

JANU SANDHIGATA VATA vis –a – vis OSTEOARTHRITIS OF KNEE JOINT - A CONCEPTUAL REVIEW

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ABSTRACT

In *Ayurveda* classics, *Sandhivata* is mentioned as one among the 80 *Nanatmaja Vata Vyadhi*. *Ayurveda* literature describes the disease under various names such as *sandhivata*, *sandhigata vata*, *khudavata* etc. *Acharya Charaka* was the first one to mention the disease separately as *sandhigata anila*. When the vitiated *Vata dosha* lodges in the *janu sandhi*, it causes *janu sandhigata vata*. The *samprapti*, *rupa*, and *chikitsa* of *Sandhigata vata* is mentioned under *Vata vyadhi adhyaya*. Osteoarthritis of the knee joint is almost identical to *Janu sandhigata vata* with respect to etiology, pathology and clinical features. Osteoarthritis is a chronic degenerative disorder which mainly

affects large & weight bearing joints. Joint pain is very prevalent among the affected people. The line of treatment like physiotherapy/ pharmacological therapy is approached but these are limited over time due to their cost or side effects. For the purpose of prevention and cure of the disease, treatments and medicines are mentioned in *Ayurveda* classics which serve a healthy life.

KEYWORDS: *Janu sandhigata vata*, Osteoarthritis, *Sandhivata*.

INTRODUCTION

Sandhi vata is derived from two distinct words i.e., *Sandhi* means joint, *vata* means one among the *dosha*. It is a type of *vatavyadhi* which commonly occurs in the *vridhavastha* due to *dhatu kshaya*.^[1] The disease *Sandhivata* was specifically not mentioned in any *vedic* literature. *Ashwini kumaras* had achieved and recorded their skills in treating joint diseases and the work can be found in *Rigveda*.^[2] *Samhita granthas* and *Sangraha granthas* expect

Sharangadhara Samhita had described the disease *Sandhivata* with *lakshana* and *chikitsa* under *Vatavyadhi adhyaya*.

In classics, *Sandhigata vata* is characterized by the symptoms such as *sandhi shula*, *sandhi soph*, *sandhi hanti*, *atopa* etc.^[3] Osteoarthritis of knee joint comes under the inflammatory category which is almost identical to *Sandhigata vata*. According to modern science, osteoarthritis is a degenerative disorder affecting the articular cartilage of joint. It is becoming the leading cause of pain and disability worldwide. It generally begins in 2nd and 3rd decade of life asymptotically. Most of the people have radiographic changes in the knee joint. In the present era, due to dietary habits, urbanization, excessive travelling, walking, improper sleep leads to vitiation of *Vata dosha* which further causes *dhatu kshaya*.

NIDANA^[4]

Causative factors of *Vata vyadhi* can be considered for *Janu sandhigata vata* as it is not mentioned separately in the contexts.

Table 1: Showing Nidana of Janu Sandhigata Vata.

Aharaja	<i>Atiruksha</i> (excessive dry), <i>atisheeta</i> (cold), <i>atialpa</i> (very less quantity), <i>atilaghu</i> (very light), <i>abhojana</i> (no intake of food)
Viharaja	<i>Atiprajagarana</i> (awaking at night), <i>divaswapna</i> (sleeping at day time), <i>ativyavaya</i> (excess sexual act), <i>vega sandharana</i> (controlling natural urges), <i>plavana</i> (swimming), <i>atiadhva</i> (excess walking), <i>ativyayama</i> (excess exercise)
Others	<i>Dhatu sankshaya</i> (undernourished body tissues), <i>rogatkarshanat</i> (weakness due to prolonged illness), <i>marmaghata</i> (trauma to vital organs)

PURVA ROOPA

The poorvarupa of *Vata vyadhi* is described to be *avyakta* by many *Acharyas*. Since *Sandhivata* is considered to be one among *Vata vyadhi*, hence the *poorva rupa* is *avyakta*.

ROOPA

The classical signs and symptoms mentioned by various *Acharyas* are-

Table 2: showing features of Janu sandhigata vata according to various Acharyas.

