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## TITLE

### Management of Avascular Necrosis through Ayurveda - A Case Study

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## Management of Avascular Necrosis through Ayurveda - A Case Study

## ABSTRACT

**Background:** Avascular necrosis (Avn) of head of the femur is one of the growing condition seen in musculoskeletal clinics. It is basically an osteonecrosis caused due to an injury or any occlusion in the blood vessels nourishing the bone tissue. AVN of femur head is the most common type of necrosis because the artery supplying to that area is very narrow which easily gets injured followed by mere dislocation or a sub capital fracture which leads to lack of nourishment resulting in necrosis. In modern medicine no any specific treatment rather than surgery is available. Moreover it is expensive and has poor prognosis too. According to the principles of Ayurveda *Vata, Pitta, Rakta Dosha* play major role in the pathogenesis of AVN along with involvement of *Asthi* and *Majja Kshaya* (depletion of bony tissue). **Aim:** To assess the efficacy of *Panchatikta Kshira Basti* (enema prepared out from *Tikta Dravya* like *Nimba* (*Azadirachta indica*), *Patola* (*Trichosanthes dioica*), *Vyagiri* (*Solanum surattense*), *Guduchi* (*Tinospora cordifolia*), *Vasa* (*Adhatoda vasica*) in the management of avascular necrosis. The objective of the treatment includes the preservation of structure and function with relief of pain. **Materials & Methods:** The present case study is upon a 23 year old, diagnosed case of avascular necrosis of femoral head with complaints of pain in bilateral hip region since one and half years which was associated with difficulty in doing normal daily activities such as walking, sitting, squatting along with change in the gait, at the *Panchakarma* OPD of All India Institute of Ayurveda New Delhi.. The patient of idiopathic AVN of femoral head was treated with *Dashmooladi Niruha Basti* along with *Panchatikta Guggulu Ghritam* and *Yastimadhu Taila Siddha Anuwasana Basti*. *Kaal Basti* (a variety of enema) was done as per the classical method for 16 days. Assessment was done after *Basti* and after 15 days of follow up. **Observations:** The therapies yielded complete symptomatic relief from pain, tenderness, general debility and improvement in the gait. **Conclusion:** On the basis of the results obtained it can be concluded that *Panchatikta Kshira Basti* can be used as effective treatment in the management of Avascular Necrosis.

**Keywords:** *Asthi Majja Kshaya, Avascular Necrosis, Ayurveda*

## Introduction

Avascular necrosis(AVN) is osteonecrosis (dead bone) in young adults with 60% of the cases being bilateral. It is caused due to the injury or any occlusion in the blood vessels nourishing the bone tissue and about 16,000 people develop avascular necrosis of head of femur in India each year. AVN of femoral head is the most common type of necrosis affecting the bones. It may be classified mainly into two types: 1) Post traumatic 2) Idiopathic. The arteries supplying to the femoral head are very narrow and hence are easily liable to injury followed by mere dislocation or a sub capital fracture of femoral neck. This leads to the lack of nourishment to femoral head resulting in necrosis. It may be asymptomatic in the beginning but later, mild to severe degree of pain is seen along with change in the gait.<sup>[1]</sup> It occurs in adults between the ages of 20 – 40 years.<sup>[2]</sup> Ayurveda has been playing the vital role in curing chronic and untreatable conditions of AVN. But principles of Ayurveda *Chikitsa* must be applied clinically to diseases which are not described in Ayurveda texts which are termed as *Anukta Vyadhi* (unmentioned disease). An effort was made to evaluate the efficiency of *Panchakarma* (five therapeutic procedures) treatment along with the

conservative managements of AVN of the femoral head against painful surgical procedures prescribed by modern science. On the basis of this concept a case of AVN was treated and outcome of the treatment is detailed as follows.

