

## AGNIKARMA AND ITS APPLICATION IN SHALYA TANTRA VYADHI

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Article Received on 21/08/2022

Article Revised on 11/09/2022

Article Accepted on 01/10/2022

### ABSTRACT

*Ayurveda* is one among the ancient medical science in the civilization. *Sushruta Samhita* being one of the prime books, explains various para-Surgical procedures in different disease conditions. One such procedure is *Agnikarma*. The importance of *Agnikarma* in *Ayurveda* is so much that it ensures complete cure of *Sadhya Vyadhi* and avoids its recurrence. *Agnikarma* is a boon in *Ayurvedic* Surgical practice and hence one must be aware of all the conditions where *Agnikarma* can give a successful result.

**KEYWORDS:** Agnikarma, para-surgical procedure, dagdha. Shalya Tantra vyadhi.

### INTRODUCTION

*Shalya Tantra* is one of the Important branch of *Ayurveda* based on six major methods of treatment such as *Bhesaja karma*, *Kshara karma*, *Agni karma*, *Sastra karma*, *Yantra karma*, *Raktamoksana*. *Agnikarma* is superior among them and boon for local *vata & kaphaja vyadhi*. *Agnikarma* is one among the Para surgical procedure, *Anushastra* and *Upayantra*. In modern words, “*Agni Karma*” therapy can be closely associated with “Intentional Heat Burn Therapy / Therapeutic burns / Cauterization”. Since time immemorial *Agnikarma* is practiced widely by Ayurvedic vaidya in treating *Shalya Tantra Vyadhi*. The word ‘*Agni*’ is derived from dhatu ‘*Aig*’ which means ‘*Gati*’ that explains about Movement/Transformation / spreading (Amarakosha) *Agni* is foremost, among that which controls our body and responsible for the *Janma* (life) (Shabdakalpadruma). *Karma* means Action/Procedure. Hence The word “*Agni Karma*” comprises of two terms ‘*Agni*’ and ‘*Karma*’, which represents fire and procedure respectively.

According to *Dalhanas’* Commentary on *Sushruta Samhita*, the treatment protocol done using fire or which is related to fire is called *Agnikarma*.<sup>[1]</sup>

### IMPORTANCE OF AGNIKARMA

*Acharya Sushruta* Stated *Agnikarma* to be better than *Kshara karma*. To support this statement, he further quotes that the disease treated with proper *Agnikarma* has no chance of recurrence. It cures the disease which

are not managed with *Bheshaja karma*, *Shastra Karma* and *kshara karma*.<sup>[2]</sup> Hippocrates (460 BC - 377 BC) was an ancient Greek physician who is referred to as the "Father of Medicine" Also has the similar opinion and quotes “Those diseases which medicine do not cure, the knife cures, those which iron cannot cure, fire cures, and those which fire cannot cure, are to be reckoned wholly incurable”.<sup>[3]</sup>

### DAHANOPAKARANA

*Dahanopakarana* are the Instruments / Materials used to produce therapeutic burns (*Samyak Dagdha*) during *Agnikarma Chikitsa*. Various *Dahanopakarana* of various origins like plant origin, animal origin & metal origin are mentioned which are selected according to the disease, site etc. *Acharyas* mentioned different materials to perform *Agnikarma* in different structures for the temperature regulatory purpose.

**Table 1: These Dahanopakarana have different temperatures when made red hot for Agnikarma procedure.<sup>[4]</sup>**

Sl.No	Dahanopakaran	Su	Ch	A.S	A.H
1	Pippali	+	-	+	-
2	Aja Shakrut	+	-	+	-
3	Godanta	+	-	+	+
4	Shara	+	+	+	+
5	Shalaka	+	-	+	-
6	Jambavastha	+	-	+	+
7	Other Dhatu (metal)	+	-	+	-
8	Kshaudra	+	+	+	+
9	Madhuchista	+	+	+	-
10	Guda (Jaggery)	+	-	+	+
11	Sneha	+	-	+	+
12	Loha	+	-	+	-
13	Ghrita	-	+	+	-
14	Taila	-	+	+	-
15	Vasa	-	+	+	-
16	Majja	-	+	-	-
17	Yashtimadhu	-	-	+	-
18	Suchi(needle)	-	-	+	-
19	Hema (gold)	-	+	+	-
20	Tamra	-	-	+	-
21	Rajata	-	-	+	-
22	Kamsya	-	-	+	-
23	Varti	-	-	-	+
24	Suryakanta	-	-	+	-
25	Ardhendu vaktra shalaka	+	-	+	+
26	Kalasthidal tulya shalaka	+	-	+	-

