

## Effect of selected treatment regimen in management of *Sandhigatavata* (osteoarthritis of knee joint) - Short Communication

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### Abstract

*Sandhigatavata*, a *Vata Roga* can be correlated with osteoarthritis. Some Ayurveda physicians treat *Sandhigatavata* successfully using decoction of *Rasnavishva Vidangadi Kashaya*, *Simghanada Guggulu*, *Kubjaprasarani Taila*, *Nadi Sweda* and *Satakuppaadi Lepa*. No known scientific study has been conducted to evaluate the effects of these medicines. Hence, present study was undertaken. Twenty *Sandhigatavata* patients were selected and treated for 90 days. On Day-1, *Virechana Karma* was performed with 30ml of *Eranda Taila*. Day-2 to Day-90 patients were treated with *Rasnavishva Vidangadi Kashaya*, and *Simghanada Guggulu* twice a day given orally. Additionally, from Day-2 to Day-15, *Kubjaprasarani Taila* was applied in the morning followed by *Nadi Sweda*. *Satakuppaadi Lepa* was applied on affected joints. From Day-16 to Day-30, *Pichudharana* was carried out for one hour using *Kubjaprasarani Taila*. From Day-2 to Day-15 and Day-31 to Day-90, *Kubjaprasarani Taila* was applied on affected joints. Efficacy of treatment was assessed through symptomatic relief and through Algo functional Lequesne Index. Statistically significant reduction of symptoms was observed after completion of treatment. Handicap severity (Algo functional Lequesne Index) of knees was significantly reduced from the median value score of 20 to 5, after 90 days of treatment. It is concluded that this treatment regime is effective in the management of *Sandhigatavata* (osteoarthritis).

**Keywords:** *Kubjaprasarani Taila*, Osteoarthritis, *Rasnavishva Vidangadi Kashaya*, *Sandhigatavata*, *Simghanada Guggulu*.

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## Introduction

*Sandhigatavata* is a disease, described in authentic Ayurveda texts. The term *Sandhigata Anila* is used for *Sandhigatavata* in *Chraka Samhita*.<sup>[1]</sup> *Sandhi Shoola* (pain in joints) is the main clinical feature and other features including *Shotha* (swelling), *Stabdghata* (stiffness), *Atopa* (crepitus) and *Prasarana Akunchanayoh Pravrutthishca Savedana* (pain during flexion and extension of limbs) are also present, as a result of vitiated *Vata Dosha* accumulated in the joints.<sup>[1,2,3]</sup> In Ayurveda, *Virechana Karma* is described as a therapeutic measure in treatment of *Vata Roga*.<sup>[4]</sup> *Virechana Karma* can be performed in *Sandhigatavata*, as it is a type of *Vata Roga*.

*Sandhigatavata* can be correlated with osteoarthritis. Osteoarthritis is a degenerative joint disease characterized by progressive degeneration of articular cartilage, osteophyte formation, and subsequent joint space narrowing. It is a cause of work disability in men over 50 years of age, and accounts for increase in hospitalizations. It affects many joints of the body, particularly the hip, knee and distal interphalangeal joints of the hand. Clinical features of osteoarthritis are joint pain, morning stiffness, post-exercise gelling, limited movement in joints and muscle weakness. Bony swelling, tenderness and crepitus may be present in examination. Effusions, usually in the knees, are common.<sup>[5]</sup>

Radiological findings (X rays) in osteoarthritis may indicate osteophyte formation, joint space narrowing, subchondral sclerosis and cysts.

*Virechana* with *Eranda Taila*, *Rasnavishva Vidangadi Kashaya*, *Simhanada Guggulu*, *Nadi Sweda* and *Kubjaprsarani Taila* are widely used in treatment of *Sandhigatavata* (osteoarthritis) with effective results at Bandaranaike Memorial Ayurveda Research Institute, Nawinna, Sri Lanka. No known scientific study has been conducted to evaluate the effect of these treatments. Therefore, the present study was undertaken.

## Case Report

Twenty patients from both sexes, 40 to 70 years of age who are having symptoms of *Sandhigatavata* such as *Sandhi Shoola* (pain in joints), *Shotha* (swelling), *Stabdghata* (stiffness), *Atopa* (crepitus), *Kruchchra Prasarana Akunchana* (feel difficulty in extension and flexion at the joint) for a period of less than five years were selected from Bandaranaike Memorial Ayurveda Research Institute, Nawinna, Sri Lanka for the present study. Patients whose X-rays indicated osteophyte formation and joint space narrowing were also included. Informed consent was obtained from the patients prior to commencement of the research.

