



A REVIEW ON AGNIKARMA AND ITS PROBABLE MODE OF ACTION

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ABSTRACT

Salyatantra is one among the important and vital branches of *Ayurveda*, which consists of various surgical and para surgical procedures. *Agnikarma* or thermal cauterization is the foremost among these para surgical procedures. It means application of heat to the body part directly or indirectly with help of different materials to prevent or to cure a disease. It is a potent and minimally invasive para surgical procedure which has wide application in chronic conditions as well as in emergency management. *Agnikarma* has been given special place in surgery by *Susruta* and the disease treated by *Agnikarma* never reoccurs. Clinically it is considered as prime para surgical procedure and it provide relief in certain diseases which are not cured by herbal medicine, surgical interventions and alkaline cauterization. Based on specific heat retention and transmission capacity of different substances *acharyas* had prescribed different materials for cauterizing specific body parts. Most commonly *Agnikarma* is indicated in neurogenic pain, tendinopathies, or in diseases of skin, vein, ligament, bone or joint where pain is an exclusive factor. The preventive, curative and haemostatic properties of *Agnikarma* were known even centuries back.

Keywords: *Agnikarma*, Cauterization, Para surgical measures

INTRODUCTION

Ayurveda suggested thermal therapeutic techniques for treating certain diseases known as *Agnikarma Vidhi*. It can be correlated with intentional heat burn therapy/ therapeutic burns/ cauterization. The word *Agnikarma* is derived from the combination of two separate words *Agni* and *Karma*. *Agni* is having 2 kinds of *Nirukthi* depending upon its *Swarupa* and *Swabhava*.

- According to *Swarupa* - which spreads to various parts or organs is called *Agni*. (*Agi Gathou*)
- According to *Swabhava* - which moves in upward direction is called *Agni*. (*Yad Va gathi Oordhwam Gachathi ithi*)

Pavaka, Vaiswanara, Anala, Jwalana etc. are the synonyms of *Agni*. The word *Karma* means action/procedure. So, in short it is a treatment procedure using fire in which *Samyak Dagdha Vrana* produced with the help of various *Dravyas*.

DAHANOPAKARANAS

These are the instruments/materials used for *Agnikarma Chikitsa*. *Dahanopakaranas* of various origin like plant origin, animal origin and metal origin are mentioned which are chosen according to the disease, location and other factors. Aacharyas mentioned different materials to perform *Agnikarma* in different structures.

Dahana Upakaranas described by *Susrutha Acharya* are *Pippali*(*Piper longum*), *Ajasakrith*(excreta of goat), *Godanta*(*cow's teeth*), *Shara*(*arrow head*), *Salaka*(*metal rod*), *Jambavaushta*(a piece of black stone made like *Jambhuphala*), other *Lohas* (copper and silver), *Kshoudra*, *Guda* and *Sneha*.¹ *Sooryakantha*, *Soochi* and *Madhuchchista* are described in addition to the above *Dahana Upakaranas* in *Ashtanga Samgraha*. *Ashtangahridaya* also describes *Sooryakantha*.²

- Plant origin: *Pippali, Yastimadhu, Haridra, Guda, Sarjarasa* etc
- Animal origin: *Ajasakrith, Godanta, Madhuchchishta*

- Metallic and other *Upakaranas* : *Panchadhathu Salaka* made up of *Tamra, Rajatha, Naga, Loha* and *Vanga*.



Fig 1: Pippali



Fig 2: Gosakrith



Fig 3: Godanta



Fig 4: Shalaka



Fig 5: Ghritha



Fig 6: Guda



Fig 7: Honey

- *Twak Vikaram- Pippali, Ajasakrith* (goat's excreta), *Godanta* (cow's teeth), *Shara* (arrow) and *Shalaka* (metal rod) are indicated for *Agnikarma*. For skin, materials that store less heat and convey less heat energy are recommended.
- *Mamsa Vikaram- Jambavaushta, Itara Loha* (other metal) are indicated. For doing *Agnikarma* in muscles, materials that have a higher thermal energy retention and transmission capacity are indicated. For eg *Jambavaushta* (a stone carved in the shape of *Eugenia jambolana*)
- *Sira, Snayu, Sandhi and Asthi- Kshoudra*(honey), *Guda*(jaggery), *Sneha* (oil, fat etc) are indicated

for *Agnikarma* in *Sira, Snayu, Sandhi, Asthi Vikaram*. These are used to transmit heat energy to ligaments, tendons or blood vessels. All these materials are having higher specific heat capacity and less heat dissipation rate.