**Table 2: Acharya Sushruta explained different Dahanopakarana for different dhatus such as Twak, Mamsa, Sira, Snayu etc.<sup>[5]</sup>**

Temperature	Dahanopakarana
62 °C	Gold
350 °C	Silver
212 °C	Copper
228 °C	Iron
235 °C	Panchalouha Shalaka
140 °C – 160 °C	Snigdha Dravyas
57 °C	Pippali
45 – 55 °C	Aja Sakrit

- Twak vikara – Pippali, Aja sakrit (goat's excreta), godanta (cow's teeth), shara (arrow) and shalaka (metal rod)
- Mamsa vikara – Jambavostha, Itara loha (other metal)
- Sira, snayu, sandhi & asthi – khsaudra (honey), guda (jaggery), Sneha (oil, ghee, fat etc).

**BASED ON TYPE OF AKRUTI**

Acharya Sushruta explains 4 types namely Valaya, Bindu, Vilekha and Pratisarana.<sup>[6]</sup> Acharya Vagbhata explained 3 more i.e., Ardha Chandra, Swastik & Ashtapad.<sup>[7]</sup>

**CLASSIFICATION OF AGNIKARMA**

Agnikarma can be classified based on

- Type of Akriti
- Sthana / part to be cauterized
- Based on Dravya used
- Based on disease site
- Based on Nature of disease

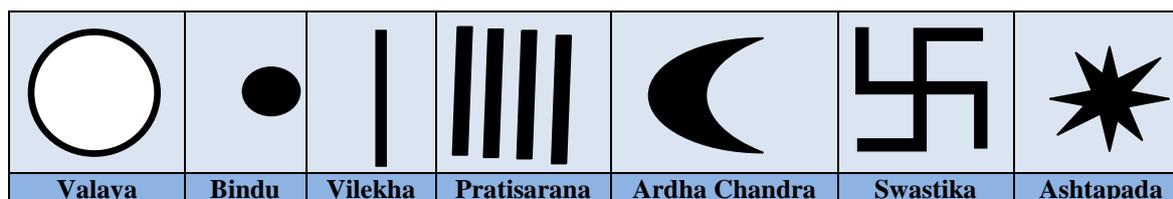


Figure: 1 Type of Akruti.

**BASED ON STHANA / PART TO BE CAUTERIZED<sup>[8]</sup>**

1. *Twak Dagdha* (on Skin)
2. *Mamsa Dagdha* (on Muscle)

Acharya Sushruta explains that *Agnikarma* in *Sira*, *Snayu*, *Sandhi Asthi dhatu* is also not prohibited.

**BASED ON DRAVYA USED<sup>[9]</sup>**

- *Snigdha Agni karma* - Madhu, Ghrita & Taila which is used in *Sira*, *Snayu*, *Sandhi* and *Asthi*.
- *Rukhsa Agni karma*- *Pippali*, *Shara*, *Shalaka*, *Godanta* which is used in *Twak* & *Mamsa Dhatu*.

**BASED TO THE DISEASE SITE**

- *Sthanika* (Local) in conditions like *kadara* and *arshas*
- *Sthanantariya* (distal to the site of disease) in conditions like *pleehodara* and *Antra vrudhhi*.

**BASED ON THE DISEASE**

- In disease like *Kadara*, *Arshasa* etc where *Agnikarma* is done after *Chedana karma* (Surgical excision)
- In disease like fistula, sinus etc *Agnikarma* done after *Bhedana karma* (Surgical incision)
- In *krimidanta* condition, *Agnikarma* after filling the cavity with *guda* (jaggery), *madhuchista* (beewax) etc.

