

ORIGINAL RESEARCH ARTICLE

A Clinical Study on *Gridhrasi* (Sciatica) with Special Reference to *Ruk* (Pain) and its Management with *Krushna Churnam*

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ABSTRACT

Low back pain is one of the most common diseases affecting 30% of patients attending the general outpatient department. It affects the people of all ages from young adults to elder one. Sciatica is the most appearing one among the low back disorder. It is a condition in which pain radiating along the sciatica nerve, which runs down one or both legs from the lower back. The pain in Sciatica sometimes hampers the person's daily activities because of its intensity. Gridhrasi in Ayurveda is the best simulation of the disease Sciatica. In Gridhrasi, pain starts from *Sphik* (Hip) and runs down to *Kati prutha* (Low back), *Uru* (thigh), *Jaanu* (Knee), *Jangha* (calf), and *Pada* (foot) (Ref- Ch-28/56-57). Along with pain it may be associated with stiffness, heaviness based on doshik involvements. Pain being the primary symptom needs pain killers for its relief. Ayurveda has a good scope in managing the pain of Gridhrasi through oral medications as well as therapeutic procedures, such as *Panchakarma*. Here in this study, the medication that has been chosen is the *Krushna churnam* (Ref- B.R.26/53), which is applied on 25 patients of both genders at Gopabandhu Ayurveda Mahavidyalaya and Hospital, Puri along with another 25 patients were given the control drug Etoricoxib molecule in a Randomized controlled clinical trial method. After 30 days, the results obtained are encouraging, such as 72% got maximum improvement in trial drug and 68% in control drug.

1. INTRODUCTION

According to Ayurveda, Gridhrasi is one among the nanatmaja vata vyadhi.^[1] The typical pain initiating from the sphik pradesha^[2] (lumbosacral region) and radiating posteriorly in the lower extremity up to the toes of the foot, either on one side or both, is the main symptom of this disease.^[3] The course of pain and its area of affection by Charak simulate the detailed anatomical and pathological description of disease Sciatica.^[4] Because of the intensity of the pain, the person is suffering from much difficulty in doing his daily activities.^[5] Here in this study, the trial drug that has been chosen is the *Krushna churnam* of *Chakradutta*, described in *Bhaisajya rainavali*.^[6] *Krushna churnam* is the internal administration of *pippali*^[7] (*Piper longum*) Powder with *Eranda taila*^[8] (medicated castor oil) as sahapana and the anupana of *Gomutra*^[9] (cow's urine) continuously for 30 days.

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1.1. Aim

A clinical study on *Gridhrasi* (Sciatica) with special reference to *Ruk* (pain) and its management with *Krushna churnam*.^[10]

1.2. Objectives

- Review of literature regarding the disease and research drug in both ancient and modern point of view.
- To assess the effectiveness of *Krushna churnam* in the management of pain in *Gridhrasi*.

2. MATERIALS AND METHODS

Out of many cases of *Gridhrasi* are screened in the OPD and IPD of GAMH Puri, 50 no. of patients of either sex selected for the research those fulfilled the following inclusive criteria and completed the trial successfully.

2.1. Inclusion Criteria

1. Age: 40–70 years
2. Sex: Either sex

3. Duration of illness: Up to 2 years
4. Radiating pain, starting from the gluteal region toward the foot
5. Tenderness of the sciatic nerve course
6. Severe pain on squatting
7. Positive straight leg raising (SLR) sign
8. Positive femoral nerve stretching test sign.

2.2. Exclusion Criteria

- Intervertebral disc prolapse
- Arthritic changes in the radiological examinations
- Pain associated with Paraplegia and Hemiplegia
- Tumor of the Cauda equina and lumbosacral plexus
- Cock's spine
- Congenital anomaly in the spine
- Pain due to acute trauma in the spine
- Pregnant and lactating women
- SOL in the spine
- Uncontrolled diabetic case
- Obesity.

2.3. Diagnostic Criteria

The parameters for diagnosis are completely based on classical symptoms, such as *Ruk* (Pain), *Stambha* (Stiffness), *Toda* (Pricking pain), and the SLR test.^[11]

2.4. Laboratory Investigations

Radiological like X-Ray LS Spine – both anteroposterior and lateral view. X-ray showed some degenerative changes, such as osteophytes development, sclerosis of vertebral body, sacralization of the lumbar spine, spondylolisthesis, herniated disc, or narrowing of the disc space.

This helped in the exclusion and inclusion of sciatica cases. X-ray after treatment didn't show any significant changes.

2.4.1. Trial drug

Krushna Churnam, 12 g internally in divided dose after food with *Sahapana Eranda Taila* 20 mL in divided dose, *Anupana – Gomutra*, Maximum 20 mL in divided dose mixed with twice of water.

2.4.2. Control drug

Tablet Etoshine 90 (Etoricoxib)- 1 tablet bid after food.

