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## A CASE STUDY ON SANDHIGATAVATA W.S.R. TO OSTEOARTHRITIS

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### **ABSTRACT**

OA is Joint failure, a disease in which all structure of the joint has undergone pathological changes.1 Acharya Charaka has mentioned Nanatmaja Vyadhi of Vata, Pitta and Kapha but separate chapter has been contributed to only Vatavyadhi. The disease Sandhigatavata has been identified as a separate clinical entity and has been described in the chapter of Vatvyadhi by the name of Sandhigata Anila. Vatapurna Dritisparshah Shothah Sandhigate Anila Prasarana Akunchanayoho Pravrutischa Savedana2 In modern medicine the similar condition of joint is explained as Osteoarthritis. Osteoarthritis is a degenerative joint disorder with the symptoms of Joint Pain, swelling, restricted and painful movements of the joint and joint instability. It's high prevalence especially in the elderly, and high rate of disability related to the disease make it a leading cause of disability in the elderly.3 Taking into consideration the symptom of this disease, it can be correlated to osteoarthritis. Here is a case of 60 yr female patient who presented with complains of pain in bilateral knee joints, swelling, crackling sound from knee and restricted movement of bilateral knee joints intermittently since past 3 years. Based on clinical signs and symptoms she was diagnosed as a case of Sandhigatavata.

**KEYWORDS:** Nanatmaja Vyadhi, Sandhigata Anila, Vatapurna, Dritisparshah Shothah, Prasarana, Akunchanayoho, Pravrutischa, Savedana

## INTRODUCTION

The disease Sandhigata Vata is prevalent in humans since the Vedic period. All Samhita Granthas have mentioned about Sandhigata Vata. Osteoarthritis is a multi-factorial, non-inflammatory degenerative joint disorder prevalent all over the world mainly affecting the old age group. Though the disease does not cause any immediate mortality but it is one of the major causes of disability of the people affecting their day to day service for the nation and ultimately hinders the socio-economic growth of the country, sidewise it increases the likelihood of complications of metabolic disorders. Charaka was first to describe separately "Sandhigataanila", but it was not included under 80 types of Nanatmaja vatavyadhi. [4] The diseases produced by morbid Vata Dosha are more common in Jaravastha. Ayurveda defines Chikitsa as 'Samprapti Vighatana (breaking the pathogenesis). The provoked *Vata* takes shelter in the Sandhi and the affected Sandhi resembles a bag filled with air. There will be Shotha (edema) with difficult and painful flexion and extension. Sandhi comes under the Madhyama Roga Marga[5] and thus, involvement of Madhyama Roga Marga, Vata Dosha and Dhatu Kshaya figures disease as Kashta Sadhya. Sandhigatavata is one of the Vatavyadhi described in all Samhita and SangrahaGrantha. Ashtanga Samgrah, Ashtanga Hridyam and Sushruta Samhita have considered *Vatavyadhi* as *Mahagada*. It is so called due to the fact that the treatment is time consuming and prognosis is uncertain. Further *Dhatukshya* is the chief cause of *Vatavyadhi*. *Dhatukshya* is difficult to treat as *Ashtanga Hridyam* has elaborated that since body is accustomed to *Mala*, *Dhatukshya* is more troublesome than *DhatuVriddhi*. <sup>[6]</sup>

### CASE REPORT

A 60 yr old female patient presented with 3 yrs history of intermittent bilateral knee joint pain, crackling sound from the knee and stiffness of B/L Knee joints. Pain was moderate in intensity and was continuous and used to get aggravated by walking or standing upright. On further enquiry she told that she felt morning time stiffness in the concerned joints which was relieved after moving a bit about for 30 minutes. Patient also told that she occasionally developed swelling in B/L Knee joints on & off from last 2-3 years.

Onset -Insidious.

**Degree of Severity - Moderate pain(2)** - Mild pain at rest. - Moderate and tolerable pain while working/walking

Aggravated by walking
Alleviated by Rest, Hot fomentation

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Her personal history reveals that she resided in rural area and lead a sedentary lifestyle. Her family history revealed Familial Obesity and joint pains in mother. Patient weighed 94kg, 155cm in height and BMI calculated was 39.12 Kg/m<sup>2</sup>.

