

**FUNCTIONAL OUTCOMES OF GANDHA TAILAM ALONG WITH DASHA-MOOLADISIDDHA MAJJA BASTI IN POSTPARTUM HUMERAL AND FEMORAL HEAD OF AVASCULAR NECROSIS: A CASE REPORT**

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<https://doi.org/10.46607/iamj4010062022>

(Published Online: June 2022)

Open Access

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Article Received: 30/05/2022 - Peer Reviewed: 10/06/2022 - Accepted for Publication: 14/06/2022

**ABSTRACT**

Avascular necrosis (osteonecrosis) is a degenerative bone condition characterized by the death of cellular components of the bone secondary to an interruption of the subchondral blood supply. About 16000 people develop osteonecrosis annually in India. AVN of the humeral head is an uncommon condition. In Ayurveda, through clinical representation AVN can be correlated with *Asthimajjagata vata*. The present case report is subjected to assess the efficacy of Ayurvedic protocol in the management of the humeral and femoral head of AVN. A 24-year-old female patient presented with bilateral groin pain associated with limitation of movements of hip joints followed by pain in right shoulder joint since 2 years. After reviewing all investigations including MRI, this case was diagnosed as postpartum AVN. The patient was administrated with *Gandha Tailam* (10ml in capsule, twice a day) along with *Dashmoolasiddha Majja Basti* (100ml) for 30 days. The follow-up was done for 2 months. After the therapeutic intervention, significant improvements were noticed such as a reduction in the VAS scale and improvement in movements of hip joints (Harris Hip Score). The present case study documents that palliative remedy along with *Basti* therapy can be effective in arresting the progression of osteonecrosis and improving the quality of life of the patient.

Keywords: *Asthimajjagata Vata, Avascular Necrosis, Dashmoolasiddha Majja Basti, Gandha Tailam.*

INTRODUCTION

Avascular necrosis (AVN) is a condition in which a circumscribed area of bone becomes necrotic as a consequence of loss of its blood supply^[1]. It typically affects the epiphysis of long bones at weight-bearing joints. AVN is also referred to as osteonecrosis, aseptic necrosis, ischemic bone necrosis, and death of bone tissue^[2]. In AVN most commonly femoral head of the hip joint is affected but sometimes uncommonly humeral head is involved as well. The upper arm, knee, and ankle joints are also affected in the case of AVN. The true etiology of AVN is unknown but there are multiple precipitating factors present such as glucocorticoid drugs, alcohol excess, and any trauma, etc. According to WHO, it is estimated that 2500-3300 cases of AVN occur each year, out of these 34.7% cases were due to corticosteroid use, 21.8% to alcohol abuse, and 37.1% to the idiopathic mechanism. In India, about 16000 new cases of AVN are reported every year. The mean age of onset is the 5th decade with a male and female ratio of 8:1^[3]. In Ayurveda, there is no direct description of AVN in classical texts. Here in AVN, it seems that the predominant dosha and dushya are *Vata (air humor)* & *Asthi (bones)* respectively, in the chronic stage there is *tridosha* involvement occurs. On the basis of clinical presentation, AVN can be correlated with *Asthikshaya*, *Asthimaj-jagata vata*, and *Asthibhagna*, out of these *Asthimaj-jagata* is more similar to AVN by its pathogenesis and symptoms. The sign and symptoms of *Asthimaj-jagata vata* are *Bhedoasthiparvanam (breaking type of pain in bones)*, *Sandhishoola (Joint pain)*, *Mamsakshaya (muscular wasting)*, *Balakshaya (weakness)*, *Sandhishaithilyam (flaxity of joints)*, *Aswapna Satatruka (sleeplessness due to continuous pain)*, *Shiryantiva cha Asthi-dourbalyani (destruction of bony tissue causing generalized weakness)*^[4]. The modern modalities of AVN are not satisfactory and also have an adverse effect on long-term use therefore this case report documents the better ayurvedic protocol for AVN. Gandha tailam along with Dashamooladi majja basti classically can be used for counteracting the symptoms of *Asthimaj-jagata (AVN)* and improve the quality of life of the patient.

AIM AND OBJECTIVES

1. To assess the role of Gandha Tailam along with *Dashamooladisiddha majja basti* in the management of the humeral and femoral head of AVN.
2. To find out an effective Ayurvedic protocol for AVN.

