



**‘AGNI KARMA’ – CLINICAL APPLICATIONS AND ITS MODE OF ACTION**

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**ABSTRACT**

*Acharya Sushruta* is the first person who gave more importance to surgical and para-surgical procedures along with medical treatment. Even though modern surgical procedures are in leading position, para-surgical procedures like *Agni karma*, *Kshara karma*, *Raktha mokshana* are gaining more importance. As *Agni karma* is simple, cost effective, complication free and drugless treatment with less recurrence nature, its gaining more popularity. Present study is on applications in various diseases and to reveal the mode of action of *Agni karma* with modern explanation of therapeutic cauterization.

**KEYWORDS:** Para surgical procedure, *Agni karma*, clinical applications, cauterization and its mode of action.

**INTRODUCTION**

*Acharya Sushruta* known as the ‘father of Indian surgery’ has described the various surgical procedures along with the para surgical procedures. Among them *Agni karma* is the one which has got more importance. *Acharya Vagbhata* also has given importance to *Agni karma*. It is one among the 60 *upakramas*. In *Ayurveda*, treatment with heat burns is called as *Agni karma* or *Dahana karma*. Various surgical procedures, bleeding conditions and painful conditions can be treated with *Agni karma* either directly or indirectly with the help of different materials to relieve from different diseases.

**Importance<sup>[1]</sup>:** - *Agni karma* is better than *Kshara karma* due to its *Kriya* (action) such as *Apunarbhava* (diseases which cured by *Agni karma* does not recur). Diseases which are not cured by *Bheshaja*, *Shashtra*, *Kshara procedures* will be cured with *Agni karma* because of its properties like *chedana*, *lekana* etc.

*Agni karma* can be done with different metals like gold, silver, iron, *pancha loha shalaka*, metal coins, and other materials like *pippali*, *aja shakruth*, *godantha* and oils. In modern times also it is used and termed as therapeutic cauterization or intentional therapeutic heat burns.

**CLASSIFICATIONS**

*Agni karma* classified into three types, they are *Sthaana*, *Dravya*, *Akruthi*.

1) **STHAANA<sup>[2]</sup>:** - According to *sthaana*, *Dwi vidha* i.e., *Twak*, *Mamsa*. Other than these regions, we can also perform *Agni karma* on *Sira*, *Snayu*, *Asthi*, *Sandhi*.

2) **DRAVYA<sup>[3]</sup>:** - According to *Dravya*, *Snigdha* and *Ruksha*

- **Snigdha Agni Karma:** - *Agni Karma* is performed by using *Madhu*, *Grtha*, *Taila* to treat diseases situated in *Sira*, *Snayu*, *Asthi*, *Sandhi*.

- **Ruksha Agni Karma:** - *Agni Karma* is performed by using *Pippali*, *Aja shakruth*, *Shalaka*, *Godhantha* to treat diseases situated in *Twak* and *mamsa*.

3) **DAHANA AKRUTHI:** - According to *Dahana Akruthi* as follows

According to *Acharya Sushruta<sup>[4]</sup>*, they are *Valaya* (circular), *Bindhu* (dotted), *Veelaka* (linear), *Pratisarana* (rubbing, flat design).

According to *Acharya Vagbhata<sup>[5]</sup>*, they are *Ardha chandra* (half-moon), *Swastika* (swastika), *Astha padha* (eight limbs in different directions) and including all *Sushruta* types.

**KAALA (SUITABLE TIME)<sup>[6]</sup>**

All seasons are suitable, except in *Sharad* and *Grishma Ritu* because in *Sharad Ritu* (autumn) there is a *prakopa* of *pitta* which leads to various disorders due to *pitta* vitiation and in *Grishma Ritu* (summer) as it is more hot which leads to *pitta* aggravation.

In emergency, after counteract methods like maintaining room temperature and intake of *pichila anna*, *Agni karma* can be done.