Systemic examination of respiratory, cardiovascular and G.I.T were WNL.

## LOCOMOTOR SYSTEM

Numbness - Absent Joints - Restricted

movements on passive movements

Inspection - Swelling Present; Redness- Absent
Palpation - Local Temp - Raised; Tenderness
present

# LOCAL EXAMINATION Inspection Odema- Moderate

**Deformity-** Absent

### **Palpation**

i. Local temp Raised B/Lii. Tenderness mildiii. Crepitus Present

## **Movements of joint**

i. Restriction of Joint movements: Presentii. Pain during movement : Moderate

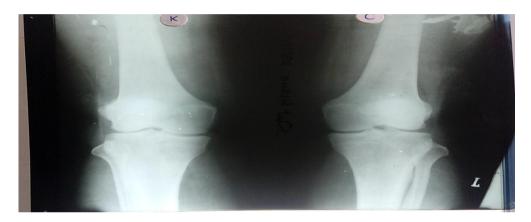
Flexion Restricted; Painful

### INVESTIGATIONS

### X-ray of joint involved - AP and Lateral view

i. Degenerative changes: Reduced Joint spaces; sclerosis of sub-chondral bone

- ii. Reduced joint space: Present
- iii. Osteophytes: Present in B/L Lateral side
- iv. Cartilage degeneration Evident By reduced Joint spaces



Routine Hematological and biochemical examination were within normal limits.

*Diagnosis:* Osteoarthritis B/L Knee Joints (*Sandhigatavata*).

**Positive findings:** Clinical presentation; female gender; obesity (Morbid); Degenerative Changes in X-ray Knee.

## Management

1. Abhyanga with LaghuVisaGarbhataila for 2 weeks<sup>[7]</sup>

Sr. No.	Sanskrit name/ Hindi name	Botanical name	Part used	Quantity
1.	Taila	Sesamum indicum	Seed oil	3.072 Lt
2.	Dhatura swarasa	Datura metel	Leaf extract	960 ml
3.	Kanjick			3.072 Lt
4.	Kustha	Saussurea lappa	Root	90 gm
5.	Vacha	Acorus calamus	Rhizome	90 gm
6.	Hrddhatri	Argemone mexicana	Root tuber	27 gm
7.	Maricha	Piper nigrum	Fruit	27 gm
8.	Visa	Aconitum chasmanthum	Root tuber	18 gm
9.	Dhatur beeja	Datura metal	Seed	81 gm
10.	Patu (Saindhava)			81gm

2. 500 mg of capsule *NirgundyadiYoga* thrice a day for 30 days.

Sr. No	Sanskrit name	Botanical name	Part used	Properties	Quantity
1.	Nirgundi	Vitex nigundo	Leaf	Soth-har Vednasthapan	80 mg
2.	Eranda	Ricinus comminus	Root	Soth-har Vednasthapan	80 mg
3.	Rasana	Pluchaa lancealata	Leaf	Vednasthapak Sandhivatahara	70 mg
4.	Shallaki	Boswellia serratta	Exudate	Shothar Vednastapaka	60 mg
5.	Ashwagandha	Withania somnifera	Root	Rasayan, Aamvathar Vatahara, Balya	60 mg
6.	Guduchi	Terminaia cordifolia	Stem	Vednasthapana rasayana	50 mg
7.	Sonth	Zingiber officinale	Rhizome	Sothhar Vednasthapana	30 mg
8.	Marich	Piper nigrum	Fruit	Vatvikar, Sothhar Vednasthapaka	30 mg
9.	Pippali	Piper longum	Fruit	Vatahar Shothara Vednasthapana	30 mg
10.	Sameerpanag rasa			Shothhar Vednasthapaka	10g

The treatment was given for 1 month duration with follow up after 15 days.

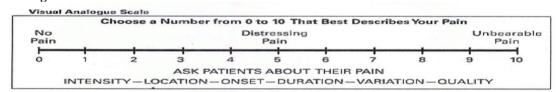
#### CRITERIA FOR ASSESSMENT

I. Subjective criteria- The symptoms were evaluated and response of drug was recorded in terms of

percentage relief of the signs and symptoms of *Sandhigata Vata* described in *Ayurvedic* classics i.e. *Shoola* (Pain), *Sotha* (Inflammation), *Stambha* (Stiffness), *Sparshasahyata* (Tenderness), *Sphutana* (Crepitus) and *Akunchan-PrasarnaVedna* (Painful movements) at the joints.

