



CASE REPORT

# Panchakarma Therapy in the Management of Bilateral Avascular Necrosis of the Femoral Head: A Case Report

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## ABSTRACT

**Background:** Avascular necrosis of the femoral head is a progressive condition caused by compromised blood supply leading to bone collapse. Management remains challenging, particularly in advanced stages where surgical intervention is often advised.

**Case Presentation:** A 38-year-old male presented with bilateral hip pain, restricted movements, stiffness, and difficulty in walking for one year. MRI revealed Stage IV avascular necrosis in right side while stage III in left side. (Ficat–Arlet classification).

**Intervention:** The patient was treated with Panchakarma procedures including Abhyanga, Nadi Swedana, Patra Pinda Sweda, Mustadi Yapana Basti, Jalaukavacharana, and internal Ayurvedic medications for 17 days followed by outpatient management.

**Outcome:** Harris Hip Score improved from 20 points at baseline to 90 points after completion of treatment and follow-up and reduction in right hip was noted from stage

**Conclusion:** Panchakarma therapy showed remarkable significant symptomatic improvement in this case of bilateral avascular necrosis. Further controlled studies are required to validate findings.

**Keywords:** Avascular necrosis, Panchakarma, Mustadi Yapana Basti, Harris Hip Score, Ayurveda

## Introduction

Avascular necrosis (AVN) of the femoral head, also referred to as osteonecrosis or ischemic necrosis, is a progressive and debilitating disorder characterized by the death of bone tissue due to compromised blood supply to the femoral head. The femoral head is particularly vulnerable to vascular insufficiency because its blood supply is primarily dependent on a limited number of terminal vessels arising from the medial and lateral circumflex femoral arteries. Interruption or impairment of this vascular network leads to ischemia, osteocyte death, and subsequent structural collapse of the femoral head. If untreated, this pathological process eventually results in degenerative arthritis of the hip joint and significant functional disability.<sup>1</sup>

AVN of the femoral head represents one of the most common causes of hip joint destruction in young and middle-aged adults. Epidemiological studies estimate that approximately 10,000–20,000 new cases are diagnosed annually in the United States alone, while the disease burden is also significant in developing countries, including India. The condition most frequently affects individuals between 20 and 40 years of age, leading to considerable morbidity and reduced quality of life.<sup>2</sup>

The etiology of AVN is complex and multifactorial, involving both traumatic and non-traumatic causes. Traumatic AVN commonly occurs following femoral neck fractures or hip dislocations, which directly disrupt the vascular supply to the femoral head. Studies indicate that osteonecrosis develops in approximately 15–50% of patients with femoral neck fractures and in 10–25% of cases following hip dislocation.<sup>3</sup> Despite the identification of multiple risk factors, the exact pathophysiology of AVN remains incompletely understood.

Early diagnosis and timely management are therefore crucial to prevent disease progression and preserve joint function. Imaging modalities such as radiography, computed tomography (CT), and magnetic resonance imaging (MRI) play a vital role in the diagnosis and staging of AVN, with MRI being the most sensitive modality for early detection. Treatment strategies depend on the stage of the disease and range from conservative management to surgical interventions. Joint-preserving procedures such as core decompression, bone grafting, osteotomy, and biologic therapies are typically recommended in early stages before collapse of the femoral head. In advanced stages, reconstructive procedures such as hemiarthroplasty or total hip replacement are often required.<sup>4</sup>

However, the management of AVN remains challenging, as no universally accepted treatment has demonstrated consistent success, particularly in advanced stages of the disease. Therefore, alternative and complementary therapeutic approaches are being explored to improve outcomes and delay disease progression.

From the perspective of Ayurveda, conditions affecting bone and bone marrow tissues can be correlated with *Asthi-Majja-gata Vata*, a disorder characterized by vitiation of *Vata Dosha* affecting the *Asthi* (bone) and *Majja* (bone marrow). The clinical manifestations

described in classical Ayurvedic texts, including *Bheda-Asthi-Parvanam* (severe joint pain), *Sandhi Shoola* (joint pain), *Mamsa Bala Kshaya* (muscle wasting), *Sandhi Shaithilya* (joint instability), and *Shiryanti Asthi* (degeneration of bone tissue), resemble the symptoms observed in patients with AVN.<sup>5</sup> Furthermore, the degenerative nature of the disease can also be correlated with *Asthi Dhatu Kshaya* (depletion of bone tissue),<sup>6</sup> which results from aggravated *Vata* leading to structural weakness and degeneration of bone tissue.

