



## Avascular Necrosis of Femoral Head – Ayurveda Management: A Case Study

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**ABSTRACT:** Avascular necrosis (AVN) is the death of bone tissue due to a loss of blood supply, therefore also called as osteonecrosis ischemic bone necrosis. Treatment includes physiotherapy, surgery and medication as NSAIDs. All the treatment procedures are cost worthy and prognosis is poor .In this case main aim to evaluate the efficacy of Ayurvedic procedures in the conservative management of AVN of the femoral head. In this present case a 48yr old male was diagnosed with AVN Of bilateral hip joint associated with osteoarthritis of hip, was managed with *Udvardhana* ,*Shastishali Pind Sweda* ,*Kati Vasti* and *Manjishthadi Tiktaksheer Vasti* .Patients was observed for symptomatic improvements based on signs and symptoms before and after treatment. Observations/Results: The results were encouraging. The therapy provided marked improvements in the gait,pain,tenderness. Conservative management of AVN through Ayurvedic principles provides significant relief in sign and symptoms and improves quality of life.

**KEY–WORDS:** Avascular necrosis,*Asthi-Majjagata Vata*,*Manjishthadi Tiktaksheer Vasti* , *Shastishali Pinda Sweda*.

**Key Messages:** In Avascular necrosis *Panchakarma* procedures makes an impact to relieve the main symptoms without any side effects.

### INTRODUCTION

Avascular necrosis is osteonecrosis and is additionally called Osteonecrosis/Aseptic necrosis/Ischemic bone disease.<sup>1</sup> Avascular necrosis of the femoral head is a dreaded complication of corticosteroid therapy. It can be seen in 3-40% of patients receiving corticosteroid therapy. This condition is one of the most testing issues looked by orthopaedic specialists. The destination of the treatment incorporate the protection of structure, capacity and help from pain.<sup>2</sup> Various surgeries, for example, boring, inclusion of bone unions, changed Whitman or Colonna recreation and addition of prosthesis are completed to cure this condition.<sup>3</sup> AVN is caused due to the injury or any occlusion in the blood vessels which provides circulation to the bone tissue.<sup>4</sup> AVN of femur head is that the most typical type of necrosis of the bones. It generally affects people between age of 30 to 50 years.

AVN Of femoral head is also classified mainly into 2 types:1)Post traumatic 2)Idiopathic. The arteries which supply the femoral head area are very tiny and thus area is simply susceptible to injury followed but mere

dislocation or a sub capital fracture of femur.<sup>5</sup>This ends up in the necrosis of femoral head .AVN of femoral head presents with groin pain that radiates down towards anteromedial thigh. Change within range of motion i.e. abduction, flexion and extension are found.

According to Ayurveda AVN could be considered as *Asthi-majjagata vata* due to similar signs and symptoms. Wide range of treatment modalities have been mentioned in Ayurveda that are effective in such manifestations.

**Table 1: Signs and Symptoms of *Asthi-Majjagata Vata*<sup>6</sup>**

Srno.	Signs and Symptoms
1	<i>Bhedoasthiparvanam (breaking type of pain in bones)</i>
2	<i>Sandhishoola (joint pain)</i>
3	<i>Mamnsakshaya (muscular wasting)</i>
4	<i>Balakshaya (weakness)</i>
5	<i>Sandhi Shaithilayam (laxity of joints)</i>
6	<i>Aswapanasantatruka (sleeplessness due to continuous pain )</i>
7	<i>Shiryantiva cha Asthinidurbalani (destruction of bony tissue causing generalized weakness)</i>

## CASE HISTORY

This is a case report of 48 years old male, non diabetic and non hypertensive patient presented with pain in bilateral hip joint along with reduced movement of both legs since 1years. The pain was continuous in nature and radiating to bilateral thighs, Relieving factors includes rest, warm poultice. Transient relief was seen after conventional medication with recurrence and intensified pain and inability to walk without support. His condition gradually worsened, which the patient refused due to cost affair and approached Ayurvedic treatment for the same.

### Past History:

The patient was apparently healthy before 1year, then he suffered with corona virus which was managed after taking some medication from near by covid centre hospital. After that he developed pain in his right hip and lower back which made him difficulty in walking and pain was in midnight. After some time he noticed that his both legs were different in length then undergone MRI and X-ray of hip joint and diagnosed as AVN of bilateral hip joint by an orthopaedic surgeon and had recommended surgical intervention.

