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Effect of *Dasamuladi Yog* and *Snigdha Agnikarma* in Management of *Gridhrasi*(Sciatica)

Pratibha Sarmah¹, Bishnu Prasad Sarma², Ranjan Kalita³

- 1. P.G. Scholar, Department of Kayachikitsa, Government Ayurvedic College and Hospital, Guwahati
- 2. Professor, Department of Kayachikitsa, Government Ayurvedic College and Hospital, Guwahati
- 3. Assistant Professor, Department of Kayachikitsa, Government Ayurvedic College and Hospital, Guwahati

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Corresponding author-

Pratibha Sarmah Research scholar, Department of Kayachikitsa Govt. Ayurvedic College and Hospital, Guwahati <u>Email:-</u> Prativasarmah123.321@gmail.com

ABSTRACT:

Background: *Gridhrasi* in ayurveda mentioned under *vataja nanatmaja vyadhi*, with pain, numbness and heaviness being the most common feature along the course of sciatic nerve distribution starting from *sphik,kati*, *prushtha*, *uru,janu*, *jangha* till *pada*, Sciatica lately has become a very troublesome disease to a mass people and seemed to be increasing irrespective of gender, due to unhealthy and haphazard lifestyle. Modern medicine and surgical intervention are yet to provide a promising result, while ayurveda has opted different treatment principles for the same.

Aims and objectives: Clinical study to rule out the efficacy of *dasamuladi yog* and *snigdha agrikarma* in management of *gridhrasi*(sciatica).

Materials and methods: a randomized clinical study was done on a total of 80 number of patients diagnosed with sciatica, attending Kayachiktsa Department, in Govt. Ayurvedic College and Hospital,Guwahati. Oral intervention with *Dasamuladi yog* and therapeutic intervention of *Snigdha agnikarma* for a period of 30 days, was provided with follow up of 15 days apart.

Result: Significant changes noted in 1st follow up, marked improvement in different symptoms were noted after completion of treatment.

Conclusion: the proposed therapy can be effective and adopted as an alternative approach to treat sciatica.

Keywords: gridhrasi, Dasamuladi yoga, snigdha agnikarma, sciatica,

INTRODUCTION

Sciatica is a syndrome, where pain typically begins in low back that radiates to lower buttock and in a narrow band up to the leg in different locations depending on pathology involved in particular spinal nerve.¹ Sciatica occurs due to damage of the spinal nerves that form the sciatic nerve anywhere from cauda equina to their joining together in the pelvis or anywhere before it divides into its branches above the knees². The damage could be due to compression by prolapsed disc, bony overgrowth in osteoarthritis, spondylolisthesis; or due to compression by tumour, blood vessels, pyriformis muscle, enlarged uterus in pregnancy or due to inflammation of the sciatic nerve itself. IVDP (intervertebral disc prolapse) is the most common cause of sciatica³ now a days seen with strenuous lifestyle, use of motor vehicles in uneven roads, wear and tear of the disc due to degenerative changes. Sciatica due to compression on nerve roots or spinal nerves if involves L4 spinal nerves (then pain occurs in front of thigh), L5 spinal nerve (then pain in outsides of thigh towards front of calf and into great toe) and if S1-S3 spinal nerves (then pain radiates down back of thigh to outside of the calf and into outside of the foot)⁴. Pain in sciatica due to IVDP results from activation of nerve endings in the outer ligament that surrounds the disc, or by compression of a spinal nerves. A theory proposes that if any nerve is compressed by any structure, then it should result motor or sensory deficit predominantly rather than pain. As such it was further studied that pain in sciatica resulted by an inflammatory response triggered by chemicals released from damaged bulging disc ⁵. The inflammatory mediators in turn inflames the sciatic nerve resulting pain.

