



CLINICAL STUDY TO ASSESS THE EFFICACY OF “SHUSHKAMULAKADY TAILA ABHYANGA AND KALA BASTI IN THE MANAGEMENT OF SANDHIGATA VATA SAMAVASTHA W.S.R. TO OSTEOARTHRITIS OF KNEE JOINT”^{1, 2, 3.}

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ABSTRACT:

Acharya Charaka has defined *Sandhigata Vata*- ‘Provoked *Vata* locates in the *Sandhi*, it causes *Shotha* which on palpation appears like bag inflated with air and the movements of extension and flexion are accompanied with pain’. Its in modern science called Osteoarthritis (O.A.). Its a common degenerative disease of the joint, affects approximately 10% of all the adults (man & women) and the prevalence increases with the age. The disease is characterized by local areas degeneration of articular cartilage, sclerosis of the bone, formation of osteophytes and hypertrophy of the soft tissues. O.A. must commonly affect the weight-bearing joints in particular the knee, hip and spine and the interphalangeal joints of the hand. The wrist, shoulder and ankle are less often involved. In present study the *Shushkamulakady taila abhyanga* and *Kala Basti (Matra Basti of Dashmoola taila and Niruha Basti of Triphla Kwath)* therapy applied on patients. The *Sandhishula* reduced up to 73.2%, *Sandhigraha* by 79.49%, *Sandhiatopa* by 65.22%, *Sandhiaushnyata* by 67.57% and *Sandhigaurava* by 74.67%. Thus it can be concluded that the treatment with *Shushkamulakady Taila Abhyang* and *Kala Basti* in the management of *Sandhigata Vata Sa- Amavastha* enhanced.

KEY WORDS: *Sandhigatavata*, Osteoarthritis, *Shushkamulakady taila*, *Matrabasti- Dashmoola taila*, *Niruhabasti- Triphla Kwath*.

INTRODUCTION:

Sandhigatavata is most common form of arthritis whose more than 10 million cases per year reported in India. It shows strong association with ageing, obese and females. It begins asymptotically in 3rd & 4th decade of life prevalantly more among menopausal womens ^[1]. *Sandhigatavata* is one of the “*Vata Vyadhi*”, which is described as a separate clinical entity even though it is not included in 80 types of *Nanatmaja Vata Vikara*. Although *Sandhigatavata* cripples a large number of persons, it rarely kills any person but affects quality of life. Study also shows that type of cases, where prolonged duration of it leads to total joint destruction and the last option is joint replacement. *Acharya Charaka* has defined the disease that

when provoked *Vata* locates in the *Sandhi*, it causes *Shotha* which on palpation appears like bag inflated with air and the movements of extension and flexion are accompanied with pain^[1].

Sandhigatavata is *Madhyama Rogamarga*, Situation in *Marma Asthi Sandhi*, Vitiation of *Asthi* and *Majja*, *Dhatukshya*. *Vriddhavastha* makes it *Kastasadhya*. It may be *Nija* or *Agantuja* and *Sa-Ama* or *Nirama*. After *Nidan* sevana (*Aharaj*, *Viharaj*, *Vata Prakopaka*) aggravated *vata* enters in the *sandhi* and get vitiated there by producing *shotha* (swelling of the joint), which is felt like a bag filled with air and the *shoola* (pain) occurs mainly during the flexion and extension movements of the joint^[2].

Vayu get vitiated by two ways. (1) *Dhatukshayajanya*: *Kshaya* of *Dhatu*s is the main cause of *Vatavyadhi*. (2) *Margavarodhajanya*: The primary cause of *margavrodha* of *Srotasa* by *Ama*, *kapha*, *meda* or *Any dosha*. The vitiated *vata dosha* get lodges in the specific *adhistan* and creates the syndrome are: 1. *Dhatu-Asthi*, *majja*, *rakta*, *twaka*. 2. *Upadhatu-Twaka*, *rakta*. 3. *Indriya-Kshotra*, *netra*. 4. *Avayava-Amashaya*, *Pakwashaya*, *Guda*. 5. Other- *Sarvanga*, *Koshtha*, *Dhatukshaya* takes place in *Vriddhavastha kala* due to increased *Vata* which diminishes *Sneha* from *Asthidhatu* due to its opposite qualities to *Snehan* and develop *Khavaigunya* (*Rikta Srotas*) in *Asthi* which is responsible for the production of *Sandhigatavata*^[3].