Ayurvedic management of such degenerative musculoskeletal disorders primarily focuses on pacifying *Vata Dosha*, nourishing bone tissues, and improving circulation. Classical treatment modalities include *Abhyanga* (therapeutic oil massage), *Swedana* (sudation therapy), and *Basti* (medicated enema therapy), which are considered highly effective for *Vata*-dominant disorders. Among these, *Yapana Basti*, particularly *Mustadi Yapana Basti*, is described as beneficial in conditions involving degeneration of bone and joint tissues. Additionally, *Jalaukavacharana* (leech therapy) is recommended for improving local blood circulation and relieving pain and inflammation.

Considering the chronic and progressive nature of AVN and the limitations of conventional treatment modalities, the present case report evaluates the therapeutic role of *Mustadi Yapana Basti* along with *Jalaukavacharana* and other Ayurvedic interventions in the management of avascular necrosis of the femoral head.

## Patient information:

A male subject aged about 38 years, enrolled at the outpatient department (OPD) of department of Panchakarma in January, with chief complaints of pain at bilateral hip joint since one year with restricted movements at bilateral hip joint, stiffness of hip joint, difficulty in walking, difficulty in standing up from sitting position and difficulty in forward bending since same duration.

**Personal History:** *Ahara* (Diet): Vegetarian *Vihara* (Physical activity): Car driving 4-5hour/day *Koshtha* (Bowel): *Krurakoshtha* (hard Defecation) *Bala* (strength): *Madhyambala* (medium) *Prakriti* (Body constituent): *Kapha Vataja*, *Agni* (Digestive fire): *Mandagni* (Digestive fire) **Addiction:** Alcohol (about twice or thrice in a month since past ten years), smoking (since last ten year about 4-5/day)

## **Ashtavidha Praiksha (eight fold diagnostic method):**

*Nadi Pariksha* (Pulse examination): *Vatadhika Kaphaja*, *Mala Pariksha* (stool examination): *Samyaka* (one time per day), *Mutra Pariksha* (Urine examination): *Samyaka* (5-6 time per day), *Jihva Pariksha* (Tongue examination)- *Sama*, *Shabda Pariksha* (Voice examination)- *Samyaka* (normal), *Sparsh Pariksha* (touch examination)- *Samyaka*, *Drika Pariksha* (eyes examination)- *Samyaka* *Akruti Pariksha* (General built up) was normal as per his age.

## Timeline:

Patient took allopathy Medication for the above complaints on and off for last one year but no improvement was observed then he was advised to

undergo core decompression treatment, but patient was not ready for any type of surgical intervention. Pain and discomfort was increasing day by day so he thought to take Ayurveda medicine and he came to Ayurveda hospital for the same. First, he was taking medications on OPD basis. Then he was advised admission for Panchakarma therapy. After admission he underwent various Panchakarma therapy with medication. After discharge patient was kept on medication and 4 sittings of Jalaukacharana (Leech therapy) therapy was introduced.

### Diagnostic assessment:

The patient presented to OPD with AVN of the hip joint. The patient underwent detailed clinical examination and radiological examination to assess the suspected diagnosis. Magnetic resonance imaging (MRI) of the patient's bilateral hip joint was already done to assess and confirm the clinical suspicion of AVN. The MRI revealed characteristic features of avascular necrosis involving the femoral head on both sides, especially in the

antero-superior region. Mild collapse of the femur head was seen in the antero-superior region on both sides. There was also a reduction in joint space along with chondral thinning on both sides. Bilateral hip joint effusion was seen on MRI. Based on these radiological features, the grade of the disease was assessed according to the Ficat and Arlet staging system. The right hip joint was classified as Stage IV AVN, and the left hip joint was classified as Stage III AVN.

