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Ayurvedic Management of Asthi Majjagata Vata w.s.r. to Avascular Necrosis (AVN): A Case Series

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ABSTRACT:

Asthi Majjagata Vata, a *Vata*-predominant *Vyadhi* described in the *Brihattrayi*, correlates clinically with Avascular Necrosis (AVN) of the femoral head, a progressively disabling condition affecting a largely young and active population. Since Basti is regarded as *Ardhachikitsa* for *Vata Vyadhi*, a *Basti*-predominant Panchakarma protocol was evaluated as a supportive, non-surgical approach for improving pain, mobility and hip function in early-stage disease. The objective of this study was to study the clinical presentation of *Asthi Majjagata Vata* correlated with AVN of the femoral head/hip joint and to evaluate the efficacy of a standardised Panchakarma-based *Basti* protocol using VAS, SLRT, LFM/LEM and Harris Hip Score (HHS) as outcome measures. This prospective, single-arm, observational case series included ten consecutively presenting patients (age 18–60 years) with clinico-radiologically confirmed Grade I–II AVN of the hip/femoral head. The patients were managed with a staged protocol of *Sarvanga Snehana-Swedana*, an initial *Shodhana Yoga Basti (Niruha Dashamoola-Erandamoola/Anuvasana Sahachara Taila)* followed by *Mustadi Yapana Basti* for 14 days, with individualised adjunct procedures. Outcome measures were recorded before and after treatment. Across all ten cases, Mean VAS scores decreased from 7.3 to 4.6, indicating a mean reduction of 2.7 points. SLRT measurements generally improved, although some patients retained pain or limitation. LFM/LEM improved in seven patients. Mean HHS increased from 62.1 to 81.04, demonstrating a mean gain of 17.94 points. The *Basti* predominant Panchakarma protocol was associated with improved pain and hip function in this case series. These preliminary findings warrant controlled studies with standardised radiological staging and longer follow-up.

KEYWORDS: *Ardhachikitsa, Asthi Majjagata Vata*, Avascular Necrosis, *Basti*, Harris Hip Score, *Panchakarma.*

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INTRODUCTION

Asthi-Majjagata Vata is a *Vata*-predominant disorder described under *Vatavyadhis* in Ayurvedic classics. Its pathogenesis involves *Dhatukshaya* or *Margavarodha*. Aggravated *Vata* localising in *Asthi* and *Majja Dhatu* produces this condition. Its *Ruksha, Laghu, Khara, Vishada* and *Chala Guna* oppose the stability, unctuousness and structural integrity of these tissues.[1]

Asthi and *Majja* are sequentially related through *Dhatu-Poshana*. Their depletion creates *Riktata*, facilitating abnormal *Vata* localisation and movement. Clinical manifestations include *Asthi-Bheda*, *Sandhi-Shoola*, *Stambha*, *Sandhi-Shaithilya*, muscular weakness and progressive joint dysfunction.[2] Based on these similarities, avascular necrosis of the femoral head may be interpreted within the Ayurvedic framework of *Asthi-Majjagata Vata.*

Avascular necrosis, or osteonecrosis of the femoral head (ONFH), is a progressive condition caused by impaired blood supply to the subchondral bone. Failed bone repair and remodelling weaken subchondral trabeculae, resulting in microfractures, collapse, femoral-head flattening and secondary hip osteoarthritis.[3]

ONFH commonly affects adults in their third to fifth decades of life and most common in male. Causes include trauma, such as femoral-neck fracture and hip dislocation, and non-traumatic factors, including prolonged corticosteroid use, excessive alcohol consumption and sickle-cell disease. Cases without an identifiable cause are termed idiopathic.[4]

Its multifactorial pathogenesis involves vascular impairment, altered bone remodelling and structural weakening. Anterosuperior and superolateral regions are particularly vulnerable to weight-bearing stresses.[5]

Clinical presentation includes gradual groin, hip, buttock or proximal thigh pain, initially during weight-bearing and later potentially at rest or at night. Restricted internal rotation and abduction, antalgic gait, muscular weakness and reduced functional capacity may develop.

