



Case Report



## Asthimajagata Vatamanagement - Avascular Necrosis (AVN) Through Majjabasti and Shaman Chikitsa- A Case Study

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**Abstract:** In clinical practice, the number of Avascular Necrosis cases is increasing due to lifestyle changes, heavy workload, degenerative changes, and improper dietary habits. It is a progressive degenerative condition of the hip joint due to a lack of blood supply to the bone. Modern practice shows a significantly lower prognosis as per the studies. With the help of cardinal features of the AVN (Avascular Necrosis), it may correlate with *Ashthi Majjagata Vikarain Ayurveda*. *Vata Vyadhi* can treat at the clinical level with the help of *Ayurvedic Shamana* (palliative treatment) and *Shodhana Chikitsa* (Purification treatment). According to Ayurveda Acharyas, the *Bastikarma* is the best line of treatment in *Vata Vyadhi* and is also called *Ardha-Chikitsa*. Ayurvedic Treatment gives long-term relief from the disease, helps to enhance the inner strength of the body tissues, and stops the progression. A 36-year-old male patient complained of Breaking Pain in the femur bone, Pain in the right hip joint, difficulty walking, and radiating Pain from the lumbar to thigh region. Associated with restricted movement of the right leg and disturbed sleep. He was treated with *Shamana Aushadhis*, followed by *Abhyanga*, *Swedana*, and *Majjabasti* with the combination of *Majja* (goat bone marrow) and *GoKsheer* for 12 days. The patient was assessed with M.R.I. and grading of the symptoms; significant changes and improvements were observed in symptoms before and after the treatment. This study has been conducted to evaluate the efficacy of *Majjabasti* in managing *Asthimajagata Vata* based on Ayurvedic management. It shows that *Majjabasti* can be used in clinical practice for managing AVN, along with all precautionary measures described in *Ayurveda* classics in the form of *Parihara Vishayas* during *Bastikarma* should be followed.

**Keywords:** *Asthimajagata Vata*, Avascular Necrosis, AVN, *Majjabasti*, *Shamana Chikitsa*

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## I. INTRODUCTION

According to *Ayurved Acharyas*, there are seven *Dhatus* in the human body that helps in nourishment and functioning of the body. *MajjaDhatu* is among them; according to *Acharyas*, *Majja Dhatu* is *Saarabha*g of *AsthiDhatu* as it is derived from *AsthiDhatu*.<sup>1</sup> *Acharyas* has explained three *Nyayas* to Understand the *DhatuposhanaKrama*, i.e., *Kedarkulyanyaya*, *Khalekapotnyaya*, and *Ksheeradhanyaya*. *Majja* is derived from the Sanskrit word "*MajjototiMajja*," divided into *Majj* + *Ach* + *Tap* word *Majja*. *MajjaDhatu* is "*Majja steam Balam shukra pushtim pooranamastinaamchakaroti*" it provides unctuousness, strength, nourishment of reproductive organs, and filling of bone.<sup>2</sup> In this case, the patient is diagnosed with *AsthimajjagataVikar* as per *Ayurved*. It may correlate with *Avascular necrosis* of its similar characteristics feature. *Avascular necrosis* is a condition that affects 16,000 people in India each year and will eventually necessitate complete hip replacement surgery. The typical age of *avascular necrosis* patients is about 32 years old, "explained *Sancheti*. "The Hip is the joint that experiences *avascular necrosis* the most frequently.<sup>3</sup> The main aim of this study is to evaluate the efficacy of *Majjabasti* in the management of *Asthimajjagata VataVikar* based on *Ayurvedic* management.

