



Research Article

A COMPARATIVE CLINICAL STUDY TO EVALUATE THE EFFECT OF *SIRAVEDHA* AND CONDUCTIVE *AGNIKARMA* WITH *SUVARNA SHALAKA* IN THE MANAGEMENT OF *GRIDHRASI* W.S.R. TO SCIATICA

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ABSTRACT

Background: *Gridhrasi* is a pain dominant *Vata Nanatmaja Vyadhi* leading to *Gridha* (Vulture) like gait with symptoms like *Stambha*, *Ruk*, *Toda* and *Spandana* in *Sphika*, *Kati*, *Prishtha*, *Uru*, *Janu*, *Jangha* and *Pada* in ascending manner. *Gridhrasi* is comparable to Sciatica in contemporary medicine. In India lifetime incidence is reported to be between 10% to 40% and an annual incidence of 1 to 5%. Only conservative measures that provide temporary pain relief or surgery with adverse effects are available. While *Ayurveda* offers a variety of scientific approach out of which *Siraveda* and *Agnikarma* are thought to provide quick pain relief. **Aims:** To compare the effect of *Siravedha* and Conductive *Agnikarma* in the management of *Gridhrasi*. **Materials and Methods:** This is parallel group open randomized clinical trial. A total of 40 patients, divided randomly in two groups, were treated by *Siravedha* in 20 patients and Conductive *Agnikarma* in 20 patients. *Siravedha* was done from prominent vein near *Antara Kandara Gulpha*. Conductive *Agnikarama* was done over Sciatic nerve roots L4 - S3 on either side by *Suvarna Shalaka*. The Wilcoxon's Signed-Rank Test was carried out for all non-parametric data (i.e., for subjective criteria) within the group. Mann Whitney test was adopted for comparing the subjective parameter between two groups. Students paired 't' test was applied for the objective parameters. **Results:** On an individual basis, both groups have alleviated the cardinal sign and symptoms of *Gridhrasi*. After *Siravedha* 63.15% patients showed moderate improvement and 21.05% had mild relief. In Conductive *Agnikarma*, 60% patients had moderate improvement whereas 20% patient had marked and mild improvement each. **Conclusion:** *Siravedha* gives slightly better effect than Conductive *Agnikarma* in the management of *Avaranjanya Vata-Kaphaj Gridhrasi*.

INTRODUCTION

Since pain impacts patient's physical, mental and social lives, it is imperative to provide rapid alleviation in the modern world. *Gridhrasi* is a *Ruja Pradhana* (pain dominant) *Vata Nanatmaja Vyadhi* leading to *Gridha*^[1] (Vulture) like gait due to which it has been named so. *Gridhrasi* is characterised by sharp shooting pain radiating from *Sphika* (gluteal region) down to the *Pada* (foot) associated with symptoms like

Stambha (stiffness), *Ruk* (pain), *Toda* (pricking sensation), *Spandana* (twitching or tingling sensation) and '*Sakthikshepa Nigraha*'^[2] i.e., restricted lifting of leg in *Vataja* type and in *Kaphanubandhi* symptoms like feeling of *Tandra* (drowsiness), *Gaurava* (heaviness) and *Arochaka* (anorexia) are also associated with it^[3]. Based on its sites of manifestations and the symptoms, *Gridhrasi* is comparable to sciatica in contemporary medicine also known as lumbo-sciatic syndrome, sometimes known as sciatic neuritis is characterised by sharp shooting pain along the distribution of sciatic nerve in posterior and inner aspect of the lower extremity resulting from irritation of the sciatic nerve and aggravated by movement of limbs that may be brought on by general compression or irritation of the sciatic nerve. In India lifetime incidence of Sciatica is

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reported to be between 10% to 40% and an annual incidence of 1 to 5%. The prevalence of sciatica ranges from 1.2% to 43% worldwide. Slipped discs or Lumbar Disc Herniation (LDH) is common disease in the world, with sciatica pain as the most common related symptom, though not every slipped disc is painful.^[4] Available evidence from basic science and clinical research indicates that both inflammation and compression are important in order for the nerve root to be symptomatic.^[5]

