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Review Article

ROLE OF *SHASTIKA SHALI PINDA SWEDA* IN THE MANAGEMENT OF *PAKSHAGHATA*

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ABSTRACT

Vata nanatmaja vyadhi pakshaghata is *Mahavatavyadhi*. It is caused due to vitiation of *Vata* which causes dryness of *Sira* and *Snayu* and manifest the features like loss of movement, pain and loss of speech. In Modern science it is correlated to hemiplegia. In this neurological condition of hemiplegia, paralysis or weakness in the leg, arm, and sometimes the face on one side of the body is caused. *Swedana* is the therapy that relieves the *Stambha* (stiffness of body), mitigates feeling of *Guruta* (heaviness of body) and *Sheeta* (feeling cold). The therapeutic treatment called "*Shastika Shali pinda sweda"* belongs to the category of *Sagni Sweda* therapies which use *Snigdha (*unctuous) *Dravyas* like milk and *Shali dhanya* (a type of rice). This treatment possesses *Snigdha*, *Guru*, *Sthira*, *Sheeta*, *Tridoshagna* and *Brimhana guna*. Localised thermal effect of *Shastika Shali pinda sweda* stimulate sweat glands to produce more heat. It accelerates the process by making the capillaries more permeable, allowing toxins to move into the extracellular fluid. It also dilates the capillaries causing increased blood flow and reduce inflammation optimize nerve conduction, enhancing sensory and motor functions. *Pakshaghata*, a condition often marked by impaired motor function and emotional disturbances, can be linked to imbalances in dopamine and serotonin. *Shastika shali pinda sweda* helps to rectify these imbalances by regulating neurotransmitter activity. In this article, attempt has been made to search mode of action of *Shastika shali pinda sweda* and its efficacy on *Pakshaghata* management according to need and condition.

INTRODUCTION

"*Pakshasya dehangasya ghatam vinaashanam yasmat yatra vaa*". The term *Pakshaghata* mean "paralysis of one side of the body" where *"Paksha"* indicates half of the body and *"Aghata* (paralysis)", the impairment of *Karmendriyas* (sensory functions), *Gyanendriyas* (motor functions), and *Manas* (mental processes). According to Acharya Charaka, *Pakshaghata* arises from an aggravation of *Vata dosha*, which predominantly affects one side of the body. This imbalance leads to various symptoms, including *Sankocha* (muscle contraction) and *Toda* (pain) in the affected limbs.

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Due to the aggravation of *Vata dosha* it also affects the function of *Sira, Snayu,* and *Kandara*. When the entire body is afflicted by *Vata* imbalance, it is termed as *Sarvanga roga*. Given the significant role of *Vata* in neurological disorders, Acharya Charaka categorized *Pakshaghata* as a disease in *Vatananatmaja vyadhi* predominantly caused by *Vata dosha*.[1] As per *Acharya Sushruta*, *Pakshaghata* is *Sadhya* when it is associated with other *Dosas* and becomes *Krichra Sadhya* when it is caused due to *Vata dosa* alone and *Asadhya* while that caused by depletion of *Dhatus.*[2]

The condition of *Pakshaghata* which has similar clinical features of hemiplegia like weakness of upper limbs and lower limbs, loss of movement, loss of speech, and pain. Stroke is defined as rapidly developed clinical signs of focal (or global) disturbance of cerebral function, lasting more than 24 hrs or leading to death, with no apparent cause other than of vascular origin.[3] It is the sudden onset of localised neurological deficit caused by the cerebral arteries

commonly middle cerebral artery (MCA) is affected in acute stroke, basilar arteries or cerebral hemorrhage can affect the anterior, middle, or posterior cerebral arteries. It kills about 200 people per 1,00,000 in India. Cerebrovascular accidents sometimes known as stroke are divided to three categories: a blockage causes an ischemic stroke whereas a blood vessel rupture causes a hemorrhagic stroke. Stroke deprives a portion of the brain of essential oxygen and blood supply, leading to the death of brain cells. Hemorrhagic stroke occurs when a blood vessel in the brain ruptures, leading to bleeding. This bleeding can either happen within the brain tissue itself, known as intracerebral hemorrhage (ICH), or in the space surrounding the brain, called the subarachnoid space, leading to subarachnoid hemorrhage (SAH). Both types of hemorrhagic stroke are serious conditions with high rates of death and disability.

