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# Ayurvedic management of Avascular Necrosis of Femoral Head - A Case Study

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## ABSTRACT

Osteonecrosis is a degenerative bone condition characterized by the death of cellular components of the bone secondary to an interruption of the subchondral blood supply. Also known as avascular necrosis. Avascular necrosis can be correlated to *Asthi Majja Gata Vata* and / or *Asthi Dhatu Kshaya* manifesting symptoms like *Bhedo Asthi Parvanam* (breaking type of pain in bones and joints), *Sandhi Shula* (joint pain), *Mamsakshaya* (muscular wasting), *Balakshaya* (weakness), *Aswapna Santataruk* (disturbed sleep due to continuous pain) and *Sandhi Shaithilyam* (afflicted joints) with *Shiryanti Iva Cha Asthini Durbalani* (destruction of bony tissue causing generalized weakness), *Pratata Vata Rogini* (other aggravated features of *Vata*). A wide range of treatment modalities have been mentioned in *Ayurveda* that are effective in such manifestations. A case of AVN with bilateral femoral head was treated with *Shodhan* followed by *Brimhan*. For *Shodhan Jaladhauti*, *Bashpa Swedan*, *Vaitaran Basti* and *Manjhishthadi Niruha Basti* was planned and *Shashtishali Pinda Sweda* and *Panchatikta Kshir Basti* were given along with internal medication. Patient was observed for symptomatic improvements based on the assessment done by the Harris Hip Score and the range of movement of the hip joint before and after treatment. The therapy provided marked relief in pain with improvement in gait and improved quality of life. *Ayurvedic* management provides significant relief and improves the quality of life.

**Key words:** Avascular necrosis, *Asthi Majja Gata Vata*, *Ayurveda*

## INTRODUCTION

Osteonecrosis is a degenerative bone condition characterized by the death of cellular components of the bone secondary to an interruption of the subchondral blood supply. Also known as avascular necrosis, it typically affects the epiphysis of long bones

at weight-bearing joints. The most common sites for AVN are the femoral head, knee, talus, and humeral head. The hip is the most common location overall. Advanced disease may result in subchondral collapse, which threatens the viability of the joint involved. Therefore, early recognition and treatment of osteonecrosis are essential.<sup>[1]</sup>

There are limited studies on the epidemiology of femoral head osteonecrosis in Indian population. ONFH in the North Indian patients is a disease of young individuals with male predominance. Steroid intake is most commonly observed in these patients followed by idiopathic, chronic alcohol consumption, and trauma.<sup>[2]</sup>

Treatment of AVN Hip depends on the extent of injury involved and is usually non-operative e like restricted weight bearing, using pharmacological agents like lipid-lowering drugs, anticoagulants, vasodilators, and bisphosphonates. While the operative options involve various processes like core decompression best used

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for Grade 1 and Grade 2 AVN hip and newer modalities which include vascularized free-fibula grafting, total hip resurfacing, and the total hip arthroplasty which is most effective in reducing pain and preferable for young patients.<sup>[3]</sup>

Avascular necrosis can be correlated to *Asthi Majja Gata Vata* and / or *Asthi Dhatu Kshaya* manifesting symptoms like *Bhedo Asthi Parvanam* (breaking type of pain in bones and joints), *Sandhi Shula* (joint pain), *Mamsakshaya* (muscular wasting), *Balakshaya* (weakness), *Aswapna Santataruk* (disturbed sleep due to continuous pain) and *Sandhi shaithilyam* (afflicted joints) with *Shiryanti Iva Cha Asthini Durbalani* (destruction of bony tissue causing generalized weakness), *Pratata Vata Rogini* (other aggravated features of vata) etc.<sup>[4]</sup> Wide range of treatment modalities have been mentioned in *Ayurveda* that are effective in such manifestations.

## CASE REPORT

A 37-year-old male patient visited OPD of Swasthvrutta, Government Ayurveda College, Nagpur with chief complaints of Bilateral hip joint pain with restricted movement in the left leg, Difficulty in Walking with limping gait, unable sit in crossed legged position, Pain in calf muscles since 1 year.