MATERIAL AND METHODS

Selection and source of patient

For this study, the patient was registered from OPD of the Kayachikitsa department of Pt. Khushilal Sharma Govt. Ayurveda Hospital Bhopal, M.P.

Plan of study

The patient taking allopathy 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 and follow-up was done for 2 months

CASE STUDY

A 24-year old female patient was diagnosed as a case of AVN dated 25/01/2021 with OPD No. 20210000612 and IPD No. 202181 at Pt. Khushilal Sharma Govt. Ayurveda Hospital Bhopal presented with complaints of pricking type of pain in the bilateral hip joint, restricted movements of hip joints Since 2 years. The nature of pain was continuous while walking or any other activity. Eventually, her condition worsened, and she needed support for walking & other daily routine work. She was advised to undergo surgery, but she refused and opted for Ayurvedic treatment.

History of present illness

The patient was normal two years back then gradually pain started in the bilateral knee and hip joint with restricted movements and also found difficulty in walking, sitting, and squatting. After having initial medication (under the supervision of MBBS physician) she got temporary relief and symptoms were under control but later she had got the same episode with pain in the right shoulder joint, after undergoing history taking and investigations (x-ray, MRI, etc.) her

case was diagnosed as post-partum humeral and femoral head of AVN.

History of past illness

❖ Medical history- The patient had post-partum haemorrhage with still birth (IUFD) and is on long-term allpathic medications which includes analgesics, steroids, antibiotics, and multivitamins.

❖ Surgical history- no
❖ Psychiatric history- no

Personal history

❖ Addiction- no, Occupation- house wife, Appetite-poor, Sleep- disturbed (due to pain), Bowel- irregular, Micturition- normal, Allergy- no allergy.

Table 1: Aatura Bala pramana pariksha (examination of the strength of the patient)

1.	Prakriti (body constitution)	Kapha-pittaj
2.	Sara (quality of tissue)	Madhyam(average)
3.	Samhanana(body built)	Madhyam(average)
4.	Pramana(anthropometry)	Wt. 49 kg, Ht. 5’
5.	Satmya(adaptability)	Madhyam(average)
6.	Satva (mental strength)	Madhyam(average)
7.	Aahaarashakti (food intake and digestion capacity)	Abhyaharan– average Jarana – 7-8 hour
8.	Vyayamashakti (exercise capacity)	Avara (poor)
9.	Vaya (age)	Yuvavastha (adult)
10.	Desha (habitat)	Sadharana

Table 2: Ashtavidha pariksha

1.	Nadi (pulse)	76 breath/min.
2.	Mutra (urine)	Samyaka
3.	Mala (stool)	Hard with irregularity
4.	Jivha(tongue)	Samyaka
5.	Shabda(sound)	Samyaka
6.	Sparsha (touch)	Samyaka
7.	Drik (eye)	Spashta
8.	Aakriti(built)	Sthoola

Investigations

- ✚ MRI Scan (11/01/2021) revealed Stage 3 Avascular necrosis of bilateral femoral head.
- ✚ X-Ray Right Shoulder AP View (27/02/2021) – The right humeral head shows flattening with loss of its normal rounded contour, AVN. It is shown in figure no. 1 and 2.

