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# MANAGEMENT OF AVASCULAR NECROSIS OF FEMORAL HEAD BY LAKSHA GUGGULU ALONG WITH DASHMOOLADI MAJJA BASTI: A CASE STUDY

**Aarti Nargesh[1], Shwetal Shivhare [2], Vivek Sharma[3]**

[1]1st Year PG Scholar, [2]Reader, [3]Lecturer
Department of Kayachikitsa, Pt. Khushilal Sharma Govt. (Auto) Ayurveda College and Institute, Bhopal, Madhya Pradesh, India

**Corresponding Author**: aartinargesh123@gmail.com

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## ABSTRACT

Musculoskeletal symptoms are a major course of pain and disability accounting for a quarter of all general practitioner consultations with significant economic consequences. According to WHO, 20-30% of people across the globe live with a painful musculoskeletal condition. Loss of blood flow to the bone leading to the death of the cellular component of bone is known as Avascular Necrosis. There is a multitude of risk factors but over 80% of cases are attributed to glucocorticoids treatment or alcohol excess. It generally affects people between the age group of 30-50 years and males are more prone to this disease than women.[1] In Ayurveda through Dosha, *Dushya* and *Samprapti* avascular necrosis can be correlated with *Asthi Majjagata vata*. Management of Avascular Necrosis as per modern modalities is not satisfactory and shows the need for some alternative management for avascular necrosis. *Laksha Guggulu* along with *Dashamooladi Majja* Basti classically can be used to counteract the symptoms of *Asthi Majjagata vata*.

**Keywords:** Avascular necrosis, *Asthi Majjagata vata, Dashamooladi Majja basti, Laksha Guggulu*.

## INTRODUCTION

Avascular necrosis (AVN) of the femoral head is a rare skeletal disease usually presenting with vogue symptoms from the hip joint or lower pelvis. Avascular necrosis of the femoral head is a condition where limited collateral circulation, disruption of the blood supply to the head of the femur can lead to ischemic and subsequent necrosis.[2]This will lead to the progressive death of osteocytes followed by the collapse of the articular surface and loss of functionality of the hip joint. It may be referred to with other terms, such as Osteonecrosis, Ischemic necrosis and Osseous ischemia. It commonly occurs in the femoral head of the hip but can occur in other skeletal sites such as the knee, shoulder and ankle. Risk factors include Alcoholism, use of corticosteroids and various medical disorders such as sickle cell disease, systemic lupus erythematous etc. The pathophysiology remains unclear but is believed that steroids and other causes disturb various bone remodelling pathways, as well as cause inhibition of angiogenesis, coagulation abnormalities and so on making the bone prone to ischemia and susceptible to AVN. In most Countries, the incidence and Prevalence of AVN are not well reported. In India, about 16,000 people developed AVN of the femoral head every year.[3] As per a 2018 study 'Epidemiological profile of femoral head Osteonecrosis in the north Indian population (Published in Indian Journal of Orthopedics), prevails that the steroid administration (37.3%) was the most commonly observed cause among the 249 north Indian patients, followed by Chronic Alcohol intake (21.3%), Trauma (15.3%) and Idiopathic cause (21.3%) It occurs in adults before the age of 20-50 years and male to female ratio is 5:1. In Ayurveda, all musculoskeletal diseases are considered under *Vatavyadhi*. There are degradation of bone tissue and bone marrow in AVN and symptoms of AVN are similar to *Lakshanas* of *Asthi Majjagata vata* described by Acharya Charaka, that are *Bhedoasthiparvanam* (breaking type of pain), *Sandhishool* (hip joint pain), *mamskshaya* (muscle wasting of affected joint), *Balakshaya* (weakness in affected joint) and *Aswapna santata ruk* (Insomnia due to pain).[4] So through *Dosh* (Vata), *Dushya* (*Majja dhatu* /bone marrow) and *samprapti* (Pathogenesis) AVN can be correlated with *Asthi Majjagata Vata*. There is no such effective and safe conservative management for AVN in modern medicine. Therefore, our case study proposed to research the better therapeutic *Ayurvedic* approach for the femoral head of AVN through *Laksha Guggulu* along with therapeutic enema as Dashamooladi majja basti.

### AIM AND OBJECTIVES

1. To study the effect of Laksha Guggula along with Dashamooladi majja basti in the management of the femoral head of AVN.
2. To find out effective ayurvedic management for the femoral head of AVN.

### MATERIAL AND METHODS

**Selection and source of the patient:** For this study, the patient was registered from OPD of Kayachikitsa department of pt. Khushilal Sharma govt. Ayurveda hospital Bhopal, M.P.