The signs and symptoms of sciatica are similar to those mentioned as Gridhrasi in ayurveda, Gridhrasi means walking like vulture i.e., patient has a typical gait due to pain that looks like a vulture, called a limping gait. In gridhrasi there is ruk(pain), toda(prickling pain), *muhuspandana*(tingling and throbbing pain), *stambhan*(stiffness) of sphik, prishtha, kati,uru,janu,jangha and pada in order⁶ sakthiutsephanigräha7 (restricted upward lifting of leg. i.e., restricted SLR). if there is association of tandra (drowsiness), gaurava (heaviness), anuchi (anorexia) then association of kapha is considered⁸

In conventional medical therapy use of opioids, NSAID'S, muscle relaxant, physical therapy, acupuncture, epidural steroid injection and if required surgical laminectomy or discectomy are done ⁹. But none seem to provide a promising result. So ayurveda with its holistic approach of *samana* and *sodhana chikitsa* can be tried. There are different treatment modalities advised in Ayurveda, Like *samana aushadhis, agnikarma, raktamokshana, snehana, swedana, basti karmas* for *gridhrasi* ¹⁰. In this study however oral medication of *dasamuladi yog* and therapeutic proceedure of *snigdha agnikarma* is tried.

AIMS AND OBJECTIVES

Clinical study to rule out the effectiveness of *dasamuladi yog* and *snigdha agnikarma* in management of *gridhrasi*(sciatica).

MATERIALS AND METHODS OF STUDY

Total numbers of 80 patients were registered for the open labelled interventional clinical trial from the OPD and IPD of Kayachikitsa Department Govt. Ayurvedic College and Hospital, Ghy-14, based on the exclusion and inclusion criteria after receiving ethical clearance certificate from institutional ethical committee of govt. ayurvedic college and hospital, Guwahati, assam (ref no. IEC/2020/222). The cases were recorded with detailed clinical history and investigations as required. Treatment was started after obtaining written consent.

Diagnostic criteria

A. Clinical diagnosis

- 1- Classical symptoms of *gridhrasi* pain in *sphik, kati, uru, janu, jangha* till *pada*.
- 2- POSITIVE SLR test
- **3-** Positive Bragard's test
- 4- Numbness
- **B- Investigations**
- 1. Radiological
- > plain X ray of lumbosacral region- AP and lateral view.
- > MRI whole spine
- 2. Hematological
- Blood routine examination
- ESR, CRP- to rule out any infectious etiology or inflammatory disease.
- RBS- to rule out diabetes Inclusion criteria
- Patient having Classical symptoms of *gridhrasi* that pain starting from hip radiating down to back of thigh, knee, leg and foot.
- Age group between 20 to 70 years.
- Positive SLR test
- positive Bragard's test
- Exclusive criteria
- Diabetic patients
- Patient below 20 years and above 70 years age.
- Cases of spondylolisthesis, pregnancy
- Known case of tuberculoma, tumor or cyst compressing nerve root.
- Patient having multiple wounds, fracture vertebrae, destructed vertebral bodies.

For the study of "Effect of *Dasamuladi yog* and *snigdha agnikarma* in management of *gridhrasi*(sciatica)" the following therapeutic interventions were provided.

Oral drug: Dasamuladi yog¹¹

The fine powders of equal quantities of *dasamula*, *rasna*, *sunthi*, *guduci* and *bala* were mixed properly and sealed in air tight containers of 200gm sized. The *eranda taila* was provided separately. **TABLE NO 1. Contents of** *dasamuladi yog*

Dose of *dasamuladi yog*: 5 grams *churna*+ 5ml *eranda taila* once daily in empty stomach Duration of study: 1 month Follow up: 15 days.

Therapeutic intervention- snigdha agnikarma

- 1. Saindhavadi taila
- 2. Eranda Patra
- 3. Heating pan
- 4. Heat source

Procedure of snigdha agnikarma

Purva karma

- Patient should clear his bowel property before coming to therapy room
- Patient should take bath before the therapy
- Patient should consume meal atleast 1 hour before the therapy.
- Patient should be warned about burning sensation in the procedure.

