Agni Karma To Manage Sandhigata Vata W.S.R. To Cervical Spondylosis: A Review

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Abstract: The human body experiences continuous degenerative changes with age. The degeneration is very commonly observed, especially in the inter-vertebral discs in between the cervical vertebrae at higher ages. This leads to the start of problematic symptoms in the neck region. Neck pain is the worst amongst them. Neck stiffening & inability to perform movements are the other complications and the associated disease is the Sandhigata vata (cervical spondylosis), for which there is as yet no permanent cure available in the modern system of medicine. Symptoms in the extremity may also develop due to irritation of nerve supplying it. This disease can, however, be effectively managed following the Ayurvedic system. Sandhigatavata (Cervical spondylosis) is the result of aggravated Vata Dosha with anubandha of kapha avarana. However, dhatu kshaya is also the excitatory factor responsible for vitiation of vata dosha. The review of the recently published articles and the classical Ayurvedic literature amply demonstrate the efficacy of the classical Agni-Karma technology in mitigating the Sandhigata vata (Cervical spondylosis) disease. Besides this, Agni-Karma is a safe, non-invasive and drug-free para-surgical procedure. It is also, a cost-effective procedure, requiring no hospitalization, etc. Since, the incidence of this disease has been observed mostly in the higher age bracket, the technology can, therefore, be made more patient-friendly by incorporating appropriate rasayana drugs, abhyanga, anti-inflammatory medicines, etc.

Keywords: degeneration, musculoskeletal, cervical spondylosis, sandhigatavata, Agni-karma.
INTRODUCTION:

The human body experiences continuous degenerative changes with age. The degeneration is very commonly observed, especially in the inter-vertebral discs in between the cervical vertebrae at higher ages. The slowly but gradually degenerating discs often irritate the nerve roots. This may develop symptoms in the extremity to which the irritated nerve is supplying. This leads to the start of problematic symptoms in the neck region. Neck pain is the worst amongst them. Neck stiffening & inability to perform movements are the other complications and the associated disease is the Sandhigata vata (cervical spondylosis), for which there is yet no permanent cure available in the modern system of medicine. This disease can, however, be effectively managed through the Ayurvedic system. This roga can be managed by using the Agni-Karma therapy of Ayurveda. The present article presents a review of the recently conducted research on this disease adopting the Ayurvedic system of medicine and the ancient classical Ayurvedic literature on the subject.

AIMS & OBJECTIVES

Aims and objectives of this article are to present a review of the topic based on the following scientific aspects:

- Shareera rachna of cervical region
- Sandhigata vata vis-à-vis Cervical Spondylosis
- Agni-Karma and its procedure
- Role of Agni-Karma in the management of Sandhigata vata w.s.r. to Cervical Spondylosis

MATERIAL AND METHODS

This article is based on the review of Ancient literature: Sushruta Samhita, Charaka Samhita, Ashtanga Hridaya & Ashtanga Samgraha, and the research & review articles published in standard Ayurvedic journals, cited in this article at appropriate places.

REVIEW OF PUBLISHED ARTICLES

First study, clinically evaluated the efficacy of Agni-Karma in sandhigata vata w.r.t. cervical spondylosis. The highlights of the study are:

1. The study made use of loha shalaka for agni karma.
2. The study included Agni-karma in conjunction with the drug Trayodahang guggulu to manage cervical spondylosis.
3. Patients were placed into two groups, namely, GROUP-A: those receiving Agni-karma therapy & GROUP-B: those put on drug Trayodahang Guggulu.
4. Significant relief was reported in greeva stambha, greeva graha, greeva shula & shira shula in patients treated with Agni-karma therapy.
5. Agni-karma was reported to be effective against cervical spondylosis.

Second study was conducted on role of Agni-karma & karpasasthyadi tailam in managing cervical spondylosis. The highlights of the study are:

1. The study included Agni-karma in conjunction with Karpasasthyadi Taila Nasya to manage the disease.
2. Panchadhatu shalaka was used to perform Agni-karma.
3. Patients were placed in two groups namely, A: those receiving Agni-karma therapy and B: those receiving Karpasasthyadi taila Nasya.
4. Agni-karma was reported to provide significant relief in pain, stiffness, head reeling & movements of the neck. Relief in headache, tingling sensation and loss of sensation were comparatively less.
5. Karpasasthyadi taila nasya was reported to be quite effective in head reeling, tingling sensation, pain & headache. But its effects on stiffness, restricted movements were of lesser degree.
6. The therapy also, provided relief in greeva shula, sandhi shula and stambha.

Third study, assessed the clinical efficacy of Agni Karma in the management of Sandhigata Vata w.r.t. cervical spondylosis. The highlights of the study are:

1. The study used pancha dhatu shalaka for agni karma.
2. Patients were placed in two groups, A: Agni-karma group included 11 patients and B: the Trayodahang guggulu group included 10 patients.
3. **Complete cure**: 18% in Group A & 10% in Group B
4. **Agni-karma** provided relief in *shula, supata, bhrama* (head reeling), *chimchimayana hasta*.
5. **Trayodahanga guggulu** provided relief in the associated complaints. However the relief in *chimchimayana hasta, supata* was better than with *Agni-karma* therapy.
6. The study reported that *Agni-karma* was efficacious in managing the cervical spondylosis.