**Plan of study:** The patient taking allopathic medicine was stopped during the study period. The drugs required for Dashamooladi majja basti were procured and prepared in prakalp of Panchkarma in pt. Khushilal Sharma govt. Ayurveda hospital Bhopal, M.P.

**Duration of study-** 30 days Follow up-Daily for 30 days.

### CASE STUDY

A 24-year-old female patient diagnosed case of AVN dated 1st July 2021 OPD no. 20210018211 IPD no. 2021501, visited Pt. Khushilal Sharma Govt. Ayurvedic hospital Bhopal presented with complaints of pricking type of pain in the bilateral hip joint, both thighs and difficulty in the hip joint movement for 7 months.

**History of Present Illness**

The patient was normal 7 months back then suddenly pain started in both hip joints then gradually pain radiating to both thighs and difficulty in walking and it became worse with time. The patient had taken allopathic treatment (Analgesic and Anti-inflammatory drugs) but, there was only temporary symptomatic relief later on she had got same complaints again. The patient was not getting much relief with allopathic

medicines, so she came to Pt. Khushilal Sharma Ayurvedic hospital Bhopal on 1st July 2021 for Ayurvedic treatment.

**History of Past Illness**

Medical history- On medication advised by MBBS physician. There was not any history of trauma, surgical illness and Steroid medications.

**Personal History**

Addiction-No, Occupation-House maker, Appetite-Normal, Sleep-Disturbed (Due to pain in the hip joint), Bowel-Clear, Micturition-Normal.

**General Examination**

Pallor, Icterus, Cyanosis, Clubbing and Oedema absent.

The lymph node is not palpable. Vitals were stable.

BP-120/80mmHg

Pulse-72/min

**Systemic Examination**

CVA, CNS, RS, P/A are normal.

Musculoskeletal System: On examination, there was not any external abnormality, a sign of any wasting of muscle, Swelling or any kind of injury. The only limping leg was found.

Hip joint examination was done which is described in table no.

**Investigation**

The lab investigation (16 April 2021) CBC- Hb- 10.3 gm/dl decreased & rest normal. On 22 June 2021, an MRI hip joint was done, and MRI findings are suggestive of Stage-3 AVN of both femoral heads. On 8 July 2021, CBC-Hb-10.0gm/dl, MCV-26.2%, MCHC-31.6g/dl, PCV-32.0% which were decreased and rest normal, RBS-145.0mg/dl, CRP- Positive. On 6 Sep 2021, CT hip joint was done- bilateral grade 2 Avascular Necrosis of the femoral head.

**Table 1:** Treatment Regimen

This diagnosed case of Avascular necrosis of femoral head admitted in the female general ward of Pt. K.L.S. Govt. Ayurveda Hospital, Bhopal with 2021501 IPD no. and undergo the following procedures:

| Treatment | Dosage Form | Dose | Duration | Anupana |
|---|---|---|---|---|
| *Laksha Guggulu*[5] | Vati | 2 BD (250mg each) | 30 days | Warm water |
| *Dashamooladi Majja Basti*[6] | As enema | 100 ml | 21 days | - |

**Table 2:** Dashamooladi Majja Basti Schedule

| S. No. | Date | Basti (therapeutic enema) | dose | Retention time |
|---|---|---|---|---|
| 01 | 02/07/21 | M | 100 ml | 1 hr. 15min |
| 02 | 03/07/21 | M | 100 ml | 1 hr. 45 min |
| 03 | 04/07/21 | M | 100 ml | 3 hr. 10 min |
| 04 | 05/07/21 | M | 100 ml | 7 hr. 20 min |
| 05 | 06/07/21 | M | 100 ml | 6 hr. 20 min |
| 06 | 07/07/21 | M | 100 ml | 8 hr. 25 min |
| 07 | 08/07/21 | M | 100 ml | 8 hr. 8 min |
| 08 | 09/07/21 | M | 100 ml | 9 hr. 20 min |
| 09 | 10/07/21 | M | 100 ml | 10 hrs 5 min` |
| 10 | 11/07/21 | Rest | - | - |
| 11 | 12/07/21 | M | 100 ml | 8 hrs |
| 12 | 13/07/21 | M | 100 ml | 9 hrs |
| 13 | 14/07/21 | M | 100 ml | 11 hrs 30 min |
| 14 | 15/07/21 | M | 100 ml | 8 hrs 35 min |
| 15 | 16/07/21 | M | 100 ml | 9 hrs 45 min |
| 16 | 17/07/21 | M | 100 ml | 8 hrs 10 min |
| 17 | 18/07/21 | M | 100 ml | 9 hrs |
| 18 | 19/07/21 | M | 100 ml | 9 hrs 30 min |
| 19 | 20/07/21 | M | 100 ml | 10 hrs 15 min |
| 20 | 21/07/21 | Rest | - | - |
| 21 | 22/07/21 | M | 100 ml | 11 hrs 10 min |