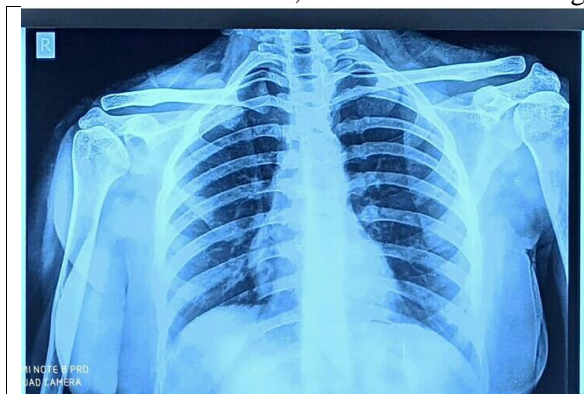


Figure no. 1

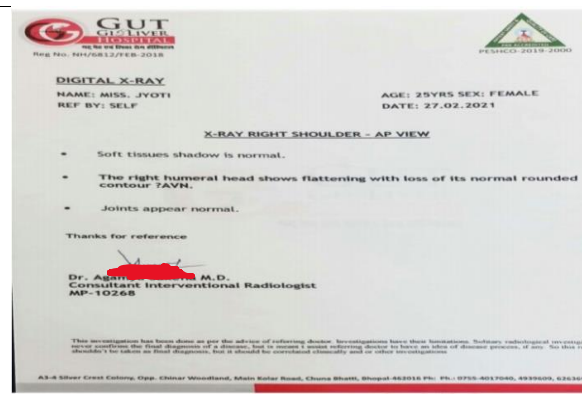


Figure no.2

Table 3: Treatment Regimen

This diagnosed case of Avascular necrosis of the femoral head was admitted to the female general ward of Pt. K.L.S. Govt. Ayurveda Hospital, Bhopal with IPD no. 202181 and undergo the following procedures:

Treatment	Dosage form	Dose	Duration	Anupana
Gandha tailam [5]	Capsule	10 ml BD	30 Days	Milk
Dashamooladi Majja Basti [6]	As enema	100 ml	21 Days	-

Table 4: Dashamooladi Majja Basti Schedule

Day	Basti	Dose	Time of basti Adanakala	Time of basti Pratyagamana kala	Retention time	Complication if any
1.	M	100ml	11:00 am	12:30 pm	1 hr. 30 min.	-
2.	M	100ml	10:00 am	12:50 pm	2 hr. 50 min.	-
3.	M	100ml	11:30 am	1:00 pm	1 hr. 30 min.	-
4.	M	100ml	10:15 am	2:00 pm	2 hr. 15 min.	-
5.	M	100ml	11:50 am	3:30 pm	3 hr. 40 min.	-
6.	M	100ml	10:20 am	4: 35 pm	6 hr. 55 min.	-
7.	M	100ml	9:40 am	3: 30 pm	6 hr. 10 min.	-
8.	M	100ml	10:45 am	5: 20 pm	6 hr. 35 min.	-
9.	M	100ml	11:35 am	6:30 pm	7 hr. 5 min.	-
-	Rest	-	-	-	-	-
10.	M	100ml	10:40 am	6:45 pm	8 hr. 25 min.	-
11.	M	100ml	9:50 am	7:30 pm	9 hr. 40 min.	-
12.	M	100ml	12:00 pm	8:30 pm	8 hr. 30 min.	-
13.	M	100ml	11:50 am	9:30 pm	9 hr. 40 min.	-
14.	M	100ml	12:45 pm	10:00 pm	10 hr. 45 min.	-
15.	M	100ml	9:50 am	8:00 pm	11 hr. 50 min.	-
16.	M	100ml	01:50 pm	6:00 am	16 hr.10 min.	-
17.	M	100ml	1:50 pm	4:30 am	15 hr.20 min.	-
18.	M	100ml	2:10 pm	6:30 am	16 hr. 40 min.	-
19.	M	100ml	1:20 pm	5:00 am	16 hr. 20 min.	-
20.	M	100ml	2:30 pm	6:15 am	16 hr. 45 min.	-
21.	M	100ml	11:30 am	5:50 am	18 hr. 20 min.	-

OBSERVATIONS

Pain VAS score was used to assess pain in bilateral upper and lower limbs which is explained in table no.5 and it showed a significant reduction in pain scale. Harris Hip Score also showed significant im-

provement in hip joints after treatment which is described in table no.6. Improvement in flexion, extension, abduction, adduction, medial and lateral rotation of hip joints are also shown in table no.7.

Table 5: Showing Pain VAS score [7]

Parameter	Criteria	BT				AT			
		Rt. Leg	Rt. Arm	Lt. leg	Lt. arm	Rt. leg	Rt. arm	Lt. leg	Lt. arm
Pain (VAS scale)	(0) No pain	9	7	5	0	3	1	0	0
	(1-3) mild pain								
	(4-6) moderate pain								
	(7-10) severe pain								

