



MANAGEMENT OF AVASCULAR NECROSIS OF HEAD OF THE FEMUR THROUGH PANCHAKARMA: A CASE STUDY

Dr. S. Triveni Manju^{1*} and Dr. Vinay Kumar K. N.²

¹2nd yr PG Scholar, Dept. of PG Studies in Panchakarma, SKAMCH & RC, Bengaluru, Karnataka.

²Professor & HOD, Dept. of PG Studies in Panchakarma, SKAMCH & RC, Bengaluru, Karnataka.

***Corresponding Author: Dr. S. Triveni Manju**

2nd yr PG Scholar, Dept. of PG Studies in Panchakarma, SKAMCH & RC, Bengaluru, Karnataka.

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ABSTRACT

Avascular necrosis of the femur head (AVNFH) is a debilitating disease caused due to the use of alcohol, steroids, following trauma or unclear (idiopathic) etiology, affecting mostly the middle aged population. Clinically AVNFH is associated with impaired blood supply to the femoral head resulting in bone necrosis and collapse. Management of AVN aims at the preservation of structure, function and relief from pain. Many surgical procedures such as drilling and insertion of bone grafts, insertion of prosthesis etc. are carried out to remedy the condition but all these procedures are costly with the poor prognosis. According to the principles of Ayurveda, Vata, Pitta, Rakta Dosha play major role in the pathogenesis of AVN along with involvement of Asthi and Majja Kshaya (depletion of bony tissue). The present case study is upon 36 year old women, diagnosed case of Avascular Necrosis of bilateral femoral head with complaints of pain in bilateral hip region since 4 years which was associated with difficulty in doing normal daily activities such as walking, sitting, squatting along with change in the gait. The treatment principle involves the administration of Rukshana followed by Shodhana and Shamana Chikitsa as Vamana Karma was administered after Sarvanga Udwartana for a period of 14 days thereafter Virechana Karma after Parihara Kala and Sarvanga Udwartana for 14 days and again after Virechana Parihara kala, Erandamooladi Ksheera Basti in Kala Basti Schedule followed by Vardhamana pippali rasayana and other Shamana aushadhi detailed for a period of 3 months. Patient was observed for symptomatic improvements before and after treatment. The results were encouraging and provided marked relief from pain, tenderness, stiffness and improvement in the gait.

KEYWORDS: AVNFH, Rukshana, Vamana, Virechana, Basti, Shamana Aushadhi.

INTRODUCTION

Avascular necrosis of femoral head is a progressive, multifactorial and challenging clinical problem that is on the rise, mostly affecting the middle aged population in the most productive age group of 25–50 years.^[1] Clinically, AVNFH is a pathological state with multiple etiologies associated with a reduction in the vascular supply to the subchondral bone of the femoral head. This result in death of osteocytes and progressive collapse of the articular surface followed by degenerative Arthritis of the hip joint.^[2] The patient will complain of pain around the hip or the groin region- "It could make it very difficult to walk which could lead to limping in the patient."

AVN can also be caused by traumatic events such as a fracture, dislocation of joints or during cancer treatment due to exposure to radiation and Alcohol or steroid abuse

are a major risk factors. There is no direct correlation of AVN in *Ayurveda* but the *lakshanas* of *Asthi Majjagata Vata* can be matched to some extent as there will be *bheda* in *Asthi parvana*, *Sandhi Shoola*, *Mamsa bala kshaya* and *Aswapnasantata ruk*.^[3] Hip is involved commonly^[4] and is mainly bilateral. In cases of AVN of the hip, it's important to diagnose and treat early to prevent any further complications. Treatment varies significantly, depending on the location and severity, however the goal of initial treatment is to prevent collapse of the joint surface. In the advanced stages that lead to painful arthritis, a hip replacement may become necessary.

An effort was made to evaluate the efficiency of *Shodhana* treatment along with the conservative management of AVN of the femoral head against painful surgical procedures prescribed by other science. On the

basis of this concept a case of AVN was treated and outcome of the treatment is detailed as follows.