### I.1 SIGNS AND SYMPTOMS OF AVN

According to *CharakAcharya*, if *Vatadosha* gets vitiated and situated in *Asthi* and *Majja*, it shows symptoms like *Asthibheda* (breaking Pain in bones), *Poorvabheda* (Pain in all the joints), *SandhiShoola* (Joint Pain), *Mashakhsya*, *Balakhsya* (body weakness), *Anidra*, *Asthisosh* (osteoporosis), *Asthischoola*. *Majjashosha*, also the *Kshayalakshana* of *AsthiDhatu*, is *Sandhishaitilyam* (looseness in joints), and *Kshayalakshana* of *MajjaDhatu* is *Asthidourbalyata*, *Laghuta*, and it causes *Vatarogas*.<sup>4</sup> *Avascular necrosis* is a pathological condition resulting from lack of blood supply to the bone by Traumatic or non-traumatic Factors. It causes Ischemic changes, tiny breaks in the bone, and the bone's eventual collapse. It is also caused due to prolonged use of steroid medications, alcoholism, and other rare pathological condition like hypertension and sickle cell anemia. If *avascular necrosis* involves the bones of a joint, it often destroys the joint articular surfaces. The sites involved are the femoral head, scaphoid bone, lunate bone, talus, lower 1/3rd of the tibia, and rarely the head of the humerus. The *AVN* of the head of the femur is commonly seen in daily practice. It forms the symptoms like gradual Pain, stiffness, difficulty walking, etc.

### I.2 SAMANYA SAMPRAPTI (Pathogenesis)

Several etiological factors cause *Vata* vitiation and vitiated *Vata* spreads throughout the body. It causes various symptoms, including *Rukshata* (dryness), *Parushata*, and *Kharata* (roughness) in *Strotasa* and *Sthanasanshraya* at the *Asthi* and *Majjadhatu*, which results in *AsthimajjagataVata*.<sup>1</sup> *HetuSevana*, <sup>2</sup>. *VataPrakopa*, <sup>3</sup>. *Rukshata*, *Parushata*, *Kharata* at *Strotasa*, <sup>4</sup>. *Sthanasanshraya* at *Asthi* & *Sandhi Pradesh*, <sup>5</sup>. *AsthimajjagataVata*.

## I.3 PATHOPHYSIOLOGY OF AVN

As per the present research, pathogenesis is caused by mechanical interruptions of venous or arterial flow, emboli, elevated intramedullary pressure, vasculitis, or venous blockages. The medial circumflex femoral is the main blood vessel that supplies the femoral head and artery. However, several known environmental exposures and predisposing factors can raise the risk of developing *AVN*. Following the initial injury to the bone, marrow components and bone cells start to die. This process causes the joint surface to collapse and involves the bone in the joint. The most vulnerable cells are hematopoietic cells, which can pass out within 6–12 hours of exposure. In 12–48 hours, osteoblasts, osteoclasts, and fat cells all undergo destruction, which can take 2–4 days. After weeks or months of necrosis, an inflammatory reaction occurs. The inflammatory cuff causes subchondral weakening and reactive revascularization. They are the root reasons for the collapsed articular cartilage. Articular disturbances ultimately bring on degenerative joint problems.<sup>5</sup> According to *Ayurveda Acharyas*, the *Basti* is the *Ardhachikitsa* (half treatment) in the diseases of predominant *VataDosha*.<sup>6</sup> *Basti* is indicated explicitly in *Vatajvikaras*. *AsVatajvikaras* has *Ashraya* – *Ashrayisambandha* with *AsthiDhatu*, which is helpful in the *Asthimajjavahavikara*. The function of *Basti* is nourishing the body and elevating the predominant *VataDosha* from the body. *Ayurvedic* herbal and herbal-mineral preparations at the correct dose and *Anupana* to boost their efficacy have also been recommended for *ShamanaChikitsa* in this condition. The basic principle of *Ayurveda* for treating any condition begins with *NidanaParivarjana*, *Shamana Chikitsa*, *Shodhana Chikitsa*, and *Pathya-Apathya* are Advice to Breakdown the pathology of the Diseases. In this case study, the same treatment protocol was Advised to treat the patient with the help of *Shamana* and *ShodhanaChikitsa*, which showed excellent results for the patient. Hence, this case study may help further research scope and globalization of the *Ayurveda* Treatment principles.

