



Case Study

INTEGRATED AYURVEDIC MANAGEMENT OF AVASCULAR NECROSIS OF THE FEMORAL HEAD (*GAMBHIRA VATARAKTA*) THROUGH *JALUKAVASECANA* FOLLOWED BY *KALAVASTI*

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ABSTRACT

Avascular Necrosis (AVN) of the femoral head is a type of osteonecrosis resulting from impaired blood supply to the proximal femur, leading to bone necrosis and joint dysfunction. Trauma, chronic steroid intake, and excessive alcohol consumption are the major etiological factors. The condition manifests with pain, stiffness, and restricted movement of the hip joint. In Ayurveda, AVN can be correlated with *Gambhira Vatarakta*, where aggravated *Vata* and *Rakta* cause degeneration of *Asthi* and *Sandhi Dhatus*. *Panchakarma* therapies, particularly *Jalukavasecana* and *Vasti*, are indicated for purifying vitiated *Rakta* and pacifying *Vata*. **Objective:** To evaluate the efficacy of *Jalukavasecana* followed by *Kalavasti* with *Yashtyahvadi Niruha* and *Bala-Guducyadi Taila Anuvasana Vasti* in the management of Avascular Necrosis of the femoral head (*Gambhira Vatarakta*). **Methodology:** This is a pre and post-interventional study. The intervention included *Jalukavasecana* performed in three sittings over a period of seven days, followed by *Kalavasti* administered using *Yashtyahvadi Niruha Vasti* and *Bala-Guducyadi Taila Anuvasana Vasti*. Clinical outcomes were assessed using the Numeric Pain Rating Scale (NPRS), Harris Hip Score (HHS), and Range of Motion (ROM) before treatment, after treatment, and at one-month follow-up. **Results:** Post-intervention, there was a marked reduction in pain and stiffness with improvement in functional ability and range of motion. NPRS and HHS showed significant improvement, which was maintained at one-month follow-up. **Conclusion:** This case highlights the scope and potential of *Pañchakarma* therapies in the conservative management of early stages of Avascular Necrosis of the femoral head (*Gambhira Vatarakta*).

INTRODUCTION

Avascular Necrosis (AVN) is a pathological condition characterized by ischemic death of bone tissue due to inadequate blood supply, leading to structural collapse of the affected bone and subsequent joint dysfunction. It commonly involves the epiphyseal regions of long bones, particularly at weight-bearing joints such as the femoral head, knee, talus, and humeral head. Among these, the femoral head is the most frequently affected site owing to its limited collateral circulation^[1].

The etiology of AVN can be broadly classified as traumatic and non-traumatic. Traumatic causes include fracture of the femoral neck or dislocation of the hip joint, which directly compromises vascular supply to the femoral head. Non-traumatic causes, which account for over 80% of cases, are primarily due to chronic steroid usage and excessive alcohol consumption^[2].

Management of AVN in modern medicine depends largely on the stage and severity of the disease. In the early stages, conservative measures such as bisphosphonates, anticoagulants, vasodilators, and extracorporeal shockwave therapy are employed to preserve joint function and delay disease progression. However, in advanced stages where structural collapse has occurred, surgical procedures like core decompression, bone grafting, femoral osteotomy, or total hip arthroplasty become

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necessary. Although these surgical options can provide symptomatic relief, they carry limitations related to cost, postoperative complications, and prosthetic longevity. Hence, there is a growing need for exploring safe, cost-effective, and holistic alternative approaches to manage AVN, particularly in its early stages.

From the Ayurvedic perspective, the condition of AVN can be correlated with *Gambhira Vatarakta*. *Vatarakta* is a unique disease entity described in classical texts, where both *Vata* and *Rakta* are simultaneously vitiated and obstruct each other, leading to pain, stiffness, and dysfunction of affected joints. According to Acarya Caraka, the vitiated *Vata Dosha*, when blocked by aggravated *Rakta Dhatus*, results in further derangement of *Raktadhatus*, ultimately affecting deeper tissues (Ca.Ci.29/10-11)^[3].

Acarya Caraka further classifies *Vatarakta* into two types- *Uttana Vatarakta* (superficial, involving *Twak* and *Mamsa Dhatus*) and *Gambhira Vatarakta* (involving deep-seated *Dhatus*) (Ca.Ci.29/19)^[4]. The chronic, degenerative, and obstructive nature of *Gambhira Vatarakta* aligns closely with the pathological features of Avascular Necrosis.

