



**AYURVEDIC MANAGEMENT OF
SPONTANEOUS OSTEONECROSIS OF THE KNEE- A CASE REPORT**

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ABSTRACT :

Spontaneous Osteonecrosis of Knee (SONK) is classically described as a focal, superficial subchondral lesion mainly involving the medial femoral condyle. The condition was first described by Ahlback in 1968 and pathology includes the necrosis of subchondral bone due to vascular insufficiency, with subsequent disruption of nutrition supply to the cartilages. The prognosis varies from complete recovery to progressive joint collapse. If detected early and the subchondral lesion is small, non-surgical management is appropriate. Through literature review the condition is understood as pathology of *Asthimajjāgata vāta* where the aggravated *vāta* invades the *Asthi* and *Majja dhātu* due to varied etiologies. In this case, a 47-year-old male was suffering from sudden onset of pain and swelling in the medial aspect of the left knee joint, which aggravated on prolonged standing, walking, climbing stairs, and also during night. Examination revealed tenderness at the medial femoral condyle. The diagnosis was based on clinical symptoms, radiographic and MRI findings. The case was considered and managed with treatment principle of *Asthimajjāgata vāta*. The treatment was done for 12 days with a combination of *Pancakarma* procedures (*Sadyo Virecana* with *Eraṇda taila* in milk and *Yogabasti- Mustādi yāpana vasti* with *Guggulu Tiktaka ghrta anuvāsana*), External therapies (*Daśamūla kṣīradhāra*, *Nāgarādi lepa*, *Marījiṣṭādi lepa*, *Ellumniśādi lepa*, *Dhānyāmla dhāra*, and *Kāya seka* with *Kṣīrabala taila*) and Oral Ayurveda medicines (*Mahāmarījiṣṭādi kaśāya*, *Kaiśora guggulu*, *Gandha taila* drops, Cap. *Arjuna*, *Śāribādyāsava*) resulted in significant improvement in symptoms of SONK. This case report provides a promising result for the successful management of SONK by incorporating the treatment principles of *Asthimajjāgata vāta*.

Key words: Osteonecrosis, SONK, *Asthimajjāgata vāta*

INTRODUCTION: Knee is the second most common localization for osteonecrosis, following hip jointⁱ. Osteonecrosis (ON) of the knee has been

linedated into three categories like Primary/Spontaneous Osteonecrosis (SONK/SPONK), Secondary/Ischaemic/Atraumatic ON and

Post arthroscopic ONⁱⁱ. Ahlback *et al.* first described the primary form in 1968 and is, therefore, synonymously called Morbus Ahlback or Ahlback's disease. SONK is classically described as a focal, superficial subchondral lesion, mainly affecting the medial femoral condyle. This ailment more often affects women than men, and is typically unilateral.^{iii,iv} The aetiology of all entities of ON remains unclear. However, the studies reveals about the necrosis of subchondral bone due to vascular insufficiency, with subsequent disruption of nutrition supply to the cartilages^v. Ayurvedic description of *Asthimajjāgata vāta*^{vi,vii} has a close resemblance, with pathogenesis of SONK, as there is a focal necrosis of subchondral bone which results in impaired function of knee joint. So principles advocated for the treatment of *asthimajjāgata vāta* can be successfully adopted for the management of SONK. *Bāhya abhyantara sneha prayoga* (Internal-External Oleation therapies) and *Pancakarma* procedures like *Tikta rasa pradhāna kshīra bastis* or *Madhura-Tikta yukta* medications (drugs with sweet and bitter taste) by considering the *dhātu*, *sthāna* and *bala* of vitiated *doṣas* were advised for the management of *Asthimajjāgata vāta*.^{viii,ix,x}

