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A SUCCESSFUL RECOVERY OF AVNFH THROUGH PANCHAKARMA- A CASE STUDY

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ABSTRACT

Avascular necrosis of the femoral head (AVNFH) is a complex, complicated clinical issue that progresses over time. AVNFH is a pathological condition caused by a decrease in the vascular supply to the femoral head's subchondral bone. As a result, the articular surface gradually collapses and the osteocytes die, leading to hip joint degenerative arthritis. Surgery is the last option in the contemporary system for stage 4 AVN patients. There isn't any other form of therapy. The prognosis is bad, and all forms of treatments are expensive. So, the purpose of this case study was to assess the efficacy of Ayurvedic treatments in the conservative therapy of AVN of the femoral head. In this case, a 63-year-old female was diagnosed with AVN of the bilateral hip joints, which was accompanied by stiffness, tenderness at the hip joint, and difficulties in walking and standing for a long period. The condition was managed by *Virechana*, followed by *Basti*, and finally, *Shastika Shali Pinda Sweda*, along with dry cupping. Later, depending on the patient's signs and symptoms, both before and after treatment, symptomatic improvements were assessed.

Observation/Results: The outcomes were positive. In terms of gait, discomfort, and tenderness, the therapy produced noticeable improvements. *Ayurvedic* principles provide great improvement in signs and symptoms and increase the quality of life in the treatment of AVN.

Keywords: Avascular necrosis (AVN), *Asthimajjagata vāta*, *Manjistadi Basti*, *Shasthika shali pinda sweda*, Dry cupping

INTRODUCTION

Avascular femoral head necrosis is a kind of Osteonecrosis caused by an interruption in blood flow to the proximal femoral head. It is also known as aseptic necrosis, ischemic necrosis, and Osteonecrosis.[1] In today's world, AVN is the most prevalent ailment faced by orthopedic surgeons, affecting 40-80% of patients on both sides of the hip.[2]

AVN is caused by an injury or an obstruction in the blood arteries that supply blood to the bone tissue.[3] It can be caused by a number of factors, both traumatic and atraumatic in nature. A traumatic cause could be a hip fracture or dislocation, which affects the blood flow to the head of the femur and leads to avascular necrosis. 10% to 25% of hip dislocations and 15% to 50% of femur neck fractures result in osteonecrosis.[4] Atraumatic causes include endothelial dysfunction, hyperlipidemia, coagulopathy, and prolonged steroid and alcohol usage.

The actual etiology is unknown and is most likely complicated. Excessive alcohol and steroid usage causes fat cell hypertrophy, which then causes endothelial dysfunction, hyperlipidemia, abnormalities in the bone marrow's stem cell population, increased intraosseous pressure, and necrosis due to ischemia and subsequent necrosis. The femoral head becomes necrotic due to a lack of blood supply, which increases the patient's risk of osteoarthritis and/or losing range of motion (ROM).[5]

Inadequate blood supply to the proximal femur's subchondral bone causes the loss of osteocytes and bone marrow. It also causes femoral head collapse and eventual osteoarthritis.

At the beginning of the disease process, the patient has no symptoms. Once symptomatic, they induce symptoms such as hip pain that may radiate to the groin and/or the anteriomedial side of the thigh. Usually, walking and ascending stairs make the pain worse, while resting makes it better. Even when there is no movement, the pain will still persist.[6]

Physical examination reveals a limited range of motion in the hip joint, pain on abduction and internal rotation, and tenderness over the hip region on palpation. Early detection can have a big impact on results. The clinical presentation is combined with suitable imaging to arrive at a diagnosis. X-rays and MRI scans are examples of imaging. The main objectives of the therapy are to relieve the patient's discomfort and stop the bone from further deterioration.

In *Ayurveda*, there is no direct correlation between any disease and avascular necrosis. According to the *Dosha-dushya* and *lakshana*, this could be considered as *Asthimajjagata Vata*.[7]

CASE REPORT-

A 63-year-old female K/C/O with hypertension for 12 years, approached the OPD of SJIIM, Bengaluru with the following complaints- acute pain in bilateral hip joints, which is more in the right hip. The nature of the pain was throbbing and dragging type, radiating towards the anterior aspect of the thigh and associated with stiffness and heaviness. She felt difficulty while walking and flexing the hip joints. The pain aggravated in the night while getting up from bed, lying on the affected side, and on standing for a long time. The pain would relieve on taking rest. These complaints started 2 years ago, and she had approached an allopathic practitioner for the same. There she was diagnosed with avascular necrosis of bilateral hip joints and was advised to undergo decompression of bilateral femoral heads with a fibular shunt graft. Since she was reluctant to undergo the procedure, she approached our OPD in hopes of finding recovery with conservative management.

