one of the ***Vataghna, Vedanashamaka*** drug mainly used for the Vata Dosha vitiation. *Hing* is one of the ***Vataghna*** as well as ***Nadisansathapaka dravyas*** which acts on Nervous system and helps to reduces the signs and symptoms of Sciatica.

CONCLUSION

- In the present study, according to collected data, it is observed that Grudhrasi Kwath shows significant effective in all the symptoms of Grudhrasi.
- Effect of Grudhrasi Kwath on symptoms observed in Grudhrasi (sciatica) are statistically significant on Subjective and Objective parameters.
- In this Study can be concluded that the drug Grudhrasi Kwath could help to reduce the symptoms by normalizing the Vata dosha, balancing the Kapha dosha and by breaking the Samprapti of Grudhrasi.
- There are no any adverse effects were observed during the study.

Conflicts of interest- None

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