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Case Study

ROLE OF *PANCHAKARMA* IN THE MANAGEMENT OF AVASCULAR NECROSIS OF FEMORAL HEAD

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ABSTRACT

Avascular Necrosis of the Femoral Head (AVNFH) is a degenerative bone disorder that progressively impairs joint function and mobility, often affecting young and middle-aged adults. The condition arises from disrupted blood supply to the femoral head, leading to bone tissue death and, in advanced stages, joint collapse. This poses significant challenges for long-term management, particularly in younger patients, where surgical interventions such as total hip replacement may not be ideal. This case study presents the Ayurvedic management of a 37-year-old female diagnosed with Grade 4 AVNFH of the left femoral head. Despite prior allopathic treatment yielding limited relief, the patient showed marked clinical improvement following a comprehensive *Panchakarma*-based approach including *Sarvanga Abhyanga*, *Mahamanjishtadi Kashaya Seka*, *Manjishtadi Kshara and Kashaya Basti*, *Panchatikta Ksheera Basti*, *Anuvasana Basti* with *Guggulu Tiktaka Ghrita*, and *Navara Dhara*. These therapies targeted *Srotoshodhana*, *Asthi Dhatu Poshana*, and functional restoration. Significant improvements were observed in pain (VAS reduced from 9 to 3), range of motion, gait, and the Harris Hip Score (from 35.5 to 66.35). The results highlight the potential of Ayurvedic interventions, particularly *Panchakarma*, in managing advanced stages of AVNFH, potentially delaying or avoiding surgical interventions such as total hip replacement.

INTRODUCTION

Avascular Necrosis of the Femoral Head (AVNFH) is a debilitating condition that often affects individuals during the most productive years of their lives, leading to considerable disability and a marked deterioration in quality of life. In the Indian population, the average age of onset is around 35 years, with a strong male predominance. A substantial number of patients report long-term corticosteroid use as a contributing factor, while others are diagnosed with idiopathic causes or chronic alcoholism as underlying etiologies. The condition primarily affects the 25–45year age group, typically the earning members of a family, thereby adding a significant socio-economic burden.

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Pathologically, AVNFH arises due to compromised blood supply to the femoral head, leading to the death of osteocytes. Despite advancements in modern medical and surgical treatment options, the disease often progresses irreversibly to osteoarthritis of the hip joint, commonly resulting in femoral head collapse and eventually necessitating total hip replacement.

Clinically, patients present with severe hip pain that often radiates to the groin, thigh, and knee. There is a marked restriction in the range of motion of the hip joint, stiffness, and an altered gait pattern. The pain tends to be more pronounced in the morning and worsens with walking or other weight-bearing activities.[1]

From the Ayurvedic perspective, AVNFH is understood as a manifestation of *Asthi-majjagata vata* and *Asthi-majja kshaya*. Classical Ayurvedic texts describe clinical features of *Asthi-majjagata vata* such as *Bhedo-asthiparvanam*, *Sandhishula*, *Mamsabala-kshaya*, *Asvapna*, and *Santata ruk*[2], which align closely with the modern clinical manifestations of AVNFH.

Additionally, signs of *Asthi-majja kshaya* such as *Sandhi shaithilya*, *Sheernata*, *Daurbala*, and *Laghutva* of *Asthi* [3] are also evident in these patients.

The Ayurvedic approach emphasizes *Panchakarma* as the primary line of treatment for *Asthi-majjagata vikaras*[4]. A combination of internal and external therapies- including *Navara dhara* and *Basti*- is employed to reduce symptoms and bring about *Samprapti vighatana*, thereby interrupting the progression of the disease. These therapies help nourish the affected *dhatus* and enhance the patient's functional capacity.

37-year-old female, N/K/C/O DM, HTN, or thyroid dysfunction, was apparently healthy until approximately 12 years ago, when she began experiencing a dull, aching pain in the left hip region. Initially, the pain was mild and occasional, but gradually it became more frequent and started to radiate down to the left thigh. The pain worsened with prolonged standing, walking, and other activities that put weight on the left leg, and was partially relieved by rest.

