



A Clinical Study on the Role of Shallaki and Matra Basti of Ksheerbala Tail in the Management of *Sandhivata* w.s.r. to Osteoarthritis

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ABSTRACT

Sandhivata is briefly described in Ayurvedic texts. In *Charaka Samhita* the disease is first described as *Sandhigata anila*, but *Sandhivata* is not described in 80 types of *Nanatmaja vata vyadhi*. Depending upon its symptoms it can be correlated with Osteoarthritis. Osteoarthritis is most common degenerative joint disorder of idiopathic etiology. Secondary OA is pathologically indistinguishable from idiopathic OA. It begins asymptotically in the second and third decades and is extremely common by age 70. Females are prone with 25% prevalence, whereas males have a prevalence of 16%. In this study 80 patients fulfilling the diagnostic criteria were selected and divided in two groups. In first group Patients were administered with 500 mg capsule of *Shallaki*, 2 g per day (in two divided doses) with lukewarm water (n=40). In second group patients were administered capsule of *Shallaki*, 2 g per day (in two divided doses) and *Ksheerbala Tail Matra basti* simultaneously. After the course of therapy highly significant result were observed in both groups but results were more promising in Second Group (n=40).

Key words: *Sandhivata* , osteoarthritis, *Shallaki*, *Matra basti*, degenerative joint disease.

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Received 05 May 2015, Accepted 12 May 2015

INTRODUCTION

In *Charaka Samhita*, *Sandhivata* is first described as *Sandhigata anila* and defined as inflammation of joint which on palpation felt like air filled bag (*Vata puran dritisparasha*) and pain during movement of joint on flexion and extension (*Akunchan prasaran pravriti savedana*)¹ is described. *Sandhivata* is not described in eighty types of *Nanatmaja vata vyadhi*. But it may be related to *Vatakhuddata* (Pain in joint of leg). However *Sandhivata* is accepted by *Chakarapani* as *Gulpha vata* or *Sandigata vata*². In *Sushruta Samhita*, *Sandhivaata* is described as *Sandhigata vata*. According to *Sushruta* vitiated *Vata* accumulate in *Sandhi* and impaired the function of joint (*Hantisandhi*) with pain (*Shoola*) and swelling (*Shopa*). *Sushruta* also described another disease *Vatakantaka* in which pain occur due to vitiation of *Vata* in *Khuddaka sandhi*, according to *Gayadas sena* and *Dalhana*, *khuddaka sandhi* means *Padajangha sandhi* (Ankle joint)³. In modern science similar symptoms are described in the degenerative joint disease called osteoarthritis. Osteoarthritis (OA) can be defined as the degeneration of the hyaline cartilage covering articular surfaces. Secondary effects of the disease include the inflammation of the synovial membrane and subchondral bone (the bone in contact with the cartilage) and the formation of bony growths around the edges of the joint surface. Osteoarthritis causes pain and functional impairment. It is closely linked to age, mostly affecting people in their 50s and 60s, and has a predisposition for the knee, certain joints in the hand (the distal and proximal interphalangeal joints), the hip and the small joints in the spine. However, the disease can occur in any joint and can affect one or more joints (polyarthrititis). The etiology of this slow-developing disease is unknown. It is characterized by progressive disintegration of articular cartilage, formation of new bone in the floor of the cartilage lesions (eburnation) and at the joint margins (osteophytes), and leads to chronic disability at older ages⁴. Clinical manifestations of OA range from mild to severe, and affect the joints in hands and weight bearing joints such as knees, hips, feet and spine. OA is a clinical syndrome characterized by joint pain, tenderness, limitation of movements, crepitus, occasional effusion and variable degrees of inflammation without systemic effects⁵. According to epidemiology, the prevalence of OA in India is 22-39%. Age, gender, body weight, repetitive trauma and genetic factors are the risk factors which play an important role in the manifestation of OA⁶.

Aims and objectives

The present study was carried out to assess the comparative effect of *Shallaki* (*Boswellia serrata* Resin) and *Ksheerbala Tail Matra basti* in the management of *Sandhigata vata* (OA).