### I.4 CASE REPORT

A single case study of 36 years-old male patient had complaints, e.g., Breaking Pain in the femur bone, Pain in the right hip joint, difficulty walking, and radiating Pain from the lumbar to thigh region. Details of the rest of the chief complaints & associated complaints are given in Table 1.

### I.5 PROGRESSION OF DISEASE

The patient was regular for ten days, then gradually started complaining of Pain in the lumbar region, hip joint pain, difficulty walking, and radiating Pain from the lumbar to thigh region; hence he visited *Panchakarma O.P.D.*, *MGACH&RC* for further *Panchakarma* Treatment.

### I.6 PATIENT'S HISTORY

Details of the patient's medical and family history are given in Table 2.

## 1.7 CLINICAL EXAMINATIONS

Table 1: General examination		
1	Pulse	76/ min
2	Blood pressure	130/80 mm hg
3	R.R.	18/ min
4	Temperature	98 F
5	Weight	72 kg
6	Height	172 cm
7	BMI	24.3 kg/m <sup>2</sup>

### 1.8 Systemic examination with a Modern perspective

- C.N.S:- Normal functional activity, well oriented
- CVS:- S1 & S2 heard
- Respiratory:- Air Entry Bilaterally Equal

### 1.9 P/A

1. Inspection:- Normal, No Scar marks
2. Palpation:- Distended
3. Percussion:-No any thrill sound.
4. Auscultation:-No Abdominal sound.

### 1.10 SPECIFIC INVESTIGATION FOR AVN

1. X-Ray ( Hip joint A.P. – Lateral view)
2. M.R.I. (Bilateral Hip with Pelvis)
3. C.T. – Scan
4. Bone scan

### 1.11 INVESTIGATION

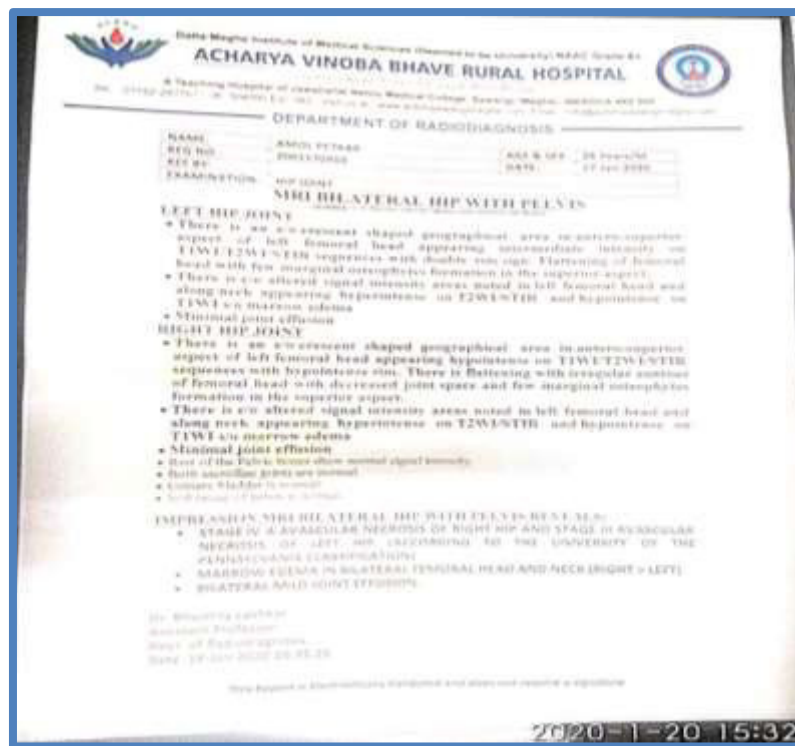
1.11.1 **X-RAY** ( Hip joint A.P.- Lateral View)Figure.1  
Findings: Stage 4 Avascular necrosis right femoral head.



