

## ROLE OF AYURVEDA IN THE MANAGEMENT OF MAJJA KSHAYA W.S.R. TO AVASCULAR NECROSIS - A CASE STUDY

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### ABSTRACT

**Background:** One of the conditions that is more frequently observed in musculoskeletal clinics is avascular necrosis (AVN) of the head of the femur. Basically, it is an osteonecrosis brought on by a wound or any obstruction of the blood arteries supplying the bone tissue. The most frequent type of necrosis is AVN of the femur head because the artery supplying that region is very thin and readily injured by simple dislocation or a sub capital fracture, which causes a lack of food and necrosis. There is no specific treatment available in modern medicine other than surgery. Additionally, the prognosis is not good and the cost is high. *Asthi* and *Majja Kshaya* are also involved in the pathogenesis of AVN, according to the principles of Ayurveda, along with *Vata*,

*Pitta*, and *Rakta Dosha* (depletion of bony tissue). **Aim:** To evaluate the effectiveness of *Panchatikta Kshira Basti*, an enema made from *Tikta Dravya* such as *Nimba* (*Azadirachta indica*), *Patola* (*Trichosanthes dioica*), *Kantakari* (*Solanum surattense*), *Amrita* (*Tinospora cordifolia*), and *Vasa* (*Adhatoda vasica*). In addition to pain reduction, the treatment's goal is to maintain structure and function. **Materials & Methods:** In present case study, a 25year old, diagnosed case of avascular necrosis of femoral head with complaints of pain in bilateral hip region since 6months which was associated with difficulty in doing normal daily activities such as walking, sitting, squatting along with change in the gate, came at the Kayachikitsa OPD of National Institute of Ayurveda, Jaipur. The patient of AVN of femoral

head was treated with *Panchatikta Kshira Basti* along with medications like *Guggulu Tiktaka Ghrita*, *Shilajatwadi Lauha*, *Laksha Guggulu*, *Agnitundi Vati* and *Dashmoola Kwatha*.

**Observations:** The treatments completely eliminated the symptoms of discomfort, tenderness, overall sluggishness, and gait improvement. **Conclusion:** Based on the findings, it is possible to draw the conclusion that *Panchatikta Kshira Basti* is an efficient therapy tool for avascular necrosis.

**KEYWORDS:** *Majja Kshaya*, Avascular Necrosis, *Panchatikta Kshira Basti*.

## INTRODUCTION

In young adults, avascular necrosis (AVN) is osteonecrosis (dead bone), with 60% of instances being bilateral. Avascular necrosis of the head of the femur affects around 16,000 persons in India each year and is brought on by damage to or any obstruction in the blood arteries feeding the bone tissue. The most typical kind of bone necrosis is AVN of the femoral head. It can be broadly divided into two types: 1) Idiopathic, and 2) post-traumatic. Because the arteries supplying the femoral head are so small, they are readily damaged, leading to a femoral neck fracture or just a simple dislocation. Because of this, the femoral head receives inadequate nutrition, which results in necrosis. It may be asymptomatic at first, but later, pain of varying degrees and changes in gait are observed.<sup>[1]</sup> Adults between the ages of 20 and 40 experience it. Ayurveda has proven beneficial in treating the chronic and incurable AVN problems. However, Ayurveda *Chikitsa* principles must be used professionally to treat *Anukta Vyadhi* disorders, which are those that are not listed in Ayurvedic classics (unmentioned disease). The effectiveness of *Panchakarma* (five therapeutic treatments) treatment and conservative care of AVN of the femoral head were compared to invasive, unpleasant surgical techniques recommended by modern science. A case of AVN was treated using this theory, and the results are described in the sections that follow.

## MATERIALS AND METHODS

**CASE REPORT:** The National Institute of Ayurveda in Jaipur received a visit from a 25-years-old male patient who was diagnosed with AVN (dated 20/08/2022 OPD NO. - 33202200021400) and complained of pain in the bilateral hip region for the past six months, which was accompanied by difficulty performing routine daily activities like walking, sitting, squatting, etc. Cold temperature, abdominal discomfort, and supine position were aggravating variables. Warm meals and warm weather were relieving elements.

**INVESTIGATION**

**MRI OF PELVIS: (18/08/2022)** – Altered signal intensity areas with serpiginous hypo intensities in subcutaneous subchondral location of bilateral femoral head with significant marrow changes in neck intertrochanteric region of both side with mild to moderate joint effusion – **s/o Bilateral avascular necrosis (Ficat arlet staging grade II)**

**Examination of the Patient:** The patient underwent a general and particular examination in accordance with modern and Ayurvedic practises; the specifics are mentioned in tables 1 & 2.