**Table 3:** Assessment criteria based on Gradation System

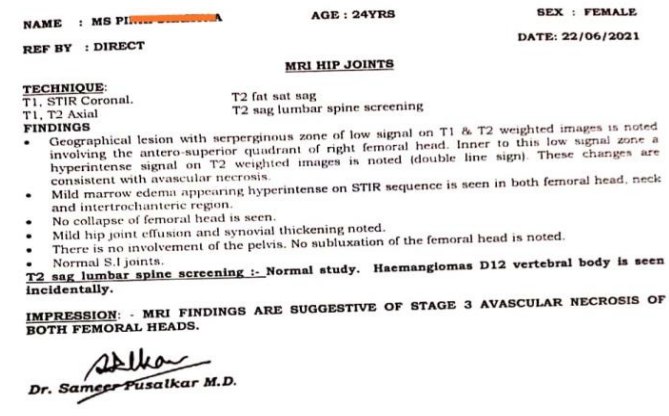
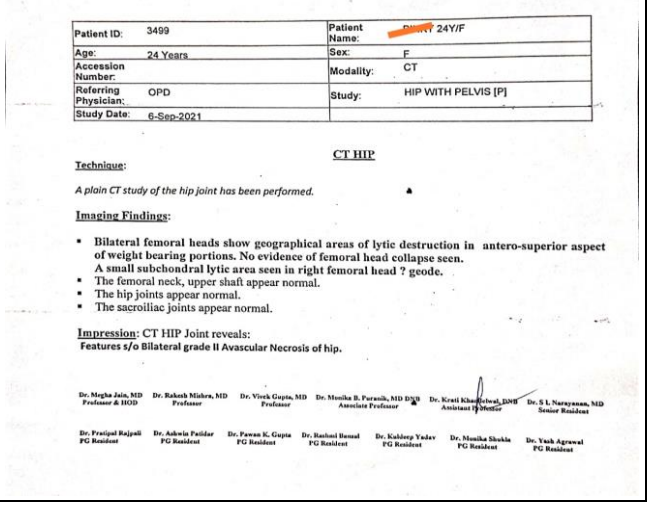
Gradation pattern-Assessment will be done based on symptoms of Asthi Majjagata vata before and after treatment.

| Parameter | Criteria | Grading | B.T. | A.T. |
|---|---|---|---|---|
| **Pain (vas scale)** | (0) No Pain | 0 | | |
| | (1-3) mild | 1 | | 1 |
| | (4-6) Moderate | 2 | | |
| | (7-10) severe | 3 | 3 | |
| **Gait** | Normal gait | 0 | | |
| | Pain occasionally | 1 | | 1 |
| | Walk with support with mild pain | 2 | | |
| | Walk with support with severe pain | 3 | 3 | |
| | Unable to walk | 4 | | |
| **Sleeplessness** | Normal sound sleep | 0 | | 0 |
| | Sleep disturbed 1-2 times at night | 1 | | |
| | Sleep disturbed 3-4 times at night | 2 | 2 | |
| | Difficulty in falling asleep due to pain | 3 | | |
| | Difficulty in staying asleep due to continuous pain | 4 | | |
| **MRC Muscle Scale** | No muscle contraction visible | 0 | | |
| | A flicker of contraction but no movement | 1 | | |
| | Movement with gravity eliminated | 2 | 2 | |
| | The movement against gravity but not against resistance | 3 | | |
| | The movement against gravity and some resistance | 4 | | 4 |
| | Normal power | 5 | | |

**Table 4:** Observations

| S.No. | Hip joint movement | Before treatment | | After treatment | |
|---|---|---|---|---|---|
| | | Rt. | Lt. | Rt. | Lt. |
| 1 | Flexion of hip joint | 80 | 70 | 90 | 90 |
| 2 | Extension of hip joint | 10 | 05 | 10 | 10 |
| 3 | Abduction of hip joint | 25 | 20 | 40 | 40 |
| 4 | Adduction of hip joint | 20 | 15 | 30 | 30 |
| 5 | Medial rotation | 25 | 15 | 30 | 30 |
| 6 | Lateral rotation | 30 | 25 | 40 | 40 |

**MRI INTERPRETATION**

| Before treatment | After treatment |
|---|---|
|  |  |

NAME : MS PI[redacted] AGE : 24YRS SEX : FEMALE

REF BY : DIRECT DATE: 22/06/2021

MRI HIP JOINTS

TECHNIQUE:
T1, STIR Coronal. T2 fat sat sag
T1, T2 Axial T2 sag lumbar spine screening

FINDINGS
- Geographical lesion with serperginous zone of low signal on T1 & T2 weighted images is noted involving the antero-superior quadrant of right femoral head. Inner to this low signal zone a hyperintense signal on T2 weighted images is noted (double line sign). These changes are consistent with avascular necrosis.
- Mild marrow edema appearing hyperintense on STIR sequence is seen in both femoral head, neck and intertrochanteric region.
- No collapse of femoral head is seen.
- Mild hip joint effusion and synovial thickening noted.
- There is no involvement of the pelvis. No subluxation of the femoral head is noted.
- Normal S.I joints.