### Personal History:

Personal history revealed mixed diet ,reduced appetite ,irregular bowel habit and sleep disturbance due to pain. He is a chronic smoker since 20years and occupationally was being a health worker in government hospital and had long hours of standing duty since last 15 years.

**Medical History-** Patient have history of taking steroid for long time when suffering from corona virus before 1year.

### Local Examination:

Tenderness was present at hip region. There was significant loss in range of movements. He had limping gait due to shortening of the right leg by 1cm. Measurements of lower limb: -

1.Apparent length A.Right leg-85cm B.Left leg-86cm

2. True length A. Right leg-90cm B. Left leg-91cm
3. Inter Malleolar length- 41.5cm

### Examination of patient:

Both general and systemic examination was done as per Ayurveda and contemporary methods

**Table no.-2: Aaturabala pramana pariksha (examination of the strength of the patient)**

1	<i>Prakriti</i> (body constitution)	<i>Kaphapradhan pitta</i>
2	<i>Sara</i> (quality of tissue)	<i>Madhyama</i> (average): <i>meda, mamsa</i>
3	<i>Samhanana</i> (body built)	<i>Madhyama</i> (average)
4	<i>Pramana</i> (anthropometry)	Wt. 80kg, Ht. 5'9'
5	<i>Satmya</i> (adatibility)	<i>Madhyama</i> (average)
6	<i>Satva</i> (mental strength)	<i>Madhyama</i> (average)
7	<i>Aaharashakti</i> (food intake and digestion capacity)	<i>Abhyabaharana</i> – average <i>Jarana</i> – 6-7hr
8	<i>Vyayamashakti</i> (exercise capacity)	<i>Avara</i> –poor
9	<i>Vaya</i> (age)	<i>Yuvavastha</i> (adult)
10	<i>Desha</i> (habitate)	<i>Sadharana</i>

**Table no-3: Asthavidha pariksha (Eight-Fold Examination)**

1	<i>Nadi</i> (pulse)	76b/min, regular
2	<i>Mutra</i> (urine)	<i>Samyaka</i>
3	<i>Mala</i> (stool)	Hard with irregularity
4	<i>Jihva</i> (tongue)	<i>Samyaka</i>
5	<i>Shabda</i> (sound)	<i>Samyaka</i>
6	<i>Sparsha</i> (touch)	<i>Samyaka</i>
7	<i>Drik</i> (eye)	<i>Spastha</i>
8	<i>Aakriti</i> (built)	<i>Sthoola</i>

On physical examination, range of motion of the right hip was severely limited and painful in all ranges. Mostly pain is being felt in abduction and extension. Mild tenderness also present during palpation of muscles. There was no muscle atrophy. Lumbar spine range of motion was reduced due to pain in right lateral flexion and right rotation. Straight leg raise produced right hip pain with stretch in thigh. Posterior joint provocation test was painful for testing L4,L5 and S1. Range of motion of the both knee joint was full and painless. Lower limb neurological testing revealed normal reflexes and sensory testing bilaterally.

### INVESTIGATIONS

1.X-ray (both hip joint)

-)Rt.Hip space reduces with multiple osteophytes.

-)Rt. Femoral head is mildly deformed with sclerotic changes.

2.MRI

-)Disc bulge at L4,L5, indenting the anterior thecal sac.

-)AVN with grade 2 osteoarthritis in right leg.

-)Grade 2 AVN in left leg.

**Table no-4: Details of Investigations:**

SrNo.	Investigation	Result
1	Anti CCP	Negative
2	HLA B27	Negative
3	Blood Sugar Random	120mg/dl
4	C.R. P	1.97 (Positive)
5	Lipid Profile Total cholesterol HDL LDL Non-HDL Cholesterol	294mg/dl 37mg/dl 235mg/dl 257mg/dl

**ASSESSMENT CRITERIA:**

Range of movement of hip joint i.e. Abduction, Adduction, Extension, Flexion, Internal rotation, External rotation was measured by Goniometer.

Visual Analogue Scale (VAS) is used for pain and Oxford Hip Score. VAS score '0' denoting No pain and '10' denoting worst pain.