Over time, the pain became more persistent and started affecting her ability to perform daily tasks. She also began noticing stiffness in the left hip, especially after periods of rest, and found it increasingly difficult to move the joint freely. Activities such as sitting cross-legged, bending forward, or climbing stairs became painful and limited.

Despite taking various medications and undergoing physiotherapy under allopathic treatment, she experienced only temporary or minimal relief. There is no history of any injury, use of steroid medications, alcohol intake, or similar complaints in the family. There are also no symptoms such as fever, weight loss, or other joint pains.

Due to the progressive nature of her symptoms and the impact on her daily life, she presented to our hospital for further evaluation and management.

Past History

N/K/C/O DM, HTN or thyroid dysfunction.

Family History

Nothing significant

Menstrual History

Regular, nothing significant.

Table 1: Personal History

Ahara	Mixed, non-veg twice weekly
Rasa pradhana	*Sarva rasa*
Vihara	Nothing significant
Vyasana	None
Agni	*Mandagni*
Kostha	*Krura kosta*
Nidra	Timing- Irregular Quality- Disturbed due to pain Quantity- Good
Emotional status	Normal

Rogi Pareeksha

Table 2: General Examination

General appearance: Healthy	Pallor- Absent
Built: Normosthenic	Icterus – Absent
Height: 5.4 feet	Cyanosis – Absent
Weight: 64 kgs	Clubbing – Absent
Pulse rate: 74bpm	Lymphedenopathy – Absent
Blood pressure: 120/80 mm of Hg	Edema – Absent
BMI- 23.8 kg/m2	

Table 3: *Asta Sthana Pareeksha*

Nadi -74 Bpm	*Shabda- Prakrita*
Mutra - Prakrita	*Sparsha- Prakrita*
Mala- Kathina, once in 2 or 3 days	*Drik- Prakrita*
Jihwa – Alipta	*Akriti- Madhyama*

Table 4: *Dasha Vidha Pareeksha*

Prakruti- Vata kapha	*Ahara shakti - Abhyavarana- Madhyama, Jarana- madhyama*
Vikruti– Vata pradhana tridosha	*Vyayama shakti- Madhyama*
Sara – Madhyama	*Pramana-Madhyama*
Samhanana – Madhyama	*Vaya – Madhyama*
Satva- Madhyama	
Satmya- Sarva rasa satmya	

Nidana Panchaka

Nidana: Standing for long- *Ati sthana, Chinta*
Poorvaroopa: Nothing specific
Roopa: Pain and stiffness in left hip region
Upadrava: Nothing specific
Upashaya-Anupashaya: Pain reduces with rest and aggravates with long standing, walking.

Table 5: *Samprapti Ghataka*

Dosha: Vata pradhana tridosha	*Sanchara sthana: Sarva shareera*
Dushya: Rasa, Rakta, Mamsa, Meda, Asthi, Majja,	*Vyakta sthana: Trika Sandhi*
Agni: Jataragni	*Roga marga: Madhyama*
Ama: Jataragni mandyajanya	*Swabhava: Chirakari*
Udbhava sthana: Ama-pakwashaya	*Sadhyasadhyata: Kricchrasadhya*

Systemic Examination

Cardiovascular system: S1S2 heard, no murmurs.
Respiratory system: B/L normal vesicular breath sounds heard, no added sounds.
Gastrointestinal system: Soft, non-tender, no organomegaly.
Central nervous system examination**:** No abnormality detected.

Local Examination

Inspection

- No visible swelling, redness, or deformity around the left hip.
- No muscle wasting noted.

Palpation

- Tenderness elicited over the anterior joint line of the left hip and groin region.
- No local rise of temperature or palpable effusion.

Range of movements of left hip joint – Shown in table no. 06

Table 6: Range of movements of Left Hip

Movement	ROM in degrees
Flexion	20-30
Extension	0-5
Adduction	5-10
Abduction	10-20
Internal rotation	0-10
External rotation	5-10

Special Tests

- FABER test: Positive on the left side
- Trendelenburg test: Positive.

Gait: Antalgic

Investigations

MRI on 27/06/2024-

Avascualr necrosis involving left femoral head, Ficat and Arlet stage 4.