## II. Objective criteria

## 1. Visualanaloguescale



Patient was asked about intensity of pain and response evaluated, with 0 for no pain and 10 for worst pain.

## 2. Berg Balance Scale

## 1. Sitting to standing

Instructions: Please stand up. Try not to use your hand for support.

- ( ) 4 able to stand without using hands and stabilize independently
- () 3 able to stand independently using hands
- () 2 able to stand using hands after several tries
- () 1 needs minimal aid to stand or stabilize
- () 0 needs moderate or maximal assist to stand

## 2. Standing unsupported

Instructions: Please stand for two minutes without holding on.

- () 4 able to stand safely for 2 minutes
- () 3 able to stand 2 minutes with supervision
- () 2 able to stand 30 seconds unsupported

- () 1 needs several tries to stand 30 seconds unsupported
- () 0 unable to stand 30 seconds unsupported

## 3. Sitting with back unsupported but feet supported on floor or on a stool

Instructions: Please sit with arms folded for 2 minutes.

- () 4 able to sit safely and securely for 2 minutes
- () 3 able to sit 2 minutes under supervision
- () 2 able to able to sit 30 seconds
- () 1 able to sit 10 seconds
- () 0 unable to sit without support 10 seconds

## 4. Standing to sitting

Instructions: Please sit down.

- () 4 sits safely with minimal use of hands
- () 3 controls descent by using hands
- () 2 uses back of legs against chair to control descent
- () 1 sits independently but has uncontrolled descent
- () 0 needs assist to sit

### 5. Transfers

Instructions: Arrange chair(s) for pivot transfer. Ask subject to transfer one way toward a seat with armrests and one way toward a seat without armrests. You may use two chairs (one with and one without armrests) or a bed and a chair.

- () 4 able to transfer safely with minor use of hands
- () 3 able to transfer safely definite need of hands
- () 2 able to transfer with verbal cuing and/or supervision
- () 1 needs one person to assist
- () 0 needs two people to assist or supervise to be safe

### 6. Standing unsupported with eyes closed

Instructions: Please close your eyes and stand still for 10 seconds.

- () 4 able to stand 10 seconds safely
- () 3 able to stand 10 seconds with supervision
- () 2 able to stand 3 seconds
- ( ) 1 unable to keep eyes closed 3 seconds but stays safely
- () 0 needs help to keep from falling

### 7. Standing unsupported with feet together

Instructions: Place your feet together and stand without holding on.

- ( ) 4 able to place feet together independently and stand 1 minute safely
- () 3 able to place feet together independently and stand 1 minute with supervision
- ( ) 2 able to place feet together independently but unable to hold for 30 seconds
- ( ) 1 needs help to attain position but able to stand 15 seconds feet together
- ( ) 0 needs help to attain position and unable to hold for 15 seconds

# 8. Reaching forward with outstretched arm while standing

Instructions: Lift arm to 90 degrees. Stretch out your fingers and reach forward as far as you can. (Examiner places a ruler at the end of fingertips when arm is at 90 degrees. Fingers should not touch the ruler while reaching forward. The recorded measure is the distance forward that the fingers reach while the subject is in the most forward lean position. When possible, ask subject to use both arms when reaching to avoid rotation of the trunk.)

- () 4 can reach forward confidently 25 cm (10 inches)
- () 3 can reach forward 12 cm (5 inches)
- () 2 can reach forward 5 cm (2 inches)
- () 1 reaches forward but needs supervision
- () 0 loses balance while trying/requires external support

## 9. Pick up object from the floor from a standing position

Instructions: Pick up the shoe/slipper, which is in front of your feet.

