

Effect of *Agnikarma* with *Tilataila* and *Panchadhatu Salaka* in Pain Management of Cervical Spondylosis: A Comparative Case Report

Sreelakshmi K M¹, Deepthi C V², Pooja G B³, Hari R⁴

¹PG Scholar, Department of Shalyatantra, Sree Narayana Institute of Ayurvedic Studies and Research, Puthur, Kollam, 691507.

²Professor and HOD, Department of Shalyatantra, Sree Narayana Institute of Ayurvedic Studies and Research, Puthur, Kollam, 691507.

³PG Scholar, Department of Shalyatantra, Sree Narayana Institute of Ayurvedic Studies and Research, Puthur, Kollam, 691507.

⁴Assistant Professor, Department of Shalyatantra, Sree Narayana Institute of Ayurvedic Studies and Research, Puthur, Kollam, 691507

Abstract—Cervical spondylosis is a common degenerative disorder of the cervical spine characterized by neck pain, stiffness, and restricted cervical movements, leading to considerable functional disability. In Ayurveda, it can be correlated with *Greeva Sandhigata Vata*, a condition predominantly caused by vitiated *Vata* affecting the cervical joints. *Agnikarma*, one of the important parasurgical procedures described by Acharya Susrutha, is indicated in painful musculoskeletal disorders and provides immediate pain relief. The present study aims to evaluate and compare the effect of *Agnikarma* with *Tilataila* and *Panchadhatu Salaka* in the pain management of Cervical spondylosis. Two clinically diagnosed cases of Cervical spondylosis were selected, one treated with *Agnikarma* using *Tilataila* and the other with *Panchadhatu Salaka*. Clinical parameters including pain intensity (Visual Analogue Scale), tenderness grading, Northwick Park Questionnaire (NPQ), and cervical range of movement were assessed before treatment, immediately after treatment, and during follow-up on the 7th and 15th days. Both interventions produced significant improvement in pain, tenderness, functional disability, and cervical movements. However, *Agnikarma* with *Tilataila* demonstrated comparatively better and sustained improvement than *Panchadhatu Salaka*, which may be attributed to its superior heat retention, deeper tissue penetration, and *Vata*-pacifying properties. The findings suggest that *Tilataila* suggests that *Tilataila* may be considered a more effective *Dahanopakarana* than *Panchadhatu Salaka* for the management of pain in Cervical spondylosis (*Greeva Sandhigata Vata*).

Keywords— *Agnikarma*, Cervical spondylosis, *Greeva Sandhigata Vata*, *Tilataila*, *Panchadhatu Salaka*, Case report.

I. INTRODUCTION

Cervical spondylosis is a progressive degenerative disorder of the cervical spine characterized by degeneration of the intervertebral discs, osteophyte formation, and secondary changes in the vertebral bodies and facet joints [1]. It commonly presents with neck pain, stiffness, restricted cervical movements, and may be associated with radiating pain to the shoulders or upper limbs due to nerve root compression. It is one of the most prevalent musculoskeletal disorders worldwide, with its incidence increasing with advancing age and prolonged occupational stress. Radiological evidence of cervical degeneration is seen in approximately 90% of individuals above 60 years of age, making it a major cause of pain, disability, and reduced quality of life [2]. Effective pain management is therefore essential for improving functional ability and minimising disability.

In Ayurveda, Cervical spondylosis can be correlated with *Greeva Sandhigata Vata*, a disorder occurring due to the vitiation of *Vata Dosha* following *Dhatu Kshaya* or *Avarana*. Degenerative changes involving the *Greeva Sandhi* produce symptoms such as *Shoola* (pain), *Stambha* (stiffness), and *Akunchana-Prasarana Vedana* (pain during neck movements), closely resembling the clinical presentation of Cervical spondylosis [3]

Agnikarma is one of the most effective parasurgical procedures described in Ayurveda for reducing pain. Acharya Susrutha has advocated *Agnikarma* in disorders involving *Twak*, *Mamsa*, *Sira*, *Snayu*, *Sandhi*, and *Asthi*, stating that diseases treated with *Agnikarma* have a lower tendency for recurrence [4]. Depending on the site and nature of the disease, different *Dahanopakaranas* have been described. In disorders involving *Snayu*, *Sandhi*, and *Asthi*, *Sneha Dravyas* such as *Tilataila*, along with *Kshoudra* and *Guda*, are indicated because of their excellent heat retention, slow heat dissipation, and deeper tissue penetration [5]. However, in routine clinical practice, *Panchadhatu Salaka* remains the most commonly employed *Dahanopakarana* for *Agnikarma*.

