

MODE OF ACTION OF SHALISHASHTIKI PINDA SWEDA – A REVIEW

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ABSTRACT

Swedana (Sudation) is a treatment procedure in which energy is transferred to the body by a simple method of conduction, convection, radiation. It is induced employing heat in the form of steam or by contact of the body with heated medicaments. The usual effect of *Swedana* is to relieve stiffness, heaviness and coldness in the body. The word 'PINDA' referred as bolus. *Pinda Sweda* is a procedure with the property of profound healing and renewal potential. In this procedure rice which itself has healing property is mixed with other medicinal drugs in appropriate proportion for expected results. *Sweda* help to increase circulation improves muscle tone, strengthens the

nervous system. According to the patient condition, a physician can select different types of *Pinda Sweda*. Physician can make or introduce new combinations as per the need, accessibility and properties of the drugs. The properties of drug used in *pinda sweda* can be induced in the body with the help of absorption through capillaries. The present review study narrates the mode of action of *Pinda Sweda* and practicable modifications one can make according to the accessibility, need, and condition.

KEYWORDS: *Swedana, pinda sweda.*

INTRODUCTION

Panchakarma procedure is divided into three karma viz; *poorva* karma, *Pradhan* karma and *pashchat* karma.^[1] *Swedana* therapy is that which produces sweat, abolishes rigidity, heaviness and coldness.^[2] *Swedana* karma is used either as *poorva* karma or *pradhankarma* as per the requirement.^{[3][4]} *Swedana* (Sudation) is a treatment procedure in which energy is

transferred to the body by a simple method of conduction, convection and radiation.^[5] It is induced by employing heat in the form of steam or by contact of the body with heated medicaments until the production of *sweda* (sudation) on either body or the body part and the patient is relieved from feeling cold, stiffness, heaviness and feels softness in the body.^[6] *Swedana* can be categorized into three pairs; using fire to generate heat and not using fire, fomentation based on whether the whole body is exposed or only the part of it and another pair comprises of wet and dry fomentation.^[7]

Charaka has mentioned thirteen *saagni* (using fire to generate heat) and ten *niragni* (devoid of fire) *swedana*. Fomentation by means of bolus containing prescribed drugs with or without being wrapped with clothes is termed as *Sankara sweda*.^[8] *Sankara sweda* has been categorized into two types viz; *Snigdha Sankar* having *pottali* made from boiled tila, masha, shali, payasa, mamsarasa, *amlavarga dravya*, etc. and *Ruksha sankar* having *pottali* made from *loha pinda*, *pamsu*, *valuka*, *prani purisha*. *Snigdha Sankara* are used for *vataja rogas* where as *ruksha sankara* are used in *kaphaja* ailments.^[9] *Shashtika Shali Pinda Sweda* is the type of *Snigdha Sankara Sweda* which falls into the type of *Sagni Sweda*. In this procedure of *Swedana*, *Shashtika Shali* (a variety of rice with the medicinal value which is cropped in just 60 days) processed in *Kwatha* (decoction) of *Balamoola* (the root of *Sida cordifolia*) and milk. It is known in Kerala as *Navarakizhi*. It does the function of *Swedana*, *Snehana* and *Brimhana* (anabolic quality) simultaneously; it is mostly used in *Vata* vitiated disorders. It also possesses inherent cool property, so can also be advised in moderately vitiated *Pitta*.^[10]

AIM AND OBJECTIVE

To study mode of action of *shashthishaali pindasweda* with respect to pharmacological phenomenon of conduction, convection and radiation along with its pharmacokinetic and pharmacodynamic action respectively.

MATERIAL AND METHODS^[11]

- Materials
 - Coarse Powdered *navara* or *shaktika shali* -500g
 - Coarse powder of *bala* root -750gm
 - Water- as required
 - Cow's milk- 3 lit
 - Cotton clothes 45*45cm-4 pieces

- Thread -35 cm per *pottali*
- Vessel's- 1. For preparing decoction
- 2. For cooking rise
- 3. To heat the boluses in mixture of decoction and milk during the procedure
- Stove
- Oil for *talam* – 15 ml
- *Rasanadi churna* -10 gm
- Suitable oil for abhyanga-100 ml
- Coconut leaves 2 or roller bandage
- Tissue paper/ towel -2
- Measures-4
- Attendant-4
- ***Pottali* preparation**^[12]
 - 750gm of *bala moola* washed crushed chopped and put into 12 lit of water reduce it to 3lit

Divide it in 2 equal parts

Both mixed with equal amount of milk

1. 500gm of rice is added to first half – rise should be coarse powder
2. Cooked till it assumes the form of semisolid paste or pudding
3. Divide it in 4 equal part
4. 2. Second half of decoction is put on heat for continuous boiling in a vessel with wide mouth