**DHAHANA UPAKARANA (EQUIPMENTS USED)<sup>[7]</sup>**

LOCATION	DISEASE	EQUIPMENTS
TWAK	<i>Masha</i> (discolored patches), <i>Tila kalaka</i> (moles), <i>Charmakila</i> (warts), <i>Ruk</i> (body pains), <i>Stabdha</i> (stiffness).	<i>Surya kantha</i> (magnifying lens), <i>Pippali</i> , <i>Aja Shakruth</i> (goat's excreta), <i>Godantha</i> (cow's tooth), <i>Shara</i> (arrow head), <i>Shalaka</i> (metal rod)
MAMSA	<i>Granthi</i> (cyst), <i>Arbudha</i> (tumours), <i>Arshas</i> (haemorrhoids), <i>Bhagandhara</i> (fistula in ano), <i>Ganda mala</i> (scrofula), <i>Slipada</i> (elephantiasis), <i>Antra vrudhi</i> (inguinal hernia), <i>Dushta vrana</i> , <i>Nadi vrana</i>	<i>Jambha oustha</i> (piece of black stone which resembles bear tongue), <i>Suchi</i> (needle) and Other <i>Shalaka</i> (other metallic instruments)
SIRA, SNAYU, ASTHI, SANDHI	In diseases like tearing or cutting and professed bleeding, <i>Nadi vrana</i> (sinus ulcer), Improper venesection	<i>Madhu</i> (honey), <i>Guda</i> (jaggery), <i>Sneha</i> (oil, ghee, fat).

-**Heat generated** on heating by the different materials with an average probe of length -12 *Anguli* & tip - 2 *Anguli*.

-The materials are Gold (62°C), Silver (350°C), Copper (212°C), Iron (228°C), *Pippali* (57°C), *Aja shakrit* (45-50°C).

-*Pancha Loha Shalaka* made by prof. P.D. GUPTA which contains five metals, they are Copper (40%), Iron (30%), Zinc (10%), Silver (10%), Tin (10%).

**CLINICAL APPLICATIONS<sup>[8]</sup>**

- **TWAK, MAMSA, SIRA:** When severe pain seen in the *Twak*, *mamsa*, *Sira* due to *vata* Vitiation, affected area should be followed with *Agni karma* as per site with suitable *dahana upakaranas*.

- **SNAYU, ASTHI, SANDHI<sup>[9]</sup>:** When severe pain seed in the *Snayu*, *Asthi*, *Sandhi* due to *vata* Vitiation, Site should be treated carefully with *sneha*, *upanaha*, *agni karma*, *bandhana* etc.

- **VRANA:** During the extraction of *Ashmari* (uretery bladder calculus), if any accidental incision to the bladder during surgery, which results the oozing of urine and bleeding may have seen, at this condition entire area should be treated with *Agni karma*.<sup>[10]</sup>

If body parts amputated completely, area should be followed with *sneha* (oils) and tied with stump bandage along with appropriate healing measures.<sup>[11]</sup>

In *dushta Vrana* (*Uchhita*, *Katina*, *Supta- Mamsa*) conditions, *Agni karma* can be done by filling spot with *ushna* (hot), *sneha* (fat, oil, ghee), *madhu* (honey), *madhu chista* (bee wax), *guda* (jaggery).

- **GRANTHI (Lymph nodes)<sup>[12]</sup>:** *Kaphaja Granthi* should be excised even if it is in the stage of *apakwa* (usuppurated). After haemostasis, spot should be cauterized and fallowed with *sadhyo vrana* treatment.

- **ARSHAS (Haemoroids)<sup>[13]</sup>:** There are four major treatments in *Arshas* i.e. *Bheshaja*, *Kshara Karma*, *Agni Karma*, *Shastra Karma*. Piles caused by *vata* and *kapha* should be treated with *Agni Karma* and followed by

application of *Kshara*. Massive pile mass should be cauterized after excision.

- **ARBUDA (Tumors)<sup>[14]</sup>:** In *Arbuda*, paste of *Nishpava*, *Kakula*, *Mamsa*, *dhadhi* (curd) should be applied. So that *krimis* will grow on it. when it eaten by *krimis*, remaining part should be scraped and *Agni karma* done (maggot therapy).

- **BHAGANDHARA (Fistula in ano)<sup>[15]</sup>:** In *kaphaja* or *parisravini bhagandara*, after excision the fistula track should be burnt with *Agni Karma*. In *Agantuja* type after excision, *Agni Karma* should be done with *Jambauoshta Shalaka*.

- **APACHI (Lymphadenitis / Scrofula)<sup>[16]</sup>:** After scraping the *Apachi* site with sharp instruments, *Agni karma* done at the spot.