MATERIALS AND METHODS

Case report

A female patient age 36 yrs, diagnosed and non operated case of Avascular Necrosis of bilateral femoral heads (Lt>Rt) came to Panchakarma OPD of Sri Kalabyraveshwara Swamy Ayurvedic Medical College, Hospital and Research Centre, Bengaluru admitted with chief complaints of severe pain and stiffness in left and right hip region since 4 years (more severe in left, gradually severity increased, heaviness in right leg since 4years, difficulty to sit and stand without support, difficulty in walking since 3years - increased in severity since 1year. The pain also aggravated on doing her daily routine work like walking or even in prolonged sitting position.

History of Present Illness

Patient was apparently healthy before 4 years, since then she noticed gradual weight gain, hairloss and pain in b/l Ankle joint- when she sit and stands for longer hours and mild stiffness in left leg (from first month). So, she

consulted to some hospital nearby, where she underwent investigations and she was given steroids and was taken for about 1month where she noticed puffiness of face, disturbed swelling in her legs, weight gain (>3kg) and increased hairloss (in 1 month). Later gradually heaviness of left leg and severe pain in left hip joint and then to right hip have started and was unable to stand. Pain was persistent and was unable to fold her legs, difficulty in walking.

Later she consulted the Orthopedician where they have done MRI and other investigations and was diagnosed as AVN, suggested for Surgery. Patient was not willing to go for surgery. The pain persisted, aggravated during night time leading to disturbed sleep. So underwent folkfore medicines, Physiotherapy and Aquatherapy. As there was relapse of pain and stiffness in left hip, associated with heaviness in right leg, difficulty to sit and stand without support and difficulty in walking, so with the suggestion of her relative she approached SKAMCH & RC for further management.

Patient K/C/O Hypothyroidism since 7 years.

Examination of Patient

Table 1: General and Specific examination of the patient was conducted as per modern and Ayurveda.

DASHAVIDHA PAREEKSHA	
Prakruti	<i>Kapha-Pitta</i>
Vikruti:	<ul style="list-style-type: none"> • <i>Hetu: Aharaja – Katu, Amla Atyartha Sevana, Idli, Dosa (shuktha ahara), Sprouts. Visamasana , Viharaja- Ati yana, Vega dharana (mootra, Purisha)</i> • <i>Dosha: Vata – Apana vayu, Vyana Vayu, Kapha- Sleshmaka Kapha</i> • <i>Dushya: Rakta, Sira, Snayu, Mamsa, Asthi, Majja,</i> • <i>Dasha: Sadharana</i> • <i>Bala: Roga bala – Pravara , Atura bala - Madhyama</i>
Sara	<i>Madhyama</i>
Samhanana	<i>Avara</i>
Pramana	Ht.5.3” , Wt.73 kgs
Satmya	<i>Sarvarasa Satmya (excess of Katu and amla)</i>
Satva	<i>Madhyama</i>
Aharashakti	<ul style="list-style-type: none"> • <i>Abhyavarana shakti : Alpa</i> • <i>Jaranashakti: Madhyama</i>
Vyayama shakti	<i>Avara</i>
Vaya	<i>Madhyama</i>
ASHTA STHANA PAREEKSHA	
Nadi	78/min
Mutra	4-6 times/day, 1 time/night
Mala	Once in a day
Jihva	<i>Alipta</i>
Sabda	<i>Prakruta</i>
Sparsa	<i>Anushna-Sheeta</i>
Druk	<i>Prakruta</i>
Akruti	<i>Heena Sthoulya</i>
EXAMINATION OF LOCOMOTOR SYSTEM HIP JOINT	
Inspection	
Gait	Trendelenburg gait
Wasting	Present (Gluteal muscles)
Swelling	Absent
Leg length discrepancy	Absent

Scar marks	Absent
Palpation	
Temperature	Normal
Tenderness	Pain felt at Trochanteric bursa
Femoral artery pulsation	At mid-inguinal point

- **Nutrition** – Moderate.
- **Tone** – Hypotonic in left lower limb.
- **Power** – Right lower limb – normal power and in left lower limb – Grade 4.
- **Involuntary movement** – Absent.

Investigation

MRI Reveals.