Secondary osteoarthritis

Treatment Protocol Adopted

Table 7: Treatment Protocol Adopted

1	*Sarvanga abhyanga* with *Pinda taila* followed by *Mahamanjishtadi kashaya seka*	3 days	18/1/25- 20/1/25
2	*Manjistadi* and *Panchatikta basti* in *Karma* pattern *Anuvasana Basti* with *Guggulu Tiktaka Gritha*	18 days	21/1/25- 7/2/25
4	*Sthanika abhyanga* with *Ksheerabala taila* f/b *Navara Dhara* to *Adhoshaka*	18 days	21/2/25- 7/2/25

Table 8: Ingredients of *Basti*

	22/1- 24/1	25/1- 27/1	28/1- 2/2
Ingredients	*Manjistadi Kshara basti*	*Manjistadi Kashaya basti*	*Panchatikta ksheera basti*
Honey	60ml	60 ml	40 ml
Saindhava	10 g	10 gm	10gm
Guggulu Tiktaka Gritha	40 ml	40 ml	80 ml
Shatapushpa kalka	20 g	20 gm	20 gm
Manjishtadi Kashaya	200 ml	300 ml	300 ml
Gomutra	100ml (30ml *Gomutra Arka* + 70ml water)	-	-
Total	430 ML	430 ml	450 ml

Anuvasana basti with *Guggulu Tiktaka Gritha* – 60 ml

Table 9: *Basti* Plan

21/1	22/1	23/1	24/1	25/1	26/1	27/1	28/1	29/1	30/1
A	*N (Kshara)*	*N (Kshara)*	*N (Kshara)*	*N (Kashaya)*	*N (Kashaya)*	*N (Kashaya)*	*N (Ksheera)*	*N (Ksheera)*	*N (ksheera)*
	A	*A*	*A*	*A*	*A*	*A*			

31/1	1/2	2/2	3/2	4/2	5/2	6/2	7/2
N *(Ksheera)*	N *(Ksheera)*	N *(Ksheera)*	A	A	A	A	A
A	A	A					

Table 10: Assessment Parameters

S.no	**Parameter**		**BT**	**AT**
1,	VAS Scale		9	3
2.	ROM	Flexion	20-30	40-45
		Extension	0-5	5-10
		Adduction	5-10	10-15

		Abduction	10-15	15-20
		Internal rotation	0-10	5-15
		External rotation	5-10	10-15
3.	Harris hip score	Pain	10	20
		Function	19	39
		Deformity	4	4
		ROM	2.5	3.35
		Total	35.5	66.35

OBSERVATION AND RESULTS

Table 11: Observation and Results

Days	Treatment	Observation
18/1/25-20/1/25	*Sarvanga abhyanga* with *Pinda taila* followed by *Mahamanjishtadi kashaya seka*	Mild reduction in stiffness.
21/1/25-27/1/25	*Manjishtadi Kshara* followed by *Kashaya Basti* *Anuvasana basti* with *Guggulu Tiktaka Gritha + Navara dhara*	Pain and stiffness reduced by approximately 40%. Noticeable improvement in range of motion, particularly in flexion and abduction. Walking speed showed measurable improvement.
28/1/25-7/2/25	*Panchatikta Ksheera Basti* *Anuvasana Basti* with *Guggulu Tiktaka Gritha + Navara dhara*	Pain and stiffness further reduced by around 70%. Range of motion, gait pattern (reduction in limp), and walking speed significantly improved. Patient is now able to rise from the floor without assistance. Able to stand for longer durations compared to her previous condition.

DISCUSSION

Avascular necrosis (AVN) of the femoral head begins with hypertrophy of fat cells caused by lipid accumulation within the marrow adipocytes. This increase in fat volume raises intraosseous pressure, which compresses the blood vessels supplying the bone. Concurrently, disturbances in lipid metabolism result in elevated levels of triglycerides and cholesterol, further damaging the microvasculature. These pathological changes also contribute to the formation of fat microemboli that can block the small blood vessels in the femoral head, leading to ischemia.

