WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 10, Issue 6, 1153-1163. Case Study ISSN 2277–7105

# A ROLE OF *MAJJA BASTI (DASHMOOLA SIDDHA)* IN THE MANAGEMENT OF AVASCULAR NECROSIS (AVN) OF FEMORAL HEAD: A CASE STUDY

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Article Received on
05 April 2021,

Revised on 26 April 2021,
Accepted on 16 May 2021

DOI: 10.20959/wjpr20216-20556

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## ABSTRACT

Avascular necrosis (AVN) is a condition that happens when there's loss of blood supply to the bone, a disruption to the blood supply causes bone to die. It is also known as aseptic necrosis, ischemic bone necrosis or osteonecrosis. If not stopped this process ultimately cause the bone to collapse. It is the thought-provoking condition of the present era in orthopedics. Avascular Necrosis (AVN) is a progressive degenerative condition of bone, caused by lack of blood supply. While it can affect any bone, Avascular necrosis is expressly common in the hip joint. Disease has very poor prognosis in modern orthopaedic practice. Treatment of AVN in contemporary science revolves around the pain relieving medicine to total hip replacement surgery, which have drawbacks of long term recovery and short life span of hip. On conflicting *Ayurvedic* treatment provides long term relief and stops the progression of disease without any drawback and side effect. There is no direct co-relation of avascular necrosis and *Asthi-Majja GataVata* but on their clinical presentations it is *Vata Pradhana Tridoshaja Vyadhi* with main *Vikruti* of *Asthi-Majja Dhatu*. It is usually affect peoples between 30 to 50yrs of age. AVN is associated with long term use of high dose steroidal medication and excessive intake of alcohol.it will be asymptomatic in early stage, as the condition progress. The possible treatment in modern include NSALDs, core compression, bone transplant and total joint replancement surgery which have their own complications and adverse effect. *Ayurvedic* description of *Asthimajjagata Vata* closely resembles with AVN of modern medicine. *Basti*

*Chikitsa* is considered to be the half the treatment for *Vata* dominated diseases by *Acharayas*.[1] *Basti* is considered as *Param Aushadh* for *Vata*.[1] *Vata Dosha* is predominantly existing in *Asthi Dhatu* and *Sandhi* (joints).[2] *Asthimajjagata Vata* is a *vatavyadhi* in which vitiated *Vata* get accumulate in *Asthivaha* and *Majjavaha srotasa* where already *kha Vaigunya* has been developed due to etiological factors. In *brihattrayee* symptoms of *Asthigata Vata* and *Majjagata vata* described together as they are closely related to each other. In *Charak Samhita* and *Ashtang Hridaya*, *Aacharya* stated that *Asthimajjagata Vata* can be cured by internal and external application of *Sneha*. **Aim and objectives:** To assess the efficacy of *Dashmool Siddha Majjabasti* in the management of AVN. Objective was to stop the further deterioration of the hip joint and to reduce the chances of surgical intervention in managing avascular necrosis. **Materials and methods:** already diagnosed and non-operated case of AVN of stage 3 with complaints of pain of bilateral hip joint, restricted movements and limping gait approached the out-patient division of the hospital and was managed by *Shaman yoga and panchakarma therapy*. **Observation and Result:** Significant improvement was noticed after the treatment. Pain was reduced significantly with marked improvement in range of motion. Patient was able to walk and climb stairs after the treatment without pain and stiffness. The Conservative management of AVN through Ayurvedic principles provides significant relief in sign and symptoms and improves quality of life.

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

## INTRODUCTION

Avascular necrosis (osteonecrosis) is a progressive disorder where the cellular death of bone component due to interruption of the blood supplies to the bone in transiently or permanently.[3] While it can affect any bone, AVN is particularly common in the hip joint. The disease prevalence rate is 0.135% per 1000 population most of them ages between 20-50 years of age.[4] Head of the femur is one of the common classical site is involved and body of the scaphoid, carpal, talus and lunate are the places which are less common involved. In USA, this estimated in 10,000–20,000 adults diagnosed in every year. Average ages of onset are 20 to 40 years.[5] In young adults with 60% of the cases being bilateral. Male to female ratio of this condition is 5-8:1 and 10% of all hip replacement is done.[6]

AVN is caused due to the injury or any occlusion in the blood vessels which provides circulation to the bone tissue. 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 vulnerable to injury followed by mere dislocation or a sub capital fracture of femur (specially head).[7] This ends up in the necrosis of femoral head. In the other, the arteries become occluded the reason behind it is not identified. It may be asymptomatic within the starting however later delicate to severe degree of pain is seen in conjunction with change within the gait. AVN of femoral head presents with groin pain that radiates down towards anteromedial thigh. Change within range of motion i.e. abduction, adduction, flexion and extension are found.

