



Review Article

SANDHANA KIZHI: A COMPREHENSIVE REVIEW OF IT'S PROCEDURAL TECHNIQUES AND THERAPEUTIC PRACTICE

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ABSTRACT

Sandhana kizhi is a classical form of *Pinda Sweda*. It is a *Snigdha swedana* procedure predominantly indicated in the subacute stage of traumatic musculoskeletal disorders. This procedure aims to pacify aggravated *Vata*, alleviate pain, reduce stiffness, and promote tissue healing. The procedure combines *Snehana* and *Swedana* simultaneously through the application of heated medicated boluses, thereby providing both unctuousness and fomentation. This dual action facilitates local circulation, relieves *Stambha* and *Shoola*, and promotes proper *Dhatu poshana*. The *Ushna* and *Snigdha* qualities counteract *Ruksha* and *Sheeta* attributes of vitiated *Vata*, supporting restoration of structural and functional integrity. Principle ingredients in *Sandhana kizhi* such as *Asthisrinkhala* (*Cissus quadrangularis*), *Kumari* (*Aloe vera*), and *Kukkutanda* possess *Asthi-sandhaniya* and *Balya*, properties. These drugs aid in *Asthi dhatu* nourishment, enhance fracture healing, and strengthen musculoskeletal structures. Through its integrated *Dosha*-pacifying and *Dhatu*-supportive actions, *Sandhana kizhi* serves as a valuable therapeutic modality in the management of ligament injuries, tendon injuries, and selected stabilized fracture conditions.

INTRODUCTION

Panchakarma encompasses five specialized therapeutic procedures *Vamana*, *Virechana*, *Nasya*, *Asthapana Vasti*, and *Anuvasana Vasti* aimed at eliminating the root causes of disease and promoting sustained health benefits. Among the preparatory measures (*Purvakarma*), *Snehana* (oleation) and *Swedana* (sudation) are considered fundamental procedures. *Swedana* facilitates perspiration by enhancing capillary permeability, promoting the mobilization and elimination of impurities from the extracellular fluid, relieving pain, and imparting softness and flexibility to body tissues, thereby serving as both an effective preparatory and therapeutic intervention. *Swedana* is described under *Shadvidhopakrama* and, based on the mode of heat application, is broadly classified into *Agneya swedana*

and *Anagneya swedana*.^[1] Among its various forms, *Pinda sweda* is one of the most commonly practiced methods, wherein a bolus (*Pinda* or *Pottali*) of medicinal substances wrapped in cloth is heated, typically to approximately 45°C, and applied to the body. *Acharya Charaka* classifies *Pinda sweda* under *Sankara sweda*.^[2] *Acharya Vagbhata* and *Acharya Sushruta* include it under *Ushma sweda*.^[3,4] Based on these classical principles, several modifications of *Pottali sweda* have evolved and are extensively practiced in Kerala, where the procedure is popularly known as "Kizhi." Depending on the nature of the medicinal substances used, *Kizhi* is classified into *Snigdha* (unctuous) and *Ruksha* (dry) forms, with the former employing oils during preparation or application and the latter utilizing dry substances without oil. *Sandhana Kizhi* is a *Snigdha* type of *pottali sweda* and represents a modification of *Kukkutanda sweda*, widely practiced in Southern part of Kerala. The formulation incorporates drugs possessing *Asthi-sandhaniya* and *Balya* properties and is therefore widely employed by traditional Kerala Kalari *Vaidyas* in the management of traumatic musculoskeletal conditions.

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MATERIALS AND METHODS

Data related to *Pinda sweda* were collected from various Ayurvedic texts including *Brihatrayi*, *Laghutrayi* and published research papers.

Sandhanakizhi in Ayurveda Classics

The term *Sandhana* denotes union or healing; however, a direct description of *Sandhana Kizhi* is not explicitly found in classical Ayurvedic texts. In *Bhavaprakasha Samhita*, the application of heated *Kukkutanda drava* along with *Saindhava lavana* and *Ghrita* over the affected region is described as beneficial in alleviating *Manyasthambha*.^[5] Drawing from this classical reference, the concept of *Kukkutanda pottali sweda* evolved, which subsequently served as the conceptual foundation for the development of *Sandhana Kizhi* as a specialized therapeutic modification. This modified formulation is traditionally practiced in Keraleeya Kalari Chikitsa. The formulation and procedural principles of *Sandhana Kizhi* closely resemble with that of *Kukkutanda sweda*, additionally *Sandhana Kizhi* incorporates drugs possessing *Asthi-sandhaniya* properties.