**Fourth** was a review of *Agni Karma* in the management of *Asthigata vata*. The highlights of the review article are:

1. The reviewed study made use of *Panchdhatu shalaka* in the management of *Asthigata vata*.
2. The article highlighted the previous works done on cervical spondylosis:
3. One earlier study was related to patients of *Sandhigata vata* (cervical spondylosis)
4. The other earlier reported study recorded relief of 73% in neck pain, 67% in neck stiffness and 65% relief in neck movement.
5. The *Agni-karma* was reported to be a safe, effective and drug-less therapy in *asthigata vata* and a number of musculo-skeletal disorders.

**Fifth**, was a clinical study of *Agni-Karma* and *Panchatikta Guggulu* in the management of *Sandhigata vata* (osteoarthritis of knee joint). The highlights of the study are:

1. *Pancha dhatu shalaka* was used to perform *Agni-karma*
2. The study included:
   - **Group A**: *Agni-karma* therapy on 18 *Sandhivata* (Osteoarthritis) patients
   - **Group B**: *Pancha tikta guggulu* on 15 *Sandhivata* (Osteoarthritis) patients

1. **Relief in sandhi shula**: 86% in group A and 78% in group B
2. **Sparsha asahayata reduction**: 69% in group A and 88% in group B
3. **Sandhi sphutana relief**: 39% in group A and 47% in group B
4. **Sandhi graha relief**: 63% in each group
5. The study showed efficacy of *Agni-karma* in *sandhi vata*
6. Combination of *Agni-karma* and *pancha tikta guggulu* showed a better option against *sandhivata* (osteoarthritis).

**ANATOMICAL DETAILS OF GREEVA REGION**

A. **Sushruta** mentions 107 *marmas* seated into the following five sites based on location:
   - *Mamsa marma*
   - *Sira marma*
   - *Snayu marma*
   - *Asthi marma*
B. Sushruta, also classified the marmas into the following five types based on marmaghat lakshanas:

- Sadya pranahara marma
- Kalantara pranahara marma
- Vishalyagha marma
- Vaikalyakara marma
- Rujakara marma

MARMAS IN GREEVA

The Greeva marmas include the following:

1. **Nila marma**: 2
2. **Manya marma**: 2
3. **Matrika Marma(kantha-sirayein)**: 8

In brief, the marmas of greeva region are:

I. **Dhamnies**: 4 in number, on both sides of kanth nadi:
   - 2 are nila
   - 2 are manya
   - Thus, in total there are 4 nila and 4 manya marmas
   - On injury to them swara nasha (loss of speech) occurs.

II. **Sira matrikas**: 4 each on both the sides, thus, 8 in total

II. **Krikatika marmas**: 2 are situated at the junction of head and neck. Injury to them causes shiro kampa (head tremor or quivering).

MARMAS OF NECK

**Description of Nila Marma**: It includes 2 marmas one on each side of neck:

- It is a Sira & Vaikalyakara marma
- It is situated in lower neck
- One each on the lateral side of Trachea
- Pulsation is felt here, due to its location in upper internal Jugular vein
- Injury exerts an effect on the vocal cords
- It may be associated with loss of voice
- Being Sira Marma, its injury also leads to bleeding

**Description of Manya Marma**:

- It includes 2 points one on each side of the neck
- It is a Sira & Vaikalya Kara Marma
- Its size is about 4 Angula (fingers)
- One and half unit inferior, and one and half unit posterior to mandibular angle
- It has control over Rasavaha & Rakta vaha Srotas, i.e. plasma, blood & circulatory system
- It has control over Bodhaka Kapha & Udana Vayu
• The *Bodhaka Kapha* provides lubrication of mouth & *Udana Vayu* regulates the upward moving air
• Linguual Nerve, Glosso-pharyngeal Nerve, Accessory Nerve, External carotid Artery & Internal Jugular Vein are related to it in the region
• Its injury leads to loss of sensation of taste & paralysis of tongue

**Description of Sira Matrika Marma**\(^{16}\):

• It is a group of 8 Marmas, 4 on each side of the neck
• It is a *Sira & Sadyo Pranhara Marma*
• Its size is about 4 angula (fingers)
• It is mainly composed of blood vessels
• It lies one and a half angula lateral to outside of trachea
• It is situated on different branches of common carotid artery & covers a large area of neck.
• It controls *Raktavaha Srotas* (Blood flow from heart to head)
• It has a control over *Udana Vayu* [upward moving *Prana* (air)]
• It also has control over nervous system
• Its injury is the cause of massive blood loss, collapse & death.