Past History

Known case of hypertension for 12 years, on tab-Telma-40 mg 1-0-0(A/F)

Family History-

Nothing significant

Personal History-

Bowel –Regular, clear (once /day)

Micturition – Regular, clear, 3-4 times/day; 1-2 times/night
Sleep – sound
Habit- nothing specific
Diets- vegetarian
General examination- systematic examination-
Pallor-absent; CNS-Conscious and oriented to time, place, person, and things.
Icterus-absent; CVS- S1 and S2 heard, no added sounds.
Clubbing-absent; RS- NBVS heard, no added sounds.
Lymphadenopathy- NAD; PA-soft and non-tender.
Temperature-98.6 F
Blood pressure-150/90 mmhg
Pulse rate-80 bpm

Table 01: showing *pariksha* and *Samprapati ghataka*

Ashtavidha pariksha -	***Dashvidha pariksha***	***Samprapati ghataka***
Nadi-Vata-Kapha	*Prakriti-Vata Kapha*	*Dosha-Vata-Pitta*
Mala-abaddha	*Vikriti- Dosha-Vata & Pitta.* *Dhatu-rasa, rakta, mamsa, asthi.* *Updhatus- sira, snayu*	*Dushya-rasa, rakta, mamsa, asthi*
Mutra- Prakruta	*Sara-madhyama*	*Agni-Vishamagni*
Jihwa- Alpa Lipta	*Satmya- madhyama*	*Ama – Jataragnimandyajanya, dhatwag-nimandya Janya*
Shabda- Prakruta	*Satva-madhyama*	*Srotas –rasavaha, raktavaha, asthivaha*
Sparsha- Anushna sheeta	*Samhanana-madhyama*	*Srotodushthi- sanga, granthi*
Druk-Prakruta	*Aharashakti-* *Abhyavarashakti-madhyama* *Jaranashakti-madhyama*	*Udabhavasthana-pakwashaya* *Sancharasthana-rasayani* *Adhisthana*-hip joint, head of the femur
Akruti-madhyama	*Vyayama shakti-madhyama*	*Vyakta sthana*-hip joint, head of the femur
	Vaya- 63yrs	*Sadhyasadhyata-kruchrasadhya*
	Pramana-madhyama	

HIP JOINT EXAMINATION-

- **INSPECTION**
- Gait- Limping (Trendelenburg gait)
- Spinal curvature- normal
- Discolouration-absent
- Trendelenburg sign – Positive
- **PALPATION**
- Tenderness – present in bilateral hips, buttocks, and thigh region.
- Crepitus – absent

Pulse-
-Dorsalis pedis pulse - ++ (bilateral)
-Posterior tibial pulse – feeble on right side

- Heel and Toe walking- not possible

CT-Scan of Abdomen and Pelvis with contrast (10/7/2019)
Impression- mild free fluid in the pelvis, mild hepato-megaly, B/L Renal concretions.
MRI Pelvis-
Impression-Avascular necrosis of right hip joint –ficat and Arlet stage 4.
Avascular necrosis of right hip joint –ficat and Arlet stage 2.
Diagnosis: Avascular necrosis of bilateral hip joint

Table 02: Treatment- intervention, and observation

Days	Treatment given	Observation
28/4/22 to 30/4/22	*Lakshadi Guggulu* 1-0-1 (A/F) *Sahacharadi Kashaya* 15ml -0-15ml(A/F)	Pain persists (VAS-9)
30/4/22 to 4/5/22	*Kaishor Guggulu* 2-2-2(A/F) *Manjistadi Kwatha* 15ml-0-15ml(A/F)	Mild reduction in pain
5/5/22	*Kosthashodhana* with *Gandharvahastadi taila* 30ml with milk	8 *Vega*. Patient felt weak
6/5/22	No treatment	Rest
7/5/22 to 16/5/22	*Manjistadi Kshara Basti* -1st 3 days f/b *ksheera Basti* –next 3days Cap Viscovas 1-0-1(A/F) Cardorium plus syrup 10ml-0-10ml (A/F)	Marked reduction of pain and stiffness were seen (VAS -6) Range of movement in hip joint –improved Around 30% relief from symptoms.
17/5/22 to 19/5/22	Cupping	the pain was reduced by 45% ROM-Improved (Mainly flexion, abduction of hip joint) Gait was improved The patient was able to stand only on right for 10-15 sec
20/5/22 to 27/5/22	*Shastika shali pinda sweda* f/b cupping	60% overall improvement seen. Pain in the hip joint was reduced and range of movement was improved. Improvement in gait was seen Balance while walking and standing was improved.