Patients suffering from *Amavata*, *Koshtukashirsha*, hypertension, diabetes mellitus, hypercholesterolemia, rheumatic arthritis, rheumatoid arthritis, gout and seronegative arthritis were excluded from the research.

Patients were examined and therapeutic effect was evaluated through symptomatic relief. Severities of the clinical features were recorded using a specially prepared grading scale used in previously published research papers as given below.<sup>[6]</sup>

## Grading scales

### Pain in knee joint

- 0 = Nil = No pain in knee joint  
1 = Mild = Painful but tolerable  
2 = Moderate = Pain disturbing routine work  
3 = Severe = Severe pain completely disrupting routine activities

### Swelling of joints

- 0 = Nil = No swelling  
1 = Mild = Feeling of heaviness in the joints with mild swelling .  
2 = Moderate = Apparent moderate swelling  
3 = Severe = Massive swelling

### Tenderness of joints

- 0 = Nil = No tenderness  
1 = Mild = Elicited on heavy pressure  
2 = Moderate = Elicited on moderate pressure

3= Severe =Elicited even on slight touch

#### Restriction of movement

0 = Nil = Absence of restriction in movement

1= Mild = Less than 25% restriction of movement

2 = Moderate = 25 - 50% restriction of movement

3= Severe = More than 50% restriction of movement

#### Stiffness

0 = Nil = No morning stiffness

1= Mild = Morning stiffness existing up to 5-10 min on waking up

2 = Moderate =Morning stiffness existing up to 11-15 min on waking up

3= Severe =Morning stiffness existing up to 16-30 min on waking up

#### Crepitus

0 = Nil = No crepitus

1= Mild = Perception on touch

2 = Moderate = Audible on attention

3= Severe = Clearly audible

Handicap severity was analyzed using Algofunctional Lequesne Index. This analysis was carried out using the characteristics of joint pain, walking distance and activities of daily living. Handicap severity score between 0-1 indicates mildly handicapped, score 1-5, score 5-10, score 11-13 and score > 14 indicate moderately, severely, very severely and extremely handicapped, respectively. [7]

#### Intervention:

The patients were treated for ninety (90) days and not subjected to any other forms of treatment during the research period. On the first day (**Day 1**), *Virechana Karma* was carried out by giving 30ml of *Eranda Taila* (castor oil) orally, early morning on an empty stomach. Sesame oil was applied on the *Pakwashaya Pradesha* and fomented by using steam arising from a towel immersed in boiling water prior to administering the purgative. Thin rice gruel with little salt (*Lunu Kenda*) was given for lunch and dinner after

purgation. The patient was given normal diet from next morning. Differing from the usual Ayurveda practice, some Sri Lankan traditional physicians do not perform *Snehapana* and *Sweda Karma* prior to carrying out of *Virechana Karma*. Ayurveda describes *Snigdha Virechana* and *Ruksha Virechana*. [8] Practice of *Ruksha Virechana* may have been absorbed by conventional Sri Lankan traditional medical practitioners.

**Day 2 to Day 90** patients were treated with oral administration of 120ml of *Rasnavishva Vidangadi Kashaya* along with 2 pills of *Simhanada Guggulu* twice a day orally. 30 ml of *Kubjaprsarani Taila* was applied in the morning from **Day 2 to Day15** and from **Day 31 to Day 90**. From **Day 16 to Day 30**, *Pichudharana* was carried out with *Kubjaprsarani Taila* in the morning. From **Day2 to Day 15** *Nadi Sweda* was performed in the morning after applying *Kubjaprsarani Taila* and *Satakuppaadi Lepa* was applied on affected joints at 2pm and kept for 4 hours.

#### Preparation of research drugs

All the drugs were prepared in the pharmacy of Bandaranayaka Memorial Ayurveda Research Institute (BMARI). *Simhanada Guggul* and *Kubjaprasarani Taila* were prepared according to *Bhaishajjaratnavali*. [9,10] *Rasnavishva Vidangadi Kashaya* was prepared according to *Bhavaprakasha*. [11] *Satakuppaadi Lepa* was prepared according to method described in the book named *Chikitsa Sutra* 55 and *Pratyaksha Chikitsa Yoga* 500. [12]

#### Preparation of Nadi Sweda

50gm each of fresh leaves of *Vitex negundo* (Family: Verbenaceae; Sinhala name: *Nika*), *Ricinus communis* (Family: Euphorbiaceae; Sinhala name: *Erandu*), *Justicia adhatoda* (Family: Acanthaceae; Sinhala name: *Adathoda*) and *Paederia foetida* (Family: Rubiaceae; Sinhala name: *Prasani*) were taken, mixed with 2 Liters of water and boiled. *Nadi Sweda* was carried out using the emitting steam for a period of 15 minutes after applying 15ml of *Kubjaprsarani Taila*.