**KURCH SANKHYA IN GREEVA**\(^{17}\):

There is only one *kurcha* in greeva

**ASTHIS (BONES) IN THE BODY**:

• *Sushruta*\(^{18}\) considers 300 *Asthis* in the body as a whole.
• *Charaka*\(^{19}\) differs to this, and recognises 360 *Asthis* in the body.
• *Vagbhatta*\(^{20}\) : 360.
• As per modern view number of bones in the body is 206

**Asthies in Greeva Region**:

• *Sushruta*\(^{21}\) : 9.
• *Charaka*\(^{22}\) : 15 in the neck region.
• *Modern System* : 7 cervical vertebrae.

*Sushruta* ascribes *Greeva Asthies* to *Tarunasthis*.

**ASTHI SANDHIES IN GREEVA**:

• According to *Sushruta*, out of 210 *Asthi Sandhies* in total, 83 are in *Urdhwa-Jatrugata* region
• Of these 83 *Asthi Sandhies* in the *Urdhwa-Jatrugata* region, 8 are in the *Kanth* region\(^{24}\).

According to *Sushruta*, the *Greeva Sandhies* belong to the *Pratara Sandhies*\(^{25}\).

**SNAYUS IN GREEVA**

*Sushruta*, further distributes the 70 *Urdhwa Jatrugata Snayus* into\(^{26}\):

• *Greeva region* : 36
• *Moordha* region : 34
PESHIS IN GREEVA

Urdhwa Jatrugata Peshis are 34 in number. They include:

- Greeva region : 4
- Hanu region : 1
- Kaklika region : 1
- Neck (gala pradesha) region : 1
- Talu region : 2
- Jihwa (tongue) : 1
- Oshta (lips) region : 2
- Nasika (nose) region : 2
- Netra (eyes) region : 2
- Ganda Region: 4
- Ears : 2
- Lalata : 4
- Shira (head) region : 1

GREEVA GATA SIRAS

- Urdhwa Jatrugata Siras: 28. 164
- Siras in Greeva: 56

AVEDHYA SIRAS IN GREEVA

The Avedhya Siras are 16 in number and are classified as follows:

- Marma Samgyak Siraas: 12
- Siraas related to Krikatika Marma: 2
- Siraas related to Vidhur Marma: 2

ANATOMY OF CERVICAL REGION IN BRIEF

The part of the Spine lying within the Neck Region is called Cervical Spine

1. The Cervical Spine:
   - comprises seven cervical vertebrae
   - It lies between the skull and the thoracic vertebrae
   - Various muscles, ligaments surrounding the neck provide support to these vertebrae.
   - The upper two vertebrae provide attachment to the base of the skull. These bring about the sideways movement of the neck.

2. The vertebral column:
   - It is composed of 24 separate, movable, irregular bones called as vertebrae.
   - The vertebrae are placed into three groups:
     - Cervical vertebrae : 7 in number
     - Thoracic vertebrae : 12 in number
     - Lumbar vertebrae : 5 in number
   - In addition, the sacrum consisting of 5 fused bones and coccyx consisting of 4 fused bones also form a part of vertebral column.

3. Each vertebra consists of:
   - A disc shaped body lying in the front
• An arc of bone pointing backwards from the body, enclosing a space between body and arch called the neural or spinal canal through which spinal cord passes:
  a. the arch carries 3 rough processes:
     o spinous process projecting backwards
     o two transverse processes one on either side
  b. There are two surfaces of neural arch: superior and inferior
  c. There are two articular processes which carry smooth surfaces to articulate with similar processes on the vertebrae above and below.

4. Cervical vertebrae are smallest separate vertebrae with relatively large openings. They run down the neck forming a slightly forward curve. They have special features:
   • Each transverse process carries an opening through which a vertebral artery passes upwards to brain
   • The spinous process is forked or bifid giving attachment to muscles and ligaments.
   • The arch carries a notch on either side of the under surface.
   • The narrow part of the arch above the notch is called a pedicel.
   • The wide part of arch carrying the spinous process is called lamina which forms the back wall of the vertebral column.
• The vertebrae lie over body and over arch forming a continuous column.
• The bodies are joined to each other by a thick pad of fibrocartilage called the inter-vertebral disc.
   • The discs are composed of ring of fibrocartilage and a soft pulley like centre called the nucleus.
   • The discs serve to allow slight movement of bone on bone and yet make very strong joints.
   • The inter-vertebral discs act as shock absorbers and thus prevent any trauma to the brain

5. C1 vertebra is termed as Atlas.
   • It is the superior most vertebra.
   • It is thinnest of all cervical vertebrae.
   • It plays an important role in supporting skull, spinal cord and vertebral arteries.
   • It also plays an important role in movement of head and neck.

6. C2 vertebra is the second uppermost vertebra called as Axis. It plays an important role by allowing the head to rotate on its axis & hence derives the name.

7. C3 to C6 vertebrae are next in line grouped together, because of similarity in anatomical set up:
• These play an important role in movement of neck and provides support to head as well as neck.
• They, also provide anchorage to muscles concerned with their movement.