- **SLIPADHA (Elephantiasis)<sup>[17]</sup>:** In *vataja* type of *Slipadha*, *sira vyadha* should be done at four fingers above the ankle, *Agni karma* is followed if necessary for haemostasis.

- **CHARMA KILA (Warts)<sup>[18]</sup>:** while removing the warts, *Agni karma* should be done at base of the warts to prevent recurrence.

- **ANTRA VRUDHI (Inguinal Hernia)<sup>[19]</sup>:** In *Antra vrudhi* conditions, Inguinal region should be cauterized with *Ardha chanda shalaka* (semi lunar rod) to block the passage for further descending to the scotum. To prevent occurrence on other side, one should do *Agni karma* on opposite side at middle region of thumb skin after *bhedana* (incision). In *vataja* and *kaphaja* type, *Agni Karma* done after *snayu chadana* at scotal region.

- *Agni karma* should be used in *sira chedana* Conditions.

- **NADI VRANA:** After excision of *nadi vrana*, the track should be burnt with *Agni Karma*.

- **SHONITHA ATI PRAVRUTHI (Haemostasis)<sup>[20]</sup>:** During the extraction of *Ashmari* (uretery bladder calculus), if any accidental incision to the bladder during

surgery, which results the oozing of urine and bleeding may have seen, at this condition entire area should be treated with *Agni karma*.

- **GRIDRASI (Sciatica and IVDP)**: In sciatica, as per *Acharya charaka - Agni Karma* should be done at the site of *Antara kandara gulpha madya* i.e. Posteriorly 4 *Angulis* above the ankle joint (popliteal fossa and at the level of sciatic notch)<sup>[21]</sup> and as per *Chakradatta, Yogarathnakara - Agni Karma* should be done at the site of *Padha Kanistakam* region.

-**UDARA MEDHAS**<sup>[22]</sup>: If any blunt injury of abdomen and exposure of *medas* in the form of a wick, it should be dusted with ash of astringent plants and black soil. After ligation of *medas*, *spot* should be excise with sharp instrument heated on fire. Then applying honey and wound should be bandaged.

-**PLEHA UDARA (Splenomegaly)**<sup>[23]</sup>: In *pleha udara* conditions, wrist should be bend slightly, *Agni karma* should be done at the vein region of the left thumb with red hot arrow for quick reduction of spleen.

-**GRANTHI (Cyst)**<sup>[24]</sup>: In *Kaphaja Granthi* conditions, removed by excision even if unruptured status. When bleeding stops, *spot* is cauterized and fallowed *vra*na *chikitsa*.

-**GALA GANDA (Goiter)**<sup>[25]</sup>: In *Majja Gala Ganda*, after incision, *spot* should be opened and remove the excess fat out fallowed by suture. *Agni Karma* should be done with *Majja* (marrow), *Sarpi* (ghee), *Meda* (fat), *Madhu* (honey). Wound should be applicate with *sarpi* and *madhu*.

#### -KSUDRA ROGAS as fallows

1. **CHIPPA (Whit low) and KUNAPA (Paronychia)**<sup>[26]</sup>: In these conditions, incision and drainage should be done followed by *Agni Karma* and the dressing done with *Kokolyadi Dravyas*.
2. **KADARA (Corn)**<sup>[27]</sup>: *Kadara* removed by excision and *spot* should be burnt with heated oils.
3. **TILA KALAKA (Pigmented mole)**<sup>[28]</sup>: *Tila kalaka* should be excised and then burnt with *Agni Karma*.
4. **JATUMANI and MASHAKA**<sup>[29]</sup>: *Jatumani* and *Mashaka* should be excised and then burnt with *Agni Karma*.
5. **VALMIKAM (Actinomyces)**<sup>[30]</sup>: After incision of *valmikam*, *spot* should be burnt with *Agni Karma*.

#### CONTRA INDICATIONS

<sup>[31]</sup>

- *Pitta Prakruti*: *Agni karma* is *ushna guna* which leads to *pitta prakopa* further *pitta* disorders.
- *Antra Shonitha* (Internal hemorrhage): *Rakta drudhi* leads to *pitta* vitiation.
- *Binna Kosta* (ruptured viscera), Unremoved *Shalya*, *Durbala* (debilitated person), *Bala* (childerns), *Vra*na (old people), *Bhiru* (timid people), *Aneka vra*na *piditha*

(multiple wounds and multiple diseases), *Aswedha* (sudation contra indicated peoples), pregnant women.