The present study aims to compare the therapeutic effect of *Agnikarma* with *Tilataila* and *Agnikarma* with *Panchadhatu Salaka* in the pain management of Cervical spondylosis through two representative clinical cases. The clinical outcomes were evaluated using pain intensity, tenderness, Northwick Park Questionnaire (NPQ) score, and cervical range of movement to assess the effectiveness of both treatment modalities.

II. CASE REPORT

Case 1

A 62-year-old female with no known co-morbidities presented to the Outpatient Department of *Shalyatantra* with complaints of pain and stiffness in the cervical region for the

past eight months. She was a homemaker with a history of prolonged household activities involving repeated neck flexion and extension. The pain was insidious in onset, dull aching in nature and occasionally radiated to the bilateral shoulder region. It was aggravated by prolonged neck movements, household work and travelling, while partial relief was obtained with rest and local hot fomentation. She also complained of restriction of neck movements, especially during rotation and lateral flexion, which interfered with her routine activities.

On local examination, cervical lordosis was maintained with no visible swelling or deformity. Tenderness was present over C6-C7 region and over paraspinal muscles. Cervical flexion, extension, lateral flexion and rotation were painful and mildly restricted. Neurological examination of both upper limbs was within normal limits. X-ray of the cervical spine (AP and lateral view) revealed degenerative changes with reduced intervertebral disc space and marginal osteophyte formation consistent with Cervical spondylosis. Based on the clinical features and radiological findings, the case was diagnosed as Cervical spondylosis.

Case 2

A 56-year-old male presented with complaints of chronic neck pain and stiffness for six months. He worked as an office employee and had a history of prolonged computer use with poor ergonomic posture. The pain gradually increased over time and was associated with restriction of neck movements, particularly during prolonged sitting and rotation of the neck. Rest and painkiller medications provided temporary relief from the symptoms, which were exacerbated by persistent desk work. Previous conservative treatment had provided only temporary symptomatic relief.

Tenderness in the C5-C6 cervical area, along with slight paraspinal muscle spasm, was seen on clinical examination. Cervical flexion, extension and rotational movements were painful and restricted. Motor and sensory examinations of both upper limbs were normal, and deep tendon reflexes were preserved. Radiographic examination of the cervical spine demonstrated degenerative changes with narrowing of the intervertebral disc space and anterior osteophyte formation, suggestive of Cervical spondylosis.

Based on the clinical findings and radiological evidence, the patient was diagnosed as Cervical spondylosis.

III. METHODS

Two clinically diagnosed cases of Cervical spondylosis were selected from the Outpatient Department of *Salyatantra*, Sree Narayana Institute of Ayurvedic Studies and Research, Puthur, Kollam. Case 1 was treated with *Agnikarma* using *Tilataila*, while Case 2 underwent *Agnikarma* with *Panchadhatu Salaka*. Both procedures were performed in a single sitting under aseptic precautions. Clinical assessments were carried out before treatment (BT), immediately after treatment (AT), and during follow-up on the 7th and 15th days.

Assessment Parameters

- Subjective parameter- Pain assessed using Visual

Analogue Scale (VAS)⁶

- Objective parameters-
 - Cervical tenderness grading⁷
 - Northwick Park Questionnaire (NPQ)⁸
 - Cervical range of movement assessed using a goniometer:⁹
 - Flexion
 - Extension
 - Right lateral rotation
 - Left lateral rotation
 - Right lateral flexion
 - Left lateral flexion.

Case 1 – Agnikarma with Tilataila

Thorough pre-operative preparation was carried out by arranging all the required materials, including antiseptic solution, sterile cotton, *Tilataila*, gas stove, stainless steel vessel for heating oil, Borosil pipette, digital thermometer, Aloe vera pulp, marker pen, gloves, kidney tray, honey-ghee mixture [Fig 1]. The procedure was explained to the participant, and informed written consent was obtained. The participant was placed comfortably in prone position, exposing the posterior aspect of the neck. The most tender points over the cervical region were identified and marked using a marker pen. The area was cleaned with antiseptic solution and allowed to dry.



Fig. 1. Materials used for Agnikarma with Tilataila



Fig. 2. Agnikarma with Tilataila

Tilataila was heated in a sterile vessel until it reached its

boiling temperature (approximately 140–160°C)¹⁰. Using a sterile Borosil pipette, the heated oil was carefully applied over the marked tender points as *Bindu Dahana* [Fig 2]. Immediately after cauterization, Aloe vera pulp was applied over the treated area to reduce the burning sensation.

