

Ayurveda in the Management of Avascular Necrosis (AVN) of Femoral Head: A Case Report

Lisna Sherin K E,¹ Devu S Vijayan,^{1*} Ambili Krishna,² Simi Ravindran³

¹P.G.Scholar, ² Associate Professor, ³ Associate Professor & HOD, Department of Panchakarma, Government Ayurveda College, Thiruvananthapuram, Kerala, India

ABSTRACT:

Avascular Necrosis (AVN) is the death of bone components due to interruption of the blood supply, also known as osteonecrosis or ischemic necrosis. The disease is initially painless but gradually progresses with increasing pain that affects daily activities. In modern medicine AVN is managed by the use of corticosteroids and many surgical procedures. In Ayurveda, AVN of the femur head can be co-related to *Asthimajjagata vata*, based on similar signs and symptoms. The present case report is a single case study of a 32 years old male patient who approached with pain and stiffness in the left hip joint associated with difficulty in walking, sitting and performing routine activities for 8 months. Magnetic resonance imaging (MRI) findings were suggestive of Grade 2 AVN of left hip joint. The patient was admitted for 45 days and underwent *panchakarma* procedures including *snehana*, *virechana*, *bastikarma* along with *shamana oushadhis* and physiotherapy exercises. As a result of the treatment protocol, there was a marked improvement in the Oxford Hip Score from 12 to 35 and in the range of motion of the left hip as assessed by Goniometry. In addition, pain levels reduced significantly with the Visual Analogue Scale from 8 to 2 leading to an overall improvement in the patient's quality of life. Based on the encouraging results, it can be presumed that a customized Ayurvedic treatment protocol adopted in the management of AVN shows promising outcomes. Conservative management of AVN through Ayurvedic principles provides significant relief and improves quality of life.

KEYWORDS: *Asthimajjagatavata*, Avascular Necrosis, *Snehana*, *virechana*

Received: 14.02.2026

Accepted: 17.03.2026

Published: 05.04.2026



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***Corresponding Author:**

Dr. Lisna Sherin K E

P.G. Scholar, Department of Panchakarma, Government Ayurveda College, Thiruvananthapuram, Kerala

Email: lisnasherin68@gmail.com

INTRODUCTION:

Avascular Necrosis of Neck femur (AVN), or osteonecrosis of the femoral head, occurs because of an interruption in the blood supply to the femoral head that causes bone death. This leads to collapse of the femoral head, and subsequent secondary osteoarthritis. It can occur after a trauma such as fracture or dislocation, or due to non-traumatic factors such as long-term steroid use, excessive alcohol consumption, or certain medical illness. The clinical features seen are groin pain or hip pain, increased pain with weight bearing, reduced range of movement (especially internal rotation) and limping. The Steinberg classification gives the percentage of head involved in Avascular necrosis of femoral head. It is classified as 6 stages according to severity.

Stage 0 – normal or non-diagnostic radiograph, bone scan or MRI

Stage 1 – Normal radiograph, abnormal MRI, or bone scan

Stage 2 - Sclerosis and cysts

Stage 3 – Subchondral collapse, crescent sign

Stage 4 – Flattening of the head, normal acetabulum

Stage 5 – Acetabular involvement

Stage 6 – Obliteration of joint space^[1]

Early diagnosis is needed to prevent the silent progression of disease. MRI is the best tool to detect early AVN, which shows double-line sign. Treatment goals for AVN are to improve the joint, stop the bone damage and ease pain. In modern science, treatment includes NSAIDS, core decompression, bone grafting and total joint arthroplasty

which have their complications, high cost and prognosis is also very poor. In Ayurveda, AVN can be correlated to *Asthi- majja gata vata* by considering its symptoms. Main symptoms are *Asthiparvanambheda*(pain in bones and joints), *Sandhishoolam*(joint pain), *Mamsakshaya*(muscle wasting), *Bala kshaya*(loss of strength), *Aswapna*(insomnia), *Santata ruk*(continuous pain)^[2]. In this *Rakthavaha srothorodha* is also happening resulting in *Asthi dhatu kshaya* which in turn results in *Sandhisaitilya* (laxity of joints)^[3]. *Asthi- majja gata vata hara chikitsa* is adopted to reduce the severity and progression of the disease.