### Procedure of Pichudharana with Kujaprasarani Taila

A cotton pad was prepared using 100 gm of cotton wool, immersed in 90ml of Kujaprasarani Taila and kept over the affected joint for a period of one hour.

#### Statistical analysis:

Statistical comparison of the symptoms before and after treatment was carried out using Wilcoxon Signed Rank test. Comparisons of Handicap severity score according to the Algo functional Lequesne Index (ALI) before and after treatment was carried out using Wilcoxon signed rank test.

#### Results

**Table 1: Percentage of reduction of symptoms:**

Clinical features	After completion of treatment			
	Completely relieved (%)	Partially Relieved (%)	Unchanged (%)	Aggravated (%)
<i>Sandhi Shoola</i> (pain in joints)	45%	55%	-	-
<i>Shota</i> (swelling in joints)	83.3%	5.6%	11.1%	-
<i>Sparshasahyata</i> (tenderness)	100%	-	-	-
<i>Prasarana Akunchanayoh Pravrutthishca Savedana</i> (pain during contraction and extension of limbs)	65%	25%	5%	5%
<i>Stabdhata</i> (stiffness)	55%	30%	15%	-
<i>Atopa</i> (crepitus)	27.7%	66.7%	5.6%	-

**Table 2: Symptomatic relief with selected treatment regimen in *Sandhigatavata* (osteoarthritis) (Mean ± SE)**

Clinical features	Before treatment	After treatment	P value
	Mean ± SE	Mean ± SE	
<i>Sandhi Shoola</i> (pain in joints)	2.1 ± 0.24	0.5 ± 0.11	P < 0.001
<i>Shotha</i> (swelling in joints)	1 ± 0.19	0.1 ± 0.07	P < 0.001
<i>Sparshasahyata</i> (tenderness)	1.15 ± 0.24	0.0 ± 0.0	P < 0.001
<i>Prasarana Akunchanayoh Pravrutthishca Savedana</i> (pain during flexion and extension of limbs)	1.47 ± 0.26	0.32 ± 0.11	P < 0.001
<i>Stabdhata</i> (stiffness)	1.55 ± 0.27	0.47 ± 0.12	P < 0.001
<i>Atopa</i> (crepitus)	1.55 ± 0.26	0.55 ± 0.14	P < 0.001
P < 0.05 significant			

Before treatment, median of the Handicap severity score according to the Algo functional Lequesne Index (ALI) in the knee was 20. At

26 patients were registered for this study. Out of them, 20 patients underwent the complete treatment schedule. *Sparshasahyata* (tenderness) was completely relieved in all the patients after completion of entire treatment. The symptoms, *Sandhi Shoola* (pain in the joints), *Shota* (swelling in joints), *Stabdhata* (stiffness), *Prasarana Akunchanayoh Pravrutthishca Savedana* (pain during contraction and extension of limbs) and *Atopa* (crepitus) were completely or partially relieved in the patients after entire treatment as given in table 1. The relief in symptoms before and after treatment was found statistically significant (table2).

the end of the treatment period (Day 90), median of the severity score came down to the 5. Handicap severity (ALI) of knees was

significantly reduced from the median value score of 20 to 5, after 90 days of treatment (Wilcoxon signed rank test,  $n=20$ ,  $p<0.001$ ).

### Discussion:

*Sandhigatavata* is a disease that occurs due to vitiation of *Vata* or as a combination of vitiated *Vata* and *Kapha Dosha*. *Virechana*, *Snehana* and *Swedana* are some of the therapeutic measures described under management of *Vata Roga*.<sup>[4]</sup> On Day 1, *Virechana Karma* was carried out with 30ml of *Eranda Taila* as *Ruksha Virechana*.<sup>[8]</sup> *Virechana Karma* helps to expel vitiated *Vata Dosha* from the body. From Day 2 to Day 90, *Rasnavishva Vidangadi Kashaya* and *Simhanada Guggulu* were given twice a day. *Simhanada Guggulu* and *Rasnavishva Vidangadi Kashaya* are used in treatment of *Vata Roga*.<sup>[9,11]</sup> Ingredients of *Rasnavishva Vidangadi Kashaya* and *Simhanada Guggulu* possess *Madhura* and *Lavana Rasa*, *Guru Guna* and *Ushna Veerya* properties which helps to pacify vitiated *Vata Dosha*. Some ingredients possess properties such as *Tikta*, *Katu* and *Kashaya Rasa*, *Laghu*, *Ruksha* and *Theekshna Guna*, *Ushna Veerya* and *Katu Vipaka*. Consequently, it helps to pacify vitiated *Kapha Dosha*. Analgesic, anti-inflammatory and antioxidant properties of ingredients of *Rasnavishva Vidangadi Kashaya* and *Simhanada Guggulu* are scientifically proven. Thus *Rasnavishva Vidangadi Kashaya* and *Simhanada Guggulu* is beneficial in treatment of *Sandhigatavata* (osteoarthritis).