Following the procedure, the Aloe vera pulp was gently wiped off, and a mixture of honey and ghee (1:1) was applied over the *Agnidagdha Vrana*. The participant was kept under observation for 30 minutes to detect any immediate adverse effects. Participants were advised to avoid other analgesics during the study period. Follow-up assessments were performed on the 7th and 15th days.

Case 2 – Agnikarma with Panchadhatu Salaka

The pre-operative preparation included arranging antiseptic solution, sterile cotton, *Panchadhatu Salaka*, gas stove, Aloe vera pulp, marker pen, gloves, kidney tray, honey–ghee mixture [Fig 3]. After explaining the procedure, written informed consent was obtained. The participant was positioned comfortably in prone position. The most tender points were identified and marked. The treatment area was cleaned with antiseptic solution and allowed to dry.



Fig. 3. Materials used for Agnikarma with Panchadhatu Salaka



Fig. 4. Agnikarma with Panchadhatu Salaka

The *Panchadhatu Salaka* was heated until it became red hot (approximately 235°C)¹¹. *Bindu Dahana* was then

performed over the marked tender points using the heated *Salaka* [Fig 4]. Aloe vera pulp was immediately applied to minimize the burning sensation.

After removing the Aloe vera pulp, a 1:1 mixture of honey and ghee was applied over the cauterized area. The participant was observed for 30 minutes after the procedure to monitor for any complications. Routine medications were permitted, but no additional pain-relieving medications were allowed during the study. Clinical assessments were repeated immediately after treatment and during follow-up on the 7th and 15th days.

IV. RESULTS

TABLE 1: Assessment of Case 1

Sl No	Criteria	BT	AT	Follow up	
				7th day	15th day
1	Pain	7	3	2	2
2	Tenderness	2	1	0	0
3	NPQ Percentage Score	50	42	22	19
4	Flexion	60°	80°	65°	65°
5	Extension	110°	120°	110°	110°
6	Right lateral rotation	70°	80°	80°	80°
7	Left lateral rotation	70°	80°	80°	80°
8	Right lateral flexion	35°	45°	40°	40°
9	Left lateral flexion	35°	45°	45°	45°

TABLE 2: Assessment of Case 2

Sl No	Criteria	BT	AT	Follow up	
				7th day	15th day
1	Pain	8	4	4	4
2	Tenderness	2	0	1	1
3	NPQ Percentage Score	69	31	25	22
4	Flexion	60°	70°	60°	60°
5	Extension	80°	110°	100°	100°
6	Right lateral rotation	60°	80°	60°	60°
7	Left lateral rotation	55°	80°	80°	80°
8	Right lateral flexion	25°	35°	25°	25°
9	Left lateral flexion	15°	35°	25°	25°

The two representative cases demonstrated significant clinical improvement following *Agnikarma*, although the degree and pattern of recovery varied between the two interventions (Table 1 & 2). Both patients showed a progressive reduction in pain intensity, tenderness, functional disability, and restriction of cervical movements throughout the follow-up period. However, Case 1 (*Agnikarma with Tilataila*) exhibited a comparatively faster and more sustained clinical response than Case 2 (*Agnikarma with Panchadhatu Salaka*). In Case 1, pain reduced from 7 to 3 immediately after treatment and further to 2 by the 7th day, which was maintained on the 15th day, whereas in Case 2, pain decreased from 8 to 4 after treatment and remained at the same level during follow-up. Tenderness showed continuous improvement in both cases; however, complete resolution was achieved by the 7th day in Case 1 and was maintained during follow-up, while Case 2 showed mild residual tenderness on both the 7th and 15th days. Similarly, the NPQ percentage score, which reflects functional disability due to neck pain,

decreased markedly in both patients, with Case 1 demonstrating a greater reduction (50% to 19%) compared to Case 2 (69% to 22%). Improvement in cervical range of movement was also observed in both cases, with greater restoration of flexion, extension, lateral rotation, and lateral flexion in the patient treated with *Tilataila*. Overall, *Agnikarma* with *Tilataila* produced earlier pain relief, better improvement in functional disability, and greater restoration of cervical mobility compared with *Agnikarma* using *Panchadhatu Salaka*, suggesting a superior therapeutic effect in pain management of Cervical spondylosis.