The faster the bleeding worsens, the more severe the consequences. Early detection and treatment are crucial as hemorrhagic stroke often causes a rapid decline in consciousness and neurological function. Lacunar strokes report for about 25% of all ischemic strokes. These strokes are small and are located in non-cortical areas. These infarcts are defined to be smaller than 15mm in diameter. The diameter varies from 2 to 3mm up to 15 to 20mm. The occlusion of small, deep penetrating branches of the cerebral vessels from the circle of Willis, including branches from the middle cerebral artery, anterior cerebral artery, posterior cerebral artery, or basilar artery, causes lacunar infarctions. Many lacunar strokes remain asymptomatic due to the involvement of small vessels causing small-sized infarcts. However, accumulating multiple small lacunar infarcts lead to significant physical and cognitive disabilities. Ischemic strokes are most prevalent form of stroke, about 80% of all strokes. A blood clot in the brain blocks or clogs blood vessels, resulting in ischemic stroke. Ischemic stroke results from a thrombotic or embolic event that interrupts blood flow to a specific brain region. In a thrombotic event, a thrombus (blood clot) forms within a blood vessel, often due to underlying conditions such as atherosclerosis, arterial dissection, fibromuscular dysplasia, or inflammatory processes. This clot obstructs blood flow to the brain. In an embolic event, debris from another part of the body, such as the heart or large arteries, travels through the bloodstream and lodges in a cerebral blood vessel, blocking blood flow to the affected brain area.[4]

Hemiplegia generally refers to severe or complete loss of strength leading to paralysis on one side of the body and is usually the result of brain damage in the cerebral hemisphere, opposite the side of paralysis. Hemiplegia is caused by several vascular conditions, like injuries, infections, and congenital disorders. Depending on the severity, the parts of the brain are affected, signs and symptoms vary from muscle weakness and loss of sensation, to impaired motor skills of the affected limbs and difficulty speaking. According to modern science, diagnosis is mainly clinical, but further blood testing, imaging, and diagnostic testing like EEGs are needed to confirm the diagnosis and treatment of hemiplegia involves a multidisciplinary approach, including physical therapy, medications, and when necessary, surgical intervention.[5]

Swedana is the therapy that relieves the *Stambha* (stiffness of body), mitigates feeling of *Guruta* (heaviness of body) and *Sheeta* (feeling cold)[6] *Shastika Shali pinda sweda* comes under the category of *Sagni sweda* with *Snigdha dravyas* as milk and *Shali dhanya* (rice harvested in 60 days). It has *Snigdha*, *Guru*, *Sthira*, *Sheeta*, *Tridoshagna* and *Brimhana guna* (nourishing properties). This is also popularly known as *Navarakizhi.*

Shastika shali pinda sweda is the type of *Sweda* which comes under category of *Pinda sweda Shastika shali Pinda sweda* procedure in post stroke management and improving the quality of life of stroke patients by inducing strength to muscles, relaxes the stiff muscles, and increases the blood flow and metabolism. *Shastika shali* is *Snigdha, Balavardhana* and *Dehadardhyakrita*. *Bala* and *Godugdha* is *Snigdha, Balya, Rasayan* and *Vatahara.* The warmth supplied by *Pottali* of *Shastika shali* dipped in *Balamoola kwath* with *Godugdha* enhances the blood circulation, decrease muscular stiffness, increase tendon extensibility, and gives relief from pain*. Bala* prevents the muscle from emaciation through local absorption into muscular tissue. The total duration of procedure may vary from 45 to 90 minutes. The procedure is normally performed for 7 to 21 days according to condition of patient.

METHODOLOGY

Materials Required

- *Balamoola*- 750 gm
- Milk- 3 L
- *Shastika shali*- 500 gm
- Medicated oil- 100 ml
- *Amalaki Churna* for *talam*- 10 gm
- Cotton cloth- 45x45 4 pieces
- Threads- 4
- Vessels- 3
- Therapist- 4
- Stove- 1

Preparation of *Kwatha*

750gm of *Balamoola*, washed, and crushed properly and it is put to 12L of water

The mixture is heated and reduced to 3L to make decoction.

One part of *Kwath* is mixed with equal quantity of milk and used as *Bala moola kwatha*.