CASE REPORT:

A 32-year-old male patient presents with severe left hip joint pain for the past eight months associated with difficulty in walking. Three years ago, he fell from a bike into a canal, striking his left hip(no history of fracture or dislocation), but reported no significant symptoms at that time. Subsequently, he experienced intermittent lower limb pain and received Ayurvedic treatment. He works full-time in a cold environment (Dairy plant). About eight months ago, following a night shift, his left hip joint pain suddenly worsened and the next morning he was unable to get out of bed. MRI at an allopathic hospital revealed avascular necrosis (AVN) of the left hip joint Grade 2, for which surgery was advised; however, the patient declined. After discontinuing pain killers previously prescribed, the pain intensified and noticed marked

restriction of movement in both legs. He also reports right knee joint pain with swelling, likely secondary to overuse of the right lower limb. The patient had been admitted to our hospital for further management.

History of Past illness

No known case of DM, HTN and DLP

Personal history

Bowel: Normal

Appetite: Good

Micturition: Normal

Sleep: Disturbed due to pain

Addiction: Alcohol rarely

Clinical findings

- The patient had a body weight of 60 kg, height 163 cm and with a BMI of 22.6. He had a limping gait due to shortening of left leg.
- On physical examination swelling was noted in the left hip region and right knee joint.
- On palpation Grade 3 tenderness was present in left hip region and Grade 1 tenderness was present in right knee joint.
- The range of movement of the left hip joint was more limited and painful, while in right hip joint movement was possible with pain.
- Faber's test was positive in the right hip joint and not able to elicit in the left hip due to pain.
- Neurological testing of both lower limbs showed normal reflexes and sensory testing.

The measurements of true and apparent length of both lower limbs shown in Table 1

Diagnostic Assessment:

MRI Report of pelvis with both hip joint (13/05/25)

- There is evidence of subtle changes of subchondral flattening of femoral head. The joint space is reduced.
- There is evidence of few subchondral cysts.
- Findings are likely suggesting the left hip joint AVN Grade2.

MRI Report of pelvis with both hip joint (3/12/25)

- The entire left femoral head shows patchy areas of T2/STIR hyperintensities with subtle T1 hypointensity along the superolateral articular surface. Minimal serpiginous irregularity at this site with mild contour flattening. No large geographic area of hypointensities or subarticular hyperintense lines noted. Rest of the femoral head appears relatively smooth in contour. Marginal osteophytes seen.
- Moderate hip joint effusion.
- Acetabulum appears irregular with multiple areas of subchondral degenerative changes and irregularities with patchy T1 hypointensities and T2/STIR hyperintensities. The articular surface is irregular with marginal osteophytes.

The blood investigation findings before and after treatment are shown in Table 2

Ashtasthana pareeksha:

Nadi- Vata Pita

Mootram- Anavilam

Malam- Abadam

Jihwa- Anupalipta

Drik- Vyakta

Sparsha- Anushnasheeta

Shabda- Vyakta

Aakriti -Madyama

Dasavidha Pareeksha:

Doosha -[Dosha-Vata pradhana tridosha, Dhatu-Rasa, Raktha, Mamsa, Majja]

Desha- [Bhoomi-Sadharana, Deham-Adhakayam]

Balam- [Roga-Pravara, Rogi-Madhyama]

Kalam- [Kshanadhi-Sarva rtu, Vyadhyavastha-madhyama]

Anala- Samagni

Ahara- [Abhyavaharana-Madhyama, Jarana sakthi- Madhyama]

Prakruthi-Vata kapha

Vaya- Madhyama

Satwam-Madhyama

Satmya- Sarvarasa satmya

Nidana panchakam

Hetu -Athi adhwa, abhighata, vegadharana, alpashana

Poorva rupa- Avyakta

Rupa- joint pain, muscular wasting, weakness, laxity of joints

Samprapthi- due to nidana seva ->Vata prakopa -> causes asthi dhatu kshaya, majja dushti -> dhatu kshaya janya vatavyadhi ->Lakshanas are produced