## Materials &amp; Methods

**Case Report:** A 23 year old male patient, diagnosed case of AVN (dated 16/02/2017 OPD NO.154670) visited to All India Institute of Ayurveda New Delhi with complaints of pain in bilateral hip region since 1.5 years which was associated with difficulty in doing normal daily activities such as walking, sitting, squatting etc. Aggravating factors were; cold weather, gastric upset and supine posture. Alleviating factors were; warm food and warm weather.

**Past History:** The patient claimed to be apparently healthy before one and half years, then he developed the pain in left hip joint gradually. The pain was constant throughout the day and aggravated during the night hours. The patient was diagnosed with AVN of bilateral femoral head with aid of MRI by an orthopaedic surgeon and had recommended surgical intervention but the patient was reluctant

and he approached the present treatment facility for conservative and alternative treatment.

Patient had no H\o alcohol consumption or any trauma or accidental injury.

### Examination of Patient:

The general and specific examination of the patient was conducted as per modern and Ayurveda and the details are highlighted in table 1, 2

**Table no. 1: Aaturbala Pramana Pariksha (examination of the strength of the patient):**

1	Prakruti (Constitution of the person)	Vatapradhan Pitta, Rajas
2	Sara (quality of tissue)	Madhyam (average):Ras, Rakta, Mansa
3	Samhanana (body built up)	Madhayama (average)
4	Pramana (antropometric measurement)	Wt.40kg Ht.5feet
5	Satmya (adatability)	Madhyama (average)
6	Satva (mental strength)	Uttama (good)
7	Aaharashakti (food intake and digestion capacity)	Abhyavaharan : (average) Jaran : 5-6 hrs.
8	Vyayamashakti (exercise capacity)	Avara (poor)
9	Vaya (age)	Kuvavastha (adult)
10	Desha (habitat)	Sadharana

**Table no. 2: Asthavidha Pariksha (Eight fold examination):**

1	Nadi (pulse)	80/Minute, Regular
2	Mutra (urine)	Samyaka
3	Mala (stool)	Samyaka
4	Jivha (tongue)	Nirama
5	Shabda (sound)	Spashta
6	Sparsha (touch)	Samsheetoshna
7	Drik (eye)	Spashta
8	Aakriti (built)	Krusha

**\*Dosha:** Vata

**\*Adhithana:** Pakwashaya

**\*Dushya:** Rakta, Sira, Snayu, Asthi

**\*Sthanasanshraya:** Vankshanapradesha

**Samprapti (Pathology):** Due to lack of blood supply to the head of the femur, it causes weakness in the neck and head of the femur and hip joint. Due to indulgence in Vata provoking food and habits the aggravated Vata accumulates in the hip joint causing further degeneration resulting into severe pain and difficulty in the movement of hip joint.

### Investigation:

- MRI (dated 10/03/2016):
  - Grade III avascular necrosis of left femoral head with reactive marrow oedema in left femoral neck and mild left hip joint effusion.
  - Grade II avascular necrosis of right femoral head suggestive of AVN of femoral head.
- HbsAg: Negative

### Treatment Administered:

Both medicinal and procedural therapies was administered in the patient. The details are mentioned in table 3 & 4.

**Table no.3: details of medicine administered**

Sr. no.	Drug	Dose	Anupana	Duration
1	Dashmoola	10 ml	Luke warm	3 weeks
	Kwatha	TDS	water	
2	Kaishore	500 mg	Luke warm	3 weeks
	Guggulu	TDS	water	
3	Panchatikta	1 tsp	Luke warm	3 weeks
	Guggulu	BD	water	
	Ghrta			
4	Panchasakar	5 gm	Luke warm	3 weeks
	Choorna	bed time	water	

