



Application of *Gunja (Abrus precatorius Linn.) Beeja lepa*: An Ayurvedic protocol for the treatment of *Gridhrasi (sciatica)*

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ABSTRACT

The most common musculoskeletal disorder affecting the movement of legs is low back pain. Among the affected patients, 40% have radicular pain, and these cases can be classified under the umbrella of the sciatic syndrome. Low back pain is extraordinarily common, frequently resulting from degenerative arthritis of the lumbosacral spine. The annual prevalence of disc-related sciatica in the general population is estimated at 2.2%. Sciatica is characterised by constant aching pain which felt in the lumbar region may radiate to the buttock, thigh, calf and foot. *Acharaya Charaka* explained *Gridhrasi* in eighty types of *nanatmaja Vata vikara*. The present study is aimed at evaluating the effect of *Gunja (Abrus precatorius Linn.) Beeja lepa* in the management of *Gridhrasi (Sciatica)* and thereby assessing the changes in quality life. The present study is designed as a Non-randomized controlled clinical study, in which a minimum of 30 patients will be enrolled. *Gunja beej lepa* will be administered external application two times in a day with lukewarm water. Assessment will be recorded on the 3rd, 5th, 7th, 14th and 28th day. Changes will be observed in subjective parameters such as *Ruk* (pain) *Toda* (pin pricking sensation) *Stambha* (Stiffness), *Spandana* (Fasciculation) and objective parameters such as measuring the changes in the angle of elevation of the leg by SLR Test, Sciatica Bothersomeness Index and Sciatica Frequency Index before and after the treatment. Suitable conclusion will be drawn post completion of the trial.



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INTRODUCTION

The twenty-first century is the era of lifestyle disorders. The most common musculoskeletal disorder

affecting the movement of legs is low back pain. Among the affected patients, 40% have radicular pain, and these cases can be classified under the umbrella of the sciatic syndrome. Low back pain is extraordinarily common, frequently results from degenerative arthritis of lumbosacral spine or disk and commonly follows a dermatomal distribution with the involvement of nerve root between L4 and S3 (Longo *et al.*, 2011).

Sciatica is characterised by constant aching pain which felt in the lumbar region may(1)dilate to the buttock, thigh, calf and foot (Walker *et al.*, 2014). Sciatic pain radiates alongside the course of the sciatic nerve (Stafford *et al.*, 2007).

It is common between 30-40 yrs of age and affects both the sexes (male and female) equally. About

50% of working adults experience a back injury each year. The annual incidence of disc-related sciatica in the general population is estimated at 2.2% (Lohith and Girish, 2013).

In Ayurveda, many *Vata Vvyadhis* are defined which can be categorised as *samanyaja* and *nanatmaja*. *Acharaya Charaka* defined *Gridhrasi* in eighty types of *nanatmaja Vata vikara* (Nandkishor and Shylaja, 2013). *Gridhrasi*, an entity enumerated by *Shula Pradhana*, which affects the hip and the lower limbs. *Gridhrasi* is a condition characterised by *Ruk* (pain) *Toda* (pin pricking sensation) *Stambha* (Stiffness), *Spandana* (Fasciculation) starting from low back region radiating down to the postero-lateral aspect of the thigh that is *Uru* (thigh), *Janu* (knee), *Jangha* (calf) and *Pada* (foot) (Bali et al. (2010).

Inflammation of joints and muscles, irritation of the sciatic nerve are the causative factors for the development of sciatica. *Gunja* (*Abrus precatorius*) is one of the poisonous plants which have proven anti-inflammatory activity (Sudaroli and Chatterjee, 2007). In *Rasatarangini* paste of *Gunja* seeds is advised in sciatica (Wadnerwar et al., 2020).

METHODOLOGY

Study type

Non-Randomized, single-arm interventional study.

Study design

Diagnosed Patients will be selected from OPD & IPD of *Panchkarma* department MGACH and RC Wardha. The detailed study design is shown in Figure 1 and Table 2.

Schedule of enrollment, interventions

Diagnosed patients of *Gridhrasi* (Sciatica) will be enrolled in the present study after fulfilling the inclusion criteria.

Interventions

Local application of *Gunja Beeja lepa* will be done for twice a day over sciatic notch for seven days. Sample size-30. Data collection methods- Non-Randomized. Time duration until the follow-up - The follow-up period will be 28 days. During treatment - 3rd, 5th, & 7th day. After treatment - 14th & 28th day.

Registration Number

Study will be conducted with CTRI Number-CTRI/2019/08/020985 and IEC Reference No-DMIMS (DU)/IEC/2017-18/7260.

Inclusion Criterion

1. Patients diagnosed as the case of *Gridhrasi* (Sciatica) with the presenting symptoms of either

sex.

2. Patients in the age group 30 to 50 years of age.
3. Patients with straight-leg raising (SLR) test (0-60 Degree) positive.

Exclusion Criterion

1. Patients with Sensitivity test positive.
2. Monoplegia, paraplegia, hip joint arthritis, TB of the spine, severe accidental cases and other surgical emergencies.
3. Pregnant and lactating women.
4. Patients with skin diseases or lesions.

