

Clinical Efficacy of Atasi Pinda Swedana in Janu Sandhigata Vata W.S.R to Osteoarthritis of Knee Joint

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ABSTRACT

In *Vridhāvastha*, Vata Dosha is in a dominant state and *Rasadi Dhatus* are in a deprived state. This potent combination is responsible for the aged being vulnerable to many diseases. Among them, *Sandhigata Vata*, stands top in the list of geriatric diseases. *Janu Sandhigata Vata* is one of *Vatavyadhi* which can be correlated with Osteoarthritis in contemporary science. *Snehana* and *Swedana* are prescribed as common line of treatment for *Vatavyadhi* which is applicable even for *Janu Sandhigata Vata*. *Sankara Swedana* also popularly called as *Pinda Swedana* one among the 13 types of *Sagni Swedana* where in *Swedana* is given over the affected part using a *Pottali* and this is done after the *Abhyanga*. According to the condition of patients, one can select different types of *Pinda Swedana* as mentioned in *Samhitas* and one can adopt new combination as per the need and availability and properties of drugs. Keeping this in mind, a combination called *Atasi Pinda Swedana* was formulated using *Atasi*, *Yava*, *Haridra*, *Tulasi*, *Nimbuka*, *Saindhava Lavana*, *Narikela*, *Lashuna*, *Shunti* and *Moorchita Taila* and a study was conducted in *Janu Sandhigata Vata* where the results were overwhelming in instantaneously relieving the symptomatology of *Janu Sandhigata Vata*.

KEYWORDS: Ayurveda, Janu Sandhigata Vata, Osteoarthritis of Knee Joint, Sankara Sweda, Atasi Pinda Sweda.

INTRODUCTION

Ayurveda is an ancient science of life that deals with the preventive as well as curative aspects of diseased conditions. Ayurveda emphasizes more on the concept of Vata, the physiological normalcy and pathological variation of which is responsible for the maintenance of health and manifestation of disease respectively. Vata Dosha gets vitiated due to various *Nidana* and with advancement of age that paves way for the manifestation of various *Vata Vyadhi* such as *Sandhigata Vata*, a degenerative joint disease. *Janu Sandhigata Vata* is characterized by clinical features like *Janu Sandhi Shotha*, *Shoola*, *Atopa*, *Vatapurna Druti Sparsha*, *Prasarana Akunchana Vedana*^{1,2,3} and is commonly identified with

osteoarthritis of knee joint which is being the commonest form of articular disorders that poses huge hindrance in day to day activities.

Swedana is an important preparatory measure before the *Panchakarma* procedures. It is a procedure which is most commonly used as *Poorva Karma* before any *Shodana* therapy and after *Snehana*. It is also an independent therapeutic procedure for the management of various diseases, especially the ones involving *Vata* and *Kapha Dosha*.⁴ *Swedana* relieves stiffness, heaviness and coldness in the body. It is one among the *Shadvidha Upakramas*. It can be performed by various methods. Basically, there are two types of *Sweda*, 13 *Sagni Swedas* and 10 *Niragni Swedas*. *Sankara Sweda* is one among these 13 *Sagni Swedas*, which is most popular and widely practiced modality that encompasses the various formulations in different diseased conditions. The nomenclature of various *Pinda Swedas* is based on the predominant *Dravyas* such as *Shashtika Shali Pinda Sweda* where *Shashtika Shali* is the main ingredient, *Patra Pinda Sweda* where various *Vatahara Patras* are the main ingredients and so on. The practice of *Pinda Swedana* always has a scope for exploring newer formulations that can be incorporated to treat various diseases after ascertaining its properties and without violating the basic principles of treatment. *Atasi Pinda Swedana* is one such modality of *Pinda Swedana* that has been named based on the predominant *dravya Atasi* (flax seed) one of the main ingredient by virtue of its special properties such as *Madhura*, *Tikta Rasa*, *Ushna Virya*, *Katu Vipaka*, *Snigdha Guna* and *Vatakaphahara*⁵ action as well as anti-inflammatory and analgesic effect. *Atasi Pinda Sweda* can be placed under the umbrella of *Bahya*, *Sagni*, *Sthanika*, *Samsamniya*, *Madhyama*, *Vastrantarika Sankara*, *Snigdha Sankara Sweda* and *Ushma* type of *Sweda*.