Table no.4: Details of therapies administered

Sr no.	Treatment	Drug used	Dose	Duration	
1	<i>Sarvanga Abhyanga</i> (full body massage)	<i>Ksheerbala Taila</i>	QS	16 Days	
2	<i>Bashpa Swedana</i> (Full body fomentation)	<i>Dashmoola Kwatha</i>	QS	16 Days	
3	<i>Kaal Basti</i>	<b><i>Niruha Basti</i></b>		<b><i>Anuvasana Basti</i></b>	
		<b>Content</b>	<b>Dose</b>	<b>Content</b>	<b>Dose</b>
		<i>Madhu</i> (Honey)	50 gm	<i>Madhuyashti</i> <sup>[3]</sup> <i>Taila</i>	60 ml
		<i>Saindhava Lavana</i>	10 gm	<i>Shatapushpa Kalka</i>	15 gm
		<i>Panchatikta Guggulu Ghrita</i> <sup>[4]</sup>	80 ml	<i>Saindhava Lavana</i>	5 gm
		<i>Shatapushpa Kalka</i>	30 gm		
		<i>Dashmoola Kwatha</i>	250 ml		
		<i>Goksheer</i> (Cow's Milk)	250 ml		

Table 5: *Kaal Basti* schedule administered in the patient

Day	<i>Basti</i>	Dose (ml)	Time of administration	Time of <i>Bastipratyagamana</i> (expulsion of enema material)	Symptoms/ Observations	Complications if any
1	A	60	11 am	2 pm	Stool frequency twice	None
2	A	60	11:15 am	2 pm	Stool frequency once	None
3	N	500	11 am	11:10 am	Bowel frequency once	None
4	A	60	11:30 am	2:15 pm	Bowel frequency once, lightness present	None
5	N	500	10:30 am	10:45 am	Bowel frequency once, lightness present	None
6	A	60	10:45 am	1:30 pm	Bowel frequency once, lightness present	None
7	N	500	11am	11:15 am	Bowel frequency once, Lightness present, Taste in food	None
8	A	60	11 am	3:20 pm	Bowel frequency once, Lightness present, Taste in food, <i>Vatanulomana</i>	None
9	N	500	11:15 am	11:20 am	Bowel frequency once, Lightness present, Taste in food, Improvement in digestion, <i>Vatanulomana</i>	None
10	A	60	11 am	3:30 pm	Bowel frequency once, Lightness present, Taste in food, <i>Vatanulomana</i>	None
11	N	500	11:30 am	11:35 am	Bowel frequency once, Lightness present, Taste in food,	None
12	A	60	10:30 am	2:40 pm	Bowel frequency once, Lightness present, Taste in food, <i>Vatanulomana</i>	None
13	N	500	10:30 am	10:40 am	Bowel frequency once, Lightness present, Taste in food	None
14	A	60	10:45 am	4:20 pm	Bowel frequency once, Lightness present, Taste in food	None
15	A	60	11 am	3:10 pm	Bowel frequency once, Lightness present, Taste in food	None
16	A	60	11 am	2:25 pm	Bowel frequency once, Lightness present, Taste in food	None

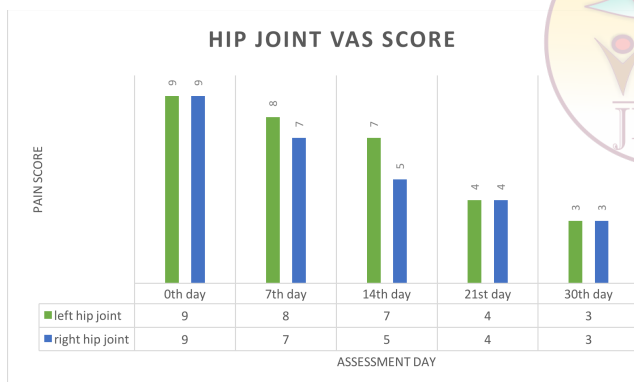
## Observations

Post treatment changes were noted in respect to range of hip joint movements (table 6) and pain was assessed based on Vas Numerical Pain Distress Scale (Chart 1). There was significant clinical improvement in the range of hip joint and pain post treatment.

