



Research Article

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A CLINICAL STUDY TO EVALUATE THE EFFECT OF AGNI KARMA IN THE MANAGEMENT OF GRIDHRASI (SCIATICA)

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ABSTRACT

Gridhrasi (Sciatica) is one of distressing, relapsing and remittent disorder, now becoming a significant threat, affecting the locomotor system. The leading etiological factors are Nidana Sevana (improper dietary habits and living) responsible for Vata vyadhi. In present study Agni Karma (classical procedure) was performed, a modality of treatment described in Ayurvedic texts rolled in 3 steps- Purva karma, Pradhan karma and Paschata karma with some deviation from classical Yantra by make use of electric cautery. Prospective study was conducted in randomly selected 30 patients of either sex into single group and observed them before and after treatment. Duration of trial was of 21 days, with follow up of two months. Assessment of effect of Agni Karma was done according to improvement in subjective and objective criteria before and after treatment. A statistical and mathematical analysis was done for determining the significance of the treatment. For all values significance level was highly significant ($p < 0.0001$). Therefore, it was concluded that Agni Karma proves economically suitable and effective therapy in the disease named Gridhrasi / Sciatica.

Keywords: Gridhrasi, Agni Karma, Classical Yantra, Purva, Pradhana and Paschata karma.

INTRODUCTION

Gridhrasi is enumerated under 80 types of Nanatmaja Vataja vyadhies¹. In Ayurvedic texts, the disease Gridhrasi described having similarity in clinical features as for Sciatica². The estimated incidence rate of this entity goes higher than 60% in the OPD. According to Ayurveda, Vata prakopaka ahara-vihara, Manasa, Agantuja nidana are the causative factors³. Agni Karma⁴ is taken as a specific therapeutic parasurgical procedure done by the help of Agni (Heat) for treating a disease (directly or indirectly through any media). Agni Karma is in practice as a therapeutic measure since Vedic period and gained supremacy during period of Acharya Susruta (2nd Century). There are Purvakarma, Pradhanakarma and Paschatakarma. In Purva karma, Snehana with Murchit til taila⁵ is applied to the local part. Agni Karma is taken as Pradhana karma and Bindu types of therapeutic Agni Karma made by the help of red hot electric cautery at the site of Antara Kandara Gulfam⁶. Wound created by therapeutic burn is dressed with Grithkumari⁷ Pulp and after that Mulathi⁸ churna for vrana ropana in Paschata karma. Keeping in view, the prevalence of the disease in the society and to execute with effective but economical and complication free modality of treatment, the present study has been undertaken.

Aims and objectives

1. To assess the efficacy of Agni Karma in the management of Gridhrasi
2. To explore the literature regarding Agni Karma.
3. To explore the description of Gridhrasi and Sciatica in the classical texts of Ayurveda and in modern literature.
4. To assess the tolerability and acceptability of Agni Karma by the patients.
5. To provide a cheap, safe and effective Ayurvedic method of treatment in patients of Gridhrasi.

MATERIALS AND METHODS

Selection of the patients

After obtaining approval (No.29/2012) from Institutional Ethics Committee, 30 patients of either sex with cardinal features of inclusion criteria were selected from the OPD and IPD of Rajiv Gandhi Government Post Graduate Ayurvedic Hospital, Paprola, Himachal Pradesh, India.

Inclusion criteria

- Patients willing for trial.
- Patients' age group 25-60 years of either sex.
- Patients with following sign and symptoms of Gridhrasi and Sciatica were screened:-

Saphikapurva katiprista uru janu jangha padam kramaath,
Gridhrasi stamba ruka todaegreyati spandate muhu:
Vatad vatakaphat tandra gaurav arochaka anvita.
¼Ch. Chi. 28/56½

- Pain (Ruka) starts in the back, gluteal region and radiates down one or both lower limbs.
- Pricking sensation (Toda)
- Stiffness (Stambha)
- Twitching (Spandana)
- Anorexia (Aruchi)
- Torpor (Tandra)
- Heaviness (Gaurava)
- (+ve) SLRT (Straight Leg Raising Test)
- (+ve) Fajersztajn's test (FZ test)