*This figure shows degenerative changes over the right hip joint, and the impression of the X-Ray shows that the patient is having Stage 4 Avascular necrosis over the right femoral head.*

**Fig 1- Radiological investigation AP and Lateral view (A- AP View, B- Lateral view)**

### I.11.2M.R.I.(Bilateral hip with Pelvis) [ Before treatment ]Figure.2



This figure shows Stage 4 avascular necrosis of the right Hip and stage 3 avascular necrosis of the left Hip. Marrow edema in Bilateral femoral head and neck ( Right > left )Bilateral Mild Joint effusion.

Fig.2- M.R.I.(Bilateral Hip with Pelvis)

### I.11.3 [After treatment]Figure. 3



This figure shows Stage 2 Avascular necrosis right femoral head.

Fig.3- M.R.I.(Bilateral hip with Pelvis)

### 1.12 AsthavidhaPariksha

The findings of AshtavidhaPariksha are provided in Table.3

### 1.13 A systemic examination from Ayurveda's perspective

Actual results of Systemic Analysis with Ayurveda's view are provided in Table.4

### 1.14 DIAGNOSIS

AsthimajjagataVikara (Avascular necrosis)

### 1.15 PROGNOSIS

Avascular necrosis has no cure; however, treatment can slow or stop its progression. Avascular necrosis patients usually have Calcium supplements, Steroids, and Surgery, including joint replacement.

### 1.16 THERAPEUTIC INTERVENTION

The line of treatment prescribed for this patient is given in Tables.5 and 6, respectively.

### 1.17 OBSERVATION AND RESULTS

Observations and Results obtained after treatment, i.e., at the end of the 12<sup>th</sup> day, were assessed by using subjective & objective criteria; as shown in Table.7, all clinical features in this patient had reduced significantly by using the above-said Shodhana and Shaman Aushadhi recommended by ancient Acharyas in the management of AsthimajjagataVikar.

## 2. DISCUSSION

According to AcharyaCharak, the VataDosha gets vitiated by excessive intake of VatavardhakaAhara, Ativyayam, Ativyavay, Aghata, etc., are the common causative factors for vitiation of VataDosha. It causes the Agnimandya, then gradually situated in the place of MajjaDhatu and forms the Avarana and produces the symptoms of Asthimajjagatavata.<sup>7</sup> This is the general pathology of Asthimajjagatavata as per Ayurved to breakdown this Samprapti with the help of AyurvedaShaman and ShodhanaChikitsa (Table.5).

### 2.1 Role of Panchakarma procedures

Abhyanga has given with KottamchukadiTaila. It is a herbal preparation that contains Kushtha, Shunthi, Vacha, Shigru, Lashuna, Kartotti, Devadaru, Sarshapa, Rasna, Dadhi, and Chinchin Rasa. It has Tikta (bitter), Katu (pungent), dominant Rasa (taste), Laghu (light), Ruksha (dry) in nature, Ushna (hot) Virya (potency), KatuVipaka in the heart. Its functions are like Aamapachaka (improves digestion power and digests the toxins released from undigested food). Many components have a

Lekhaniya, Shothahara, and Shoolahara (analgesic) effect.<sup>8</sup> AnuvasanaBasti is given with GoKsheera and Majja (meat soup). The Ksheera, which has Madhura and Snigdha (oleaginous) properties, help to control VataDoṣa and PittaDoṣa and acts as Brimhaṇa (nourishing), Vrishya and Rasayana (immunomodulation property).<sup>9</sup> Majja is also used in Basti. It enhances RaktaDhatu as it helps in hemopoiesis and strengthens the bone.<sup>10-11</sup> It nourishes Majja Dhatu, which signifies the nourishment of Asthi Dhatu, due to its Snigdha, Pichchila, Guru, and Asthi DhatuBrimhana- Poshana characteristics. When both Dhatus are nourished, VataShamana happens. So, according to Rasa and Vipaka, this Basti reaches Asthi and MajjaVahaSrotasa, thereby improving MajjaDhatu.<sup>12</sup> The Poorana (filling) virtue of this Majja nourishes Asthi, while the Snehana property settles vitiated Vata in Asthi. It shows that Majja affects the physiology of bone. It contains cholesterol which helps synthesize vitamin D. Recent research has also shown that bone marrow adipocytes fill the bone and act as an endocrine organ and affect bone metabolism through their secretions.<sup>13</sup>