V. DISCUSSION

Cervical spondylosis can be correlated with *Greeva Sandhigata Vata*, as both conditions are characterized by neck pain, stiffness, and restricted cervical movements resulting from degeneration of the cervical joints. Cervical spondylosis is one of the most common degenerative disorders affecting the adult and elderly population, leading to considerable morbidity, functional disability, and reduced quality of life, thereby emphasizing the need for effective pain management. *Agnikarma*, one of the important parasurgical procedures described by *Acharya Susruta*, is indicated in painful disorders involving *Twak*, *Mamsa*, *Sira*, *Snayu*, *Sandhi*, and *Asthi*, and is known to provide prompt pain relief while minimizing recurrence. *Acharya Susruta* has advocated different *Dahanopakaranas* according to the site and nature of the disease. *Sneha Dravyas* such as *Tilataila*, along with honey, ghee, and jaggery, are specifically indicated for disorders involving *Snayu*, *Sandhi*, and *Asthi* due to their prolonged heat retention and deeper tissue penetration. However, *Panchadhatu Salaka* is more commonly used in routine clinical practice. Therefore, the present study compares the therapeutic efficacy of *Agnikarma* with *Tilataila* and *Agnikarma* with *Panchadhatu Salaka* in the pain management of Cervical spondylosis (*Greeva Sandhigata Vata*).

Discussion on the Probable Mode of Action of Agnikarma¹²

According to Ayurveda, *Vata Dosha* is the primary factor responsible for the manifestation of *Shoola* (pain), and classical texts emphasize that pain does not occur in the absence of vitiated *Vata*. Aggravation of *Vata* may result from *Dhatukshaya* (degeneration of tissues) or (obstruction of bodily channels). Since *Gati* (movement) is the inherent property of *Vata*, any obstruction to its normal course leads to its vitiation. Such *Srotorodha* may occur due to the accumulation of *Ama*, resulting in impaired tissue nutrition and the manifestation of pain and stiffness.

Agnikarma acts by delivering controlled therapeutic heat to the affected area, producing local vasodilation and thereby enhancing blood circulation. Improved blood flow increases oxygen and nutrient supply to the tissues, facilitates the removal of inflammatory mediators, and promotes tissue repair, ultimately reducing pain. The application of heat also relaxes muscle fibres and surrounding soft tissues, relieving muscle spasm, decreasing stiffness, and improving the range of cervical movements. Moreover, the Gate Control Theory is

used by cutaneous thermoreceptors, which are stimulated by heat, to control how pain is transmitted, block nociceptive impulses, and offer effective analgesia.

Discussion on the Dahanopakaranas Used¹³

Panchadhatu Salaka as Dahanopakara

Panchadhatu Salaka, developed by Prof. P. D. Gupta, is one of the most widely used instruments for performing *Agnikarma* in contemporary Ayurvedic practice. It is considered an effective *Dahanopakara* for producing *Samyak Dagdha* and is routinely employed by *Shalya Tantra* practitioners, particularly for *Ruksha Agnikarma* in the management of painful musculoskeletal disorders. The instrument is composed of five metals, among which *Rajata* (silver) and *Yashada* (zinc) contribute to its *Ushna Virya* and efficient heat conduction. When heated to a red-hot state, *Panchadhatu Salaka* attains a high initial temperature that gradually declines after removal from the heat source, with a heat loss of approximately 2°C per minute, thereby producing controlled thermal cauterization.

Tilataila as Dahanopakara

Tilataila (Sesame oil), obtained from *Sesamum indicum* Linn., is a *Sneha Dravya* recommended for *Snigdha Agnikarma*, especially in disorders involving *Snayu*, *Sandhi*, and *Asthi*. Owing to its *Marutaghna* property, it effectively pacifies aggravated *Vata Dosha* without increasing *Kapha*. During *Agnikarma*, *Tilataila* serves as an excellent medium for heat transfer and retention, allowing sustained thermal action and deeper penetration through the *Sukshma Siras*. In addition to its thermal effect, *Tilataila* acts synergistically with *Agni* to alleviate *Srotorodha* and *Stambha*, thereby relieving pain and improving joint mobility. Following removal from the heat source, the temperature of *Tilataila* decreases rapidly by approximately 18–20°C, followed by a gradual decline of 4–6°C per minute, enabling prolonged therapeutic heat delivery to the affected tissues.

