International Journal of Ayurveda and Herbal Research, 2023,
Vol. 01, Iss. 02, S. No. 010, pp. 1-9
ISSN (Online): 2584-0002

Role of Dashmool Siddha Majjibasti in the Management of Avascular Necrosis of the Femoral Head: A Successful Case Study

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Abstract

Avascular necrosis is a condition brought on by a temporary or irreversible reduction in the bone's blood supply. Bone tissue dies and crumbles when the blood supply is interrupted. The joint surface may collapse if there is avascular necrosis close to the joint. Young individuals with a 60% bilateral incidence rate have a condition known as avascular necrosis (AVN), which is also known as osteochondritis dissecans or Chandler's disease and is characterized by dead bone. As of now, complete hip replacement surgery is the only option for treating AVN, but it has the disadvantages of a lengthy recovery period and a short lifespan for the hip. Contrary to popular belief, ayurvedic medicine offers long-term cure and halts the course of disease without any negative effects. Avascular necrosis and Asthi-Majja GataVata are not directly related, but their clinical manifestations point to Vata Pradhana Tridoshaja. Vyadhi and Asthi-Majja Dhatu's primary Vikruti. The first portion of the Acharayas' Vata-dominant illness therapy is called Basti Chikitsa. It is regarded as Param Aushadh for illnesses of Vata. ***Goal & objectives:*** *To evaluate Dashmool Siddha Majjabasti's effectiveness in the treatment of AVN. The goal was to prevent future hip joint degeneration and lessen the likelihood that surgical intervention would be necessary to treat avascular necrosis.* ***Materials and methods:*** *A patient with stage 4 AVN in the right hip joint and stage 2 AVN in the left hip joint who had not undergone surgery and who presented to the hospital's outpatient department with limited mobility and a limping gait was treated using panchakarma treatment and shaman yoga.* ***Observation and Outcome:*** *Significant improvement was seen following the therapy. Range of motion was improved while pain levels were significantly lowered. Following the procedure, the patient was pain- and stiffness-free when walking and climbing stairs. Ayurvedic principles are used in the conservative therapy of AVN, which significantly reduces signs and symptoms and enhances quality of life.*

Keywords

Asthimajjatagata Vaat, Dashmoola Sidha Majja Basti, Shaman yoga, Avascular necrosis.

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How to Cite this Article

Gupta A, Nagpal S. Role of Dashmool Siddha Majjibasti in the Management of Avascular Necrosis of the Femoral Head: A Successful Case Study. Int J Ayurveda Herbal Res. 2023;1(2):1-9.

DOI: https://doi.org/10.54060/ijahr.2023.10

To browse

Received 2023-05-05

Accepted 2023-07-01

Online First 2023-07-01

Published 2023-07-25

Funding Nil

Ethical Approval Nil

1. Introduction

Bone disease called avascular necrosis (AVN) is a condition. A cell has perished when it undergoes necrosis, to use a broad word. Joint discomfort, particularly in the hip, can result from AVN. Lack of blood supply to bone cells causes injury to the bone. Due to an injury, that frequently occurs. Additionally, damage from excessive alcohol consumption or the use of corticosteroids to treat a long-term medical condition are prominent causes. The hip joint is the one most commonly impacted by AVN. The knee is a typical site of AVN damage. Shoulder, wrist, ankle, hands, and feet are among the bones that are less frequently affected by AVN. The decrease of blood flow causes bone tissue to die, which is known as AVN. An example of osteonecrosis caused by a disturbance in the blood supply to the proximal femur is avascular necrosis of the femoral head. The majority of the population, who have a disease prevalence rate of 0.135% per 1000, are between the ages of 20 and 50. In the US, between 10,000 and 20,000 new instances of AVN of the femoral head are detected each year. The average age of presentation is 36 years old, with the normal age range being 35 to 50 years old. Men are more likely than women to experience it. The prevalence of bilateral illness is likewise very high.

The signs and symptoms of AVN might vary greatly depending on the stage at which they are presented. Patients with AVN typically range in age from 20 to 40, with a median age of 38. Early on, AVN may not show any symptoms. Symptoms may appear roughly in the following sequence as the illness worsens and blood cells die:

- a little or a lot of discomfort in or near the afflicted joint
- knee-to-groin soreness that starts in the groin
- discomfort that develops when one bears weight on their hip or knee.
- discomfort that develops when one bears weight on their hip or knee.

Microfractures, or microscopic cracks in the bone, can cause pain to become quite intense. These may result in the bone crumbling. The joint might eventually degenerate into arthritis. The interval between the onset of symptoms and the loss of joint mobility varies. It often lasts between a few months to more than a year. Bilateral symptoms are those that manifest on both sides of the body [1].