**Table no 1: Ashtavidha Pariksha.**

1	<i>Nadi</i>	<i>Vata-Pittaja</i> , 82/minute, regular
2	<i>Mala</i>	<i>Prakrut</i>
3	<i>Mutra</i>	<i>Prakrut</i>
4	<i>Jivha</i>	<i>Nirama</i>
5	<i>Shabda</i>	<i>Spashta</i> (clear)
6	<i>Sparsha</i>	<i>Samsheetoshna</i>
7	<i>Drika</i>	<i>Prakrut</i>
8	<i>Aakriti</i>	<i>Madhyam</i>

**Table no 2: Aaturbala Pramana Pariksha.**

1	<i>Prakruti</i>	<i>Vata-Pittaja</i>
2	<i>Sara</i>	<i>Rasasara</i>
3	<i>Samhanana</i>	<i>Madhyama</i>
4	<i>Pramana</i>	Weight – 54kg, Height – 170cm
5	<i>Satmya</i>	<i>Madhyama</i>
6	<i>Satva</i>	<i>Madhyama</i>
7	<i>Aharashakti</i>	<i>Madhyama</i>
8	<i>Vyayamashakti</i>	<i>Avara</i>
9	<i>Vaya</i>	<i>Yuvavastha</i>
10	<i>Desha</i>	<i>Sadharana</i>

**Personal History**

- Diet- Vegetarian
- Appetite- Normal
- Bowel- Normal
- Bladder- Normal
- Sleep- Disturbed
- Addiction- No any
- Occupation- Student
- Past illness- Not K/C/O any major illness

- Family History- Nil
- Surgical History- Nil

### Vital Examinations

- Pulse Rate – 82/minute, Regular
- Blood Pressure – 130/80 mmHg
- Temperature – 98.6° F
- Respiratory Rate – 18/minute

There were no abnormalities in the respiratory, cardiovascular, or neurological systems. Per abdomen examination was found normal. Both bilateral Hip joints showed tenderness.

**Table no 3: Samprapti Ghataka.**

1	<i>Dosha</i>	<i>Vata</i>
2	<i>Dushya</i>	<i>Asthi, Majja, Sandhi, Rakta, Sira, Snayu</i>
3	<i>Srotas</i>	<i>Asthivaha, Majjavaha</i>
4	<i>Srotodushti</i>	<i>Sanga</i>
5	<i>Roga marga</i>	<i>Marmasthi Sandhi</i>
6	<i>Adhisthan</i>	<i>Pakwasaya</i>
7	<i>Udbhavasthana</i>	<i>Ama-Pakwasaya (Kostha)</i>
8	<i>Vyakta sthana</i>	<i>Asthi, Sandhi</i>
9	<i>Agni</i>	<i>Mandya</i>
10	<i>Ama</i>	<i>Jatharagni Janya Ama</i>
11	<i>Roga Prakrti</i>	<i>Chirkari</i>
12	<i>Sthanasamshraya</i>	<i>Vankshana pradesha</i>

### Samprapti (Pathology)

Weakness in the neck, head of the femur, and hip joint results from a lack of blood supply to the head of the femur. Indulging in foods and behaviours that aggravate *Vata* leads to an accumulation of aggravated *Vata* in the hip joint, which furthers the joint's deterioration and causes excruciating pain and difficulties moving the hip joint.

### Diagnosis – Majjakshaya (Avascular necrosis)

Table no 4: Gradation of symptoms of Avascular necrosis of femur head.

Sr. No.	Sign & symptom		Gradation
1	<b>Difficulty in walking</b>		
	No difficulty		0
	Mild		1
	Moderate		2
	Severe		3
	Very severe		4
2	<b>Pain at hip joint</b>		
	No Pain		0
	Mild		1
	Moderate		2
	Severe		3
	Very severe		4
3	<b>Restricted movements of hip joint</b>		
	Excellent	Patients are free of pain, can walk as far as they wish without assistance & have at least 75% range of motion	0
	Good	Patients have only minimal pain & ambulate independently with 1 or 2 canes. The range of motion is over 50%	1
	Fair	Patients have moderate pain on weight bearing & can walk only short distance with assistance. The range of motion is less than 50%	2
	Poor	Patients are confined to a wheelchair with only minimal weight bearing	3
	Failure	Patients have severe pain at rest & are not able to bear weight	4
4	<b>Limping of leg</b>		
	Walks Normally		0
	Slightly lame when walking		1
	Moderate when walking		2
	Severely when walking		3
	Reluctant to rise and will not walk more than five paces		4

### Criteria For Assessment

Assessment criteria include evaluation of change in difficulty in walking, restricted movements of hip joint, pain at hip joint, limping of leg and range of movement in hip joint.