The clinical features presented by the patient were correlated with the radiological features. From an Ayurvedic perspective, the clinical features presented by the patient are similar to those seen in *Asthi Majjagata Vata* and *Vata Vyadhi*.

### Therapeutic Intervention:

After examination and proper assessment medicines were prescribed as per Table No 1 along with other procedures.

**Table No. 1 Treatment Schedule of Patient**

Date	Medicines/Procedure	Dose	Anupana
10/01/2023 To 24/03/2023	<i>Dashamula Kwatha</i>	40 ml* Twice a day (before meal)	With warm water
	<i>Abha Guggulu</i> (250 mg)	2-0-2 (Before meal)	With Warm water
	<i>Guduchi Churna</i> 2 gm + <i>Ashwagandha</i> 2 grams+ <i>Chopchini Churna</i> 1 gm+ <i>Godanti Bhasma</i> 500 mg	2 times a day (Before meal)	With warm Milk
	Tablet Corfloz	2-0-2 (after meal)	With warm water
10//01/2023 to 27/01/2023	<ul style="list-style-type: none"> <li><i>Sarvanga Abhyanga</i> with <i>Dashamula Taila</i>+ <i>Nadi Swedana</i> with <i>Nirgundi Patra</i></li> <li><i>Patra Pinda Sweda</i></li> <li><i>Mustadi Yapana Basti</i> (Schedule as per table No 2)</li> </ul>	1 time/day  1 time/day 1 Basti/day	-----
03/02/2023, 10/02/2023, 17/02/2023, 24/02/2023	<i>Jalaukacharana</i> (Leech therapy)	Once/week	-----

Along with medicines (Table No 1) patient was advised *Abhaynga* and *Swedana* in the morning before *Basti Karma*. *Abhaynga* was done with *Dasahmula Taila* and *Nadi Swedana* was given with *Nirgundi Patra*. *Nirgundi Patrapinda Swedana* was also prescribed to the patient near to hip joint to reduce localized pain. *Nirgundi Patrapinda Swedana* was prepared with leaves of *Nirgundi* (*Vitex Negundo*), *Chincha* (*Tamarindus indica*) *Rasna* (*Pluchea Lanceolata*), *Arka* (*Calotropis gigantean*), grated coconut, lemon, *Ajwain* (*Trachyspermum ammi*). *Panchakarma* in the form of *Mustadi Yapana Basti* 7 was advised to the patient for 17 days as per table no 2. *Mustadi Yapana Basti* was prepared with *Makshik* (honey) 80 grams, *Lavana* (rock salt) 06 grams, *Sneha- Panchtikta Ghrita* 70ml, *Mustadi Yapana Kalka* 45 grams, *Mustadi*

*Yapana Kwatha* (Decoction) 200 ml, *Kshir* (milk) 100 ml, *Aja Mansarasa* (meat juice) 100 ml. *Anuvasana Basti* (oil enema) was given in between with *Panchtikta Ghrita* 70 ml. Above treatment was given to the patients, after discharge medications (Table no 1) were continued and *Jalaukacharana* therapy was applied to the patient on OPD basis on every week (Table no 1)

**Pathya-Apathya (Do's and Don'ts):** Patient was advised not to do heavy exertion for that he was advised to avoid heavy exercise in Gym, bike riding, long travelling etc. He was advised to take light digestible diets like green gram, rice, khichadi in meal and luke warm water to drink.

**Table 2: Basti Schedule**

Day	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th
Basti	A	N	N	N	A	N	N	N	A	N	N	N	A	N	N	N	A

A=Anuvasana Basti N=Niruha Basti

## Observations and results

All the parameters were assessed on the basis of **Harries hip score assessment**<sup>8</sup> tool. Harries hip score were assessed using online orthotoolkit.<sup>9</sup> The first assessment was done after the admission of the patient in IPD (10/01/2023), and it was 20 points. It improved to 46 points after completing the stay in IPD at the hospital, which was 17 days (27/01/2023). Further, it was improved to 70 points after 4 sittings of *Jalakukacharana* treatment (24/02/2023). After the completion of the *Jalaukacharana* treatment, the patient was assessed after one month and harries hip score was improved to 90 points. (24/03/2023).