MATERIALS AND METHODS

Case Report

A 47-year-old man working as a storekeeper in Dubai presented to the outpatient department, with the complaint of severe pain in the medial aspect of the left knee along with stiffness, since three months. He had a history of alleged RTA in the form of fall on his left knee around 12 years back resulted in pain and swelling of the knee joint which subsided by time without any medical consultations, after which he was asymptomatic and engaged

in normal activities. He works in a firm that demands standing and walking for longer duration and had repeated incidence of trauma on the knee which was managed by painkillers and sprays. Three months ago, he experienced a sudden onset of pain on left knee more on the medial side associated with swelling and tenderness which was progressive in nature. The pain was of pricking type which was felt more during morning time especially after waking up from bed along with stiffness which persisted for about 15 minutes and also at night time. Pain gets aggravated by prolonged standing, walking, rising from chair or bed, and on ascending stairs and had shivering of legs on extension. Pain is of moderate severity which did not interrupt him from his daily activities but restricts him from prolonged standing and walking. So he came to the OPD of Amrita School of Ayurveda for better treatment.

Clinical Findings

On Inspection, oedema was present and there was no deformity, muscle wasting or redness. On Palpation, warmth and tenderness was noted on the medial side and crepitus was present. The gait and range of movements were not affected. Patellar tap test and Bulge test were positive.

Diagnostic Assessment

MRI showed a collapse of articular surface at the midpoint of medial femoral condyle, tear of medial meniscus, tear of middle fibres of posterior cruciate ligament. Grade I strain for medial collateral ligament and joint effusion with peri articular soft tissue oedema (fig.1).

X-ray also showed degenerative changes of the medial meniscus with reduced condylar space and necrotic changes of medial femoral condyle (fig.2).

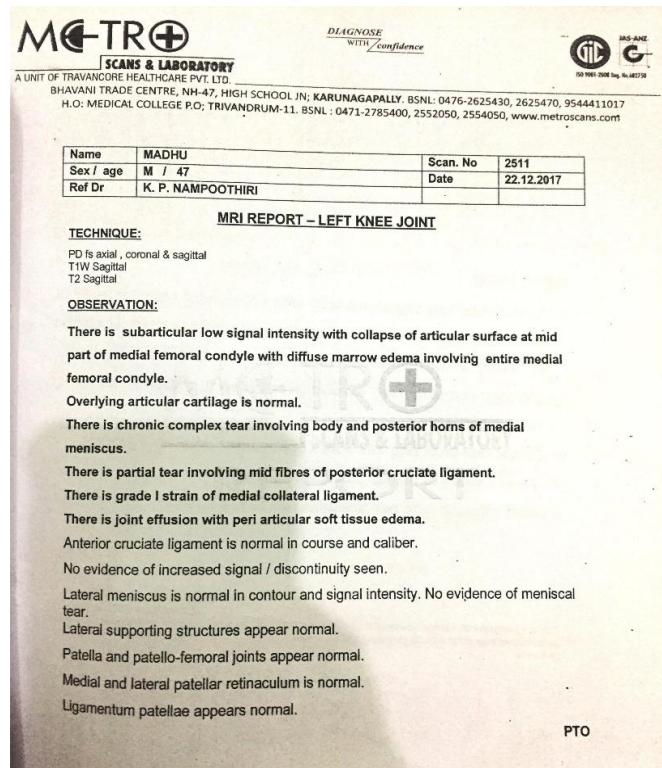


Fig. 1- MRI report of SONK



Fig. 2- Plain radiograph of left knee (AP & lateral view)

Therapeutic Interventions: The following treatment schedule such as *śodhana* (purification) along with *śamana* medications (palliative treatment) and external therapies were executed. *Daśamūla kṣīra dhāra* (pouring of milk decoction made of a group of 10 medicinal roots) was performed for 3 days along with *Nāgarādi lepa* (application of medicinal paste) during day time and *Manjiṣṭādi lepa*^{xi} at night in the left knee joint. From 5th day onwards, *Dhānyamla dhāra* (pouring warm, sour liquid over the body

as a stream) was performed to reduce inflammation, which is essential before *snehana* (*Brumhyāstu mrudu langhayet*). Subsequently, *Kāya seka* (pouring of oil) was given with *Kṣīrabala taila*. Then, *Sadyo Virecana* (therapeutic purgation) was done using *Eranda taila* (Castor oil) in milk and *Yoga basti* (group of 08 enemas, i.e. 5 decoction enemas and 3 oil enemas) consisting of *Mustādi yāpana* as *nirūha basti* (decoction enema) and *Guggulu tiktaka ghrita* as *sneha basti* (oil enema) was administered. The *Nagarādi*

lepa was changed to *Ellum niśādi lepa* after 5 days because of its *sīta brūṁhaṇa guṇa* (nourishing property).