*Snehana* (oleation) is described as one of therapeutic measures in treatment of *Vata Roga*. *Abhyanga* and *Pichudharana* are some procedures of *Bahira Snehana* (external oleation) which can be applied in *Sandhigatavata* (osteoarthritis). *Kubjaprasarani Taila* was applied from Day 2 to Day 15 and Day 31-90 and *Pichudharana* was carried out from Day 16-30. *Kubjaprasarani Taila* is indicated in *Vata Roga*, *Kaphaja Roga*, *Kubja*, *Pangu*, *Grudrasi*, *Ardita*, *Hanustambha* and

*Greeva Sthambha*.<sup>[10]</sup> Ingredients of *Kubjaprasarani Taila* have the properties such as *Madhura Rasa*, *Guru* and *Snigdha Guna*, *Ushna Veerya* and *Madhura Vipaka*. Therefore, it helps to pacify vitiated *Vata Dosha*. These ingredients are with properties such as *Katu* and *Tikta Rasa*, *Laghu*, *Ruksha* and *Theekshna Guna*, *Ushna Veerya* and *Katu Vipaka*. Hence it helps to pacify vitiated *Kapha Dosha*. Further, these ingredients have *Vedanasthapana*, *Shotahara*, *Sandhaneya*, *Snehanaproperties*. Ingredients of *Kubjaprasarani Taila* possess analgesic, and anti-inflammatory properties. Due to these properties, *Kubjaprasarani Taila* is beneficial in reliving symptoms of *Sandhigatavata* (Osteoarthritis).

Ingredients of *Satakuppaadi Lepa* have the properties such as *Madhura* and *Amla Rasa*, *Snigdha* and *Guru Guna*, *Ushna Veerya* and *Madhura Vipaka*. Therefore, it helps to pacify vitiated *Vata Dosha*. These ingredients are also with *Katu*, *Tikta*, *Kashaya Rasa*, *Laghu*, *Ruksha* and *Theekshna Guna*, *Ushna Veerya* and *Katu Vipaka* properties. Thereby, it helps to pacify vitiated *Kapha Dosha*. Further, these ingredients have *Kapha Vata Shamaka*, *Shotahara* and *Vedana Shamana* properties. Ingredients of *Satakuppaadi Lepa* possess analgesic and anti-inflammatory properties. Due to these, *Satakuppaadi Lepa* is beneficial in reliving symptoms of *Sandhigatavata* (Osteoarthritis).

*Swedana* is one of the therapeutic measures described in *Sandhigatavata* and it helps to pacify vitiated *Vata* and *Kapha Dosha*. Medicaments used for *Nadi Sweda* have *Madhura Rasa*, *Snigdha Guna*, *Ushna Veerya* and *Madhura Vipaka* properties. Therefore, it helps to pacify vitiated *Vata Dosha*. The ingredients used in *Nadi Sweda* are with properties such as *Katu*, *Tikta* and *Kashaya Rasa*, *Laghu*, *Ruksha* and *Theekshna Guna*, *Ushna Veerya* and *Katu Vipaka*. Hence it helps to pacify vitiated *Kapha Dosha*. Further, these ingredients have *Kapha Pitta Shamaka*, *Vedanasthapana*, *Shotahara*



properties. Ingredients used for *Nadi Sweda* possess analgesic and anti-inflammatory properties. Due to these properties *Nadi Sweda* is beneficial in reliving symptoms of *Sandhigataavata* (Osteoarthritis).

#### Conclusion:

It is concluded that *Virechana Karma* using *ErandaTaila* (castor oil), followed by administering of decoction of *Rasnavishva Vidangadi* and *Simghanada Guggulu* internally, external application and *Pichudharana* with *Kubjaprsarani Taila*, application of *Satakuppaadi Lepa*, and *Nadi Sweda* are effective in management of *Sandhigataavata* (Osteoarthritis).

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