Reduction from Stage 4 to stage 3 was noted after 6 months treatment in right hip joint while in left side stage 3 remained same.

## Discussion:

Avascular necrosis is one condition wherein the bone tissue necrosis is due to the injury or any occlusion in the blood vessels nourishing the bone tissue. Thus *Raktadhatudushti* (*srotorodha*) is the prime cause leading to *Asthidhatukshaya* in the hip joint. According to *Ayurveda*, *Shira* which is *Upadhatu* (subsidiary of tissue) of *Raktadhatu* (blood) supplying to femur bone is damaged and due to the damage there is loss of *Rakta Pravaha* (blood circulation). *Ayurveda* believes that *Rakta Dhatu* is formed on every 7 days and ultimately there can be new formation of *Shira* too. Also this is a condition which can be correlated with *Asthimajjagatavata* and *Asthidhatukshaya*. So keeping these two points in mind *Vata Shamana* with *Yapana Karma* was planned as treatment.

**Abhyanga and Nadi Swedana:** *Snehana* (oliation) in the form of *Abhyanga* and *Swedana* in the form of *Nadi Sweda* was done. *Abhyanga* by *Vatahara* medicated oils helps to mitigate *Vata*, helps to increase blood supply to the muscles and strengthens the affected joint.<sup>10</sup> Whereas *Swedana* produces *Mriduta* (softness) within body parts and relieves stiffness. *Shola Shanti* (decreased pain) is one of the *Samyaka lakshana* (Proper sudation) of *Swedana Karma*. *Swedana* also having its vasodilation effect which helps in improving the blood circulation to the affected joint.<sup>11</sup>

**Patrapinda Swedana:** *Patra Pinda Sweda* (PPS) was applied to the affected part of the body. *Patra Pinda Sweda* may increase the local blood flow to the affected tissues, and *Swedana* might produce a hypo analgesic effect by diverting stimuli and helps in releasing pain, helps in eliminating *Dosha* imbalances, strengthens the muscles of the affected area by the release of toxins and reducing inflammation.<sup>12</sup>

**Mustadi Yapana Basti:** *Basti* has been described as first line of treatment of *Vata Dosha* as well as *Pitta*, *Kapha Dosha* and *Rakta* also.<sup>7</sup> In *Asthikshayaja Vikaras*, *Tikta Dravya Sadhita Ksheera Basti* (medicated enema formed with milk and bitter drugs) is specially indicated which might be useful in neovascularization of the affected part.<sup>13</sup> *Acharya Sushruta* mentioned that 9th *Basti* will reach to *Majja Dhatu*,<sup>14</sup> which in turn helps to reach to

*Asthi Dhatu* too, hence the *Basti* was planned for 17 days. *AVN* is a chronic condition so that *Yapana Karma* is needed to overcome the condition. *Mustadi Yapana Basti* is indicated for the effect of *Yapana* in any diseases, also contents of the *Mustadi Yapana Basti* are *Balya*, *Vatahara* and *Brimhana*, so keeping these points in mind *Mustadi Yapana Basti* was planned in patient.