1. MRI - Grade III Avascular Necrosis of Bilateral femoral head (Lt. > Rt) Ficat & Ariet staging – III with marrow oedema in bilateral (mild in right) femoral head, neck and upper shaft and mild collapse of left femoral head.

2. ESR - 30mm/ 1st hour

Considering the history and examination of the patient, treatment was planned with a *Rukshana* followed by *Kramatah Shodhana* based on principles of *Ṣaḍvidhopakarma* (six principles of treatment). Presentation of the patient with pain and stiffness in bilateral anterior hip to knee region showed the involvement of *Vāta-Kapha duṣṭi* associated with the *Asthivāha Srotas* and hence *Rukshana* in form of *Udwartana* followed by *Bashpa Swedana* and then followed by *Kramatah Shodhana*.

Chikitsa

Table 2: Chikitsa Principles Adopted and Observation.

	Treatment	Observations
Phase I Vamana Karma	<i>Sarvanga Udwartana</i> with <i>Triphala choorna</i> + <i>Kolakullatadi choorna</i> <i>Bashpa sweda</i> *14 days. <i>G.H. taila</i> 20ml with milk (empty stomach early morning)	No changes were observed upto 3 days. Later Day 4 – <i>Vit visarga</i> , bowels regular Day 6 – <i>Gatra Laghavata</i> , Day 10 – increased <i>Uthsaha</i> and hunger
	Vamana Karma <i>Snehapana</i> – <i>Guggulu tiktaka Ghruta</i> <i>Vamana</i> – <i>Madanaphala Sheeta Kashaya</i> (150 ml)	<i>Madhyama Shuddi</i> <i>Vega- 5</i> <i>Pittanta</i> observed Stiffness and pain slightly reduced
Phase II Virechana After 10 days gap	<i>Sarvanga Udwartana</i> with <i>Triphala choorna</i> + <i>Kolakullatadi choorna</i> <i>Bashpa sweda</i> * 14 days. <i>G.H. taila</i> 20ml with milk	<i>Gatra Lagutha</i> <i>Kshud Pravrutti</i> Regular bowel habit
	Virechana Karma <i>Snehapana</i> – <i>Guggulu tiktaka Ghruta</i> <i>Virechana- Trivrut Lehyam</i> (70 gms)	<i>Madhayama Shuddi</i> <i>Vegas</i> – 12 <i>Kaphanta</i> observed Stiffness of left leg reduced completely, Right leg heaviness still persists.
Phase III Basti karma After 2months interval	<i>Sarvanga Abhyanga</i> with <i>Moorchita taila</i> F/B <i>Bashpa sweda</i> <i>Erandamooladi Ksheera Basti</i> (<i>Kala basti</i>) Anuvasna Basti Niruha Basti	First 5 days of <i>Basti</i> -no changes was felt Next from 6 th day – Pain reduced upto 10% 8 th day- Patient felt still more better (appr . 25% reduced) 12 th day- Pain reduced by 50% and right leg heaviness slightly reduced 16 th day- Pain reduced by 60% and no much differences was observed .
	<i>Pancha-tiktha Ghruta</i> Dose- 100 ml <i>Madhu</i> -30ml <i>Saindhava lavana</i> – 10gms <i>Panchatiktha Ghruta</i> - 100ml <i>Rasna kalka</i> -20 gms <i>Erandamoola kwatha</i> – 300 ml + <i>Ksheera</i> - 200 ml = <i>Ksheera Paka</i>	
Shamana Chikitsa	After <i>Basti karma</i> : 1. <i>Vardhamana Pippali Rasayana</i> for 2 month.	Pain, stiffness over the bilateral hip joint have reduced by 80%. Heaviness have also reduced. Now pain arises only when she stands or do work

2 pippali increase- 1 month 3 pippali increase- next month 2. Rasa sindoor 2gms Tab. Ekanga Veera Rasa –30 tabs Tab. Brihat Vata Chintamani–30 tabs Tab. Nimbadi Guggulu -60 tabs 30 packs: 1-0-1 after food	for long hours.
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Observations

Table 3: Range of movements and maneuvers.