**INDICATIONS OF AGNIKARMA**

Acharya Sushruta explained a set of conditions where *Agnikarma* is fruitful. Such as the pain aggravated by *vata* in *Tvacha*, *Mamsa*, *Sira*, *Snayu*, *Sandhi* and *Asthi*. In Chronic wound having some hard elevated tissue. Cystic lesion, hemorrhoids, tumour, fistula, sinus lymphadenopathy, filarial, skin tag, hernia, joints disorders. He also indicated *Agnikarma* to stop bleeding from cut vessels.<sup>[10]</sup>

**CONTRAINDICATIONS OF AGNIKARMA**

- *Agnikarma* can be done in all the seasons of the year except in *Sharad* (Autumn) & *Grishma* (Summer).<sup>[11]</sup> All types of *pittaja* and *raktaja* disorders, patients with concealed bleeding, Intestinal Perforation, retain foreign body, weak person, children, old age person and patients with multiple wounds and who are not fit for *Swedana Karma* are rendered unfit for this procedure.<sup>[12]</sup>
- Acharya Charaka mentioned *Agnikarma* should not be done in *Vrana* of *snayu*, *marma*, *Netra*, *kushta* and *vrana* with *visha* and *shalya*.<sup>[13]</sup> Also mentioned in *Ashtanga hrudaya* that *Agnikarma* should not be

employed in persons who are contraindicated for *Kshara karma*.<sup>[14]</sup>

Just like any procedure in *Ayurveda*, *Agnikarma* should be properly done in three steps i.e., *purva karma*, *pradhana karma* and *paschat karma*, each of this is important for the successful outcome of the procedure.

**PURVA KARMA**

The procedures and preparations carried out before performing out the *Pradhana karma* is called *purva karma*.

**Pre Agnikarma Assessment:** A physician, after having carefully analyzed the seat of the disease and examining the individual for the strength, locations of the *Marma*, disease and season should resort to *Agnikarma*.<sup>[15]</sup>

**Pre Agnikarma Diet:** In all diseases and in all seasons, the patient should be fed on a diet which is *Picchila* before *Agnikarma*; While the patient should be on empty stomach before the therapy, in case of *Mudhagarbha* (malpresentation of fetus), *Aśmari* (renal stones), *Bhagandara* (fistula-in-ano), *Udara* (ascitis), *Arsa* (haemorrhoids) and *Mukha Roga* (diseases of oral cavity).<sup>[16]</sup>

**PRADHANA KARMA**

- *Agnikarma* should be initiated with *Swasthikvachan* towards the patient (Consoling the Patient); the patient kept in suitable position by keeping head in the East direction and held by expert assistants to avoid movement. Then the surgeon should make the different shapes of *Agnikarma* viz *Valaya*, *Ardhchandra*, *Swastika*, etc. as per need by heated *Shalaka* in a smoke free fire of *Khadira* or *Badara*. During this period if patients feel discomfort he should be comforted by courageous, consolations talk, provided cold water for drink and sprinkle cold water & procedure of *Agnikarma* should be done till production of complete cauterization/*Samyak Dagdha*. Once the *pradhana karma* is carried out, it is important to assess the *Samyak dagdha lakshana* i.e. signs and symptoms of proper cautery.<sup>[17]</sup>

**SAMYAK DAGDHA LAKSHAAN<sup>[18]</sup>**

- ✓ *Anaawagadhavranata* (wound which is not deep)
- ✓ *Talaphalavarnata* (colour resembling the Fruit of tala tree)
- ✓ *Susamsitavrana* (without elevation or depression)

This is not considered as injury when performed for the therapeutic purpose. If the above sign and symptoms are clearly visible, it indicates the perfect *Agnikarma/Samyak Agnikarma*.