### 2.2 Role of Internal medicines

Shamana Aushadhi also plays a role in the treatment of AVN; in this case study patient was advised with Shamana Aushadhi, which is Classically mentioned by Ayurveda Acharyas (Table.6) GandharvaHaritakiChoorana acts as Vatanulomana, Ajirnahara, MriduVirechaka, and Rasayana due to its Ushna, Sukshma, and Tridosha Shamaka properties.<sup>14</sup> Shallaki XT has the action of Shothahara, Vedanasthapanadue to its Ushna, Guru, SnigdhaGuna, and Ushna Virya properties.<sup>15</sup> Tab. Dardanash is a herbs-mineral combination that contains Vangabhashma, Lohabhasma, Swarnamakshika Bhasma, Rasasindur, Ashwagandha, Guggulu, Maharasnadi Qwath act as Vataghna, Shoolaghna, and Shothahara. Rasnasaptaka Qwath has Rasna, Guduchi, Aragwadha, Devadaru, Gokshura, Erandamoola, and Punarnava. It is anti-inflammatory, anti-rheumatic, laxative, diuretic, and analgesic.<sup>16</sup> Cap. Bonerich contains Calcium, Zinc, and Vitamin D. calcium provides bone strength and density and helps treat and prevent low calcium levels.<sup>17</sup> Zinc is necessary for building bone cells, and it inhibits the formation of cells that causes the breakdown of bones.<sup>18</sup> Vit D a crucial role in the absorption of calcium and phosphorous from the intestine, which is critical for the formation, growth, and regeneration of bones.<sup>19</sup> Previously patient complained of Breaking Pain over the femur bone, Pain in the right Hip joint, Difficulty while walking, and Radiating Pain from the lumbar region to the thigh region (Table.1). Findings of the MRI reports show Stage -4 Avascular necrosis of the right hip joint and Stage-3 Avascular necrosis of the left hip joint (Figure.2) before treatment. After 12 days, Shamana and ShodhanaChikitsa patients show significant results in Complaints. A MRI of the bilateral Hip joint shows Improvement as complaints of the patient gradually decreased, and it shows Stage-2 Avascular necrosis (Figure.3) after the treatment.

Table.1- Chief Complaints & Associated complaints				
S.N	Chief Complaints	Duration	Associated complaints	Duration
1	Asthibheda (Breaking Pain in the femur bone)	10 Days	Disturbed sleep due to Pain	7 Days
2	SandhiShoola (Pain in the right hip joint)	10 Days	Restricted movement of the right leg	10 Days
3	Difficulty in walking	10 Days	-----	----
4	Radiating Pain from the lumbar to the thigh region	7 Days	-----	----

Table.2- Details of the patient's history		
S. N.	Head	Details of patient
1	History	H/O Fall while running six months back, N/H/O HTN/DM/Thyroid dysfunction/ any other allergic illness.
2	Family history	Not specific
3	Medical history	Took allopathic medicine ( 6 <sup>th</sup> month Back) Tab. Zerodol SP 250 mg I B.D., Tab Pan-40mg I O.D. ( 7 Days )
4	Personal history	Diet- spicy food, irregular diet schedule Sleep- Disturbed sleep due to Pain Habit- not specific