Discussion on the Overall Effect of Treatment

The present study demonstrated that both *Agnikarma* with *Tilataila* and *Agnikarma* with *Panchadhatu Salaka* were effective in alleviating the clinical manifestations of Cervical spondylosis (*Greeva Sandhigata Vata*). Both interventions produced significant reductions in pain, tenderness, and functional disability, along with improvement in cervical range of movement, indicating their beneficial role in relieving muscle spasm, reducing stiffness, and restoring cervical mobility. Intergroup comparison showed that both treatment modalities were effective; however, *Agnikarma* with *Tilataila* exhibited comparatively better and more sustained improvement in pain and tenderness during follow-up, while *Panchadhatu Salaka* demonstrated relatively better immediate relief in certain parameters. Overall, the findings suggest that both *Dahanopakaranas* are clinically effective in pain management of Cervical spondylosis, with *Tilataila* providing superior long-term therapeutic benefits.

VI. CONCLUSION

Agnikarma provides controlled therapeutic heat that enhances local blood circulation, facilitates the removal of inflammatory mediators, relieves muscle spasm, and thereby reduces pain and improves cervical mobility. Both *Tilataila* and *Panchadhatu Salaka* were effective in reducing pain, tenderness, functional disability, and restriction of cervical movements in patients with Cervical spondylosis (*Greeva Sandhigata Vata*). However, *Tilataila* demonstrated comparatively better and sustained improvement in pain relief and functional outcome. Its *Snigdha* property, prolonged heat retention, and deeper tissue penetration through the *Sukshma Siras* may contribute to its enhanced therapeutic efficacy in disorders involving *Snayu*, *Sandhi*, and *Asthi*. In the present study, *Agnikarma* with *Tilataila* proved to be a more effective and patient-friendly than *Panchadhatu Salaka* in pain management of Cervical spondylosis. Further clinical studies with larger sample sizes and longer follow-up are recommended to substantiate these findings.

REFERENCES

- [1] Ralston SH, Penman ID, Strachan MWJ, Hobson RP. Davidson's principles and practice of medicine. 23rd ed. Edinburgh: Churchill Livingstone/Elsevier; 2018. p 1134.
- [2] Cervical spondylosis [Internet]. Medscape; 2018 Mar 30 [cited 2019 Mar 25]. Available from: <https://emedicine.medscape.com/article/306036-overview>
- [3] 5. Bhaskar Govind Ghanekar. Sushruta Samhita, Nidan Sthan Chapter 1, Sloka 27, Reprint. New Delhi; Meherchand Lachhman Das Publication, 1998; 4
- [4] Murthy S.K.R. Suśruta Samhitha (English trans). Sutrasthana (12). 2nd Edition. Varanasi, Chaukhamba Orientalia. 2012; p70
- [5] Ravishankar A.G. et al. A scientific and analytical approach on 'snigdha agnikarma'. Int. J. Res. Ayurveda Pharm. 2013;4(6):851-53
- [6] Sokka T. Assessment of pain in rheumatic diseases. Clin Exp Rheumatol. 2005 SepOct;23(5 Suppl 39):S77-84. PMID: 16273789.
- [7] Swash M. Hutchison's Clinical Methods. 19th edition, Bailliere Tindall; 1989. p442
- [8] Leak, A & Cooper, J & Dyer, S & Williams, KA & Tumer-Stokes, Lynne & Frank, Andrew. (1994). The Northwick Park Neck Pain Questionnaire, devised to measure neck pain & disability. British journal of rheumatology. 33. 469-74. 10.1093/rheumatology/33.12.1204.
- [9] Norkin CC, White DJ. Measurement of Joint Movement: A Guide to Goniometry. 6th ed. Philadelphia: F.A. Davis Company; 2022.
- [10] Hanumanth B, Pradeep S. Rationality behind Acharya Susruta's approach towards therapeutic Agnikarma. Indian journal of Applied Research. 2015 Jan;5(1):p387-90
- [11] Ravishankar AG, Ramesh RR, Kumar MS, Mahesh TS. A scientific and analytical approach on Snigdha Agnikarma. Int J Res Ayurveda Pharm. 2013;4(6):851-853. doi:10.7897/2277-4343.04614
- [12] Suśruta, Srikanthamurthy KR. Amapakveshaniya. In: Illustrated Suśrutasamhitā: text, English translation, notes, appendices [i.e. appendices] and index. Varanasi: Chaukhamba Orientalia; 2008. p. 125.
- [13] Ravishankar A.G, Ravi Rao S, Krishnamurthy M S, Mahesh T S. A scientific and analytical approach on Snigdha Agnikarma. Int. J. Res. Ayurveda Pharm 2013;4(6):851-853

Address for correspondence – Dr. Sreelakshmi K M, PG Scholar,
Department of Shalyatantra, Sree Narayana Institute of Ayurvedic
Studies and Research, Puthur, Kollam, 691507
E mail- sreekalathil97@gmail.com