*Acharya Sushruta* has also explained the signs and symptoms according to various dhatus

- *Twak Dagdha* (on skin)<sup>[19]</sup>
- ✓ *Shabdapradurbhava* (produce sound)
- ✓ *Durghandata* (Bad odour)
- ✓ *Twak Sankocha* (Contraction of the skin)
- *Mamsa Dagdha* (on muscle)
- ✓ *Kapotavarnata* (Colour like that of pigeon i.e., dark grey)
- ✓ *Alpa swayathu* (mild swelling)
- ✓ *Sushka sankuchit vranata* (dry, contracted wound)
- *Snayu Dagdha* (on ligament)
- ✓ *Krishna vranata* (black coloration)
- ✓ *Unnata vranata* (elevation)
- ✓ *Srava sannirodha* (cessation of discharge)
- *SandhiAsthi Dagdha* (on joints and bones)
- ✓ *Ruksha* (Dry)
- ✓ *Arunata* (Red colour)
- ✓ *Karkasha* (Rough)
- ✓ *Sthira vranata* (Firmness of ulcer)

#### PASCHAT KARMA<sup>[20]</sup>

- *Acharya Sushruta* prescribed the application of *Madhu* (honey) and *Ghrita* (Ghee) after the *Agnikarma* procedure.
- Further he also explains use of Paste of *Tugakshiri*, *Plaksha*, *Chandan*, *Amrita* & *Gairika* with *Gritha* can be used as ointment for local application.
- Paste of flesh of some animals like horse, pig etc may also be used as *lepa* /ointment for local

application. (For local as well as internal medication).

- If person doesn't get relief from above medicine then the surgeon should follow the line of treatment like *Pitta Vidradhi*.<sup>[21]</sup>
- *Madhuchisth ghrita* prepared by processing of wax, in *ghrit* with *Yashtimadhu*, *lodhra*, *raal*, *sarjras*, *manjistha*, *rakta Chandana* and *murva*.<sup>[22]</sup>

#### ETARTHA DAGDHA

The word *Etartha Dagdha* indicates the other kinds of burns other than *samyak dagdha* Caused by the mistake of *Vaidya/ Surgeon*.<sup>[23]</sup> It is of two types vis, *Snigdha* and *Ruksha*. *Acharya* stated that *Snigdha Dagdha* is more painful than *Ruksha* Dagdha because of its ability of penetrating into the minutest vessels.<sup>[24]</sup>

#### MODE OF ACTION OF AGNIKARMA

- The diseases in which *Agnikarma* is indicated are mainly due to vitiation of *vata* and *kapha*, hence *Agnikarma* is considered as better therapy to pacify these *doshas*. Due to *Ushna*, *Sukshma*, *theekshna* and *Ashukari Guna* of *Agni*, it pacifies vitiated *vata* and *kapha* dosha.
- As per *Acharya Sushruta* basically *Agnikarma* can be used in two manners i.e., one for *Roga Unmulana* (diseases cure) and other for *Vedana Shamana* (Pain Management). In *Roga Unmulana* (diseases cure) *Agnikarma* is used in assistance with surgery and for pain management, *Agnikarma* is used independently.
- It also destroys the Vitiated tissue on wound surface by its mechanical burn causing thermal injury. In this way it promotes the healing in chronic non healing wounds.<sup>[25]</sup>



Figure: 2 Mode of action of *Agnikarma*.

- It removes *Srotavarodha*, *Avarana* and increase in *Rasarakta Samvahana* to the affected site.
- It works deep in tissue because of its power of penetration to deep tissue by virtue of *laghu*, *sukshma* and *theekshna guna*.

- *Dahana karma* is having the property of *Sira Sankochana* by that quality even it helps for *Raktha Sthambana* (hemostasis).