Ayurveda advocates *Panchakarma* therapies as both preventive and curative modalities in *Vataja* disorders. Among these, *Raktamokshana* (therapeutic bloodletting) and *Vasti* (medicated enema) are considered highly effective in *Vatarakta* management. *Jalukavasecana* (leech therapy), a type of *Raktamokshana*, is especially beneficial for localized *Vata-Rakta* aggravation, helping to remove vitiated *Rakta* and alleviate pain, inflammation, and stiffness^[5].

Vasti karma plays a vital role in the regulation of *Vata Dosha* and nourishment of deeper tissues. Among the various *Vasti* formulations, *Yashtyahvadi Niruha Vasti*^[6] is mentioned as one of the most effective formulations for *Vatarakta*, while *Bala-Guducyadi Taila*^[7] is known for its *Vataraktahara* property.

Considering these classical references and the pathogenesis of AVN, *Jalukavasecana* followed by *Vasti* was selected as the therapeutic protocol in this study. The present work aims to explore the clinical efficacy of these *Pañchakarma* interventions in the conservative management of *Gambhira Vatarakta* (avascular necrosis of the femoral head), emphasizing

their potential as safe and effective alternatives to surgical management in the early stages of the disease.

Inclusion Criteria

- Patients of age between 20 to 60 years.
- Patients presenting with signs and symptoms of *Gambhira Vatarakta*.
- Patients presenting with I, II, III stages of the modified Ficat and Arlet classification of avascular necrosis of the femoral head.
- Patients who are eligible for *Jalukavasecana* and *Vasti*.

Exclusion Criteria

- Patients below the age of 20 and above the age of 60 years.
- Patients with uncontrolled diabetes, hypertension and other major systemic illness.
- Patients with stage IV of the modified Ficat and Arlet classification of avascular necrosis of the Femoral head.
- Patients who are not eligible for *Jalukavasecana* and *Vasti*.
- Patients who are suffering from coagulopathies.

Case Report

A 42-year-old male patient was admitted to the *Panchakarma* IPD (IPD No.2225) with complaints of pain and stiffness over both hip joints since one year and six months.

Past History

- K/c/o HTN since 4 years
- H/o Covid attack on 2021
- K/c/o Asthma since 10 years
- K/c/o Chronic alcoholic, smoker

History of Present Illness

The patient was asymptomatic one and a half years ago and gradually developed pain and stiffness in the right hip joint with low backache. He was initially diagnosed with sciatica and treated with analgesics, but symptoms persisted and later involved the left hip joint, causing difficulty in sitting, standing, and walking. MRI of the hip joints revealed Avascular Necrosis (Bilateral Stage II). The patient was advised surgery but refused and visited, Sri Venkateswara Ayurvedic College and Hospital (SVAYCH), for better management through *Panchakarma* therapies.

Table 1: Personal history of the patient

<i>Agni</i>	<i>Mandagni</i>
<i>Nidra</i>	Disturbed
<i>Kosta</i>	<i>Mrdu</i>
<i>Ahara</i>	Mixed
<i>Mutra</i>	6-8 times per day

Vyasana	Alcohol, smoking
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Table 2: Astasthana and Dasavidha pariksha

Astasthana pariksha	Dasavidha pariksha
Nadi - Vata	Prakrti - Vatakapha
Mutra - Prakrta	Vikrti - Vata pradhana tridosha
Mala - Prakrta	Sara - Madhyama
Jihva - Alipta	Samhanana- Madhyama
Sabda - Prakrta	Pramana- Madhyama
Sparsha - Ruksha	Satmya - Sarvarasa
Drk - Prakrta	Satva- Madhyama
Akrti - Madhyama	Aharasakti- Madhyama
	Vyayamasakti- Madhyama
	Vayah - Madhyama

Table 3: General examination of the patient

Built – Moderate	Weight – 70kgs
Gait – Abnormal	Oedema – Absent
General appearance – Normal	Anaemia – No
Pulse rate – 72 beats/min	Icterus – No
Respiratory rate – 18 breaths/min	Clubbing – NAD
Blood pressure – 120/80 mm of Hg	Cyanosis – NAD
Height – 5 feet 7 inches	Deformities – Slight limp in right hip