**TREATMENT ADMINISTERED**

Oral Ayurveda medicines were administered in the patient 10 april 2022. The details are mentioned below:

**Table no.5: Details of oral medications administered:**

Sr no.	Drug	Dose	Anupana	Time	Duration
1	<i>Avipattikar choorna</i>	500mg	Luke warm water	Before food O.D (morning)	2Weeks
2	<i>Dhanwantra gullika</i>	2tab	Luke warm water	After food B.D	4Week
3	<i>Ksheerbala capsule</i>	2tab	Luke warm water	After food B.D	4Week
4	<i>Gugglutikta kasayam and Manjishthadi kasayam</i>	15ml+15 ml	Mix with half cup of luke warm water	Before Food B. D	4Week

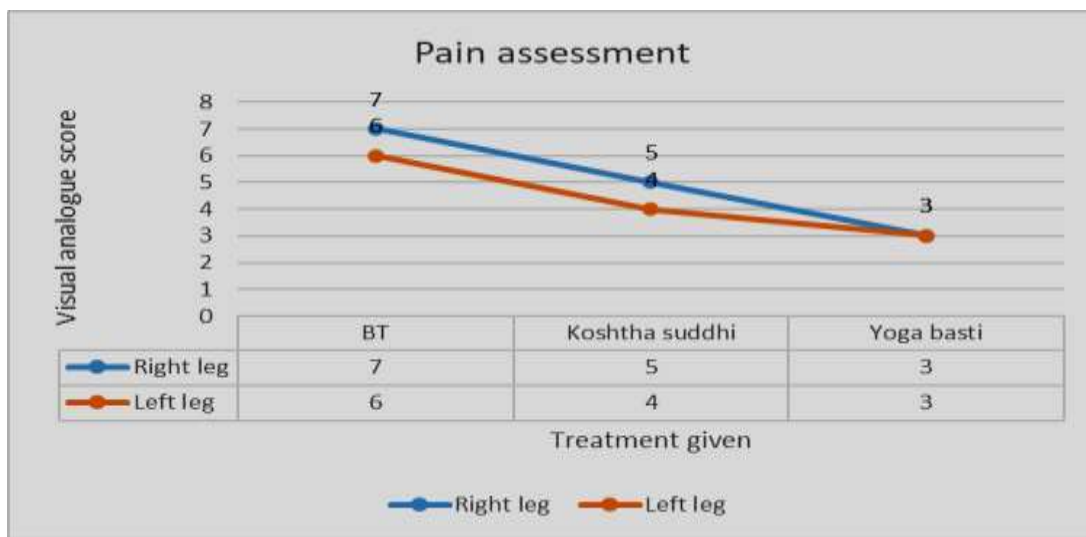
**Table no.6: Details of therapies administered (10april2022)**

S NO.	Procedure	Ingredients	Duration
1	<i>Udvardana and steam in steam box</i>	<i>Kolkulthadi churna</i>	7days
2	<i>Shashti Shali Pind Sweda</i>	<i>Shashtik Shali-500gm, Root of Bala-750gm, cows milk-3litres</i>	7days

3	Kativasti	Dashmool oil	7days
4	Manjisthadi Tiktaksheer vasti	Honey 60ml, saindhav 5gm, Mahatiktaghirta50 ml , sahacharadi taila30ml , satapushpa kalka 30gms , Manjisthadi ksheera paka 240ml	8 days

**OBSERVATIONS**

Pain was assessed using Visual Analogue Scale (VAS) Score from 0 to 10. Visual Analogue Scale (VAS) was 7 in right leg before treatment and it came down to 5 during the treatment and after treatment it reduced to 3. In left leg it was 6 before treatment and it came down to 4 during treatment, after treatment it reduced to 3.



Assessments of flexion, extension, adduction, abduction, internal rotation and external rotation were made before and after completion of treatment. ( *Udavartan , Shashtishali Pind Sweda ,Kativasti ,Manjisthadi Tiktaksheervasti .* ) Improvements in Range of Movement of hip joint are shown in table 7. Oxford Hip Score was done before treatment and after the completion of treatment. Significant improvement found in Oxford Hip Score which is shown in table no 8.