In the early stage of Osteoarthritis, the chondrocytes proliferate. This process is accompanied by biochemical changes. The two major component of cartilage: a special type of chollagen (type 2) and proteoglycans, both secreted by chondrocytes i.e. both balance is maintained by chondrocytes^[4]. Risk of Osteoarthritis increased in direct proportion to bone density, and high level of estrogens. The level of certain molecular messengers, including IL-1, TNF and nitric oxide, are increased in osteoarthic cartilage, which is responsible for the decreased number of functional chondrocytes. Symptoms of Osteoarthritis are similar as of *Sandhigatavata* i.e. Joint pain, Swelling, Stiffness Disability and Crepitating over joint. Degenerative type of arthritis mainly occurs in old age. It is a chronic degenerative disorder of multifactorial aetiology characterized by loss of articular cartilage and peri-articular bone remodelling. The risk factors for osteoarthritis are old age, obesity, female sex, major joint trauma, repetitive stress, genetic factors, prior inflammatory joint diseases and metabolic or endocrine disorders. In modern science, till date, no treatment is available that can reverse or slow or block the disease process. Only palliative treatment for Osteoarthritis which help in reducing the pain and swellings with Analgesics, Anti oxidants e.g. vitamin A,B,C,E etc. – to prevent the joint from oxidative damage. Weight reduction by 11 pound weight cuts 50% risk for Osteoarthritis. 5% weight loss in over weight patients gives 18% gain in overall function. So weight reduction is very essential for the treatment of Osteoarthritis^[5].

The *Samshodhan therapy* consists of a number of physiologic measures advocated in the treatment of the diseases. It is divided into 3 major parts viz. *Purva Karma* (Preparatory methods like Oleation and Fomentation), *Pradhana Karma* (Main *Samshodhana* measures) and *Paschata Karma* (Post therapy regimen)^[6]. The *Pradhana Karma* should always be preceded by suitable *Purva Karmas* in order to mobilize the *Doshas* from the discrete parts of the body (*Shakha*). It is believed that imbalanced *Doshas* spread from the *Koshtha* to the *Shakha* due to various cause and thus be able to produce various types of diseases depending upon the *Dosha Dushya-Adishthana* pattern. To eradicate the imbalanced *Doshas*, it is essential to mobilize the vitiated *Doshas* in the *Shakha* and to bring them back to the *Koshtha* by various ways of *Panchakarma*^[7].

Acharya Charaka has mentioned repeated use of *Snehana*, *Svedana*, *Basti* and *Mrudu Virechana* for the treatment of *Vatavyadhi*^[8]. It happens with the treatment of *Vatashamana* and *Samprapti Vighatana* with the drugs mentioned in the article like *Nirgundi*, *Eranda*, *Bala* etc are having excellent *vatahara* property and they act as *rasayana*, *balya* and *kapha vardhaka* properties which Increase *Snigdha guna*, *Rasayana*,^[9, 10] *Yoga* exercise *Bhujangasan*, *Trokonasan*, *Veerabhadrasan* etc. focus solely on strengthening the quadriceps muscles make surrounding tissue strong – Muscles, ligaments and tendons which are responsible for the joint stability^[11].

Objectives:

- To understand the aetiopathology, symptomatology and progression of *Sandhigat Vata*.
- To assess the efficacy of *Shuskamulakady taila Abhyanga*^[12] and *Kala Basti* (*Matra Basti* of *Dashmoola taila* and *Niruha Basti* of *Triphla Kwath*) in the management of *Janusandhigata Vata Samavastha*.

MATERIAL AND METHODOLOGY:**Sample Source:**

Patients having *Sandhigat Vata* were selected from OPD and IPD at *Pandit Pyarelal Ramadatta Vaidya Chikitsalaya* and *Vaidya Yagya Dtta Sharma Ayurveda Mahavidyalaya* irrespective of sex, religion, economical status, education, occupation etc. for the research work. Its single group pre and post assessment based, open random, prospective study and systemic sampling method adopted with a patient quantity of total selected 30 Patients. The cases was selected strictly as per the preset exclusion and inclusion criteria. Clinical trials were conducted on them and the data obtained from the trial was analyzed with proper statistical method.