Considering the treatment of sciatica the modern medical science has only symptomatic management with oral medications and finally surgical procedures like laminectomy, discectomy is opted in the condition of severe compression or stenosis but these medications and costly procedures have their limitations and risks associated. Our *Acharyas* have mentioned various scientific treatment protocol as per the rationality of disease condition of *Gridhrasi* which includes oral medications, *Vatasya Upakrama*, *Siravedha*, *Agnikarma*, *Basti Chikitsa* along with food and lifestyle management.^[6] *Acharya Charak* has mentioned *Siravedha* from *Antara Kandara Gulpha* region and *Agnikarma* in management of painful condition of *Gridhrasi*.^[7] *Acharya Sushruta* has also indicated *Siravedha* and *Agnikarma* as treatment modalities in *Gridhrasi*.^[8,9] *Siravedha* and *Agnikarma* have been proved to be effective in pain dominant and *Avaranajanya Vatavyadhis* which also relieves stiffness, heaviness, tingling sensation and helps in flushing out the inflammatory factors. The role of *Siravedha* (therapeutic venipuncture) and Conductive *Agnikarma* (conductional method of thermotherapy) has not been studied so far in the management of *Gridhrasi*. So, considering the safe, quick effective, easy to perform and economically affordable procedure. This clinical study was an attempt made to evaluate and compare the effect of *Siravedha* and Conductive *Agnikarma*.

AIM

A comparative clinical study to evaluate the effect of *Siravedha* and Conductive *Agnikarma* with *Suvarna Shalaka* in the management of *Gridhrasi* w.s.r. to Sciatica.

Objective

- To compare the efficacy of *Siravedha* with Conductive *Agnikarma* in the management of *Gridhrasi*.
- To study the effect of *Siravedha* in *Gridhrasi*.
- To study the effect of Conductive *Agnikarma* in *Gridhrasi*.
- To observe the complications of *Siravedha* and Conductive *Agnikarma*, if any.

MATERIALS AND METHODS

Source of collection of data

Screening, selection and registration of 40 patients randomly from OPD and IPD *Panchkarma* Department, GACH Patna, based on inclusion and exclusion criteria. This Clinical trial was started after registration in CTRI, having registration no. CTRI/2024/04/066344 and was approved by Institutional Ethics Committee, wide Memo. No. 351/Dated 20-02-23.

Materials used for *Siravedha*

- Disposable scalp vein set of 20 no
- Sterile Gloves, cotton pad and bandage
- Tourniquet
- Measuring jar
- Surgical spirit
- *Tila tail* for *Abhyanga*
- Steamer for *Nadi-Sweda*
- *Shuddha Sphatika Bhasma* & turmeric

Materials used for Conductive *Agnikarma*

- *Suvarna Shalaka*
- Artery forceps
- Candle and match sticks
- Sterile cotton swabs
- Marker pen
- *Triphla Kwath*
- *Aloe-vera* pulp and *Ghrita*

Composition and details of *Suvarna Shalaka*

- 65% gold, 20% silver, 10% copper and about 5% zinc.
- 7 cm long, width is 2 mm and *Bindu* end is 4mm.

Criteria for Selection of Patients

Diagnostic criteria

- Patients were diagnosed on the basis of classical signs and symptoms of *Gridhrasi* like pain radiating from *Sphika* (hip) to *Pada* (foot) region other symptoms of *Gridhrasi* like *Toda* (Pricking sensation), *Stambha* (stiffness), *Suptata* (numbness & tingling) and *Muhuspandana* (Throbbing), *Gaurava*.
- Tenderness along the course of sciatic nerve, positive S.L.R. test and Bragard's Sign in affected leg as objective measure for diagnosis as well as for improvement of the treatment.
- Radiological assessment, X-ray- L.S. spine, AP & lateral view was carried out in patients wherever necessary.

Inclusion criteria

- The presence of *Ruka*, *Toda*, *Stambha*, and *Spandana* in the *Sphik*, *Kati*, *Uru*, *Janu*, *Jangha* and *Pada*.
- Patients of either sex between age group of 20 years to 70 years.
- *Sakthi Nikshepa Nigraha* (SLR test) and Bragard’s Sign +ve in affected leg as objective parameter.

- Surgical indications such as progressive neurological deficit.
- Pregnancy
- Anaemia (Hb%<10.00mg/dl)
- Age below 20 and above 70 years.