MATERIALS AND METHODS

Irrespective of age, sex, occupation etc. 87 patients were enrolled in the study from OPD and IPD of Rajiv Gandhi Government Post Graduate Ayurvedic College and Hospital, Paprola and Govt. Ayurvedic Health Centre Nijran. Out of enrolled patients, 80 patients completed the study and 07 patients discontinued the treatment.

Inclusion criteria: The patients from the age group 40 to 70 years of age suffering from sign and symptoms of *Sandhivata* viz. *Shula* (joint pain), *Shotha* (joint-swelling), *Akunchana prasarana vedana* (pain during flexion and extension of the joint) etc. and without any anatomical deformity were included.

Exclusion criteria: Patients below the age of 40 years and above the age of 70 years, Patients suffering *Amavata*, *Vatarakta* and *Abhighataja Sandhigatavata*, and other Associated major medical illness, like Diabetes Mellitus, Tuberculosis, Cancer, Hyperthyroidism, Hypothyroidism, Communicable diseases etc. Chronic cases with bony deformities were excluded.

Consent: Written and informed consent of patients was taken before inclusion in the trial.

Criteria for assessment: To assess the effect of therapy, the sign and symptoms of *Sandhivata* were given scores depending upon their severity.

Scoring of sign and symptoms

a) *Vedana* (Pain)

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

b) *Vaatpuran driti sparsha* (Tenderness)

Nil, no tenderness	0
Mild, elicited on much pressure	1
Moderate, elicited on moderate pressure	2
Sever, elicited even on slight touch	3
Patient do not allow to touch	4

c) *Sandhishotha* (Swelling)

No swelling	0
Mild, feeling of swelling with heaviness of joints	1

Moderate, apparent swelling	2	
Severe, huge swelling	3	
d) <i>Akunchana Prasaranayoh Vedana</i> (Pain on movement)		
No pain on movement	0	
Shorter duration of pain complaints but tolerable	1	
Long duration of Pain on movement of affected joints	2	
Continuous intolerable pain	3	
Does not allow passive movement	4	
e) <i>Sandhihanti</i> (Restriction of movement)		
Walking time without limit with normal knee joint flexion 135°	0	0
Walking time 10-15 minutes and knee flexion 120° - 135°	1	1
Walking time 5 – 10 minutes & knee flexion 105° – 120°	2	2
Walking time 0 – 5 minutes & knee flexion 90° – 105°	3	3
f) <i>Sandhishopha</i> (Effusion)		
No effusion	0	
Mild effusion	1	
Moderate effusion	2	
Severe effusion	3	
g) <i>Atopa</i> (Crepitation)		
No crepitus	0	
Fine Crepitus	1	
Coarse Crepitus	2	
Clacking / snapping	3	
h) <i>Stambha</i> (Stiffness)		
Nil, no morning stiffness	0	
Mild, morning stiffness of 5-10 minutes duration	1	
Moderate, morning stiffness of 10-15 minutes duration	2	
Severe, morning stiffness of 10-30 minutes duration	3	

Overall effect of Therapy

As the present study was undertaken to ascertain the efficacy of proposed therapy, the relief in symptoms were assessed as follows:

Complete remission $\geq 75\%$

Marked improvement $\geq 50\%$

Moderate improvement $\geq 25\%$

No improvement $< 25\%$

Statistical analysis

To analyze the effect of therapy statistically, mean, percentage, S.D., S.E., t and P values were calculated by using paired 't' test.

Grouping

Selected patients were randomly divided into two groups, Group A, and Group B. having 40 patients each.

Group A: Patients of this group were treated with *Shallaki* orally in the dose of 1 gram twice a day for 2 months.

Group B: Patients of this group were prescribed Cap. *Shallaki*, 1 gram twice a day and *Matra Basti* with *Ksheerbala Tail* for 2 months simultaneously.