**Sign and symptoms of AVN**

Sign and Symptoms may be varying widely, upon the stage at presentation. AVN tends to affect patients between aged 20–40 years, average age at being 38 years. In the earlier stages of AVN, patients may not have any symptoms. Normally has insidious onset of pain, without a clear cause. Often have a normal range of motion. With progression of the disease, this insidious discomfort may be followed by putting weight on the affected part and even rest. Pain develops gradually and it may be mild or severe. One hallmark of AVN is severe night pain. The time period between first sign and loss of motion of joint is vary from several months to more than a year.[8]

This condition can be correlated to *Asthi- Majjagata Vata* according to the sign and symptoms described in *Ayurved*a as Wide range of treatment modalities have been mentioned in Ayurveda that are effective in such manifestations. 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.[9]

***Samanya Samprapti:*** **(Pathogenesis)**

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

*1. Hetu sevana.*

*2. Vata prakopa.*

*3. Rukshata, Parushata, Kharata at Strotasa.*

*4. Sthanasanshraya* at Asthi & *Sandhi Pradesh.*

*5. Asthimajjagata vata.*

**Pathophysiology of AVN**

Pathogenesis occurs due to current theorized mechanisms which are 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 an articular disruptions cause to degenerative joint disorders.[10]

**AIM AND OBJECTIVES**

1. To assess the role of *Dashmool siddha Majja Basti* in *Asthimajjagat Vata* w.s.r. to Avascular Necrosis (femur head)

**MATERIALS AND METHODS**

**Case report:** A male patient age 21 yrs, diagnosed and non operated case of Avascular Necrosis bilateral head of femur (Rt>Lt) came to Kayachikitsa OPD of Pt. KLS hospital of Ayurveda, Bhopal admitted with chief complaints of pain in both hip joint, difficulty in long standing position with aggravation of pain after 50-60Feet walking. he had also abnormal walking with limping gait.

Pain was associated with morning stiffness, so he had to do light warm up or some exercise to get rid of the stiffness.

Here he was intervened with oral medications along with *Dashmoola Siddha Majja Basti* for 21 days and *Ubhay Nitamba Basti* with Oripain oil, Lardy oil & *Vatashamak oil.*

**MRI scan(10/09/2020) revealed** Stage 3 (ficat arlet classification) Avascular necrosis of both Femoral head with Bilateral mild synovial Effusion with 70% involvement of Left and 30% Involvement of right femoral head.

**Past History**

He was apparently well few years ago, and then he developed extreme weakness associated with mild fever and body ache. For which he took treatment from allopathic hospital in which Steroids were given for approx. 1 year. From this treatment he got significant relief in previous complaints, but few months later he started to feel pain in the bilateral knee joints but that pain didn't interrupt any movements. After that pain started in the inner side of groin area and in right hip joint which was mild in the beginning but later on the severity of pain increased day by day.

In 2019, pain developed in both the hip joint (Rt>Lt) which lead to difficulty in walking and he also noted that during walking, he was limping to the right side of body with pain in the inner side of groin area and in hip joint.

When the pain was intense he consulted an orthopedic doctor. MRI was done which suggested the Avascular Necrosis of head of femur (Right>Left) and subchondral mild collapse of the right femoral head and minimal collapse of the left femoral head, for which he was advised for surgical intervention. As he was not willing for surgical intervention, so he approached Pt. KLS hospital for further conventional management. Patient was then admitted in our hospital after being thoroughly examined and detailed history was taken.

Past Medical History - On medication(Analgesics & steroids)
Surgical history – No Psychiatric history - No
Personal history –Diet = Mixed Water intake = Sufficient
Appetite = Normal No Allergies for any kind of food
Addiction – No Sleep – Disturbed (due to Pain)
Bowel – constipation Micturition – Normal
Occupational History – Student

**General Examinations**

G.C. – Fair
RS, CVS, CNS – NAD

Pulse – 68/min

P/A – Soft, non-tender

B.P. – 120/80 mmHg

**Local Examination**

1. Swelling (mild) -over B/L Hip joint
2. Tenderness- present.
3. Local temperature – slightly Raised.
4. Range of movements – Restricted and painful.