Exclusion criteria

- Contra-indicated for *Siravedha* and Conductive *Agnikarma*.
- Known cases of any major illness like uncontrolled diabetes mellitus, Koch’s spine and hip joint, carcinoma of spine or other organs, AIDS etc.

Assessment criteria

Subjective and objective criteria was assessed based on gradings as per severity of cardinal signs and symptoms of the disease. The pain assessment was done using visual analog scale (VAS). Assessment was carried out before and after the completion of treatment i.e. after 4th sitting.

No.	Sign & Symptoms	Criteria	Score
1.	Ruka (Pain)	No pain	0
		Painful movement without limping	1
		Painful movement with limping gait but without support	2
		Painful, can walk only with support	3
		Painful, unable to walk	4
		Severe pain needs medications	5
2.	Stambha (Stiffness)	No stiffness	0
		Mild stiffness for 5-10 minutes	1
		Moderate stiffness for 10- 60 minutes	2
		Severe stiffness more than 1 hour many times a day mildly affecting the daily routine	3
		Stiffness lasting for 2-6 hours, daily routines are hampered severely	4
3	Toda (Pricking sensation)	No pricking sensation	0
		Mild pricking sensation occasionally in a day	1
		Moderate pricking sensation, frequent not persistent	2
		Moderate pricking sensation, persistent	3
		Severe pricking sensation	4
4	Aruchi (Anorexia)	Normal taste, feeling to eat food on time	0
		Feeling to take food but no proper digestion	1
		<i>Anannabhilasha</i> – not feeling to take food even if hungry	2
		<i>Bhaktadvasha</i> – irritability to touch, smell, seeing and listening of food	3
		<i>Abhaktachchanda</i> – anger, stress etc. leading to aversion to food.	4
5.	Tandra	No Drowsiness	0
		Mild with no interference in daily activities	1
		Moderate with manageable interference in daily activities	2
		Severe with unmanageable interference in daily activities	3
6.	Gaurava (Heaviness)	No feeling of heaviness	0
		Mild with no interference in daily activities	1
		Moderate with manageable interference in daily activities	2
		Severe with unmanageable interference in daily activities	3

Objective Parameters

No.	Sign & Symptoms	CRITERIA	Score
1.	SLR	Equal to or greater than 90 ⁰	0
		71 ⁰ - <90 ⁰	1
		51 ⁰ - <70 ⁰	2
		31 ⁰ - <50 ⁰	3
		<30 ⁰	4
2.	Walking Time (To cover 20 meter)	Up to 20 Sec.	0
		21-40 Sec.	1
		41-60 Sec.	2
		More than 60 Sec.	3
3	Bragard's Sign	Negative	0
		Positive	1
4	Gait	Normal	0
		Antalgic	1

Assessment of overall effect

- **Complete Remission:** 100% relief in Signs and Symptoms of *Gridhrasi*
- **Marked Improvement:** >75% to <100% relief
- **Moderate Improvement:** >50% to ≤75% relief
- **Mild Improvement:** >25% to ≤50% relief
- **Unchanged:** ≤25% relief in Signs and Symptoms

Study design

Total 40 patients suffering from *Gridhrasi* (Sciatica) were selected randomly for the study. Divided into two groups of 20 patients each.

Group-A (SV): Selected patients under this group were treated by *Siravedha*. Total 4 sittings were done on weekly basis.

Group-B (AK): Selected patients under this group were treated by Conductive *Agnikarma*. Total 4 sittings were done on weekly basis.

Procedure in Group A (SV)

Siravedha method of *Raktamokshana* (Fig 1) was done in this group of n=19. Adequate *Yavagupana* and *Sthanika Abhyanga* and *Nadi Swedana* was done prior to the therapy. Sterile disposable scalp vein set of 20 gauze no. was introduced in the prominent vein of *Antara Kandara Gulpha* region (Achilles tendon and ankle joint) and as per *Roga* and *Rogi Bala* 40-70 ml of blood was taken out and over the venepuncture site *Sphatika Bhasma* and Turmeric was applied for proper clotting and healing followed by proper bandaging.

Vatashamaka, *Agnideepaka Ahar-Vihar* was advised post therapy. Total 4 sittings were done on weekly basis.

