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### A SCIENTIFIC AND ANALYTICAL APPROACH ON 'SNIGDHA AGNIKARMA'

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#### ABSTRACT

Anushastra karmas such as Kshara karma, Agnikarma and Raktamokshana are said to have immediate and long lasting results. Agnikarma is mainly indicated in Ruja pradhana, Vata and Kaphaja vyadhis. Pancha dhatu shalaka has been used on a regular basis for the purpose of Agnikarma irrespective of the structure involved or level of the pathology. But more than 80 % of painful conditions are related to locomotory system which comprises Sandhi, Asthi, Sira and Snayus. These are considered as Gambheera dhatus and Dahanopakaranas mentioned for the diseases of these locations are Snigdha dravyas such as Kshaudra, Guda, Taila, Vasa, Madhuchista etc. When the thermal behavior of the Snigdha dravyas and Pancha dhatu shalaka were studied by direct methods employed in temperature measurement, Pancha dhatu shalaka requires considerably higher temperature (235°C-240°C) to become red hot, than that of the Snigdha dravyas to get boil (140°C-160°C). But Snigdha dravyas has got higher Latent heat than Pancha dhatu shalaka. The heat dissipation rate is about 2°C in Snigdha dravyas and is 4°C-6°C in Pancha dhatu shalaka. So in conditions like Vertebral disc prolapse, Calcaneal spur, Tendinitis etc. if Agnikarma performed with Snigdha dravyas, it will give better result than Pancha dhatu shalaka as they have the deep heat penetration capacity for longer periods.

**Keywords:** Agnikarma, Pancha dhatu Shalaka, Snigdha dravyas, Sira, Snayu, Sandhi, Asthi

#### INTRODUCTION

Agnikarma is an asset of Ayurvedic surgeons which has been used widely in the clinical practice since time immemorial. Agni is mentioned as an Upayantra. "Agnina Krutva Yat Karma, Agne Sambandhi Va Yat Karma, Tadagnikarma" This procedure aims at the management of various afflictions by inflicting burns on the tissue surface directly. It has been used since from Vedic period in different conditions such as Krimi, Arsha, Stree roga, Granthi, Raktasrava etc. Moxibustion is similar to Agnikarma in ancient Chinese medicine. The profound influence of Agnikarma becomes clear from the wide descriptions about this Para-surgical procedure in various Ayurvedic texts belonging to both Samhita and Samgraha period. Because of its great therapeutic value it is considered superior than Kshara and It has also been shown in various conditions such as Vatakantakal, Gridhrasi, Bhagandara, Shiroroga etc. We have done a dissertation work on Agnikarma in Gridhrasi with Madhu and got significant result. Even in the modern surgery the principles of Agnikarma have been adopted with advanced technology like, Radiation therapy<sup>2</sup>, Cauterization for haemostasis, excision etc.

#### METHODS

##### Dahanopakaranas

The specificity of Dahanopakarana depends on the disease level concerned<sup>3,4</sup> (Table 1).

##### Dahana vishesha (Different shapes of Agnikarma)

Sushruta has described four types of Dahana Visheshha. These include Valaya, Bindu, Vilekha and Pratisarana. Vagbhata adds three more types which include Ardhachandra, Svastika and Ashtapada<sup>3,5</sup>.

##### Agnikarma vidhi

##### Agnikarma with Pancha dhatu shalaka

The shalaka is heated to red hot over a stove. It is then tapped on a cleaned and predetermined site.

##### Agnikarma with Snigdha dravyas

A small amount of Snigdha dravya is taken in a sterile dish and heated over the stove. The Tapta Snigdha dravya should be drawn using a Borosil glass pipette, poured on the predetermined site and wiped off after cooling. About ½ cm gaping should be maintained between the Dagdha sthana. A mixture of Madhu and Ghrita should be applied immediately after Agnikarma<sup>6</sup>.

#### OBSERVATION

##### Thermal behavior of Snigdha dravyas and Pancha dhatu shalaka

The thermal behavior of the Snigdha dravyas and Pancha dhatu shalaka were studied by direct methods employed in temperature measurement (Table 2). Pancha dhatu shalaka requires considerably higher temperature (235°C-240°C) to become red hot, than that of the Snigdha dravyas (140°C-160°C) to get boil. But Snigdha dravyas has got higher latent heat (heat retention capacity of

sticky liquids is high) with the average heat dissipation of 2°C/min and it is 4°C to 6°C/min in Pancha dhatu shalaka. The rate of superficial tissue destruction is more in Snigdha Agnikarma compared to that of Ruksha Agnikarma. But the therapeutic efficacy of Snigdha Agnikarma is more significant in diseases of locomotory systems such as Calcaneal spur, Tennis elbow, Osteoarthritis, Vertebral disc prolapse etc.

**DISCUSSION**

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

The changes that occur in the living tissues on contact with heat are follows<sup>7</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 45°C 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.

**Collagenous 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>8</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. Though Pancha dhatu shalaka has a considerably higher temperature than that of the Snigdha dravyas, when employed for Agnikarma, Snigdha droves 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

**Table 1: The specificity of Dahanopakarana depends on the disease level concerned**

Diseases of Twak	Diseases of Mamsa	Diseases of Sira, Snayu, Sandhi and Asthi
Pippali Aja Shakrit Godanta Shara Shalaka Varti Suryakata	Jambavoshta Loha Swarna Tamra Kamsya	Madhu Guda Sneha- Vasa, Ghrita, Taila, Sarjarasa Madhuchista.

**Table 2: The thermal behavior of the Snigdha dravyas and Pancha dhatu shalaka**

Material	Average heating/boiling point	Immediate heat dissipation after removing from the fire	Subsequent heat dissipation/min	Superficial tissue destruction
Pancha dhatu shalaka	235°C-240°C	18°C-20°C	4°C-6°C	Less
Snigdha dravya	140°C-160°C	0°C	2°C	More

### Probable mode of action

Agnikarma pacifies Vata and Kapha Dosha, by virtue of the properties that Agni possesses viz. Ushna, Tikshna, Sukshma, Ashukari Guna. Here the heat which is transferred to Twak Dhatu may act as; it removes the obstruction in the Srotas and increases the blood circulation to the affected site. More blood circulation flushes away the inflammation and pain producing substances and patient gets relief from symptoms. The therapeutic heat also increases the Dhatvagni, which cause local Ama pachana. Sneha is said to percolate into Sukshma marga and hence pass to deeper parts.

### CONCLUSION

Agnikarma has been applied widely in the clinical practice since time immemorial. To generate significant results in locomotory disorders like Vertebral disc prolapse, Tennis elbow, Calcaneal spur, Carpel tunnel syndrome, Osteoarthritis etc. agnikarma with Snigdha dravyas are useful. Agnikarma using Snigdha dravyas is considered to retain heat for a longer duration resulting in deeper heat penetration through Sukshma Sira. Even though there will be more superficial tissue destruction in Snigdha Agnikarma, but it can be compromised in front of its great healing value.

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