*NAD – No Abnormality Detected

Systemic examination

Musculoskeletal system
 Skin changes – Nothing specific
 Deformity – Slight limp in right hip
 Tenderness – Absent
 Warmth – Absent
 Stiffness – Present in both hip joints
 Crepitus – Present in right hip

Table 4: Range of Movements of hip joints

Movements	ROM in Degrees	
	Right hip	Left hip
Flexion	125	145
Adduction	10	20
Abduction	20	40
Internal Rotation	30	20
External Rotation	20	20

1. Central nervous system – No abnormality detected.
2. Cardiovascular system – S1S2 heard, no murmurs.
3. Respiratory system – B/L normal vesicular breath sounds heard.

Hb – 15.2gms %
 CT – 6 minutes 30 seconds
 BT – 2 minutes 30 seconds
 HbsAg – Negative
 HIV – Non-reactive
 MRI pelvis with both hip joints (24/09/2024)

Investigations

For screening

- Abnormal marrow signal intensities in bilateral femoral heads with geographic defects, T2 hyperintense lines and reduced hip joint spaces – likely bilateral stage II AVN of femoral head.
- Right mild joint effusion.

Modern Diagnosis

Patient was diagnosed as a case of Avascular Necrosis of the femoral head.

Ayurvedic Diagnosis

Patient was diagnosed as a case of *Gambhira Vatarakta*.

Timelines of Admission and Discharge

Date of admission: 25/09/24.

Date of discharge: 18/10/24.

Treatment Protocol

1. *Jalukavasecana* – 3 sittings in a period of 7 days (1st, 4th, 7th day).
2. One day gap – 8th day
3. *Yashtyavadi Niruha (N)* and *Bala Guduchyadi Taila Anuvasana (A)* in Kalavasti format i.e., for 16 days.

Days	9 th day	10 th day	11 th day	12 th day	13 th day	14 th day	15 th day	16 th day	17 th day	18 th day	19 th day	20 th day	21 st day	22 nd day	23 rd day	24 th day
Type of Vasti	A	N	A	N	A	N	A	N	A	N	A	N	A	A	A	A

Table 5: Assessments and Result

Parameters	BT		AT		AF	
	Right Hip	Left Hip	Right Hip	Left Hip	Right Hip	Left Hip
1. Numeric Pain Rating Scale (NPRS)						
	7	5	6	3	5	2
2. Harris Hip score⁸ (HHS)						
Pain	20	30	30	40	30	40
Limp	8	11	8	11	8	11
Support	11	11	11	11	11	11
Distance walked	8	8	8	8	8	8
Sitting	3	3	5	5	5	5
Enter Public Transportation	1	1	1	1	1	1
Stairs	2	2	2	2	2	4
Put on Socks and shoes	2	2	2	4	2	4
ROM						
Flexion	3	3	3	3	3	3
Abduction	0	1	0	1	1	1
Adduction	0	0	0	0	1	1
ER	0	0	0	1	0	1
IR	0	0	1	1	0	1
Total Harris Hip Score	58	72	71	88	72	91
3. <i>Daha</i> (burning sensation)	3	1	2	0	1	0
4. <i>Toda</i> (pricking pain)	3	1	2	1	1	0
5. <i>Stabdha</i> (stiffness)	3	1	2	1	2	1
6. Excruciating pain in the interior	1	1	1	0	1	0
7. Ache in the groin	2	1	1	0	1	0
8. Effusion of hip joint	1	0	1	0	1	0
9. Limp and limitation of movement	2	1	1	1	1	0

*BT – Before Treatment, AT – After Treatment, AF – After Follow-up (1 month)

DISCUSSION

In Ayurveda, *Vatarakta* represents a pathological condition caused by the simultaneous vitiation of *Vata* and *Rakta doshas*, resulting in *Margavarodha* (obstruction), pain, and degeneration of deeper tissues (*Gambhira dhatus*). The clinical presentation of Avascular Necrosis closely resembles *Gambhira Vatarakta*, as both involve circulatory obstruction, ischemic degeneration, and subsequent necrosis of bone tissue, particularly affecting the femoral head.