Sl No	Dahanopakaranam	Su	Ch	AS	AH
1	<i>Pippali</i>	+	-	+	-
2	<i>Ajasakrith</i>	+	-	+	-
3	<i>Godanta</i>	+	-	+	+
4	<i>Shara</i>	+	+	+	+
5	<i>Salaka</i>	+	-	+	-
6	<i>Jambavaushta</i>	+	-	+	+
7	Other <i>Dhathu</i> (metal)	+	-	+	-
8	<i>Kshoudra</i>	+	+	+	+
9	<i>Madhuchchishta</i>	+	+	+	-
10	<i>Guda</i>	+	-	+	+
11	<i>Sneha</i>	+	-	+	+
12	<i>Loha</i>	+	-	+	-
13	<i>Ghritha</i>	-	+	+	-
14	<i>Taila</i>	-	+	+	-
15	<i>Vasa</i>	-	+	+	-
16	<i>Majja</i>	-	+	-	-
17	<i>Yastimadhu</i>	-	-	+	-
18	<i>Soochi</i>	-	-	+	-
19	<i>Hema</i>	-	+	+	-
20	<i>Tamra</i>	-	-	+	-
21	<i>Rajatha</i>	-	-	+	-
22	<i>Kamsya</i>	-	-	+	-
23	<i>Varti</i>	-	-	-	+
24	<i>Sooryakantha</i>	-	-	+	-
25	<i>Ardhaindivaktra Salaka</i>	+	-	+	+

Table 1: *Dahanopakaranas* according to different *Aacharyas*

CLASSIFICATION OF AGNIKARMA

1. According to shape (by *Susruta*)³

1. *Valaya* - circular (*Vyadhi Moole Valayamiva Valayam* - encircling the root of the diseased portion)
2. *Bindhu* -shape of dot (*Salakagranirmitho Bindhuriva Bindhu* - dots made with tip of *Salaka*)

3. *Vilekha* - lines (*Tiryag Riju Vakra Vividha Lekha Vilekha* - straight, curved, horizontal lines drawn with *Salaka*)

4. *Pratisarana*- Scrapping manner (*Taptha Salaka Prabhruthibhi Avagharshanam Prathisananam*)

Aacharya *Vagbhata* explained 3 more i.e., *Ardha Chandra*(semilunar), *Swastika* and *Ashtapada*(directed in 8 direction).

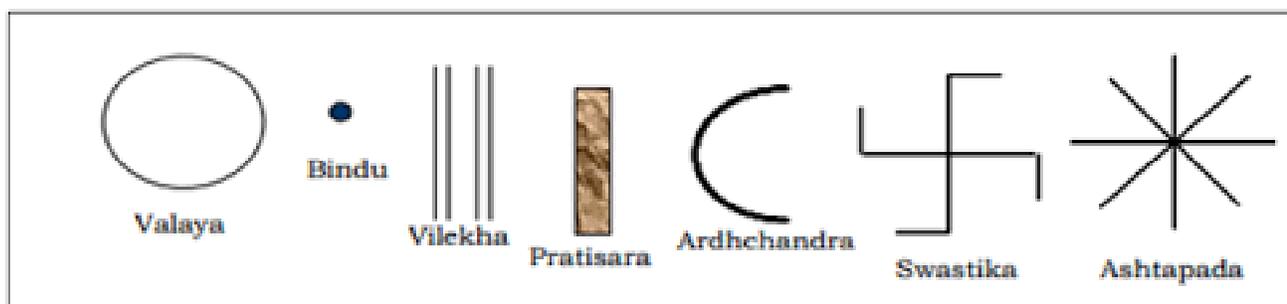


Fig 8: Different patterns of Agnikarma

2. According to *Dravya*⁴

1. *Snigdha Agnikarma*: Agnikarma with *Madhu*, *Ghrita*, *Taila* which are using in *Sira*, *Snayu*, *Sandhi* and *Asthi* are examples of *Snigdha Agnikarma*.

2. *Rooksha Agnikarma*: Agnikarma with *Pippali*, *Salaka*, *Godanta* which are using for *Twak* and *Mamsa* are examples of *Rooksha Agnikarma*.