#### PROCEDURE

-**Purva Karma**: Patient consent has to be taken for *Agni karma* treatment. Explanation of procedure to patient as to remove fear. Investigations like C.B.C., R.B.S. Inj. T.T 0.5 ml given at IM / START dose. *Agni karma* should be done after the patient takes *Picchila Anna* (slimy, cold in potency and soft food like *khichidi*). In cases like *Muda garbha*, *Ashmari*, *Bhagandhara*, *udhara*, *Arshas*, *Mukha rogas - Agni karma* should be done in empty stomach because to prevent *Vega Darana* (bowel evacuation).<sup>[32]</sup> *Pippali*, *pancha loha Shalaka* (metal rod) gauzes, ghee, honey, source of *Agni* should be made ready. Patient should sit by facing east side. Examine the site where maximum tenderness. Proper cleaning of site with *thiphala kashaya* or normal saline with the help of sponge holding forceps. Selected area is covered with sterile hole towel. Selected instrument like *pancha loha shalaka* is heated up to red hot on a stove flame or liquid materials like *ghrita* should be heated up to boiling point.

-**Pradana Karma**: Before performing *Agni karma*, chanting of mantras should be done. *Agni karma* is performed at the selected site until *Samyak dagdha lakshana* appears. *Agni karma* procedure is depending on nature of disease and its chronicity.

-**Pachat Karma**: *Yashti Madhu Churna* is sprinkled over heat burns area. *Kumara swarasa*, *Yyastimadhu ghrutha*, *Shatadhauta grutha*, mixture of ghee and honey<sup>[33]</sup> any one should be applied over the wound with sterile gauze for to reduce the burning sensation, pain and proper healing. Avoid water contact at the *Agni karma* site to prevent infections. Proper wound care should be done with alternate days dressing with *thiphala kashaya* or *panchawalkala kashaya*.

Oral medication like *triphala guggulu* can be advised. Proper diet should be advised. Avoid *Vata vardhaka ahara - vihara* during the treatment and follow up period.

#### DURATION OF TREATMENT

ACUTE DISEASE: 2-3 sittings of *Agni karma* are required at an interval of 7 days.

CHRONIC DISEASE: 4-5 sittings of *Agni karma* are required at an interval of 7 days.

#### SAMAK DAGDHA LAKSHANAS

<sup>[34]</sup>

**TWAK**: *Shabdha pradurbhava*, *Durgandha*, *Twak samko*cha

**MAMSA**: *Kapotha varna*, *Alpa samko*cha, *Alpa vedhana*, *Sushka*, *Samkuchita*

**SIRA- SNAYU**: *Krishna varna*, *Unnata*, *Srava sannirodha*

**ASTHI- SANDHI**: *Aruna varna*, *Ruksha*, *Karsha*, *Stira*

#### POSSIBLE MODE OF ACTION OF AGNI KARMA

<sup>[35]</sup>

*Agni karma* is considered as best therapy to pacify vitiated *Dosas* because *Agni* possesses *Ushna*, *Tikshna*, *Sukshma*, *Aashukari Gunas*, which are opposite to *Vataja* and *Kaphaja* properties. *Agni karma* was done by red hot *Shalaka*. The character of Physical heat of red hot *Shalaka* transferred as therapeutic heat to *Twak Dhatu* by producing *Samyak Dagdha Vrana*. From *Twak Dhatu* this therapeutic heat acts in three ways- i.e. Due to *Ushna*, *Tikshna*, *Sukshma*, *Ashukari Guna* it removes the 1) *Sroto-avarodha* and pacify the vitiated *Vata* and *Kapha Dosas* and maintain equilibrium. It increases the *Rasa - Rakta Samvahana* (Blood circulation) to affected site. More blood circulation flushes away the pain producing substances and patient gets relief from symptoms. Therapeutic heat increases the *Dhatwagni*, so 2) metabolism of *Dhatu* becomes proper and digest the *Ama Dosa* from the affected site and promotes proper 3) nutrition from *Purva Dhatu* and in this way, *Asthi* and *Majja Dhatu* become more stable. Thus result precipitated in the form of relief from all symptoms. Further it can be endorsed that the therapeutic heat goes 4) to the deeper tissue like *Mamsa Dhatu* and neutralizes the *Sheeta Guna* of *Vata* and *Kapha Dosa* and in this way Vitiated *Dosas* come to the phase of equilibrium and patients get relief from the symptoms.