**Table No. 01: Treatment administered.**

वातस्योन्नक्रमः स्नेहः स्वेदः संशोधनं मृदु। .....रसतैश्नुवासनं॥ अ.ह.सू.१३/१

अस्ृ्याश्रयानां व्याधीनां..... .....ततक्तकोन्हहतातन च॥ च. सू.२८

Oral *Ayurveda* medicines were administered in the patient. The details are mentioned below.

| Sr.No. | Drug used | Dose | Anupana | Time | Duration |
|---|---|---|---|---|---|
| 1. | Hingawasthak churna | 5gm BD | Lukewarm water | After meal | 7 days |
| 2. | Supushthiyoga | 5gm (H.S.) | Milk | After meal | 3 week |
| 3. | Nirgundi Kwath | 20ml (BD) | - | After meal | 20days |
| 4. | Lakshadi gugglu[11] | 2 BD | - | After meal | 4 week |
| **Panchkarma Therapy** | | | | | |
| 1. | Ubhaya Nitamba Basti | Vatashamak oil+Oripain oil+Lardy oil | | | 4 week |
| 2. | Dashmoola sidhha Majja basti[12] | Processed medicated oil | | | 3week |

***Dravyas of Dashmooladi Siddha Majja Sneha* :-***Bilva root (Aegle marmelos), Agnimantha root (Premna integrifolia), Shyonaka root (Oroxylum indicum), Patala root (Stereospermym suaveolens) Kashmari root (Gmelina arborea), Bruhati root (Solanum indicum), Kantakari root (Solanum xanthocarpum), Prushniparni root Uraria picta) etc.*

**Table No.-02: Majja Basti Schedule.**

| Day | *Basti* | Dose | *Time of basti Adanakala* | *Time of basti Pratyagamana* | Complication if any |
|---|---|---|---|---|---|
| 1 | A | 75ml | 10:00am | 5:00pm | - |
| 2 | A | 100ml | 10:00am | 3:00pm | - |
| 3 | A | 100ml | 11:30am | 3:45pm | - |
| 4 | A | 100ml | 11:00am | 3:00pm | - |
| 5 | A | 100ml | 11:10am | 4:00pm | - |
| 6 | A | 100ml | 11:00am | 3:00pm | - |
| 7 | A | 100ml | 12:00am | 2:00pm | - |

| | | | | | |
|---|---|---|---|---|---|
| 8 | A | 100ml | 12:00am | 4:00pm | - |
| 9 | A | 100ml | 12:00am | 3:00pm | - |
| 10 | A | 100ml | 12:30am | 2:40pm | - |
| 11 | A | 100ml | 11:00am | 3:20pm | - |
| 12 | A | 100ml | 11:40am | 4:00pm | - |
| 13 | A | 100ml | 10:00am | 3:00pm | - |
| 14 | A | 100ml | 10:00am | 4:00pm | - |
| 15 | A | 100ml | 12:00am | 3:00pm | - |
| 16 | A | 100ml | 12:30am | 3:40pm | - |
| 17 | A | 100ml | 9:30am | 1:00pm | - |
| 18 | A | 100ml | 10:00am | 3:00pm | - |
| 19 | A | 100ml | 10:00am | 3:30pm | - |
| 20 | A | 100ml | 11:00am | 3:00pm | - |
| 21 | A | 100ml | 12:00am | 3:50pm | - |

**Treatment Outcome:** After first two weeks of treatment patient showed mild reduction in pain and weakness in both lower extremities and burning sensation, but the other symptoms were similar. After 3 weeks of treatment pain and weakness in both lower extremities were moderately reduced and improvement in numbness in lower limbs. After 4 weeks of treatment patient did not suffer from pain, weakness, numbness and burning problems and grading scale also imprioved.