Symptoms	Before Treatment		After Treatment	
	Right	Left	Right	Left
Stiffness	Grade 2	Grade 4	Grade 1	Grade 2
Tenderness	Grade 2	Grade 3	Grade 1	Grade 1
Pain	Grade 2	Grade 5	Grade 1	Grade 2
Heaviness	Grade 1	Grade 4	Grade 1	Grade 2
Muscle Power	5	4	5	5
Flexion of Hip Joint	70	45	100	90
Extension of Hip Joint	15	15	15	15
Abduction of Hip Joint	20	10	35	30
Adduction of Hip Joint	20	15	25	25
Medial Rotation	20	10	30	30
Lateral Rotation	40	20	50	45

DISCUSSION

Though pathophysiology of AVN of the femoral head has been poorly understood, following mechanisms can be theorized as the causes: Vascular occlusion, Altered lipid metabolism, Intravascular coagulation, Repair healing process, Mechanical stress.^[5]

According to Ayurveda point of view there is no direct co-relation with Avascular Necrosis but clinical presentation indicates towards dominance of *Vata Dosha* and *Vikruti* (vitiation) of *Asthi Majja Dhatu*. In AVN, the blood (*Rakta Dhatu*) supply to the femoral head is decreased due to any type of *Margavrodha* (occlusion of blood vessels) ultimately leading to necrosis. There is *avarana* to the *Rakta Dhatu* causing *Sandhushayati* of *Rakta* later doing *Sthanasamshraya* in *Asthi* and *Majja* of *Sroni* and *Vankshana*. *Swahetu Nidana* moves to *Sandhigata* (*Asthi* and *Majja*) causing *Asthi Majjagata Vata*. *Margavrodha* is also responsible to aggravate *Dhatu* and in advanced stage, due to continuous *Vata Dosha* (due to necrosis) imbalance it is further responsible for causing vitiation of *Pitta* and *Kapha*.

The *Dharana Karma* of *Asthi* is mainly supported by the *Jaghana*^[6] or the entire hip region, which balances the upper and lower parts of the body. *Jaghana* gets affected when *Asthivaha Srotodushti* occurs. It is evident that the neck of femur, the prominent bone of *Jaghana Pradesha* is most frequently affected. *Doshas* lodged in *Asthi Dhatu* are not so easily removed because of the reasons as *Asthi* is the *Gambheera Dhatu* and among the three *Rogamargas*, *Asthi* is included under *Madhyama Rogamarga* which is difficult to treat. *Doshas* that have taken shelter in *Asthi* need well planned specific treatment for their removal. There is need of *Kramat*

Shodhana i.e a course of *Vamana* followed by *Virechana* and *Basti*.

Rukshana is indicated for *Abhisyanda*, *Mahadosha*, *Marmastha vyadhi*,^[7] *Mamsala*, *Medura* and *Bhurishlesma* conditions.^[8] So the treatment modality such as *Udvardana* (powder massage) was planned in order to remove *Srotorodha* and *Sthiri karaṇa* of *aṅgas*. These modalities of therapy are responsible for removal of vitiated *Medas* whereas *pachana* medicines are also explained as a variety of *Rūkṣhaṇa*.

Vamana and *Virechana* helps for *Sroto Vishodhana*. Then the *Basti Chikitsa* given is nearer to the *Jaghana Pradesha*, and it is the specific *Chikitsa* in treating *Asthi* related diseases. *Tikta Dravya Sadhita Ksheera Basti* is specially indicated in *Asthikshaya* *Vikara*. This is the reason behind Charakacharya's unique design of *Tikta Ksheerabasti* in *Asthyashraya Vyadhi*.^[9]