This condition can be correlated to *Asthi- Majjagata Vata* according to the sign and symptoms described in *Ayurveda*. Symptoms like *Bhedo Asthi Parvanam* (breaking type of pain), *Sandhi shula* (joint pain), *Mamsakshaya* (muscular wasting), *Balakshaya* (weakness), *Aswapna santataruk* (disturbed sleep due to continuous pain) and *Sandhi Shaithilyam* (afflicted joints)

with *Shiryanti iva cha asthini durbalani* (destruction of bony tissue causing generalized weakness), *Pratata vata rogini* (other aggravated features of *vata*) etc.

1.1 Pathophysiology of AVN

Pathogenesis occurs due to mechanical disruptions of arterial supply, embolism, increased intramedullary pressure, vasculitis, or venous obstructions.

Blood supply of the femoral head is largely through medial circumflex femoral artery. However, there are several recognized predisposing factors and environmental insults that can lead and increase the developer of AVN. After the initial insult of the bone site, it leads die of marrow substances and bone cells. This process is involved the bone in the joint it leads collapse of joint surface. Hematopoietic cells are most susceptible once and they may die within 6-12 hours. Osteocytes, osteoblasts, osteoclasts destructed within 12-48 hours and fat cells may die within 2-4 days. Inflammatory event is response to necrosis during weeks to months. Inflammatory cuff leads to reactive revascularization and subchondral weakness. They are directly causes to the articular collapse. Ultimately articular disruptions cause to degenerative joint disorders [2-5].

2. Samprapti

Various etiological factors causes *Vata* vitiation and vitiated *Vata* travels in different parts of body and causes *Rukshata* (dry-ness) , *Parushata* , *Kharata* (roughness) in *Strotasa* , gets *Sthanasanshraya* at *Asthi* and *Majja dhatu* and causes *Asthimajjagata vata*.

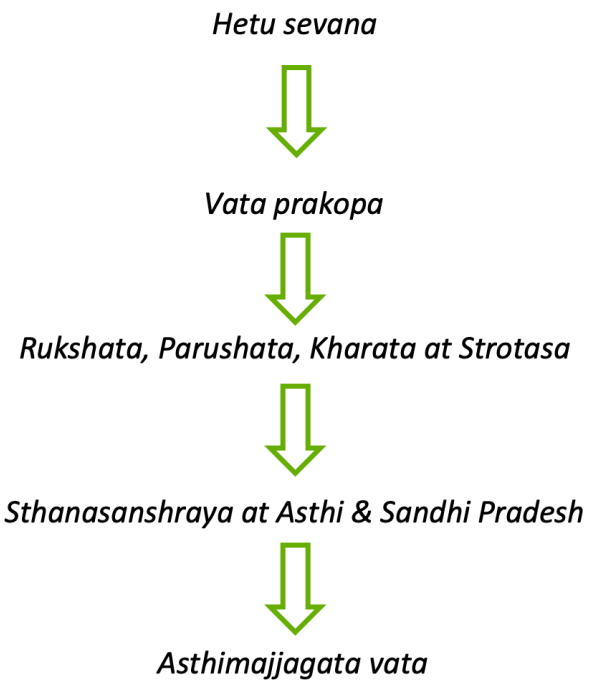


Figure 2.1 Etiological Factors

2.1 Goal & objectives

To evaluate *Dashmool Siddha Majjabasti's* effectiveness in the treatment of AVN. The goal was to prevent future hip joint degeneration and lessen the likelihood that surgical intervention would be necessary to treat avascular necrosis.

3. Materials and Methods

3.1 Case report

A 53-year-old female patient with bilateral Rt>Lt avascular necrosis of the head of the femur was admitted to the *Kayachikitsa* OPD of the PTKLS hospital of Ayurveda in Bhopal. Her main complaints were pain in both hip joints, difficulty standing for an extended period of time, and pain that worsened after 50–60 feet of walking. Additionally, she walked with an unnatural limping stride. She needed to conduct a little warm-up or some exercise to get rid of the stiffness because pain was linked to morning stiffness. In this case, she received oral meds for 21 days in addition *to Dashmoola Siddha Majja Basti* [3-10].

3.2 H/O- past illness

There was no any history of DM, HTN or any other major illness or surgery in the past.