OBJECTIVE OF THE STUDY

To evaluate the efficacy of *Atasi Pinda Sweda* in the management of *Janu Sandhigata Vata* w.s.r to Osteoarthritis of Knee Joint.

MATERIALS AND METHODS

Study was conducted on 10 subjects of either gender fulfilling the inclusion criteria in-between the age group of 40-70 years approaching the OPD & IPD of Sri Kalabyraveshwara Swamy Ayurvedic Medical college, hospital and research centre Bengaluru, Karnataka.

Method of collection of data

Sample size

10 subjects presenting with the sign and symptoms of *Janu Sandhigata Vata* w.s.r to Osteoarthritis of Knee Joint were selected after thorough history taking, clinical assessment and radiological investigation.

Diagnostic Criteria

- Subjects Presenting with the Lakshanas of *Janu Sandhigata Vata*.
- Subjects Presenting with the clinical features of Osteoarthritis of Knee Joint.
- Subjects presenting with the Radiological evidence of Osteoarthritis of Knee Joint.

Inclusion Criteria

- Subjects Presenting with the Lakshanas of *Janu Sandhigata Vata*.

- Subjects Presenting with the clinical feature of Osteoarthritis of Knee Joint.
- Subjects of either gender in between the age group of 40-70 years.
- Subjects fit for *Swedana Karma*.

Exclusion Criteria

- Subjects having any other systemic disorder which may interfere with the course of treatment.
- Subjects with history of Fracture and dislocation of Knee Joint.

Study design

It is an Open Label single arm clinical study.

Intervention

The subjects were treated through *Sthanika Abhyanga* over the affected knee joint using *Moorchita Taila* followed by *Atasi Pinda Swedana*.

Poorva Karma

Preparation of the Atasi Pinda

Table No: 1 Drugs used for Atasi Pinda.

Sr.no.	Ingredient	Quantity
1.	<i>Atasi Choorna</i> (Flax Seed)	200 gms
2.	<i>Yava</i> (Barley)	
3.	<i>Haridra</i> (Turmeric Powder)	
4.	<i>Nimbuka</i> (Lemon)	4 in Number
5.	<i>Tulasi</i> (Indian Basil)	50 gms
6.	<i>Narikela</i> (Grated Coconut)	100 gms
7.	<i>Shunti</i> (Ginger bulbs)	30 gms
8.	<i>Lashuna</i> (Garlic)	30 gms
9.	<i>Saindhava Lavana</i>	20 gms
10.	<i>Moorchita Taila</i>	Q.S Approx 200ml)

4 Fresh lemons, 30gms of Garlic bulbs and 30 gms of wet Ginger, cut into small pieces were taken in a wide mouthed vessel and *Moorchita taila* was added to this. With continuous stirring fresh *Tulasi* Chopped into small pieces were added. Then 200 gms *Atasi Choorna*, 20 gms *Saindhava Lavana* and 100 gms Grated Coconut were added simultaneously and stirred properly and fried till the colour of the coconut changes to golden, later 2 *Pottalis* were prepared using Cora Cloth and Twine.

Preparation of the Subjects

Subject asked for sit or lie down supine position with legs stretched straight over the *Droni* and *Sthanika Abhyanga* done over the affected knee joint for the duration of 10 min.

Pradhana Karma

Atasi Pinda Swedana pottali was heated in wide mouthed vessel with little quantity of *Moorchita Taila*. The therapist, after confirming the heat for tolerability of patient by touching the *Pottali* on the dorsum

of his hand applies this heated *pottali* over the knee joint. This will be continued by repeated heating and momentarily tapping the affected Knee Joint for 15 minutes.

Atasi Pinda Swedana was done for duration of 7 consecutive days.

Paschat Karma

- Patient will be advised to take rest for 10 mins.
- Treated area will be wiped with clean cloth dipped in Luke warm water.

Assessment Criteria

The result of the therapy was evaluated on the basis of improvement in Subjective and Objective parameters before treatment on day-01 and after treatment on day-08.