Study Design:

It is single group, open random and systemic sampling method of study.

Inclusion Criteria-

- Age: 40 to 70Years.
- Patient who will give written consent.
- Patients not taking any other treatment for same disease.
- Patient with Primary Osteoarthritis knee joint(s) fulfilling the diagnostic criteria of osteoarthritis recommended by the American College of Rheumatology i.e. Knee pain and; At least three of the following 6 criteria: 30 years of age or older, stiffness lasting less than 30 minutes, crepitus, bony tenderness, bony enlargement, no warmth to the touch.
- Pain in the affected knee joint(s) \geq 3 months (with radiological changes as per Grade I to III of Kellgren & Lawrence Radiological scale).

Exclusion Criteria-

- Patients with Grade IV Kellgren & Lawrence Radiological scale.
- Patients with *sandhigatavata niramavastha* will be excluded.
- Patients with other joints deformities or diseases which are not related to *Sandhigatavata* such as *Amavata*, *Vatarakta*, fracture of joints, psoriatic arthritis and needs surgical care will be excluded.
- Patients having major illness since long time and systemic Pathogenesis eg. Cardiac, renal will be excluded.
- History of any trauma/ fractured joint / surgical/diagnostic intervention with reference to the affected joint(s).
- Gross disability in performing daily normal routine i.e. Bed ridden patients or confined to a wheelchair.
- Patients with co morbidities such as gouty arthritis, rheumatoid arthritis and psoriatic arthritis.
- Patients having any deformity of knee, hip or back altering the gait and posture of the patient.
- Patients with Unstable cardiovascular diseases.
- Patients with uncontrolled diabetes mellitus{ HbA1c>6.5% }
- Patients with evidence of malignancy.
- Patients on prolonged (\geq 6 weeks) medication with corticosteroids, antidepressants, anticholinergics,etc. or any other drugs that may have an influence on the outcome of the study.
- Patients with any severe renal or hepatic or any other disorder which may interfere in the study.
- Pregnant / lactating woman.
- Patients who have participated in other clinical trials within two months of duration.other clinical trial.
- Any other condition which the Principal Investigator thinks may jeopardize the study.

Lab Investigations:

Routine blood picture, R.A. factor, S. Uric acid and X-ray knee joint.

Intervention-

Total treatment duration is of 28 days. Patients symptom was assessed on every interval of 07 days.

Panchakarma Chikitsa:

Firstly- *Shushkamulakady taila Abhyanga* introduced twice a day.

Secondly- *Nadi sweda* with *Dashmoola kwath* for 15 minutes.

Thirdly- Kala Basti: (A) *Matra Basti* with *Dashmoola taila* [1,3,5,7,9,11,13,14,15,16thday].

(B) *Asthapan/Niruha Basti- Lekhan basti* with *Triphla, Gomutra, Madhu, Yavakshara, Ushakadi Avap* [2,4,6,8,10,12thday].

Criteria of Asseement:

A. Subjective Parameter-

1. *Shoola- Akunchan prasaran janya vedna* (Pain & Tenderness)
2. *Shotha* (Swelling/ Oedema)
3. *Graha* (Stiffness)
4. *Sandhi Atopa- Vatapoornadrutisparsa* (Crepitation)
5. *Aushnyata* (Temprature)
6. *Guruta* (Heaviness)

B. Objective Parameter-

1. Oxford Pain Chart
2. Visual Analog Scale
3. WOMAC index score
4. WHO- QOL score
5. X- ray of Knee Joint

RESULT & OBSERVATION:

1. Age & gender wise distribution

According to this distribution only 8 patients (26.4 %) was in the age group of 31 – 40 yrs. There were 5 patients (16.5 %) of the age group of 41 – 50 yrs. Maximum no. of patients i.e. 13 (42.9 %) were of the age group 51 – 60 yrs and 4 (13.2%) patients were in age group 61-70. The Male patients was 9 (30%) and Female was 21 (70%), i.e. Female patients are found more in number than male patients

2. Prakruti and Diet-wise distribution

The 07 (23.34%) patients was vegetarian and 23 (76.67%) patients was Non vegetarian in which 15 (50%) was Vata-kaphaj prakruti, 11 (36.67%) Vata-pittaj prakruti and 04 (13.33%) was Pitta-kaphaj prakruti.