3.3 Personal history

Table 3.1 Personal History

Name	XYZ
Age	53 yrs
Sex	Female
Occupation	House wife
Marital status	Married
Appetite	Normal
Sleep pattern	Disturbed due to pain
Micturition	Normal
Addiction	None

3.4 General Examination

GC- fair
Pallor, icterus, cyanosis, clubbing and oedema absent.
B P = 130/85 mmHg
Pulse – 75/min
RS, CVS, CNS – NAD

3.5 Local Examination

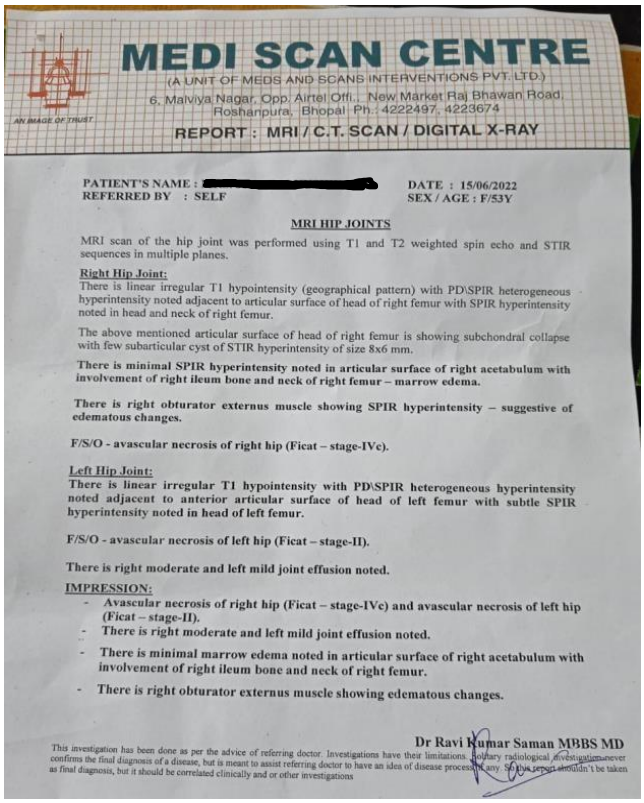
a) Swelling (mild) -over B/L Hip joint
b) Tenderness- present.
c) Local temperature – slightly Raised.
d) Range of movements – Restricted and painful.

3.6 *Dosha Dushya Lakshana*

The illness was mostly *Vata-related* and *Kapha-related*. Additionally, it may be thought that the patient's *avarana*, or preference of *Kapha* over Vata, has a significant impact on how symptoms like stiffness and limited hip joint movement emerge.

3.7 MRI Scan

MRI findings reveal-
Avascular necrosis of right hip (Ficat-stage 4 c) and avascular necrosis of left hip (Ficat-stage 2).
There is right moderate and left mild joint effusion noted.
There is minimal marrow oedema noted in articular surface of right acetabulum with involvement of right ileum bone and neck of right femur.
There is right obturator externus muscle showing oedematous changes.



MEDI SCAN CENTRE
(A UNIT OF MEDS AND SCANS INTERVENTIONS PVT. LTD.)
6, Malviya Nagar, Opp. Airtel Offi., New Market Raj Bhawan Road,
Roshanpura, Bhopal Ph.: 4222497, 4223674
AN IMAGE OF TRUST
REPORT : MRI / C.T. SCAN / DIGITAL X-RAY

PATIENT'S NAME : [redacted] DATE : 15/06/2022
REFERRED BY : SELF SEX / AGE : F/53Y

MRI HIP JOINTS

MRI scan of the hip joint was performed using T1 and T2 weighted spin echo and STIR sequences in multiple planes.

Right Hip Joint:
There is linear irregular T1 hypointensity (geographical pattern) with PD\SPIR heterogeneous hyperintensity noted adjacent to articular surface of head of right femur with SPIR hyperintensity noted in head and neck of right femur.

The above mentioned articular surface of head of right femur is showing subchondral collapse with few subarticular cyst of STIR hyperintensity of size 8x6 mm.

There is minimal SPIR hyperintensity noted in articular surface of right acetabulum with involvement of right ileum bone and neck of right femur – marrow edema.

There is right obturator externus muscle showing SPIR hyperintensity – suggestive of edematous changes.

F/S/O - avascular necrosis of right hip (Ficat – stage-IVc).

Left Hip Joint:
There is linear irregular T1 hypointensity with PD\SPIR heterogeneous hyperintensity noted adjacent to anterior articular surface of head of left femur with subtle SPIR hyperintensity noted in head of left femur.

F/S/O - avascular necrosis of left hip (Ficat – stage-II).

There is right moderate and left mild joint effusion noted.

