



**Case Study**

**AYURVEDA IN THE MANAGEMENT OF AVASCULAR NECROSIS OF FEMORAL HEAD - A CASE REPORT**

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**ABSTRACT**

Avascular necrosis (AVN) is defined as cellular death of bone components due to interruption of the blood supply. The bone structures then collapse, resulting in pain, loss of joint function and long-term joint damage. Treatment goals for AVN are to improve the joint, stop the bone damage, and ease pain. In modern science treatment includes NSAIDS, core decompression, bone grafting and total joint arthroplasty which have their own complications, high cost and prognosis is also very poor. In Ayurveda it can be correlated to the *Asthi-Majja gatha vata*. In this *Raktavaha Srotorodha* also occur which results in *Asthi Dhatu Kshaya*. Aim of study is to introduce an alternative therapeutic modality through Ayurveda which help to reduce pain, improve quality of life and prevent further damage of bone which is cost effective as well. The present case report is a single case study of a 32year old female patient who was diagnosed with Stage II Avascular Necrosis of bilateral femoral head done at Government Ayurveda College Panchakarma Hospital, Poojappura, Thiruvananthapuram. She was treated with selected *Panchakarma* treatments and specific *Samana oushadhis*. There was significant improvement in the symptoms which was assessed using relevant tools like VAS score for pain, goniometer for range of movement and Oxford Hip score for assessment of function and pain in hip. The present case study documents that *Panchakarma* procedures and *Samana oushadhis* can be effective in AVN and improve the quality of life of patient.

**INTRODUCTION**

Avascular necrosis (AVN) or osteonecrosis of the femoral head occurs because of an interruption in the blood supply to the femoral head, which causes bone death. This leads to collapse of the femoral head with degenerative changes setting in the joint eventually. It can be idiopathic or secondary to other pathology. The most common cause is trauma and of the non-traumatic causes' excessive alcohol intake and the use of systemic steroids are the most common. AVN of the femoral head usually occurs in men aged from 35 to 45 and is bilateral in over 50% of patients. The patient is frequently asymptomatic in the early stages of the disease process and therefore a high index of suspicion is required for initial diagnosis.

However, as the disease progresses the patient may complain of an ache in the groin and clinical examination may reveal an effusion, a limp and limitation of movement. MRI scans are essential for early diagnosis. MRI allows the disease to be recognized before it is apparent on radiography as it enables bone oedema and marrow changes to be identified, as well as accurately revealing the extent of involvement of the femoral head, thereby helping in prognosis.

Steinberg's classification of avascular necrosis of the femoral head.

**Stage Description**

- 0 Normal or non-diagnostic radiograph, bone scan or MRI
- 1 Normal radiograph, abnormal MRI or bone scan
- 2 Sclerosis and cysts
- 3 Subchondral collapse, crescent sign
- 4 Flattening of the head, normal acetabulum
- 5 Acetabular involvement

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## 6 Obliteration of joint space

Treatment is based upon whether the patient presents in a pre-collapse or post-collapse stage. In the pre-collapse group, the principle is to preserve and preferably revascularize the femoral head, whereas in the collapse group the aim is to replace the femoral head. The prognosis is largely dependent upon the extent of head involvement. Surgical treatment for the pre-collapse stage includes core decompression, which is aimed at relieving intravascular congestion in the femoral head and thereby pain. The post collapse stage can be treated with a femoral osteotomy.<sup>[1]</sup>

According to Ayurveda, Avascular Necrosis can be correlated to *Asthi-Majjagata vata* by considering its symptoms. Main symptoms of *Asthi-Majjagata vata* are *Asthi parvanam bheda* (cracking of the bones and joints), *Sandhisoolam* (piercing pain in the joints), *Mamsa kshaya* (diminution of muscle tissue), *Bala kshaya* (diminution of strength), *Aswapna* (insomnia), *Santata Ruk* (constant pain).<sup>[2]</sup> In this *Raktavaha srothorodha* is also happening resulting in *Asthidhathu kshaya* which in turn results in *Sandhisathilya* (laxity of joints).<sup>[3]</sup> *Asthi-Majjagata vata* can be managed with a wide range of Ayurvedic treatment modalities. Here we come across a case which was successfully managed using selected *Panchakarma* therapies and *Samana oushadhis*.

