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Ayurvedic Management of Avascular Necrosis (AVN) Stage IV: A Case Report

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Abstract **Case Report**

Avascular Necrosis (AVN) is a disorder characterized by necrotic changes in the bone tissue due to interruption of blood supply. AVN is classified into 4 stages. AVN I and II stages may benefit from conservative treatments while patients with Stage III or IV may require surgery such as joint replacement or bone grafting. This case report gives an insight into Ayurveda management of AVN stage IV in improving the quality of life (QOL) of the patient. A 34 years aged male patient came with presenting complaints of being unable to walk due to the pain at the bilateral hip joints for 4 years. The pain restricts him to initiate walking. The MRI finding was AVN of the bilateral heads of the femurs in ARCO Stage IV A. The condition is diagnosed as *Asthi-majjagata-vata*. It is managed with oral medicines, *abhyanga*, *svedana*, and *basti*. After the treatment, the patient can walk for 30 minutes and can sit for more than 1 hour without pain. The QOL of the patient is considerably increased on Harris hip score. This case report shows the importance of Ayurveda management even in the AVN stage IV to improve the QOL. More research in AVN stage IV management with Ayurveda is needed to arrive at a specific conclusion.

Keywords: Avascular necrosis (AVN), *Asthimajjagata-vata*, Ayurveda, Quality of life (QOL).

INTRODUCTION

Avascular Necrosis (AVN) is a disorder characterized by necrotic changes in the bone tissue due to interruption of blood supply (Icd.Codes, 2023). Epiphysis of long bones at weight-bearing joints is typically affected. The femoral head, knee, talus, and humeral head are the frequent location of AVN. The advanced stages of AVN such as stage IV is manageable with surgical intervention such as core decompression, bone grafting, or joint replacement. Results are often favourable in terms of decreased pain and improved functionality. However, in young individuals with AVN, a high rate of polyethylene wear and osteolysis has been documented (Clarke I *et al.*, 2007). In this scenario, it is important to discuss a case report of a young patient of AVN with conventional Ayurveda treatment.

CASE REPORT

Patient Information

A 35-year-old male patient who is neither diabetic nor hypertensive with presenting complaints of being unable to walk due to the pain at the bilateral hip joints since 4 years. The pain restricts him to initiate walking. The pain radiates to both thighs and knee joints. Low back pain is also associated with these symptoms.

The patient noticed reddish patches all over his body six years ago, which was diagnosed as idiopathic thrombocytopenia and treated with glucocorticoid (GC) for 6 months. Two years later, he developed low back ache, which worsened and concentrated on bilateral hip joint along with stiffness. After diagnosing AVN, he was treated with bisphosphonate, analgesics, Calcium

supplements, and vitamin supplements, but the condition worsened progressively.

Clinical Findings

He had limp on the gait. The bilateral hip joint was tender on palpation. Muscle wasting was absent. The hip was slightly towards the right side. The detailed examination is collected according to the Harris hip score. The assessed information is represented in Table 1. The calculated Harrison hip score was 23.80 %.

Table 1: Harris hip score assessment – Before treatment

Sl. No.	Criteria	Result	Score (%)
Section 1			
1.	Pain	Marked pain, serious limitation of activities	10
2.	Support	Two Canes/Walking sticks	3
3.	Distance walked	Indoors only	2
4.	Limp	Severe or unable to walk	5
5.	Activities-shoes, socks	Unable to fit or tie	2
6.	Stairs	Unable to do stairs	0
7.	Public transportation	Unable to use public transportation (bus)	0
8.	Sitting	Unable to sit comfortably on any chair	0
Section 2 Yes/No			
9.	Less than 30 degrees of fixed flexion	Yes	0
10.	Less than 10 degrees of fixed adduction	Yes	
11.	Less than 10 degrees of fixed int rotation in extension	Yes	
12.	Limb length discrepancy less than 3.2 cm (1.5 inches)	No	
Section 3 Range of movements			
13.	Total degrees of Flexion	8 > 16	1.2
14.	Total degrees of Abduction	5>10	0.4
15.	Total degrees of Ext Rotation	0>5	0.1
16.	Total degrees of Adduction	5>10	0.1
Total Score = 23.80			