Internal medications given during this period include *Mahāmājiṣṭādi kaśāya*, 20 ml thrice with 60 ml lukewarm water mixed with *Kaiśora guggulu* (750 mg/tab), 1 tid and *Cap. Arjuna* has been given 1 Capsule, tid after food. At 11 am,

8 drops of *Gandha Taila* was given in milk. *Śāribādyāsava*, 30 ml thrice daily was administered after food.

His hospital course was uneventful. At the time of discharge, the patient had relief from symptoms such as pain and swelling of knee joints. He was advised to continue the internal medications and exercise.

Table 1: Therapeutic Interventions

| External Medications | |
|-----------------------------------|---|
| 12/01/2018 -14/01/2018 | (3 days) <i>Daśamūla kṣīra dhāra</i> over left knee |
| 12/01/2018-16/01/2018 | (5 days) <i>Nāgarādi lepa</i> over left knee (day time) |
| 12/01/2018-16/01/2018 | (5 days) <i>Mājiṣṭādi lepa</i> over left knee (night time) |
| 17/01/2018-23/01/2018 | (7 days) <i>Ellum niśādi lepa</i> over left knee (night time) |
| 16/01/2018-18/01/2018 | (3 days) <i>Dhanyāmladhāra</i> |
| 19/01/2018-23/01/2018 | (5 days) <i>Kāya seka with kṣīrabala taila</i> |
| Panchakarma Procedures | |
| 15/01/2018 | <i>Virecana</i> with <i>Gandharvahasta eranda</i> (50 ml) with milk in empty stomach at 7 am |
| 16/01/2018-23/01/2018 | <i>Yoga basti</i> with <i>Mustādi yāpana</i> as <i>Nirūha basti</i> and <i>Guggulu tiktaka ghrita</i> as <i>anuvāsana basti</i> |
| <i>Mahāmājiṣṭādi kaśāya</i> | 20 ml TID with 60 ml of luke warm water before food |
| <i>Kaiśora guggulu</i> | 1 tab along with <i>kaśāya</i> |
| <i>Cap Arjuna + śāribādyāsava</i> | 1 tab + 30 ml TID after food |
| <i>Gandha taila</i> | 8 drops with milk at 11 am |

Outcome Measures

Table 2: Grading of subjective parameters before and after treatment

| Subjective Parameters | Before Treatment | After treatment |
|--|-------------------------|------------------------|
| <i>Jānu sandhi śūla</i> (Knee joint pain) | 5 | 0 |
| <i>Stambha</i> (Stiffness) | 6 | 1 |
| Pain during movement | 6 | 2 |
| Assessment criteria : Numerical Rating Scale (NRS) | | |

Table 3: Grading of Objective parameters before and after treatment

| Objective parameters | Before Treatment | After Treatment |
|-----------------------------|-------------------------|------------------------|
| Crepitus | +++ | + |
| Swelling | ++ | - |
| Patellar tap test | +ve | -ve |
| Bulge test | +ve | -ve |

FOLLOW-UP AND OUTCOMES: At the end of 12 days of IPD treatment involving *śodhana* (*sadyo virecana* and

vasti) followed by *śamana* medications and external medication resulted in significant improvement in symptoms of

SONK such as pain, swelling and stiffness. The patient responded well to Ayurvedic management and got symptomatic relief and quality of life got improved with 12 days' treatment.