IMPRESSION:
- **Avascular necrosis of right hip (Ficat – stage-IVc) and avascular necrosis of left hip (Ficat – stage-II).**
- **There is right moderate and left mild joint effusion noted.**
- **There is minimal marrow edema noted in articular surface of right acetabulum with involvement of right ileum bone and neck of right femur.**
- **There is right obturator externus muscle showing edematous changes.**

Dr Ravi Kumar Saman MBBS MD

This investigation has been done as per the advice of referring doctor. Investigations have their limitations. Solitary radiological investigation never confirms the final diagnosis of a disease, but is meant to assist referring doctor to have an idea of disease process if any. So this report shouldn't be taken as final diagnosis, but it should be correlated clinically and or other investigations

Figure 3.1 MRI report of a patient

3.8 Treatment Regimen

Table 3.2 Shamana chikitsa

S.No.	Drug	Dose	Duration
1.	*Lakshadi guggulu*	2 BD	1 month
2.	*Punarnavadi guggulu*	2 BD	1 month
3.	*Vataari guggulu*	2 BD	1 month

***Shodhana chikitsa – Dashmoola sidhha Majja basti* – 21 days**

Table 3.3 **Majja Basti Schedule**

Day	Date	Basti	*Aadana kala*	*Pratyagamana kala*	Complication if any
1	09/07/2022	A	11:00 a.m.	02:20 p.m.	-
2.	10/07/2022	A	11:15 a.m.	01:00 p.m.	-
3.	11/07/2022	A	09:40 a.m.	12:00 p.m.	-
4.	12/07/2022	A	11:00 a.m.	12:40 p.m.	-
5.	13/07/2022	A	10:00 a.m.	01:15 p.m.	-
6.	14/07/2022	A	10:30 a.m.	12:15 p.m.	-
7.	15/07/2022	A	09:20 a.m.	01:45 p.m.	-
8.	16/07/2022	A	11:00 a.m.	01:20 p.m.	-
9.	17/07/2022	A	09:00 a.m.	12:15 p.m.	-
10.	18/07/2022	A	10:00 a.m.	02:00 p.m.	-
11.	19/07/2022	A	09:10 a.m.	12:30 p.m.	-
12.	20/07/2022	A	10:00 a.m.	12:10 p.m.	-
13.	21/07/2022	A	10:00 a.m.	12:20 p.m.	-
14.	22/07/2022	A	10:15 a.m.	01:45 p.m.	-
15.	23/07/2022	A	10:00 a.m.	02:00 p.m.	-
16.	24/07/2022	A	11:00 a.m.	01:45 p.m.	-
17.	25/07/2022	A	10:30 a.m.	02:00 p.m.	-
18.	26/07/2022	A	09:30 a.m.	01:45 p.m.	-
19.	27/07/2022	A	11:00 a.m.	02:40 p.m.	-
20.	28/07/2022	A	09:00 a.m.	12:00 p.m.	-
21.	29/07/2022	A	10:00 a.m.	02:00 pm.	-

The femoral head's avascular necrosis is categorized by Steinberg as follows:

Table 3.4 Femoral head's avascular necrosis

Stage	Description
0	X-ray, bone scan, and MRI results that are normal or non-diagnostic
1	A normal x-ray, bone scan, or MRI diagnosis with mild hip discomfort and pain with internal rotation
2	Increased sclerosis, continuous discomfort, or cysts in the femoral head
3	chondral collapse and a crescent-shaped pattern
4	Normal acetabulum, normal joint space, and flattening of the femoral head

Assessment criteria based on Gradation System:

Table 3.5 Gradation System

CRITERIA	GRADING
Pain in hip and groin region.	0- No pain 1- Occasional pain and can be ignored 2- Interfere with task 3- Interfere with basic needs 4- Bed rest required
Stiffness of hip joint.	0- No stiffness 1- Occasional stiffness present 2- Stiffness retains for 30 mins 3- Stiffness after sitting and walking for long time 4- Stiffness whole day or whole night
Restricted range of movement of hip joint	0- With no limitations (flexion of 130°) 1- Initially limited (flexion of 90°–130°) 2- Partially restricted (flexion of 70°- 90°) 3- Restricted with pain(flexion 45°-70°) 4- No joint movement (flexion 0°-45°)
Gait (Limping Gait)	0- Normal without pain 1- Occasional pain during walking 2- Walk with support with mild pain 3- Walk with support with severe pain 4- Unable to walk
Distance walked by patient within 10 minutes	0-90 feet 1-60 feet 2-30feet 3-Less than 30 feet

4. Observation and Result

Table 4.1 Results

S.N.	Assessment criteria	B.T.	A.T.
1.	Pain in hip and groin region	4	2
2.	Pain in hip and groin region.	4	1
3.	Stiffness of hip joint.	3	1
4.	Gait (Limping Gait)	3	2
5.	Distance walked by patient within 10 minutes	3	0
6.	Steinberg's classification	2	2

After complete *Ayurvedic* treatment (*shodhana and shamana chikitsa*), there was a remarkable relief in above symptoms of AVN. Marked improvement in stiffness and timing of walking distance. Overall significant relief was found in this case [7-14].