Exclusion criteria

- Patients not willing for trial.
- Patients below age of 25 years and above 60 years of age.
- Patients with evidence of malignancy.
- Recent history of trauma, fracture, surgery of affected lower limbs and spine.
- Presence of local infection or skin disease on the proposed site of Agni Karma.
- Congenital and acquired lower limb deformities.
- Patients having anaemia (<9 gm %), tuberculosis, diabetes, paralysis, convulsions, uncontrolled hypertension, ischemic heart disease and other constitutional disorders.
- Patient with peripheral vascular disease or peripheral neuropathy.
- All drop outs due to any reason.
- Intervention delayed for > 3 days due to any reason.
- Failure of the patients to follow up the successive visits
- Patients who suffer from same disease more than 2 years

Concomitant medication

Medication was permitted during the study period –

- Occasional use of NSAIDS in case of pain not controlled by study procedure. (maximum up to twice a week).
- Short term medication for systemic disorders- viral, bacterial fever, gastroenteritis etc., only drugs have no effect on the disease under trial were allowed.
- Antibiotics, antihypertensive drugs, lipid lowering medicines and medication for thyroid disorders.

Protocol of the study

Written informed consent was taken from all the patients prior to embarking on the examination and treatment. The diagnosis was made on the basis of its clinical and radiological picture. Laboratory investigations were done only to exclude the above said disorders Findings were recorded in properly designed proforma. Selected patients

were studied into single group and observed their records before and after treatment. Duration of trial was 21 days (three sitting with the gap of 7 days) with follow up of 8 weeks.

Methodology of Agni karma

In present study a deviation from classical method of Agni Karma Yantra has been used. However basic principles of Agni Karma have been followed strictly with some necessary modifications. Here unipolar electric standard cautery with copper tip has been used. Pointed tip probe was used according to the requirement and convenience. There is well control of voltage and temperature in the equipment. The surgical and parasurgical procedures need careful handling, so the same was also adapted in the present study as:-

- 1) Purva karma
- 2) Pradhana karma
- 3) Paschata karma

In Purva karma

After proper counselling, written consent obtained. Rogipariksha (assessment) patient's Bala (strength), Marmasthana (vital parts), Roga and Ritu (season) was properly checked. Ahara (partaken pichhila food) as indicated in Sushruta Samhita (Su.Su.12/6), Agropaharaniyani (prepared instruments and aushadha to be used in Purva, Pradhana and Paschata karma and also to combat any complication). Marking of the site with a pen in a transverse pattern with a distance of 0.5 cm from one another i.e. Antara Kandara Gulfam (from mid of medial and lateral aspect of lower leg covering the dorsal surface at a height of 4 angulas from medial malleolus and lateral malleolus). After Snehana (local application) Abhyanga (massage) was done with Murchit til taila (medicated oil prepared in Charak Pharmacy Paprola Himachal Pradesh) to the local part for 15 min.

In Pradhana karma

Procedure was done in prone position of patient. Bindu type of dagdha were made with the help of Electric Cautery over the marked site till the Samayak twaka dagdha lakshanas occurred i.e. Shabda pradurbhava (crackling sound), Durgandhata (bad odour).

Standardization of Agni (Dagdha) Karma

Number of dagdha vrana: Eight Bindu type of vrana were made in transverse pattern.

Site of dagdha vrana: 4 angulas above the gulpha in the back of affected limb. In the successive sitting dagdha was not made over the already existing scar of dagdha vrana.

Size of single Bindu dagdha: An effort to create equal sized vrana. Diameter was 1.5-2 mm.

Duration of touch: Approx. time to produce the Samyaka Dagdha with electric cautery was 2 - 2.5 sec.

Pause in between two subsequent Bindu vrana: A small enough pause but practically it was a continuous single process. The pause standardised was 3 to 4 sec.

Total duration of one sitting: Average total duration of one sitting was 36.7 sec.

In Paschata karma

After completion of the procedure, the vrana was dressed with Gritkumari pulp and Mulethi churna with help of gauge pieces and cotton bandages. Patient was properly advised and called on next day for follow up to review the local status. Second and third sitting was done after the gap of 7 days in the same manner. Before going for second and third sitting of Agni Karma, patient was questioned about the relief in complaints and any untoward effects.