8. C7 vertebra is the largest and most inferior vertebra in the neck region.
• Unlike other vertebra it has a large spinous process.
• This process can be felt as a projection at the base of the neck.
• It continues downward as thoracic vertebrae.
• Its body supports the collective weight of head and neck.
• Fibro-cartilagenous discs above & below C7 provide cushioning.
• Facets and discs surrounding provide flexibility and stability to neck.

9. The sides of vertebrae are bound together by facet joints.

10. In between the vertebrae lies the intervertebral disc.
• Intervertebral discs are thin masses of fibrocartilage with soft gel like centre.
• Each disc acts as a shock absorber and helps in holding the vertebral column in alignment.

11. The disc is differentiated into two parts outer hard & inner soft part.

12. They act as shock absorbers and help the spine maintain its flexibility.
13. The ligaments provide support to the vertebrae.
14. The muscles help in maintaining the flexibility at various levels in between the vertebrae, a pair of nerves towards either side of spine project out.
15. These pair of nerves originate from spine, project out from the inter-vertebral spaces and supply the extremities or parts lying towards either side of spinal cord.

**CERVICAL SPONDYLOSIS DISEASE**

**Process of Occurrence**

*Cervical spondylosis* is an age-related *degeneration* (wear and tear) of the bones (vertebrae) and discs in the neck. It is encountered by most of the people. The degenerative process usually starts after *forty years* of age. Due to degeneration, there gradually occurs roughening of small areas of the bone, especially in intervertebral discs. These roughened areas become *osteophytes*. The degeneration process, if unchecked leads to *thinning* of the *discs*. It may, often cause *irritation* of the *nerves*, surrounding *muscles, ligaments* and ultimately bring on pain and great discomfort to the affected persons.
AYURVEDIC PERSPECTIVE

Sandhigata Vata (Cervical spondylosis)

This disease when viewed from Ayurvedic angle, its most specific symptoms match closely with those of Sandhigata Vata the predominant causes are described below:

1. **Sandhigata Vata (cervical spondylosis)** is a form of **sandhivata** where the vitiated **Vatadi Doshas** become localised in the **Greevagata Sandhis** (joints between cervical vertebrae).

2. It is a **Vata-Prakopa Janya Vyadhi**.

3. The **Vata-Prakopa** manifests in either of the two forms\(^{(31,32)}\):
   a. **Kewala Vata-Prakopa Janya**:
      - Where only derangement of **Vata Dosha** occurs
      - But the **Sansarga** (association) of **Prakupita Vata Dosha** with other **Doshas** does not occur
   b. **Samsarga** (association) of **Vata Dosha** with other **Doshas** occurs
      - When **Vata Dosha** gets associated with **Kapha** and **Pitta**. This is accordingly, called **Kapha-Avritta Vata** and **Pitta-Avritta Vata**.
   c. **Dhatu Kshaya** also plays a role in the **Utpatti** of the disease.

4. It may be correlated to **arthritis, osteoarthritis, rheumatoid arthritis**, etc.

5. Most of the **musculo skeletal** disorders such as **kati-shula, sandhi-shula**, **sandhigata vata, gridhrasi, pakshaghata** are the outcome of the deranged **Vatadi Doshas**.

6. **Charaka** includes **Vata-Vyadhi** under **Ashta Mahagadas** (eight incurable diseases).

NIDANA

1. Broadly, the pathological events are placed into two categories viz. **Marga Avarodha Janya** and **Dhatu Kshaya Janya**.

2. Basically it is a result of vitiation of **Vata Dosha** and its **anubandha** (**avarana**) with **kapha**. The **Nidanas** of **Vata Vyadhis & Sandhigata Vata** (cervical spondylosis) include **Vata Prakopaka Nidanas**

3. **Nidanas** are, therefore summed up as under:
   - **Aaraja Nidana**
   - **Viharaja Nidanas**
   - **Kalakrit Nidanas**
   - **Mansika Nidanas**

AHARAJA NIDANA (DIETIC FACTORS)

1. **Excess katu tikta kshaya rasa sevana**: These **rasas** are **vata prakopaka** and thus would lead to **sneha shunyata** and **utpatti** of disease

2. **Sushruta** mentioned the **gunas** (features) of **Vayu** as under\(^{33}\):

• Rooksha
• Laghu
• Sheeta
• Sheeta
• Khara gunas
• Dosha dhatu & mala sanchara
• Occupies special seats in pakwasthay & guda regions
• It is the chief Dosha to cause all the rakta, pitta, kapha janya rogas

3. Charaka recognises the sewana of the following ahara as responsible for vata dushti and utpatti of vataja vikaras:
• Rooksha ahara sewana
• Sheeta ahara sewana
• Alpahara sewana
• Laghu ahara sewana

VIHARAJA NIDANAS

The views of Charaka on Vata Prakopaka Nidanas are mentioned in Table-1.

