



## Rationality Behind Acharya Sushruta's Approach Towards Therapeutic Agnikarma

## KEYWORDS

Agnikarma, Dahanopakarana, Thermal behaviour

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**ABSTRACT** Agnikarma is an important parasurgical measure extensively practiced in Ayurveda. It is a simple, ambulatory, minimal invasive and day care procedure. It can be utilized as a preventive, curative and haemostatic measure for systemic and surgical diseases. The common clinical conditions like External piles, Sentinel piles, Corn, Warts, Moles, Sciatica, Osteoarthritis, Frozen Shoulder and Calcaneum Spur can be treated effectively by Agnikarma. Agnikarma is considered as superior among anushastra karmas and its mainly indicated in Ruja pradhana, Vata and Kaphaja vyadhi.

For Agnikarma procedure various dahanopakaranas(devices) are mentioned they are Pippali(piper longum), Ajashkruth(faecal matter of goat), Godanta(Teeth of cow), Shara(Arrow), Shalaka(Rod) for Twakdagdha(Skin burn), Jambaustha(A wick shaped instrument made up of stone), other metallic instruments for Mamsadagdha(Muscle burn), And kshoudra(Honey), guda(Jaggary) and sneha(untous material) are used in the pain management of gambhir dhatu (deeper tissues) like sira(vessels), snayu(ligaments and tendons), sandhi(joints) and asthi(bones). But in day today practice commonly used Agnikarma instruments are Pancha Dhatu Shalaka, needles(suchi agnikarma) used for transferring the heat and different cautery probes of Thermal Cautery Machine for the purpose of Agnikarma irrespective of the structure involved or level of the pathology.

But concept of acharya Sushruta was to transfer heat from skin to deeper structures irrespective of Dhatu involved in the disease. Hence an attempt is made in this present study individual Dahanopakaranas were assessed for their thermal stability & the rationality of their specific indication.

## Introduction:

Shalyatantra is one of the eminent branches of Ayurveda, which consists of major therapies like Beshaja karma, Kshara Karma, Agni karma, Shastra karma and Raktamokshana. "Agnina kritva yat karma, agne sambandhi va yat karma, tad Agnikarma" -The procedure followed in curative measures adopted through agni or are related to agni is called as Agnikarma.<sup>1</sup>

Agni karma is superior among all of them and has proved to be a boon where local involvement of Vata and Kapha doshas are observed in the disease. It is indicated in many critical diseases like Arsha, Arbuda, Bhagandara, Apachi, Antravidhi, <sup>2</sup> Gridhrasi, etc. and in many other disorders of Sira, Snayu, Asthi and also in Sandhigata Vata Prakopa. <sup>3</sup> The diseases treated with Agni karma do not recur<sup>4</sup>, no fear of bleeding, putrefaction and ultimately it produces balancing effect on vitiated Vata Dosha. For easy transfer of heat and to produce Samyak Dagdha Vrana (Therapeutic Burn), in classics DahanaUpkaranas (devices) like Pippali, Ajashkruth, Godanta, Shara, Shalaka, Jambaustha, Madhu, Guda, Sneha are mentioned for the particular Dhatu involved in the disease.<sup>5</sup> The profound influence of Agnikarma becomes clear from the wide description about Para – surgical procedure in various diseases.

Even in the modern surgery the Principles of Agnikarma have been adopted with advanced technology like Cauterisation, in order to stop bleeding and to prevent recurrence of the disease in current days.

**Dahanopakarana( Devices)** are the instruments or accessories like drugs, articles and other substances to produce

therapeutic burns (Samyaka Dagdha). The specificity of Dahanopakarana depends on the disease level concerned.

**Table no. 1 Materials and application of agnikarma in different parts.<sup>5</sup>**

Sl no	Level of dagdha	Materials used
1.	Twak Dagda(Skin Burn)	Pippali (piper longum), Ajashkruta(faecal matter of goat), Godanta(Teeth of cow), Shara(Arrow), Shalaka (Rod) Suryakanta(A variety of semiprecious stone)
2.	Mamsa dagda(Muscle burn)	Jambousta(A wick shaped instrument made up of stone), itherloha(other metallic instruments)
3.	Sira(vessels), Snayu (ligaments), asthi(bones), sandhi(joints) dagda	Madhu(Honey),Guda(jaggary),Sneha(Unctus materials),Madhuccista(Beewax), Suchi(needle)
4.	Kapha pradhana vyadhi	Ruksha dravya (dry substances)
5.	Vata pradhana vyadhi	Snigdha dravya (lubricant substances)