#### AGNIKARMA IN VARIOUS SHALYA TANTRA VYADHI

- **Agnikarma in Sadyo vrana:** Wound that developed after limb excision during trauma should be treated with *Agnikarma* using hot oil and then bandaged in the manner of *kosha Bandha* followed by appropriate *Ropana Karma*.<sup>[26]</sup>
- **Agnikarma in Granthi:** A Granthi occurring in any part of the body other than a *marma*, which is not suppurated, should be opened and cauterized with fire.<sup>[27]</sup> According to *Sushruta A Kaphaja Granthi* on any part of the Body other than a *Marma* & not resolved should be incised even in its non-suppurated stage and removed. The expert surgeon should then cauterize the incidental wound after the arrest of bleeding and later followed by *sadyavrana* treatment.<sup>[28]</sup>
- **Agnikarma In Kaphaja Arbuda:** When only a small remnant (of the tumor) remains after the worms have eaten, the area should be scraped and cauterized by *Agnikarma*.<sup>[29]</sup>
- **Agnikarma In Upadamsha:** The putrid portion of the penis should be excised and the remaining part should be completely cauterized with *Jambaoshta Shalaka*, made red hot by *Agni*.<sup>[30]</sup>
- **Agnikarma in Ashmari Vrana & Other Conditions:** *Agnikarma* is one among the *Shashti Upakrama*. When there is bleeding in the *basti* after removal of *Ashmari* then *Agnikarma* should be done for *RaktaStambhana*.<sup>[31]</sup>
- During Surgical Procedure Any Bleeding Spots Should be Controlled by *Agnikarma*. If there is Bleeding After an Injury from the cut ends, it should be Cauterized by using *Agnikarma*.
- **Agnikarma in Chippa & kunika:** After Draining the Pus by cutting it with knife if the Disease does not Subside then the affected part should be cauterized with *Agni* and an oil prepared with decoction of the drugs of the *Madhura (Kakolyādi) Gana* should be applied for healing. The same course of treatment should also be employed in a case of *Kunakha* (bad nail).<sup>[32]</sup>
- **Agnikarma in vrudhi:** If the intestines have descended down to inguinal region (*Vamkṣaṇa*), it should be cauterized with a heated *Ardhacandra Salaka* (crescent-mouthed rod) to prevent its descending down into the scrotal sac.<sup>[33]</sup>
- **Agnikarma in Jatumani, Mashaka & Tilakalaka:** The seats of affection should be scraped and gradually and judiciously cauterized by applying *Kshara* or *Agnikarma* in case of *Jatumani, Mashaka & Tilakalaka*.<sup>[34]</sup>
- **Agnikarma in hemostatic measure:** Is one among the *Raktasthambhana upaya* i.e., *sandhana, skandhana, pachana* and *Agnikarma*. *Agnikarma* has the property of Contraction of *Sira* (Vein) i.e., *Sira Sankochana*. With any of the three of these preceding measures a physician should try to check the flow of *Rakta*, the process of cauterization should be resorted which is considered as the best among the four and should be used as last resort. *Acharya Sushruta* mentioned *Dahana Karma* as one among the *Raktasthambanopaya*, Currently in Modern Surgery as well *Agnikarma* is Utilized in the form of Cauterization for Haemostatic Purpose During Surgery.<sup>[35]</sup>
- **Agnikarma in Charmakila:** *Acharya Sushruta* has given *Agnikarma Chikitsa* in the disease *Charmakila* which can be correlated with warts in modern science on the basis of visual appearance.<sup>(36)</sup> In, *Acharya Charaka* explained *Charmakila* as *Adhimamsa* and also advocated *Agnikarma Chikitsa* for *Adhimamsa*.<sup>[37]</sup>
- **Agnikarma in kadara (Corn):** In *Kadara*, the lesion should be excised and cauterised with heated oil.<sup>[38]</sup>
- **Agnikarma in bhagandara (Fistula-in-Ano):** In *Samanya Chikitsa* of *Bhagandara*. after the orifice is identified, it is cut/incised by a sharp instrument; If that (incising) is not possible, then it should be Treated by *Agnikarma* (heated rod) or by *Ksharakarma*; this treatment is common for all varieties of fistula.<sup>[39]</sup> It is further explained all discharging *Nadi* (Channels) in the affected region should be cauterized with fire by the surgeon.
- **Agnikarma in Arshas (Hemorrhoids):** *Agnikarma* is indicated in *Karkasha* (rough), *Sthira* (fixed), *Pruthu*(thick/broad) and *Kathina* (hard) type of *Arshas*. These features of *arshas* can be correlated to Sentinel Tag of Chronic fissure in ano and external hemorrhoids.<sup>[40]</sup>

#### CURRENT PRACTICE OF AGNIKARMA

In Current Practise of *Agnikarma*, the *shalaka* is modified with the heat source being electricity. The *Shalaka* has different shaped probe for various specified use. This is used in various conditions like corn, warts, sentinel tag etc.