Table-1: Charaka views of the Vata Prakopaka Nidanas

| Ativyayaya | Langhana | Shoka, |
| Prajagara | Plavanaa | Roga, |
| Result of visham chikitsa | Atyadhvagaman | Ati asrik |
| Ati sravan of asrik | Ativyayam | Sravana janya karshana |
| Atisravana of mala, mutra | Ati chesta | Dukha shayyasana |
| | Dhatu sankshaya | Krodha |
| | Chintana | Diwaswapanam |
| | | Vega samdharana |
| | | Abhigahata |

These nidanas lead to vata prakopa and dhatu hraas (loss) creating hollow space in between the joints of cervical vertebrae. The deranged vayu settles in this empty space and does further shoshana of dhatus there, leading to symptoms of cervical spondylosis.

MANSIKA NIDANA

The mansika factors responsible for derangement of vata include:

• Bhaya (fear)
• Shoka (sadness)
• Krodha (anger)
• Chintana (contemplation)

KALAJA NIDANA
• It is a *vardhakya janya vikara* (perversion, disorder). Most of the cases belong to elderly age group.

• It is degenerative or *dhatu-kshaya janya-vikara*.

• This *dhatu kshaya* in elders is a factor favourable to *vata dushti*.

• Effect of *ritus* (seasons) is also a factor which has its impact on *dosha* vitiation.

**OTHER CAUSES**

*Karmas (Actions) of vata :*

*Sushruta* mentioned the *karmas* (actions) of *Vayu* as under\(^{37}\) (Table-2):

<table>
<thead>
<tr>
<th>Table-2: Karmas of vata</th>
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<tbody>
<tr>
<td>• Kritisandehacharo</td>
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<tr>
<td>• Sweda sravan karma</td>
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Being the cause behind various *chestas* (activities), it helps the body in bringing about the movements of various parts. Its derangement will therefore results in *jadta* (stiffening) of the body parts i.e. the joints, bones, or vertebrae. This stiffening together with other age related factors will in turn result in a number of pathological conditions of musculo-skeletal system, *sandhigata vata* is one among those conditions.

*Sushruta* explained that \(^{38}\)

• Traumatic injuries resulting in fractures & ligament /tendon rupture

• Continuous exposure of joint to repetitive stress

• Prolonged immobilisation.

1. *Prakupita* (deranged) *vata* in the *sandhis* produces symptoms such as *sandhi shula*

2. *Asthi gata kupita vata* is the cause behind the following:
   - *Asthi Shosha* (Osteoporosis)
   - *Asthi Bheda* (bone fragility)
   - *Asthi Shula* (Ostalgia)

3. *Snayu Gata Kupita Vata* is the cause behind the following:
   - *Stambha*
   - *Sharira Kampa* (body quiver, tremor)
   - *Shula* (pain)
   - *Akshepa*
4. *Majjagata kupita vata* is the cause behind the following:
   - Continuous body ache
   - *Majja-shosha*

**Sushruta** held *Avarana* of *vata* with *kapha* and *dhatu kshaya* to be responsible for the symptoms of *sandhigata vata* (cervical spondylosis)

In this context of *avarana* of *vyana vayu*, **Sushruta** explained that:

1. **Pittavritta vyana vayu** produces the *lakshanas*:
   - Vikshepana of body
   - Daha utpatti (Burning sensation)

2. **Kapha-avritta vyan vyau** produces the *Lakshanas*:
   - Guruta (heaviness) over all the parts of the body
   - Asthi jadyata (stiffening of bones)
   - Sandhi jadyata (stiffening of joints)
   - Hasta pada chesta stambha (loss of movements of hand & feet)

**LAKSHANAS OF SANDHIGATA VATA**

**Charaka** mentioned the *lakshnas* of *sandhigata vata* as:

   - Vatapurna Driti Sparsha
   - Shotha: Inflammation
   - Sandhigata Antile: as if air occupies joint space
   - Prasarana Akunchana Sa-vedna: inability to perform activities

**CLINICAL FEATURES**

A **Patient** of *sandhigata vata* (cervical spondylosis) presents the following clinical features:

1. **Shula (Pain):**
   - Pain in the posterior aspect of the neck
   - Pain in both the shoulders
   - Pain is not necessarily the predominant symptom in cervical spondylosis.

2. **Tingling or Numbness (Suptata):**
   - Tingling & numbness sensation in the hands may be experienced by the patient

3. **Stiffening:**
   - Stiffness of neck

4. **Restricted movements:**
   - Restriction of neck movements (stambha)
   - Difficulty in certain hand movements such as buttoning

5. **Imbalance in advance stage:**
   - With advancement of spondylosis, the patient might complain of imbalance in moving (often when spondylosis causes compression of spinal chord).

6. **Giddiness (Bhrama):**
Giddiness may be complained in some cases of cervical spondylolysis.