The line of treatment adopted in this case-*Jalukavasecana* followed by *Kalavasti*- was designed to address both vitiated *Rakta* and aggravated *Vata*, aiming to relieve pain, restore circulation, and support regeneration of the affected tissues.

Jalukavasecana (Leech Therapy) is a localized *Raktamokshana* procedure indicated in *Vatarakta*. By removing vitiated *Rakta*, it relieves *Margavarodha* and enhances microcirculation, which in turn improves oxygenation and nourishment of deeper tissues. The anticoagulant and anti-inflammatory properties of leech saliva contribute to pain reduction, decreased stiffness, and improved tissue perfusion. In this case, three sittings of *Jalukavasecana* resulted in early relief from pain and stiffness, reflecting its humble role in the correction of local *Vatarakta samprapti*.

Following *Raktamokshana*, *Kalavasti* was administered using *Yashtyahvadi Niruha Vasti* and *Bala-Guducyadi Taila Anuvasana Vasti*. In Ayurveda, *Vasti* is described as "*Ardha Chikitsa*" or even "*Purna Chikitsa*," owing to its systemic influence on *Vata Dosh*. Through rectal administration, it exerts direct and indirect effects on the colon, spine, joints, and deeper *Dhatus*, thereby addressing the root cause of *Vata-vyadhi*.

Yashtimadhu (*Glycyrrhiza glabra*), a key ingredient of *Yashtyahvadi Niruha Basti*, possesses *Madhura rasa*, *Shita virya*, *Snigdha* and *Guru guna*, which pacify *Vata* and *Pitta*, purify *Rakta*, and nourish *Asthi dhatu*. *Kshira* (milk), used in the *Vasti* formulation, adds *Rasayana*, *Balya*, and *Sandhaniya* properties, promoting calcium absorption and bone mineralization. The *Madanaphala*, *Shatapushpa*, and *Pippali* used as *Kalka dravyas* enhance *Agni*, facilitate *Srotoshodhana*, and improve the absorption and efficacy of the formulation. *Madhu* and *Ghrta* act as *Yogavahi dravyas*, improving drug assimilation and exerting *Vata-Pitta shamaka* and *Rasayana* effects. The combined use of these ingredients supports the restoration of *Asthi-Sandhi* integrity and functional recovery.

Bala-Guducyadi Taila, used for *Anuvasana Vasti*, has *Vatarakta hara*, *Vedanasthapana* (analgesic), and *Shophaghna* (anti-inflammatory) actions. Classical references and clinical reports suggest its usefulness in *Vatarakta* and joint disorders due to the synergistic effects of *Bala* and *Guduci*, which enhance lubrication, reduce inflammation, and promote regeneration. Its inclusion in this protocol likely contributed to sustained joint flexibility and pain relief.

Overall, the integrated approach of *Jalukavasecana* followed by *Kalavasti* with *Yashtyahvadi Niruha Vasti* and *Bala Guducyadi Taila Anuvasana Vasti* proved effective in managing *Gambhira Vatarakta* (Avascular Necrosis). *Jalukavasecana* alleviated constriction of blood vessels at the affected site and improved circulation, while *Yashtyahvadi Niruha Vasti* balanced *Vata-Pitta doshas* and nourished *Asthi-Sandhi dhatus*, alternated *Bala-Guducyadi Taila Anuvasana Vasti* provided lubrication and rejuvenation through its *Vatarakta-hara* and *Rasayana* actions, collectively restored mobility and relieved pain. The observed improvements in NPRS, HHS, and ROM substantiate the classical rationale of combining *Raktamokshana* and *Kalavasti Chikitsa* in *Gambhira Vatarakta*.

CONCLUSION

This case demonstrates that integrated *Panchakarma* management, particularly *Jalukavasecana* followed by *Kalavasti*, can offer significant improvement in the early stages of Avascular Necrosis of the femoral head (*Gambhira Vatarakta*). The therapy effectively alleviated pain and stiffness, improved range of movement, and enhanced the patient's functional capacity. The results validate the Ayurvedic principle that addressing both *Vata* and *Rakta* simultaneously through systemic regulation and tissue nourishment can arrest disease progression and support tissue regeneration. Further clinical studies are recommended to establish standardized protocols and assess long-term outcomes in such unique kind of degenerative joint disorders.

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