### Past History

Patient gradually gained weight from four to five years before the above symptoms appear. One year ago, symptoms like mild pain and stiffness in left gluteal region occur then it increases gradually with restricted movement of left leg and after four to five months pain and stiffness started in right gluteal region, difficulty in walking and sitting. He was limping to the left side while walking. Pain and stiffness are more in monsoon and cold climate. He took allopathy medicines for the same, but couldn't get relief. So, for further treatment, he came to *Swasthrakshan* OPD at Government Ayurveda College, Nagpur

### Personal History

**Habit** - Drinking Alcohol, Tobacco chewing

**Diet** - Mixed diet (non-veg 3-4 times, eggs daily)

**Bowel** - regular

**Sleep** - Disturbed

### Dosha Dushya Lakshan

The predominant *Dosha* in the disease is *Vata* in association with *Kapha*. *Avarana* of *Kapha* and *Meda* over *Vata* may also be considered to play an important role in the manifestation of symptoms like stiffness and restricted movement of the hip joint in the patient.

### Examination of Patients

**Table 1: Astavidha Pariksha (Eight Fold Examination)**

1.	<i>Nadi</i> (pulse)	76/min, regular
2.	<i>Mutra</i> (urine)	<i>Samyaka</i>
3.	<i>Mala</i> (stool)	Regular
4.	<i>Jihva</i> (tongue)	<i>Saam</i>
5.	<i>Shabda</i> (sound)	<i>Spashta</i>
6.	<i>Sparsha</i> (touch)	<i>Anushnasheeta</i>
7.	<i>Drik</i> (eye)	<i>Spashta</i>
8.	<i>Aakriti</i> (built)	<i>Sthool</i>

### Physical examination

Range of motion of the left hip was severely limited and painful in all ranges, with the difference in length of both lower limbs i.e., left limb was found smaller than right lower limb by 1.8 cm so the patient is bent down on the left side during walking. There was no muscle atrophy. The straight leg raise test of the left leg is positive and the right leg is negative. The range of motion of both knee joints was full and painless. Neurological testing of lower limb reflexes is normal.

### Investigation MRI

Ficat and Arlet stage II and Mitchell class A osteonecrosis of bilateral femoral heads. Diffuse marrow edema involving both femoral heads, neck, and acetabulum.

Bilateral mild hip joint effusion.

**Assessment Criteria**

Range of movement of the hip joint i.e., Abduction, Adduction, Extension, Flexion, Internal rotation, and External rotation was measured by Goniometer. Visual Analogue Scale (VAS) is used for pain & Harris Hip Score.

VAS Pain Score - In VAS Score "0" denotes No Pain and "10" denotes Worst pain

**Table 2: Treatment**

SN	Drug	Dose	Time	Duration
1.	<i>Guduchyadi Yoga</i>	3 gm with lukewarm water	Before food	30 Days
2.	<i>Kaishor Guggul</i>	500mg	After food BD	30 Days
3.	<i>Brihat Manjishthadi Kashay</i>	15 ml	After food BD	30 Days
4.	<i>Laghu Panchmool Siddha Kshir</i>	50 ml	Before Food BD	30 Days
5.	<i>Gandharvaharitaki Churna</i>	3gm	HS	30 Days

**Table 3**

SN	Procedure	Ingredients	Quantity	Duration
1.	<i>Dhouti</i>	<i>Saindhav Jala with Saindhav</i>	Q.S	1 day
2.	<i>Bashpa Sweda</i>	<i>Nirgundi Kwath</i>	Q.S	3 days
3.	<i>Vaitaran Basti</i>	<i>Saindhav, Guda, Amlika, Taila, Gomutra</i>	10 gm, 20 gm, 40gm, 40 ml, 160 ml	3 day
4.	<i>Pinda Sweda</i>	<i>Godugdha and Shashtik Shali</i>		12 day

5.	<i>Yoga Basti Manjishthadi Niruha Basti</i>	<i>Anuvasan Basti Sahachar Tail Niruha Basti</i>		7 day
6.	<i>Panchatikta Ksheer Basti</i>	<i>Saindhav, Madhu, Amruta, Nimba, Patol, Vasa, Kantakari, Ghruta, Cowmilk, Water</i>	20ml, 5gm, 3gm, 3gm, 3gm, 3gm, 40ml, 120ml, 480ml	15 day

**Pathya and Apathya****Pathya**

Warm water, easily digestible food, *Mudga Dal Khichadi, Puran Godhuma, Dhanyaamla, Laja, Jowar Roti, Ghrita, Dugdha.*

**Apathya**

*Diwaswapna, Ativyayam, Abhishyanada Ahara,* exposure to cold air (AC, Cooler), maintaining one posture for a longer duration, jerky movement, lifting weights.