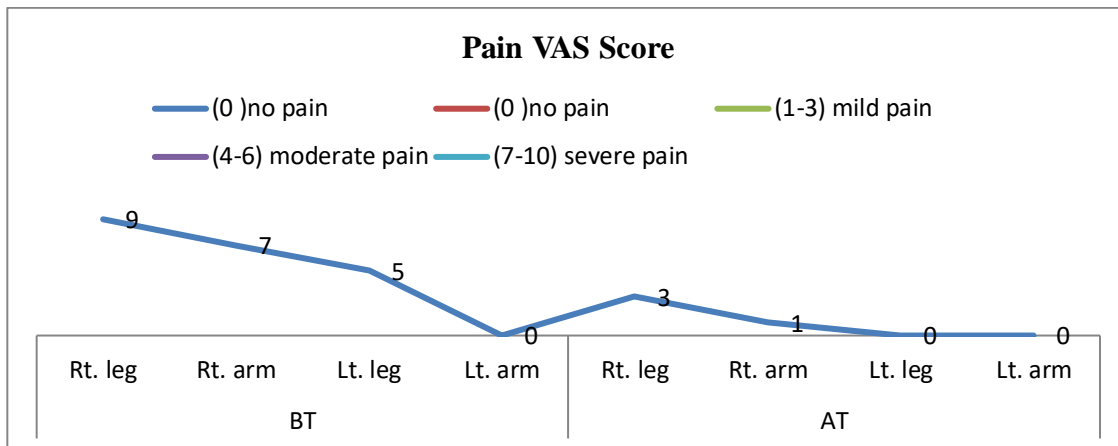


Table 6: Showing Harris Hip Score ^[8]

S.No.	Criteria	Assessment	Right leg		Left leg	
			BT	AT	BT	AT
1.	Pain	<ul style="list-style-type: none"> • None or ignores it (44) • Slight, occasional, no compromise in activities (40) • Mild pain, no effect on average activities, rarely moderate pain with unusual activity; may take aspirin (30) • Moderate pain, tolerable but makes a concession to pain. Some limitation of ordinary activity or work. May require occasional pain medication stronger than aspirin (20) • Marked pain, serious limitation of activities (10) • Disabled, crippled, pain in bed, bedridden (0) 	20	40	10	30
2.	Limp	<ul style="list-style-type: none"> ➤ None (11) ➤ Slight (8) ➤ Moderate (5) ➤ Severe (0) 	8	11	5	8
3.	Support	<ul style="list-style-type: none"> ➤ None (11) ➤ Cane for long walks (7) ➤ Cane most of the time (5) ➤ One crutch (3) ➤ Two canes (2) ➤ Two crutches or not able to walk (0) 	5	11	5	11
4.	Distanced walk	<ul style="list-style-type: none"> ➤ Unlimited (11) ➤ Six blocks (8) ➤ Two or three blocks (5) ➤ Indoors only (2) ➤ Bed and chair only (0) 	2	5	5	8
5.	Sitting	<ul style="list-style-type: none"> ➤ Comfortably in an ordinary chair for one hour (5) ➤ On a highchair for 30 minutes (3) ➤ Unable to sit comfortably in any chair (0) 	3	5	3	5
6.	Enter public transport	<ul style="list-style-type: none"> ➤ Yes (1) ➤ No (0) 	0	0	0	0
7.	Stairs	<ul style="list-style-type: none"> ➤ Normally without using a railing (4) ➤ Normally using a railing (2) ➤ In any manner (1) ➤ Unable to do stairs (0) 	2	4	2	4

8.	Put on shoes and socks	<ul style="list-style-type: none"> ➤ With ease (4) ➤ With difficulty (2) ➤ Unable (0) 	0	2	2	4
9.	Absence of deformity (all yes=4; less than 4=0)	<ul style="list-style-type: none"> ➤ Less than 30° fixed flexion contractures ➤ Less than 10° fixed abductions ➤ Less than 10° fixed internal rotation in extension ➤ Limb length discrepancy of less than 3.2cm 	0	0	0	0
10.	Range of motion	<ul style="list-style-type: none"> ➤ Flexion (140°) ➤ Abduction (40°) ➤ Adduction (40°) ➤ External rotation (40°) ➤ External rotation (40°) 	3 0 0 0 0	5 0 0 0 0	2 0 0 0 0	5 0 0 0 0
11.	Range of motion scale	<ul style="list-style-type: none"> ➤ 211°-300° (5) ➤ 161°-210° (4) ➤ 101°-160° (3) ➤ 61°-100° (2) ➤ 31°-60° (1) ➤ 0°-30° (0) 	3	5	2	4
	Total	100	46 (poor)	88 (good)	36 (poor)	79 (fair)