**Table no-7: Observation in range of movement of hip joint:**

Range of movement		Before Treatment (In degree)	After Treatment (In degree)
Abduction	Right Leg	12	30
	Left Leg	10	25
Adduction	Right leg	20	25
	Left Leg	29	30
Flexion	Right Leg	66	82
	Left Leg	110	125
Extension	Right Leg	36	37
	Left Leg	10	25

Internal Rotation	Right Leg	33	34
	Left Leg	35	32
External Rotation	Right Leg	25	32
	Left Leg	37	38

**Table no-8: Showing Improvement in Oxford Hip score <sup>7</sup>**

Before treatment	After treatment
17	36

### Grading for the Oxford Hip Score

**Score 0 to 19** May indicate severe hip arthritis. It is highly likely that you may well require some form of surgical intervention, contact your family physician for a consult with an Orthopaedic Surgeon.

**Score 20 to 29** May indicate moderate to severe hip arthritis. See your family physician for an assessment and x-ray. Consider a consult with an Orthopaedic Surgeon.

**Score 30 to 39** May indicate mild to moderate hip arthritis. Consider seeing you family physician for an assessment and possible x-ray. You may benefit from non-surgical treatment, such as exercise, weight loss, and /or anti-inflammatory medication

**Score 40 to 48** May indicate satisfactory joint function. May not require any formal treatment.

### DISCUSSION

Avascular necrosis is a death of bone tissue because of interference of the blood supply. Early on there might be no symptoms. Aetiology may be traumatic or non traumatic where in nontraumatic caused by occlusion of blood due to intra vesicular or outer compression of blood vessel to reduce blood flow on the femoral head leads to AVN. Obstruction of blood might be due to fat embolism because of increased lipid profile or aggregation of dead red blood cells in sicke celled cases which are mostly found. In this present case there was no history of trauma but history of taking steroids which reduces bone composition. There were disturbances found in lipid profile. He had increased cholesterol level and history of smoking with BMI was indicative of mild obesity. Therefore, treatment started with *Udvardana* and steam bath. It helps to *remove Srotorodha* and brings about of *Angas Sthiri Karana*.<sup>8</sup> *Rukshana* would be the procedure of choice to remove *Avarana* brought about by *Kapha* and *Meda* and to increase bioavailability of subsequent treatments. *Udvardan* helps in reducing BMI, WHR and serum lipid values.<sup>9</sup> Then after *Rukshana* for cleansing of *Dosha* from *Koshtha*, *Koshtha Shuddhi* was done. In *Vatadosha Upakrama Mrudu Shodhana*<sup>10</sup> is advised so it is administered in the form of *Kostha Shuddhi* by focusing the condition *Asthimajjagata Vata* also *Vata Dosha* is the main cause in forming *Samprapti*, also it is helpful before administrating *Brimhana Yoga*.

*Vata* and *Kapha* this two are root cause of *Asthimajjagata Vata*. *Shashtishali Pinda Sweda* is removes stiffness of joints due to disease of vitiated *Vata* type cleanses *the Srotas* of the body and improves blood circulation. It maintains the metabolism in a healthy condition from every point of view. It is used to improve muscle strength, rejuvenate and re-energize body. This treatment is used to provide strength and nutrition to the body tissues, especially ,muscles and other soft tissues.<sup>11</sup> Also providing circulation to femoral head.

*Kativasti* helps to reduce pain and inflammation of low back areas and nourishes ,strengthens the bones ,connective tissues, ligaments,nerves, muscles of the lunbo-sacral region.

*Vata* acts as prime *Dosha* among *Tridosha* as well as plays important role in *samprapti*. *Vasti* is described as best for *Vatashamana*, hence *Vasti* was planned accordingly. *Sahacharadi* ,*Maha Tikta Ghrita* was utilized in *Vasti*. *Asthi Dhatu* is affected in AVN. *oil* and *Maha Tiktaka Ghrita* was utilized in light of the fact that *Tikta Siddha Basti* is indicated in *Asthi Aashrita Vikara* . Drugs of *Sahacharadi oil* are *Snigdha*, *Guru*, and *Ushna Virya* which conciliate *Vata Dosha* .

## CONCLUSION

There is no permanent treatment for AVN .Joint substitution is the treatment at last, which has its own impediments. This case shows positive outcome in terms of improvement in range of motion which helps to forestall the further deterioration and improve the capacity of the influenced part of bone. The treatment given to the patient could be non-invasive procedures and cost effective. In spite of the fact that it didn't fix the illnesses totally as anatomical changes can't be turned around, yet it helps in preventing the further complications. Patient can have typical day by day routine easily after the finishing of treatment with present results was encouraging. Further examination on large sample size is required to build up the Ayurveda treatment protocol for Avascular necrosis of Head of Femur and progress of the disease.

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