2.5. Duration of Study

Both groups were instructed to continue the medicines for 30 days continuously. Along with being advised to follow the proper instructed diet and regimen. Assessment regarding progression of signs and symptoms was done in every 15 days.

3. RESULT AND DISCUSSION

From the above table, it is elicited that the clinical assessment of the result is encouraging. After 15 days of treatment, no patients showed maximum improvement in both the trial group as well as control group. Whereas 8 (32%) patients showed moderate improvement in the trial group and 10 (40%) patients showed the same in the control group. 11 (44%) patients in the trial group showed mild improvement and 9 (36%) patients showed the same in the control group. Again, in both groups, 6 (24%) patients showed unsatisfactory results.

After 30 days of treatment, in trial group 18 (72%) patients showed maximum improvement, whereas 17 (68%) patients showed the same

in the control group. 5 (20%) patients showed moderate improvement in the trial group and 5 (20%) the same in the control group. 2 (8%) patients in the trial group and 3 (12%) patients in the control group showed mild improvement and neither patient of any groups showed unsatisfactory results.

3.1. Probable Mode of Action of *Krushna Churnam*

Ayurveda says drugs act due to the predominance of its *Rasapanchaka* (*Rasa*, *Guna*, *Virya*, *Vipaka*, and *Prabhava*). Chikitsa is nothing but the process of *samprapti vighatana* that means the breaking of the process of pathogenesis of the disease.

3.1.1. Trial drug

Krushna churnam, a single herbal drug; *pippali* in powder form. The following actions on the *samprapti* of Gridhrasi are described below:

3.1.2. *Shoolahara*^[12]

"*Ruk Shoolam*" (A.H.Su 12/49). *Pippali* as per its *doshaghata* described in Bhav prakash, it is *kaphavata shamak* so acts as analgesic and anti-inflammatory. The shooting type of pain (*Ruk*) in Gridhrasi is countered by piperidine alkaloid of *pippali*. *Agnideepaka*: "*Rogah Sarvepi Mandagnou*".^[13] In Gridhrasi *Mandagni* is the primary causative factor. *Katu rasa* of *pippali* increases the *Jatharagni*. which in turn corrects the root cause of Gridhrasi.

3.1.3. *Srotosodhak*

Pippali is *srotosodhak* in nature, which means channelizes the obstruction, if any *avarana* is there in the way of Vata. *Pippali* in relation to adverse drug reaction: Etoricoxib acts as an analgesic and in the long run, may develop gastric irritations.^[14] However, *pippali* acts as an analgesic, anti-inflammatory, nutritive, appetite enhancer, digestive, as well as carminative on a Gridhrasi patient.

Pippali, along with *sahapana* of *Eranda taila* and *anupana* of *Gomutra*, the triple combination of 3 vital drugs produced a potent analgesic effect on the pain symptom of Gridhrasi patients. A maximum number of patients, 98.92% had not developed any kind of adverse events or reactions during the therapy. None of the patients had showed any kind of statistically significant changes in vital parameters, such as temperature, pulse rate, and blood pressure.

4. CONCLUSION

The disease Sciatica is known to the medical world, just two centuries old, but Gridhrasi is known since the mythological period (Puranika kala). In 200BC, Maharshi Charak has described the anatomical, pathological, clinical and diagnostic aspects very clearly in his treatise Charak samhita. The typical limping gait found in Sciatica is described in Samhitas as the walk of a vulture (Gridhra), for which it is named as Gridhrasi. In the 5th century, Maharshi Vagbhatta said it as a *snayugata vikara*, which means neurological disorder. Maharshi Susruta mentioned a special symptom, that is, *Saktikshepa Nigraha*, which means unable to raise the leg straight due to severe pain. To this, Arunadutta in the 12th century in his *sarvanga sundara* commentary on Astanga Hridaya defined clearly the SLR test, such as the pain is produced at the time of raising the leg straight and restricts the movement of the thigh, which is the best diagnostic technique of Sciatica or Gridhrasi. Dalhana in the 12th century mentioned Gridhrasi Nadi as *kandara*, stated by Susruta, and termed this nadi as *Mahasnayu* that runs from Kati (lumbar region) to Gulpha (ankle joint). This statement in turn reflects in modern medical science, such as the Sciatic nerve is the longest and largest nerve in the body.

In this connection It is a chronic disease so long term use of pain killers can be harmful for patients. However, *Pippali* being the one and only ingredient of *Krushna churnam* acting effectively on *Ruk* (pain), *Stambha* (stiffness) and *Toda* (pricking pain) with *Eranda taila* as *Sahapana* and *Gomutra* as *Anupana*. The present study is an approach to find out a single herb analgesic or pain killer for the most disturbing pain in Gridhrasi. The encouraging result will definitely inspire further researchers to work more on this area with a big sample for a definite best outcome.