- () 4 able to pick up slipper safely and easily
- () 3 able to pick up slipper but needs supervision

- ( ) 2 unable to pick up but reaches 2-5 cm(1-2 inches) from slipper and keeps balance independently
- ( ) 1 unable to pick up and needs supervision while trying  $\,$
- ( ) 0 unable to try/needs assist to keep from losing balance or falling  $\,$

# 10. Turning to look behind over left and right shoulders while standing

Instructions: Turn to look directly behind you over toward the left shoulder. Repeat to the right. (Examiner may pick an object to look at directly behind the subject to encourage a better twist turn.)

- () 4 looks behind from both sides and weight shifts well
- ( ) 3 looks behind one side only other side shows less weight shift
- () 2 turns sideways only but maintains balance
- () 1 needs supervision when turning
- () 0 needs assist to keep from losing balance or falling

## 11. Turn 360 degrees

Instructions: Turn completely around in a full circle. Pause. Then turn a full circle in the other direction.

- () 4 able to turn 360 degrees safely in 4 seconds or less
- ( ) 3 able to turn 360 degrees safely one side only 4 seconds or less
- () 2 able to turn 360 degrees safely but slowly
- () 1 needs close supervision or verbal cuing
- () 0 needs assistance while turning

# 12. Place alternate foot on step or stool while standing unsupported

Instructions: Place each foot alternately on the step/stool. Continue until each foot has touched the step/stool four times

- ( ) 4 able to stand independently and safely and complete 8 steps in 20 seconds
- ( ) 3 able to stand independently and complete 8 steps in > 20 seconds
- ()2 able to complete 4 steps without aid with supervision
- () 1 able to complete > 2 steps needs minimal assist
- () 0 needs assistance to keep from falling/unable to try

## 13. Standing unsupported one foot in front

Instructions: (demonstrate to subject) Place one foot directly in front of the other. If you feel that you cannot place your foot directly in front, try to step far enough ahead that the heel of your forward foot is ahead of the toes of the other foot. (To score 3 points, the length of the step should exceed the length of the other foot and the width of the stance should approximate the subject's normal stride width.)

- ( ) 4 able to place foot tandem independently and hold 30 seconds
- ( ) 3 able to place foot ahead independently and hold 30 seconds
- ( ) 2 able to take small step independently and hold 30 seconds
- () 1 needs help to step but can hold 15 seconds
- () 0 loses balance while stepping or standing

## 14. Standing on one leg

Instructions: Stand on one leg as long as you can without holding on.

- () 4 able to lift leg independently and hold > 10 seconds
- ( ) 3 able to lift leg independently and hold 5-10 seconds  $\,$
- ( ) 2 able to lift leg independently and hold L 3 seconds  $\,$
- () 1 tries to lift leg unable to hold 3 seconds but remains standing independently.
- () 0 unable to try of needs assist to prevent fall.

### PATIENT ASSESSMENT

**Subjective criteria-** Marked improvement- up to 75% relief from Symptoms.

**Objective Criteria** 

Criteria	At first visit	After 15 days	At the end of trial
1. VAS	7	4	4
Berg Balance Scale			
2. Sitting to Standing	4	4	4
3. Standing unsupported	3	4	4
4. Sitting with back unsupported but feet supported on floor	4	4	4
5. Standing to sitting	3	3	3
6. Transfers	4	4	4
7. Standing unsupported with eyes closed	4	4	4
8. Standing unsupported with feet together	2	4	4
9. Reaching forward with outstretching arms while Standing.	3	4	4
10. Pick up the object from the floor from standing position	3	3	4
11. Turning look behind over shoulders while standing	3	4	4
12. Turns 360 <sup>0</sup>	2	3	4
13. Place alternate foot on step or stool while standing unsupported	1	1	2
14. Standing unsupported one foot in front	3	3	4
15. Standing on one leg	4	4	4

### RESULT

Marked improvement in symptoms (> to 75%) Walking distance improved markedly (> 1 Km) Marked Improvement in morning stiffness Improvement in Berg Balance Scale Score 9-12

## DISCUSSION

Sandhivata is a Vata dominant disease, in which Agni-Vaishamya, Dhatu Kshaya, Asthivaha Srotos Dushti, Vata Prokopa, settles down in the root of Majjavaha Srotos. Asthi-sandhi and Shleshaka Kapha Kshaya are the basic pathological processes, which are characterised by Sandi Shula, Sandhi Sotha, Akunchan Prasarana Vedana, Sandi-Sphutana and Sanghigraha. According to textual references, it has been clearly quoted that the Vatakapha Shamaka and Srotoshodhaka Dravya are generally advised for the management of Sandhivata. [8]

