



An Ayurvedic Approach in Conservative Management of Avascular Necrosis of Femoral Head-A Case Study

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ABSTRACT

Avascular necrosis of the femoral head (AVNF) is an increasingly common cause of musculoskeletal disability. It is a progressive pathological process, resulting in the death of bone cell of femur head due to disruption of blood supply to the proximal femur. In the course of AVN, however the healing process is usually ineffective and the bone tissue breakdown faster than the body can repair. All the treatment procedures are cost worthy and prognosis is poor. Management of AVNF aims at prevention from structural deformity, regulating functional activity and relief from pain. There is no direct diagnostic correlation to AVNF in *Ayurvedic* classics, however sign and symptoms of AVNF are nearer to *Asthivaha Srotodushti Vikara* (disorders of musculoskeletal origin). **Objectives**-By considering AVNF as an *Anukta vyadhi* an attempt has been made in the present study to evaluate the efficiency of *Ayurvedic* formulation in the conservative management of AVNF. **Method**-A case of AVN with bilateral femoral head presented with complaints of pain in bilateral hip region with difficulty in routine work ei. walking, sitting, squatting along with change in gait. Initially patient was treated with *Panchtikta Kshar Basti* then *Panchtikta Ksheer Basti* and *Anuvasana Basti* with *Gugulutikta Ghrita* as per *Karma Basti* schedule (modified), followed by *Shaman aushadhi*. **Result**-Patient was observed for symptomatic improvement based on questionnaire over graded sign & symptoms, also observed for clinical examination before & after treatment and the therapy provided marked relief from pain, tenderness, stiffness and improvement in the gait & hip joint movements. **Conclusion**-Thus the study has shown conservative management of AVNF can be managed effectively through *Ayurvedic* principle and improve quality of life.

Key Words: Avascular Necrosis, *Ayurveda*, *Panchakarma*, *Anukta vyadhi*, *Basti karma*

INTRODUCTION

Avascular necrosis of femoral head (AVNF) is a progressive multifactorial and challenging clinical problem that is on the rise, mostly affecting the middle aged group of 30-50 years. Clinically AVN is a pathological state associated with multiple aetiologies with disruption in the vascular supply

to the subchondral bone of the femoral head. This result in osteophytes death and progressive collapse of articular surface followed by degenerative arthritis of hip joint¹. The disease is caused due to use of alcohol, steroid, haematological disorders (for example sickle cell anaemia, thalassemia, haemophilia), as well as



condition such as pregnancy, Cushing disease, hyperparathyroidism, following trauma. In about 30% of patients however aetiology of non-traumatic. Avascular necrosis of femoral head is unclear and these are termed as Idiopathic. In modern practices conservative or non-surgical management has generally been unsuccessful. Result with established costly surgical procedure have been inconsistent and frequently disappointing. All the treatment procedures are cost worthy and prognosis is very poor. To overcome these factors one may choose the therapy of Indian science i.e. *Ayurveda*. Principal of *Ayurvedic chikitsa* must be applied clinically to disease which are not describe in *Ayurvedic* text but we find today as *Anukta vyadhi*^{2,3}. An attempt has made to evaluate the efficacy of *Ayurveda* in the conservative management of avascular necrosis of femoral head.

MATERIALS & METHODS

Case Report-A 48 years old male patient presented to the *Panchakarma* OPD, Government Ayurveda Medical College Bengaluru, Karnataka, India with the complaints of pain and stiffness in bilateral hip region since 5 months which is associated with difficulty in doing normal daily activities such as standing, walking, sitting, squatting. Aggravating factors were cold weather, gastric upset and supine posture. Alleviating factors were warm food and warm weather.

Past History-The patient claimed to be apparently healthy 5 months earlier with the pain and stiffness developing gradually. Patient treated in a popular

hospital in Bengaluru, the doctor at the orthopaedics department diagnosed his problem as stage 2nd AVN of bilateral head of femur with the aid of MRI (done at that time). Then as per advice of Orthopaedic Surgeon he underwent surgery (core decompression of bilateral femoral head). After a period of one month, the patient started developing the symptoms that were present before the surgical intervention. Orthopaedic surgeon recommended one more surgical intervention but the patient was reluctant and he approached our hospital for alternative treatment. Patient had no H/o alcohol consumption or any trauma or accidental injury.