Pathya Apathya / Dos and Dons

- All the patients' were advised to follow common diet plan, light exercise each day.
- Advised not to walk on arduous pathway.
- Avoid night awakening, squatting position, *Vatvardhaka ahara vihara*.
- Proper position and support of neck and back while sitting or sleeping.
- Adjust furniture, such as raising a chair or toilet seat.
- Avoid repeated motions of the joint, especially frequent bending.
- Lose weight if overweight or obese, which can reduce pain and slow progression of Osteoarthritis.
- Use arthritis support devices that will help to do daily activities.

RESULTS AND DISCUSSIONS

Effect of therapy on chief complaints

In group A *Vedana* was relieved by 59.72 while in group B, it was relieved by 64.38%. *Vaatpuran driti sparsha* improved by 77.78% in group A, while in group B, it improved by 84.37%. *Sandhishotha* (joint swelling) improved by 73.07% in group A, while in group B, it improved by 76.92%. *Akunchana prasaranayoh vedana* (pain during movement) improved in group A to the extent of 30.56%, in group B, it improved by 35.14%. *Sandhihanti* (Restriction of movement) improved by 16.67% in group A, while it was 23.19% in group B. 8.57% improvement was reported in *Atop* (Crepitation) in group A, while in group B, crepitation improved to the extent of 14.08%. 65% improvement was observed in *Sandhishopha* (Effusion)

in Group A while the improvement was 72.97% in Group B. the improvement in Stambha (Stiffness) was 46.83% in Group A and 65.38% in group B.

Comparison of X-rays, taken before and after treatment was done and it was observed that there was no improvement in the space of joints after the completion of therapy.

Table 1: Effect of therapy on cardinal symptoms in Group A

S No.	Symptom	N	Mean BT	Mean AT	% relief	SD	SE	't'	P
1	Vedana	40	1.8	0.725	59.72	0.616	0.097	11.05	<0.001
2	Vaatpuran driti sparsha	23	1.174	0.261	77.78	0.515	0.107	8.509	<0.001
3	Sandhishotha	22	1.182	0.318	73.07	0.468	0.1	8.664	<0.001
4	Akunchana Prasaranayoh Vedana	40	1.8	1.25	30.56	0.504	0.08	6.904	<0.001
5	Sandhihanti	40	1.8	1.5	16.67	0.046	0.073	4.088	<0.001
6	Atopa	40	1.75	1.6	8.57	0.361	0.057	2.623	<0.02
7	Sandhishopha	12	1.667	0.583	65	0.515	0.149	7.288	<0.001
8	Stambha	40	1.975	1.05	46.83	0.572	0.091	10.22	<0.001

Table 2: Effect of therapy on cardinal symptoms in Group B

S No.	Symptom	N	Mean BT	Mean AT	% relief	SD	SE	't'	P
1	Vedana	40	1.825	0.65	64.38	0.594	0.093	12.50	<0.001
2	Vaatpuran driti sparsha	25	1.28	0.2	84.37	0.493	0.098	10.947	<0.001
3	Sandhishotha	22	1.182	0.273	76.92	0.426	0.909	10	<0.001
4	Akunchana Prasaranayoh Vedana	40	1.85	1.2	35.14	0.579	0.092	7.093	<0.001
5	Sandhihanti	40	1.725	1.35	23.19	0.496	0.078	5.099	<0.001
6	Atopa	40	1.775	1.525	14.08	0.438	0.069	3.60	<0.002
7	Sandhishopha	21	1.762	0.476	72.97	0.462	0.101	12.72	<0.001
8	Stambha	40	1.95	0.675	65.38	0.784	0.124	10.28	<0.001

Table 3: Overall effect of therapy

S. No.	Improvement	Group A	Group B
1	Complete remission	75% to 100%	Nil
2	Marked improvement	50% to 74%	14
3	Moderate improvement	25% to 50%	24
4	No improvement	< 25%	02