Features	<i>CH. SA.</i> ^[5] (<i>CHI. STH</i>)	<i>SU. SA.</i> ^[6] (<i>NI. STH.</i>)	<i>AS SAN</i> ^[7]	<i>AS HR</i> ^[8]	<i>MA NI</i> ^[9]	<i>BP</i> ^[10]
<i>Vatapurnadritisparsha</i>	++	-	++	++	-	-
<i>Sandhi Sotha</i>	++	++	++	++	-	-
<i>Prasarana Akunchanpravriti</i> <i>Savedana</i>	++	-	++	++	-	-
<i>Hanti Sandhi</i>	-	++	-	-	++	-

<i>Sandhi Shula</i>	++	++	++	++	++	+
<i>Sandhi Atopa</i>	-	-	-	-	++	+

RISK FACTORS^[11]

Table 3: Showing Risk Factors of Osteoarthritis.

Age	Increases with age; incidence after the age of 50
Gender	Women due to hormonal changes during menopause and men under age of 50
Occupation	Incidence is more in persons doing heavy physical works
Exercise	Common in sports persons and those doing excessive exercise
Trauma	Joint fractures & injuries lead to increased risk of OA
Genetics	People having family history are more likely to develop OA
Obesity	Increases the risk of OA as extra weight puts more stress on joints



Fig 1: Showing X-Ray AP view of osteoarthritis of knee joint.

SAMPRAPTI

1. *Dhatukshaya janya*

Sandhi is the site of *sleshaka kapha*. Due to *nidana sevana* and *vridhnavastha*, *Vata dosha* in the body increases. The aggravated *Vata dosha* with its properties of *ruksha*, *laghu* and *khara guna* causes depletion of *sleshaka kapha* leading to *kshaya* of *asthi sandhi*.^[12]

2. *Avarana janya*

Sandhi vata usually occurs in the weight bearing joints. Due to excess *Medo dhatu* production, it causes obstruction and the *Uttarotara dhatu*s remains undernourished leading to *kshaya*. The excess *Medo dhatu* will cause *Avarana* of *Vata*. When vitiated *Vata dosha* lodges in *sandhi*, it causes *Sandhi vata*.^[13]

Acharya Charaka has described the *samprapti* of *Janu sandhigata vata* in *Vata vyadhi adhyaya* as-

Table 4: showing *samanya samprapti* of *Janu sandhigata vata* by Acharya Charaka.**SAMPRAPTI GHATAKA**

HETU :	<i>vata prakopa ahara and vihara</i>
DOSA :	<i>vyana vayu, sleshaka kapha</i>
DUSHYA :	<i>asthi, majja, meda</i>
SROTAS :	<i>asthivaha, majjavaha, medovaha</i>
SROTO DUSTI :	<i>sanga</i>
AGNI :	<i>mandagni</i>
DOSHA MARGA :	<i>marmasthi sandhi</i>
ROGA MARGA :	<i>madhyama</i>
UDBHAVASTHANA :	<i>pakvashaya</i>
VYAKTASTHANA :	<i>asthi- janu sandhi</i>

DIFFERENTIAL DIAGNOSIS

Sandhigata vata is the disease pertaining to joints, hence other joint diseases such as *vata rakta*, *amavata* can be considered for the differential diagnosis based of various factors as mentioned below.

Table 5: Showing Differential Diagnosis of *Janu Sandhigata Vata*.

Symptoms	<i>Sandhigata Vata</i>	<i>Amavata</i>	<i>Vata Rakta</i>
Dosha Predominance	<i>vata</i>	<i>vata kaphaja</i>	<i>tridoshaja</i>
Onset	gradual	sudden	gradual
Progression	constant	constant	increase & decrease
Joint Involvement	big	Big	small

Nature Of Swelling	articular & puffy	extra articular, pitting	articular, engorged
Pain	mild	severe- like scorpion bite	severe- burning
Crepitus	severe	absent	moderate
Stiffness	severe	moderate	severe
Skin Involvement	not involved	not involved	involved
Deformity	present	absent	absent
Range Of Movement	painful, restricted	painful, restricted	restricted, immobile
Response To Oil	marked relief	Aggravate	moderate relief

PROGNOSIS

Janu sadhigata vata is one among the *Vata vyadhi* and occurs usually in aged people.

