

A Role of thermal Micro-cautery (*Agnikarma*) in Pain Management: A Review

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ABSTRACT:

Ayurveda has many tools for Pain Management, among these *Agnikarma* is the best Procedure for pain management [1]. A pain-free life is the longing of everyone. *Agnikarma* has been explained as one among the Anushastras having greater importance in the management of diseases. All Ayurvedic classics have described *Agnikarma* in curing different disorders. In *Agnikarma* the recurrence of the diseases will not be there if once they are treated and cured by it. This *Agnikarma* can be utilized as preventive measure, as post –operative procedure, and as a haemostatic manner. *Agnikarma* technique has effect on disorder of *Asthi* (bone), *Sandhi* (joint's), *Snayu* (ligament and tendon) as told by Vedic Indian surgeon, *Sushrutacharya*.

KEYWORDS:

Agnikarma, Cauterization ,Thermal Microcautery

INTRODUCTION:

Agnikarma (Thermal Cautery) is an Ancient Medical Technique derived from the Indian system of medicine, Ayurveda. The technique of *Agnikarma* has been designed to relieve various muscular and joint disorders. The most important procedure of the *Shalya Chikitsa* (surgical treatment). It comprises of two words i.e Agni and Karma. “When Samyaka Dagdha Vrana produced by Agni with the help of various Dravyas called as *Agnikarma*”. The *Agnikarma* (Thermal Cautery) involves a procedure whereby heat is transferred to the affected parts of the body using a metal *Shalaka* (metal rod) in various procedure heat is used directly or indirectly all these are come under the *Agnikarma*. *Agnikarma* is effective and superior among all surgical procedure. *Agnikarma* has important role in the Vataj and Kaphaj Vyadhi involving the Dhatu that are predominant with *Pruthvi* and Aap Mahabhuta. On the basis of *Lok Purusa Samnaya Sidhant Agni* that exit in the body (*Bhutagni*, *Dhatwagni*, etc.) have

similar properties that exit outside the body. Agni (fire) is better than alkali in action of burning; it is said so, because disease treated by burning will not recur again and also because, those diseases which are incurable by the use of medicines, sharp instruments and alkalis may be cured by *Agnikarma*. *Dalhana* has mentioned *Agnitapta Shastras* that prevent sepsis in surgical procedure. *Agnikarma* is also useful after *Shastra Karma* to avoid recurrence for e.g. *Kadara Sastrakarma*. Due to these properties *Agnikarma* is accepted as superior than other procedures.

Cauterization was used to stop heavy bleeding, especially during amputations. The procedure is simple: a piece of metal will be heated over fire and applied to the wound.

Dahana Upkarana: (Yantra for *Agnikarma*)

Dahanupakarana are the instrument to produce therapeutic burns (*Samyak Dagdha*) during *Agnikarma Chikitsa*. These *dahanupakarana* are distributed in 3 categories[2]

1. Useful in *Agnikarma Chikitsa* of *Twak dhatu* (skin). *Pippali*, *Ajashakrut*, *Gaudanta*, *Shara*, *Shalaka*.

Jambaustha, *Loha*

3. Useful in *Agnikarma Chikitsa* of *Sira*, *Snayu*, *Sandhi*, *Asthi dhatu*. *Madhu*, *Guda*, *Sneha*

Burn Marks:

Dahana Vishesha is the mark of figure produced on the skin after *Agnikarma Chikitsa* are as follow.[3]

1. *Valaya* (Circle): *Agnikarma* done at the site of disease in circular manner.
2. *Bindu* (Dot): In this the tip of *Shalaka Yantra* is heated till red hot and applied at the site of *Vikṛuti* in the shape of dot.

3. *Vilekha* (Parallel line): In this line in zigzag manner are produce with red hot *Shalaka* at the site of application of *Agnikarma*.

4. *Pratarana* (Rubbing): In this affected part is

5. rubbed with red hot *Shalaka Ardhchandra*

These four types of marks are suggested by *Sushruta* in the context of *Agnikarma Vidhi Adhyaya*. On the other hand, *Vagbhatta* mentioned three more *Dahana Vishesha* with addition of *Sushruta Dahana Vishesha* i.e.[4]

1. *Ardhchandra* (Semi Lunar): In this *Shalaka* of semicircular tip is red hot and applied to affected area. 2. *Swastika* (Four Tailed Mark) : In this swastika shaped Yantra is used for *Agnikarma*

3. *Ashtapada* (Eight Tailed Mark): In this making eight line with red hot *Shalaka* crossing each other at a single point.

Classification of *Agnikarma*[5]

1) According to *Dravya*:

- a) *Snigdha Agnikarma*: *Madhu*, *Ghrita*, *Taila* etc. are used for *Sira*, *Snayu*, *Sandhi*, *Asthi* type of *Agnikarma*.
- b) *Ruksha Agnikarma*: *Pippali*, *Shalaka*, *Godanta* are used for *Twak* and *Mamsa Dagdha*.