Protocol and clinical application details of *Sandhana Kizhi* was contributed and shared by Dr. Sujan T K, Rtd. Professor and HOD Department of Panchakarma, Government Ayurveda College Thiruvananthapuram, Kerala, India.

Preparation of Pottali

Materials and equipment

1. Egg yolk (boiled)- 10 nos
2. Lemon - 4 nos
3. Garlic -50g
4. Shallots -50g
5. *Shatahwa*- 50g
6. *Medhika*-50g
7. *Haridra* - 50g
8. Aloe vera -50g
9. *Asthi sringala*-50g
10. *Saindhavam* - 50 g
11. Betel leaves - 10 nos
12. Suitable oil - Q.S
13. Suitable *Choornam* - 100 -150g
14. Suitable *Tailam*- 150g
15. Cotton cloths - 4 square pieces(45*45cm)
16. Cotton thread - 1 metre*4
17. Vessel for heating oil -1
18. Spatula for mixing medicines-1
19. Stove for heating
20. Towel - for wiping the body after the procedure
21. Suitable *Choorna* /oil for *Thalam*

Preparation

100ml of prescribed medicated oil (oil should be selected according to *Dosha* vitiation) is heated in a vessel added with slices of 4 lemon, shallots 50g, garlic 50g. When it becomes slightly fried, 50g of chopped aloe vera and 10 chopped betel leaves are added. Then 50g each of *Medhika*, *Haridhra*, *Saindhavam* and suitable *Choornas* are added and fried for some time after that boiled egg yolk (10nos) is added and cooked. Processed ingredients are divided into 4 equal parts and taken in to 4 pieces of cotton cloth each measuring 45cm*45cm. Hold the upper free ends of the cloth then fold 3 corners together and cover this with 4th corner, then it is tied with thick cotton thread so as to form a bolus of *Sandhana kizhi*.



Purva Karma

The patient should be seated with leg extended on the *Droni* then *Thalam* is applied with suitable oil/*Choorna* on the vertex. Out of 4 *Pottali*, two of them are heated up to the temperature of 40°C-45°C by keeping it on the hot pan containing suitable oil.

Pradhana Karma

Abhyanga with suitable oil should be performed all over the body. Two warm *Pottalis* are dipped in warm oil should be gently applied in a synchronized manner by two therapists on two side of the body after ensuring the temperature of the *Pottalis* by touching them over the dorsum of their palm. The *Pottalis* should be applied over the body from proximal to distal part with mild to moderate pressure in uniform linear motion. Follow a circular pattern of

application of *Pottali* over the chest, abdomen and joints. The temperature of the *Pottali* should be maintained throughout the procedure by continuous relay of the four *Pottalis* after reheating by dipping in heated oil. The process should be continued till all the contents of the *Pottalis* are emptied or till the patient attains proper perspiration. Typically, these effects are achieved within a duration of 30 to 45 minutes. This procedure is done at seven body positions –sitting, supine, right lateral, supine, left lateral, supine and sitting posture, the warm *Pottalis* should be first applied over the body starting from neck to supraspinatus area, shoulders and then down to the hands up to fingers on both sides. Then from neck downwards till lower back. Over chest region and abdomen. Then from hip region and move towards the toes on both sides. In supine position the warm *Pottalis* should be applied over neck downwards towards the shoulder region up to the hands on both sides. Then chest and abdomen are massaged in circular manner. Lastly from hip region towards toes on both sides. Joints should be massaged circularly and muscles linearly. In left lateral position - the left hand should be kept flexed beneath the head and right arm should rest over the right lateral side of the body. Massage should be done along the right shoulder towards right hand, from upper back region towards buttocks and posterior aspect of lower limbs till foot.