Pradhan karma

- Asking the patient to lie down in supine position.
- Then maximum tender points are examined from low back region till the feet.
- In a heat source, a pan is kept.
- Saindhavadi taila is poured into the pan and heated till hot fumes come.
- Then a pottali(ball) made by wrapping eranda Patra is dipped onto the heating pan and immediately applied over the tender points of the legs in *vilaya* and *pratisharana* pattern.
- The process is repeated for 2-3 times as required depending on the pain intensity.

Paschat karma.

- Lying down in bed for 10 mins after the procedure.
- Patient is asked to not come in contact with direct air or in air-conditioned room after the therapy.

• Patient should not wash or come in contact with water immediately after therapy. Better to wait atleast for half an hour. Then gently wipe away the applied oil in body with cloth drenched in warm water.

Duration of therapy

- Daily for initial 7 days
- After 7 days, once weekly for next 3 weeks.
- Total days of therapy received per person is 10 days.
- Therapy completed within 30 days. **Parameters of study** *Subjective parameters*
- Radiating pain (Pain in low back and radiating down to back of thigh knee leg and foot)
- Numbness
- Objective parameters
- SLR test
- Bragard's test
- Modified sciatica questionnaire disability score¹² (Table 2)

Data analysis

The data obtained before and after treatment were analyzed using arithmetic mean, standard deviation and paired t-test.

OBSERVATION AND RESULTS

TABLE NO. 3: Effect of treatment on radiating pain

TABLE NO. 4: Effect of treatment on Numbness

 TABLE NO. 5: Effect of treatment on SLR Test/lasegue's test

TABLE NO. 6: Effect of treatment on bragard's testTABLE NO. 7: Effect of treatment on modified Rolandsciatica questionnaire

At last, the overall assessment of improvement on 80 patients of *gridhrasi* was calculated by modified Roland sciatica questionnaire disability score.

The modified Roland sciatica questionnaire disability score is calculated by following way-

There are 23 sets of questions put forwarded to patients. According to symptoms and sufferings the patient had, he/she would answer the questions in the form of yes or no. Number of total yeses were calculated and divided by total score (23) which is finally multiplied to 100 to obtain disability score.

e.g., modified Roland SCIATICA questionnaire disability score- obtained score (no. of yes)/total score (23) ×100

it was seen that disability score after treatment was reduced comparatively. Reduction in disability score suggests improvement in patients. Later assessment was done that if disability score is <=25 then it was considered marked improvement (>75% improvement), disability score 26-50 was considered moderate improvement (51-75% improvement), disability score 51-75 was considered mild improvement (26-50% improvement) and disability score more than 75 was considered no improvement (<=25% improvement).

TABLE NO. 8: Overall Assessment Of Result AfterTreatment

DISCUSSION

A statistically highly significant result was observed in all the parameters of the study after the treatment.

Probable mode of action of dasamuladi yog

Dasamula is known to have Vata kapha hara properties. It is balya, amanashak, deepana, pachana, rasayani and anulomana, sothahara. So, it can reduce the margavarodha samprapti by virtue of deepana pachana and reduce aggravated vayu by virtue of anulomana and vatahara properties.¹³Sunthi has usna guna. it is kapha hari and has soshan guna that digests the excess ama or kapha. It has deepana, sopha hara(anti-Inflammatory), sulajit(relieves pain), bhedini(relieves constipation) properties.so these qualities helps to curb the excess kapha and aggravated vayu associated in gridhrasi¹⁴

Bala is *snigdha,guru,sita virya* drug. It is *tridoshanut* specially *vata dosa*.it is *kshatahara*.so it has the antiinflammatory properties ¹⁵**Rasna** is *guru* but *usna virya*,it is *kapha vata samak,amapachani,sopha hara,sulahara*.¹⁶**Guduci** is *laghu snigdha* and *usna virya, tridosha hara*. It is *deepana,amahara, dahahara,vivandha hara,rasayani,balya*. Thus, it is *kapha vata hara*¹⁷**Eranda** is mentioned as *param vatahara* by charak. Eranda taila has *usna. tikshna, sukshma, picchila, guru* and *sara* qualities. It has *srota vishodhana ,vatakaphahara, adhovagadoshahara* properties. it is indicated in *katigraha soth* (inflammation due to IVDP).¹⁸

Thus, it is seen that all the contents in *dasamuladi yog* mainly has *deepana*, *sothahara*,*vata kapha hara*, *anulomana* properties. Which acts on the *samprapti vighatana* of *gridhrasi* and helps reducing the aggravated *vata dosa* directly or indirectly.

