

## Pain Relief and Functional Improvement with *Murivenna* Bandage in Osteoarthritis of Knee Joint - A Case Report

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### ABSTRACT:

Osteoarthritis in knee is one of the common health issues we encounter in the modern-day clinic and many people find it difficult to manage their day-to-day activities when they suffer from this condition. Knee osteoarthritis (OA) also known as degenerative joint disease of knee is typically the result of wear and tear and progressive loss of articular cartilage. Common clinical symptoms include knee pain that is gradual in onset and worse with activity, knee stiffness and swelling, pain after prolonged sitting or resting, and pain that worsens over time. A 61-year-old female patient presented to Shalyatantra outpatient division on 24.08.2022 with pain on right knee joint, moderate swelling at supra patellar pouch with a duration of five months. She was unable to flex the knee fully and was found difficulty in climbing the stairs. *Murivenna* bandage was done for 21 days with internal medications *Amruthotharam kashayam*, *Punarnavadi kashayam*, *gugguluthikthaka kashayam*, *Yogaraja guggulu*, *lakshadi guggulu*, *Dasamoola hareetaki lehyam*. After the treatment patient got pain relief and functional improvement of knee joint. This case study highlighted the functional restoration of knee joint with 21 days of *murivenna* bandage with internal medications in osteoarthritis of knee.

**Keywords:** Ayurveda, Bandage, *Murivenna*, Osteoarthritis of knee joint, *Sandhigata vata*.

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### INTRODUCTION:

Knee osteoarthritis (OA), is defined as a degenerative joint disease characterized by destruction of articular cartilage and formation of osteophytes at the joint surfaces. [1] It is most common in the elderly. Global incidence of knee osteoarthritis was 203 per 10,000 person – years (95% C.I., 106 – 331) in individuals aged 20 and over. Correspondingly, there are around 86.7 (95% C.I., 45.3-141.3) million individuals

(20 years and older) with incident knee osteoarthritis annually in 2020 worldwide.

[2] Osteoarthritis is typically a progressive disease that may eventually lead to disability. The intensity of the clinical symptoms may vary from each individual. However, they typically become more severe, more frequent, and more debilitating over time. The rate of progression also varies for each individual. Common clinical symptoms include knee pain that is gradual

in onset and worsens over time, with activity, after prolonged sitting or resting, knee stiffness and swelling. According to modern medicine, anti-inflammatory medications and intra articular injections are usually given. These medications only have temporary relief. Repeated use of these medications may cause more rapid degeneration of the joint. Treatment for knee osteoarthritis begins with conservative methods and progresses to surgical treatment options when conservative treatment fails. . Surgical options include osteotomy or total knee replacement and is not a good option to all age groups. [3]

Clinical characteristics of *Sandhigatavata* in Ayurveda include *Vatapoorna dritivat sparsa sopham*, *Vedana* during *Prasarana*, *Aakunchana*, *Sula* [4], and *sopha* [5] which are comparable to the typical symptoms of osteoarthritis of knee joint. Various treatment modalities, including *Snehana*, *Upanaha*, *Agnikarma*, *Bandana*, and *Unmardana* [6] are mentioned in *Sandhigata vata*. *Murivenna* is an *anubhuta Yoga* that is mentioned in Pharmacopeia of Govt. Ayurveda College Pharmacy, Trivandrum, Kerala [7]. *Murivenna* is a drug of choice for the management of *Sandhi Mukta*, *Sadyovrana*, *Dagdha Vranas*, *Bhagna*, *soola* and *Shopha*. There are many research works in *murivenna* about its anti-inflammatory and analgesic effects [8]. This herbal oil preparation is used in the form of *Bandhana*, *Dhara*, *Pichu* and *Tailadroni*. According to Ayurvedic classics, benefits of *bandhana* in *sandhi* are *vedanopasanthi*, *sandhi sthairya*, *sukha prasarana* and *aakunchana*. Therefore *murivenna* bandage is selected as an intervention for reducing pain, swelling and improvement of joint function in osteoarthritis of knee joint.