Procedure in Group B (AK)

Conductive *Agnikarma* (Fig. 2) was done using *Suvarna Shalaka* in this group of n=20. Site of *Agnikarma* was 2 fingers laterally on either side of intervertebral disc associated with sciatic nerve roots i.e. at L4 to S3 spinal nerve roots level. The site was first cleaned with *Triphla Kwath* and then dried. Total 20 *Bindu* method of *Dahan* was done, 2 on either side of the intervertebral discs each at the gap of 2 fingers laterally. *Suvarna Shalaka* was hold with artery forceps and *Bindu* end of *Shalaka* was placed on the site of *Agnikarma* and the other end was burnt with the candle to produce continuous conduction type of heat. When the heat sensation become intolerable *Shalaka* was removed and placed on another site. Immediately after *Agnikarma*, fresh *Aloe vera* pulp was applied on the site of *Agnikarma* to avoid any burning scar and then application of *Ghrta* from next day twice daily. The patient was advised not to expose the *Agnikarma* site to water for 24 hours. Post-conductive *Agnikarma* with *Suvarna Shalaka* there was no any wound formation or remained scar except in one patient, this makes it more favourable to use in place of direct *Agnikarma* with red hot *Shalaka*. Total 4 sittings were done on weekly basis.



Fig. 1: Siravedha from Antara Kandara Gulpha



Fig. 2: Conductive Agnikarma with Suvarna Shalaka

Follow-up: After 15 days of treatment total 2 follow-ups.

OBSERVATIONS AND RESULTS

This comparative randomized parallel group study is of 40 patients out of which 39 patients completed the treatment and 1 patient was dropout from Group A. In Group A, observation was done on 20 patients and assessment of results were drawn on 19 patients who were subjected for *Siravedha* procedure. In Group B, observation as well as assessment of results were drawn on 20 patients who were subjected for Conductive *Agnikarma* procedure.

Table 1: Age wise distribution of patients

Age (in Years)	Group A		Group B		Total	Percentage (%)
	No.	(%)	No.	(%)		
20 - 30	04	20%	02	10%	06	15%
31 - 40	03	15%	04	20%	07	17.5%
41 - 50	09	45%	05	25%	14	35%
51 - 60	01	05%	05	25%	06	15%
Above 60	03	15%	04	20%	07	17.5%

The above table shows that in the present study

- Maximum number of patients i.e. 35% belonged to age group between 41-50 years,
- Followed by 17.5% patients in both above 60 years and 31- 40 years age groups and
- 15% of patients were observed in age group of 51-60 years and 20-30 years each.

Table 2: Sex wise distribution of patients

Sex	Group A		Group B		Total	Percentage (%)
	No.	(%)	No.	(%)		
Male	08	40%	06	30%	14	35%
Female	12	60%	14	70%	26	65%

In this study as shown in table above, 65 % patients were female and 35 % of the patients were male.

Table 3: Occupation wise distribution of patients

Occupation	Group A (SV)		Group B (AK)		Total	Percentage (%)
	No.	(%)	No.	(%)		
Housewife	10	50%	11	55%	21	52.5%
Labour	01	05%	00	00%	01	2.5%
Service	01	05%	04	20%	05	12.5%
Agriculture	03	15%	02	10%	05	12.5%
Businessman	02	10%	01	05%	03	7.5%
Others	03	15%	02	10%	05	12.5%

In the view of occupation of patients, it was observed that

- Maximum i.e. 47.5% patients were house wives, while 22.5% were labor.
- 12.5 % patients had service in private sector and were farmer each.

Table 4: Kosta (Bowel habit) wise distribution of patients

Bowel	Group A (SV)		Group B (AK)		Total	Percentage (%)
	No.	(%)	No.	(%)		
<i>Madhyam</i>	08	40%	08	40%	16	40%
<i>Krura</i>	12	60%	12	60%	24	60%

Above table reveals that

- More than half of the patients i.e. 60% were having *Krura Kosta* while
- 40% patients were having *Madhya Kosta*.