Table 03: Ingredients and quantity of *Manjistadi Kshara* and *ksheera Basti*

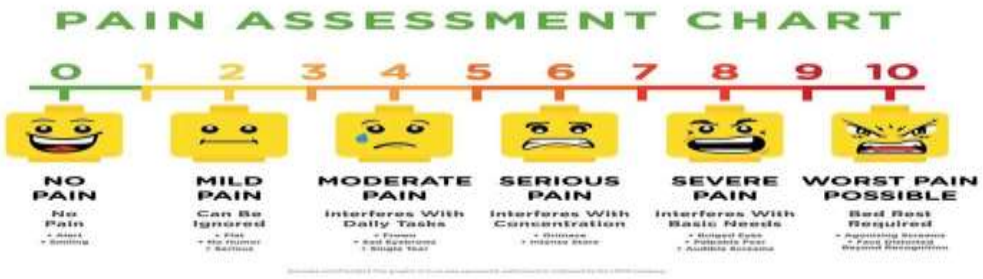
Manjistadi Kshara Basti	***Manjistadi ksheera Basti***
Makshika-40ml	40ml
Saindhava lavana-6g	6g
Sneha *–Manjistadi taila*-60ml	60ml
Kalka*-Shatpushpa+Yastimadhu*-20g	20g
Kwatha*-Manjistadi kashaya*-200ml	350ml (*manjistadi ksheera)*
Avapa-70ml (*Gomutra*)+100ml(water)	Milk
Total—490ml	470ml

OBSERVATION-

A Pain VAS Score of 0 to 10 was used to assess pain. The Visual Analogue Scale (VAS) in the right leg was 9 before treatment and 6 after treatment. It was 5 in the left leg at the start, i.e., before treatment, and it was 0 after treatment. After *Manjistadi Kshara Basti*, *Shastikashali Pinda Sweda*, and dry cupping, movements like flexion, extension, adduction, abduction, internal rotation, and external rotation were measured. The *kala Basti* programme showed improvements in the range of motion and pain in the hip joint, and the details are shown in table no- 04.
The average retention time of *Niruha Basti*-10min
Anuvasana Basti-3hrs

Table 04: Observation of range of movement of the hip joint-

Sr. no	Range of movement	Before treatment	After treatment	Normal Range of movement
1	Flexion	Rt-70˚	Rt-90˚	110˚-120˚
		Lt-90˚	Lt-100˚	
2	Extension	Rt-10˚	Rt-10˚	10˚-15˚
		Lt-10˚	Lt-13˚	
3	Internal rotation	Rt-10˚	Rt-20˚	30˚-45˚
		Lt-15˚	Lt-25˚	
4	External rotation	Rt-30˚	Rt-35˚	40˚-60˚
		Lt-35˚	Lt-40˚	
5	Abduction	Rt-25˚	Rt-35˚	45˚
		Lt-35˚	Lt-40˚	
6	Adduction	Rt-10˚	Rt-15˚	15˚-25˚
		Lt-15˚	Lt-20˚	



Before treatment-9 After treatment-3

Table 05: Showing change in the degree of SLR.

SLR TEST	Before treatment	After treatment
Right	55˚	65˚
Left	65˚	75˚

DISCUSSION

Avascular necrosis is the death of osteocytes caused by a blockage in the blood vessels supplying the femoral head, and it interferes with the patient's everyday activities. At first, there may be no symptoms. Later, joint pain may emerge gradually and limit movement. A possible complication is the fusion of the bone or the surrounding joint surface. It is critical to identify this illness early because it can cut off the blood supply to *Asthidhatu*, deprive it of nutrition, and subsequently produce *Asthi majjakshaya*. Avascular necrosis of the femoral head shows *Vata Dosha prakopa* leading to *vikruti* of *asthi dhatu* and *majja dhatu*. In AVN, *margavarodha* causes a reduction in blood flow to the femoral head, which ultimately results in ischemia and necrosis. *Margavarodha* also aggravates *Vata Dosha.* As AVN progresses, the ongoing *Vata Dosha* imbalance also contributes to the vitiation of the other two Doshas, *Pitta,* and *Kapha*. In Ayurveda classics, *Basti* is categorised as the first line of treatment for *Vata, Pitta, Kapha,* and *Rakta Doshas. Basti* is also the preferred treatment modality in conditions involving *shroni*. AVN of the hip joint is caused by a blockage of the tiny blood capillaries that supply blood to the femoral head. In light of this, *raktavaha srotorodha* emerges as the main cause of *asthi dhatu kshaya* in the hip joint. Hence, *manjistadi ksheera Basti* was given in order to combat this *rakta dushti*. There was no history of trauma or other variables that would have reduced bone composition in this case. The primary causes of *Asthimajjagata Vata* are *Vata* and *Kapha.*