**OBSERVATION AND RESULTS**

Pain was assessed using a Pain VAS Score from 0 to 10. VAS was 3 in right leg before treatment and it came down to 0 after treatment. In left leg it was 8 and it became 1 after treatment. Body weight was reduced from 89 to 85 kg.

Improvement in the Range of Movement of the Hip Joint is shown in table (5). There was marked improvement in flexion, extension, adduction, abduction, internal rotation, and external rotation of hip rotation after completion of *Shashtishali Pinda Sweda* and *Basti*.

Harris Hip Score was done before and after treatment. Significant improvement was found in Harris Hip Score from 72 (fair) to 91 (excellent) in right leg and 49 (poor) to 71 (fair) in left leg shown in table (4).

Table 4: Harris Hip Score before and after treatment

S N	Criteria	Assessment	Right Leg		Left Leg	
1.	Pain	None/ignores (44 points) Slight, occasional, no compromise in activity (40 points) Mild, no effect on ordinary activity, pain after activity, uses aspirin (30 points) Moderate, tolerable, makes concessions, occasional codeine (20 points) Marked, serious limitations (10 points) Totally disabled (0 points)	30	44	20	30
2.	Function: Gait	Limp None (11 points) Slight (8 points) Moderate (5 points) Severe (0 points) Unable to walk (0 points)	11	11	5	8
		Support None (11 points)	11	11	11	11
		Cane, long walks (7 points) Cane, full time (5 points) Crutch (4 points) 2 canes (2 points) 2 crutches (1 points) Unable to walk (0 points)				
		Distance Walked - Unlimited (11 points) 6 blocks (8 points) 2-3 blocks (5 points) Indoors only (2 points) Bed and chair (0 points)	11	11	8	11

	Functional Activities:	Stairs Normally (4 points) Normally with banister (2) Any method (1 points) Not able (0 points)	2	2	2	2
		Squatting With ease (4 points) With difficulty (2 points) Unable (0 points)	0	2	0	2
		Sitting cross legged with ease (5 points) with difficulty (3 points) Unable (0 points)	3	5	0	3
		Public Transportation Able to enter public transportation (1 points) Unable to use public transportation (0 points)	1	1	1	1
	Hip range of motion (Clinician assessed)	Flexion (max 140°) Abduction (max 40°) Adduction (max 40°) External rotation (max 40°) Internal rotation (max 40°)				
	Range of Motion Scale	211 - 300 (5) 161 - 210 (4) 101 - 160 (3) 61 - 100 (2) 31 - 60 (1) 0 - 30 (0)	3	4	2	3
	Absence of deformity (Clinician assessed)	Less than 30° fixed flexion contracture - Yes/No Less than 10° fixed abduction - Yes/No Less than 10° fixed internal rotation in extension	0	0	0	0

		Less than 3.2 cm limb length discrepancy - Yes/No				
		If all 4 Yes (4)				
		If less than 4 No (0)				
	Total	100	72 (Fair)	91 (Excellent)	49 (Poor)	71 (Fair)

### Harris hip scoring

<70 - Poor result, 70-79 - Fair result, 80-89 - Good result  
>90 - Excellent result

**Table 5: Range of Movement of Hip Joint**

Range of Movement		Before Treatment (In degree)	After Treatment (In degree)
Abduction	Right Leg	15	20
	Left Leg	10	15
Adduction	Right Leg	15	25
	Left Leg	15	20
Flexion	Right Leg	70	70
	Left Leg	70	40
Extension	Right Leg	10	15
	Left Leg	8	10
Internal Rotation	Right Leg	20	30
	Left Leg	5	15
External Rotation	Right Leg	15	20
	Left Leg	20	25

A straight leg rise test was done before and after treatment. Due to stiffness and pain, pt was unable to lift his left leg above 20 degrees but after treatment, it was up to 80 degrees as shown in table (6)

**Table 6: Straight Leg Raise Test**

	Before Treatment (In Degree)	After Treatment (In Degree)
Right Leg	90	90
Left Leg	20	80

### DISCUSSION

Prakriti of patient was *Kaphavataj* and there is increase in weight due to lack of physical work BMI is 26. *Jaaladhouti Shudhikriya* (voluntarily induced vomiting) is done for cleaning of Digestive tract and remove toxins from the body. It expels the vitiated *Dosha* and removes blockages from the body and purifies all the *Chakras*.<sup>[5]</sup>

In this disease, there is a predominant of *Vata Dosha* along with *Avaran* of *Kapha* and *Meda Dosha* due to the appearance of symptoms like stiffness and limited hip joint movement.