Table 5: Chronicity of disease wise distribution of patients

Chronicity	Group A (SV)		Group B (AK)		Total	Percentage (%)
	No.	(%)	No.	(%)		
<1 (Years)	03	15%	06	30%	09	22.5%
1- 2 (Years)	04	20%	06	30%	10	25%
>2 (Years)	13	65%	08	40%	21	52.5%

Above table highlights chronicity of disease wise distribution, which indicates that maximum number of the patients i.e. 52.5% of the patients were having more than 2 years of chronicity, 25% patients were having 1-2 years chronicity, 22.5% patients were having chronicity of less than 1 years.

Other observational findings

In *Aharaja Nidana*, maximum number of patients i.e. 70% were having *Katu Dravya* predominant diet, 30% having *Tikta Dravya* predominant diet. Excessive use of *Ruksha Dravya* in diet was found in 52.5% patients, *Sheet Dravya* and *Shuska Shaka* in 70% patients each and among *Ahara Vidhi*, *Vishamasana* was found in 77.5% patients and *Adhyasana* in 42.5% patients. *Virudhashana* was observed in 65% of patients as *Aharaja Nidana*.

In *Viharaja Nidana*, maximum patients i.e. 75% had habit of *Vismasana* and 42.5% patients were

having *Bharavahana* as occupation. *Divaswapana* and *Ratri Jagarana* were observed in 72.5% and 35% of the patients respectively whereas *Atichesta* and *Vega Sandharana* in 55% and 47.5% of the patients respectively as *Viharaja Hetu* of the disease. **While considering the *Mansika Nidana***, maximum patients i.e. 27.5% were having *Chinta* and 10% were suffering from *Krodha* and *Bhaya* each. 7.5% of the patients were found *Shokaas Mansika Hetu* of the disease. In this study total 100% patients were noted with *Vata-Kaphaja* type of *Gridhrasi*.

In all 40 patients observed, pain was aggravated in 85% patients in standing posture of body, in 67.5% while sitting, in 27.5% in walking and in 12.5% in lying supine posture. Other factors include weight lifting in 82.5%, winter season in 52.5% of the patients, morning time in 62%. 87.5% patients felt relief in pain in lying supine position.

Table 6: Effect of Siravedha on Subjective parameters

Chief complaints	N (No. of Patients)	Median (Q1, Q3)		% of relief	W	P
		BT	AT			
<i>Ruka</i> (VAS for back pain)	19	7 (7,7)	2 (2,3)	65.18	-190	<0.001
<i>Ruka</i> (VAS for leg pain)	19	7 (7,7)	2 (2,3)	64.66	-190	<0.001
<i>Toda</i>	19	4 (3,4)	2 (1,2)	56.52	-190	<0.001
<i>Stambha</i>	19	3 (3,4)	1 (1,2)	62.5	-190	<0.001
<i>Suptata</i>	07	0 (0,2)	0 (0,1)	50.0	-28	<0.05
<i>Tandra</i>	07	0 (0,3)	0 (0,1)	57.89	-28	<0.05
<i>Gaurava</i>	19	3 (3,4)	1 (0,2)	68.85	-190	<0.001
<i>Arochaka</i>	18	2 (2,3)	0 (0,0)	93.02	-171	<0.001

- In Group A, Post *Siravedha* treatment there was 65.18% improvement found in *Ruka* (VAS for back pain), 64.66% improvement found in *Ruka* (VAS for leg pain), 56.52% improvement found in *Toda*, 62.5% improvement found in *Stambha*, 50% improvement found in *Suptata*, 57.89% improvement found in *Tandra*, 68.85% improvement found in *Gaurava* and there was 93.02% improvement found in *Arochaka* after the treatment.

Table 7: Effect of Conductive *Agnikarma* on Subjective parameters

Chief complaints	N (No. of Patients)	Median		% of relief	W	P
		BT	AT			
<i>Ruka</i> (VAS for back pain)	20	7 (7,8)	3 (2,3.5)	62.16	-210	<0.001
<i>Ruka</i> (VAS for leg pain)	20	7 (7,8)	3 (2,3.5)	60.96	-210	<0.001
<i>Toda</i>	20	4 (3,4)	2 (1,2)	56.12	-210	<0.001
<i>Stambha</i>	20	4 (4,4)	2 (1,2)	60.52	-210	<0.001
<i>Suptata</i>	07	0 (0,2)	0 (0,1)	57.14	-28	<0.05
<i>Tandra</i>	07	0 (0,2.5)	0 (0,1)	52.38	-36	<0.05
<i>Gaurava</i>	20	3 (3,4)	1 (1,1)	66.15	-210	<0.001
<i>Arochaka</i>	13	2 (0,3)	0 (0,0)	94.59	-91	<0.001