Table No: 2 Subjective and Objective Parameter with Gradings.

Subjective Parameter	
<i>Janu Sandhi Shoola (Pain)</i>	
No pain	0
Mild pain	1
Moderate pain, but no difficulty in walking	2
Slight difficulty in walking due to pain	3
Severe difficulty in walking	4
<i>Janu Sandhi Stambha (Stiffness)</i>	
No stiffness	0
Mild stiffness	1
Moderate stiffness	2
Severe difficulty due to Stiffness	3
Severe stiffness for more than 10 minutes.	4
<i>Prasarana Akunchana Vedana (Pain during extension and flexion)</i>	
No pain	0
Pain without wincing of face	1
Pain with wincing of face	2
Prevent complete Flexion	3
Patient does not allow passive movement	4
Objective Parameter	
<i>Janu Sandhi Shotha (Swelling)</i>	
No swelling	0
Slight swelling	1
Moderate swelling	2
Severe swelling	3
<i>Janu Sandhi Atopa (crepitus)</i>	
No crepitus	0
Palpable crepitus	1
Audible crepitus	2

Observation

Table No. 3 Different Observation of Study

Observation	Total no.of Subjects	Percentage	Observation	Total no.of Subjects	Percentage	
Age(41-60)	6	60%	Desha(Sadharana)	10	100%	
Gender (Female)	7	70%	Aharaja Nidana (Katu Dravya Atisevana)	10	100%	
Menstrual history (menopause)	5	50%	Aharaja Nidana (Ruksha Dravya Atisevan)	6	60%	
Prakruti (vk)	6	60%	Viharaja Nidana (Divaswapna)	5	50%	
Sara(M)	7	70%	Chronicity (1-2years)	6	60%	
Samhanana (M)	5	50%	Occupation (House wife)	5	50%	
Satva (M)	6	60%	Aggravating factors (climbing stairs,standing)	10	100%	
Pramana (M)	10	100%	Relieving factors (during rest)	8	80%	
Abhyavarana Shakti (M)	8	80%	Knee Joint affected	Right	4	40%
Jarana Shakti (M)	8	80%		Left	2	20%
Vyayama Shakti(M)	3	30%		Bilateral	4	40%

Table No.4 Subjective Assessment

No of patients	Sandhi Shoola		Sandhi Stambha		PrasaranaAkunchana Vedana	
	BT	AT	BT	AT	BT	AT
1	3	1	2	1	2	0
2	2	0	2	0	2	1
3	4	2	3	1	3	2
4	4	1	1	0	2	1
5	3	0	1	0	3	1
6	4	1	3	1	1	0
7	2	0	1	0	1	1
8	3	1	2	1	2	1

9	4	2	2	1	3	2
10	4	2	2	1	4	2
Total	33	10	19	06	23	11
X(BT-AT)	23		13		12	
% of Relief	69.69		68.42		52.17	

Table No. 5 Objective Assessment

No of patients	Sandhi Shotha		Sandhi Atopa	
	BT	AT	BT	AT
1	2	1	1	0
2	1	0	1	1
3	3	1	2	1
4	2	0	2	1
5	2	0	1	0
6	3	1	2	1
7	2	0	2	1
8	2	2	1	0
9	3	2	2	1
10	3	2	2	1
Total	23	9	16	07
X(BT-AT)	14		09	
% of Relief	60.68		56.25	

RESULTS

Table No. 6 Statistical result of Subjective and Objective Assessment

Sr.no.	Parametres	SD	“t”	P	Remark
1	Sandhi Shoola	0.4879	15.05	<0.001	HS
2	Sandhi Stambha	0.483	8.51	<0.001	HS
3	Prasarana Akunchana Vedana	0.6325	6.00	<0.001	HS
4	Sandhi Shotha	0.6992	6.33	<0.001	HS
5	Sandhi Atopa	0.3162	9.00	<0.001	HS

*SD= Standard Deviation; *HS=Highly Significant;

DISCUSSION

Swedana is defined as the process by which the sweat or perspiration is produced in the body by using various methods. which relieves stiffness, heaviness and coldness of the body and produce sweating.