### Treatment Protocol

Treatment protocol included *Panchatikta Kshira Basti* along with medications like *Guggulu Tiktaka Ghrita*, *Shilajitwadi Lauha*, *Laksha Guggulu*, *Agnitundi Vati* and *Dashmoola Kwatha* for 16 days.

Table no 5: Ayurvedic Medications (Oral).

Sr. No.	Drugs	Dose	Time	Anupana	Duration (Days)
1	<i>Guggulu Tiktaka Ghrita</i>	10ml BD	Before Food	Lukewarm water	16
2	<i>Shilajawadi Lauha</i>	250 mg BD	After Food	Lukewarm water	16
3	<i>Laksha Guggulu</i>	500 mg BD	After Food	Lukewarm water	16
4	<i>Agnitundi Vati</i>	250 mg BD	After Food	Lukewarm water	16
5	<i>Dashmoola Kwatha</i>	20 ml BD	Before food	Equal quantity of luke warm water	16

Table no 6: *Basti Chikitsa*.

Day	<i>Basti</i>	Dose in ml	Time of administration	Retention Time
1	<i>Kshira Basti</i>	250	11:00 am	1 h
2	<i>Kshira Basti</i>	250	11:15 am	1.10 h
3	<i>Kshira Basti</i>	250	11:10 am	50 min
4	<i>Kshira Basti</i>	250	11:22 am	1.20 h
5	<i>Kshira Basti</i>	250	11:20 am	1.30 h
6	<i>Kshira Basti</i>	250	11:18 am	2 h
7	<i>Kshira Basti</i>	250	12:00 pm	1.5 h
8	<i>Kshira Basti</i>	250	11:25 am	1.6 h
9	<i>Kshira Basti</i>	250	11:40 am	45 min
10	<i>Kshira Basti</i>	250	11:14 am	1 h
11	<i>Kshira Basti</i>	250	11:45 am	15 min
12	<i>Kshira Basti</i>	250	12:10 pm	2.2 h
13	<i>Kshira Basti</i>	250	12:15 pm	2 h
14	<i>Kshira Basti</i>	250	11:50 am	3.2 h
15	<i>Kshira Basti</i>	250	11:30 am	1.5 h
16	<i>Kshira Basti</i>	250	12:25 pm	1.2 h

**OBSERVATION**

Table no 7: Observation of before and after treatment changes in range of movement of hip joint.

Sr. No.	SIGNS	RANGE(Normal) (In Degrees)	Before Treatment (In Degrees)	After Treatment (In Degrees)
1.	Medial Rotation	30 to 40	20	30
2.	Lateral Rotation	40 to 60	30	40
3.	Flexion of Hip Joint	110 to 120	60	90
4.	Extension of Hip Joint	10 to 15	0	10
5.	Abduction of Hip Joint	30 to 50	20	35
6.	Adduction of Hip Joint	20 to 30	10	25

Table no 8: Observations of sign and symptoms of Avascular necrosis of femur head.

SN	Sign & symptom	Gradation	
		Before	After
1	Difficulty in walking	3	1
2	Pain at hip joint	3	1
3	Restricted movements of hip joint	2	1
4	Limping of leg	0	0

## DISCUSSION

Although there is no clear correlation between avascular necrosis and ayurveda, clinical manifestations suggest to *Vata* Dosh dominance and vitiation of the *Asthi Dhatu* (bony tissue). In AVN, any sort of *Margavrodha* (blood vessel obstruction) reduces the blood flow (*Rakta Dhatu*) to the femoral head, eventually causing necrosis. *Margavrodha* is also accountable for aggravating *Dhatu*. Early *Vata Dosha* imbalance (caused by necrosis) is also to blame for vitiating *Pitta* and *Kapha*. Therefore, the primary line of treatment for *Vata dosha* is *basti*.<sup>[2]</sup> In *Asthikshayaja Vikara*, *Tikta Dravya Sadhita Ksheera Basti* is specifically recommended (disorders caused by decrease of *Asthi Dhatu*).<sup>[3]</sup>