#### CASE HISTORY:

A 61-year-old female patient presented to Shalyatantra outpatient division 24.08.2022

with pain on right knee joint, moderate swelling at supra patellar pouch with a duration of five months. She was unable to flex the knee fully and was found difficulty in climbing the stairs. She was a tailor and pain increased after prolonged working hours. She consulted an allopathic physician and they advised for total knee replacement. As she was not willing to do surgery, she came for ayurvedic management in the OPD of this hospital. She had previous history of fall on knee joint 5 years back. She didn't take any medical interventions after the fall.

On general examination, the patient was moderately built with a body weight of 52 kg and of height 153 cm. Vitals were stable. No abnormal clinical findings were found in the cardiovascular system, central nervous system, respiratory system, and gastrointestinal system. The prakriti of patient was assessed as *vata kapha*.

On examination of right knee joint, moderate swelling was found at suprapatellar pouch at knee joint. On Palpation Grade 3 tenderness was present at medial side of joint line of right knee. Crepitus was positive with grating sensation. Patellar tap was positive. Patient was able to flex only 80° and extension of knee joint was normal. On blood investigations R.A. factor, A.S.O. titre were found to be negative.

In radiological investigation- X ray of right knee joint, Space was reduced at medial compartment of knee joint. Multiple Osteophytes was present at knee joint. Marginal sclerosis was present. (grade III – Kellgrens Lawrence Classification)

#### THERAPEUTIC INTERVENTION:

*Murivenna* bandage was done on right knee joint as *Swasthika bandana* from 24/08/2022 to 14/09/2022.

The patient was seated in a comfortable position. The knee joint was placed in semi flexed position. A gauze pad soaked with *Murivenna* was kept over the knee joint.

Swasthika type of bandaging was applied from upper one third of leg to lower one third of thigh using kora cloth. Murivenna (10 ml) was poured daily over the bandage.

Rebandage with murivenna was done in 7 days interval (on 31/08/2022 and on 07/09/2022).

**Table-1: Internal Medicines:**

Date	24/08/2022 – 30/08/2022	31/08/2022-14/09/2022
Internal medicines	Amruthotharam Kashayam + Punarnavadi kashayam 90 ml bd before food Yogaraja guggulu 2-0- 2 with kashayam Lakshadi guggulu 2- 0-2 after food	Gugguluthikthaka kashayam 90 ml bd before food Dasamoola hareetaki lehyam 15 gm HS after food Lakshadi guggulu 2-0-2 after food

**Table-2: Improvement In Clinical Findings:**

	24/08/2022	31/08/2022	07/09/2022	14/09/2022
Pain (Vas Scale)	8(Severe unbearable pain)	6(Severe pain)	4(Moderate pain)	2(mild pain)
Swelling – 7cm above patella	41 cm	41cm	40 cm	39 cm
Flexion –using goniometer	80 <sup>0</sup>	80 <sup>0</sup>	90 <sup>0</sup>	100 <sup>0</sup>
WOMAC Score	74	62	56	48



**Fig -1: Materials required for bandaging**

Materials required

1. Murivenna
2. Roll of kora cloth with 15cm \*4 M
3. Cotton roll
4. Gauze piece
5. Scissors



**Fig -2: Swasthika type of bandaging on knee joint**

**RESULTS:**

After 21 days of O.P. treatment, with *murivenna* bandage in patient with osteoarthritis of knee joint got pain relief, functional improvement and the swelling at supra patellar pouch decreased. Patient was able to flex the knee joint up to 100° after treatment from painful flexion of 80°. Patient was able to climb the stairs after 21 days of *murivenna* bandage. The patient restored the original strength of right knee joint upto a fair extent in 21 days of O.P. treatment.

**DISCUSSION:**

*Murivenna* [7] is a drug of choice for the management of *Sandhi Mukta*, *Sadyovrana*, *Dagdha Vranas*, *Bhagna*, *Soola* and *Shopha*. Anti-inflammatory and analgesic effect of *murivenna* is proven through many research works. [8] In *Murivenna*, medium is coconut oil, which is having *seeta veerya* suddenly reduces inflammation [8]. *Sandhaneeya* properties of drugs in *murivenna* also gives an add on effect in osteoarthritis of knee joint.