**Table No. 03: Assessment criteria on the Basis of 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- Bedrest require |
| **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- No restriction (flexion of 130°) |
| | 1- Restricted initially (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 |

**Steinberg's classification of avascular necrosis of the femoral head.**[13]

| Stage | Description |
|---|---|
| 0 | No symptoms, Normal or non-diagnostic X-ray, bone scan and MRI |
| 1 | Mild pain in the affected hip, pain with internal rotation, Normal x-ray, bone scan or MRI diagnostic |
| 2 | Worsening or persistent pain, increased sclerosis or cysts in the femoral head |
| 3 | Subchondral collapse, produce crescent sign |
| 4 | Flattening of femoral head, normal acetabulum, normal joint space |

## OBSERVATION AND RESULT

**Table No.-04: Overall Assessment.**

| S.N. | Assessment criteria | BT | AT | % Relief |
|---|---|---|---|---|
| 01. | Pain in hip and groin region | 3 | 1 | 66.66% |
| 02. | Stiffness of hip joint | 4 | 1 | 75% |
| 03. | Restricted range of movement of hip joint | 3 | 1 | 66.66% |
| 04. | Gait (Limping Gait) | 3 | 2 | 33.33% |
| 05. | Distance walked by patient within 10 minutes | 3 | 0 | 100% |
| 06. | Steinberg's classification | 2 | 2 | 00 |

## RESULT AND DISCUSSION

In this case study patient got **61.11% relief** in above symptoms of *Asthi Majja Gata vata*. Marked improvement in stiffness and timing of walking distance. Overall significant relief was found in this case.

## DISCUSSION

*Basti* which substance likes milk, ghee and *Tikta rasa* ingredients are especially best for the *Asthi Pradushya Janya Vikara*[14] and it does strengthen and improved the quality of *Asthi Dhatu* (~ bone tissue). *Tikta rasa* enrich predominance of Vayu and *Aakash Mahabhuta*. *Asti Dhatu* has equal constitute. Thereby possibility of aggravated of *Vayu*. But affected joints are associate morbid *Shleshaka Kapha* which is located in *Sandhi*. By applying *Tikta Rasa* it helps to decrease the vitiated *Kapha Dosha* in the joints.[15] *Dashmoola Siddha Majja basti* have a *Madhura- Tikta Rasa & Katu Vipaka. Dashmoola siddha majja basti* described by

*Acharya Charak.*[16] In which *majja* is prepared by *Dashmoola kwath.* The ingredients of these *Basti* includes *Madhura- Tikta Rasa, uUhna Virya* and *Katu Vipaka etc.* They all combinely enhance the properties of *Majja* and helps in balancing the aggravated *Vata dosha* and favors normal functioning of D*hatvagni* facilitating increased nutrition to the *Asthi Dhatu* also *Tikta rasa* has *Shrotoshodhan* properties which helps to clears the *Sroto sanga.*

Besides it improves the *Dhatvagni* (~enzyme complex). So all tissue elements are nourished well and *Asthimajja Dhatu* (bone marrow*) Kshaya*(depletion of tissue elements) will be reduced. Milk has Madura Rasa, Guru Pichhilya Guna (sticky property) and Jeevaneeya (rejuvenation) properties. So body can get the effect of Rasayana (immunomodulation property), Vrishya (aphrodisiac), Brimhana (nourishing) benefits and lead the decrease of diminution of Dhatu.[17] *Saindhava* due to its *sukshma guna* reaches the *Sukshma srotas* of the body & helps to increase blood supply to the *Asthi, sandhi* etc.

Due to *snigdha, pichchila, guru, asthidhatu brimhana- poshana* properties it nourishes *majjadhatu* means nourishment of *asthidhatu*. When both *dhatus* get nourished ultimately *vatashamana* occurs. So according to *rasa* and *vipaka* we can say that this *basti* reaches upto *asthi* and *majja vaha srotasa,* increases *majja dhatu*. This *majja* nourishes asthi by means of its *purana* (filling) and *snehana* property pacifies vitiated *vata* in *asthi*. *Ushna veerya* cures *vatajanya* shoola. Means whole *basti dravya* is *vatashamaka*. Hence synergetic action of *Dashmoola siddha Majja basti* will act as *vatashamaka* which is beneficial in Asthimajjagata vata.

## CONCLUSION

AVN is an orthopedic condition that poses a challenge in front of whole medical fraternity owing to the impeding of routine activities produced. The adopted therapy in the current case provided marked relief from pain, tenderness, general debility and marked improvement in the gait. The grade of AVN did not worsen and was maintained.

This was a single case study to evaluate the efficacy of *Dashmoola Siddha Majja basti* in the management of AVN and the results produced were encouraging enough on the subjective and objective scales but also provided a prervention in disease progression. It is advisable to conduct this particular study on a larger number of samples for a greater span of time to draw more concrete conclusions. More awareness among general public should be created towards

management of AVN using Ayurveda to promote earlier diagnosis that might lead to better prognosis.