**Dahanavisesa** implies for the types of shape produced during Agnikarma chikitsa. Acharya Susruta has mentioned four types in context of Agnikarmavidhi Adhyaya like Valaya (Circular shape), Bindu ( Dot shape), Vilekha ( Parallel line), Pratisarana (Rubbing).<sup>6</sup>

**But Acharya Vagbhata** - mentioned extra three varieties in

addition to above those are, Ardhachandrakar – Semilunar shape, Swastik, Ashtapada.<sup>7</sup>

#### CLASSIFICATION OF AGNIKARMA:

##### 1 According to Dahanavishesha(Shape) :-

1. Valaya– At the site of disease, the agnikarma is performed in circular manner.
2. Bindu– The tip of the shalaka, which is heated to red-hot, is applied at the diseased site in the shape of dot.
3. Vilekha– Agnikarma is done by producing the lines of various shapes i.e. transverse or vertical etc. with red hot shara or shalaka.
4. Pratisarana– Agnikarma is performed by rubbing the affected part with red-hot shalaka.
5. Ardhachandrakruti– Agnikarma is performed in semi-circular shape over the affected area with the help of particular type of shalaka.
6. Swastika- Swastika shaped yantra can be used for the purpose.
7. Ashtapada– It is like making eight lines crossing each other at a single point with red-hot shara.

##### 2 According to Dravyas used :-

- Snigdha Agnikarma: - Dravyas like ghrita, taila, vasa and majja are utilized and It is indicated in Sira, Snayu, Sandhi and Asthi vikara's.
- Ruksha Agnikarma: - Dravyas like pippali, ajashakrit, shalaka etc. utilized and It is indicated in Twak and Mamsa vikara's.

##### 3. According to involvement of Dhatu:<sup>8</sup>

According to the ghambeerata of vikara the agnikarma is done using a specific dahanopakarana in order to transfer the heat from twacha to the specified dhatu, the following are the lakshana are to be expected.

**Twak Dhatu** – When Agnikarma is applied to the Twakgata vikara it will give rise to Sabda pradurbhava (Appearance of sound),Durgandhata (foul smell),Twak sankocha (Contraction of skin)

Indications<sup>9</sup>: mashaka, angaglani, Shiroroga, adhimantha, charmakeela, tilakalaka etc.

**Mamsa Dhatu** – When Agnikarma is applied to the mamsa dhatugata vikara there is Kapota varnata (Color like pigeon),Alpa swayathu (Mild inflammation/swelling), Alpa vedana (Mild pain), Suska sankucita vranata (Dry contracted wound)

Indications<sup>9</sup>: Arsha, bhagandara, granti, nadivrana, dushtavrana, arbuda, gandamala

**Sira & Snayu** – When Agnikarma is applied to the Sira snayugata vikara,there is Krsna varnata (Black discoloration),Unnata vranata (Raised wound), Srava sanirodha (Cessation of discharge)

Indication<sup>9</sup>: Shlishtavartma, asruksrava, neeli and asamyak sira vyadhana, dantanadi, upapakshma, lagana

**Asthi, Sandhi** – When Agnikarma is applied to the Asthi sandhigata vikara, the wound occurs with ,Ruksata (Dryness), Arunata (Dark reddishness), Karkasata (Roughness), Sthirata (firm wound).

Indication<sup>9</sup>: Sandhi vedana, sandhi stabdata, Sandhivata,

Sandhigata vrana, kunaka etc.

#### 4. According to the Site :-

a. Sthanika dahanakarma:

Agnikarma is performed over the diseased area.

E.g. Bhagandara, arsha, , kadara etc.

b. Sthanantarika dahanakarma:

The agnikarma is indicated in the places other than the diseased area.e.g.

- Agnikarma is applied between the angushta of right side after incising the skin, in case of left sided antra-viddhi and vice versa<sup>10</sup>.
- agnikarma should be done at left manibandha sandhigata sira with tapt shara in case of pleehodara.<sup>11</sup>

#### 5. According To Stage of Intervention

**Pradhana Karma:** Arshankura (External Piles) that are Karkasha, Sthira, Pruthu and Kathina are burnt with Jamboshta Shalaka.

**Paschat Karma:** Agnikarma is used after Chedanadhi Ashtavidha Shastrakarma, to reduce the possibility of reoccurrence of disease. For e.g., Agnikarma is to be done after surgical excision of Kadara, Nadivrana and Bhagandara

#### PRAMADA DAGDHA (COMPLICATIONS) AND ITS MANAGEMENT

**Plushta Dagdha** –Insufficient burn results into Panduvarna and excessive burning sensation without production of Sphota. Plushta Dagdha is treated by Swedana and Ushnakriya containing of Ushna Aoushadha, Alepa, Annapana etc.