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Nil.

6. AUTHORS' CONTRIBUTIONS

All the authors contributed equally to the design and execution of the article.

7. FUNDING

Nil.

8. ETHICAL APPROVALS

This study is approved by the institutional ethical committee.

9. CONFLICTS OF INTEREST

Nil.

10. DATA AVAILABILITY

This is an original manuscript and all data are available for only review purposes from the principal investigators.

11. PUBLISHERS NOTE

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The ESR measures (mm in 1 st h of both the trial and control group before and after treatment)													
ESR	TG						CG						
	BT		AT1		AT2		BT		AT1		AT2		
	F	%	F	%	F	%	F	%	F	%	F	%	
G0 ≤20	7	28	11	44	14	56	5	20	10	40	12	48	
G1 21–35	9	36	6	24	8	24	10	40	9	36	8	32	
G2 36–50	6	24	5	20	2	8	6	24	3	12	3	12	
G3 >50	3	12	3	12	1	4	4	16	3	12	2	8	
ESR: Erythrocyte sedimentation rate, TG: Trial group, CG: Control group, F: Frequency, AT: After treatment, BT: Before treatment													

The clinical assessment of results after treatment in Group 1 and Group 2 patients									
S. No.	Clinical assessment	AT ₁ (After 15 days)				AT ₂ (After 30 days)			
		TG		CG		TG		CG	
		F	%	F	%	F	%	F	%
1	Maximum improvement	Nil	--	Nil	--	18	72	17	68
2	Moderate Improvement	8	32	10	40	5	20	5	20
3	Mild improvement	11	44	9	36	2	8	3	12
4	Unsatisfactory	6	24	6	24	Nil	--	Nil	--

TG: Trial group, CG: Control group, F: Frequency, AT: After treatment

Statistical analysis showing the effectiveness of the trial drug (<i>Krushna churnam</i>) and control drug (Etoricoxib) to different signs and symptoms								
Signs and symptoms	Treatment group		Mean±SD	Mean difference±SD	df (n-1)	t-value	P-value	Remarks
<i>Ruk</i> (pain)	TG	BT	4.4±2.04	1.56±2.14	24	t ₁ -3.92	<0.05	S
		AT ₁	2.84±2.14	2.88±1.87		t ₂ -8.23	<0.001	HS
		AT ₂	1.52±1.87					
	CG	BT	5.12±1.8	1.92±2.29	24	t ₁ -5.5	<0.001	HS
		AT ₁	3.2±2.29	3.64±1.91		t ₂ -9.42	<0.001	HS
		AT ₂	1.48±1.91					
Stambha (stiffness)	TG	BT	1.85±0.72	0.9±0.74	19	t ₁ -4.83	<0.001	HS
		AT ₁	0.95±0.74	1.25±0.73		t ₂ -7.65	<0.001	HS
		AT ₂	0.6±0.73					
	CG	BT	2.27±0.68	0.46±1	21	t ₁ -2.07	<0.05	HS
		AT ₁	1.81±1	1.32±0.75		t ₂ -8.03	<0.001	HS
		AT ₂	0.95±0.75					
Toda (pricking pain)	TG	BT	2±0.68	0.09±1.25	20	t ₁ -3.29	<0.01	S
		AT ₁	2.09±1.25	1.48±0.72		t ₂ -9.35	<0.001	HS
		AT ₂	0.52±0.72					
	CG	BT	2.15±0.66	0.79±0.92	18		<0.01	S
		AT ₁	1.36±0.92	1.37±0.83		t ₁ -3.68	<0.001	HS
		AT ₂	0.78±0.83			t ₂ -7.12		
SLR (Rt)	TG	BT	1.8±0.68	0.72±0.86	11		<0.01	S
		AT ₁	1.08±0.86	1.22±0.6		t ₁ -3.01	<0.001	HS
		AT ₂	0.58±0.6			t ₂ -7.2		
	CG	BT	2.2±0.6	1.1±0.83	9		<0.001	HS
		AT ₁	1.1±0.83	1.8±0.48		t ₁ -4.18	<0.001	HS
		AT ₂	0.4±0.48			t ₂ -11.85		
SLR (Lt)	TG	BT	2±0.61	0.82±0.43	15	t ₁ -7.53	<0.001	HS
		AT ₁	1.18±0.43	1.57±0.8		t ₂ -7.5	<0.001	HS
		AT ₂	0.43±0.8					
	CG	BT AT ₁	1.06±0.47	1.06±0.47	15	t ₁ -5.72	<0.001	HS
		AT ₂	0.68±0.22	1.44±0.22		t ₂ -10.03	<0.001	HS

BT: Before treatment, SD: Standard deviation, df: Degree of freedom, SLR: Straight leg raising, S: Significant, HS: Highly significant