The 2019 revised Association Research Circulation Osseous (ARCO) classification comprises four stages: Stage I shows normal radiographs with MRI or bone-scintigraphy evidence of necrosis; Stage II shows radiographic changes without fracture or collapse; Stage III involves subchondral fracture, subdivided into IIIA (depression ≤2 mm) and IIIB (>2 mm); and Stage IV includes secondary osteoarthritis with joint-space narrowing and acetabular changes. [6]

Treatment depends on disease stage, lesion characteristics, aetiology, age and functional requirements. Conservative management includes activity modification, protected weight-bearing, analgesics, physiotherapy and risk-factor control. Bisphosphonates, anticoagulants and lipid-lowering agents have been investigated, but evidence remains inconsistent. [7] Joint-preserving procedures include core decompression, drilling, bone grafting, osteotomy and biologically augmented techniques, primarily before advanced collapse. Core decompression aims to

reduce intraosseous pressure and promote repair, with better outcomes generally in early stages. [8] Total hip arthroplasty is commonly indicated for advanced collapse, secondary osteoarthritis, persistent pain and severe functional limitation; younger patients face potential implant wear, loosening, complications and revision surgery. [9]

Ayurvedic management depends on *Dhatukshaya, Avarana*, chronicity, patient strength and *Dosha-Dushya* involvement. Dhatukshaya-dominant cases require *Vata-Shamana, Brimhana, Snehana and Asthi-Majja Poshana. Swedana* may reduce stiffness and improve mobility, whereas excessive *Langhana, Rukshana* and vigorous purification should be avoided. *Basti* is important in *Vatavyadhi* management,[10] with *Anuvasana/Matra Basti* supporting *Sneha, Brimhana* and *Vata-Shamana* effects. *Abhyanga* and mild *Swedana* may provide additional support. [11] Treatment aims include reducing pain and stiffness, improving hip function and walking capacity, and supporting tissue nourishment.

Findings from this uncontrolled case series are preliminary and warrant future controlled studies with standardised protocols, validated outcome measures, serial radiological assessment and longer follow-up.

AIMS AND OBJECTIVES

- To study the clinical presentation of *Asthi Majjagata Vata* correlated with Avascular Necrosis of the femoral head/hip joint.
- To evaluate the efficacy of a standardised *Panchakarma*-based *Basti* protocol in the management of AVN through a consecutive case series of ten patients.
- To assess outcome objectively using VAS Scale, Straight Leg Raising Test (SLRT), Limb Flexion/Extension Measurement (LFM/LEM), Harris Hip Score (HHS).

MATERIALS AND METHODS:

Study design: A prospective, single-arm, observational case series of ten patients diagnosed with *Asthi Majjagata Vata* w.s.r. Avascular Necrosis of the hip/femoral head, managed in the Panchakarma OPD/IPD of a Ayurvedic hospital.

Inclusion criteria: Patients of either sex, aged 18–60 years, with clinico-radiologically confirmed AVN (Grade I–II, Ficat–Arlet/equivalent staging) presenting with hip/groin pain, restricted range of motion and difficulty in walking, willing to undergo in-patient Panchakarma management.

Assessment parameters: Visual Analogue Scale (VAS) for pain, Straight Leg Raising Test (SLRT), Limb Flexion Measurement (LFM) and Limb Extension Measurement (LEM), Harris Hip Score (HHS) in cases with hip-joint involvement — each recorded before and after the treatment protocol.

Samprapti (Pathogenesis):

Nidana Sevana (Vata-prakopaka Ahara-Vihara, Ativyayama, Abhighata, prolonged corticosteroid/alcohol exposure, *Vayahkrita* or *Vyadhikrita Dhatukshaya*) → *Vata Prakopa*, predominantly *Vyana* and *Apana Vayu* → localisation of *Prakupita Vata* in *Asthi and Majja Dhatu* of the *Kati-Vankshana-*

Sandhi Pradesha (Sthana Samshraya) with associated *Asthi-Majja Kshaya* → *Sandhi-Shaithilya, Shoola, Stambha* and progressive *Kriyahani* → clinically correlating with ischaemic necrosis of the femoral head/neck and restricted hip-joint mobility.

CASE SERIES – PATIENT PROFILE

The demographic and clinical profile of the ten cases included in this series is summarised below (Table 1).

THERAPEUTIC INTERVENTION:

Panchakarma Plan:

A standardised, staged Panchakarma protocol was administered, with duration individualised according to *Bala, Dosha-Dushya* status and treatment tolerance.

1. *Sarvanga Snehana–Swedana*

Whole-body *Snehana* with *Vata-Kaphahara Taila* followed by indicated *Swedana (Nadi Sweda/Patrapottali Sweda/Valuka Sweda).*

2. First Yoga Basti – Shodhana Basti

Niruha (Asthapana) Basti with *Dashamoola–Erandamoola Kwatha*, alternated with *Anuvasana Basti* using *Sahachara Taila,* was administered in the classical *Yoga-Basti* pattern.

3. *Mustadi Yapana Basti*

Following *Yoga Basti, Mustadi Yapana Basti* was administered for 14 days.