**SAMPRAPTI OF SANDHIGATA VATA**  
(Cervical spondylosis)

**Dosha, Dhatu, Mala & Srotas** play an important role in the occurrence of this disease. The sequence for *roga utpatti* is:

1. *Dhatu Kshayakara & Vata Prakopaka Nidana Sevana*
2. *Dosha Prakopa Occurs*
3. *Prasara (spread) of Prakupita Dosha*
4. *Localisation of Prakupita Dosha occurs in Greevagata Sandhis (cervical vertebrae)*
5. *Roga Utpatti occurs*

**Explanation:**
- *Srotasa* always has dominance of Akasha Mahbhuta.
- Akasha & Vayu Mahabhuta are interrelated because Vayu occupies the hollow space created by akasha mahabhuta. This hollow space represents the Kha-Vaigunya.
- The hollow space in the srotas means absence of shlesma induced sneha. In other words shunyata (vacuum) occurs.
- Shleshaka kapha occupying the joint spaces (asthivaha srotas) is responsible for bringing about lubrication of joints
- Depletion of this shleshaka kapha leads to emptiness or shunyata of srotas
- *Sandhis* are made up of dhatus, upadhatus etc. so sewana of dhatu kshayakara bhavas lead to dhatu kshaya & loss of sneha between joints. This too will create hollowness within the joint (cervical vertebrae).
- This hollowness provides space to the vitiated vayu which then gets localised in the space between joints of cervical vertebrae & leads to symptoms of cervical spondylosis.
- It is also important to note that dhatu-kshaya and margavrodha are also the outcome of vata prakopa
- Vata occupies the hollow space of srotas in greevagata sandhis leading to sandhi vata (Cervical Spondylosis)
- The other doshas such as kapha and pitta may do the avarana of prakupita vata occupying the empty space between the joint. This avritta vata further does the shoshana of dhatus, there by producing the symptoms.
- *Medo roga* is also one of the cause. Excess meda may do the avarana of vata which will again lead to the symptoms of disease.

**PHYSICAL EXAMINATION**

1. Spurlings’ test for the Assessment of the nerve root pain:

**Procedure**
Patient is made to sit with head turned to the affected side
The clinician should be behind the patient
Apply the downward compression over the patients’ head
Radiating pain all along the forearm on application of force is a diagnostic feature

2. Lhermitte’s sign
- Patients neck is flexed
- Electric shock like sensation is experienced by the patient on flexion of his neck
- Sensation radiates down the arms, usually, the legs & occasionally the trunk

3. Hoffman’s sign
- Nail of middle or ring finger is flicked
- Flexion of the fingers towards thumb is the aim
- Presence of reflex indicates upper motor neuron lesion arising out of nerve compression

4. Wide gait (advanced stage)
- Widened gait is seen due to myelopathy
- Clumsy, staggering movements are seen
- Typically in cervical spine compression

**DIAGNOSTIC MODALITIES**

1. X-rays- to look for spinal abnormalities such as spurs
2. CT scan
3. An MRI scan
4. Myelogram:
   - To diagnose spondylitic myelopathy resulting from advancement of spondylosis.
   - A dye injection is used to highlight certain areas of the spine.
   - CT scans or X-rays are then used to provide more detailed images of these areas.

5. An electro-myogram (EMG): To Measure nerves electrical activity:
   - Transmission of impulse across muscles is also assessed.
   - Nerve conduction studies to assess signal strength & nerve conduction

**CHIKITSA**

Sushruta advised:
- Use of snehana, upnaha, Agni-karma, bandhana and mardana in the management of snayu, asthi & sandhi gata vata prakopa
- Use of Agni-karma in all painful conditions associated with deranged vata.
- Shamana of skandha gata, vaksha gata, kati gata & manya gata vata shiro-virechana karma should be utilized

Ashang Hridaya advises:
The utility of sneha, swedana in all the vataja disorders associated with jadyata, stambha, painful conditions.

The utility of taila formulations in asthi and majjagata rogas. Also it is clarified that in such condition use of calcium rich preparations such as shankha, seepa, moti, praval is contraindicated as being sheeta these are vatakara. Their use will still make the condition worse. However in such cases oils may be used to do the shamana of deranged vata.

**AGNI-KARMA**

Agni-Karma is far superior to Kshara in performing the dahanam karmas, because of non-recurrence of the disease, once cauterized with Agni-Karma.

1. Sushruta mentioned that Agni-Karma is effective in curing the diseases which are otherwise incurable with:
   - Aushadha (medicines)
   - Shastra (surgery)
   - Kshara Karma.