### Patient Information

32year old female patient visited OPD of Panchakarma Department of Government Ayurveda College Panchakarma Hospital, Poojappura, Thiruvananthapuram with complaints of severe bilateral hip joint pain (Right>Left) associated with severe difficulty in walking for 10 months. Then she was advised for IP admission. 10 months back she had a fall by hitting her right side while travelling in a bus. She developed pain which was tolerable and as a result she neglected it due to her busy work schedule. Gradually pain increased and she found difficulty in walking. Then she consulted in an allopathic hospital, X-ray and MRI were taken and diagnosed as Avascular Necrosis Stage II. Due to severity of pain, she underwent bilateral core decompression surgery with BMAC. After 3 months she again developed pain and gradually pain became severe. Again, MRI was taken

### Therapeutic Intervention

which showed that same complaint still persists. Then was advised hip replacement surgery. So, she consulted in Government Ayurveda College Panchakarma Hospital, Poojappura, and was admitted for IP management. She had a history of ten steroid injections following Covid-19 attack two years back.

### Clinical Findings

The patient had a body weight of 55kg and with BMI of 21.5. She had a limping gait due to shortening of right leg. On physical examination, swelling was noted in both hip region (Right>Left). On palpation tenderness was present in both hip region (Right>Left). Range of movement of the right hip joint was more limited and painful while in left hip joint movement was possible with pain (pain more in abduction and rotation of hip joint). FABER test was positive in left hip joint and not able to elicit in right hip due to pain. Neurological testing of both lower limbs showed normal reflexes and sensory testing.

### Measurements of both lower limbs

True length  
Right leg- 89 cm  
Left leg- 90 cm  
Apparent length  
Right leg- 92 cm  
Left leg - 93 cm

### Diagnostic Assessment

#### MRI Report-1

Stage II avascular necrosis of heads of bilateral femora. Moderate marrow oedema in head and neck of right femur extending into intertrochanteric region. Minimal marrow oedema in head of left femur. Moderate right hip joint effusion.

#### MRI Report- 2

(After core decompression and B MAC)

Avascular necrosis bilateral femoral head -Grade II. Subchondral sclerosis seen involving the articular surface of bilateral sacroiliac joints with small foci of marrow oedema.

### Blood Investigation

Hb-12.6  
ESR-26mm at 1<sup>st</sup> hr  
CRP -0.20mg/dl - negative  
Vitamin D3- 11.22ng/ml

### Samana oushadhis

Sl.no	Name of the medicine	Dose	No. of days	Rationale
1.	<i>Rasnapanchakam kashaya</i>	60ml bd before food	First 2 weeks	For <i>Amapachana</i> especially in <i>Sandhi asthi majja gata</i>
2.	Tab. <i>Trayodasanga guggulu</i>	1-0-1 with <i>Kashaya</i> bd	First 2 weeks	Indicated in <i>Sandhi gata</i> and <i>Asthi gata vata</i>
3.	<i>Punarnavadi kashaya</i>	60ml bd before food	First 2 weeks	For reducing swelling
4.	<i>Maharasnadi Kashaya</i>	60ml bd before food	Next 20 days	Indicated in <i>Vata roga</i> and is <i>Brimhana</i>

5.	<i>Dhanwantharam 41 avarthi</i>	10 drops oil with <i>Kashaya</i> bd before food	Next 20 days	Indicated in <i>Vata roga</i> and for <i>Asthi hata</i>
6.	<i>Brihath vata Chintamani rasa</i>	1/2-0-1/2 with betel leaf juice and honey bd after food	15 days	Indicated in <i>Vata roga</i> , has <i>Rasayana</i> property, useful in joint pains

**Panchakarma Therapy**

S.No	Procedure	Medicines used	Duration	Results
1.	<i>Kashayadhara</i>	<i>Soolaprasamana gana choorna + Dasamoola choorna</i>	7 days	Swelling, tenderness and inflammation reduced
2.	<i>Lepam</i>	<i>Guduchipatradi choorna</i> in <i>Punarnavadi kashaya</i>	7 days	Swelling and pain reduced
3.	<i>Aavikizhi</i>	<i>Punarnavadi choorna + Dasamoola choorna</i> and <i>Kashaya</i> of same drugs	7days	Pain reduced, able to walk without much pain
4.	<i>Snehapana</i>	<i>Panchathikthaka ghritha</i> and <i>Gandha thaila</i>	5 days	Pain reduced, range of movement of hip joint improved
5.	<i>Abhyanga + Ushma sweda</i>	<i>Sahacharadi thaila</i> and <i>Madhuyastyadi thaila</i>	3 days	Done as preparatory procedure before <i>Virechana</i> , helped in reducing pain
6.	<i>Virechana</i>	<i>Nimbamruthadi eranda thaila</i> - 40ml in hot water	1 day	
7.	<i>Patrapinda sweda</i>	<i>Sahacharadi thaila + Kethakimooladi thaila</i>	5 days	Reduced stiffness and pain
8.	<i>Adhakaya thaila dhara</i>	<i>Sahacharadi thaila + Dhanwantharam thaila</i>	7 days	Given strength to the joint
9.	<i>Ksheeravasti</i>	<i>Panchatikthaka ksheera Kashaya</i> , <i>Panchatiktaka ghritha</i> , <i>Dhanwanthara thaila mezhupaka</i> , honey	7 days	Given strength to bone