Sandhivata is a degenerative joint disease. It leads to pain (*Vedana*) and inflammation of joints (*Sandhishotha*). On movement it causes excruciating pain in the joint (*Prasarana Akunchanayoho Vedana*) that causes movement restriction. In the properties of *Shallaki* it is *Tikta*, *Madhura* and *Kashaya Rasa Pradhan*; *Ruksha*, *Laghu* and *Tikshna Guna Pradhan*. The *Doshakarma* of *Shallaki* is *Kapha-Pitta Shamaka*; *Vipaka* is *Katu* and *Virya* is *Ushana*. Active

constituents of *Boswellia serrata* are Boswellic acid, pentacyclic tripterpene acids. Beta Boswellic acid is major constituent which is about 43% in gum resin. *Shallaki* has six major constituents, mainly 3 acetyl, 11 keto, boswellic acids (AKBA), which help to preserve the structural integrity of joint cartilage and maintain a healthy immune mediator cascade at a cellular level⁷, which is active against pain and inflammation by inhibiting leukotriene synthesis. Specifically, it inhibits the activity of the enzyme 5 lipoxygenase through a non-redox reaction in OA⁸. Due to *Shothahara* and *Vedanasthapana* properties of *Shallaki* it helps in the improvement in the chief complaints i.e. *Sandhishula*, *Sandhishotha*, *Akunchana prasaranayoh vedana* and *Stambha*. Due to its *Tiktarasa*, *Katuvipaka* and *Ushnavirya*, *Shallaki* pacifies vitiated *Kapha* and *Vata Dosha*, resulting in reduction of *Shotha*, *Shula* and other related symptoms. It also acts as COX-2 inhibitor and reduces the pain and inflammation without affecting the gastric mucosa. It soothes the joints and also helps to treat the levels of synovial fluid, making the entire structure lubricated and easy to rotate or to move⁹. *Shallaki* also increases *Dhatvagni* by its *Tikta rasa*, leading to proper nutrition of *Dhatu*s, whereas improvement of the symptoms of *Vata Kshaya* is due to *Rasayana* (immunomodulator) and *Brihamniya Prabhava* of *Shallaki*¹⁰. Decrease in biochemical parameters, mainly, CRP, serum triglycerides and erythrocyte sedimentation rate (ESR), is due to anti-inflammatory activity. *Basti chikitsa* is considered as the prime treatment procedure in *Ayurved* for the treatment of disease caused due to vitiation of *Vata*. It is considered as half treatment (*Ardhchikitsa*) some of the ancient scholars even consider it the complete treatment. *Khreebala tail Matra basti* provides strength to the debilitated person. It is *Vata shamak* hence helps to improve *Sandhivaata*. About the possibility of the absorption of *Basti Dravyas* (drugs) from the colon, some are of the opinion that substances other than water, salt, etc., are not absorbed from the large gut. The colon mucosa under the effect of the medication can be rendered to absorb the unusual substance from the large gut also. Favoring this view modern medical science is suggestive of some of the nutrient enemas meant for the nutrition of the body, where absorption of carbohydrate, fat and protein is mentioned¹¹. In the studies it is observed that sodium chloride helps to improve the absorption of fat, proving the concept of *Ayurved* to use salt with *Sneha* for oral as well in *Basti prayog*¹². The results were highly significant in Group A and Group B other than *Atopa* in Group A which showed significant results.

Overall effect of therapy

In this study no patient showed complete remission however 14 patients in Group A and 21 patients in Group B showed marked improvement. In Group A, 24 patients showed moderate improvement whereas in Group B, 19 patients improved moderately. No improvement was observed in 02 patients in Group A and nil patients in Group B. It clearly indicate that combination treatment of oral drug Cap. *Shallaki* and *Ksheerbala tail Matra basti* is more beneficial in the treatment of *Sandhivata* (Degenerative joint disorders).

CONCLUSION

Observing the literary review of *Sandhivata* it can be concluded that *Sandhivata* can be correlated with osteoarthritis. In both the groups patients were improved significantly. Remission of symptoms in both the groups suggest that *Shallaki* has analgesic and anti-inflammatory effect in the patients of *Sandhivata*. Basti being the treatment of *Vata* helps more in pacification of *Vata* and relieve the symptoms of *Sandhivata* i.e. osteoarthritis. The results were better in Group B comparatively. Overall effect of therapy suggests that combination of *Shallaki* orally and *Matra basti* of *Ksheerbala tail* is more effective in the patient of *Sandhivata* w.s.r. to osteoarthritis as compare to *Shallaki* alone.

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