• Preparation of patient

Oleation of body and head

Body should anoint before it is subjected to heat

It protects patient from sudden evaporation of perspiration and its consequences

Pt advice to sit in *droni* for *tala dharana*

- *Thala nirmana*
 - 100 gm *amalaki churna*
 - 200 ml *takra*
 - Heated one night before *Shashtikshali pinda sweda*

- Boil it up to mixture becomes thick
- Make it soft use it for *tala dharana* on the day of *swedana*
- **Tala nirmana**
 - *Amalaki* 100 gm is to be immersed in 200 gm of curd or 200 gm of *amalaki churna* in 750 ml of butter milk kept overnight and then is to be lightly boiled in morning
 - Then it cleared of all seeds by rubbing on clean cloth
 - Now *kalka* is applied to scalp of patient 3-5 cm thick
 - in another method
 - *Rasnadi churna* mixed with suitable oil or *swarasa* are applied on vertex in diameter of one-rupee coin
 - Before *tala dharana shiroabhyanga* is necessary so that brain may not damage due to heat
- **Procedure**
 - Four experienced attendants are required for procedure
 - 4 bolus bags are now taken and put in to the hot mixture of milk and decoction kept on heating. Allow the bolus to get heated up for few min
 - Bolus bags hold by right hand and felt by left hand
 - The direction of massage should always be downwards and begins from neck area
 - Strict care should be taken for the temperature and pressure on all parts of body
 - Massage is started with the patient sitting erect in the *droni*
 - Same procedure should be followed in remaining 6 position
 - Massage in each posture should maintain for 15 min
 - Total procedure takes 1hr 45 min
 - Open the bolus – pudding remnant apply body on patient for 5 min
 - After this the pudding sticking on the body is removed by some suitable material -coconut palm, dry cloth, old visiting card, old ATM card.
 - Avoid the friction which may occur during scraping
 - Cleaned body is anointed and then bathed.
 - Course 7d, 9d, 11d, 21d, 28d
- **Pashchat krma**
 - Rice etc adhered to the body should be cleaned with the help of coconut leaf
 - *Abhyanga* is to be done all over the body when the *pinda sweda* is over

- The body of patient should be dried from head to toe with the help of a towel
- *Rasnadi churna* is to be applied over the vertex
- The patient is to be advised to Lie down covering a rag for at least an hour
- Hot water or medicated *kashayam* for the bath is to be selected according to the disease

• **Material for *shira snana***

Kwatha made up of *amalaki*, *sugandha*, *bala*, *ushira*, *chandana*, *dashamoola*, *bilva* – 100 gm collectively by adding 8 lit of water which reduce to 6 liters

• **Material for *kaya snana***

- Levees of *eranda* or of *panasa* (jackfruit) are to be processed with water for *kaya snana*
- Tala is must for *sarvanga sweda* not for *elanga sweda*

• **Dravya which can be use in preparation of *pottali***

- Shashtikashali - sheeta snigdha, aguru, swadu, tridoshaghna^[13]
- Godhuma- sandhanaka, vatahara, madhura, sheeta, jivniya, brihana, vrushya, snigdha, sharirasthiirakara, guru^[14]
- Masha- vrushya parm, vatahara, snighdhoushna, madhura, guru^[15]
- Kulathha- ushna, kashaya, pake amla, kapha hara, shukrahara, vatanashaka, sangrahaka, kasa, hikka, shwasa, arsha^[16]
- Tila – snigdha, ushna, madhura, tikta, kashaya, katu, twachya, kesha hitakara, balavardhaka, vatanashaka^[17]
- Aja mamsa- natisheeta, natiguru, natisnigdha, sharira dhatu samanyad anabhishtyandi bruhana^[18]
- Varaha mamsa – snehanam, bruhana, vrushya, shramanilapaham, vrushya, rochana, swedana, guru^[19]
- Bala- Atitikta, madhura, pitatisaranashini, veeryapada, pusht, kapharoga nashini^[20]
- Amalaki- ruksha, swadu, kashya, amlama, kaphapittahara parama^[21]
- Sarashapa –katurasa, ushana, raktapittadushitkaranama, kapha vatanashaka^[22]
- Sunthi – sasnehanama, dipanam, vrushyam, ushnam, vatakapaham, madhuram hrudiyam, rochanam, vishvabhesajam^[23]
- Ashwagandha –anila, shleshma, shwitra, kashayapha, balya rasayani, tikta kashayoshna atishukrala.^[24]
- Nagabala – medhya, raktapitta shamaka, kapha nissaraka^[25]

- Guduchi – katuka tikta swadupaka, rasayani, sangrahini kashaya ushana, laghvi, balya agnideepani, doshatrayama, meha kasa, pandu, kamala, kushtha, vatasra, jwara, krimi, vami haret^[26]