*Vaitaran Basti* and *Bashpa Sweda* with *Nirgundi Kwath* are advised for three days for *Shodhan* and removal of *Stambha*. The *Lavan-Amla-Sneha-Gomutra Yukta Vaitaran Basti Is Laghu, Ruksha, Ushna, Tikshna* and the majority of drugs are having mainly *Vata Kapha Shamak* action, owing to this property antagonism to *Kapha* and *Ama*. It reduces the symptoms like *Shula, Stambha, Samkoch, Shoth* associated with this disease.<sup>[6]</sup>

AVN of the hip joint develops basically due to obstruction of small vessels supplying to the femoral head leading to the gradual development of necrosis due to reduced vascular supply. Thus, *Raktavaha Sroto Rodh* becomes the prime cause leading to *Asthi Dhatu Kshaya* in hip joint. For this *Majishthadi Niruha Basti* Was given along with *Sahachar Tail Anuvasan Basti*. *Manjishthadi Kwath* is *Tikta, Katu Rasa Pradhana*, and *Ushna Virya* which acts as *Raktaprasadana* and *Tridoshhara*.<sup>[7]</sup>

There is *Asthi Kshaya* in AVN and for *Brumhan* of *Asthi Dhatu Snigdha, Shoshak* and *Kharatwa Guna* are needed this quality is getting if *Tikta Rasatmak Dravya* processed with *Sneha* and milk. *Panchatikta Ksheer Basti* is given for *Asthimajjagata Vata* and *Asthi Kshaya* in condition like AVN.<sup>[8]</sup>

Internal medicine along with *Panchkarma* therapy was given. *Guduchyadi Yoga* contains *Guduchi, Musta* and *Triphala* which pacify the *Vata* and *Kapha Dosha* by its property like *Katu Kashaya Rasa* and *Ushna Virya*. It is *Amapachak* and *Medohar*.<sup>[9]</sup> *Bruhat Manjishthadi*

*Kashaya* and *Kaishor Guggulu* are drugs on *Vatarakta* in which Obstruction in blood vessels is the main cause. So, in condition like AVN it may help in improve blood circulation of the head of femur.

*Laghu Panchmools Siddha Kshira* plays an important role in osteonecrosis.<sup>[10]</sup> *Gandharva Haritaki Churna* is a mild laxative and acts as *Koshtaamayghna* and *Strotoshodhak*.<sup>[11]</sup>

In this case, *Shodhan* and *Brimhan* treatment modalities were planned. For *Shodhan Jaladhauti*, *Bashpa Swedan*, *Vaitaran Basti* and *Manjishthadi Niruha Basti* was planned and *Shashtishali Pinda Sweda* and *Panchatikta Kshir Basti* were given along with internal medication.

Along with Medicine strengthening exercises to hip, knee and ankle and range of motion exercise in supine and standing were advised to enhance muscle strength and increase the range of motion of the hip joint. *Pathya* and *Apathya* were advised during and after the treatment.

*Shaman* medicine was prescribed for a month after discharge from IPD. *Trayodashanga Guggulu* 500 mg twice a day, *Bruhat Manjishthadi Kwath* 15 ml BD, *Balaashwagandha Kshirpaka* for a month along with *Pathyaapthya* and exercise. During follow up there was mild pain in left hip joint during excessive walking or physical work but no further deterioration in the symptoms was observed.

## CONCLUSION

Progression of the osteonecrosis includes destruction of joint which leads to persistent pain and debilitation. In this case, Ayurvedic management shows improvement in Harris Hip Score and improves quality of life. Range of movement of the hip joint is also increased with the improvement in gait and marked relief in pain. There is a need to aware people about the ayurvedic management of AVN to stop the further progression of the disease and conduct such studies on a larger number of samples to draw definite conclusion.

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