Criteria for discontinuing or modifying allocated interventions

If any undesired incidence occurs then the patient will be withdrawn from the study and free of cost treatment will be provided to the patient till the disease subsides.

Primary Outcomes

Changes in the symptoms of *Gridhrasi* such as *Ruk* (pain), *Toda* (pin pricking sensation), *Stambha* (Stiffness), *Spandana* (Fasciculation).

Secondary Outcomes

To observe the changes in the angle of elevation of the leg by SLR Test and changes in the Sciatica Bothersomeness Index and Sciatica Frequency Index before and after the treatment.

Statistical analysis

Wilcoxon signed-rank and paired t-test will be done to analyse the data. Follow up will be on 3rd, 5th, 7th, 14th.

Recruitment and Implementation

The patients will be enrolled and allocated by Principal invigilator.

Assessment criteria

The subjective criteria for assessment are *Ruk* (pain), *Stambha* (Stiffness), *Toda* (Pin pricking sensation), *Spandana* (Fasciculation). Straight Raise Leg Test, sciatica Frequency Index and Sciatica Bothersome index are objective parameters (Table 1).

Data management

The data entry coding will be done by PI.

PI will do the data entry coding dissemination

Permission for research has been taken from Institutional Ethical Committee ref no DMIMS (DU)/IEC/2017-18/7260

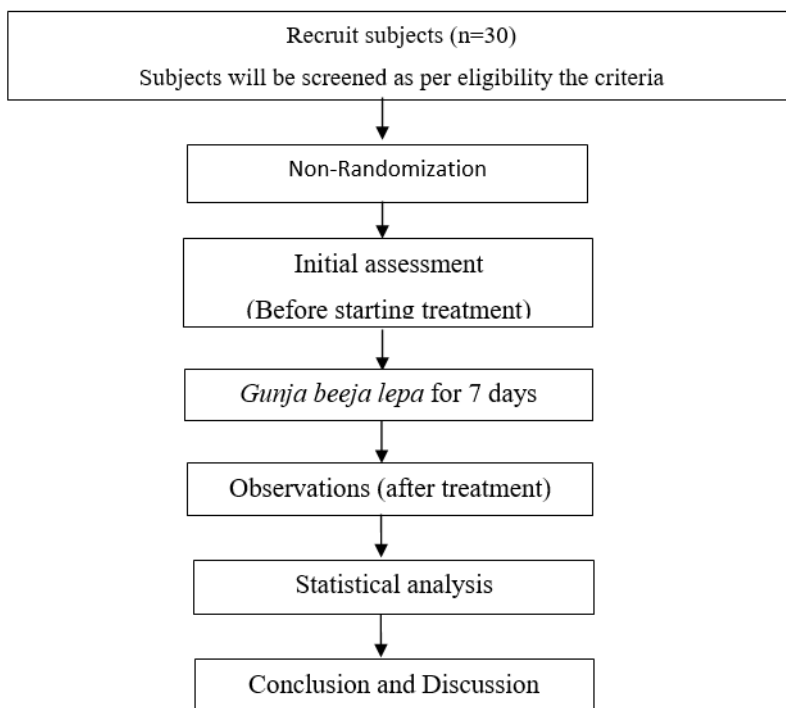


Figure 1: Flow diagram of the study procedure

Table 1: Assessment criteria

Parameter	Grade 0	Grade 1	Grade 2	Grade 3	Grade 4
Ruk	No pain	Painful walks without limping	Painful walks with limping but without support	Painful, can walk only with the support	Painful, unable to walk
Toda	Absent	Present	-	-	-
Stambha	Absent	Present	-	-	-
Spandana	Absent	Present	-	-	-
S.L.R.T.*	More than 90 degree	71-90 degree	51-70 degree	31-50 degree	Up to 30 degree

* SLRT - Straight Raise Leg Test

Table 2: Gantt Chart (Quarterly based)

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Enrolment of Volunteer	X	X	X	X				
Data collection	X	X	X	X	X	X		
Data collection		X	X	X	X	X		
Data analysis					X	X	X	
Writing a thesis up to results and Conclusions							X	X
Submission								X

Informed consent or assent

All the research related documents and consent form will be given to the patients. The confidentiality of patients will be maintained during the study.

Dissemination policy

In future data will be disseminated for clinical work and publication.

Informed consent materials

Consent form and other related documentation will be given to participants and authorised informants with all the information.

DISCUSSION

The main causative factor for the pathogenesis of sciatica is inflammation which leads to the presentation of pain and other symptoms. In Ayurveda, *Gunja Beeja lepa* is used for the management of *kandu*, *kustha*, *darunaka*, many skin diseases and various arthritic conditions like *aamvata*. *Gunja* seeds are *tikta* (Bitter) and *kashaya* (Astringent) rasa and *katu* (Pungent) *vipaka* due to which *Gunja lepa* may act as a potent *Vata kaphahara*, *Shothahara*, *Vedna shamak*.

CONCLUSION

Gunja (Abrus precatorius) is a plant which has proven anti-inflammatory activity. This study will demonstrate treatment modalities of *Ayurved*, wherein the efficacy of *gunja Beeja lepa* will be studied in the management of *Gridhrasi* (sciatica).

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Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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