It is situated in *marma sthana*, *madhyama rogamarga* and *ashi-majja dhatu ashrita*.

Hence it is *kashta sadhya*.

TREATMENT

The first line of treatment that can be adopted is *nidana parivarjana* by lifestyle modification which includes- dietary habits, regular exercise and *yoga asanas*.

- For *dhatu kshaya janya*– *santarpana* and *dhatu poshana* line of treatment should be adopted.
- For *margavarodha janya* – initially vitiated *kapha* and *medas* and then *Vata dosha* should be treated. *Snehana* and *abhyanga* is contraindicated in initial stage.
- All the *Acharyas* have given importance to *Snehana chikitsa* for the management of *Sandhi vata*. *Snehana* can be performed both internally and externally.

Internal treatment includes *bhojana*, *pana*, *nasya*, *basti* and external treatment includes *abhyanga*, *tarpana* etc.

- *Sushruta* has explained specific line of treatment for *Sandhi vata* as *snehana*, *upanaha*, *agnikarma*, *bandhana* and *mardana*.^[14]
- *Vagbhata* has mentioned *snehana*, *upanaha* etc. if *vayu* gets aggravated in *snayu*, *sandhi* and *sira*.^[15]
- *Chakradatta* has mentioned some *vatahara ganas* – *aswagandha*, *dasamoola*, *Sunthi*, *rasna* etc.
- *Bhaishjya Ratnavali* has mentioned some *vatahara ganas* – *nirgundi*, *guggulu*, *gandhaprasarani*, *rasna*, *bala*, *shigru* etc.

EXTERNAL PROCEDURES

Procedures as per different *Acharyas*-

Table 6: Showing various external procedures that can be adopted in *Sandhi vata* as per various *Acharyas*.

TREATMENT	SU. SAM.	AS. SAN.	AS.HR.	Y.R	B.P.
SNEHANA	+	-	-	+	+
SWEDANA	-	+	-	+	+
UPANAHA	+	+	+	+	+
BANDHANA	-	+	+	-	-
ABHYANGA	-	-	+	-	-
AGNIKARMA	+	+	+	-	-
MARDANA	+	+	-	+	+

BASTI – It is considered as one of the best *chikitsa* for *Vata vyadhi*. *Matra basti* and *Tikta ksheera basti* not only relieves the pain and other symptoms but also gives strength to the joint.

LEECH THERAPY – It is the effective treatment for reduction of pain associated with other symptoms. The active compound in leech saliva and the local release has anti-inflammatory properties.^[16]

RASAYANA- *Janu sandhigata vata* specially occurs in the *vridhdha avastha* due to *dhatu kshaya*. *Rasayana* drugs nourish the *dhatu*s and helps in reducing *dhatu kshaya* that should be used in treatment of *Sandhigata vata* like *aswagandha, bala, rasona* etc.

PHYSIOTHERAPY- Osteoarthritis specially occurs in old age. Short wave diathermy, ultrasound and hot packs are helpful in osteoarthritis of knee.

WEIGHT REDUCTION- Obesity is considered as one of risk factor of osteoarthritis. So weight loss is very essential for controlling further damage to the joint. The drugs mentioned in *Ayurveda* classics which are useful for reducing weight are *musta, kushta, haridra, triphala, shunti* etc.

PATHYA & APATHYA AHARAS

In texts like *Yogaratanakara* and *Bhaishajya Ratnavali*, *pathya aharas* are mentioned as:

a) *PATHYA AHARAS*Table 7: showing *pathya aharas* as per *Yogaratanakara* and *Bhaishajya Ratnavali*.