- **PRECAUTIONS**^[27]

1. During the preparation of the rice, care should be taken to avoid over/under cooking and should be stirred frequently for the better extraction and cooking.
2. Tie bolus firmly to avoid leaking of contents during rubbing.
3. The therapists in both the sides of the patient should massage with the bolus in a synchronized manner.
4. Ensure uniformity of pressure and temperature on all the body parts.
5. Boluses should be applied with enough warmth (45°C-50°C)
6. The therapy should be stopped at any time if the patient gets good perspiration or shivering

- **Complication and its managements**^[28]

1. Shivering: It usually occurs due to the uneven distribution of temperature or prolonged time gap in between the taking up of new boluses; or if body is exposed to cold breeze immediately after the procedure. Allow the patient to take rest cover with a blanket and give warm liquid diet.
2. Fainting: Due to increased body temperature or low heat threshold of the patient or atiyoga of kriya krama. Sprinkle cold water over the face and body and put talam with appropriate medicated oil and choorna. Drakshadi kashaya can be given internally.
3. Rashes: Due to heat intolerance of the patient of pitta prakriti. Apply madhu & ghrita, preferably Shatadhouta Ghrita or Murivenna taila.

- **Parihara vishaya**^[29]

- *Stree sansarga*
- *Vegadharana*
- *Uchchabhashyam*
- *Chamkramana* (wayfaring)
- *Krodha* (anger)
- *Shoka* (grief)
- *Himsa* (envy, cruelty)

- *Atapa* (sun shine)
- *Vyayama* (exercise or laborious work)
- *Dhuli, dhuma*
- *Ratri jagarana*
- *Ati nidra*
- *Pravata*
- **Other materials for *pottali***^[30]
 - Instead of using *shashtikashali* only *masha*, *kulattha*, wheat, *tila*, *sarshapa*, *methi*, *shatapushpa*, etc. Mixed with *shashtikashali* rice or mutton with any other 2 or 3 or all the material mixed and boiled together may be made into a mass and used as per the disease
 - Meat of hog, sheep or goat mixed with *bala – kwatha* or *dashmoola kwatha* or only milk boiled with *shashtika shali* rise may be made into mass.
 - The physician may use the material according to his choice considering the disease stage

CONTRAINDICATIONS^[31]

- Acute fever.
- Acute Inflammatory and painful conditions, etc.
- Gastro intestinal problems like Diarrhea, Digestive disorders, etc.
- Respiratory disorders - cough, Breathing difficulty, infections, etc.
- *Shashtika Shali Pinda Sweda* is not recommended for the patients with uncontrolled diabetes unless the benefits outweigh the risk of possible complications.
- This treatment should not be given to the patients with varicose veins, fractures, deep vein thrombosis, fever and severe inflammation.

Indication^[32]

- *Sarvanga shosha, ekanga shosha*
- *Severe neuralgic pain*
- *Ayama*
- *Akshepaka* (convulsion)
- *Sankocha* (spasticity)
- *Stambha* (rigidity)
- *Pakshaghata* (hemiplegia)

- *Gulma* (abnormal growth)
- *Shula*
- *Katigraha* (lower back ache)
- *Gridhrasi* (sciatica)
- *Raktaprakopaj vyadhi*
- *Sarvanga vata vikara*
- *Kshaya* (emaciation)
- scoliosis
- kyphosis
- Post-polio residual paralysis
- Muscle dystrophy
- Arthritis
- Myopathy

VIRTUES OF SHASHTIKA SHALI PINDA SWEDA

- Tandra, shrama haranam
- Samyaka nidra (enhancer of good sleep)
- Agni vardhaka
- Aamadosha nashaka
- Ruchi vardhaka
- Strotoshuddhikara
- Vedana nashaka
- Tvaka mardavkara & Twachya
- Removes stiffness of joints
- Anulomana
- Balakara
- Pushtikara

MODE OF ACTION AND ABSORPTION OF DRUG

According To Ayurveda

Sushruta has described three types of *dhamani* in *sharira* viz; *urdhwaga*, *adhoga* and *tiryaga*. *Tiryaga dhamani* are of four types of which each type is later subdivided into hundreds and later in thousands of its sub parts and later these *dhamani* are infinite in numbers.