*Madhu* (honey) is the first component of any *Basti*, the base in which the emulsion for *Basti* is prepared. Besides it is said to have *Asthisandhaniya* properties. Means it is having property to rebuild the damaged *Asthidhatu*.<sup>15</sup> *Saindhava* is having *Sukshma Guna*, it reaches up to micro channel of the body and helps to open fresh blood supply to the bone tissue. *Basti* with *Tiktadravya*, *Ghrita* and milk is indicated in *Asthikshayajanya Roga*. *Panchatikta Ghrita* and *Kshirbala Taila* were used as *Sneha* having *Tikta Rasa* (*Astringent*), *Ushna Virya*, *Madhura* and *Katu Vipaka* favours the normal functioning of *Dhatvagni*, (digestive fire) facilitating increased nutrition to the *Asthi Dhatu*. *Ghrita* having *Vata– Pitta Shamaka*, *Rakta Prasadaka*, *Balya*, *Agnivardhaka*, *Madhura*, *Shita Virya* properties, thereby it pacifies *Vata*, *Dhatu Upachaya* and acts as a *Rasayana*.<sup>16</sup> The lipid-soluble nature of *ghrita* may enhance absorption of fat-soluble nutrients such as vitamin D and it helps in osteogenesis by helping in *Samprapti Vighatana* (break down of pathology) of *Asthi Kshaya* and may help in treating *Avascular Necrosis*.<sup>17 18</sup> *Kwatha* is prepared with *Ksheera* (milk) which is having *Snigdha* (unctuous) & *Madhura* (sweet) *Guna*. This helps to manage *Vata* and *Pitta Dosha* and acts as *Brimhana* (nourishing), *Jeevaniya* (Antiageing) *Rasayana* (Rejuvenating), *Balya* (strengthening). *Mansarasa* prepared with *Ajamamsa* was added in the *Basti* as *Avapa Dravya*. *Mansarasa* is a very potent *Balavardhak* and *Pushtivardhak* *Aushadhi* especially *Ajamamsa* which is similar to human flesh.<sup>19</sup> *Anuvasana Basti* (oil enema) in between was given as per table No 2 with *Panchatikta Ghrita* and *Kshir*. According to study *Anuvasana* can be administered with the use of a *Tikta Ghrita* such as *Ashvagandha Ghrita*, *Guggulu Tikta Ghrita*, *Panchatikta Ghrita in Asthimajjagata Vikara*.<sup>20</sup>

## Internal medicine:

With *Panchakarma* treatment patient was placed on *Shamana Dravya* which were meant to provide nourishment to *Asthidhatu* and also for the preservation of the effects produced by the *Panchakarma* treatment regimen.

*Dashamula Kwatha* is described as an analgesic, anti-arthritic and anti-rheumatic combination. In *AVN* it may give relief in sign and symptom of diseases.<sup>21</sup> *Abha Guggulu* mainly acts on bones, joints, and parts of the musculoskeletal system. It mainly has *Agnideepana*, *Vatahara*, *Shothahara*, *Vedanasthapana* properties. The *Babbula* present in it enhances bone regeneration and supports increased bio mineralization.<sup>22</sup> This is useful in bone regeneration. *Chruna* (Powder) in the form of *Guduchi Churna*, *Ashvagandha Churna*, *Chopchini Churna* and *Godanti Bhasma* was given. *Acharya Charaka* has placed *Guduchi* in *Sandhaniya Mahakashaya*<sup>15</sup> meaning it specifically acts on *Sandhana* of bone and helps in rebuilding of the tissue. *Guduchi* also has role in enhancing

*Raktadhatu* qualitatively, thus may have a role in providing nourishment to hip joint by rechanneling the blood vessels supplying to it. *Guduchi* is having *Rasayana* effects,<sup>23</sup> known to prevent ageing of the tissues and degenerative changes in all the tissues, especially the *Asthidhatu*. *Ashwagandha* is a *Rasayana* and *Bruhnaghana* property so useful in all type of *Dhatukshya*.<sup>24</sup> *Chopchini* is *Vedanahara*, *Shothanashaka* and able to carry drugs in *Sukshma Srotasa*.<sup>25</sup> Corfloz Tablet is a scientific combination of effective Ayurveda drugs that improve coronary blood supply to the heart and corrects ischemia. It harmonizes myocardial activity. Keeping this point in mind it may also improve blood supply to the hip joint.<sup>26</sup>

## Conclusion

Avascular necrosis is an orthopedic condition which poses a big challenge in front of whole medical fraternity. Restricted joint movement creates physical as well as

mental apathy in patients. Now a days in allopathy science hip joint replacement is advised in most of the patient. *Panchakarma* and Ayurveda may offer symptomatic relief and may delay surgical intervention in selected cases. The therapy provided marked relief from all the symptoms of AVN. The grade of AVN did not worsen and was maintained. The therapy is cost effective.

## Declaration of the Patient consent:

Written informed consent was obtained from the patient for publication of this case report.

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**Conflicts of interest:** none

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