TREATMENT PRINCIPLE –

Mridu samshodhana followed by *brihmana* (nourishing) appears to be effective in this manifestation. Mild *Rukshana/Langhana* should be performed prior to *brihmana*, utilising therapies such as *udvartana* (powder massage), which aids in the elimination of *srotorodha*. In AVN, the blood flow (*rakta dhatu*) to the femoral head is reduced due to *margavarodha* (channel blockage), resulting in ischaemia and necrosis. This subsequently worsens the condition. The primary factor for *asthi dhatu kshaya* in the hip joint is *raktavaha srotorodha*. This *rakta dushti* was combated with the use of *manjistadi kshara* followed by *manjistadi ksheera Basti*. In this scenario, *avarana of Kapha* over *Vata* may also be considered to have a key role in the appearance of symptoms such as stiffness and restricted motions of the hip joint. It is important to analyse the patient's *bala and avastha, Dosha* participation, disease kind, and *Prakriti* prior to the administering *Basti.* In this situation, the patient's symptoms of stiffness and restricted hip joint movement may also be attributed to the *avarana* of *Kapha* over *Vata*. Treatment with *tikta dravya sadhita ksheera Basti* in conditions of *asthikshayaja vikara* mentioned in *Charaka Samhita* may be beneficial in the neovascularization of the affected portion.[8]In order to remove the *avarana of Kapha, Manjistadi kshara Basti* was administered for the first 3 days of the course of *Basti*.

Manjistadi kshara Basti-

It is *tikta, katu rasa pradhana*, and *ushna virya*, which serves as *Raktaprasadaka tridoshahara* and does *Vatanulomana*. Also *gomutra* was added in the *Basti* to soothe *Kapha* and aid in the eradication of *avarana*. *Manjistadi kwatha* has antagonistic traits toward *Rakta, Kapha,* and *Pitta*. For the next three days, *kashaya* prepared by *ksheerapaka* method was administered and this has *asthi sandhnakara* quality.[8] As a result, it prevents lipid buildup in the femoral head, increasing vascular permeability for enhanced circulation to the affected area.

Manjistadi ksheera Basti- *Ksheera* possesses *madhura* and *snigdha gunas,* which aid in the management of *Vata Dosha* through *brimhana* (nourishing) *karma*. *Manjista,* which has *madhura* (sweet), *tikta* (bitter), and *kashaya* (astringent) *rasa*, together with *ushna virya, madhura,* and *katu vipaka,* aids in the normal functioning of *dhatvagni* (metabolic stage), allowing for increased nutrition to the *asthi dhatu*. *Manjista's ushna guna* and *saindhava's shukshma guna* enable them to function at the cellular level of the tissues, and aid in *rakta shodhana* (blood purification and vascular system cleansing). This promotes smooth blood flow to bone tissue. For *Anuvasana Basti, Manjistadi taila* was selected as it is mentioned in the *chikitsa* of *vikaras* of *Vata* and *Rakta*.

***Kaishora Guggulu*:** It is the medicine of choice in *Vatarakta*, as this clears the obstruction in blood vessels and enhances blood circulation to the bone.

Role of *Rukshana*: According to *Acharya Vagabhatta*, "*Bruhmyamstu Mrudu Langhayet*" signifies that *Rukshana/Langhana* is necessary before *Bruhmana*.[9] **Cupping:** Cupping is an Alternative therapy. Here, suction can be created by placing the cups on the skin. This will promote healing by enhancing the body's energy flow. Dry cupping's effects include promoting cell regeneration and boosting blood flow to the area where the cups are applied. It also relaxes the muscles. It aids in the formation of new blood vessels and connective tissues. Dry cupping is one among them and it may have the same effect as *swedana* therapy in that the vacuum inside the cup generates stress on the skin, which may enhance local blood circulation and sweating. This process, may assist to relieve symptoms like stiffness, heaviness, etc.

Shashtika shali pinda sweda-

It is *brimhana, Vatahara,* and *bahya sweda*. It contains ingredients such as *godugdha* and *shasthika shali* that nourish and strengthen muscle tissue. *Balamoola* nourishes the nerve system. All these are tied together in pottali form, dipped in *balamoola ksheera*, and rubbed on the body. Application of *pinda sweda* results in vasodilation; this enhances blood circulation and removes waste. In this study, the treatment reduced stiffness and increased tissue extensibility, resulting in an increase in the range of motion. By the end of the treatment, the patient showed an overall improvement of 60%.

CONCLUSION

AVN is a complicated condition with no permanent cure. Joint substitution is the only alternative, which has its own set of limits and issues. Stage -4 avascular necrosis is a disorder that requires surgical intervention because there is no positive conservative therapy in other medical systems. However, we can provide great alleviation of the symptoms using Ayurvedic principles. We can use ayurvedic medications and the *Panchakarma* treatment to prevent illness progression. Furthermore, the therapy is cost-effective. The patient is easily able to carry out daily tasks following the treatment.

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