Preparation of *Shastika Shali*

In other part, 500gm of *Shastika shali* are added with 1.5 L of *Kwath* and milk and cooked properly.

The cooked rice is stirred well and made to semi-solid paste.

Preparation of *Pottali*

A square cotton cloth of the size 18 inches is spread on the working table. About 200gm of boiled *Shastika shali* is placed on this cloth. The corners of the cotton cloth are approximated. And free ends of the cloth are folded in its middle. And is then tied with a cotton thread to cover the *Shastika shali* and make it a tight rounded pack. The free end of the cloth that is folded is also firmly tied with the thread to make a handle for this rounded pack of *Shastika shali*. The *Shastika shali* is prepared and divided to equal parts in each 4 pieces of cloth equally and it is made to bolus.

Poorvakarma

The ideal time for the procedure is in the morning hours after evacuating the bowel and bladder and before taking the breakfast.

Following chanting of prayer, the patient is made to sit with legs extended over the *Droni* (massage table).

Abhyanga with *Murchita tila taila* or suitable oil is to be done under *Samyak snigdha lakshanas.* Patient indicated for *Shastika shali pinda sweda* must be selected.

Talam should be applied with suitable oil on the crown of the head is done to protect brain and sense organs from heating treatments. This provides a coolant effect on body and mind of patient.

Shastika shali pottalis and *Bala mula ksheerpaka* are to be prepared, 4 *Pottalis* per person are required and kept in *Balamula ksheerpaka*, placed on stove for moderate heat.

Pradhanakarma

Once the *Pottalis* are heated, two of them are taken out and temperature is checked by placing it on hand. The *Pottali* are applied to both sides of body, in synchronized manner, in circular and linear motion. Ensure that the contents of *Pottali* are squeezed during application on body.

The temperature of *Pottali* should be between 40-45°Celsius.

The process is continued upto *Samyak swinna lakshana*.

Paschatkarma

After the completion of procedure, the *Anna lepana* is done by smearing the *Shastika shali* of *Pottali* all over the affected part of body for 10-15 minutes, the patient body is wiped out with edge of leaves of coconut palm. The *Talam* (head covering) is gently removed with a dry cloth. Then the patient is advised to take warm bath.

Mode of Action

Acharya Charaka, mentions "*Srotaha su abhiliyate*" which means the action of *Swedana* over *Srotas* by liquifying the *Grahita dosas*. The *Acharya* has provided a comprehensive list of various diseases that are indicated for *Swedana* therapy. It consists of neurological ailments like, *Ardita*, *Ekanga Vata*, *Sarvanga vata*, *Supthi* etc. Acharya Sushruta mentioned *Bhagandara*, *Arsha*, *Ashmari*, *Mudhagarbha* due to various type of cell stress.

Acharya Vagbhatt, mentioned *Swedana* as remedy for *Amaja* conditions.

Abhyanga with *Murchita tila taila* or suitable oil is to be done under *Samyak snigdha lakshanas* is performed.

Application of *Snehana* followed by *Swedana* therapy, the dry stick becomes soft and becomes easy to bend in the same way the *Snehana* and *Swedana karma* helps to reduce the severe spasticity, pain and stiffness of muscle which are generally seen in *Pakshaghata* cases.

***Swedana* has 4 major actions**

***Stambhagna*:** *Swedana* alleviates *Stambha* which is caused by *Samana vayu* and *Sleshlaka kapha*. As *Samana vayu* is *Ruksha guna pradhana* does *Shoshana*. Thus, produces *Sankocha* and *Sthambha*. *Karma kshaya* of *Sleshmaka kapha* produces *Stambha*.

***Gauravagna*:** As *Swedana* is *Usna* in nature, it does *Kapha vilayana* which alleviates heaviness of body.

***Sheetagna*:** Due to *Usna guna* of *Swedana*, it alleviates the coldness within the body.

***Swedakarakta*:** It induces perspiration which causes expulsion of waste and toxins from the body.

Factors influencing absorption on skin

The role of *Bhrajaka pitta* which is present in the *Twak*, digests the drug applied on the skin and further absorption takes place. Thereby, providing *Bahya-abhyantara poshana* to *Srotasas* and causes *Santarpana*. Acharya Sushruta has described three types of *Dhamanis* in *Sharira- Urdhvaga*, *Adhoga* and *Tiryaka*. The *Dhamanis* are distributed all over the body and these *Dhamanis* are bound to *Roma koopa* – functions as channels and carriers for *Sweda*. The