## MODE OF ACTION OF THERAPY

1. ***Panchatikta Kshira Basti***<sup>[4]</sup>: Due to the *Sukshma Guna* (minor properties) of *Saindhva* (rock salt), the decoction prepared in *Ksheera* (milk), which has *Madhura* (sweet) and *Snigdha* (unctuous) properties, aids in controlling *Vata Dosha* and aids in reopening the blood flow to the bone tissue.<sup>[5]</sup> This *Basti's Tikta Dravyas* contain *Tikta Rasa*, *Ushana Virya* (hot potency), *Madhura*, and *Katu Vipaka* (pungent post-digestive taste), all of which promote the *Dhatvagni's* (metabolic stage) regular functioning and enhance the *Asthi Dhatu's* nutrition. *Madhura*, *Shita Virya*, and *Ghrta* are *Vatashamaks* (*Vata's* pacifiers) (cold potency). As a result, it calms *Vata*, enhances *Dhatu Upachaya* (tissue metabolism), and revitalises the body. *Ghrta* has the ability to cause other drug's bioavailability by acting as a *Sanskarasya Anuvartana*<sup>[6]</sup> (that which inherits other drugs' qualities without changing itself). Consequently, aids in *Samprapti Vighatana* (breaking down of *Asthi Kshaya's* pathology).
2. ***Guggulu Tiktaka Ghrta***<sup>[7]</sup>: *Guggulu Tiktaka Ghrta* exerts its action on all the 3 *doshas* because it is processed with suitable drugs. *Guggulu* and other most of the *ushnaveerya* drugs of this preparation act as *vatakapahara*. This preparation contains most of the *tikta kashaya dravya* which will act as *pitta* and *kapha shamaka*. Though *laghu* and *ruksha guna* and *tikta kashaya rasa* are *vatakara*, *ghrita* and other *vatahara* drugs in this



preparation will neutralize the adverse action and make *vata shamana*. It's possible that *Guggulu Tiktaka Ghrita*, which is recommended specifically for disorders of the joints (*Asthi* and *Sandhi*), and *Tiktaka Ghrita* with milk, which is expressly prescribed in the form of a *basti* for diseases of the bones, contributed to the improvement of the femur's bone nutrition.

3. ***Shilajatwadi Lauha*<sup>[8]</sup>**: By virtue of its *lekhana karma*, it clears blood vessel congestion and nourishes the cells that are malnourished.
4. ***Laksha Guggulu*<sup>[9]</sup>**: Purified *Guggulu*, *Laksha*, *Asthisanharaka*, *Arjun*, *Ashwagandha*, and *Nagabala* are among the ingredients in *Laksha guggulu*. The majority of these substances have the following properties: *vakaphanashaka*, *deepana*, *balya*, *rasayana*, *tridoshanashaka*, *pachana*, *shothaghna*, *vedanashamaka*, and *shoolaprashamaka*. It provides nourishment to the bones.
5. ***Agnitundi Vati*<sup>[10]</sup>**: *Kupeelu* (*Strychnos nux-vomica*.) is the major content of drug which is more effective in nervine disorders. It improves stimulatory function of *vata*, when function of *vata* decreases due to association with *kapha*. All contents of *Agnitundi vati* are *deepana*, *pachana*, *vatashamaka* and *shoolaghna* in properties. Due to its *ushna virya* it normalises the function of *apana* and *vyanavayu*.<sup>[11]</sup>
6. ***Dashmoola Kwatha*<sup>[12]</sup>**: *Dashmoola Kwatha* is *Tridoshara* (alleviating all deranged *Doshas*), *Vedanasthapana* (pain killer) and *Shothahara* (subside inflammation).

## CONCLUSION

Based on this case study, it was shown that *Panchatikta Kshira Basti*, in combination with specific palliative medications, is beneficial in treating avascular necrosis of the femur's neck. Even though there is a huge need for more research, this shows that Ayurveda can be very helpful in the management of AVN when used in conjunction with a thorough diagnostic and treatment plan. The present case's recovery was encouraging and deserving of documentation. The treatment significantly reduced discomfort, soreness, stiffness, and improved gait. The outcomes were positive. As observed throughout the follow up, the grade of AVN did not worsen and was maintained. The treatment is economical. Ayurvedic principles are used to manage AVN conservatively, which offers great alleviation and raises quality of life.

## Declaration of patient consent

Authors certify that they have obtained patient consent form, where the patient/caregiver has given his/her consent for reporting the case along with the images and other clinical



information in the journal. The patient/ caregiver understands that his/her name and initials will not be published and due efforts will be made to conceal his/her identity, but anonymity cannot be guaranteed.

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