Rasapanchaka of Ingredients of NirgundyadiYoga<sup>[9]</sup>

Drug	Rasa	Guna	Veerya	Vipaka	Doshghanta	Karma
Nirgundi	Katu, Tikta	Laghu, Ruksha	Ushna	Katu	Kaphavata Shamaka	Vedanasthapan, Shothahara, Vranashodhana Vranaropana,
Erand	Madhura, Katu, Kshaya	Snigdha, Tikshna, Sookshma	Ushna	Madhura	Kaphavata Shamaka	Sothahara, Vedanasthapak
Rasna	Tikta	Guru	Ushna	Katu	Kaphavata Shamaka	Sothhara, Sheetahara, Vednasthapak
Shallaki	Kashaya, Tikta, Madhura	Laghu, Ruksha	Ushna	Katu	Kaphapitta Shamaka	Shothahara, Vednasthapak, Vranashodhan, Vranaropan
Ashwanga dha	Tikta, Katu, Madhura	Laghu, Snigdha	Ushna	Madhura	Kaphavata Shamaka	Raktavikara, Sothahar,Bhrama, Anidra
Guduchi	Tikta, Kshaya	Guru, Snigdha	Ushna	Madhura	Tridoshahar	Vednasthapak, Deepan, Pachan,
Shunthi	Katu	Laghu, Snigdha	Ushna	Madhura	Kaphavata Shamaka	Sheetaprashamana, Sothhara, Vedanastahpak
Pippali	Katu	Laghu, Snigdha	Anushna- sheeta	Madhura	Kaphavata Shamaka	Medhya, Vatahara, Sholprashamana
Maricha	Katu	Laghu, Tikshna	Ushna	Katu	Vatakapha Shamaka	Vatahara, Sholahara.

Most of the drugs have *Vatakaphashamaka* properties. Thus this *Yoga* becomes effective in *Vatavyadhi* like

Sandhigatavata where both Vata and Khapadoshas are involved. All the drugs are having UshnaVeerya

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which mainly subsides the *VataDosha* which is the prominent *Dosha* in *Sandhigatavata* according to *CharakaSamhita*. *DhatuKshaya* and *Avarana* cause the *Vatavyadhi*. Here the yoga have effect on *RasadiDhatuDusti* and thereby improves the proper production of *Dhatu*. *Brimhana* properties by virtue of *MadhuraVipaka* help in the removal of *Dhatukshaya*. The ingredients of formulation like *Sameer Pannag Rasa*, *Eranda*, *Ashwgandha*, *Shunthi* and *Pippali* acts as *Rasayana* and helps in healing and rejuvenation of affected cells. The excellence of *Agni* is increased by

Deepana properties by virtue of Katu & TiktaRasa and proper JaranaShakti is restored. Pachana properties of the drugs help to remove Amatva from the Koshta and Dhatus at the same time. Due to Vednastapan, Shothahara, Shulahara, Sheetapanayan, Kaphavatashaman all the cardinal signs and symptoms of Sandhigatavata are mostly reduced. Due to UshnaVeerya, Laghu Ruksha Tikshna and Sookshma properties the obstructed Srotasas are cleared and proper DhatuParinama can be achieved.

Rasapanchaka of the ingredients of Laghuvishgarbha (LVG) Taila[10]