- In Group B, Post Conductive *Agnikarma* treatment there was 62.16% improvement found in *Ruka* (VAS for back pain), 60.96% improvement found in *Ruka* (VAS for leg pain), 56.12% improvement found in *Toda*, 60.52% improvement found in *Stambha*, 57.14% improvement found in *Suptata*, 52.38% improvement found in *Tandra*, 66.15% improvement found in *Gaurava*, 94.59% improvement found in *Arochaka* was found after the treatment.

Table 8: Comparative effect of *Siravedha* and Conductive *Agnikarma*

Chief complaints	N (no. of pts.)	Groups	Median	U	P	S
<i>Ruka</i> (VAS for back pain)	19	Group A	5	187	>0.05	NS
	20	Group B	5			
<i>Ruka</i> (VAS for leg pain)	19	Group A	5	171	>0.05	NS
	20	Group B	4.5			
<i>Toda</i>	07	Group A	2	188	>0.05	NS
	07	Group B	2			
<i>Stambha</i>	19	Group A	2	159	>0.05	NS
	20	Group B	2			
<i>Suptata</i>	07	Group A	1	21	>0.05	NS
	07	Group B	1			
<i>Tandra</i>	07	Group A	2	49	>0.05	NS
	07	Group B	1			
<i>Gaurava</i>	19	Group A	2	182	>0.05	NS
	20	Group B	2			
<i>Arochaka</i>	18	Group A	2	76.5	<0.05	S
	13	Group B	3			

Above table clarifies that there was statistically significant difference ($p < 0.05$) in effect of therapies and *Pathya* in Group A and Group B on the symptom of *Arochaka*. There was no statistically significant difference ($p > 0.05$) in effect of therapies in Group A and Group B on *Ruka* (VAS for back pain), *Ruka* (VAS for leg pain), *Toda*, *Stambha*, *Suptata*, *Tandra* and *Gaurava*.

Effect of Therapy on Objective parameters in Group A (SV):

The initial mean score for SLR (Rt. leg) was 1.73, which has reduced to 0.73 after treatment with 57.57% relief, the initial mean score for SLR (Lt. Leg) was 1.2, which has reduced to 0.6 after treatment with 47.83% relief. The initial mean score for walking time was 1.6, which has reduced to 0.5 post treatment with 67.74% relief. The initial mean score for Bragard's Sign (Rt. Leg) was 0.7, which has reduced to 0.5 post treatment with 28.57% relief. The initial mean score for Bragard's Sign (Lt. Leg) was 0.5, which has reduced to 0.3 post treatment with 33.33% relief.

Effect of therapy on objective parameters in Group B (AK)

The initial mean score for SLR (Rt. leg) was 1.4, which has reduced to 0.7 after treatment with 50.00% relief, the initial mean score for SLR (Lt. Leg) was 1.6, which has reduced to 0.8 after treatment with 54.54% relief. The initial mean score for walking time was 1.6, which has reduced to 0.5 post treatment with 66.67% relief. The initial mean score for Bragard's Sign (Rt. Leg) was 0.7, which has reduced to 0.5 post treatment with 23.07% relief. The initial mean score for Bragard's Sign (Lt. Leg) was 0.7, which has reduced to 0.5 post treatment with 30.77% relief.

Table 9: Comparative effect of Siravedha and Conductive Agnikarma on objective parameters

No	Objective parameters	N (no of pts.)	Groups	Mean	SD	SE	't'	P
1.	SLR (Rt. leg)	16	Group A	1	0.88	0.14	1.09	>0.05
		16	Group B	0.7	0.66	0.22		
2.	SLR (Lt. leg)	13	Group A	0.58	0.60	0.17	-1.07	>0.05
		15	Group B	0.9	0.91	0.34		
3.	Walking time	19	Group A	1.105	0.31	0.07	0.40	>0.05
		20	Group B	1.1	0.45	0.01		
4.	Bragard's Sign (Rt. leg)	14	Group A	0.21	0.42	0.09	0.39	>0.05
		13	Group B	0.15	0.37	0.08		
5.	Bragard's Sign (Lt. leg)	9	Group A	0.16	0.37	0.08	-0.23	>0.05
		13	Group B	0.2	0.41	0.09		

There was no statistically significant difference ($p>0.05$) in effect of therapies in either of the Group A (SV) and Group B (AK) on SLR, Walking time and Bragard's Sign.