3. According to site

1. *Sthanika*(local): *Kadara*, *Bhagandaram*, *Arshas* etc

2. *Sthana itariya*(systemic): *Apachi*, *Gridhrasi*

4. According to the site of action⁵

1. *Twak Dagdha*

2. *Mamsa Dagdha*

3. *Sira*, *Snayu*, *Asthi*, *Sandhi Dagdha*

5. Based on the disease

✓ In diseases like *Kadara*, *Arshas* etc where Agnikarma is done after *Chedana Karma* (surgical excision)

✓ In diseases like *Bhagandara*, *Nadivrana* etc Agnikarma done after *Bhedana Karma* (surgical incision)

✓ In *Krimidanta* condition Agnikarma after filling the cavity with *Guda*, *Madhuchchishta* etc⁶.

✓ The specific site for Agnikarma is mentioned only for a few diseases. The rest has to be performed according to the logic of physician.

Table 2: Disease specific site for thermal cauterization

Disease	Site
<i>Vata</i> and <i>Kapha Arshas</i>	Site of <i>Arshas</i>
<i>Antra vridhhi</i>	Inguinal region
<i>Nadivrana</i>	Tract
<i>Pleeha Udara</i>	<i>Vama Bahu Sira</i> at <i>Manibandha</i>
<i>Kadara</i>	On the Spot
<i>Bhagandara</i>	Fistula tract

<i>Shonitha Athipravrutthi</i>	Entire area
<i>Dushta vrana</i>	Agnikarma can be done by filling the wound
<i>Shiro roga, Adhimantha, Anga shaithilya</i>	<i>Bhru, Lalata, Shankha</i>
<i>Vartma Rogeshu</i>	<i>Vartma Roma Koopa</i>
<i>Snayu, Asthi, Sandhi</i>	Most tender spots
<i>Gridhrasi</i>	In between Achilles tendon and medial malleolus/lateral malleolus
<i>Sarpa Damsha</i>	At the bite site
<i>Vishoohika</i>	At <i>Parshni Pradesha</i>

INDICATION OF AGNIKARMA⁷

According to *Susruta*, Agnikarma can be done in conditions such as presence of very severe pain in the skin, muscles, veins, ligaments, joints caused by aggravated *Vata*, muscles which are grown upwards hard and without sensation, ulcers, tumors, hemorrhoids, fistula in ano, sinus, lymphadenopathy, filariasis, warts on the skin, moles, hernia. It is also used to stop hemorrhages and the hemostatic effect of Agnikarma is a boon in surgical practice. It is the *Parama Raktha Stambhana Upaya* mentioned by *Susruta*.

CONTRAINDICATION OF AGNIKARMA⁸

Agnikarma should be avoided in persons of *Pitta* predominant constitution, in case if internal hemorrhage, when there is rupture of the abdominal organs, un-retrieved foreign body which is a potent source of infection, the debilitated, very aged, the fearful (because of their weak mental strength), multiple wounds. The persons contraindicated for *Swedana* are also contraindicated for Agnikarma as it causes further vitiation of *Pitta*. Agnikarma can be done in all the seasons of the year except *Sarath* and *Grishma*. *Dalhana* opines, in an emergency, even in any season it can be done. But precautions like covering the site with moist heavy clothes, having cold foods and smearing cold pastes over the body has to adopted, so that *Pitta* vitiation can be countered by the cold applications. According to *Charaka*, Agnikarma should not be done in the *Vrana* of *Snayu, Marma, Netra, Kushta* and *Vrana* with *Visha* and *Shalya*.

FEATURES OF PROPER AGNIKARMA⁹

1. *Twak Dagdha*

- *Sabdapradurbhava*(produce sound)
 - *Durgandha* (smell of burning skin)
 - *Twak Sankocha*(contraction of the skin)
- these are the *Samyak Lakshanas*.

2. *Mamsa Dagdha*

- *Kapotha Varnatha* (dove colour)
- *Alpa Swayadhu and Alpavedana* (mild swelling and pain)
- *Sushka* and *Sankuchita Vranatha* (dry and contracted wound)

3. *Sira Snayu Dagdha* -

- *Krishnonnatha Vranatha* (Ulcer will be black and elevated)
- *Srava Sannirodha* (there will be no discharge).

4. *Sandhi Asthi Dagdha*

- *Rookshatha* (dryness)
- *Arunatha* (red colour)
- *Karkasa* (rough)
- *Sthira Vranatha*. (Hard)

PRAMADADAGDAS¹⁰

Signs of *Heena* and *Athi Dagdha Lakshanas* are similar to those of improper burning/*Pramada dagdha*. *Sushruthacharya* classified into 4 types.