Adjunct therapies, as clinically indicated, included *Panchatikta Ksheera Basti, Janu/Matra Basti* with *Sahachara Taila, Dashanga–Shunthi Lepa, Patrapottali and Shashtishali Pinda Sweda, Triphala–Musta Udvartana, Ruksha Kuti Sweda, Jalaukavacharana, Siravedha, Arka-Patra Agnikarma,* and internal *Vata-Rasayana* and *Anulomana Chikitsa*.

OBSERVATIONS AND RESULTS

Tables 3, 4 present the pre- and post-treatment values of VAS, SLRT, LFM/LEM and Harris Hip Score for all ten cases.

Summary: Across the ten cases, VAS scores decreased in all participants, from a mean baseline score of 7.3 to a mean post-treatment score of 4.6, giving a mean reduction of 2.7 points. SLRT measurements generally increased across the recorded components, although some post-treatment assessments continued to show pain or substantial limitation. LFM/LEM demonstrated improvement in 7 of 10 cases, while 3 cases showed no change in the recorded measurements. Harris Hip Score increased in all ten cases, from a mean of 62.1 before treatment to 81.04 after treatment, representing a mean improvement of 17.94 points. Taken together, the findings indicate a broadly favourable symptomatic and functional trend across the series, although the uncontrolled design and short assessment period prevent attribution of causality or conclusions regarding structural modification of the disease.

Follow up - All patients were followed up for a period of six months. Oral medicines were continued after completion of the treatment, as clinically indicated and according to the patients' symptoms. None of the patients was advised hip replacement, and none required hip replacement during the follow-up period. No AVN-

specific allopathic medications prescribed by an orthopaedic surgeon were being taken by the patients during the treatment and follow-up period. Significant symptomatic relief was observed following the intervention during the follow-up period.

Table- 1: Patient's Profile

Case	Age/Sex	Diagnosis	Duration	Chief Complaints
1	39/M	B/L Femoral Head AVN Grade I	3 yrs	B/L groin & knee-joint pain, difficulty in walking, painful squatting
2	25/M	B/L Femoral Head AVN Grade II	1.5 yrs	Neck & back pain, B/L groin & knee-joint pain, restricted gait
3	30/M	AVN Grade II - of Lt. femoral head with diffuse L4–L5 disc bulge	3 yrs	Low-back pain, difficulty in walking
4	41/M	AVN Grade II – Right Femoral Head	7–8 yrs	Rt. hip radiating pain with tingling, painful squatting/sitting-to-stand
5	31/M	AVN Grade II– Right Femoral Head	50–60 days	Rt. gluteal-radiating pain, calf tightness (Sira-Sankocha)
6	36/M	Lt. Femoral Head AVN Grade II	2 months	Lt. knee & low-back pain, epigastric heaviness
7	34/M	Lt. Femoral Head AVN Grade II	2–3 months	Lt. groin pain, difficulty in walking
8	49/M	B/L Femoral Head AVN Grade I	6 months	B/L pad-pain, Lt. shoulder-joint discomfort, altered bowel/bladder habit

Case	Age/Sex	Diagnosis	Duration	Chief Complaints
9	30/M	AVN Grade II – Right Femoral Head	3 yrs	Low-back & groin pain, difficulty in prolonged sitting/standing
10	49/M	B/L Femoral Head AVN Grade II	3 months	B/L groin-joint pain with heaviness, difficulty in walking

Table-2: Basti Drug Profile

Attribute	***Yoga Basti (Shodhana Phase)***	***Mustadi Yapana Basti***
Composition	*Niruha: Dashamoola + Erandamoola Kwatha; Anuvasana: Sahachara Taila*	*Musta, Dashamoola and Vata-Kapha-hara Dravya-siddha Yapana Basti* [12] *(Madhu + Ghrita + Saindhava + Kalka + Mansarasa + Kwatha (Ksheerapaka) base*
Rasa/Guna/Virya	*Katu-Tikta* predominant, *Ushna Virya, Vata-Kapha-hara*	*Madhura*-predominant, *Snigdha-Guru,* balanced *Ushna-Sheeta Virya*
Karma	*Vata-Anulomana, Srotoshodhana, Shoolahara, Stambhahara*	*Brimhana, Balya, Asthi-Majja-Poshaka, Vata-Shamana*
Rationale in AVN	Clears *Avarana* and *Margavarodha* in *Asthi-Majja-vaha Srotas*, relieves *Shoola* and *Stambha* and restores *Vata-gati* prior to *Brimhana* therapy	Sustains nourishment of *Asthi-Majja Dhatu,* checks progressive *Dhatukshaya* and improves joint mobility as *Basti*-predominant *Ardhachikitsa* for *Vata Vyadhi*