Criteria for assessment

Following criteria were used for assessment in before and after treatment-

Subjective Criteria - 1. Ruka (Pain) 2. Toda (Pricking sensation) 3. Radiation of pain 4. Stambha (Stiffness) 5. Visual analogue scale 6. Verbal descriptive scale.

Objective criteria - 1. Passive Straight leg raising test 2. Fajersztajn’s test.

Criteria for assessing total effect of therapy

Cured- 100% relief in signs and symptom

Markedly Improved- More than 75% relief in signs and symptoms

Improved – 25-75 % relief in signs and symptoms

Unchanged- Below 25% relief in signs and symptoms

RESULTS

Effect on Ruka– Mean score of pain was 3 before treatment (BT) which reduced to 2.39 i.e. 20.33% relief after seven days of 1st sitting. Mean score became 1.48 (50.67%) after 2nd sitting. Finally after treatment (AT) (after 3rd sitting) mean score of pain was 0.61 i.e. total percentage relief was 79.67%. This was statistically highly significant (p<0.0001).

Effect on Toda– Mean score of pricking sensation was 2.00 BT which reduced to 1.21 i.e. 39.50% relief after seven days of 1st sitting. Mean score was 0.74 (63%) after 2nd sitting of Agni Karma. Mean score after 3rdsitting reduced to 0.10 i.e. total percentage relief was 95%. This was highly significant (p<0.0001).

Effect on Radiation of pain- Mean score of pain radiation was 3 BT which was found 2.17 i.e.31.55% relief after seven days of 1st sitting. After 2ndsitting mean score observed 0.96 (69.72%). After 3rd sitting mean score was 0.35 i.e. total % relief was 88.96%. This was highly significant (p<0.0001).

Effect on Stambha - Initially BT mean of stambha was 1.73. It was reduced to extend of 1.07 i.e.38.17% after 1st sitting. Mean score became 0.60 (65.32%) after 2nd sitting of Agni Karma. While after 3rdsitting mean score was 0.13 i.e. 92.49% respectively. This was again highly significant (p<0.0001).

Effect on Visual analogue scale – In VAS mean score of BT observed was 7.48. After 1st sitting became 6.13 i.e.18.05% and it was 3.61 (51.67%) after 2nd sitting. After 3rd sitting mean score was 1.65 i.e. 77.94%. Statistical was highly significant (p<0.0001).

Effect on Verbal descriptive scale- Mean score of VDS was 2.04 BT which reduced to 1.57 i.e. 23.04% relief after seven days of 1st sitting and after 2nd sitting it was 1.00 (50.98%). Mean score reduced to extend of 0.57 i.e. total % relief after 3rd sitting was 72.06%. Results were highly significant (p <0.0001).

Effect on Passive SLRT - BT mean of passive SLRT observed was 2.39. After 1st sitting it reduced to 2.13 i.e. 10.88%. Mean score became 1.13 (52.72%) after 2nd sitting. Finally mean score of passive SLRT was 0.57 i.e. total % relief was 76.15%.This was statistically highly significant (p<0.0001).

Effect on Fajersztajn’s test - Initially BT mean of FZ test was 2.33. It became 1.94 i.e 16.74 % after 1st sitting. Mean score observed was 0.61 (73.82%) after 2nd sitting. Finally AT (after 3rd sitting) mean score of FZ test was 0.00% i.e.100% total relief observed. This was statistically highly significant (p<0.0001).

Table 1: Effect on assessment parameters (before and after treatment)

Sr. No	Name of the feature	N	Mean score BT	Mean score AT (Seven days after each sitting)		
				1 st sitting	2 nd sitting	3 rd sitting
1.	Ruka	23	3	2.39 (20.33%)*	1.48 (50.67%)*	0.61 (79.67%)*
2.	Toda	19	2.00	1.21 (39.50%)*	0.74 (63.00%)*	0.10 (95%)*
3.	Radiation of pain	23	3.17	2.17 (31.55%)*	0.96 (69.72%)*	0.35 (88.96%)*
4.	Stambha	15	1.73	1.07 (38.15%)*	0.60 (65.32%)*	0.13 (92.49%)*
5.	VAS**	23	7.48	6.13 (18.05%)*	3.61 (51.74%)*	1.65 (77.94%)*
6.	VDS***	23	2.04	1.57 (23.04%)*	1.00 (50.98%)*	0.57 (72.06%)*
7.	Passive SLRT	23	2.39	2.13 (10.88%)*	1.13 (52.72%)*	0.57 (76.15%)*
8.	Fajersztajn’s test	18	2.35	1.94 (16.74%)*	0.61 (73.82%)*	0.00 (100%)*