The decoction made in *Ksheera* which have *Madhura* and *Snigdha*^[10] properties helps to control *Vata Dosha* and due to *Sukshma Guna* (minute properties) of *Saindhava* (rock salt) it reaches up to micro channel of the body and helps to open fresh blood supply to the bone tissue. Most of ingredients of *Panchatikta Ghrita* have *Tikta Rasa*, *Ushna Virya* and *Madhura* and *Katu Vipaka*. The *Tikta Rasa* increase the *Dhatvagni* (metabolic stage). As *Dhatvagni* increase, nutrition of all the *Dhatu*s will be increased. As a result *Asthi Dhatu*, *Majja Dhatu* may get stable and *Asthi Dhatu* and *Majja Dhatu Kshaya* will be decreased. So degeneration in the *Asthi Dhatu* may not occur rapidly. It can be said, it slows down the degeneration processes. *Tikta Rasa* has *Vayu* and *Akasha*

Mahabhuta in dominance. Hence it has got affinity towards the body elements like *Asthi* having *Vayu* and *Akasha Mahabhuta* in dominance. Though, *Tikta Rasa* aggravates *Vayu* which may enhance the pathogenic process of *Sandhi, Asthi and Majja gata Vata* but, the main principle of *Ayurvedic* treatment is “*Sthanam Jayate Purvam*”. The main site of *Sandhigata Vata* is *Sandhi* which is the site of *Shleshaka Kapha*. So, by decreasing the *Kapha Dosha Tikta Rasa* fulfils the principle. *Tikta Rasa* also possess *Deepana, Pachana, Lekhana* and *Rochana* properties. So it helps in the improvement of the general condition of health and thus strengthen the whole body as well as joints. *Tikta Rasa* is also has got *Jwaraghna* and *Daha Prashamana*^[11] properties that it may act as anti-inflammatory agent and can reduce the pain and swelling of the joints.

Ghrita has the properties of *Sanskarasya Anuvartana*^[12] (that which inherits the properties of other drugs without altering itself) precipitating bioavailability of other drugs and is *Vatashamaka, Madhura, Shita Virya*. Thus, it pacifies *Vata*, improves the *Dhatu Upachaya* (metabolism of the tissue) and acts as a rejuvenator of the body. Hence, helps in *Samprapti Vighatana* (breaking down of pathology) of the *Asthi Kshaya*.

The drug *Pippali* has been selected and administered in *Vardhanana krama* to yield an immunomodulatory affect. Owing to its '*Deepana, Pachana* and *Drava Shokhaka*^[12] properties the chain of formation of *Ama* will be broken down i.e. '*Ampachana*' and the power of digestive fire will be enhanced. Usually the inflammation and morning stiffness are said to be due to accumulation of fluid within inflamed joint capsule, the *Pippali* will dry up the accumulated fluid due to its '*Dravasasaka*' action. Further it alleviates '*Kapha*' due to its properties like '*Ushna*' '*Tikshna*' and '*Ushnavirya*' which play a dominant role in pathogenesis of this disease.

Acharyas while explaining the *dhātupāka avasthā* (metabolism process) clearly detail the importance of *agni* which is singularly responsible for the formation of the *dhātus*. Thus, correction of *agni* was done and the process of *dhātu pāka* was strengthened, then *doṣas* were balanced and metabolic toxins were eliminated from the *dhātus* through *Vamana* and *Virechana* and then *Basti* strengthening the *dhatu*s and balancing *Vata*.

CONCLUSION

Patient of AVN with the bilateral femoral head was treated with *Rūkṣāna* followed by *Kramat Shodhana* and *Shamana* line of treatment. In *Asthigata vāta tikta rasa auśadhi* (medicines with bitter taste) are beneficial. *Basti* is one among the *Pancakarmas* and considered as *Ardha Chikitsa* which clearly shows its efficacy in chronic conditions due to its therapeutic effect especially in its *Bṛimhaṇa* action (rejuvenating enema). Therefore in AVN like conditions this can prove to be a better

modality of treatment, as AVN represents *gambhīra Asthi Majja dhatu* involvement. This modality of treatment rejuvenates and further help in alleviating *dhātuḥṣaya* which is caused due to the *Vāta doṣha* and may aid in neovascularization. The therapy provided marked relief from pain, tenderness, Stiffness and improvement in the gait. The results were encouraging. The grade of AVN did not worsen and was maintained as seen during the follow up. Conservative management of AVN through *Ayurvedic* principles provides significant relief and improves quality of life. The recovery in the present case was promising and worth documenting.

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