Distributed all over the body these *dhamanis* get bound to *roma koopa* (root of hair follicle) at the end. These *dhamanis* function as channels and carriers for *sweda*.^[33]

In context to above statement acharya *Dalhana* has stated that, these *dhamani* are *abhyantara* and *bahya* channels to *dhatu*. Initially these *dhamani* carries *paripakwa* rasa from the body to the *twacha*, thereby providing *santarpan* from body to *twacha*. While in *abhyanga* the medicaments used there will be then absorbed by *bhrajak agni* at *twacha* and hence after the *pachana* the *dhamani* then carries these *snehana* to the target *srotasa*, thereby providing *bahya abhyantara poshana* to *srotasa* (*dalhana tika*)

- Similarly, in *shashtikishali pinda sweda*, the *brimhana* of *srotas* is carried out by the above mechanism. The way plant is nourished by watering, *dhatu*s gets nourished by *snehana*. In *snehana* the nourishment of *dhatu* is done by *siramukh*, *romkoop*a and *dhamni*.^[34] (Su chi 24/32,33)

ENERGY TRANSFER^[35]

Energy transfer that we see in everyday life is the transfer of kinetic energy—the energy associated with motion—from one moving object to a stationary object via work. Thermal energy transfers occur in three ways: through conduction, convection, and radiation. When thermal energy is transferred between neighboring molecules that are in contact with one another, this is called conduction. Convection only occurs in fluids, such as liquids and gases. When water is boiled on a stove, the water molecules at the bottom of the pot are closest to the heat source and gain thermal energy first. The third type of heat transfer—radiation—is critical to life on earth and is important for heating bodies of water. With radiation, a heat source does not have to touch the object being heated; radiation can transfer heat even through the vacuum of space.

Drug absorption^[36]

Movement of drug from site of application into the blood stream occurs when a drug is directly applied to or near target site. Absorption must occur for a drug to exert its therapeutic effect for drug. As drug absorption usually occurs by passive diffusion across membranes, the basic principle governing absorption are like those governing distribution. Biological membranes contain a lipid core, they represent a lipophilic environment. Consequently, the rate at which drug diffuse through membranes is directly related to their relative degree of lipid solubility. Thus, lipid soluble agent usually passes readily through membranes than

water soluble drugs. As a result, lipid soluble drugs tend to be absorbed more quickly than water soluble agent.'

Pharmacokinetic Consideration For Topically Applied Drugs^{[37][38]}

Main layer responsible for preventing skin penetration is stratum corneum. Historically it was believed that topically applied drug had very little systemic absorption due to barrier function of skin, while this can be true, it cannot be assumed. Classical example is corticosteroid which can be absorbed through skin and affect the system via absorption through blood. Penetration enhancers, such as ethanol or propylene glycol, allow other molecules to diffuse more deeply into the underlying skin layer. The frequency and duration of the topical drug dose tends to maximize the potential of drug absorption i.e. more the frequency and duration, more is the absorption of drug through skin. (article) Highly lipid soluble drug can be applied over the skin for slow and prolonged absorption. When orally a drug is administered, the metabolism and absorption process occur in the liver which does not allow the overall absorption of drug while in the topical administration the drug gets absorbed into blood stream and without any hepatic involvement i.e. liver is bypassed, the drug reaches the target tissues and cells. The drug can be incorporated in an ointment and applied over specific area of skin. Absorption of drug can be enhanced by rubbing the preparation, by using the oil base and by an occlusive dressing.

DISCUSSION AND CONCLUSION

When the concept of Sushruta and Dalhana are taken into consideration it can be understood that dhamani plays an important role in nourishment of *sthanik* dhatu by *snehana* from *twacha* to *sharir* dhatus and vice versa. Similar concept could be applied for *shalishashtiki pinda sweda*. When the *pottali* is applied on the body or the body part, the drugs get absorbed into the *dhamani* and apparently reaches the *srotas*. *Therby* leading to *santarpana*. The contents of *shalishashtiki* are when processed gets lipid soluble. Since the biological membranes has affinity to lipids the drugs diffuse more leading to more absorption of drugs from skin membrane. *Shashtishali pind sweda* is carried out for *atleast* twenty to thirty minutes. During this period the *pottali* is rubbed gently on the body part. During this process, the duration of drug and frequency of the drug on the skin is more which leads to the maximum absorption of drugs. When the *pottali* is applied, the capillaries at site get dilated due to warmth. Permeability of capillaries allows the absorption of drug locally. Since it is topically administered there is no hepatic involvement, the drugs absorbed through the

membranes potentially reach the target tissues. Being a type of *snigdha sweda*, *shashtikshaali pind sweda* has lipid in it. The process of conduction takes place between the skin and the warm drugs which causes transfer of heat energy. Also, the process of convection takes place between the blood molecules and liquid applied on the body through minute capillaries. The heat is transferred from the drugs and *pottali* to the body parts.

Scope of study

The concept explained above is a review. Studies can be carried out at various levels to study the pharmacological concepts of *swedana* and its types. We can also look forward in studying the pharmacological properties and action of drugs used in *shashtishali pinda sweda*. Different drugs along with *shalishashti* can be studied for musculoskeletal and nervous systems.

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