Upashaya - ushnopachara

THERAPEUTIC INTERVENTIONS:

The prescribed shaman aushadhi are mentioned in table-3 and the panchakarma therapy procedures performed in the case are shown in Table 4

Table 1: Measurements of both lower limbs:

True length	Apparent length
Rt leg-87 cm	Rt leg-93 cm
Lt leg-86 cm	Lt leg-92 cm

Table 2: Blood Investigations:

Blood report on 21/5/25	Blood report on 9/7/25
ESR=70 mm/hr	ESR=31 mm/hr
ASO=205 IU/ml	ASO=185 IU/ml
CRP=151 mg/dl	CRP=11.6 mg/dl

Table 3: Samana Oushadis:

Name of the medicine	Dose	No of days
<i>Gandharva hasthadhi kashaya</i>	60 ml once daily	First 3 weeks after treatment
<i>Rasna panchakam Kashaya</i>	60 ml twice a day	First 3 weeks
<i>Trayodashanga guggulu</i>	1-0-1 with <i>kashaya</i>	First 3 weeks
<i>Punarnavadhi Kashaya</i>	60 ml twice a day	First 3 weeks
<i>Maharasnadhi Kashaya</i>	60 ml twice a day	After <i>snehapana</i> till discharge
<i>Guggulu tikthaka ghrta cap</i>	2-0-2 with <i>kashaya</i>	After <i>snehapana</i> till discharge

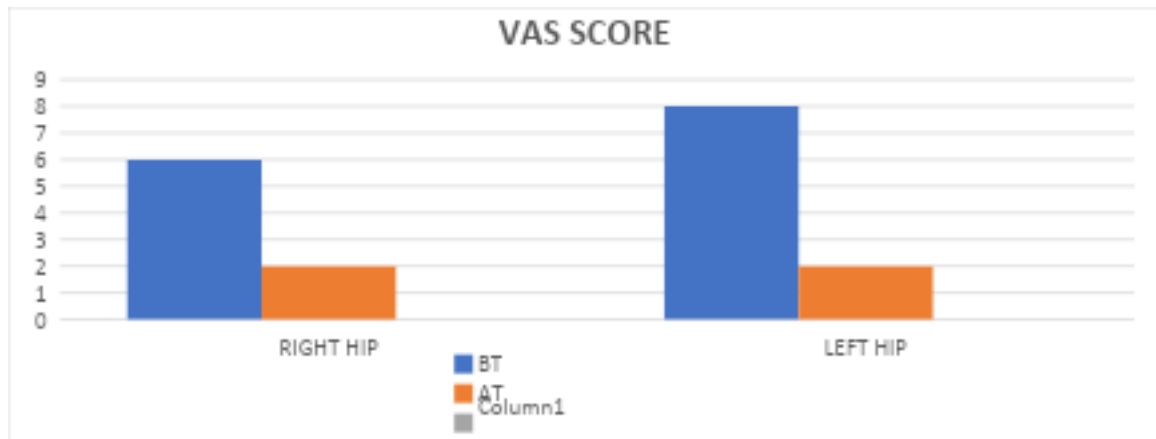
Table 4: Panchakarma therapy:

Procedure	Medicines used	Duration	Results
<i>Kashaya dhara</i>	<i>Dasamoola choorna +punarnavadhi choorna</i>	7 days	Swelling, tenderness and inflammation slightly reduced
<i>Lepam</i> (Right knee and left hip)	<i>Nagaradhi lepam+km lepam</i>	7 days	Swelling and pain slightly reduced
<i>Dhanyamladhara</i>	<i>Dhanyamla</i>	7 days	Swelling, tenderness and inflammation slightly reduced
<i>Lepam</i> (Rt knee)	<i>Nagaradhi choorna+ kanchanara guggulu DS in punarnavadhi kashaya</i>	7 days	Rt knee joint swelling reduced
<i>Mukkikizhi</i>	<i>Kottamchukkadhi choorna+ dashamoola choorna in dhanyamla</i>	7 days	Pain reduced, able to walk without much pain
<i>Jaloukavacharana</i> (rt knee)		1 day	Pain reduced, range of movement improved
<i>Snehapana</i>	<i>Panchatikthaka ghrta</i>	7 days	Pain reduced, range of movement of hip improved