Visual analogue scale, * Verbal descriptive scale, Passive Straight Leg Raising Test, N- No. of Patients, AT- After Treatment, BT- Before Treatment

Aggregate percentage relief in the symptoms (Mean of percentage of all the variables)

1st sitting- 24.68%
 2nd sitting - 59.75%
 3rd sitting – 85.28%

Table 2: Effect of therapy (BT and A-FU)

Sr. No.	Name of the feature	N	Mean		M.D.	± SD	± SE	't'	'P'	%age
			BT	AT						
1.	Ruka (pain)	30	3	0.61	2.39	0.572	0.119	19.659	<0.0001	79.67
2.	Toda (pricking sensation)	19	2.00	0.10	1.89	0.737	0.169	11.199	<0.0001	95
3.	Radiation of pain	30	3.17	0.35	2.82	0.777	0.162	17.429	<0.0001	88.96
4.	Stambha (stiffness)	15	1.73	0.13	1.60	0.507	0.130	12.220	<0.0001	92.49
5.	Visual analogue scale	30	7.48	1.74	5.74	1.737	0.362	15.839	<0.0001	76.74
6.	Verbal descriptive scale	30	2.04	0.57	1.47	0.665	0.138	10.655	<0.0001	72.06
7.	Passive SLRT	30	2.39	0.57	1.82	0.548	0.114	16.359	<0.0001	76.15
8.	Fajersztajn's test	18	2.33	0.12	2.21	0.562	0.136	16.391	<0.0001	100

(A-FU)- After Follow-up, Passive Straight Leg Raising Test, N- No. of Patients, AT- After Treatment, BT- Before Treatment

DISCUSSION

The disease named Gridhrasi is either Vataja or Vatakaphaja type. A conditioned described in modern medicine resembles with Sciatica. Regarding diagnosis, it is based on clinical features. Episodes of occupationally related low back pain are twice as common in adults over the age of 40 years. In present study the disease was more common who involved in domestic activities followed by heavy physical worker and common in the 5thdecade whereas 3rd decade are in high risk category. There is no need to state that modern medical treatment has its own limitation in managing this disease. Whereas, Acharya Charaka, Acharya Sushruta and many other Acharyas mentioned Agni Karma chikitsa in the management of Gridhrasi. Qualities due to which the Agni Karma is superior i.e. Apunabhavaat (no relapse), sterilization property, haemostatic and curative property. Assessment of effect of therapy observed before and after treatment. In the first follow up visit after 1st sitting of Agni Karma, there was stability in the features i.e. no further increase in the symptoms was recorded. On 2nd visit there was more relief in some symptoms like in Toda, Stambha, and

Fajersztajn's test. Whereas on the 3rd visit there was further improvement in other symptoms and complete relief recorded in above mentioned features. Recurrence was observed in some symptoms of patients after completion of trial that come in follow-up monthly.

So far as overall effect of therapy is concerned Agni Karma shows higher percentage of cured (43.48%), markedly improved (17.39%) and 39.13% improved patients.

Probable mode of action of Agni Karma

Agni Karma can be defining as heat therapy. The application of heat may produce many changes in the body by local, general or remote effect. Before discussing probable mode of action of Agni Karma, it is necessary to know about the pathway related to thermal and pain sensation to the brain. The pathway for these two sensation seen parallel. So, out of these two only stronger one can be felt first. According to modern view⁹, the endogenous pain inhibiting system consists of descending pain inhibiting system and gate control mechanism.

