



## EFFICACY OF AGNIKARMA IN MYOFASCIAL PAIN SYNDROME

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**ABSTRACT**

Myofascial pain syndrome is one of the most common chronic pain syndromes and is often overlooked as a source of muscle pain, discomfort, and dysfunction. It often arises in postural-related skeletal muscles, which may refer to other areas of the body. The exact prevalence in the general population has rarely been mentioned. This condition is usually found in people aged 27 to 50.

*Agnikarma* is described as a superior treatment modality to *shastra* (*Shastra*), *kshara* (*Kshara*) and *bheshaja* (*Bheshaja*) *karma*. According to Sushruta (*Sushruta*), if a disease is treated with *agnikarma* (*Agnikarma*), there will be less chances of recurrence and more success in curing the disease (*roganam apunarbhavat*) (*Roganam apunarbhavat*).

The study was carried out on 30 patients with myofascial pain syndrome. The treatment outcome was statistically significant in subjective parameters like pain and objective parameters like trigger points, taut band, local twitch response, and tenderness.

**Keywords:** Myofascial pain syndrome, Agnikarma(*Agnikarma*), trigger points

## INTRODUCTION

A growing number of individuals in our ageing population have musculoskeletal pain that affects their daily activities and function. It has a significant impact on their quality of life. Myofascial pain syndrome is mainly related to work and age-related causes.<sup>1</sup>

Myofascial pain syndrome is commonly classified into acute and chronic myofascial pain syndrome. Patients with acute myofascial pain syndrome have pain in one or two local regions. Symptoms usually begin after traumatic events or overuse activities. Most symptoms are resolved after a few weeks. However, some patients progress to chronic myofascial pain syndrome. Chronic myofascial pain syndrome persists for 6 months or longer. Patients with chronic myofascial pain syndrome have more widespread pain than the acute form. Pain intensity may fluctuate. Almost all chronic myofascial pain syndrome patients have some perturbing factors.<sup>2</sup>

In clinical practice, myofascial pain syndrome is often defined by multiple areas of musculoskeletal pain and tenderness associated with painful points. Pain is deep and aching. It may arise after trauma, overuse or sedentarism.<sup>3</sup>

The traditional and narrow definition of myofascial pain is that it arises from trigger points in a muscle.<sup>4</sup> A trigger point is defined as “a hyperirritable spot in skeletal muscle that is associated with a hypersensitive palpable nodule in a taut band”.<sup>5</sup> There are several other phenomena that accompany myofascial pain syndrome, including taut bands, referred pain and local twitch response.

Pain at the trigger points is due to the release of neuropeptides, cytokines, and inflammatory substances, such as substance P, calcitonin gene-related peptide, interleukin-1 $\alpha$ , and bradykinin, and protons that create local acidity.<sup>6</sup>

Myofascial pain can be acute or chronic. The nature of the pain in both cases is dull, deep, aching, and poorly localised. It is rarely sharp and stabbing, although acute episodes of stabbing pain can occur, even on a background of chronic pain. Pain is often

experienced as referred to other regions, such as the head, the neck, or the hip, as referred to pain.<sup>7</sup>

A few essential causes are bad posture, lack of exercise, ageing, muscle overuse and repetitive micro-trauma, etc.<sup>8</sup>

*Mamsa gata vata* has been explained in the *Ayurvedic* literature, with certain nidanas (*Nidanas*) causing specific lakshanas (*Lakshanas*) due to vata prakopa. (*Vata prakopa*) The lakshanas (*Lakshanas*), such as muscular pain, stiffness or spasm, weakness or reduced strength of muscles, and restricted movement due to pain in affected muscles, can be considered here and are vaguely correlated to myofascial pain syndrome.

*Acharya Sushruta* has described (has described) *Agnikarma*, a para-surgical procedure, as a superior treatment modality to *shastra* (*Shastra*), *kshara* (*Kshara*) and *bheshaja* (*Bheshaja*) karma. It is mainly indicated in the disease caused by *Vata and Kapha Doshas*. According to *Sushruta* (*Sushruta*), if a disease is treated with *agnikarma* (*Agnikarma*), there will be less chances of recurrence and more success in curing the disease (*roganam apunarbhavat*) (*Roganam apunarbhavat*).<sup>9</sup>

The indications of *agnikarma* (*Agnikarma*) told by *Acharya Sushruta* (*Acharya Susrutha*) for conditions of *Athyugra ruja mamsa sthita vayu*, *Katina*, *Supta mamsa* are considered here.<sup>10</sup>

*Acharya Sushruta* (*Acharya Susrutha*) has mentioned different types of *shalakas* (*Shalakas*) for *Agnikarma*. Here, we have chosen *Panchaloha shalaka* because once heated red hot, it can produce 20 to 30 *samyak* (*Samyak*) *dagdha vrana* satisfactorily.<sup>11</sup>

### Source of data:

#### Literary source -

To collect significant data, we used all the *Ayurvedic* classics, contemporary *Ayurvedic* literature, modern texts, and internet sources mentioning the conditions.