**Table no.6: Observation of pre and post treatment changes in hip joint**

S. No.	Sign and Symptoms	BT	AT	Normal Range
1	Flexion of Hip Joint	30°	90°	110° - 120°
2	Extension of Hip Joint	0°	10°	10° - 15°
3	Abduction of Hip Joint	20°	35°	30° - 50°
4	Adduction of Hip Joint	10°	20°	20° - 30°
5	Medial Rotation	10°	25°	30° - 40°
6	Lateral Rotation	20°	40°	40° - 60°

**Chart no. 1: Vas Numerical Pain Distress Scale**



## Discussion

According to Ayurveda point of view there is no direct co-relation with avascular necrosis but clinical presentation indicate towards dominance of *Vata Dosh* and *Vikruti* (vitiation) of *Asthi Dhatu* (bony tissue). In AVN, the blood (*Rakta Dhatu*) supply to the femoral head is decreased due to any type of *Margavrodha* (occlusion of blood vessels) ultimately leading to necrosis. *Margavrodha* is also responsible to aggravate *Dhatu*. In advance stage, due to continuous *Vata Dosh* (due to necrosis) imbalance it is further responsible for causing vitiation of *Pitta* and *Kapha*. So *Basti* is first line of treatment of *Vata Dosh* as well as *Pitta*, *Kapha Dosh* and *Rakta* also.<sup>[5]</sup> *Tikta Dravya Sadhita Ksheera Basti* is specially indicated in *Asthikshayaja Vikara* (disorders caused by decrease of *Asthi Dhatu*).<sup>[6]</sup>

## Probable mode of action of *Panchatikta Ksheera Basti*:

The decoction made in *Ksheera* (milk) which have *Madhura* (sweet) and *Snigdha* (unctuous) properties helps to control *Vata Dosh* and due to *Sukshma Guna* (minute properties) of *Saindhwa* (rock salt) it reaches up to micro channel of the body<sup>[7]</sup> and helps to open fresh blood supply to the bone tissue. In this *Basti*, *Tikta Dravyas* are having *Tikta Rasa*, *Ushana Virya* (hot potency), *Madhura* and *Katu Vipaka* (pungent post digestive taste) which favours normal functioning of *Dhatwagni* (metabolic stage) facilitating increased nutrition to the *Asthi Dhatu*. *Ghrta* is *Vatashamak* (pacifier of *Vata*), *Madhura*, *Shita Virya* (cold potency). Thus, it pacifies *Vata*, improves the *Dhatu Upachaya* (metabolism of the tissue) and acts as a *rejuvenator* of the body. *Ghrta* has the properties of *Sanskarasya Anuwartana*<sup>[8]</sup> (that which inherits the properties of other drugs without altering itself) precipitating bioavailability of other drugs. Hence, helps in *Samprapti Vighatana* (breaking down of pathology) of the *Asthi Kshaya*. *Madhuyashti Taila* was used in *Anuvasana Basti* which is indicated in *Vata* and *Rakta Vikara*.

## Role of internal medicine

*Dashamool Kwatha* (decoction of ten herbal roots) was given orally which is said to have *Tridosha* (three humors) pacifying in general and *Vata* in particular properties,<sup>[9]</sup> thus producing significant relief in pain. *Kaishore Guggulu* is a drug of choice in *Vatarakta* in which obstruction in blood vessels is main pathology.<sup>[10]</sup> So, in this condition also it might have helped to improve blood circulation of head of the femur. *Panchatikta Guggulu Ghrta* is specifically indicated for diseases of *Asthi* and *Sandhi* (joints) and *Tiktaka Ghrta* with milk is specially advised in the form of *Basti* for the diseases of bone hence it might have helped to improve the nourishment of bone particularly femur. *Panchasakar Choorna* (powder of 5 sweets) is given for *Koshta Shuddhi* (purification of bowels) and *Vatanuloman* (normalising the movement of *Vata*).

## Conclusion

On the basis of this case study it was concluded that *Panchatikta Kshira Basti* along with certain palliative medicine is effective in management of avascular necrosis of neck of femur. While there is enormous scope for further research but still it proves that with proper diagnosis and proper treatment protocol Ayurveda can be extremely beneficial in the management of AVN. The recovery in the present case was promising and worth documenting.



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