Table.3- Findings of AshtavidhaPariksha		
Sr. No	Name	Lakshana
1	Nadi	Vata-kapha Predominant
2	Mala	Asamyak (Irregular, unsatisfactory bowel evacuation)
3	Mutra	Sayaka
4	Jihva	Sama
5	Shabda	Spashta
6	Sparsha	Anushnasheeta
7	Drik	Samyak
8	Akruti	Madhyama

Table.4 Systemic examinations with Ayurveda's perspective		
S. N	Strotas	Lakshana
1	Mamsavahastrotas	Angagouravata, Atitoda
2	Asthivahastrotas	Sandhishoola, BedavatVedana,
3	Majjavahastrotas	Balakshaya, Ruja
4	Purishvahastrotas	Vibandha
5	Manohavastrotas	Prakriti

Table.5ShodhanaChikitsa given to the patient			
S. N.	Procedure	Drug used	Duration
1	Abhyanga	Kottamchukaditaila	12days
2	PetiSwedana	Erandapatra, Nirgundipatra, Dashamoolachoorana	12 days
3	Niruhabasti	Dashamoolaqwath+ Ashwagandha Chhorna= 800ml Saindhava Lavana- 10 gm, Honey- 80 ml, GuduchiKalka- 10gm, Sahachara Taila – 50 ml	2days (1 <sup>st</sup> day 7 <sup>th</sup> day)
4	Anuvasanabasti (Majjabasti)	Majja – 30 ml Ksheera( milk ) – 20 ml	10 days ( 2 <sup>nd</sup> to 6 <sup>th</sup> day and 8 <sup>th</sup> to 12 <sup>th</sup> day)

**Table.6- ShamanaChikitsa**

S. N.	Medicine	Dose and frequency	Time of administration	Anupama	Duration
1	Tab Dardanash	250mg I tab twice a day	After food	Luke warm water	One month
2	Tab Shallaki XT	250mg I tab twice a day	After food	Luke warm water	One month
3	RasnasaptakaQwath	15ml twice a day	After food	Luke warm water	One month
4	GandharvaHaritkiChoorna	10 gm	Bedtime	Luke warm water	One month
5	Cap Bonerich	250 mg I tab twice a day	After food	Luke warm water	One month

**Table.7-Observation & Results**

S. N	Symptoms	Graduation	Observed score	
			Before treatment	After treatment
1	Asthibheda (Breaking Pain)	No piercing pain in bones -0		
		Mild piercing Pain in bones not affecting daily activities - 1	3	0
		Occasional moderate piercing Pain in bone not affecting daily activities. Pain can be relieved by rest no need for medication-2		
		Frequently Severe piercing Pain in bones affecting daily activities. The patient needs medication - 3		
		Continuous severe piercing pain in bones with restricted movements not relieved even by simple medications - 4		
2	Sandhishoola ( Pain in Joints)	No pain -0	3	0
		Mild Pain + no difficulty in walking - 1		
		Slight difficulty in walking - 2		
		Much difficulty in walking - 3		
3	Katishoola ( Pain in the Lumbar region)	No backache - 0	2	0
		Occasionally – 1		
		Relieves by medicine - 2		
		Dependent on painkiller - 3		

### 3. CONCLUSION

This case study shows that with the help of Ayurveda's treatment principle, i.e., the Combination of *Shodhana* and *ShamanaChikitsa*, the Vitiated *VataDoshas* subtle down to its usual stage, and the *Lakshana*, which occurs due to *KaphanubandhitaVata* can be cured up to maximum extend. A previous study shows that *MajjaBasti* acts as the best *Vatanulomaka* and *Balya* in the *AsthimajjagataVata* and strengthens the *Asthi*, *Majja* and cures the degenerative changes which are present in Avascular necrosis conditions. *Shamana* Drugs also help to heal this condition and Associated complaints. The overview of treatment shows it is cost-effective, easy to use, and safe at the O.P.D. level in Avascular necrosis conditions.

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