Examination Table-1

- Vikrati Pariksha- Dosha-** Vata Pradhan Kapha, Dushya- Rakta, Sira, Snayu, Asthi, Desha- Sadharana, Rogabala- Madhyam, Aturabala- Madhyam, Sthanasamshraya- Vankshanpradesh.
- Samprapti-** Due to indulgence in Vata & Kapha provoking food and habits the aggravated

Table 1 Dashvidha Pariksha

Prakrati	Kapha-Pittaja
Sara	Madhyam
Satva	Madhyam
Saatmya	Shad rasa saatmya
Ahar Shakti	Madhyam
Abhyavaran Shakti	Madhyam
Vyayama Shakti	Madhyam
Vayah	48 yrs.(Madhyam)
Pramana	Madhyam

Vata along with Kapha localises on the place of *Khavaigunya*⁴ (derangements in channels) . Vata occluded by Kapha in the *Vankshana Pradesh* (hip joints) and affects *Dhatu*s (*Rakta, Sira, Snayu, Asthi*) causing *Dosha-Dushya Sammurchana*



followed by *Asthivaha Srotodushti*⁵ resulting in *Vankshangata Vata vyadhi*. Table-2.

Table 2 Systemic Examination

Gait	Changed (walk with support)
Pain in B/L Hip joints	+++
Stiffness	+++
Pain during Walking	+++
Tenderness	Second degree over B/L thigh
Movements of joints	Restricted
Power of lower limbs	Grade 4 bilaterally
Involuntary movements	Absent
Raising of lower limb	Right leg 10 ⁰ , Left leg 15 ⁰
Trendelenburg sign	Positive

Treatment Protocol Adopted

- *Koshtha Shuddhi*⁶ (Instant Purgation)

A day before start *Basti karma*, *Gandharvahastadi Tail* 30 ml. was given orally for *Koshtha Shuddhi*.

- *Niruha Basti* (Decoction Enema)

Panchtikta Kshar and *Panchtikta Ksheer Basti*- Total 12 dose of *Niruha Basti* were administered in which initially 6 dose of *Panchtikta Kshar Basti* were administered later then

6 dose of *Panchtikta Ksheer Basti* were administered according to *Basti yogas* (Table-3)

Administration of *Basti* was done on the basis of *Karma Basti*⁷ schedule (modified) (Table-4)

Table-4 *Karma Basti* Schedule (modified)

- *Anuvasana Basti* (Oil Enema)

According to *Karma Basti* (modified schedule) total 18 dose of *Anuvasana Basti* of *Guggulutikta Ghrita* 60ml in dose were administered. (Table-4).

- *Shaman aushadhi* (Given after *Basti karma*)

○ *Manjishthadi Kwatha* 20 ml BD for 15 days

○ *Kaishore Guggulu* 1 tab TID for 15 days

○ *Agnitundi Vati* (125mg) 1 tab BD for 8 days

ASSESSMENT CRITERIA & RESULT

Table-5 Grading of Subjective Parameter

Assessment was done on the basis of scoring of subjective parameters (Table-6) & Observation (Table-7)

Table-6 Assessment before, during and after treatment

Table-7 Observation

Assessment was done on the basis of subjective criteria, sign and symptoms. Pain and stiffness was markedly reduced after *Karma Basti* (modified) course. After completion of the treatment patient was able to walk without support, tenderness was comparatively reduced, leg raising was up to 60⁰, change in gait was observed and Trendelenburg sign was negative (Table-6), all the restricted movements of bilateral hip joints were significantly improved (Table-7) .