Drug	Rasa	Guna	Veerya	Vipaka	Doshghant	Karma
Tila Taila	Madhura, Kashaya, Tikta	Guru, Snigdha	Ushna	Madhur	Vatashamaka; Tridoshashamaka)	Snehana, Vednasthapan
Dhatura (Swarasa & Beeja)	Tikta, Katu	Laghu, Ruksha, Vyavaayi, Vikasi	Ushna	Katu	Kaphavatashamak	Vednasthapan Tvakdoshahar
Kanjika	Amla,	Teekshna, Laghu, Bhedana	Ushna	Amla	Kaphavatashamak	Deepana, Pachana
Kustha	Tikta, Katu, Madhura	Laghu, Ruksha, Teekshna	Ushna	Katu	Kaphavatashamak	Vednasthapan,
Vacha	Katu, Tikta	Laghu, Teekshna	Ushna	Katu	Kaphavatashamak Pittvardhaka	Vednasthapan Sothhara
Swarnkshir	Tikta	Laghu, Ruksh	Sheeta	Katu	Kaphapittahara	Sothahara, , Sandhivatahar
Maricha	Katu	Laghu, Tikshn	Ushna	Katu	Vatakapha Shamaka	Vatahara, Sholahara.
Visha	Madhura	RukshTeekshna, Laghu, Vyavaayi, Vikasi	Ushna	Madhura	Kaphavatashamaka	Vednasthapan, Sothahara
Saindhva	Madhura, Lavana	Laghu, Snigdha	Sheeta	Madhura	Tridoshhar	-

The Taila was given for Local Abhyanga at the site of pain. It provided the SnehanaKarma of the affected Oleation (Abhyanga) produce unctnousness (Smoothness), softness, fluidity and moistness in the joints. When Abhyanga is administered Taila get absorbed in the joints. It nourishes and lubricates the joints. It also helps in reducing Shotha & Shula. It helps to pacify the Vata Dosha with its main qualities like Snigdha, Guru and Ushna. Abhyanga was advised for duration of 10 minutes with luke warm oil. No medicine is best to cure Vata Dosha other than Taila.[11] LVGTaila Abhyanga is Vatanashaka by virtue of its Ushna, Snigdha and GuruGuna. It combats with the properties of VataDosha like Sheeta, Ruksha, Laghu etc. Moreover the Taila becomes Tridoshahara with the advent of Samskara. As the majority drugs of the combination possess Kaphavatahara property the associated symptoms due to the *Prokapa* of *KaphaDosha* are also reduced due to properties like *Ushna*, *Laghu* and *Tikshna* of the combination. Thus at the same time the symptoms caused by both Vata and KaphaDoshas are reduced and Sheetata, Gaurava, Stambhaa and Shula caused by these Doshas are reduced. The main Dushya connected with SandhigatavataRoga are Asthi, Majja and Meda. LVGTaila contained the drugs which are Laghu, Ushna,

Ruksha, Tikshna, Vyavaayi & Vikasi and Snigdha. By virtue of these qualities the potency of drugs enters in to the Sandhi thus proper Dhatupusti and increased RaktaSamvahana is achieved. With the advent of Vyavaayi, Vikasi and LaghuGuna the drug penetrate deeper in the tissues and provide relief in the symptoms through its Vednasthapn Sothahara and Shulaprashaman Karma. Ushna, Tikshna Gunaas of the drugs intensify the Dhatwagnis concerned with Sandhigatavata. Srotas get cleared due to the properties of the drugs like *Ushna*, Tikshna, Ruksha, LaghuGuna, Vyavaayi and VikasiGuna serves better penetration and increased bioavailability by opening of the srotaras which are under obstruction; thence increasing the effects like Vednasthapan, Sothhara and Shulaprshmana. Further by the impact of the local stimulation via Abhyanaga the local circulation increases which allows better absorption of the drug, enhanced anti-inflammatory effect and better healing of the damaged tissues.

## CONCLUSION

SandhigataVata is a type of Vatavyadhi which mainly occurs in Vriddhavastha due to Dhatukshaya. SandhigataVata i.e. Osteo-arthritis is the commonest form of articular disorder. It limits everyday activities

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thus making the patient disabled/handicapped. Being Vatavyadhi, located in Marmasthisandhi and occurrence in old age makes it Kastasadhya. According to Ayurveda Chikitsa is "SampraptiVighatana". So in case of SandhigataVata, treatment should be like that which makes Agni Shamata, Vatashamana, KaphaVriddhi (increase Snigdhaguna) and correct Khavaigunya. Also it should have Rasayana property to overcome Dhatukshaya. Here NirgyndiyadiYoga (a compound Herbo-mineral Formulation) along with local Abhyanga with LaghuVish-garbhaTaila was administered in patient which served above needs to treat the disease SandhigataVata and showed marked improvement.

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