<i>PATHYAS</i>	<i>YOGARATNAKARA</i>	<i>BHAISHAJYA RATNAVALI</i>
<i>Sneha varga</i>	-	<i>Sarpi, Taila, vasa, majja</i>
<i>Shaka varga</i>	<i>Patola, kushmanda, shigru,</i>	-
<i>Sukha dhanya varga</i>	<i>Godhuma, rakta shali</i>	<i>Godhuma, purana dhanya</i>
<i>Shimbi dhanya varga</i>	<i>Masha, kulattha</i>	<i>Masha, kulattha</i>
<i>Mamsa varga</i>	<i>Kukkuta, tittiri, barhi, chataka,</i>	<i>Mamsa</i>
<i>Matsya varga</i>	<i>Shilendra, nakra, khudisha, jhasha, gargara, parvathe</i>	-
<i>Phala varga</i>	<i>Dadima, parushaka, badara, draksha</i>	-
<i>Oushadha dravya</i>	<i>Lashuna, tambula, matsyandika</i>	<i>Brihati, vastuka, kasamarda, mishi, dunduka, kataka</i>
<i>Lavana varga</i>	<i>Saindhava</i>	-

b) *APATHYA AHARAS*Table 8: Showing *apathya aharas* as per *Yogaratanakara* and *Bhaishajya Ratnavali*.

<i>APATHYAS</i>	<i>YOGARATNAKARA</i>	<i>BHAISHAJYA RATNAVALI</i>
<i>Sukha dhanya varga</i>	-	<i>Nava dhanya</i>
<i>Shimbi dhanya varga</i>	<i>Mudga, nivara, shyamaka, kuruvinda, chanaka, kalaya</i>	<i>Mudga, sarshapa</i>
<i>Shaka varga</i>	<i>Koshataki, kareera</i>	<i>Kareera</i>
<i>Jala varga</i>	<i>Thataka, thatini, pradushta salila</i>	<i>Sheeta ambu</i>
<i>Rasa</i>	<i>Kashaya, katu, tikta</i>	-
<i>Anyahara</i>	<i>Kshoudra, kangu, nimba</i>	<i>Mrunali, sarasi, nimba</i>
<i>Types of ahara</i>	<i>Anashana</i>	<i>Guru, abhishyandi</i>
<i>Vihara</i>	<i>Chinta, prajagara, vegavidharana, shrama, vyavaya, chankramana, khatwa, hasthyashwayana</i>	<i>Sheeta pravata</i>

MODERN REVIEW OF OSTEOARTHRITIS

Osteoarthritis is an abnormality of synovial joints which is characterized by the softening, splitting and fragmentation of articular cartilage not attributing direct contact with the inflammatory tissues.^[17]

It is usually accompanied by subchondral sclerosis, bony cysts, joint space narrowing and presence of osteophytes at the joint margins.

ETIOLOGY

1) Age is a major risk factor.

- 2) Race hip OA is less common in Chinese and Asians than in those of western origin, whereas knee osteoarthritis is more common in afro - caribians
- 3) Genetic predisposition - clinical evidence of inheritance of OA
- 4) Heberden' nodes are more common in sisters of affected women.
- 5) 20% of individuals with osteoarthritis have a positive family history
- 6) First degree relative are at a twofold risk of generalized radiological osteoarthritis
- 7) There is greater concordance in identical twins at several joint sites.
- 8) Heritability of radiological knee and hand osteoarthritis is 40-65%
- 9) Gender and hormonal factors- below 45 years, the disease usually involves one or two joints, above 55 years, it is more common in women, usually involving several joints.
- 10) Obesity- the relationship is stronger in women than men and is strongest at knee.
- 11) Other systemic factors –
 - In women, a significant association between hand disease and elevated serum cholesterol levels.
 - Hypertension has been associated with generalized osteoarthritis in non - obese women.
 - Trauma is associated with development of osteoarthritis.

PATHOGENESIS

The earliest changes of OA may begin in cartilage. The two major components of cartilages are type 2 collagen, which provides tensile strength, aggrecan, a proteoglycan. OA cartilage is characterized by gradual depletion of aggrecan, unfurling of the collagen matrix, and loss of type 2 collagen, which leads to increased vulnerability.^[18]

CLINICAL MANIFESTATIONS:

OA can affect almost any joint but usually occurs in weight bearing and frequently used joints such as the knee, hip, spine, and hands. In hands, usually distal interphalangeal (DIP), proximal interphalangeal (PIP) or 1st carpometacarpal is involved.