DISCUSSION

According to *Ayurvedic* point of view there is no direct correlation with avascular necrosis but on clinical presentation shows there is dominance of *Vata dosha* along with *Kapha dosha* and *Vikrati* (vitiation) of *Asthi Dhatu*. In AVN the blood supply to the femoral head is decreased due to any type of *Margavarana*⁸ or *Abhighata*, ultimately leads to necrosis. *Margavarana* is also responsible to aggravate *Vata Dosha* and increase *Vata Dosha* finally resulting in *Kshaya* (loss) of *Asthi Dhatu*. In advance stage, due to continuous *Vata Dosha* (due to necrosis), Imbalance it further responsible for vitiation of *Pitta* and *Rakta*, so here *Basti* is a choice of treatment for AVN, in all *Panchakarma* procedures because *Basti* is first line of treatment



of *Vata Dosha* as well as *Pitta, Kapha Dosha* and *Rakta* also⁹.

Table-3 Description of Basti yoga

<i>Panchatikta Kshar Basti</i>	Quantity	<i>Panchatikta Ksheer Basti</i>	Quantity
<i>Panchatikta Kwatha</i>	280 ml	<i>Panchatikta Ksheer Kwatha</i>	300 ml
<i>Madhu</i>	60 ml	<i>Madhu</i>	60 ml
<i>Shatpushpa Kalka+</i>	20 gm+	<i>Shatpushpa Kalka+</i>	20 gm+
<i>Ashwagandha Kalka</i>	20 gm	<i>Ashwagandha Kalka</i>	20 gm
<i>Saindhava</i>	6 gm	<i>Saindhava</i>	6 gm
<i>Guggulutikta Ghrita</i>	80 ml	<i>Guggulutikta Ghrita</i>	80 ml
<i>Gomutra Arka (Avapa dravya)</i>	20 ml	-	-
Total	486 ml	Total	486 ml

Table 4 Karma Basti (Modified Schedule)

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Morning		PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT					
		Ksa	Ksa	Ksa	Ksa	Ksa	Ksa	Ksi	Ksi	Ksi	Ksi	Ksi	Ksi					
Evening	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A

PT Ksa- *Panchatikta Kshar Basti*, PT Ksi- *Panchatikta Ksheer Basti*, A-*Anuvasana Basti*

Table 5 Grading of Subjective Parameters

S. No.	Symptom	Criteria	Grade	S. No.	Symptom	Criteria	Grade
1.	Pain	No pain while walking	0	4.	Radiating Pain	Pain never radiates	0
		Mild pain while walking	1			Occasionally radiating	1
		Moderate pain while walking	2			Mostly radiating	2
		Severe pain while walking	3			Radiating all the time	3
2.	Stiffness	No stiffness	0	5.	Gait	Unchanged	0
		Stiffness for 10-30 min	1			Occasionally changed	1
		Stiffness for 30-60 min	2			Walk with support	2
		Stiffness more than 1 hr.	3			Unable to walk	3
3.	Movements of Joints	Normal	0	6.	Tenderness	No tenderness	0
		Mildly restricted	1			Mild tenderness to palpate	1
		Moderately restricted	2			Mild tenderness with grimace and flinch to moderate palpation	2
		Severely restricted	3			Severe tenderness with withdrawal	3

Considering the history and examination of the patient, treatment was planned with a *Chikitsa karma* (treatment plan).

• *Koshtha Shudhhi* with *Gandhrvahastadi Tail* was done a day prior to *Basti karma* for quick removal of faecal materials and better assimilation of the *Basti dravyas* in intestine.

• Presentation of the patient with pain and stiffness in bilateral anterior hip to knee region showed the involvement of *Kaphavritta Vata dosha* associated with *Asthivaha Srotas* (disorders of musculoskeletal origin). Hence initially *Kshar Basti*¹⁰ containing of *Panchatikta Kwatha* (Decoction) & *Gomutra* as *Avapa dravya*, owing to its *Katu Rasa, Katu Vipaka, Ushna Virya,*



Laghu, Ruksha, Tikshna guna, to pacify Kapha Dosha and Sroto vishodhana and Vata anulomana, were administered¹¹.