2) According to Site

- a) *Sthanika* (local): *Kadara*, *Arsha*, *Vicharchika*
- b) *Sthanantariya* (systemic): *Apachi*, *Gridhrasi*

3) According to Disease:

- a) In the disease like *Arsha*, *Kadara* etc. it should be done after surgical excision (*Chhedan*).
- b) In the disease like fistula, sinus etc. it should be done

after surgical incision (*Bhedana*).

- c) In the disease like *Krimidanta*, it should be done after filling by the *Guda*.

4) According to *Akriti*

As described earlier in *Dahana Vishesha*. According to *Sushruta*, all *Dagdha* are included under four types of *Dagdha Vrana*. [6]

1. *Plushtha Dagdha*

Plushtha is that which has pigmented area on the skin has associated with severe burning sensation.

2. *Durdagdha*:

Durdagdha is that in which *Sphota* (blebs, vesicles) appear, accompanied with severe pain such as sucking, burning, redness, *Paka* (exudation or ulceration) and pain, these subsiding after a long time.

3. *Samyaka Dagdha*

There are *Samanya Lakshana* (common symptoms) produced in any type of *Dhatu* (tissue) and special symptoms are only related to the *Dhatu* concerned.

4. *Ati Dagdha*: (Deep burn)

Mamsa-avalambana (Hanging of burnt tissue), *Gatravishlesha* (Parts become loose and useless), Destruction of *Sira*, *Snayu*, *Sandhi* (Tendons in joints), *Jwara* (Fever), *Daha* (Burning), *Pipasa* (Thirst), *Murchha* (Unconsciousness), Wound heals after a long time and healed ulcers have discoloration.

***Samanya Lakshana Samyaka Dagdha Vrana*:**

Ana-awagadha Vranata (Wound which is not deep), *Talphala Varnata* (Fruit of *Tala* tree-blue-black in color), *Susamshita Vrana* (Without elevation or depression).

***Samyaka Dagdha Vrana of Twak*:**

Shabdapradurbhao (Production of sound), *Durgandhata* (Bed odor), *Twak Sankocha* (Contraction of the skin).

Samyaka Dagdha Vrana of Mamsa Dhatu

Kapotvarnata (Color like that of pigeon i.e. ashy, dark grey), *Alpa Swayathu* (Mild swelling), *Alpa Vedana* (Less pain), *Shuska Sankuchit Vranata* (Dry, contracted wound). *Samyaka Dagdha Vrana of Sira*, *Snayu Krishna Vranata* (Black coloration), *Unnata Vranata* (Elevated), *Srava – Sannirodha* (Stoppage of discharge).

Samyaka Dagdha Vrana of Sandhi, Asthi

Rukshata (Dryness), *Arunata* (Dark red coloration), *Karkashata* (Roughness), *Sthirata* (Stability).

Suitable Time for Agnikarma:

Agnikarma can be done in all seasons, except *Sharad* (autumn) and *Grishma* (Summer); because, in *Sharad* there is a *Prakopa* of *Pitta* and *Agnikarma* also aggravates. [6]

Indication of Agnikarma

Vatakanṭaka, *Shiroroga*, *Ardhavabhedaka*, *Vratma Roga*, *Pakshmakopa*, *Shlista Vratma*, *Vishavratma*, *Alaji*, *Arbuda*, *Puyalasa*, *Abhiṣyanda*, *Adhimantha*, *Lagana Medoj Oshtha roga*, *Danta Nadi*, *Krimidanta*, *Adhidanta*, *Shitadanta*, *Dantavruddhi*, *Jalarbuda*, *Arsha*, *Nasa Arsha Karnarsha*, *Lingarsha*, *Yoniarsha*, *Bhagandara*, *Nadivrana*, *Upadvansha*, *Gulma*, *Vilambika*, *Sanyasa*, *Unmada*, *Yakruta & Plihodara*, *Shonita Atipravrutti*, *Shira Sandhi Cheda*, *Visarpa*.

Contraindications of Agnikarma:

Pitta Prakruti, *Bhinna Kostha*, *Daurbalya*, *Vruddha*, *Antah Shonita*,

Anuddhrata Shalya, Bala, Bhiru, suffering from – Pandu, Atisara, Kshaya, Guda Bhrumsha, Udararoga, Nasa Sanga, Chhardi, Shoshita Who Has Taken Alcohol Oja Kshaya, Vigagdha, Rakta Pitta, Sthula, Ajirna, Kroddha, Trushna, Adhya Rogi, Garbhini Prameha, Ruksha, Daurbalya, Visha, Kshudha, Timira, Kshata, According to Charaka Agnikarma should not be done in the Vrana of Snayu, Marma, Netra, Kushtha and Vrana with Visha and shalya.[7]

Agnikarma Vidhi (Procedure)

The *Agnikarma* room should be well prepared with all required *Agropaharaniyani* described by *Acharya Sushruta*. Prepare *Triphala Kashaya* for *Prakshalana* of the local part of patient. *Yashtimadhu Churna*, small pieces of *Kumari Patra*, swab holding forceps, *Plota* (gauze piece), *Pichu* (cotton), and gas stove, *Shalakas* etc. are kept ready for use. The *Shalaka* is heated up to becomes red hot on fire.[8]