Table 10: Comparative overall effect of therapy in Group A (SV) and Group B (AK)

Improvement	Group A (SV)		Group B (AK)	
	No. of Patients	%	No. of Patients	%
Unchanged	00	00%	00	00%
Mild Improvement	04	21.05%	04	20%
Moderate Improvement	12	63.15%	12	60%
Marked Improvement	03	15.79%	04	20%
Complete remission	00	00%	00	00%

- In majority of patients moderate improvement has been found, in Group A (63.15%) and in Group B (60.00%).
- In Group A mild improvement has been found in 21.05% of patients and in Group B 20.00%.
- Marked improvement has been found in Group A (15.79%) and in Group B (20.00%).

DISCUSSION

The *Samprapti* of Gridhrasi takes place either by *Dhatukshayatmaka* or *Margavaranajanya* or due to *Agantunja* causes like *Abhighata* and *Prapatana*. In *Dhatukshayatmaka Samprapti*, due to improper nourishment of *Rasadi Dhatus*, these *Dhatu* lands into *Kshayatamaka Dhatukshaya* which further vitiates *Vata* causing *Gridhrasi*. This type of *Samprapti* can be

correlated to the *Sciatica* caused by degenerative changes. These changes are osteoporosis, spondylosis etc. which lead to *Sciatica*. When *Vayu* is obstructed by *Kapha*, *Ama* etc. it gets vitiates leading to *Margavaranajanya Samprapti* of *Gridhrasi*. *Agantunja* factors has been mentioned as a cause of *Gridhrasi* by both the systems of medicine. In majority of patients

Aam causative factors like *Visamasana*, *Adhyasana*, *Diwasvapna* were found which further vitiated *Kapha Dosh* and lead to the *Marga Avrodhajanya Samprapti* of the disease i.e. *Vata-Kaphaj Gridhrasi* in all the sample selected.

In this study, the disposable scalp vein set of 20 gauze number was used for *Siravedha Karma* as a modification of conventional *Kutharika Shastra* because of its easy availability and maintained septic conditions. *Agnikarma* with *Ushna Guna* which is antagonist to *Sheet Guna* and hence relieves *Stambha* [10] and the fire of candle is *Snigdha* in nature as compared to the normal fire of *Ruksha Guna* used for making *Shalaka* red hot and this *Snigdha Agni* in the form of candle fire alleviates the *Ruksha Guna of Vata*. The raised temperature at the site of *Agnikarma* reduces the nerve reflexes and relaxes the muscle. *Acharya Sushruta* has mentioned *Suptata* in *Twakagata Vata* which is treated by *Raktamokshana*. [11] Hence, *Siravedha* was found effective to alleviate *Suptata* in superficial nerve involvement. Although the SLR test is quite sensitive, it is not as specific for sciatica. "*Sakthanahkshepamnigraharniyata*" this symptom mentioned by *Acharya Sushruta* can be correlated with positive SLR test. *Avarana of Vata* by *Kapha* leads to this condition and *Agnikarma* through its of *Ushna*, *Tikshna* and *Sukshma Guna* remove this *Avarana* and thereby restoring the proper *Vatanulomana* and the movement of limbs becomes proper. The majority of patients with restricted SLR experience discomfort from sciatica nerve stretching; therefore, following *Siravedha* and Conductive *Agnikarma*, the pain relieved and SLR improved.

Gaurava and *Arochaka* in majority developed due to *Guru Guna* predominant *Kapha Dosh* being afflicted with *Aam*. Here, the advised diet regimen of *Agnideepaka*, *Vata anulomaka Laghu Aahara* and *Dhanyak-Sunthi* medicated water might be helpful to relief these symptoms significantly and hence due to proper *Vata-Anulomana*, *Agnideepana* the healing started, pressure is released over sciatic nerve which relieved pain and also relieved *Tandra* and *Spandana*-like symptoms. *Siravedha* helps to remove the *Avarana* and *Laghu* and *Ushna Guna* of *Agni* pacify the *Sheeta Guna* of *Kapha* as well, which alleviates *Guruta*.