Mode Of Action Of Snigdha Agnikarma

Sushruta in agnikarma adhyaya has mentioned different

dahana upakaranas in diseases according to their location. He mentioned to use *snigdha dravyas* like *madhu,guda,tail* for *vyadhis* of *sira,snayu,santhi* and *asthi*¹⁹. Sciatica is a disease afflicting the **sciatic nerve** (*vatavaha sira*²⁰ and *kandara*²¹according to Sushrut; *snayu*²² according to Vagbat), and its cause is mainly due to IVDP or degenerative joints (site of *santhi* and *asthi*). As such in this study *snigdha dravya(taila)* was used for *agnikarma*.

It is found that *snigdha agnikarma* pacifies *Vata* and *Kapha Dosha*, may be by virtue of the properties that *Agni* possesses viz. *Ushna, Tikshna, Sukshma, Ashukari Guna*. Here the heat is transferred through *Twak Dhatu* and removes the obstruction in the *Srotas*, increases the blood circulation to the affected site. More blood circulation flushes away the inflammatory mediators and patient gets relief from symptoms.

The therapeutic heat also increases the *Dhatvagni*, which cause local *Ama pachana*, as *Sneha* is said to have the *suksma guna*, that helps penetrate into *Sukshma marga(srotas)* and hence can reduce inflammation due to sciatic nerve injury.

Agnikarma using Snigdha dravyas is considered to retain heat for a longer duration resulting in deeper heat penetration through Sukshma Sira into structures like sira, snayu, asthi and sandhi. Thus, reducing the aggravated kapha and vata in the pathology.

It has been seen that collagen melts at temperatures above 50-degree Celcius. Heat increases the extensibility of collagen tissue and reduces the stiffness ²³. *Snigdha agnikarma* increases elasticity and nourishes the collagen tissue thus reduces numbness and stiffness.Heat stimulates the sensory receptors of the skin. Afferent nerves stimulated by heat in *agnikarma* may have an analgesic effect by acting on the gate control mechanism.²⁴. The resistance to flow in a blood vessel depends directly on the viscosity of the fluid. Heating the *taila*, lowers its viscosity ²⁵. Thus increases the rate of absorption of the heated oil, and increase of its circulation and thereby acts as anti-inflammatory in chronic lesion.

CONCLUSION

Dasamuladi yog is a contribution drug from chakradutta in *gridhrasi*, while agnikarma by use of *snigdha dravya* in diseases *of sira,snayu,asthi* and *sandh*i is the concept of Acharya Sushruta. This study was mainly done with an aim to see the effectiveness of the combined therapy in management of *gridhras*i. Most cases responded very well to the treatment with exceptions of only few. Marked

improvements were noted in different parameters after the treatment. Thus, an inference can be drawn that *dasamuladi yog* and *snigdha agnikarma* has a promising result in the management of *gridhrasi*. Comparatively, against the slow action of oral drug *dasamuladi yog* in *samprapti vighatana*, therapeutic intervention of *snigdha agnikarma* starts to show results from the 1st day onwards of the clinical trial. Thus, the combined therapy is a very effective treatment protocol in managing *gridhrasi*. However, further study should be conducted in large sample size and for a longer treatment duration to note treatment results.