Probable mechanism of action of Agni Karma in the Endogenous opioid peptide release

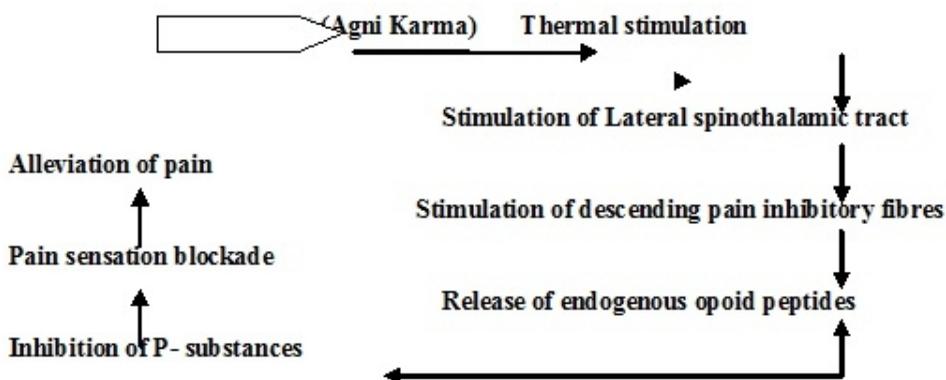


Figure 1: Descending pain inhibiting system

Probable mode of action in Gate control mechanism

When a painful stimulus alone is applied the pain is more intensely felt than the stimulus of same intensity is applied concomitantly with the tactile stimulus e.g. heat application in the form of Agni Karma.

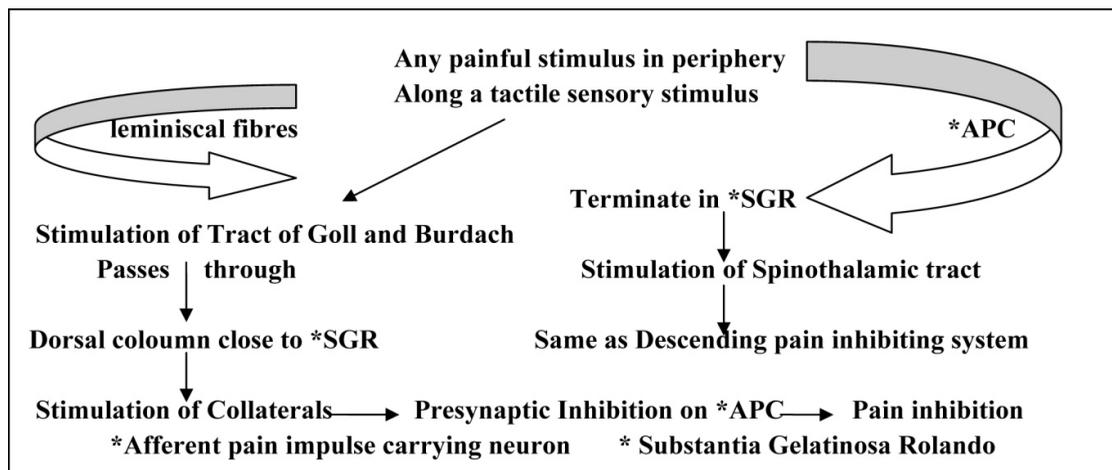


Figure 2: Gate control mechanism

In Ayurvedic view

Two theories are postulated on mechanism of Agni Karma. According to 1st theory, it works by giving external heat there by increasing the Dhatvagni (tissue fire) which helps to digest the aggravated Doshas and hence cures the disease. In 2nd theory, Usna guna (hot properties) of Agni is exactly opposite to Sheeta guna of Vata and Kapha Dosha which pacifies Vata and reduces Kapha, therefore reduces the pain.

CONCLUSION

The disease Gridhrasi (Sciatica) attains a chronic course in months or years. Toda and Stambha (Clinical features of Gridhrasi) can almost completely be relieved after Agni Karma procedure. Recurrence in Ruka (pain) and its radiation recorded after completion of trial. But recurrence after Agni Karma is contrary to the textual references (Apunarvabha). Most of the indications for Agni Karma are actually chronic sterile inflammatory conditions. Probably Agni Karma is just like counter irritants, in condition of chronic inflammation the process of inflammation is mired by opening up of channels which ultimately increase the blood supply, provides more nutrients and washes off the metabolites. Hence it can strongly be stated that this therapeutic procedure not only subside the symptoms but cures the disease. However, cure may depend upon the severity, form and chronicity of the disease. Therefore, overall results prove

that Agni Karma is effective treatment in the disease Gridhrasi.

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