Overall assessment in both Groups

In Group A *Siravedha* procedure and dietary modification showed highly significant improvement in symptoms like *Ruka*, *Toda*, *Sthamba*, *Gaurava* and *Arochaka*. In Group B of *Conductive Agnikarma* there was highly significant improvement in *Ruk*, *Toda*, *Stambha*, *Gaurava* and *Arochaka* and significant in *Suptata* and *Tandra*.

Probable mode of action of Siravedha

Kandara being *Updhatu* of *Rakta* and also *Dushya* in *Gridhrasi* and for *Raktaja Vyadhi Raktamokshan* has been mentioned as line of treatment. *Gridhrasi Vata* is *Rakta Vata* and is due to *Vyana Vayu Prakopa* as stated by *Acharya Harita*. *Vyana Vayu* is related to blood circulation. Through *Siravedha* there is elimination of *Ama* which obstructs the *Srotas* or channels and normalizes the *Gati of Vayu* and hence *Siravedha* was beneficial in *Avaranjanya Vata-Kaphaj Gridhrasi*. *Siravedha* is primarily indicated for *Rakta*, *Pitta* and *Kaphaja Vyadhi* or when *Vata Dosh* is in *Anubandha* with *Pitta* or *Kapha*. When vitiation of *Vata* is caused by *Avarana of Kapha* and *Pitta*, *Siravedha* can help to eliminate this *Avarana* and hence facilitating the *Anuloma Gati* of vitiated *Vata* which in turn alleviates the symptoms. After the procedure, most patients got immediate relief in symptoms up to 2 to 3 days but the symptoms reoccurred but intensity was less.

Probable mode of action of Conductive Agnikarma

Agni by the virtue of its anti-*Kapha* and anti-*Vata* properties like *Ushna*, *Tikshna*, *Aashukari* and *Sukshma Guna* accelerates the metabolic process, improves blood circulation to the damaged tissues which speedup healing and flushing out of toxic pain producing metabolites. The physical heat from *Suvarna Shalaka* through conduction method is conveyed to *Twak Dhatu* as therapeutic heat which improves *Dhatvagni* i.e. tissues metabolism which causes *Amapachan* and decreases the pain perception.

The ventral spinothalamic tract uses the lateral spinothalamic tract (ascending neurons) as a conduit for the conduction of pain, temperature, and pressure. Because the brain can only perceive stronger sensations, pain perception decreases as pressure and temperature perception rise. *Agnikarma* procedure aids in promoting muscular relaxation. *Agnikarma* has the potential to activate the sensory receptors in muscles, transmit a signal to the brain, and cause the pituitary gland to release endorphins. These endorphins then attach to opiate receptors in pain cells to block pain impulses. Like morphine and other opiates, endorphin is a naturally occurring neuropeptide that has a strong tendency to attach to the brain's opiate receptors on pain cells. [12]

Suvarna itself have *Gamitva* to *Majja Dhatu*, and having properties like *Rasayana*, *Tridosahara*, *Vishaghna*, *Snigdha*, anti-inflammatory which makes it more suitable to use a *Shalaka* than of other material and even it makes less or no scar marks and convenient to use, carry and even *Sukumar* patients feel comfortable to get treated. The accurately pointed therapeutic heat penetrates to the deeper tissue like

Mamsa Dhatu and neutralizes the *Sheeta Guna* of *Vata* and *Kapha Dosha* and the vitiated *Dosha* attains normalcy and patients got relief from the symptoms.

Conclusion

Conductive *Agnikarma* using *Suvarna Shalaka* can be used as an alternative method to direct *Agnikarma* as it produces minimum discomfort to patients with no or little scar marks.

Individually *Siravedha* and Conductive *Agnikarma* are showing statistically significant results. But on comparing, the both groups showed less significant results indicating that the treatment modalities are identical in treating the *Gridhrasi*. However, for further studies a randomized clinical studies of big sample size will help to verify standard outcomes.

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