**T2 sag lumbar spine screening :- Normal study. Haemangiomas D12 vertebral body is seen incidentally.**

**IMPRESSION: - MRI FINDINGS ARE SUGGESTIVE OF STAGE 3 AVASCULAR NECROSIS OF BOTH FEMORAL HEADS.**

Dr. Sameer Pusalkar M.D.

| | | | |
|---|---|---|---|
| Patient ID: | 3499 | Patient Name: | [redacted] 24Y/F |
| Age: | 24 Years | Sex: | F |
| Accession Number: | | Modality: | CT |
| Referring Physician: | OPD | Study: | HIP WITH PELVIS [P] |
| Study Date: | 6-Sep-2021 | | |

CT HIP

Technique:

*A plain CT study of the hip joint has been performed.*

Imaging Findings:

- **Bilateral femoral heads show geographical areas of lytic destruction in antero-superior aspect of weight bearing portions. No evidence of femoral head collapse seen.**
- **A small subchondral lytic area seen in right femoral head ? geode.**
- The femoral neck, upper shaft appear normal.
- The hip joints appear normal.
- The sacroiliac joints appear normal.

Impression: CT HIP Joint reveals:
Features s/o Bilateral grade II Avascular Necrosis of hip.

## DISCUSSION

According to Ayurveda, there is no direct mention of AVN but based on clinical presentation there is a predominance of vata dosha and vikruti (Vitiation) of Asthi dhatu, So AVN can be correlated with Asthi Majjagata vata in Ayurveda. Basti Chikitsa is considered to be half of the treatment of vata dominated disease by Acharayas and considered as Param Aushadh.[7] In all Panchkarma procedures, because Basti is the first line of treatment for vata dosha as well as Asthi Majjagata vata, in AVN patients Dashamooladi majja basti(Processed bone marrow enema) was planned as it is indicated as a treatment modality in Asthi Majjagata vata by Acharya Charak.[8] In which majja is processed with Dashmoola kwath and Milk, which improved and nourished the bone tissue, blood and bone marrow of the femoral head.[9] Dashamooladi Majja Basti have Madhura-Tikta ras, Katu vipaka and Ushna virya, they all combinedly enhance the properties of majja and help in balancing the aggravated vata dosha and favours normal functioning of Dhatvagni facilitating to increasing nutrition for the Asthidhatu and majjadhatu. Madhura and Tikta ras have vata shamak and srotoshodhana properties which help to clear the shrotosangha and alleviate vata dosha. Ushna virya subdue sheeta guna of vata dosha and ultimately cures Vata janya shoola. Milk has guru, pichhila guna and can get the effect of jeevaneeya(Rejuvenation properties), Rasayan(Immunomodulation properties), Brimhana(Nourishing).[10] Laksha guggulu is a herbal drug and it contains Lakh (Ficus Religiosa), Asthisrankhala (Cissus Quandrangularis), Arjuna (Terminalia Arjuna), Ashwagandha (Withania Somnifera), Nagbala (Greuria Hirsuata), Guggulu (Commifora Mukul).[11]Most of these drugs have properties like Kashaya-Tikta-Madhur ras, Ushna virya, Laghusnigdha guna, Vatakaphashamak, Deepan, Balya, Rasayana, Pachana, Sothaghana, Vedanashamaka. These collective properties of ingredients are Anti-inflammatory[12] Analgesic[13] Antibacterial, Fibrinolytic, Fracture healing[14] Hypolipidemic and Cytoprotective etc. Tikta- Kashaya ras of the compound also improves Asthya-agni (Metabolism of bone) and does the purification of microchannels of bone.

## CONCLUSION

The present case study shows that Dashamooladi Majja basti and Laksha Guggulu work effectively in the management of Asthi Majjagata vata. Dashamooladi Majja basti followed by oral medication of Laksha Guggulu can be effectively done as no adverse effects were observed. So, it can be concluded that Dashamooladi Majja basti can nourish the bone tissue, blood and bone marrow of the femoral head and also improved their consistency. Our study revealed that Laksha Guggulu acts as an Analgesic, Anti-inflammatory, Fibrinolytic, Fracture healing and Cytoprotective therapeutic agent. This study is done on a single patient so we can't generate data for the population. For further study large sample size will be required.

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