Table- 3: Before and after treatment findings

Case	VAS (Pre)	VAS (Post)	SLRT Rt/Lt/B-L (Pre)	SLRT Rt/Lt/B-L (Post)
1 –	7	5	70/60/30	80/70/70
2 –	8	6	30/30/10	30/50/50
3 –	8	6	10/50/0	20/70/30
4 –	6	4	40/50/10	40/70/20
5 –	8	5	50/30/30	50/40/50
6 –	8	4	30/50/20	80/80/70
7 –	8	5	10/45/Unable	45/45/Unable
8 –	7	4	80/70/70	90/90/90
9 –	7	4	30/60/20	30/70/30
10 –	6	3	90/80/70	90/80/80

Table-4: BT and AT Findings

Case	LFM/LEM (Pre)	LFM/LEM (Post)	Harris Hip Score (Pre)	Harris Hip Score (Post)
1 –	80/40	90/40	70.3	84.6
2 –	60/15	70/20	63.2	81.7
3 –	80/20	80/30	65.6	87.4
4 –	80/20	80/20	55.2	74.8
5 –	50/30	90/20	58.4	76.7
6 –	20/20	80/20	44.1	78.9
7 –	60/10	60/10	52.8	74.6
8 –	30/30	90/50	76.6	88.9
9 –	60/15	75/20	66.5	73.4
10 –	90/45	90/45	78.3	89.4

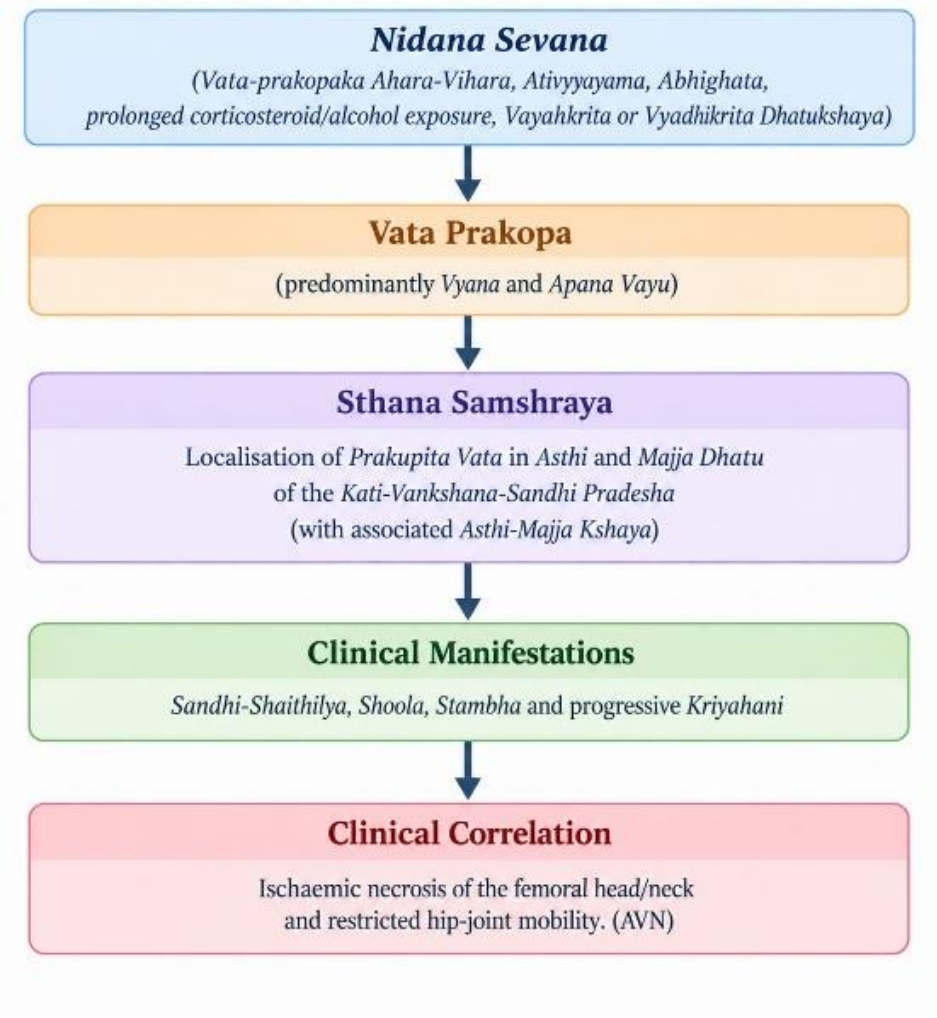


Figure-1: Pathogenosis of AVN

DISCUSSION:

