

## EFFICACY OF PANCHAKARMA IN SANDHIVATA W.S.R. TO KNEE ARTHRITIS

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## ABSTRACT

Inflammation of knee joint is called knee arthritis. Among various forms of knee arthritis common is degenerative type of knee osteoarthritis. It is the major cause of loco motor disability in old age people particularly among women. Analgesics and Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) are the current available pharmaceutical management of knee osteoarthritis which are associated with adverse side effects. Thus, there is need of research in traditional system of medicines for cost effective and long-term management of knee OA. Degenerative Knee osteoarthritis is almost similar to the *Sandhivata* describes in *Ayurveda* with respect to aetiology, pathology and clinical features. With the use of medicines *Ayurveda* also employs the prospective of *Panchakarma* in the various therapeutic measures, which is a kind of *Shodhan Chikitsa*. *Panchakarma* provides various therapeutic benefits as detoxification, improved circulation, spasm and pain relief. Hence objective of this review article is to describe the efficacy of *Panchakarma* in knee-arthritis with taking consideration of disease mentioned in *Ayurvedic* classics as *Sandhivata*.

**Keywords:** *Ayurved*, *Panchakarma*, *Sandhivata*.

## INTRODUCTION

Arthritis and Knee Joint, Arthritis is the blanket term use to refer more than 100 rheumatic diseases and conditions that affects the joints, tissue surrounding the joints and the other connective tissue<sup>1</sup>. Knee Arthritis includes the primary symptoms of inflammation like Pain, swelling, and stiffness. Knee is the largest synovial joint in humans, which is composed of osseous structures (distal femur, proximal tibia, and patella), cartilage (meniscus and hyaline cartilage), ligaments and a synovial membrane. The latter is in charge of the production of the synovial fluid, which provides lubrication and nutrients to the avascular cartilage<sup>2</sup>. Unfortunately, given the high use and stress on knee joint, it becomes a frequent site for painful conditions like OA<sup>3,4</sup> which mainly afflicts the knee joint in the transition period between middle age and old age.<sup>5,6,7</sup> particularly in women who are progressing towards menopause or those who have already set in<sup>8</sup>.

### Knee Osteoarthritis-

Different from inflammatory arthritis, inflammation in OA is chronic and low-grade inflammation, involving mainly innate immune mechanisms. Synovitis (infiltration of inflammatory cells into the synovium) is a common finding of OA and it can be present in early stages of the disease but is more prevalent towards the more advanced stages and can be related with severity<sup>9</sup>. Previously knee osteoarthritis was interpreted as wear and tear of the articular cartilage disease because of ageing and not related to inflammation. Although the disease pathophysiology is still poorly understood and is under investigation, now it is accepted that knee osteoarthritis is multi factorial in origin where both inflammatory and biomechanical whole organ disease processes plays an important role. Knee osteoarthritis influenced by combination of factors including age, obesity, joint integrity, genetic predisposition, lower limb alignment, trauma and inflammation by metabolic syndrome.<sup>10-17</sup> knee osteoarthritis implicit articular cartilage damage, bony osteophytes formation, sclerosis of the subchondral bone and in advanced cases subchondral cyst formation pathologically regardless of the underlying mechanism.

### Classification of Knee Osteoarthritis-

According to its aetiology OA is classified into two groups: primary (idiopathic or non-traumatic) and secondary (usually due to trauma or mechanical misalignment).

One of the clinical classification criteria most frequently used is the one developed by the American College of Rheumatology.<sup>18,19</sup>

**Clinical Knee pain** for most days of the prior month, in addition to *at least 3* of the following:

- Crepitus on active joint motion
- Morning stiffness less than 30 minutes' duration
- Age older than 50 years
- Bony enlargement of the knee on examination
- Bony tenderness of the knee on examination
- No palpable warmth.

**Clinical plus radiographic:** *Knee pain* for most days of the prior month, plus radiographic evidence of osteophytes on joint margins in addition to 1 of the following:

- Crepitus on active motion
- Morning stiffness less than 30 minutes' duration
- Age older than 50 years.

**Clinical plus laboratory:** *Knee pain* for most days of the prior month, in addition to *at least 5* of the following:

- Crepitus on active joint motion
- Morning stiffness less than 30 minutes' duration
- Age older than 50 years
- Bony tenderness to palpation
- Bony enlargement
- No palpable warmth
- Erythrocyte sedimentation rate below 40 mm/h
- Rheumatoid factor less than 1:40
- Synovial fluid consistent with OA (white blood cell count < 2000/ $\mu$ L).