location of *Vata* is *Twacha* when it is applied on skin, it rectifies the disturbed *Vata* functions. *Shastika* reaps for 60 days. Among these the *Rakta shali* is superior. The properties of *Shastika* are *Madhura*, *Laghu*, *Snigdha*, *Mrudu*, *Grahi*, *Badda Varcha*, *Balada*, *Pathya*. *Ksheer* is considered as *Ajanma satmya* having *Jeevaniya* and *Brimhaniya* qualities and *Pathya*. It possesses *Madhura rasa*, *Guru*, *Snigdha*, *Shita guna*, and *Madhura vipaka*. *Balamoola* has *Vatashamana* property and also reduces the changes of muscle wasting also prevents muscle emaciation in hemiplegia.

Physiological Effects of Heat

When the *Pottali* is applied over skin the capillaries at site gets dilated due to warmth. Vasodilation causes increased blood flow to balance the temperature of body. It stimulates cutaneous thermoreceptors which causes local release of bradykinin and nitrous oxide which causes relaxation of smooth muscles. Also, the rise in temperature causes resistance in movement of body fluids. It causes decrease in conduction latency of both sensory and motor nerves, decrease in gamma neuron activity which causes the stretch on the muscle spindles to decrease. The enzymatic activities result in changes in the rate of cellular biochemical reactions. Anterior hypothalmus cause sweating for heat regulation. It causes relief in muscular pain due to inhibition on motor neuron pools by acting on afferent muscle spindle and golgi tendon organs. Permeability of capillaries allows absorption of drug locally. It causes stimulation of neuro receptors on skin and tissues. Rise in temperature induces muscle relaxation due to increased blood supply.

Navara rice (Oryza sativa) consists of 73% carbohydrates, 9.5% protein, 2.5% fat. It has bigger starch granule than others and has high geletination temperature and has high thermal stability. It contains compounds like oryzanol (according to study, gamma-oryzanol improves exercise endurance and muscle strength by upregulating activity in aged mice) phenolic acids, anthocyanins, proanthocyanidins, flavonoids, caretenoids which has shown to have several pharmacological activities such as neuroprotective, hepatoprotective, antibacterial, and antioxidant.

The milk helps in nourishing the tissues due to contents of protein, fat, lactose, solids.

Sida cordifolia has pharmacological compositions like ephedrine, pseudoephedrine, stereulic malvalic and coronic acid, fatty acids, saponine, betaphenylthyamine, hypophorine, alkaloids, ecdysterone, palmitic, stearic and beta sitosterol. Ephedrine is known to stimulate the central nervous system. They are rapidly absorbed. Alpha-adrenergic and beta- adrenergic receptors are stimulated, which release endogenous catecholamines that affect the brain and heart. Catecholamines causes peripheral vasoconstriction and cardiac stimulation. According to Chinese medicine, the medicine containing saponins aids in neuropathic pain. The effect of *Shastika shali* is helpful in reducing the spasticity, joint deformities and prevention of contractures, improving muscle tone, gain in muscle strength, and proper nourishment of dhatus.

CONCLUSION

Swedana (fomentation) is a crucial preliminary treatment that can be used both as a precursor to other therapies and as a standalone treatment. *Shashtika Shali Pinda Sweda* is a renowned type of oil-based fomentation that falls under the category of *Sankara Sweda* (a specific type of fomentation). This therapy involves using boluses made from *Shashtika Shali* (a type of rice), *Balamoola* (herbal roots), and milk. Its *Ushna guna* stimulates the sympathetic nervous system, causing vasodilation. Its *Sara* and *Sukshma guna* liquefy the *Lina doshas* allowing it to be eliminated through the pores. This treatment can soften the body, relieve joint stiffness, cleanse the body's microchannels, and improve circulation in neurological disorders. It can also enhance complexion, stimulate appetite, and regulate metabolism. This treatment is known to be highly effective in nourishing the body's tissues as in *Dhatukshaya janya pakshaghata*. Additionally, it helps prevent tissue degeneration, reduces muscle spasticity, corrects joint deformities, prevents contractures, improves muscle tone, and enhances muscle strength by nourishing the body's tissues.

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