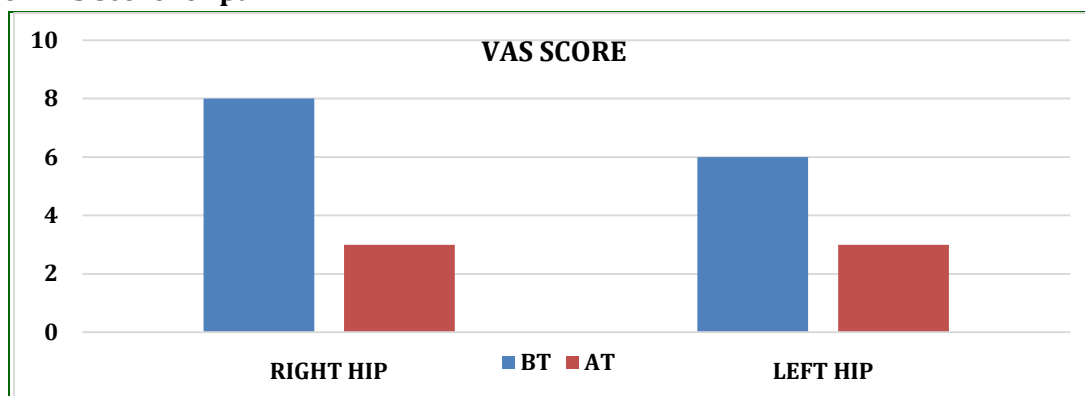
**RESULTS**

There was significant improvement in the symptoms which was assessed using relevant tools like VAS score for pain, goniometer for range of movement and Oxford Hip score for assessment of function and pain in hip.

**Observation in Range of Movement of Hip Joints**

Joint movements		BT (In degree)	AT (In degree)	Full Range of Movement (In degree)
Flexion	Rt hip	40	70	115
	Lt hip	50	90	
Extension	Rt hip	5	15	30
	Lt hip	15	25	
Abduction	Rt hip	15	30	50
	Lt hip	20	40	
Adduction	Rt hip	10	20	30
	Lt hip	15	25	
External rotation	Rt hip	10	30	45
	Lt hip	20	35	
Internal rotation	Rt hip	15	30	45
	Lt hip	20	35	

Rt- Right, Lt-Left, BT-Before treatment, AT- After treatment

**Assessment of VAS score for pain**

Showing Oxford Hip Score [4]

Before Treatment	After Treatment
12	30

**DISCUSSION**

AVN can be correlated to *Asthi-majjagata vata*. Even though it comes under *vatavyadhi* here *Vyadhi stana* is the seat of *Kapha* and which in turn causing *Avarana to Vata*. So, first *Rookshana* procedure is the choice of treatment for removing *Avarana*. This can be considered as *Ama* stage which can be assessed by the symptoms like increased *Asthi*, *Kati*, and *Sandhi ruk*, *Swayadhu* in *Sandhi*. After the *Ama* stage, next treatment principle used is *Abhyantara* and *Bahya snehana* which is the main treatment of *Asthimajjagata vata*<sup>[5]</sup>. *Snehanana* and *Mridhu sodhana* helps in pacifying vitiated *Vata*<sup>[6]</sup> and also results in *Srothosodhana*. *Patrapindasweda* helps in reducing pain and stiffness. Here *Raktavaha srothorodha* occurs resulting in *Rakta dushti* and *Asthi dhathu kshaya*. So *Tikta rasa dravya ksheeravasti* is a choice of treatment in this and also *Ksheera vasti* helps to pacify the increased *Vata* and also in *Brimhana* of *Rasadhi dhatu*. *Samana oushadhi* used for first 2 weeks have *Amapachana*, *Rookshana* property which thereby help in removing *Avarana*. After *Snehanana*, *Brimhana oushadhis* are given which pacifies *Vata* and it also increases nutrition to bone tissue and bone marrow.

**CONCLUSION**

AVN is an orthopaedic condition that poses a challenge in front of whole medical fraternity owing to the impeding of routine activities produced. In modern science hip replacement surgery is the ultimate remedy for this which has its own draw back. So, if

Ayurveda is proven to be an alternative therapeutic modality which can control the bone destruction and also in providing symptomatic relief it may be a great boon to the patients thereby avoiding surgical intervention. The present case report documents that *Panchakarma* procedures and *Samana oushadhis* is effective in AVN and can improve the quality of life of patient.

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