The resulting ischemia causes death of osteocytes and necrosis of the subchondral bone, compromising the structural integrity of the femoral head. Over time, continued mechanical stress and microfractures lead to bone collapse. This collapse damages the overlying articular cartilage, eventually causing secondary osteoarthritis and significant joint dysfunction.

From an Ayurvedic perspective, the pathogenesis of AVN can be understood as a deficiency of *Raktadhatu* to the hip joint due to *Strotorodha*, leading to *Asthi dhatu kshaya.* Therefore, early management should focus on removing the *Srotorodha* to restore proper circulation, followed by therapies aimed at nourishing and strengthening the *Asthi dhatu* to promote bone regeneration and healing.

Dashamoola Kashaya Seka– Since the patient presented with severe pain and stiffness in the hip joint, *Seka* was initially planned as a *Lakshanika chikitsa* to provide symptomatic relief. As the underlying pathogenesis involves *Avarana*, *Dashamoola kashaya seka* was chosen as a form of *Rooksha sweda*. *Dashamoola* is known for its *Shoolahara* and *Tridoshahara* properties, making it ideal for reducing pain and inflammation in this condition.

Manjistadi Kshara* and *Kashaya Basti– Lipid accumulation and *Raktavaha srotorodha* are key factors leading to *Asthi dhatu kshaya* in the hip joint. To address this, *Manjistadi kshara basti* was planned initially, as *Kshara* possesses *Ksharana guna* which helps remove obstructions effectively. Subsequently, *Manjistadi niruha basti* was scheduled, as the *Kashaya* used is predominantly *Tikta* and *Katu rasa* with *Ushna virya*, which acts as a potent *Raktaprasadana* and *Tridoshahara*, supporting the removal of *Srotorodha* and restoring normal function.

Panchatikta Ksheera Basti– Once the *avarana* is removed, the next step focuses on strengthening the *Asthi dhatu*. *Tikta ksheera basti* is regarded as the best treatment for this purpose. The *Tikta rasa* predominates in *Vayu* and *Akasha mahabhuta*[5], providing affinity toward *Dhatus* like *Asthi* which share the same *Panchabhoutika* constitution. *Panchatikta kashaya*, containing herbs like *Guduchi*, *Nimba*, *Vasa*, *Kantakari*, and *Patola*, helps nourish and strengthen the *Asthi dhatu*, thereby helping in *Samprapti vighatana*. Additionally, *Guggulu tiktaka grita* is indicated in conditions where *Vata* is lodged in the *Sandhi* and deeper tissues such as *Asthi* and *Majja*[6], which makes it suitable for *Anuvasana basti*.

Navara Dhara– *Navara dhara* is a unique procedure commonly practiced in Kerala, where a warm preparation of milk, *Balamoola kashaya*, and *Shashtika shali* is poured over the body. This *Pariseka sweda* is known for its *Vatahara* and *Bhagna sandhi prasadaka*-bone healing properties, while the *Snigdha seka* helps in *Dhatu vriddhi*[7]. The *Balamoola kashaya* is *Balya*, *Tridoshahara*, and *Rasayana*, and *Shashtika shali* is *Snigdha*, *Balya*, and *Brimhana*, collectively contributing to strengthening the hip joint and slowing disease progression.

CONCLUSION

This case report of Grade 4 Avascular Necrosis (AVN) of the femoral head showed marked improvement in pain, stiffness, range of motion, and overall functional capacity following Ayurvedic management with *Basti chikitsa* and *Navara dhara*. In modern medicine, Grade 4 AVN is typically treated with total hip replacement (THR), which carries surgical risks and long-term concerns, especially in younger patients.

From an Ayurvedic perspective, the condition was understood as *Raktavaha srotorodha* and *Asthi dhatu kshaya*. Treatment focused first on *Srotoshodhana* with *Manjistadi kshara basti*, followed by *Tikta ksheera basti* and *Anuvasana* with *Guggulu tiktaka ghrita* for *Asthi poshana*. *Navara dhara* further helped for *Sandhi bala janana* and *Dhatu vriddhi*.

The outcome suggests that Ayurvedic interventions can offer an effective, non-surgical alternative or adjunct in managing advanced AVN, potentially delaying or reducing the need for surgical intervention.

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