Scoring of harries hip score

< 70 poor condition of hip, 70-79 fair condition of hip, 80-89 good condition of the hip

Table 7: Showing pre and post-treatment changes in the movement of hip joints

Sr. No.	Hip Joint Movements	BT		AT		Normal Range
		Rt.	Lt.	Rt.	Lt.	
1.	Flexion of Hip Joint	107°	105°	115°	115°	110° – 120°
2.	Extension of Hip Joint	5°	5°	10°	10°	10° – 15°
3.	Abduction of Hip Joint	20°	15°	30°	25°	30° – 50°
4.	Adduction of Hip Joint	10°	10°	20°	25°	20° – 30°
5.	Medial Rotation	15°	20°	20°	25°	30° – 40°
6.	Lateral Rotation	20°	25°	30°	35°	40° – 60°

DISCUSSION

According to the Ayurvedic point of view, there is no direct correlation between avascular necrosis but on the basis of clinical presentation, there is blood (*rak-tadhatu*) supply to the femoral head is decreased due to *Margavrodha* (occlusion of blood vessels) or *ab-highata* (trauma) and ultimately leads to an aggravation of *vata-dosha* and increase in *vata-dosha* finally resulting into loss of *Asthidhatu*. In the advance stage, due to continuous imbalance of *vata-dosha* (due to necrosis), it is further responsible for vitiation of *pitta* and *kapha-dosha* also. So here *basti* chikitsa is consid

ered to be the half the treatment for Vata-dominated diseases by Acharyas^[9]. Basti is considered as Param Aushadh for vata *dosha*^[10] and is also beneficial in the imbalance of *pitta*, *kapha*, and *Raktadosha*. *Asthimajjagata vata*, in AVN patients *Dashamooladi Siddhamajja basti* (processed bone marrow enema) was planned as it is indicated as a treatment modality in *Asthimajjagata vata* by Acharya Charaka^[11]. In which *majja* is processed with *Dashamoola kwath* and milk. Ingredients of *Dashamooladi Sidhha Majja Basti–Bilva root (Aegle marmelos)*, *Agnimantha root (Premna integrifolia)*, *Shyonaka root (Oroxylum indicum)*, *Patala root (Stereospermum suaveolens)*, *Kashmari root (Gmelina arborea)*, *Bruhati root (So-*

lanumindicum), Kantakari root (*Solanum xanthocarpum*), Prushnaparnni root (*Uraria picta*), etc. Basti which substances like milk, ghee, and tikta rasa ingredients are especially best for the Asthi Parushya Janya Vikara^[12]. The ingredients of these basti include Madhura-tikta rasa, Katu Vipaka, Ushna Virya, etc. They all combinedly enhance the properties of majja and helps in balancing the aggravated vata dosha and favors normal functioning of dhatvagni facilitating increased nutrition to the asthi dhatu also tikta rasa has srotoshodhan properties which help to clear the Srotosanga. Due to snigdha, pichhila, guru, Asthidhatu brimhana (poshana) properties nourishes majjadhatu means nourishment of Asthidhatu. When both dhatu get nourished ultimately vata shamana occurs. So according to rasa and vipaka, we can consider that this basti reaches upto asthi and Majjavaha srotas increases majjadhatu. The majja nourishes asthi by means of its purana (filling) and snehan properties and pacifies vitiated vata in asthi. Ushnaveerya cures Vata janya shoola. Hence synergetic action of dashamoolasiddha majja basti will act as vata shamaka which is beneficial in asthimajjagata vata. **Gandha Tailam** is a unique formulation mentioned by acharya Sushruta and Vagbhatta in the contest of bhagna. Gandha taila is one such Sneha that can be administered orally and is said to be good to bestow sturdiness to the bone^[13]. Gandha taila possess properties like Vatahara, Brahamana, Asthidhatu vardhaka. The main ingredients of gandha tailam are *Sesamum indicum*, cow milk, *Madhuka (Glycyrrhiza glabra)*, *Nalada (Vertiveria zizanioides)*, *Lohitayashitika (Robia cordifolia)*, *Nakha, Mishi (Anethum sowa)*, *Plava (Cyperu srotundus)*, *Kushtha (Saussurea lappa)*, *Balatraya (Bala- Sida cordifolia)*, *Atibala- Abutilon indicum*, *Mahabala-Grewia populifolia*, *Aguru (Aquilaria agallocha)*, *Kumkum (Crocus sativus)*, *Chandana(Santalum album)*, *Sariva(Hemidesmus indicus)*, *Sarala(Pinus roxburghii)*, *Sarjarasa (Vaterica indica)*, *Devdaru(cedrus deodara)*, *Padmakadigana*, *Eladigana*, *Sheileya(permelia perlata)*, *Rasna(Plunchea lanceolata)*, *Anshumati(Desmodium gangeticum)*, *Kaseruka(Scirpus grossus)*, *Kalanusari(Polyalthia longifolia)*, *Nata(Lobelia*