Importance of Pinda Swedas

There are list of drugs mentioned by the *Acharyas* for *Pindasweda*.⁶ we can understand these in terms of different medias used like-

- Liquid Media -*Payasa, Krushara, Odana* etc.
- Solid Media- *Sikata, Pamshu* etc.
- a) *Ruksha Dravya - Kakolyadi Gana, Goshakruta* etc.
- b) *Snigdha Dravya - Tila, Masha, Atasi, Taila, Gritha* etc.

There are some drugs which facilitates the absorption of the drug like *Amladravyas, Lavana* some drugs where by withholding the heat for prolonged period is possible with use of media like *Payasa* etc mentioned. By considering all the factors, *Atasi Pinda Sweda* was formulated. *Atasi Pinda Sweda* contains powder of dry drugs which are *Vatahara, Shothahara* and added with *Amladravya* like *Nimbuka* and *Snigdha Dravya* like *Atasi, Lashuna, Narikela*.

The probable action can be explained under the following headings.

1. Thermal effect
2. Procedural and Drug effect

Thermal effect

Due to heat, vasodilatation occurs particularly in superficial tissues causing stimulation of superficial nerve endings leading to reflex dilatation of arterioles and necessary Oxygen and nutritive materials are been supplied. External heating dilates the penetration pathways in the skin, increases kinetic energy and movement of particles in the treated area and facilitates drug absorption.⁷ Heat has been applied as a counter irritant, which is the thermal stimulus, may affect the pain sensation.

Procedural and Drug effect

The drugs used in *Atasi Pinda Sweda* are having the qualities like *Ushna* and *Snigdha* which does *Srotoshuddhi* and *Amapachana*, in turn relieves stiffness thereby acts as *Stambhaghna, Gauravaghna* as they relieve heaviness in the body through sweating, *Sheetaghna* by their *Ushna* quality and *Sweda Karaka* as they promote sweating through which impurities of the body come out. *Ushna Guna* of *Sweda* dilates the capillaries (vasodilatation) thus it increases circulation. As in *Atasi Pinda Sweda* we use *Vata Kaphahara* drugs when they are absorbed into the body they does their action along with *Swedana*.

Acharya Sushrutha explains, *Tiryak Dhamanis* having their opening in the *Lomakupa*. *Dravyas* when applied over the skin, it gets absorbed through these openings and undergoes *Pachana* by *Brajakapitta*, located in the *Twacha*. It is this *Brajakapitta* that takes up and metabolizes the drugs administered through external application in the form of *abhyanga, parisheka, avagaha* and *alepa*.⁸

Table No: 7 Rasa Panchaka of ingredients used Atasi Pinda Sweda.^{9,10,11}

Sr.no	Name of drug	Botanical name	Rasa	Guna	Virya	Vipaka	Doshaghna
1	<i>Atasi</i>	Linum usitatissimum Linn	<i>Madhura Tikta</i>	<i>Guru, Snigdha</i>	<i>Ushna</i>	<i>Katu</i>	<i>Vata kaphahara</i>
2	<i>Yava</i>	Hordeum	<i>Madhura Kashaya</i>	<i>Ruksha Guru</i>	<i>Sheet</i>	<i>Katu</i>	<i>Kaphavatahar</i>

		vulgare Linn	<i>a</i>		<i>a</i>		<i>a</i>
3	<i>Haridra</i>	Curcuma longa Linn	<i>Tikta Katu</i>	<i>Laghu Ruksha</i>	<i>Ushn a</i>	<i>Katu</i>	<i>Kaphavatahar a</i>
4	<i>Tulasi</i>	Ocimum Sanctum Linn	<i>Katu Tikta</i>	<i>Laghu Ruksha</i>	<i>Ushn a</i>	<i>Katu</i>	<i>Vatakaphahar a</i>
5	<i>Nimbuka</i>	Citrus Medica	<i>Amla</i>	<i>Laghu, Teeksha</i>	<i>Ushn a</i>	<i>Amla</i>	<i>Vatakaphahar a</i>
6	<i>Narikela</i>	Cocos nucifera Linn	<i>Madhura</i>	<i>Guru Snigdha</i>	<i>Sheet a</i>	<i>Madhur a</i>	<i>Vatapittahara</i>
7	<i>Saindhava Lavana</i>	Sodium chloride, Rock Salt	<i>Lavana Madhura</i>	<i>Snigdha, Laghu</i>	<i>Sheet a</i>		<i>Tridoshahara</i>
8	<i>Lashuna</i>	Allium Sativum Linn	<i>Madhura Lavana katu</i>	<i>Snigdha Guru</i>	<i>Ushn a</i>	<i>Katu</i>	<i>Vatakaphahar a</i>
9	<i>Shunti</i>	Zingiber officinale	<i>Katu</i>	<i>Guru Ruksha</i>	<i>Ushn a</i>	<i>Madhur a</i>	<i>Vatakaphahar a</i>