**AGNI-KARMA DAHANA UPAKARANAS**

The following items & instruments are needed to perform the Agni-Karma:

1. Pippali
2. Aja-shakrit: Fecal pellets of goat
3. Godant: Cow’s Teeth
4. Shara: Arrow Head
5. Shalaka (rod) made of:
   - Jambavashta
   - Shalaka made of silver, gold or loha (iron)
6. Kshaudra: A kind of Madhu (honey)
7. Guda
8. Ghrita: Sneha padartha
9. Taila: Sneha

**UTILITY OF DIFFERENT DAHANA UPAKARANAS**

**Twak Gata Rogas**:

- Pippali
- Aja-shakrit
- Godanta
- Shara
- Shalaka

**Mamsa Gata Rogas**:

- Jambavaushta
- Shalaka of other metals

**Sira, Snayu, Sandhi, Asthi gata rogas**:

- Madhu
- Guda
- Sneha Padartha

**KAAL NIRDHARAN FOR AGNI-KARMA**

- All the Ritus except Sharad & Grishma Ritus
- Sharad & Grishma Ritus:
  - Usually contraindicated
**AGNI-KARMA VIDHI**

The entire Agni-Karma procedure is divided into three phases:

### INDICATIONS FOR AGNI-KARMA

Agni-karma may be performed in the following conditions (Table-3):

<table>
<thead>
<tr>
<th>Vata gata :</th>
<th>Vata gata :</th>
<th>tabla gata :</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vata gata :</td>
<td>Vata gata :</td>
<td>tabla gata :</td>
</tr>
<tr>
<td>Twak pain</td>
<td>Sandhi pain</td>
<td>Arbudha</td>
</tr>
<tr>
<td>Mamsa pain</td>
<td>Asthi pain</td>
<td>Bhagandara</td>
</tr>
<tr>
<td>Sira pain</td>
<td>Suptata of mamsa</td>
<td>Apachi</td>
</tr>
<tr>
<td>Snayu pain</td>
<td>Sandhigata roga</td>
<td>Shlipada</td>
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<tr>
<td></td>
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<td>Arsha</td>
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<td></td>
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<td>Charmkeela</td>
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<td></td>
<td></td>
<td>Tilakalaka</td>
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<tr>
<td></td>
<td></td>
<td>Nadi vrana</td>
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<tr>
<td></td>
<td></td>
<td>Granthi</td>
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<td></td>
<td></td>
<td>Antravridhi</td>
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<tr>
<td></td>
<td></td>
<td>Vrana having unnat mamsa</td>
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<tr>
<td></td>
<td></td>
<td>Kathinta yukt vrana</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bleeding due to sira chhedana</td>
</tr>
</tbody>
</table>

**CONTRA-INDICATIONS FOR AGNI-KARMA**

Patients with following complaints are contraindicated for Agni-Karma (Table-4):

<table>
<thead>
<tr>
<th>Table-4: Contra-indications for Agni-Karma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pitta prakriti rogi</td>
</tr>
<tr>
<td>Raktpitta</td>
</tr>
<tr>
<td>Atisara</td>
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<tr>
<td>Children</td>
</tr>
</tbody>
</table>

**AGNI-KARMA PRAKARA**

Sushruta advocated four different ways for performing an Agni-Karma:
1. **Valaya**: In a circular fashion (ring shaped pattern)
2. **Bindu**: In the form of dots
3. **Vilekha**: In the linear fashion (lines)
4. **Pratisarana**: By rubbing the hot material at the site

Ashtanga Samgraha adds three more ways to perform this:

5. **Ardha Chandra**: half moon or crescent shape
6. **Swastika**: like swastika yantra
7. **Ashtapada**: in the form of 8 lines in different directions.

### TYPES OF AGNI-KARMA

Though, there is no clear mention about the classification of Agni-Karma in the ancient Ayurvedic classics, still a classification based on the type of its application have been made to facilitate their distinction from each other, as mentioned below:

A. According to Dravyas used:
   1. **Snigdha Agni-karma**: Based on the use of madhu, ghrita, tailam to treat diseases seated in Sira, Snayu, Sandhi, Asthi.
   2. **Ruksha Agni-karma**: Based on the use of pippali, shara, shalaka, godanta to treat diseases seated in Twak and Mamsa-dhatu.

B. Dalhana mentioned three types of vilekha dahana as:
   1. **Tiryak** (Oblique)
   2. **Riju** (Straight)
   3. **Vakra** (Zigzag)

### MATERIALS AND METHODS REQUIRED FOR AGNI-KARMA

Items required for conducting the Agni-Karma procedure are mentioned in Table-5:

<table>
<thead>
<tr>
<th>Table-5: Instruments and medicines required for Agni-Karma Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Panchloha shalaka</td>
</tr>
<tr>
<td>• Ghritakumari majja</td>
</tr>
<tr>
<td>• Triphala kwath</td>
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</tr>
</tbody>
</table>

**Panch loha / Pancha Dhatu shalaka composition**

- Tamra (copper) : 40%
- Loha (iron) : 30%
- Yashada (zinc) : 10%
• Rajata(silver) : 10%
• Vanga(tin) : 10%

**SAMYAG DAGDHA LAKSHNAS**

Samyag dagdha lakshanas are :

• *Na avagadha vrana* : *vrana* which is not deep
• *Taal phala sadrisha varna* : colour of *vrana* is like that of *taal phala*
• *Susamsthita vrana* : well defined *vrana*
• *Lakshanas same as that of* : *twak, mamsa, sira dagdha*

**PURVA KARMA**

Purva *Karma* includes the following :

1. Due consideration should be made regarding:\n   • Thickness of the site (*Roga samsthana*) of *Agni-Karma*
   • Keep in mind the *marma sthanas* while prescribing *Agni-Karma*
   • Check the strength (*bala*) of the patient
   • Assess the likely impact of the prevailing *Ritukala*

2. Explain the procedure and its cons & pros to the patient

3. Take written consent the patient/parent/guardian

4. Complete all the necessary investigations.

5. Give *pichhila anna* to eat before performing *Agni-Karma* except:\n
   • In *mudhagarbha, ashmari, bhagandara, udara, arsha & mukha rogas* which require empty stomach.