- Pain in one or a few joints (rest and nocturnal pain less common)
- Stiffness after rest or in morning may occur but it is usually brief (< 30 min)
- Joint crepitation (crackling)
- Decreased range of joint movement or functional limitation
- Joint instability
- Joint deformity

PHYSICAL-EXAMINATION

- Chronic monoarthritis or asymmetric oligo/polyarthritis
- Firm or "bony swellings of the joint margins eg. Heberden's nodes (hand DIP) or Bouchard's nodes (hand PIP)
- Mild synovitis with a cool effusion can occur but is uncommon
- Crepitus - audible creaking or crackling of joint on passive or active movement
- Deformity, eg, OA of knee may involve medial, lateral or patella-femoral compartments resulting in varus or valgus deformities
- Restriction of movement, eg. limitation of extension and flexion of knee joint

TREATMENT^[19]

The treatment aspect of osteoarthritis of knee is broadly divided as –

1. Non pharmacological

2. Pharmacological

3. Surgical

- Non pharmacological treatment includes –
 - Creating awareness
 - Social support
 - Physiotherapy
 - Occupational therapy
 - Maintaining body weight
 - Electrical nerve stimulation
- Pharmacological treatment
 - NSAID
 - Cox-2 inhibitors (cyclo-oxygenase-2 selective non-steroidal anti – inflammatory drugs)
 - Analgesic agents
 - Topical agents
 - Chondroprotective agents
- Surgical treatment
 - Realignment osteotomy
 - Reconstructive surgery (arthrodesis, arthroplasty)

DISCUSSION

Osteoarthritis of knee is a degenerative disorder and it is one of the most common arthritis. Joint pain, stiffness, crepitation, tenderness are the major symptoms seen in the patients. The contemporary science is more materialistic and has high dependence on the pharmacological interventions. On the other hand, *Ayurveda* science, gives equal importance to physical, mental and spiritual well-being. The prevention of the disease is given utmost importance in the science which can be followed by implementing good dietary patterns, exercise leading to healthy life.

Osteoarthritis is a chronic degenerative disease where the joint structure undergoes into pathological changes. In conventional system of medicine, analgesics – NSAIDs, anti – inflammatory drugs, corticosteroids and intra articular injections are opted for the treatment which gives temporary relief. At last, knee replacement surgery is done which is quite expensive and may have adverse effect.

In *Ayurveda* science, *Acharyas* have mentioned various measures which could not only subside all signs and symptoms but also the patient could perform daily chores. The treatment modalities of *Janu Sandhigata Vata* can be designed based on the various measures mentioned in textuials like – *snehana*, *upanaha*, *agnikarma*, *bandhana*, *unmardhana*. The general *Vata vyadhi chikitsa* can be adopted in *Janu Sandhigata Vata* based on the *lakshana* and the *sthana* of the disease - *virechana* and *basti* karma are useful.

If *Janu Sandhigata Vata* is considered as *asthivaha srotho dusti*, *asthi majjagata vata chikitsa* is adopted in *Sandhigata Vata - bahya* and *abhyantara sneha* is adopted. If *Janu Sandhigata Vata* is considered as *asthi-ashraya vata vyadhi - Panchakarma chikitsa* especially *basti* with *ksheera* and *sarpi* processed with *tikta dravyas* are useful.

Sandhigata Vata is a disease of old aged people - *Rasayana chikitsa* is adopted which will not only cure the disease but will also help in leading a healthy adulthood.

CONCLUSION

The vitiated *Vata* when gets lodged in one or more joints produces the features like *sandhi shula* (pain in the joints), *sandhi shotha* (swelling), *sandhi atopa* (crepitus), *sandhi stabdhata* (stiffness in the joint). When these set of clinical manifestations appear due to various factors in *Janu Sandhi*, it is termed as *Janu Sandhigata Vata*. The disease can be caused by either

dhatu kshaya and *margavarodha*. Also, the *vata prakopa nidana* leads to *Vata vyadhi* is considered. The *dushya* such as *medo dhatu*, *mamsa dhatu*, *asthi dhatu*, *kandara*, *peshi*, *snayu* and *sheshmadhara kala* constituting *asthi-sandhi* is also involved. *Asthivaha srotas* is mainly affected in *Janu Sandhigata Vata*. The treatment modalities along with proper diet, exercise and proper regimens in *Ayurveda* not only subsides signs and symptoms but only helps in leading a healthy life.

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