<i>Abhyanga+Ushma sweda</i>	<i>Satahwadhi taila</i>	3 days	Done as preparatory procedure before <i>virechana</i>
<i>Virechana</i>	<i>Nirgundi eranda taila</i>	1 day	
<i>Patra pinda sweda</i>	<i>Sahacharadhi taila</i>	7 days	Reduced stiffness and pain
<i>Ksheeravasthi</i>	<i>Panchatikthaka ksheera Kashaya,kethakimooladi taila, guggulutikthaka ghrta, honey</i>	7 days	Give strength to the bone

Table 5: Observation in Range of Movements of Hip Joints

Joint movements		BT(In degree)	AT (In degree)	Full Range of Movement (In degree)
Flexion	Rt hip	60	100	115
	Lt hip	30	90	
Extension	Rt hip	6	12	30
	Lt hip	Not possible	10	
Abduction	Rt hip	20	40	50
	Lt hip	10	30	
Adduction	Rt hip	15	25	30
	Lt hip	10	20	
External rotation	Rt hip	20	40	45
	Lt hip	5	30	
Internal rotation	Rt hip	15	30	45
	Lt hip	5	25	



Graph 1: Assessment of VAS score for pain

RESULTS:

There was significant improvement in the symptom which was assessed using relevant tools like Goniometer for range of motion, VAS score for pain and oxford hip score for assessment of function and pain in hip.

Showing Oxford Hip Score^[4]

Before treatment -12

After treatment-35

DISCUSSION:

AVN can be correlated with *Asthi-Majjagata Vata*. Although it is classified under *Vatavyadhi*, the *Vyadhi Sthana* is *Kapha*-dominant, which results in *Avarana* of *Vata*. Hence, *Rukshana* therapy is considered the initial line of treatment to eliminate *Avarana*. After the *Ama* stage, next treatment principle used is *Abhyantara* and *Bahya snehana* which is the main treatment of *Asthi majja gata vata*^[5].

Snehapana and *Mridu Shodhana* help in pacifying vitiated *Vata* ^[6]and also facilitate *Srotoshodhana*. *Patrapinda Sweda* aids in reducing pain and stiffness^[7].

In this condition, *Rakthavaha Srotorodha* occurs, leading to *Rakta Dushti* and *Asthi Dhatu Kshaya*. Therefore, *Tikta Rasa Dravya Ksheeravasti* is chosen as the line of treatment. *Ksheeravasti* not only pacifies aggravated *Vata* but also aids in *Brimhana* of *Rasadhi Dhatus*^[8].

Samana Oushadhi administered during the initial three weeks possess *Amapachana* and *Rukshana* properties, thereby helping in the removal of *Avarana*. Following *Snehapana*, *Brimhana Oushadhis* are prescribed to pacify *Vata* and enhance nourishment of *Asthi Dhatu* and *Majja*.

CONCLUSION:

We can conclude that *ayurvedic shamana oushadhis* along with *panchakarma* therapy is effective in the management of AVN (*Asthimajjagata vata*). As the present case study shows drastic improvement in the signs and symptoms. Through the treatment, the quality of life of the individual got improved. So Ayurvedic treatment can be adopted for the management of this disease.

Written consent:

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

Limitation of study:

This is a single case study, the findings cannot be generalized to the broader population. The effectiveness of Ayurvedic interventions may vary among individuals due to differences in *Prakriti*, disease chronicity and accompanying comorbid conditions

Conflict of interest: The author declares that there is no conflict of interest.

Guarantor: The corresponding author is the guarantor of this article and its contents.

Source of support: None

How to cite this article:

Lisna Sherin K E, Devu S Vijayan, Ambili Krishna, Simi Ravindran. Ayurveda in the Management of Avascular Necrosis (AVN) of Femoral Head: A Case Report. Int. J. AYUSH Case Reports. 2026; 10(1-B): 1-8.

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