**Durdagdha** – Improperly applied Agnikarma will result into Sphota, Daha, Raga, Paka, Chosha for longer period, hence resulting into Durdagdhavrana. Ushnakriya is applied for superficial tissue burns and Sheetakriya is applied for deep tissue burns.

**Atidagdha (Deep Burn)**– Excessive application of agni (heat) will cause Mamsavalambhana, Gatra Vishlesha, pain in Sira, Snayu, Sandhi and Asthi, Jwara, Daha, Pipasa and the wound heals after long time leaving behind the scar. Atidagdha is treated by removal of Visheerna Mamsa and application of Tinduki Twak with ghee and cover the wound with Guduchi Patra and Padmotpala.<sup>12, 13</sup>

#### Suitable Season for Agni Karma<sup>14</sup>:

Agnikarma may be performed in all the seasons except Sharada (autumn) and Grishma (summer) because in Sharad ritu there is pitta prakopa, Agnikarma also aggravates pitta and this may lead to prakopa of pitta. In emergency conditions it may be performed in these seasons preceded by precautionary measures.

#### Indications for Agnikarma<sup>15, 9</sup>:

Agnikarma is indicated in following conditions, Vata Vikara, Arsha (Haemorrhoids), Arbuda (Tumor), Bhagandara (Fistula-in-ano), Apaci (Lymphadenitis), Sleepada (Elephantiasis), Charmakila (Warts), Tilakalaka (Moles), Antravidhi (Hernia), Nadi (Sinus), Sonita Atipravrti (Excessive hemorrhage), Ankylosing spondylitis, gridhrasi (Sciatica), Bursitis, Carpal Tunnel Syndrome, Fibromyalgia, Sprains & Strains, Sandhivata (Osteoarthritis), Plantar Fasciitis, Tendonitis, Tennis El-

bow, Frozen Shoulder, etc .

#### Contra indications for Agnikarma<sup>16</sup>:

Agnikarma is contraindicated in following conditions, Pitta Prakrti, Bhinnakoshtha, Antasonita (Internal bleeding), Anudgruta Shalya (Impacted Foreign body), multiple Vrana, Balaka (Child), Vrudha (Old age), Bhiru (Fearful), Durbala (Weak), who is contraindicated for Swedana Karma and Kshara Karma .

#### Sites for Agnikarma<sup>17</sup>:

- In Siro Roga and Adhimantha – At Bhru, Lalata and Sankha pradesha
- In Vartmagata roga – At Vartma romakupa, after covering the eye with moist cloth
- In Twcha, Mamsa, Sira , Snayu , Asthi , Sandhi – At the place of vedana.
- At the place of local disease e.g .Granthi, Arsha
- At the distant place like Antravidhi.

#### Procedure

**Poorvakarma (Pre-operative procedure):** The operation theatre should be fumigated with doopana/Krimighna drugs like Guggulu, Sarshapa etc. The Agnikarma materials – specific dahanopakarana, Gritakumari Swarasa, Triphala Kashaya and Yastimadhu Ghrita, madhu.

Selections of patient - All the patients were selected based on their clinical findings as well as relevant investigations. Written informed consent should be taken.

Advised to take Snigdha, Pichhila Aahara prior to this procedure for increase the strength of the patient and alleviate the Pitta Dosha and counter act Usna Guna of Agnikarma .

The stove or other source of Agni should be kept in the preparation room near the theatre and specific dahanopakarana should be heated to red hot.

Preparation of local part - Local part should be washed with Triphala Kashaya and wiped with dry sterilized gauze piece and draped.

**Pradhanakarma:** Dahana Karma is done at indicated site based on the pathology and Samyak Dagdha Lakshanas are observed. In general, the Sudagdhavrana will be having the features like production of sound during the procedure, proper haemostasis and wound exhibits Pakwa Tala Phalavarna or Kapotavarna.

#### Paschatkarma:

- After Agnikarma the part should be anointed with Madhu and Ghrita for Ropana of Dagdha Varna. This is meant for pacification of rakta and pitta vitiated by Agnikarma and also for alleviation of pain.
- After that proper patta bandhan (bandage) should be done.

**Table No. 4 Thermal Behaviour (Latent heat) of the Dhanopakarana**

Sl.no.	Materials	Average heating /boiling point	Immediate heat dissipation after removing from the fire	Subsequent heat dissipation/ min	Superficial tissue destruction
1	Pippali	55-60°C	10-12°C	20°C	Less
2	Ajashakrta	65-70°C	10-15°C	15°C	Less
3	Godanta	70-80°C	10-15°C	15°C	Less
4	Shara (Arrow)	140-150°C	18-20°C	25°C	Less
5	Jambusta (stone)	215-220°C	20-22°C	8-10°C	Moderate
6	Panchaloha Shalaka	250-255°C	18-20°C	6-8°C	Moderate
7	Madhu	120-130°C	0°C	2-3°C	More
8	Guda	155-165°C	0°C	2-3°C	More
9	Tail	140-160°C	0°C	1-2°C	More
10	Ghrita	180-190°C	0°C	1-2°C	More

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#### DISCUSSION

##### Effects of temperature change on the body tissues

The changes that occur in the living tissues on contact with heat are follows<sup>18</sup>.