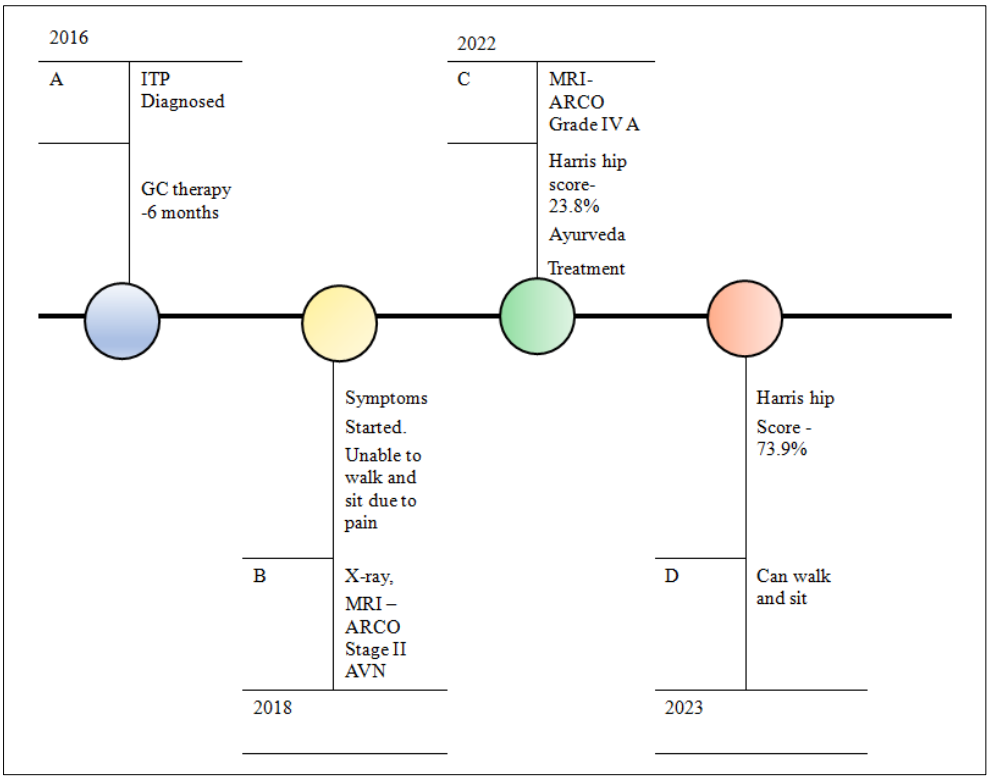

Figure 1: Timeline

Diagnosis Assessment

The blood investigation result was normal except for the triglyceride value which was 437.8 mg/dl. The flattening and sclerotic appearance of the femoral head is noted on X- ray. The first MRI finding was suggestive AVN of bilateral heads of femurs with the geographical area of altered signal density noted. The diagnosis was ARCO stage II AVN. In the second MRI after four years, the diagnosis was ARCO stage IV A AVN.

Ayurveda Diagnosis

The symptoms explained for *asthi-majjagata vata* were present in the patient. The assessment is shown in Table 2. Hence the disease is diagnosed as *asthi-majja gata vata*.

Table 2: *Asthimajjagata vata* assessment

Sl. No.	Criteria (Agnivesha, 2014)	Status
1.	*Bhedoasthiparvanam* (breaking type of pain in bones)	Present
2.	*Sandhishoola* (joint pain)	Present
3.	*Mamsakshaya* (muscular wasting)	Absent
4	*Balakshaya* (weakness)	Present
5.	*Sandhi Shaithilayam* (laxity of joints)	Present
6.	*Aswapanasantatruka* (sleeplessness due to continuous pain)	Present
7.	*Shiryantiva cha Asthinidurbalani* (destruction of bony tissue causing generalized weakness)	Present

Therapeutic Intervention

Therapeutic interventions are shown in Table 3, and Panchakarma procedures, shown in Table 4. *Anuvasana basti* and *dasamula yapana basti* according to the *kala basti* protocol was the main procedure.

Table 3: Internal medicines given

Sl. no.	Internal medicines	Dose	Rationale
1.	*Dashamula Kashaya*	50 ml bd	*Vata* pacifying
2.	*Mahasneha*	5 ml od	*Vata* pacifying, nourishes *asthi* and *majja*
3.	*Lakshadi guggulu*	250 mg bd	Nourishes *asthi* and *majja*

Table 4: The panchakarma procedures & Discharge medicines

Sl. No.	Day	Procedure	Medicine	Dose	Period
1.	1-16 th day	*Sarvanga Abhyanga*	*Dasamula taila*	QS	16 days
2.	1-16th day	*Sarvanga Swedana*	*Dasamula kwatha*	QS	16 days
3.	3rd & 4th day	*Anuvasana basti*	*Sahacharadi taila*	80 ml	2 days
4.	5th -16th day	*Yapana basti*	*Dasamuladya*	600 ml	12 days
5.	17th & 18th day	*Anuvasana basti*	*Sahacharadi taila*	80 ml	2 days
6.	19th day	Discharged	*Mahasneha* 25 ml od 2 months.		

Follow Up & Outcomes

The Harris hip score calculated was 73.90 %, shown in Table 5. After the first day of *dasamuladya yapana basti* (Agnivesha, 2014) the patient expressed a slight increase in pain at the right hip joint. But it subsided without taking any specific pain medication. The patient came for follow-up after 2 months. The final assessment of Harris hip score was same as that of the previous assessment on discharge. After the treatment, the S. triglyceride came to the normal level.