Atasi-It is *Vatahara* having *Ushna Veerya* and *Shothahara* property helps in relieving the signs and symptoms of *Janu Sandhigatavata*. *Atasi* which has constituent like campesterol, sitosterol. Flaxseed may possess anti-inflammatory properties due to the presence of ALA which when converted to EPA and DHA, inhibit neutrophil inflammatory responses in humans. These abilities may also result from the inactivation of LTA (leukotriene) epoxide hydrolase which decreases leukotriene B4 formation and from the inhibition of leukotriene B4 and platelet activating factor-stimulated chemotaxis via attenuation of the formation of [3H] inositol tris-phosphate by phosphatidylinositol –selective phospholipase C. It has also been found that ALA decreases the production of arachidonic acid, thereby causing a reduction in inflammation.¹²

Tulasi-The most commonly used part of the *Tulasi* plant is the leaf (dried and fresh), which is known to contain several bioactive compounds including eugenol, ursolic acid, β -caryophylline, linalool and 1,8-cineole. is act as analgesic, anti-inflammatory action.¹³

Saindava Lavana-As it is *Vata* hara by its *Ushna Veerya* and *Shothahara* property helps in relieving *Shotha*. It is the one which has the tendency to penetrate and does *Shothahara* effect. Hence it is useful in reducing the signs and symptoms of *Janu Sandhigatavata*.

Moorchita Tila Taila-In place of *Sneha*, *Moorchita Tila Taila* has been selected by considering its property which is opposite to the qualities of *Vata*.

Jambeera-Jambeera is rich in Vitamin C with minimal percentage of phosphorus, Manganese and potassium. While in the procedure, the heat produced causes vasodilation. Due to increased blood circulation the necessary nutrients and oxygen reaches the cells in turn reduces the symptoms.

Narikela-Narikela has the potential to reduce inflammation in muscles and joints. A study published in the journal Pharmaceutical Biology showed that virgin coconut oil has anti-inflammatory and analgesic properties. Simply by virtue of its high levels of Lauric acid, Coconut oil reduces inflammation - which directly impacts pain.

Curcumin, a polyphenolic compound derived from the *Haridra* i.e Turmeric (*Curcuma longa*), possesses diverse pharmacologic and biological properties including anti-inflammatory, antioxidant, anticoagulant, antibacterial, antifungal, antiprotozoal, antiviral, anti-fibrotic, antivenum and antiulcer.

Discussion on result - With the virtue of aforementioned properties of *Atasi Pinda Sweda*, therapeutically the procedure yielded statistically highly significant effect in reducing the symptoms of *Janu Sandhigata Vata* as shown in Table no.5

CONCLUSION:

Sandhigata Vata is one of *Vatavyadhis*, which can be correlated with Osteoarthritis. *Snehana* and *Swedana* are prescribed as common line of treatment for *Vatavyadhi*. *Atasi Pinda Sweda*, a form of *Sankara Sweda* explained in the classics, serves the purpose of alleviation of vitiated *Vata Dosha* in the condition of *Janu Sandhigata Vata* which has been evident from this current study. *Acharya Vagbhata* states that there is no-thing in this universe, which is non-medicinal, cannot be made use of for many purposes and by many modes.¹⁴ Hence newer formulations can be made using the readily available drugs without violating the basic principles mentioned in the texts and the present study is an effort to incorporate *APS* in the domain of *Pinda Swedana* in order to treat *Janu Sandhigata Vata*.

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