Table 6 Assessment before, during and after treatment

Criteria	0 th day	18 th day	27 th day	36 th day
Pain	3	2	1	1
Stiffness	3	1	1	1
Movement of joints	3	2	1	1
Radiating Pain	2	1	1	0
Gait	3	2	2	1
Tenderness	2	1	1	1
Trendelenburg Sign	Positive	Negative	Negative	Negative
SLR Test	Rt. leg 10 ⁰ Lt. leg 15 ⁰	Rt. leg 20 ⁰ Lt. leg 30 ⁰	Rt. leg 45 ⁰ Lt. leg 50 ⁰	Rt. leg 55 ⁰ Lt. leg 60 ⁰

Table 7 Observation of hip joint movements

Sign & Symptoms	Before Treatment	After Treatment
1) Flexion of Hip Joint	No	Yes
2) Extension of Hip Joint	No	Yes
3) Abduction of Hip Joint	No	Yes
4) Adduction of Hip Joint	No	Yes
5) Medial Rotation	No	Yes
6) Lateral Rotation	No	Yes

• *Pachitka Kshira Basti* is a very effective treatment for AVN. The Decoction made in *Kshira* which having *Madhura* and *Snigdha* properties which help to control *Vata Dosha* and due to *Shukshma guna* of *Saindhava* it reaches up to micro channels of the body and help to open fresh blood supply to the bone tissue. In this *basti Tikta Dravyas* are having *Tikta Rasa*, *Ushna Virya*, *Madhura* and *Katu Vipaka* favours normal functioning of *Dhatvagni* (metabolic stage) facilitating increased nutrition to the *Asthi Dhatu*¹².

• In Ayurvedic literature the *Guggulutikta Ghrita* is being used for treatment of *Asthimajja kshaya*¹³ and also the combination explained in *Asthimajjagata vata*. This drug is mentioned by

Ashtanga Hridaya in the management of bone and associated disorders¹⁴.

• The *Kalka dravya* of *Ashwagandha* (*Withania somnifera* Linn.) possess its *balya*, *rasayana* and *dhatuposhaka* properties. It reduces inflammation of Joints¹⁵.

• The other *Kalka dravya* of *Shatapushpa* (*Anethum sowa/Anethum graviolense*) having quality of *Deepana*, *Pachana* and *Vata anulomana*, it helps to regulate *Apana vayu* and widely used in *basti*.

• *Manjishtha* (*Rubia cordifolia*) having *Ushna Guna*, *Madhura*, *Tikta*, *Kashaya Rasa* and possess qualities of anti-oxidant & anti-inflammatory, which reduces inflammation & pain in joints & maintain normal blood flow and favour smooth blood supply to the bone^{16,17}.



• *Kaishore Guggulu* is a drug of choice in *Vatarakta* in which obstruction in blood vessels is main pathology. So, here it is very useful for improvement of blood circulation¹⁸.

• *Agnitundi Vati* having, *Deepana*, *Pachana*, *Vatahara* and *Shoolaghna* in properties¹⁹.

• *Kupilu* (*Strychnos nux vomica* Linn.) is the major content of drug which is more effective in nervine disorders . It improves stimulatory function of *vata*²⁰ (raise level of physiological and nervous activity in the body).

Conservative management of AVN through *Ayurvedic* principles provides significant relief and improve quality of life.

CONCLUSION

AVN in the Present era is becoming a health status burden due to non-availability of treatment plan except surgery in modern medicine. Avascular Necrosis of head of femur was treated in term of *nidana* (aetiology), *dosha* (dysfunction), *dushya* (target cells) as well as the stages of progress of disease and further deterioration was also checked by using *Ayurvedic* formulation. The case study shows successful conservative management of the stage 2nd, AVN of head of femur. Such as *Basti* regimen can rejuvenate and further help in alleviating *Dhatukshaya* which is cause due to *Vata dosha* and may aid in neovascularisation. The therapy provided marked relief from pain, tenderness and stiffness and improvement in the gait and range of motion in hip joints. The result was encouraging. The gait of AVN did not worsen and was maintained as seen during the follow up. The therapy is cost effective.



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