1. *Plushta* - According to *Vagbhata*, it is named as *Tutha*
2. *Durdagdha*
3. *Samyakdagdha*
4. *Athidagdha*

1. *Plushta*
Plushta is having discoloration and extreme burning sensation. *Vagbhata Acharya* explains that there will not be any *Sphota*. As treatment, *Ushna Prayogas* should be done. By *Agnikarma*, blood and body get

heated simultaneously. Application of *Seetha* will cause clotting of blood which will result in contrary effect. So, it is avoided. Application of heat is needed.

2. *Durdagdha*

Characterized by *Sphota*, excessive burning, pain and red colour. It suppurates and takes a long time to heal. Cold and hot measures should be used. *Lepa* and *Seka* should be of *Seetha* type.

3. *Samyakdagdha*

Here, burn will not be deep. It resembles colour of ripe *Thala* fruit. It will not be elevated or depressed and it will show *Samyak Dagdha Lakshanas* explained previously.

Thugaksheeri, Plaksha, Chandana, Gairika and *Amritha* should be made into a paste, mixed with ghee and applied over the burn. Application of *Gramya, Anoop*a and *Audaka Mamsa* can also be done. Treatment of *Pitta Vidradhi* can be adopted in case of *Samyakdagdha*.

4. *Atidagdha*

In this, *Mamsa* hangs down, *Gathravislesha*, destruction to *Sira, Snayu* and *Asthi* occurs accompanied by *Jwara, Daha, Pipasa, Moorcha* etc. Healing of ulcer is delayed, and it leaves a discolored scar even after healing.

Mamsa should be removed followed by *Seethopachara*. Apply *Ghritha* mixed with *Thandula* or *Thinduka Twak* and *Choorna* of *Sali*. Part should be covered with lotus, *Guduchi* etc. *Pitta Visarpam* treatment is also another option.

AGNIKARMA KALA

According to *Acharya Susruta*, *Agnikarma* can be done in all seasons, except *Sarath* and *Grishma Rithu*. It is because *Sarath* season there is *Pitta Prakopa* and *Agnikarma* also aggravates *Pitta* which may lead to *Pitta Prakopa*, leading to production of various disorders due to vitiated *Pitta*. *Agnikarma* is contraindicated in *Grishma Rithu* as it is the hot season which will again cause *Pitta* aggravation. But in emergency, *Agnikarma* can be done in any seasons.

AGNIKARMA VIDHI

Before doing *Agnikarma*, a thorough evaluation should be made. Surgeon must carefully assess the source of the disease, its kind, the season, and the locations of the *Marma*. Preoperatively the patient

should be instructed to take *Picchila* food. *Aacharya Dalhana* explained that *Picchila Anna* has *Seeta, Mridu* and *Picchila Virya* and hence has *Pittaghna* property¹¹. Because of reflux peristalsis, content of stomach either move in *Urdhwa* or *Adha* thus in the following diseases- *Moodagarbha, Asmari, Bhagandara, Arsas, Mukharoga, Udararoga* should do procedure without taking medicines or else it may hamper procedure. After proper *Dagdha* the area should be anointed with mixture of honey and ghee. According to *Dalhana* it helps in the *Prasadana* of vitiated *Rakta* and *Pitta* after the procedure and it also reduces pain.

MODE OF ACTION

- *Agnikarma* is suggested for disorders that are mostly caused by *Vata* and *Kapha* vitiation. It eliminates *Srothorodha*, regulates vitiated *Vata* and *Kapha dosha*, and maintains their equilibrium because of the *Ushna, Sukshma, Teekshna* and *Aashukari Guna* of *Agni*.
- The effect of *Agnikarma* is in two ways i.e., one for *Roga Unmulana* and the other for pain management. The *Ushna, Teekshna, Sookshma* and *Aashukari Guna* of *Agni* pacifies *Vata* and reduces *Kapha* which ultimately leads to *Vedana Shamana*. An example of *Roga Unmulana* action of *Agnikarma* is seen in surgery. By creating a mechanical burn that causes a thermal damage helping in the elimination of vitiated tissues on the wound surface. As a result, it aids in the healing of chronic wounds.
- *Agnikarma* removes *Srothorodha* and *Aavarana* at the corresponding site there by increases *Rasa Raktha Samvahana* to the affected part. Due to increase of blood circulation, it removes the pain producing substance and inflammatory mediators from the site and thereby causing reduction of signs and symptoms.
- Because of *Laghu, Sukshma* and *Teekshna Guna* of *Agni*, it can penetrate deeper into the *Dhathus*. As a result, *Dhathwagni* increases so metabolism of *Dhathu* becomes proper and digests the *Amadosha* from the affected site and promotes proper nutrition from the *Purva Dhathu*. So, in short *Amapachanam* occurs which in turn remove *Srothorodhamand* pacify of *Vata*.