Paschat Karma

The medicine remained on the body is wiped off with towel. After the procedure *Talam* is removed and *Rasnadi churna* is applied over the head. The patient is advised to take rest for at least half an hour and take hot water bath.

Precautions

Sandhana kizhi should not be performed in cases of acute inflammation, infectious diseases, malignancy, or in any condition where *Swedana karma* (sudation therapy) is contraindicated. Special attention should be given in maintaining a uniform temperature throughout the procedure. Care is needed after the procedure to wipe out the residual medicines from the body and cover the body with thick cloth to prevent sudden drop of the temperature. The *Pottali* should be changed daily. During *Swedana* therapy the physician must keep a close watch on the duration of *Swedana*, manifestations of *Samyak*, *Asamyak*, *Atisweda* and *Sweda vyapad lakshanas*. *Samyak lakshana* (proper sudation) of *Swedana* includes disappearance of cold, relief from pain, stiffness and heaviness, imparts smoothness to the body, adequate sweating, and remission of the disease.^[6] In *Ayoga lakshana* (inadequate sudation) there will be less sweating, no relief from pain and cold. In *Atiyoga lakshanas*

(excessive/over sudation) there is aggravation of *Pitta*, fainting, generalized fatigue, thirst, burning sensation, low or weak voice, and weakness of limbs.^[7] Complication due to over sudation can be managed by the administration of *Madhura*, *Seetha drava* and *Snigdha ahara*, *Seetha manda* with sugar and *Srita seetha jala*. Avoid *Lavana*, *Katu*, *Amla*, *Ushna dravyas* and *Greeshma ritu charya* (diet and lifestyle guidelines in summer season) should be adopted.^[8]

DISCUSSION

Acharya Charaka has described the *Snigdha* variety of *Sankara Sweda*, in which substances such as *Tila* (sesame), *Masha* (black gram), *Kulatha* (horse gram), *Amla dravyas*, *ghrita*, *Taila*, *Mamsa*, *Odana*, *Payasa*, and *Krisara* are used for sudation. *Sandhana Kizhi* can be considered a modified therapeutic form of this *Snigdha Sankara Sweda*. It is mainly used in the management of traumatic conditions. It also possesses *Asthi sandhaniya*, *Balya*, *Soolahara*, *Sthambhahara* properties, and it provides *Snehana* and *Swedana* simultaneously, thereby enhancing its therapeutic utility in the management of subacute stage of traumatic musculoskeletal conditions, particularly for soft tissue injuries such as ligament tear and tendon tear and also in selected fracture cases after completing the initial management and stabilization phase.

Probable Mode of Action

The probable mode of action of *Sandhana Kizhi* may be understood through the integrated effects of *Snehana Karma*, *Swedana Karma*, *Sandhaniya* actions, as well as through the pharmacological properties of the constituent drugs. During the procedure, the contents of the *Pottali* are fried in oil and intermittently dipped in warm oil, producing localized *Abhyanga* effect that facilitates *Snehana* by enhancing unctuousness and improving peripheral circulation. The mechanical stimulation generated by massage with the heated *Pottali* augments local blood flow, while the inherent *Brimhana* and *Snigdha* properties of *Kukkutanda* counteract vitiated *Vata dosha*, thereby strengthening the muscles and improving joint mobility by alleviating pain and stiffness. *Swedana* by its attributes *Ushna* (hot), *Tikshna* (sharp), *Drava* (liquid), *Snigdha* (unctuous) *Ruksha* (rough), *Sukshma* (subtle), *Sara* (fluid), *Sthira* (stable) and *Guru* (heavy)^[9] liquefies the morbid materials in the minute channels in the body. Heat transfer occurs primarily through conduction and convection, inducing perspiration and promoting the elimination of water-soluble metabolic waste products from deeper tissues.

One of the main ingredients in *Sandhana kizhi* is *Kukkudanda* (egg). Which is rich in essential vitamins, including fat-soluble vitamins A, D, E, along

with B-complex vitamins and choline, which play vital roles in cellular maintenance, bone integrity and tissue growth.^[10] Owing to the rich vascularization of the dermal layer, the lipid-soluble constituents can readily undergo transdermal absorption, thereby facilitating the sustained systemic delivery of bioactive compounds throughout the course of the procedure.