### Sandhivata-

*Acharya Charaka* was the first person who described the disease separately named "*Sandhigata Anila*" but has not included under 80 types. According to *Ayurveda* Pphysiological functions of the body is governed by three *Doshas* that is, *Vata*, *Pitta*, and *Kapha*. Vitiation of these *Doshas* leads in disease manifestation.

As the age progress degeneration of the body parts occurs due to the influence of *vata dosha*. *Sandhivata* is the result of such degeneration<sup>20</sup>. Also, *Vata* get aggravated by various reasons other than ageing like improper diet, injury, exposure to cold, suppression of natural urges etc. vitiated *Vata* shelter in the joints. Due its *Rooksha*, it dries up the lubricating synovial fluid inside the joint capsule, degenerates the joints and can causes the early destruction of cartilage. *Sandhivata* is one of the consequences of this process. Hence *Sandhivata* is a painful condition of the joint explained in *Ayurvedic* text under *Vatavyadhi*<sup>21, 22, 23</sup> which is characterize by following features-

- **Shoola** (pain)
- **Vatapurnadruti Sparsha** (sound resembling that made when rub against a balloon or transparent container filled with air)
- **Shotha** (swelling)
- **Vedana during Prasaran and Akunchan** (painful movement including extension and flexion)
- **Atopa** (abnormal sounds due to damage of joints or crepitus)
- **Sandhihanti** (restriction of joint movements)

#### Treatment

*Sandhivata* is figures as *Kashtsadhya Vyadhi* due to involvement of *Vatadoasha*, *Madhyam Roga Marga* and *Dhatu kshaya*. Thus, it is important to prevent early degenerative changes along with treating *Sandhivata*. *Ayurveda* plays an important role in both of these aspects. A common treatment for *Vata Vyadhi* has been described by *Acharya Vagabhata* i.e. repeated use of *Snehana* (Oleation therapy) and *Swedana* (Sudation therapy), *Basti* (Enema) and *Mridu Virechana*(Mild Purgative)<sup>24</sup> *Acharya Sushruta* has mentioned the treatment for *Sandhigata Vata* clearly i.e. *Snehana*, *Upanaha*, *Agnikarma*, *Bandhana* and *Unmardana*<sup>25</sup>.

#### Efficacy of Panchakarma -

The therapeutic measures of *Ayurveda* not only involve use of medicine but also utilizes other approaches such as; *Panchakarma*<sup>26</sup>. *Panchakarma* is a very unique therapeutic procedure, because of its preventive, promotive, prophylactic and rejuvenate properties as well as providing a radical cure<sup>27</sup>. Diseases

which are associated with pain mainly involve localized symptoms and vitiated *Vata dosha*.<sup>28</sup> *Panchakarma therapy* help to relief localized symptoms in knee osteoarthritis associated with pain such as inflammation, swelling and strain by pacifying the *Vata Dosha*.

#### Mode of Action of Various Panchakarma Therapies in Knee osteoarthritis-<sup>29</sup>

##### **Snehana-(Oleation Therapy)**

It is the first line of treatment explained in the classics for *Sandhivata* as *Sneha* is antagonist to the degeneration process caused by excessive *Ruksha Guna* (dry quality) and *Khara Guna* (rough quality) of vitiated *Vata*.

**1. Abhyanga (Therapeutic/Preventive Herbal Oil Massage)-** *Abhyanga* reduces the provoked *Vata*, which is responsible for the decay in the *Dhatu*s and for manifestation of features like pain, stiffness, and crackers. According to modern studies, massage stimulates blood circulation and assists the lymphatic system, improving the elimination of waste throughout the body. Absorption through the skin can be enhanced by suspending the drug in an oily vehicle and rubbing it on the skin.<sup>30</sup>

In cases of osteoarthritis, a study found an 88% improvement when combining *Abhyanga* with steam and manual traction<sup>31</sup>. Patients reported improvement in joint movement and reduction in joint swelling with oil applications

**2. Janu Basti:** *Janubasti* by lubricating or improving the local blood circulation in knee joint, it enhances the mobility of the knee joint and maintains the integrity of the knee joint.

**3. Sandhipichu-** By nourishing the bone and connective tissue around the knee joint it prevents the degeneration, inflammation in the knee osteoarthritis and heals pain.