## REFERENCES


1. Vagbhata, ASTANGAHRADAYA, with commentaries, Sarvangasundara of Arunadatta & Ayurvedarasayana of Hemadri, Edited by Pt.Hari Sadasiva Sastri Paradakara, Reprint: 2010, Page no.16, Sutrasthana, Chapter No.1, Ayushkamiya Shlok no.26.
2. Vagbhata, ASTANGAHRADAYA, with commentaries, Sarvangasundara of Arunadatta & Ayurvedarasayana of Hemadri, Edited by Pt. Hari Sadasiva Sastri Paradakara, Reprint: 2010, Page no.525, Sutrasthana, Chapter No.11, Doshadividnyaniya Shlok no.26.
3. Bailey & Loves, Short Practice of Surgery, 25th Ed., Part 5, Chapter 35, p. 515.
4. https://www.niams.nih.gov/Health_Info/Osteonecrosis [Last Accessed on 2019 June 16]
5. Mwasle F, Wang H, Johnson AJ, Mont MA, Antoniou J. Abnormal vascular endothelial growth factor expression in mesenchymal stem cells from both osteonecrosis and osteoarthritic hips. Bull NYU Hosp Jt Dis, 2011; 69(1): S56–S61.
6. Froberg KP.et al Osteonecrosis, Transient osteoporosis, and Transient Bone Marrow Edema, Radio Clin of NA, 1996; 34: 2.
7. Ram Lakhan Meena, Santhosh Bhatted, Prashanth Dharmarajan, Nilam Meena, Jitender Kumar, Hanumant Nirmal. Management of Avascular Necrosis through Ayurveda - A Case Study. J. res. tradit. med. (2017)
8. http://www.rad.washington.edu/mskbook/osteonecrosis.html
9. Acharya YT, editor, Shri Chakrapanidatta, commentator, Agnivesha, Charka Samhita, Chikitsasthana; Vatavyadhichikitsa Adhyaya, 28/33, Chaukhamba Surbharati Prakashan, Varanasi, 2014; page 617.
10. Hungerford DS. Pathogenesis of ischemic necrosis of the femoral head. Instar Course Lect, 1983; 32: 252–260.
11. Govind Das Sen, Bhaishajyaratnavali, Siddhi Nandan Mishra(editor), chapter no 49/12-13 Chaukhamba Surbharti Prakashan, 2017; 833.
12. Shastri Kashinath, Chaturvedi Gorakhnath edited Charak Samhita of Agnivesha, revised by Charaka and Dridhbala, part I, Chaukhambha Bharati Academy, Varanasi. Reprint, 2015; Sutra Sthana 13, verse 17; page no; 259.
13. Steinberg ME, Hayken GD, Steinberg DR. A quantitative system for staging avascular necrosis. J Bone Joint Surg Br, 1995; 77(1): 34-41. Pubmed citation

14. R. K. Sharma, Bhagwan Dash. Editor, Charaka Samhita, Sutthrastana chapter 28 verse 27, 1st Vol, Varanasi, Chaukhamba Sanskrit Series Office, 2014; 579.
15. Jansz M., Rajoria K., Singh S.K., Panchkarma procedures along with Thrayodashanga guggulu in the management of katishool with special reference to lumber spondylosis, Int. J. Res. Ayurveda Pharm, Jul-Aug 2016; 7(4): 50-54.
16. Shastri Kashinath, Chaturvedi Gorakhnath edited Charak Samhita of Agnivesha, revised by Charaka and Dridhbala, part II, Chaukhambha Bharati Academy, Varanasi. Reprint, 2009; Chikitsha Sthana 28, verse 124-127; page no; 712.
17. Abeynayake P, Jansz M, Rajoria K., Singh S.K, Role of Rajayapana basti with reference to Duchenne Muscular Dystrophy, Int. J. Res. Ayurveda Pharm, Sep-Oct 2016; 7(4): 7-10 http://dx.doi.org/10.7897/2277-4343.075208.
18. https://www.researchgate.net/publication/348364479_INTERNATIONAL_JOURNAL_OF_AYUSH_CASE_REPORTS_IJA_CARE_Ayurvedic_management_of_Avascular_Necrosis_AVN_of_femoral_head_A_case_study