Asthishringala, a key ingredient of *Sandhana Kizhi*, possesses *Asthi-sandhaniya* and *Balya* properties and is rich in carotenoids, triterpenoids, and ascorbic acid, which may contribute to bone healing and structural stability, as supported by evidence indicating reduced fracture healing time through modulation of glucocorticoid receptor activity. Additionally, *Kumari* exhibits *Vatahara* and *Balya* properties. The active ingredients in gel and latex of aloe vera plant include anthraquinone, polysaccharides, superoxide dismutase, glycoprotein,

lectin, vitamins C and E, and minerals, which have anti-inflammatory and wound-healing properties. It also contains the proteins (alloktin), that stimulate the progenitor osteoblasts from skeletal stem cells, increase osteoblast cell differentiation, increase Vascular Endothelial Growth Factor (VEGF), Bone Morphogenic Protein (BMP), and osteoprotegerin (OPG), and inhibit osteoclast genesis in order to accelerate bone remodelling process. While betel leaves contribute *Kapha-Vata* balancing effects along with *Balya* and *Shramahara* properties. *Saindhava lavana* contributes *Kapha vilayana* and *Chedana* actions, and due to its *Sukshma guna* facilitates deeper penetration of medicaments into the *Srotas* while pacifying *Tridosha*. Collectively, these mechanisms substantiate the multimodal therapeutic efficacy of *Sandhana kizhi* in musculoskeletal and neuromuscular disorders.

Table 1: Ingredients of *Sandhana Kizhi* and properies

S.No	Ingredients	Rasa	Guna	Virya	Vipaka	Action
1	<i>Asthi shringala</i>	<i>Madhura, Katu</i>	<i>Laghu, Ruksha, Sara</i>	<i>Ushna</i>	<i>Madhura</i>	<i>Ashisandhanakara</i>
2	<i>Kumari</i>	<i>Katu</i>	<i>Ushna</i>	<i>Ushna</i>	<i>Katu</i>	<i>Pittanirharana</i>
3	<i>Nagavalli</i>	<i>Katu, Tikta, Kashaya</i>	<i>Laghu, Sara, Tikshana, Visada</i>	<i>Ushna</i>	<i>Katu</i>	<i>Balya, Vata hara, Sramahara</i>
4	<i>Lasuna</i>	<i>Madhura, Katu</i>	<i>Guru, Picchila, Snigdha</i>	<i>Usna</i>	<i>Katu</i>	<i>Balya, Bhagnasandhanakara, Rasayana, Asthi mamsa sandhanakara</i>
5	<i>Kukkudam</i>	<i>Madhura, Kashaya</i>	<i>Guru, Snigdha</i>	<i>Ushna</i>	<i>Katu</i>	<i>Brhmana, Rasayana</i>
6	<i>Haridra</i>	<i>Katu, Tikta</i>	<i>Ruksha</i>	<i>Ushna</i>	<i>Katu</i>	<i>Vishagna</i>
7	<i>Palandu</i>	<i>Madhura, Katu</i>	<i>Guru</i>	<i>Anushnam</i>	<i>Madhura</i>	<i>Kevala vata hara, Balya</i>
8	<i>Methika</i>	<i>Tikta</i>	<i>Snigdha</i>	<i>Ushna</i>	<i>Katu</i>	<i>Vatahara</i>

CONCLUSION

Sandhana kizhi, owing to its key constituents such as *Asthishringala* (*Cissus quadrangularis*), *Kumari* (*Aloe vera*), and egg yolk, exhibits pronounced *Asthi-sandhaniya* and *Balya* properties, contributing to the maintenance of bone integrity, enhancement of fracture healing, and improvement of structural stability by facilitating and accelerating the bone remodelling process. The localized application of heat combined with unctuous substances enhances peripheral microcirculation, facilitates muscular relaxation, and effectively reduces pain and stiffness primarily associated with *Vata dosha* vitiation.

Sandhana kizhi represents a rational integrative therapeutic modality in the management of traumatic and degenerative musculoskeletal disorders, particularly in conditions requiring analgesia,

enhanced joint mobility, tissue nourishment, and structural stability.

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