3. Joint-wise distribution (Single type & Multiple type)

The 28 (93.33%) patients found with single joint osteoarthritis and in 02 (06.67%) patients the multiple joints involvement found. In 20 (66.67%) patients unilateral side involved and in 10 (33.33%) patients with bilateral joint involvement.

The Janu/ knee joint involved in 24 (80%), Gulfa/ ankle joint involved in 04 (13.33%), Kati/sacral joint involved in 03 (10%) and kurpar/ elbow joint in 01 (3.33%).

4. Four patients out of thirty patients found markedly releaved from sign & symptoms after continuing *Abhyanga* for 16 days, 7 days of *Abhyanga* is not sufficient for these 4 patients.

- ❖ Patient no. 10th , 14th , 20th & 26th (4 patients) - *Abhyanga* for 16 days along with *Kala Basti (Dashmoola matra basti)* for 10 days & *Triphla kwath lekhan basti* for 06 days).
- ❖ Rest 26 patients - *Abhyanga* for 07 days along with *Kala Basti (Dashmoola matra basti)* for 10 days & *Triphla kwath lekhan basti* for 06 days).

DISCUSSION:

Discussion on Clinical Study:-

1. Joint Signs and symptoms involvement

This study shows *janu sandhi* is chiefly involved in *Sandhigata vata samavastha*. As it is well known that *Janu sandhi* is weight bearing joint, which invites *kha vigunya*.

Sandhi shula is bestly relieved followed by *sandhi shotha* with the *Ahyanga* of *Shushkamulakadya taila* and *Kala Basti (Dashmoola taila basti & Triphla kashaya basti)*. This is due to *sthanika ama dosha pachana* and *vednahara* effect achieved by the oil & *Basti Karma*.

➤ Sandhishoola/ Pain-

Sandhishoola reduced up to 73 % of the enrolled 09 male & 21 Female patient. The t- value first visit 17.712 improved in fourth visit to 25.161. The distribution relation chart of pain Vs Knee joint shows improvement from 2.53 to 0.74. This is relieved due to the *shoolahara, Vedanasthapana, Yogwahi* and *Naadibalya* effect of *Shushkamulakyadi taila* and *Kala basti dravya*.

- This oil no doubt about its safety and have its effect of local application, massaging due to presence of methyl salicylate, Pluchicin, zinziberine, sisamine, ,menthol etc .Often they are used in addition to oral NSAIDS medication .
- **Graha/ Stiffness/ Restricted joint movement-**
Stiffness reduced to 79.49 % of 09 Male & 21 Female patients *Snigdha Ushna virya* effect of oil & *Basti*. The t-score improved from 15.321 to 17.501. The distribution relation chart of Stiffness Vs Knee joint shows improvement from 2.09 to 0.44.
- **Shotha/ Swelling-**
The swelling reduced 71.35 % of 09 Male & 21 Female patients. The t-score improved from 22.854 to 26.354. The distribution relation chart of *Shotha* Vs Knee joint shows improvement from 39.43 to 36.65. Its relieved due to *shothahara/Shofahara* effect of the drug used.
- **Ushnata/ Aushanyata:-**
Ama gets accumulated at that *Sandhi* and leads to *Samavastha* in the disease treated with the *deepan, pachan, agnivaradhan, bhedana* and *anuloman* effect of the *Basti dravya* along with *Triphala* and other.
- **Sandhiatopa/ Vatapurnadratisparsha / Crepitus of Knee Joint-**
The *Atopa* resulted due to the increased *Ruksha* and *Khara* guna in *dhatu* due to *shleshma-kashayata*. Thus particular sound produced due friction of *dhatu*. The *sandhi atopa* reduced to 65.22 %, with improved t-score 11.938 to 11.789. The distribution relation chart of *Crepitus* Vs Knee joint shows improvement from 1.56 to 0.59. Its minimised due to *Snigdha, Shookshma, Guru, Vyavayi* and *Laghu* effect of the drug used..
- Various drug (i.e. *Punarnava, Rasna, Triphala* and *Godugdha*) used have *Mineral* content and **Rasayan effect** on joint modalities.
- The *Sandhigata vata* is *Vata-Kapha* predominant and the drug used have **Vata-Kapha Shaman effect** , which helped in treating the disease.