5. Discussion

When the blood supply to bone tissue is cut off, it results in a condition known as avascular necrosis, also known as osteonecrosis or bone infarction. There may be no symptoms at first. Joint discomfort may gradually become more severe, which may restrict motion. The surface of the bone or a neighboring joint may fuse as a complication.

Lakshadi Guggul, is an *Ayurvedic* medicine used to treat bone-related problems. It is a rich source of calcium which provides aid in conditions like osteoporosis. Additionally, it is known to hasten the recovery time following bone fractures, low bone density, and joint discomfort. According to *Ayurveda*, *Lakshadi Guggul* helps in fast bone recovery after a fracture. In addition to that, it provides relief from pain due to its *Vata* balancing property, thereby helping manage low bone density (osteoporosis). This property also helps reduce pain caused by a bone fracture. Being rich in calcium and a fine regulator of aggravated *Vata*, it provides great aid in reducing the symptoms of arthritis. Its calcium-building property aids in managing the overall calcium requirement of the body, thereby helping reduce the symptoms of fatigue or weakness.

Punarnavadi Guggulu – Punarnavadi guggulu contains mainly *punarnava, erandamoola, shunthi, guggulu, eranda taila* etc. which possess *vata-kaphahara, shoolahara and anulomaka* properties along with anti-inflammatory, analgesic, muscle relaxant properties and even regenerative properties which gives relief from the disease.

Vatari guggulu has the qualities of *Vatakaphhara, Vatanulomaka, Dipana, Pachana,* and *Shulaprashamana.* ingredients with anti-inflammatory and neuropathic pain-relieving properties.These characteristics aid in the reduction of pain, inflammation, and stiffness. When Vata dosha and *Kapha* dosha are both vitiated, *Vatari guggulu* is beneficial.

In terms of the *vata dosha, basti* is regarded as *Param* Aushadh*.* It is also beneficial in the imbalance of *pitta, kapha, and Raktadosha*. In the patient of AVN, *Dashamooladi Siddhamajja basti* (processed bone marrow enema) was planned as it is indicated as a treatment modality in *Asthimajjagata vata* by *Acharya Charaka*. Here *majja* is processed with *Dashamoola kwath* and milk. Ingredients of *Dashamooladi Sidhha Majja Basti–Bilva ,Agnimanth, Shyonaka ,Patala , Kashmari, Bruhati , Kantakari , Prushnaparnni* ,etc. *Basti* along with substances like milk, ghee, and *tikta rasa* ingredients are best for the *Asthi Parushya Janya Vikara*.

These Basti's constituents include *Madhura-Tikta Rasa, ushna Virya, and Katu Vipaka,* among others. Together, they strengthen the effects of *Majja,* assist to balance the exacerbated Vata dosha, and promote regular *Dhatvagni* function,

allowing for more nourishment for the *Asthi Dhatu*. Additionally, *Tikta* rasa possesses *Shrotoshodhan* characteristics, which aid in clearing the *Sroto sanga*.

It nourishes *asthidhatu*, which is referred to as *majjadhatu,* due to the attributes of *snigdha, pichchila, guru, and brimhana-poshana*. When both dhatus are fed, *vatashamana* eventually takes place. So, based on rasa and vipaka, we may conclude that this basti promotes majja dhatu and reaches asthi and *majja vaha strotasa*. By providing purana (filling), this majja feeds asthi, and its snehana function calms vitiated vata in asthi. Vatajanya shoola is cured by ushna veerya. implies that the entire basti dravya is vatashamaka. Hence, Dashmoola Siddha's synergistic activity. *Asthimajjagata vata* will benefit from *Majja basti's vatashamaka* action.

6. Conclusion

The orthopaedic condition AVN presents a challenge to the whole medical community since it prevents ordinary actions from happening. In the present case, the chosen treatment significantly reduced pain, discomfort, overall sluggishness, and gait abnormalities. The AVN grade did not decline and remained the same.

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