#### CAUTERIZATION- MODERN CONCEPT

The medical practice of cauterization is the burning of a part of a body to excise or close off a part of it, which destroys some tissue in an attempt to stop bleeding and remove an undesired growth, or minimize other potential harm, such as infections.

- **ELECTROCAUTERY** - Though the term Electrocautery and Electrosurgery are used synonymously, they are different.
  - **Electrocautery** uses electrical current to heat a metal wire that is then applied to the target tissue in order to burn or coagulate the specific area of tissue.
  - **Electrosurgery** passes electrical current through tissue to accomplish a desired result. The electricity used is a form of alternating current similar to the that used to generate radio waves.

### Uses of Electrocautery

- To stop bleeding from small vessels
- To cut small tissues
- Is often used in surgery to remove unwanted or harmful tissue.

### TYPES OF ELECTROCAUTERIES

1. **Monopolar cauterization:** Using a pencil instrument, the active electrode is placed at the entry site. The return electrode pad is attached to the

patient. It is Used to cut tissue and coagulate bleeding. Most commonly used because of its versatility and effectiveness.

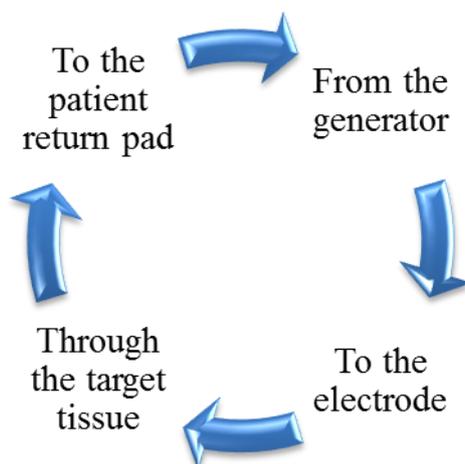


Figure: 3

2. **Bipolar cauterization:** Passes the current between 2 tips of a forceps like a tool. It prevents the flow of current through other tissues of the body and focuses only on the tissue in contact. This is useful in microsurgery and in patients with cardiac pacemaker. It Gives better control over the targeted area and helps prevent damage to other sensitive tissues.

Agnikarma is utilized in the form of cauterization for haemostatic purpose. *Acharyas* mentioned different materials to perform *Agnikarma* in different structures for the temperature regulatory purpose.

### CHALLENGES FACED IN AGNIKARMA/ELECTROCAUTERY

As with any procedure, there are potential risks to the patient, as well as the operating physician. Since this procedure requires heat and fire, it takes a challenge in certain aspects like

- ✓ Patient's consent.
- ✓ Fear of Scar formation post procedure.
- ✓ Needs skilled physician to perform the procedure.
- ✓ Burns due to performing procedure improperly.

### CONCLUSION

The Technique and Equipment have become advanced by time but the basic principle of *Agnikarma* remains the same. *Agnikarma* therapy is result oriented to *Vataja* and *Kaphaja* disorders. due to its *ushna*, *sukshma*, *asukari guna* it pacifies the *vata kapha dosa* and removes *Srotavarodha*. Patient is effectively relieved from pain and other associated symptoms. Since it is good measure for haemostasias it is also employed in emergency cases. There will be no recurrence of the disease which are managed by *Agnikarma*.<sup>[42]</sup> According to *Acharya Sushruta* when *bheshaja chikitsa*, *kshar chikitsa* and *shastra chikitsa* are unable to cure the disease then *Agnikarma* can be used to treat the disease successfully.

### DISCUSSION

*Agnikarma* works by virtue of its *guna* but in some places it works by mechanical degeneration of tissue. *Acharya Sushruta* indicated *Agnikarma* in *Arbuda*, *bhagandar*, *Nadivrana* and *dushtavrana*. Here *Agnikarma* works by its power of destroying the Unhealthy granulation tissue by heat.<sup>[41]</sup> In contemporary Science also *Agnikarma* has been enumerated in different forms such as monopolar, bipolar electrocautery. *Acharya Sushruta* mentioned *Agnikarma* as one among *Raktasthambanopaya*, now in modern surgery also

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