2. VAS

The overall assessment of betterment in patient's condition is improved as he was able to carry on his day to day work without needing support from others. In this study VAS shows improvement by 68.08%, which indicates this treatment is highly effective in patients of *sandhigata vata samavastha*.

3. Statistical view

This treatment also convince its effect on the ground of statistics. As statistical t-tests, applied to all the assessment criteria found extremely significant. The t-value of *shoola* at first visit 17.712 changes to final visit 25.161 due to the drug effect, the t-value of *shotha* changes from 22.854 to 26.354 and so on *Graha*(stiffness) from 15.321 to 17.501, *Sandhiatopa*(crepitus) from 11.938 to 11.789. Thus it can be strongly concluded that this treatment is useful in *Sandhigata vata samavastha*.

Discussion on Probable Mode of Action of *Shushkamulakady taila Abhyanga*:-

Pharmacological Action:

Shushkamulakyadi oil is used for osteoarthritis. Many other including oils have been marketed in topical formulations (mostly as gel) for application over painful joints. It is believed that the drug would penetrate to the adjacent tissues attaining high concentrations in the joints, while maintaining low blood levels.

This oil no doubt about its safety and have its effect of local application, massaging due to presence of methyl salicylate, Pluchicin, zinziberine, sisamine, ,menthol etc. Often they are used in addition to oral NSAIDS medication.

Measurement of drug concentration attained in tissues underlying the site of application, as well as concurrent blood levels has been shown that the systemic absorption from the topical oil preparation is slow taking ~10 times longer time to attain peak concentration compared to oral dosing.

Highest blood level remains below 12% of to same dose given orally. This is consistent with their lack of systemic toxicity. Local concentrations are high upto a depth of 3-5 mm, i.e. in dermis, but 20 mm depth in muscles, the concentration is low and the nearly same as in blood. The report on clinical efficacy of this and other topical oil are even more variable (24-82%).

Properties of the content of Shushkamulakadi taila as follows-

Mulaka- Pachaka, Ushna, Pacify Vata dosha when Siddha in Sneha. Its also shoolahar and Shofahar.

Varshabhu- Shoolahara, Shothahara

Devdara- Laghu, Snigdha, Amapachaka, Shoolahara, Shothahara

Rasna- Ushna, Amapachaka, Guru, Amapachaka, Shoolahara, Shothahara

Shunthi- Ushna, Pachaka, Laghu, Snigdha, Deepan, Shoolahara, Shothahara

Tila taila- Snigdha, Pachaka, Vednasthapaka, Ushna, Shookshama, Vyavayi.

Shushkamulakadi taila, due to suksham guna of sneha, travels through different channels in-between Twaka and Asthi-Sandhi, reaches the site of pathology and pacify Vata Dosha due to its Ushna, Snigdha and Shlakshana guna and digest sthanika Ama Dosha with Ushna, Suksham, Laghu properties. With the management of these two objectives, the signs and symptoms of Sandhigatavata Samavastha seem to be reduced significantly.

Discussion on Probable Mode of Action of Kala Basti:-

Raspanchak of Dashmoola Taila:-

Rasa	-	Madhura Tikta
Vipaka	-	Madhura
Virya	-	Ushna
Guna	-	Guru Snigdha

In Sandhigat vata, due to Vata prakopa & Shleshak Kapha kshaya, the Ruksha, Khara, Parusha gunas are increased at all over the body specially in sandhies. **Dashamoola** Taila decreases all above gunas with its Guru Snigdha gunas & pacifies Vata. Due to Madhura rasa & Madhura Vipaka it acts as Bruhana so ultimately Dhatukshaya was reduced.