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ORCID

Pratibha Sarmah, <u>https://orcid.org/</u> 0000-0001-9752-6137

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Sl. No	Contents	Botanical name	Part used
1	Dashamula churna		Roots
	Bilwa	Aegle marmelos	
	Agnimantha	Clerodendrum phlomidis	
	Syonak	Oroxylum indicum	
	Gambhari	Gmelina arborea	
	Patala	Stereospermum suaveolens	
Brihati Kantakari		Solanum indicum	
		Solanum xanthocarpum	
	Prishniparni	Uraria picta	
	Shalparni	Desmodium gangeticum	
	gokshur	Tribulus terrestris	
2	Rasna Churna	Pluchea lanceolata	Rhizome
3	Sunthi Churna	Zingiber officinale	Rhizome
4	Guduci Churna	Tinospora cordifolia	Stem
5	Bala Churna	Sida cordifolia	Root
6	Eranda taila	Ricinus communis	oil

TABLE NO 1. Contents of dasamuladi yog

TADLENO							
TABLE NO.	2 -Scoring criteria for different parameters						
Dadiating na	1						
Radiating pa							
(
	Pain radiation to hip and back of thigh						
,	2 Pain radiation to knee						
	3 Pain radiation to foot						
<u>Numbness</u>							
(No numbness						
1	Mild (once in a day)						
2	Moderate (2-3times/day)						
3	Continuous						
SLR test or la	asegue's test						
0	negative						
1	>60°						
2	30° to 60°						
3	< 30 °						
Bragard's tes	<u>it</u>						
0	-						
1	1 Present						
Modified rola	and sciatica questionnaire disability score						
{obtained sco	re \div total score (23)} ×100						

TABLE NO. 3: Effect of treatment on radiating pain

N= 80	parameter	B.T MEAN±S.D	MEAN ± S. D		df (n-1)	t value	P value	remarks
	RADIATING PAIN	2.39±0.63	1 st F. U	1.65±0.71	79	14.02	<0.0001	Highly significant
			2 ND F. U	1.13±0.75	79	20.7	<0.0001	Highly significant

TABLE NO. 4: Effect of treatment on Numbness

N= 80	parameter	B.T MEAN±S.D	MEAN ± S. D		df (n-1)	t value	P value	remarks
	NUMBNESS	1.56±0.59	1 ST F. 0.96±0.60 U		79	10.35	< 0.0001	Highly significant
			2 ND F. U	0.39±0.49	79	21.12	< 0.0001	Highly significant

TABLE NO. 5: Effect of treatment on SLR Test/lasegue's test

N= 80	parameter	B.T MEAN±S.D	$MEAN \pm S. D$		df (n-1)	t value	P value	remarks
	SLR TEST	2.17±0.52	1 st F. U	1.29±0.59	79	15.04	<0.0001	Highly significant
			2 ND F. U	0.55±0.63	79	25.96	<0.0001	Highly significant

TABLE NO. 6: Effect of treatment on bragard's test

N=	parameter	B.T	MEAN \pm S. D		df	t value	Р	remarks
80		MEAN±S.D			(n-1)		value	
	BRAGARD'S	0.925±0.26	1 ST	0.66±0.47	79	5.3	< 0.0001	Highly
	TEST		F. U					significant
			2 ND	0.32±0.47	79	10.88	< 0.0001	Highly
			F. U					significant

N=	parameter	B.T	MEAN± S. D		df	t value	P value	remarks
80		MEAN±S.D			(n-1)			
	MODIFIED ROLAND	92.9±5.35	1 ST	57.18±15.67	79	24.26	< 0.0001	Highly
	SCIATICA		F. U					significa
	QUESTIONNARE							nt
	DISABILITY SCORE		2^{ND}	32.95±19.97	79	31.51	< 0.0001	Highly
			F. U					significa
								nt

TABLE NO. 8: OVERALL ASSESSMENT OF RESULT AFTER TREATMENT

ASSESSMENT	DISABILITY SCORE	TOTAL PATIENT	PERCENTAGE OF TOTAL PATIENT
ABOVE 75% IMPROVEMENT	<=25	28	35%
51-75% IMPROVEMENT	26-50	35	43.75%
26-50% IMPROVEMENT	51-75	14	17.5%
<=25% IMPROVEMENT	>75	3	3.75%