Therapeutic modalities and rationale

- *Sarvanga Snehana, Swedana* - *Snehana* counteracts *vata* associated *ruksha, khara* and *sheeta guna,* while mild *swedana* reduces *sthambha* and prepares for *basti*.[13]
- *Yoga Basti [Niruha Basti containing Dashamoola-Erandamoola and Anuvasana Basti with Sahachara Taila]*- Intended to promote *Vata-Anulomana, Srotoshodhana, Shoolahara* and *Stambhahara*, combining the cleansing component of *Niruha* with the unctuous effects of *Sneha,* thereby establishing a clinical platform for the subsequent *Brimhana* phase.
- *Mustadi Yapana Basti* - Intended to provide *Brimhana, Balya* and *Vata-Shamana* effects and support *Asthi-Majja Poshana* within the Ayurvedic framework of *Dhatukshaya.*[14]
- Adjunctive procedures - *Sthanik Sweda (Valuka sweda), Lepa (Dashang lepa),* and *Jalaukavacharana* were individualised according to symptoms and presumed *Dosha* involvement, primarily for *Shoolahara, Stambhahara* and local symptomatic relief.

- The following oral medications were prescribed similarly to all patients:
  - Arogyavardhini Vati: 500 mg twice daily (BD), before food.
  - Kaishora Guggulu: 500 mg twice daily (BD), after food.
  - Maham manjishthadi Kwatha: 15 ml twice daily (BD).
  - Gandharva Haritaki Churna: 5 gm at bedtime with warm water.

All ten cases demonstrated overall pain reduction and improved Harris Hip Scores, with generally favourable changes in SLRT and LFM/LEM. These findings support further investigation of a *Basti*-predominant protocol combining *Shodhana*-oriented *Yoga Basti* with sustaining *Yapana Basti*. The sequence was intended to address *Vata Prakopa, Avarana/Margavarodha* and *Dhatukshaya*. However, because the study lacked a comparator group and included individualised adjuncts, improvements cannot be attributed to any single intervention.

The proposed mechanisms represent Ayurvedic therapeutic interpretations, not demonstrated biological effects. *Snehana–Swedana* served preparatory and symptomatic purposes, the initial *Niruha–Anuvasana* phase targeted *Vata-Anulomana* and reduction of *Shoola* and *Stambha*, and subsequent *Mustadi Yapana Basti* aimed to support *Brimhana* and *Asthi-Majja Poshana*. The study did not establish revascularisation, bone regeneration or radiological arrest of osteonecrosis.

Variation in Response

Response varied across patients, potentially reflecting differences in symptom duration, disease stage, lesion characteristics, aetiology and baseline function. Although chronicity and the extent of *Dhatukshaya* or *Avarana* may influence response within the Ayurvedic framework, this study could not identify independent predictors. Earlier presentations may be more amenable to supportive treatment, while conventional joint-preserving management is also generally more suitable before advanced femoral-head collapse. These parallel concepts warrant investigation but do not establish equivalence between Ayurvedic concepts and osteonecrosis pathophysiology.

Comparison with Conventional Management

ONFH management depends on disease stage and includes protected weight-bearing, activity modification, analgesics and risk-factor control. Core decompression is considered primarily in pre-collapse or selected early-stage disease; a systematic review reported approximately 65% overall success, influenced by disease stage and augmentation techniques. Total hip arthroplasty is generally preferred for advanced collapse with secondary arthritis.

The *Basti*-predominant protocol may be explored as a non-operative supportive approach for pain and functional improvement in selected patients, but it is not an established alternative to core decompression or arthroplasty.

Clinical Implications

Improvement in symptomatic and functional outcomes suggests potential

clinical relevance. However, this uncontrolled case series included only ten patients, lacked a comparator group, had relatively short follow-up and did not systematically repeat radiological staging. Consequently, structural improvement, stability or progression of osteonecrosis could not be established. The findings are preliminary and hypothesis-generating.

CONCLUSION:

In ten patients with *Asthi-Majjagata Vata* correlated with hip/femoral-head avascular necrosis, staged Panchakarma comprising *Snehana–Swedana, Yoga Basti* followed by 14 days of *Mustadi Yapana Basti* and individualised adjuncts was associated with symptomatic and functional improvement. Mean VAS decreased from 7.3 to 4.6, and mean Harris Hip Score increased from 62.1 to 81.04. LFM/LEM improved in seven patients, while SLRT showed generally favorable changes with some residual limitations. These findings warrant further investigation but do not establish revascularization, structural regeneration or arrest of osteonecrosis. Larger controlled studies with standardized radiological staging, validated outcome measures and longer follow-up are required.

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