Among ingredients most of the drugs having *vata* and *kaphahara* properties and *nagavalli* and *kumara* having *pitta samaka* properties. Thus, pain and stiffness were reduced by *vata* *kaphahara* properties of drugs of *murivenna* *taila* and *pitta rakta samaka* properties of drugs helped to relieve inflammation [9].

According to Ayurvedic classics, benefits of *bandhana* in *sandhi* are *Vedanopasanthi*, *Sandhi Sthairya*, *Sukha Prasarana* and *Aakunchana*. [10] Ligament instability associated with osteoarthritis of knee joint can be effectively managed with bandage of knee joint. Systemic absorption of drugs after topical application depends on the lipid solubility of drugs. Absorption can be promoted by bandaging which increases the concentration of the drug reaching the targeted site. Proper bandaging influences knee pain, proprioceptive acuity, and

postural sway in knee osteoarthritis. Possibly, the reduction in knee pain while wearing the bandage was due to stimulation of large type Aδ sensory fibres from skin mechano receptors, leading to reduction in transmission of pain signals [11]. It seems unlikely that a bandage would have a direct effect through pressure in the absence of any condition that would benefit from increase in pressure or support (for example, soft tissue oedema). However, skin receptors are very sensitive to tactile stimuli and any movement of the bandage on the skin may influence proprioceptive acuity and subsequently result in improvement in sway [11]. These effects might have secondary benefits on pain. Thus, cotton padded *murivenna* bandage is far better option than knee braces, knee crepe bandages. According to Ayurveda *Sandhi Sthairya*, *Vedanopasanthi*, *Sukha Prasarana* and *Aakunchana* of joints are achieved by the proper bandaging. Thus, combined effect of *Murivenna* and continuous bandage on knee have beneficial role in knee osteoarthritis by healing ligament injuries and thus relieves pain and restore the function of osteoarthritis affected knee.

*Amruthotharam kashayam* [12], [13] with *punarnavadi kashayam* [14], [15] in the initial stages of knee osteoarthritis reduces the knee joint effusion by its anti-inflammatory action. *Gugguluthikthaka kashayam* [16] is used to manage pain and swelling associated with arthritis, degenerative diseases of bone and joints, rigidity and loss of function. The natural steroid guggulusterone [17] in *gugguluthikthaka kashayam* aids in bringing about sustained pain relief and healing. *Yogaraja guggulu* [18] helps in reducing stiffness, pain and swelling by balancing *vata* and *kapha doshas*. *Lakshadi guggulu* [19] which is mentioned in *Bhagnadhikara* is known for its analgesic property and cartilage regenerating capacity [20]. *Dasamoola hareetaki lehyam* [21] is beneficial



in chronic inflammatory conditions associated with swelling. All these improved the healing process of ligament injuries, thereby restored its original strength upto a fair extent and arrested the disease progression. *Murivenna* bandage heals the ligament injuries in knee joint, thus providing knee stability.

Osteoarthritis knee joint patient with pain and functional limitation was managed with *Murivenna* bandage and administration of oral Ayurvedic medicines. Patient got pain relief and improvement in quality of life. Painful ligament injuries associated with knee osteoarthritis can be effectively managed through *Murivenna* bandage and administration of oral Ayurvedic medicines. Progression of osteoarthritis of knee joint was arrested with internal medicines having anti-inflammatory and cartilage regenerating properties.

#### CONCLUSION:

This case study highlighted the beneficial effect of *murivenna* bandage for arresting the progression of disease as osteoarthritis of knee joint begins with ligament injuries which ultimately gives deformity to knee joint.

#### Limitation of study:

This is a single case study, more studies on larger sample sizes are required to establish its clinical efficacy more comprehensively. .

#### Strength of study:

This case study paved a new way of Ayurvedic management in osteoarthritis of knee joint. Continuous *Murivenna* bandage for 21 days with internal medicines helps to heal the ligament injuries and thus arresting the disease progression to deformities in knee osteoarthritis.

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#### Informed Consent:

The written informed consent has been obtained for treatment and publication of data.

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