#### Drug source -

*Pancha lauha shalaka* and *Shatadhouta ghrita* were purchased from the market.

### Sample Source -

Patients with Myofascial Pain Syndrome will be selected from the Outpatient and Inpatient Department of Karnataka Ayurveda Medical College and Hospital, Mangalore, from other camps and referrals.

**Sample Size and Grouping:** It is a single group of 30 patients.

### Method of Collection of Data

30 patients were selected from OPD and IPD of Karnataka Ayurveda Medical College, Mangaluru.

a) **Study Design:** A single-masked pretest and post-test randomised study in which a minimum of 30 patients of either sex fulfilling the inclusion criteria were selected and placed in a single group.

b) **Sample Size and Grouping:** A single group of 30 patients.

### c) Inclusion criteria:

- Age group between 16 to 70 years
- With pain and tenderness at trigger points

### d) Exclusion criteria:

- Patients above 70 and below 16 years of age
- Patients contraindicated for *Agnikarma*
- Fibromyalgia
- Myositis
- Tendinopathy
- Arthritis
- Bursitis
- Nerve entrapment

e) **Diagnostic Criteria:** Patients diagnosed with myofascial pain syndrome are clinically examined for signs and symptoms.

- Taut band within the muscle.
- Exquisite tenderness at a point on the taut band.
- Reproduction of the patient's pain.

### f) Methodology

● Materials and methods - Gas stove, *Panchalauha shalaka*, cotton pad, vessel, *Shatadhouta ghrta*, *Dhanwantaram taila*

● *Purva karma* - All the materials required were made ready, and the shalaka(*Shalaka*) was kept making it red hot using a gas stove. Maximum tenderness

point is elicited. The spot to do *Agnikarma* is cleaned under all aseptic precautions. *Dhanwantaram taila* is made *Sukhoshna*, *Mrudu abhyanga* is done on the affected part, and trigger points are marked.

● *Pradhana karma* - On the diseased part of the patient, *Agnikarma* is done with *Panchalauha shalaka*, and nearly 5 to 30 *Dagdha* (shape of *Bindu*) is done according to the extent of the affected area. *Shatadhouta ghrta* is applied on the *Dagdha vrana*.

● *Paschat karma* - Proper bandaging with a cotton pad is to be done. Daily application of *Shata dhauta ghrta* over the *Dagdha vrana* is advised to the patient.

● Parameters will be noted on the 0-7th day.

● 14th day & 21st day if more than one sitting is required.

● 3 days after *Agnikarma*, *vrana* is observed for any complication. If the pain is not entirely relieved or recurs, the patient will be advised to sit next for the *Agnikarma* procedure 7 days after the previous sitting. A maximum of 3 seats(sittings) will be made if the condition persists.

g) **Study duration:** 1 month

h) **Follow-up:** Done for one month after study duration.

i) **Assessment Criteria:** Assessment was made based on subjective and objective parameters before and after treatment as per a clinical proforma.

### j) Subjective criteria:

● Pain

### k) Objective:

- Taut band of muscle fibres
- Local twitch response
- Tenderness

### l) Investigations:

- Blood routine,
- Random Blood Sugar,
- CRP,
- Clotting Time,
- Bleeding Time, if needed

## OBSERVATIONS BASED ON DEMOGRAPHIC DATA

In this study, 30 patients fulfilling the inclusion criteria were selected. They were studied in a single group irrespective of age, sex, religion, occupation, nature of work, etc.

Parameters	Before Treatment	After treatment	Reduction %	p-value
	Mean and SD	Mean and SD		
Trigger points	2.56 ± 0.54	0.64 ± 0.61	75%	<0.05
Taut band	2.63 ± 0.53	0.52 ± 0.61	80.2%	<0.001
Local twitch response	2.80 ± 0.40	0.74 ± 0.63	73.5%	<0.001
Tenderness	2.50 ± 0.40	0.47 ± 0.54	81.3%	<0.05
Pain	2.53 ± 0.32	0.50 ± 0.66	80.2%	<0.001

## DISCUSSION

### Discussion on disease

Myofascial pain syndrome is an entity that still lacks a clear definition. Some define it as a regional pain disorder; others define it based on tenderness and associated painful spots.

The goals of myofascial pain syndrome treatment are pain relief and correction of precipitating factors. Stretching exercises and heat application have been advised for the patients. Nonsteroidal anti-inflammatory drugs (NSAIDs) and muscle relaxants are often prescribed, but current evidence of their effectiveness remains inconclusive. Many studies found that extracorporeal shockwaves and low-power lasers significantly reduce pain in patients with myofascial pain syndrome. Transcutaneous electrical nerve stimulation has a short-term but not long-term effect on pain control. Therapeutic ultrasound is commonly used for myofascial pain syndrome treatment, but the evidence of its beneficial effect remains inconclusive. Dry needling is a useful technique in which clinicians use a small needle to release trigger points. Clinicians also inject a local anaesthetic into trigger points to achieve better pain reduction. Systematic reviews confirmed that dry needling and local anaesthetic injections have therapeutic effects on myofascial pain syndrome. Acupuncture can also be used to treat myofascial pain syndrome. Besides, success in myofascial pain syndrome management also depends on correcting perpetuating factors, especially in chronic myofascial pain syndrome.