#### MODERN ASPECTS<sup>[36]</sup>

Cauterization is a medical term describing the burning of the body to remove or close a part of it. The main forms of cauterization used today are electro-cautery and chemical cautery.

#### ELECTROCAUTERY

Electro-cauterization is the process of destroying tissue using heat conduction from a metal probe heated by electric current (much like a soldering iron). The procedure is used to stop bleeding from small vessels (larger vessels being ligated) or for cutting through soft tissue. Unlike electro-cautery, Electro surgery is based on generation of heat inside tissue, using electric current passing through the tissue itself. Electro-cauterization is preferable to chemical cauterization because chemicals can leach into neighboring flesh and cauterize outside of the intended boundaries.

#### CHEMICAL CAUTERY

Many chemical reactions can destroy tissue and some are used routinely in medicine, most commonly for the removal of small skin lesions (i.e. warts or necrotized tissue) or for hemostasis. The **disadvantages** are that chemicals can leach into areas where cauterization was not intended. Some cauterizing agents are Silver nitrate, Trichloroacetic acid and Cantharidin.

#### POSSIBLE MODE OF ACTION CAUTERIZATION - BRAIN PATHWAY<sup>[37]</sup>

Therapeutic HEAT stimulate the LATERAL SPINO-THALAMIC TRACT(SST) which stimulate the DESCENDING PAIN INHIBITORY FIBERS(DPI), it releases ENDOGENOUS OPIOID PEPTIDE

INHIBITORY FIBERS which binds the OPIOID RECEPTORS at SUBSTANTIA GELATINOSA ROLANDI and further inhibits the P-SUBSTANCE (pre-synaptic inhibition) and leads to BLOCKAGE of PAIN transmission.

According to scientist **Dr. Ven Hanff<sup>[38]</sup>**, Effects and Actions of cauterization as follows.

**BLOOD CIRCULATION AND BLOOD PRESSURE:** Superficial sensory nerves get stimulated which leads to dilatation of local blood vessels, resulting in increased blood circulation. Apart from this it also decreases the viscosity of blood and thus leads to decreased blood pressure.

**NERVES:** Reduce the excitability i.e., quick response to stimuli of nerves. Constriction and coagulation.

**PAIN AND METABOLISM:** Due to increased local metabolism, the waste products like metabolites which are produced gets excreted, which normalize the blood circulation thus resulting in reduction in intensity of pain.

**MUSCLES:** Rise in temperature induces relaxation of muscles and increase the efficiency of their action. The muscle fibers contract and relax more quickly when tissues are warm and the relief of pain and muscles spasm with inflammation.

5) **BACTERIAL INFECTION:** Inflammation is the normal response of the tissue to the presence of bacteria. The response obtained on heating the tissues augment these changes and so reinforces the body normal mechanism for dealing with the infecting organism.

6) **SWEAT GLANDS:** Increases the local activity of sweat glands.

#### DISCUSSION

In Ayurveda, *Agni* was well known tool for treatment either directly or indirectly. Being its 1500-1000 yrs. B.C. concept, with the advancement of science and technology, *Agni karma* was improved by introduction of electricity in the medical and surgical field began in 18<sup>th</sup> century. *Agni karma* is clinically established para surgical procedure. In Various painful conditions and disorders of *Twak*, *Mamsa*, *Asthi*, *Sandhi*, *Snayu*, *Siras* and hemostasis in various surgical procedures *Agni karma* plays a major role and gaining more importance. *Agni karma* can be practiced as an effective, safe and drug less therapy. It is an ambulatory treatment modality and can be performed under daily routine practice.

#### CONCLUSION:

*Agni karma* and its uses are described in *Ayurveda* much earlier than its utility was discovered by surgeons & other medical branches. The technique and equipment's have become advanced but the basic principles are same.

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