The precise mechanism of *Agnikarma* is not known. It acts on a multi factorial level in the body. The probable mode of action of *Agnikarma* can be explained through the theory of pro inflammation, theory of thermodynamics and gate theory. According to proinflammatory theory, induction of an acute inflammation will gather a greater number of lymphocytes, neutrophils, histamines and prostaglandins to the site and resolves the chronic inflammation present at the site. The theory of thermodynamics states that when thermal energy is transferred from an object to a tissue, the tissue's internal energy increases and heat energy is sent to the cells. To disperse this concentrated rise in body temperature, the body's thermostatic centre is quickly triggered. Vasodilation consequently takes place, increases blood flow. There by the inflammatory mediators removed from the site.

The probable mode of action of *Agnikarma* can also be explained through the gate control theory of pain¹². According to gate control theory of pain, a non-painful stimulus can block the transmission of a noxious stimulus or painful input which prevent transmission of pain traveling to brain. That means stimulation of non-noxious stimuli is able to suppress the pain. Here by the application of heat, pain got suppressed. Heat may also activate the analgesia system of spinal cord. The analgesia system can block pain signals at the initial entry point to the spinal cord. In fact, it can block many local cord reflexes that result from pain signals.

So, in a nut shell *Agnikarma* increases metabolism, blood circulation, decreases pain and excitation of nerves, causes relaxation to muscles, decreases infection, stop hemorrhages, decreases joint stiffness and inflammation.

MODERN CONCEPT ON CAUTERIZATION

According to modern medical practice thermal cauterization is the deliberate destruction of tissue by the local application of heat using an instrument known as a cautery. Cauterization can be done using heated probe, an electrically heated wire loop, a high frequency electrode or a laser. It helps to stop bleeding, remove an undesired growth or minimize other potential complications such as infections. Various types of cauteries

are electric cautery, cryo cautery, gas cautery, solar cautery, paquelin's cautery etc.

Based on the depth of the skin, heat treatments can be superficial or deep. Superficial heat can be applied in many forms such as chemical hot packs, paraffin, heat lamps, hot water bottles, heat pads and warm packs. Deep treatment include ultrasonography and diathermy. Ultrasonography directs sound waves that are absorbed by various tissues and converts to heat energy. Diathermy uses high frequency electric current.

DISCUSSION

Agnikarma is superior among all the para surgical procedures and a boon for local *Vata* and *Kaphaja Vyadhi*. It acts due to *Ushna*, *Teekshna*, *Sookshma*, *Aashukari Guna* of *Agni*. *Acharyas* mentioned different materials to perform *Agnikarma* in different structures for the temperature regulatory purpose.

The benefits of *Agnikarma* are.

- ✓ It relieves pain.
- ✓ Causes *Amapachana* and *Vata Shamana*.
- ✓ Causes coagulation and closure of blood vessels and helps in haemostasis.
- ✓ *Agni* itself is a sterilizing agent, so it is also helpful in minimizing microorganisms load in the wound.
- ✓ Destroy unhealthy granulation tissue.
- ✓ Safe, cost effective, minimally invasive procedure.

The same principles of *Agnikarma* are adopted in advanced technologies like cauterization, diathermy, radiation therapy, laser therapy etc. Contemporary science enumerated different types of cauterization technique such as monopolar, bipolar electrocautery, radiation therapy, Laser therapy, cauterization for hemostasis, excision etc. The techniques and equipment have become advanced by the time, but the basic principle is same.

CONCLUSION

Agnikarma is a simple, safe, cost effective, op based, minimally invasive para surgical procedure. It eradicates the disease from its root and so considered to be superior. Due to its cost effectiveness, the burden of cost on healthcare systems can be considerably

reduced. It is very convenient and economic. It is an ambulatory treatment modality that the common man can afford. Immediate pain management is the major challenge facing *Ayurveda* community. The remedy for this is *Agnikarma*, since it lowers extremely severe pain, especially that which is related to musculoskeletal system. *Agnikarma* has got worldwide popularity because of its simple administration and efficacy in variety of disorders. Hippocrates, father of medicine quotes like what drugs will not cure, the knife will; what the knife will not cure the cautery will; what the cautery will not cure must be considered as incurable. *Agnikarma* will become one of the most promising branches of *Ayurveda* in future.

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