Pradhana Karma:

Aasana for *Agnikarma*: In *Sandhigata Vata*, it is easy to do *Agnikarma* in prone position as it is good and comfortable to the patient. After carefully considering the symptoms of the disease, vitals and the strength of the patient as well as disease and seasons, physician should undertake the patient for *Agnikarma*. On the diseased skin of the patient, the *Samyak Dagdha Vrana* should be produced by redhot *Shalaka*. The number of the *Samyak Dagdha Vrana* should be 15 – 30 or according to the extent of the diseased area. Apply immediate cooling agents: After making *Samyak Dagdha Vrana* apply cooling agent immediately to subside burning pain.

Inspection of defective *Agnikarma* and management.

1) ***Plushtha Dagdha:***

If the *Shalaka* is not properly heated then it will produce this type of *Dagdha*.

Management

For *Plushtha Dagdha* (burns of the first degree), warming of the body (increasing the body temperature) and administration of drugs / medicines of hot properties should be given; when the temperature of the body becomes increased, the blood becomes liquefied; water by nature is cold in potency and hence makes the blood thick to coagulate, so that, only heat gives comfort.

2) ***Durdagdha:***

When the physicians are unskilled hand or patient is shaking his body parts due to fear of burn then *Durdagdha* can occur.

In *Durgagdha* (burns of the second degree) the physician should resort to both warm and cold therapies, application of Ghee, poultices and bathing the body should be done in cold state only.

3) ***Ati-Dagdha*** (burn of the fourth degree)

This complication is produced due to more heat which is transferred from the red hot *Shalaka* to the diseased part. In *Ati Dagdha* the torn (hanging loose) muscles should be removed followed by cold therapies, then the physician should apply the paste of rice, bark of *Tinduki* mixed with ghee or cover the wound with leaves of *Guduchi* or aquatic plant (like lotus etc.). All the treatments which are similar to that of *Visarpa* of *Pitta* origin should be done.

Madhuchhithadi Ghrita contains *Madhuchhitha, Madhuka, Lodhra,*

Sarjarasa, Manjishtha, Chandana and Murva, should be macerated together and then cooked with Ghee, is best for healing of wound in all kinds of burns.

4) *Daha* (Burning pain)

More or less burning pain is experienced by each and every patient who uses to take *Agnikarma Chikitsa*. This may be treated by *Ghrutakumari Patra Swarasa*.

5) *Dushtha Vranata* (Sepsis of wound)

After *Agnikarma*, it should be observed for any complications. If there is any sign of sepsis, treat the patient accordingly.

Pashchat Karma Pathya Apathya

In *Agnikarma* procedure, it is necessary that it should be healed without any complications. So, all the *PathyaApathyas* which have been described by Acharya Sushruta are advised here. It is utmost advisable to the patient that “Do not allow water to touch the *Samyak Dagdha Vrana* site for one *Ahoratra* (24 hours)”. The complete *Ropana* (healing) of the *Vrana* should be observed. *Agnikarma Chikitsa* can be repeated after 7 days.

Agnikarma In Modern Era

In modern medicine era, there is no use of therapeutically burn i.e. *Samyak Dagdha vrana*. But on the other hand, use of *Agnikarma* for other way around is used now days. There are procedures as mimic to *Agnikarma* are practiced in modern era.

Electrocautery:

It is a most useful instrument in surgical procedure which consists of platinum wire can be heated to red hot by using an electric current. Use of this electric cautery to cut the tissue or to coagulate the bleeding points, so this application of electro cautery is ideal for removing small skin tags, papiloma and

also to control the bleeding during surgical procedures.[9]

Diathermy

The basic principle is to deliver high frequency current to the human body by means of active electrode and this after passing through the tissue to be diathermied returns via a return electrode. The intense heat produced by the passage of current destroys it in different ways depending on the type of current used cutting current is undamped and produce cutting effect secondary to intense heat generation within the tissue. It is hemostatic and no bleeding can occur. Blended current is a combination of two types of waves introducing both cutting and coagulating effects. Most new surgical units deliver low voltage cutting or blended current from a solid state generating unit through an isolated bipolar system which is considered the safest.[10]

CONCLUSION

Agnikarma technique has effect on disorder of *Asthi* (bone), *Sandhi* (joint's), *Snayu* (ligament and tendon). No untoward effects observed in *Agnikarma*. The procedures is simple, economical and required no hospitalization and could be done at the OPD itself. Hot *cauters* were applied to tissues or arteries to stop them from bleeding. Improperly performed *Agnikarma* will lead to severe burning sensation, increased pain, destruction of tissue, suppuration, bleeding, non healing ulcer formation etc. Properly performed *Agnikarma* by skilled surgeon will give excellent result in several conditions. On the other hand improperly performed will lead to many complications.

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