Due to its Ksheerpaki nature it acts as kapha vardhaka. In strotorodha pradhan condition due to its Ushna Virya & Tikta anurasa it does the strotovishodhana & then pacifies Vata. Dashamoola Taila, pacify the symptoms like Shoola, Atopa, Shotha, Graha was reduced, with its Snigdha Guna destroys Rukshata, with Guru Guna, Laghuta and with Ushna Virya, Sheetata of Vata .

Ushna, Tikshna, properties of Basti help in Amapachan and Kaphashoshan and Srotovishodhana. Madhu added in Basti scrapes out the Doshas which are producing Upalepa in the Srotas as by Lekhan Karma Saindhav with its Sukshma Guna carries the drug to minute parts and destroys Avarodha. Thus, the whole therapy removes the Srotorodha and Vatakaphashaman also occurs. Vata-purnadruti Sparsha, Prasaran Akunchan Vedana are the cardinal symptoms of *Sandhigatvata*, which are produced by Vayu. Basti by pacifies Vata relieves the symptoms. Also, it acts on other symptoms like Shotha Graha Aushnya by the Pachana and Kaphanashan karma. Thus, Basti acts on the Doshas, Dushyas, Srotasas involved in *Sandhigatvata* and also on its Rupas. It hits both the types of Samprapti i.e. Dhatukshyajanya and Margavrodhnajanya.

CONCLUSION:

1. Shushkamulakadya taila abhyang and Kala Basti (Dashmool Taila Matra Basti along with Lekhan Basti) in Sandhigatavata was found to be statistically highly significant.
2. Sandhishula reduced up to 73.2%, Sandhigraha by 79.49%, Sandhiatopa by 65.22%, Sandhiaushnyata by 67.57% and Sandhigaurava by 74.67%.
3. Overall assessment score shows 71.35% relief in all symptoms.

4. Dashmool Taila Matra Basti and Lekhan Basti (Kala Basti) was found to be good pachan and Bruhana, vatashamana.
5. Kala Basti with Dashmool Taila Matra Basti and Tiphala kwatha Lekhan Basti was highly effective in Shoola, Shotha+Aushnya+Dhatukshya+NavAvastha. It was also highly effective in the symptoms Atop, Graha.
6. No adverse effect was found during or after treatment.

REFERENCES:

1. Prof. Singh R.H., *Panchakarma Therapy*, Varanasi, Chaukhamba Sanskrita Sansthan.
2. Shri Yadunandanopadhyaya, 2008, *Madhava Nidana of Sri madhavakara*, with Madhukosha commentary, Varanasi, Chaukhamba Prakashana.
3. Pandit hari Sadashiv Shastri, 2010, *Ashtangahridya of Shrimadvagbhatta*, with Sarvangasundari and Ayurvedarasayana commentary, Varanasi, Cahukhanba surbharti prakashana.
4. Braunwald Fauci Kasper Hauser Longo Jameson, 2001, *Harrison's Principle of Internal medicine*, USA, McGraw- Hill publication.
5. C. Guyton, John E. Hall, 1996, *Textbook of Medical Physiology*, Banglore, Prism Book (PVT) Ltd.
6. Vaidya Shri Lakshmipati Shasrti, 2009, *Yogaratanakara*, with Vidyotini commentary, Varanasi, Chaukhamba Prakashana.
7. Vd. Kasture H.S., 1999, *Ayurveda Panchakarma Vigyana*, New Delhi, Baidyanath Ayurveda Bhavana.
8. Dr. Brahamanand Tripathi, 2007, *Sharangadhara Samhita of Pandita Sharangadharacharya*, with Dipika commentary, Varanasi, Cahukhanba surbharti prakashana.
9. Dr. Chunekara K.C., 2006, *Bhavaprakasha Nighantu of Shri Bhavamishra*, Varanasi, Chaukhamba Bharati Academy.
10. Bapalala G. Vaidya, 2009, *Nighantu Adarsha*, Varanasi, Chaukhamba Bharati Academy.
11. Peter L. Williams, 2000, *Gray's Anatomy*, London, Churchill Livingstone.
12. Prof. Siddhi Nandan Mishra, 2005, *Bhaishajya Ratnavali of Kaviraj Govind Das Sen*, with Siddhiprada commentary, Varanasi, Cahukhanba surbharti prakashana.