### Discussion on results

- Effect on pain - The mean value of pain before treatment was 2.53, and after treatment is 0.50. After statistical analysis, the P value is less than 0.001 ( $P < 0.001$ ), which is statistically significant.
- Effect on trigger points - The mean value of pain before treatment was 2.56, and after treatment, it was 0.64. After statistical analysis, the P value is  $< 0.05$ , which is statistically significant.
- Effect on taut bands - The meaning of taut band before treatment was 2.63 and after treatment is 0.52. After statistical analysis, the P value is less than 0.001 ( $P < 0.001$ ), which is statistically significant.
- Effect on local twitch response - The mean of Local twitch response before treatment was 2.80, and after treatment, it was 0.74. After statistical analysis, the P value is less than 0.001 ( $P < 0.001$ ), which is statistically significant.
- Effect on tenderness - The mean of Tenderness before treatment was 2.50, and after treatment, it was 0.47. After statistical analysis, the P value is  $< 0.05$ , which is statistically significant.
- Probable mode of action of agnikarma (Agnikarma)**
  - Vata and kapha (Kapha) possess sheeta (Sheeta) guna. To neutralise the vata (Vata) and kapha (Kapha) dosha, viparita (Viparita) guna chikitsa is required, that is, ushna (Ushna) chikitsa. Ushna, tikshna, sukshma and laghu properties of agni (Agni) neutralise Sheeta guna of Vata, minimising pain severity.
  - During the treatment of Agnikarma, Agni is transferred from Shalaka to Dushya. Agnikarma acts like Dosha dushya vighatana karaka because

*Ushna guna* performs two functions. First, by stimulating the *Utkleshana* of *dhatwagni*, *Sama dhatu* (localised *ama*) is digested. Secondly, *Ushna guna* dilates the channels of *srotas*. *Ushna Guna* and *Agni* have *Anyonyasritabhava*. Hence *Agnikarma*, by its *Ushna*, *Tikshna*, *Sukshma* and *Laghu* property, breaks *Srotovarodha*, which was formed by *Dosha-dushya Sammurchana* in *Kha vaigunya* at *Dhatu* (tissue), which is produced by *Vata* and *Kapha dosha*. Thus, *Nirama kapha* and *Vata dosha* are neutralised.

- Gate control theory suggests that the high-frequency volley of impulses from large “A” fibres close the gate for pain transmission. Substance P [SP] is indicated in sensory and nociceptive pathways. In the periphery, substance P has been identified in C-type sensory nerve endings and is a neuropeptide that acts as a mediator of pain transmission in the central nervous system. *Agnikarma* stimulates “A” fibres, which carry fast pain stimulus and activate the endogenous analgesic system, and close the gate for dull pain brought by the substance P through Small “C” fibres, resulting in relieving pain in the patients
- Heat application is thought to lessen nerve sensitivity, increase blood flow, increase tissue metabolism, decrease muscle spindle sensitivity to stretch, cause muscle relaxation, and increase flexibility. This improved blood flow delivers oxygen and nutrients while facilitating the removal of metabolic waste, aiding tissue repair, and reducing pain.

## PHOTOS OF THE STUDY



## CONCLUSION

Myofascial pain syndrome has become a common problem with the present lifestyle of people. A growing number of individuals in our ageing population have musculoskeletal pain that affects their daily activities and function.

This study observed that this condition affected patients with sedentary lifestyles and busy professional lives, causing continuous overexertion and improper sitting posture in offices. In this way, these diseases have now become a significant trend among working people.

The indications of *Agnikarma* told by *Acharya Susruta* for conditions of *Athyugra ruja mamsa sthita vayu*, *Katina*, *supta mamsa* are considered here.

*Agnikarma* represents a significant aspect of *Ayurvedic* medicine, offering a non-pharmacological approach to pain management. Analgesics, NSAIDS and steroids can alter the cause of musculoskeletal (*Vatavyadhi*) conditions. Each of these is associated with considerable toxicity and necessitates careful patient monitoring.

*Agnikarma* has been revealed to have potential *Shoola prashamana* and disease-modifying effects and is free from side effects, gastric irritation and ulcerogenic activity. The *Agnikarma* method is a simple treatment modality with minimum complications that can be taken care of easily.

From the obtained results, it was finally concluded after the study that *Agnikarma* treatment was found to be helpful in the management of myofascial pain syndrome.

**1) Required instruments for the procedure**



**2) Trigger points marked**



**3) After the procedure**



**4) After 2 months**

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