Table 5: Assessment of Harris hip score (After treatment & follow-up)

Sl. No.	Criteria	Status	Score (%)
Section 1			
1.	Pain	Mild pain, no effect on average activities, rarely moderate pain with unusual activity, may take aspirin	30
2.	Support	None	11
3.	Distance walked	Six blocks (30 minutes)	8
4.	Limp	Slight	8
5.	Activities-shoes, socks	With ease	4
6.	Stairs	Normally using a railing	2
7.	Public transportation	Not possible	0
8.	Sitting	Unable to use public transportation (bus)	3
Section 2			
9.	Less than 30 degrees of fixed flexion	No	

Sl. No.	Criteria	Status	Score (%)
10.	Less than 10 degrees of fixed adduction	No	4
11.	Less than 10 degrees of fixed int rotation in extension	No	
12.	Limb length discrepancy less than 3.2 cm (1.5 inches)	Yes	
Section 3 Range of movements			
13.	Total degrees of Flexion	55 > 65	2.85
14.	Total degrees of Abduction	10 > 15	0.6
15.	Total degrees of Ext Rotation	10 > 15	0.3
16.	Total degrees of Adduction	10 > 15	0.15
Total score		73.9	

DISCUSSION

In this patient the etiology of the disease is glucocorticoid (GC) steroid therapy. The glucocorticoid is one of the most important causes of AVN (Chan K. L *et al.*, 2012). The GC can increase adipogenesis and endothelial cell apoptosis. The investigation shows a rise in triglycerides and serum cholesterol. It causes reduced blood flow to the femoral head. GC causes the apoptosis of osteoblasts and osteocytes however it prolongs the life span of osteoclasts. It will lead to the mechanosensory disruption of the osteocyte network which will lead to necrosis of bone (Kerachian, M. A *et al.*, GC therapy causes alteration of metabolism that may lead to the formation of unmetabolized ama. The increased lipid parameters may be a sign of ama at the *medodhatu* level. The *ama* causes the blockage of *asthivaha* and *majjavaha srotas* which leads into vitiation of *vata*. It prevents the proper nourishment of *asthi* and *majja dhatu*.

The treatment of *asthi-majjagata-vata* is external and internal use of oils. The *Mahasneha* is used internally from the initial part of the treatment since the *desa* is *vata* predominant *jangala*. *Vata* pacifying *dasamoola taila* is used externally for *abhyanga*. The *abhyanga* is done all over the body excluding the high-pressure massage on the site of lesion. The *nadisveda* with *dasamoola kwatha* removes the obstruction and increases the circulation all over the body. The *snehana* and *swedana* causes the movement of *dosha* from *sakha* to *koshta*, so they also used as the pre-procedure of *kala basti* treatment. The *sneha* and *sweda* pacify *vata*, provide strength, relieves stiffness and pain. The *anuvasana basti* is given with *vata* pacifying *sahacharadi taila*. The *yapana basti* can increase the longevity by nourishing the dhatu. The *dasamoola yapana basti* can pacify the *vata* located in the thigh.

CONCLUSION

AVN can cause complete damage to the affected joint. Early detection and prevention are important in AVN. The risk factors should be avoided. Ayurveda has an important role to increase the QOL of the AVN patient even in the higher stage of AVN. More research in AVN stage IV management with Ayurveda is needed to arrive at a specific conclusion.

REFERENCES

- (N.d.). Icd.Codes. Retrieved April 9, 2023, from https://icd.codes/icd10cm/M8705
- Agnivesha. (2014). Charaka Samhita.Y T Acharya(Ed), Chakrapanidatta (comm), Sidhisthana: Uttarabasti siddhi (12/11/33. pp. 617). Varanasi, India: Chaukhamba Surbharati Prakashan.
- Agnivesha.(2014). Charaka Samhita.Y T Acharya(Ed), Chakrapanidatta (comm), Chikitsasthana:Vatavyadhichikitsa, (28/33. pp. 617). Varanasi, India: Chaukhamba Surbharati Prakashan.
- Chan, K. L., & Mok, C. C. (2012). Glucocorticoid-induced avascular bone necrosis: Diagnosis and management. *The Open Orthopaedics Journal*, 6(1), 449–457. https://doi.org/10.2174/1874325001206010449
- Clarke, I., Green, D., Williams, P., Pezzotti, G., & Donaldson, T. (2007). Wear performance of 36mm biolox® forte/delta hip combinations compared in simulated 'severe' micro-separation test mode. In *Ceramics in Orthopaedics* (pp. 33–43). Steinkopff.
- Kerachian, M. A., Séguin, C., & Harvey, E. J. (2009). Glucocorticoids in osteonecrosis of the femoral head: a new understanding of the mechanisms of action. *The Journal of Steroid Biochemistry and Molecular Biology*, 114(3–5), 121–128. https://doi.org/10.1016/j.jsbmb.2009.02.007