6. Ensure the availability of all the requirements

7. **Preparation of the part**:
   • Wash the part with *Triphala kwath*
   • Wipe & dry the part with sterile gauze piece
   • Draping is done

8. Place the *panchdhatu shalaka* over heat stove till it gets red hot

**PRADHANA KARMA**

The main goal of *Pradhana karma* is to perform *Agni-Karma* till *samyag dagdha lakshnas* appear. Perform the following :

1. Keep ready the swab dipped in *Ghrita kumari pulp paste* & hold with swab holding forceps

2. The *dahan karma* in the form of *bindu* i.e. Dots with red hot *Panchdhatu shalaka* is performed over the pre identified tender points.

3. Soon after *dahan karma, ghrita kumari pulp gel* is applied on the *dahana* site to avoid pain during the procedure

4. Repeat this each time a *dahan karma* is carried out leaving behind a burnt spot in the form of *Bindu*.

5. Bear in mind that *Agni-karma* should always be targeted to *Samyag dagdha laksana utpatti*. 
6. Take precaution to avoid any asamyag or atidagdha lakshanas.
7. 4-5 sittings with a gap of 7 days in between are usually required to get relieved off the complaints.

**PASCHAT KARMA**

Paschat Karma requires the performance of the following:

1. Samyag dagdha laxanas mark the completion of Pradhan Agni Karma
2. Wipe out the ghrita kumari pulp gel application with the sterile gauze piece
3. Apply the mixture of madhu & ghrita on the burnt site
4. Patient is discharged and advised to apply gel of haridra in coconut oil at bed time.

**ADVICE ON DISCHARGE**

It is essential to give the following advice to the patient on discharge:

1. Avoid contact of samyag dagdha vrana site with water
   - Adopt strict adherence to pathya, and avoid apathyakara ahara-vihara.

**DISCUSSION**

The review of the published research and review articles clearly demonstrate the efficacy and practical utility of the classical Agni-Karma technology against the Sandhigata vata (Cervical spondylosis). The review of the ancient Samhitas presented in a comparative and systematic way would assist more easier adoption of the Agni-Karma technology.

Mechanism of action of Agni-Karma on the disease under review has been described below:

**A. Agni has the following gunas:**
- Ushna, tikshna, sukshma, ashukari
- Opposite to the gunas of vata & kapha
- These gunas of Agni-Karma are responsible in its efficacy against sandhigata vata (Cervical spondylosis) because:
  - It eradicates sroto avarodha
  - It improves rakta sanchara to the affected joint
  - It pacifies vata & kapha doshas
  - Thus, Agni-karma reduces pain

**B. Dhatvagni:**
- Indicator of nourishment of dhatus, and status of doshas
  - Agni-karma increases ushnata & dhatvagni to the affected part
  - It improves Metabolism & pachana

**C. Peripheral nerve stimulation concept for relief of Pain (Offset Analgesia):**
- Agni-Karma causes peripheral nerve stimulation resulting in relief of pain etc.
D. Gate control theory\textsuperscript{62}: The Gate control theory of pain asserts that the non-painful stimulus closes the nerve gates to the painful stimuli. This prevents pain sensation from travelling to the Central Nervous System.

E. Third Concept\textsuperscript{63}

- These receptors undergo stimulation at 45 degrees.
- It is based on the principle that though pain and thermal signal pathways run parallel to each other & end at same area but only the stronger one is usually felt.
- Thus complete exclusion of pain by heat occurs.

F. Other beneficial effects of heat\textsuperscript{64}:

- The heating stimulates metabolic process in the tissue and causes production of metabolites. Oxygen and nutrient demand is increased.
- The heat received by the part brings about vasodilatation, thus improving the circulation to the part. Improved circulation drains out all the metabolites. Improved circulation meets the oxygen & nutrient demands leading to rapid recovery.
- Transferred heat brings about muscle relaxation, essential in stiffening of neck, etc.

CONCLUSION

The review of the recently published articles and the classical literature amply demonstrate the efficacy of the classical Agni-Karma. Agni-Karma is a safe, non invasive and drug free para-surgical procedure. It is a cost effective procedure requiring no hospitalization, etc. Since, the incidence of this disease has been observed mostly in the higher age bracket, the technology can, therefore be made more patient friendly by incorporating appropriate rasayana drugs, abhyanga, anti-inflammatory medicines, etc.

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REFERENCES


62. https://en.m.wikipedia.org