nicotianaefolia), *Patra(Cinnamomum tamala)*, *Rodhra(Symolocos recemosa)*, *Ksheerashukla-Kakoli(Roscoea purpurea)*, *Durva(Cynodon dactylon)*, *Pearl oyster*, etc. Gandha tailam acts primarily on the Asthidhatu. Asthidhatu is the bone tissue. Bones constitute the basic structure and skeleton on which the body is constructed and upheld. It provides shape and support to the body as a whole. Asthikshaya can be paralleled with osteonecrosis. According to the principle of ashraya-ashrayee bhava, asthi dhatu is the seat of vata dosha. Asthi and Vata are inversely proportional to each other regarding vridhhi and kshaya. Vridhha vata leads to kshaya of asthi^[14]. The asthi dhatu constituents of Prithvi and vayu mahabhuta are in dominance^[15]. Asthi dhatu is considered as ashraya for vata because of its kharatva(hardness) and Sushira(porous) because of its Akash mahabhuta. So, vata vridhhi leads to sushirata in asthi dhatu causing asthikshaya which describes porous bones of osteonecrosis. A deficiency of Asthidhatu can cause osteopenia, osteoporosis, osteonecrosis, degradation of the bone, pain, roughness in bones and joints, etc. Regular intake of Gandha tailam can prevent all these symptoms and also treat them. It provides holistic nourishment to the Asthidhatu for remodeling and strengthening all its components. The present case study shows that 'Dashamooladi majja basti and Gandha tailam' work effectively in the management of asthimajjagata vata. So, Dashamooladi majja basti can nourish the bone tissues, blood, and bone marrow of the femoral and humeral head and also improved their consistency. Our study revealed that Gandha tailam is specific to building back the eroded bones, joints, and ligaments. It also soothes down the nerve irritation and hence relieves pain associated with arthritis, osteonecrosis, osteoporosis, fractured bones, weak bones, joint dislocation such as shoulder dislocation, ligament injuries, etc.

CONCLUSION

The presented study has also thrown light on understanding the probable action of the interventional drug 'Gandhatailam' and 'Dashamoolasiddhamajjabasti' over the pathophysiology of AVN, Since the formulation contains herbal constituents, which are known to

have minimum toxic effects, on long-term use, the outcome would be better and safer than current mode of modern treatment. According to Ayurveda, any drug that nourishes Asthidhatu should also nourish *Rasa dhatu*(plasma), *Raktadhatu* (blood), *Mamsadhatu*(muscles), and *Medadhatu* (adipose or fat tissues). Hence *Gandha tailam* is also very effective in treating deficiencies in plasma, blood, muscles, and fat tissues. It can relieve muscle pain and sprain, injuries, and much more. The enema therapy in the current case provided marked relief from pain, tenderness, general debility, and marked improvement in the gait. The grade of AVN did not worsen and was maintained well. This was a single case study to evaluate the efficacy of *gandha tailam* and *dashamooladisiddha majja basti* in the management of AVN and the results produced were encouraging enough on the subjective and objective parameters but also provided the prevention of disease progression.

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Source of Support: Nil

Conflict of Interest: None Declared

How to cite this URL: Archana Verma et al: Functional Outcomes of Gandha Tailam Along with Dashamooladisiddha Majja Basti In Postpartum Humeral And Femoral Head Of Avascular Necrosis: A Case Report International Ayurvedic Medical Journal {online} 2022 {cited June 2022} Available from:

http://www.iamj.in/posts/images/upload/1617_1624.pdf