DISCUSSION: The case is diagnosed as Spontaneous Osteonecrosis of Knee owing to the features such as sudden onset of unilateral pain in the medial femoral condyle, which is worse at night and during weight bearing, and also based on radiographic and MRI findings. It is a debilitating disease which may lead to disabling osteoarthritis with subluxation. The exact aetiology remains unknown and the disease is also poorly understood. An early diagnosis and treatment may allow for an improved clinical outcome. In Ayurveda, this can be co-related to *Asthimajjāgata vāta* owing to the degenerative changes in the medial femoral condyle, medial meniscal tear and posterior cruciate ligament tear. There are treatments for SONK in conventional medicine, including conservative treatment, arthroscopic debridement, drilling of the lesion, arthroplasty and bone grafting.

The case was considered and managed with *Asthimajjagata vāta* treatment principle. *śodhana* and *śamana chikitsa* which arrest the progression of pathogenesis were included in the treatment. Firstly *Eranda taila* (Castor oil) in milk was used for *Virechana* to clear the *āma/ samga* (obstruction) in *srotas* and to bring *vāta* *śamana*. As there was inflammation in the joint, the *virecana* procedure responded well with gradual reduction in swelling and burning sensation. *Yoga basti*^{xii} with *Mustādi yāpana basti*^{xiii} and *Guggulu tiktaka ghrita*^{xiv} as *anuvāsana* is useful in managing SONK, as *basti* is considered as

a prime treatment for deranged *vāta dosha* and *vāta* is the principal component in *sandhi* and *asthi dhātu*. *Mustādi yāpana vasti* is having *Tikta rasa* (bitter taste), which helps in regeneration of *Asthi* and *Majja dhātu*, due to predominance of *ākāśa* and *vāyu mahābhūta*. Besides this *tikta rasa*, it possesses attributes such as *Dīpana* and *Pācana* (properties which promotes digestion) which enhances the altered metabolism by improving the *Dhātwagni*. *Mustādi yāpana vasti* is *Rasāyana* (immunomodulatory), *Balya* (promotes power) and *Dhathu vārdhaka* (enhances power) in nature which ultimately tones up the muscles and tendons around the joints. As external medications, *Daśamūla kṣīra dhāra* and *Dhānyāmla dhāra* was efficacious in case of pain, stiffness and joint swelling and also to improve blood circulation due to its heat. *Nāgarādi lepa*^{xv} and *Mamjīṣṭādi lepa* is effective in oedema of traumatic origin and ligament injury for pain relief. During this period considerable relief from stiffness especially in the morning and the severe pain got subsided. After *śodhana* (internal purification), *brimhana* (nourishing) is achieved by following procedures like *Ellum niśādi lepa*^{xvi} (effective in *Ghana jānu sopha*) and *Kāya seka* (pouring of oil) with *Kṣīra bala taila*^{xvii} (best result in anti-inflammatory action). Internal medications given like *Mahāmamjīṣṭādi kaśāya* along with *Kaiśora guggulu*^{xviii} have anti-inflammatory, immune-modulatory and anti-histaminic effect which helps to improve micro circulation. *Gandha taila* is *asthi sthairyakara* (bone strengthening), minimize pain & weakness in joints, was given during the whole period of treatment. *Cap Arjuna* and *śāribādyaśava* possess *rakta prasādaka* (enhanced

function related with blood) property also enhances the micro-circulation. These drugs and procedures have the properties to treat the manifestation of SONK such as swelling and tenderness in the medial side of knee which restricts the routine activities of patient. *Panchakarma* procedures help to arrest the necrosis and provide further nourishment to the knee joint.

CONCLUSION: The present case report provides a promising effect of Ayurveda treatment protocol for the successful management of SONK which gives better clinical results and higher patient satisfaction. The recent follow up in OPD of Amrita Ayurveda College, after one year is satisfactory. He continues to walk without pain and do routine works, but some manoeuvres like climbing stairs continue to irritate his knees. An integrated approach with further modifications in diet pattern promoting healthy status of *Asthi-majja dhātu*, daily intake of milk and ghee, healthy lifestyle and adequate intake of suitable medicines can yield better results. Further studies are needed to substantiate the present case report findings.

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