##### Effect on metabolic activity

The rate of any metabolic activity is increased by a rise in temperature (Vant Hoff's law). In living organism increasing temperature tends to denature proteins and thus interfere with enzyme controlled metabolic processes. At temperatures above 45oC so much tissue destruction occurs. From the therapeutic point of view with an appropriate rise in temperature, all cell activity increases including cell motility and the synthesis and release of chemical mediators. Furthermore, the rate of cellular interactions, such as phagocytosis or growth, is accelerated.

##### Collagen changes in the tissues

It has been shown that collagen melts at temperatures above 50°C. At temperatures within a therapeutic applicable range (40 – 45°C), extensibility of collagen tissue has been shown to increase. Therefore it becomes evident that joint stiffness reduces by heating.

##### Nerve stimulation

Heat and cold stimulate the sensory receptors of the skin since these sensations can be recognized. Afferent nerves stimulated by heat may have an analgesic effect by acting on the gate control mechanism.

##### Change in Blood vessel

With skin heating vasodilatation occurs not only to distribute the additional heat around the body, but also to protect the heated skin. The skin surface is naturally heated from the outside and heat conduction is not effected through the subcutaneous fatty tissue. Vasodilatation by heat is caused by several mechanisms. There will be a direct effect on capillaries, arterioles and venules, causing them all to dilate. Increased metabolism will lead to further

release of carbon dioxide and lactic acid, leading to greater acidity of the heated tissues, provokes dilatation. Heating can damage proteins; this may initiate an inflammatory response due to the liberation of histamine like substances and bradykinins which causes vasodilatation.<sup>19</sup>

### Effect on viscosity

The resistance to flow in a blood vessel depends directly on the viscosity of the fluid and inversely on the fourth power of the radius of the vessel. Raising the temperature in liquids lowers its viscosity. Viscosity changes affect not only the fluids in narrow vessels (blood and lymph), but also a fluid movement within and throughout the tissue spaces. This increases the rate of circulation and thereby acts as anti-inflammatory in chronic lesion. Thus when heat is applied to the skin surface, little heating of the deeper tissues occurs because they are shielded by the thermal insulation provided by the subcutaneous fat and the fact that heat is removed in the increased skin blood flow. However, some conduction to the local deep tissues does occur. Since the effects are largely confined to the skin, for deeper conduction it is responsible to propose materials which are having more heat conduction capacity for longer periods.

The pippali ajashakrit, godanta, & shara are having less latent heat hence used for twak dagdha, likewise Jambousta (A wick shaped instrument made up of stone), itherloha (other metallic instruments)-panchaloha Shalaka are having moderate latent heat hence used for mamsad-agda, Though Pancha dhatu shalaka has a considerably higher temperature than that of the Snigdha dravyas, when employed for Agnikarma, Snigdha dravya owing to its higher Latent heat (heat retention capacity of sticky liquids is high) can effect a greater fluctuation in the temperature of the tissue surface and also that of the subsequent layers. Eventually the heat penetration will always be higher when such liquids are used for Agnikarma. It gives better results than that of Ruksha Agnikarma, when used for the diseases of Snayu, Sira, Sandhi and Asthi. Therapeutic use of Snigdha Agnikarma includes; relief from pain, relief from muscle spasm, acceleration of healing, promotion of resolution of chronic inflammation and increase in the range of joint motion etc.

According to acharya Sushruta agnikarma should only be done on skin, it can be justified by following points i.e,

1. Pramada dagdha lakshans are concern with skin
2. Local treatment modalities are explained over skin only.
3. Shantar chikitsa was mentioned where ever required. i.e Agnikarma in between the angushta of right side after incising the skin, in case of left sided antravriddhi.

Hence other modalities of Agnikarma such as suchi agnikarma i.e by pricking over the affected area and transferring heat and using one of Dahanopakaran for all types conditions is not indicated. To achieve desired Phalashruti one should follow the classical way of agnikarma as explained by Acharya Sushruta.

### CONCLUSION

Agnikarma has been applied widely in the clinical practice since time immemorial. It is the best among the anushastra karma. Agnikarma with Dahanopakarana explained by acharya Sushruta which are having their own latent heat so selection of the dahanopakarana and type of agnikarma plays an important role in achieving good result.

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