**4. Sandhi Lepa-** It indicated where *Kapha Dosha* is involved along with *Vata* and helps to reduce stiffness or effusion in knee osteoarthritis.

**Svedana: (fomentation)** *Svedana* is specially indicated in symptoms like *Sankocha* (contraction or flexion), *Ayama* (extension), *Shula* (pain), *Stambha* (stiffness), *Gaurava* (heaviness), and *Supti* (numbness).<sup>32</sup>

<sup>33</sup> These are the usual clinical manifestations of *Sandhigatavata*. This panchakarma therapy helps to enables the free circulation in the joints and relaxes the muscles, which further reduces the stiffness and pain, dispenses the symptomatic relief in knee osteoarthritis.

*Bashpa Swedan- Ekang Bashpa or Nadi Sweda-* when the pain is limited to a part of the body

**Pinda Sweda-** (bolus formation)-generally done as a local fomentation, applied on the pain afflicted joints.

1. *Churna Pinda Sweda-* in it wet bolus prepared from analgesic and anti-inflammatory herbal powder used for lubrication in knee osteoarthritis.
2. *Patra Panda Sweda* (Leaf Bolus Fomentation)- fresh leaves of *Vata* alleviating /pain reliving herbs are used
3. *Shashtika Shali Panda Sweda-* due to the properties of rejuvenation, nourishment, strengthen the bone and connective tissue it is preferred where there are signs of severe *Vata* vitiation and degeneration of knee joints.

*Dhara/Seka* (Pizhichill) - herbal oil streams over the painful knee joints, *Upanaha* (Poultice Sudation)- is a type of *Svedana* indicated in classics<sup>34</sup> as one of the components in the treatment of *Sandhigatavata*.<sup>35</sup> Studies have revealed the fact that lipid medium is highly suitable for penetration of the drug molecule through stratum corneum.

*Mriduvirechana-* Treatment of *Sandhigatavata* usually begins with a basic process like *Mriduvirechana*. It cleanses the body to restore patency of the *Srotasa*, which improve the access of healing material as well as nourishment to the body components<sup>36</sup>.

*Basti-* *Basti* is considered to be best *Panchakarma* therapy for vitiated *Vata* and related painful conditions including knee osteoarthritis as it reinforced and rejuvenates the joint and soft tissues, assist fast healing and hence enabled the smooth movements at the knee joints.

*Matrabasti-* Is a type of *Anuvasan Basti*<sup>37</sup> *Charaka* while assessing the *Anuvasana Basti* records the digestion of *Sneha* by the words “*Sneham Pachati Pavakah*”. *Basti*, through its action on *Vata* and *Agni*, promotes the formation of *Dhatu*s. According to

*Acharya Charak Matrabasti* is always applicable to those emaciated due to overwork, physical exercise, weight lifting, journey on vehicles, in debilitated person as well afflicted with *Vata disorders*<sup>38</sup>, *Matra basti* is a type of *Snehabasti*, which is unique therapeutic procedure because of its preventive, promotive, rejuvenative and curative properties and helps to alleviates *Vata*, nourishes *Aasti* and *Majjadhatu*<sup>39,40</sup> The colon is considered as main seat of *Vata*, and *Vata*-alleviating substances administered through the rectocolonic route in *Matrabasti* are able to have their optimum effect on the seat of *Vata*<sup>41</sup>.

## CONCLUSION

Although numerous modern treatments for various forms of OA have been identified, they suffer from various drawbacks, such as lack of efficacy, excessive side effects and high cost<sup>42</sup> The current pharmacological management of osteoarthritis includes the administration of analgesics and NSAID's, but their use neither provides adequate pain relief nor deceleration in disease process. In addition, NSAIDs are associated with adverse effects<sup>43, 44, 45</sup>. Due to which the use of alternative therapies is on the rise. WHO recommends to include traditional system of medicine in global health care<sup>46</sup> Usually treatment of OA requires treatment of the patient for their entire lifetime; therefore it should be effective, friendly, safe and cheap. The goal of OA treatment for medical profession is not only control symptoms but also prevent disease progression, minimize disability, and improve quality of life. Researchers claimed that *Ayurveda* treatment outcome is better than or equal to conventional drug for improvement of pain and knee function<sup>47</sup>. Hence it can be concluded that *Panchakarma* (detoxification technique) has promising relief effect in osteoarthritis.<sup>48</sup>

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