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"Evaluation Of Efficacy Of Ayurvedic Treatment In The Management Of Avascular Necrosis Of Femur Head -A Pilot Study"

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Abstract:

Avascular Necrosis (AVN) is a death of bone tissue due to loss of blood supply. This condition is also called as osteonecrosis. Due to this the bone tissue dies and there occurs collapsing of the femur head. Avascular Necrosis is a progressive disorder and there is no permanent modern treatment other than hip replacement surgery. Other treatment include physiotherapy and NSAID. The present case study was aimed to evaluate the efficacy of ayurvedic treatment in the conservative management of AVN. Avascular Necrosis (AVN), also known as osteonecrosis, is a pathological condition characterized by the death of bone tissue due to compromised blood supply, leading to joint pain, collapse, and functional impairment. Conventional management involves surgical interventions and pharmacotherapy; however, Ayurvedic principles offer a holistic approach emphasizing the restoration of balance, tissue regeneration, and improved blood flow. Ayurvedic management of AVN includes the use of internal medicines such as Rasayana therapies, herbal formulations (e.g., Ashwagandha, Boswellia), Panchakarma procedures like Basti (medicated enemas), and local therapies such as Abhyanga (oil massage) and Raktamokshana (bloodletting) to improve circulation and promote healing. These approaches aim to reduce inflammation, strengthen bones and tissues, and restore vitality, thereby potentially delaying or preventing joint collapse.

Integrating Ayurvedic interventions with conventional treatments may offer a comprehensive strategy for managing AVN, emphasizing non-invasive, natural, and holistic care.

Material And Methods: In this study, total of 5 patients diagnosed with AVN of hip joint were managed with conservative treatment such as Snehana, Swedana with Tiktakshir Basti krama followed by Ajaasthi-majja-kshir Basti Krama along with other ayurvedic medications for 3 months .

Results : The patients were observed for improvement based on signs and symptoms before and after treatment. There was a reduction in clinical symptoms like Pain, Tenderness with marked improvement in Gait and Range of movements.

Conclusion: Conservative management of AVN through ayurvedic principles provided Significant relief in sign and symptoms of AVN of femur head and improved quality of life.

Keywords: Avascular Necrosis, Ajaasthi-majja-kshirbasti, Asthi-majjagatvata,, Femur head , Tiktshir-basti krama.

I. INTRODUCTION

Avascular necrosis (AVN) of the femoral head is a condition where the blood supply to the thigh bone's head is disrupted, causing the bone tissue to die and weaken. Over time, this can lead to the collapse of the bone, joint problems, and arthritis. Early detection and treatment are important to prevent permanent damage.

From an Ayurvedic view, AVN is linked to an imbalance of Vata dosha, which controls movement and blood flow in the body. When Vata is aggravated, it hampers circulation and causes tissue breakdown, especially in the bones. This condition is also related to tissue depletion (Dhatukshaya) involving bone tissue, affected by factors like injury, poor nutrition, sedentary lifestyle, or illness.

Typically, AVN affects men aged 20-40, often following minor injuries or long-term steroid use. Initially, there may be no symptoms, but as it progresses, patients experience pain, difficulty walking, and changes in gait, which can affect their daily life and work.

Modern treatments usually involve surgery or joint replacement, which can be costly and require long recovery periods. To offer a safer, affordable alternative, Ayurvedic approaches aim to improve blood flow, strengthen bones, and reduce pain, helping patients improve their quality of life without surgery.

AIMS AND OBJECTIVES :

To evaluate the effect of Ayurvedic Treatment and Asthi-majja Tiktaksheer Basti karma and ayurvedic in AVN of femur head.

To treat the patient of AVN of femur head with Ayurvedic medicines. To provide safe, cheap, conservative treatment without any side effects. To improve quality of life of the patient with AVN of femur head.

MATERIALS AND METHODS:

Selection of Patient : Patients selected from OPD A.S.S. Ayurved Mahavidyalaya Nashik.

Case History: In present study a total number of 5 patients were randomly selected, having some common complaints, the pain was continuous in nature and radiating to thighs, patiets were advised for hip replacement surgery, which, the patient refused due to cost affair and approached to our hospital for ayurvedic treatment.

Details of patients enrolled in the study:

PATIENT ID	AGE	SEX	HIP JOINT INVOLVED
PATIENT 1	21	M	RIGHT HIP JOINT
PATIENT 2	45	M	RIGHT HIP JOINT
PATIENT 3	69	M	LEFT HIP HOINT
PATIENT 4	38	F	LEFT HIP JOINT
PATIENT 5	31	M	B/L HIP JOINT

LOCAL EXAMINATION:

Tenderness was present at corresponding hip region. There was significant loss in range of movements**.**

On physical examination,

PALPATION- Mild to moderate tenderness was observed during palpation of corresponding Hip Joint. There was no muscle atrophy.

MOVEMENTS- Range of motion of the corresponding hip was severely limited and mild to moderately painful in all ranges.

Mostly pain is being felt while abduction and adduction. Pain moderately severe & movements are slightly restricted.

PATIENT ID	SLR TEST RIGHT (IN DEGREE)	SLR TEST LEFT (IN DEGREE)	HIP JOINT INVOLVED
PATIENT 1	30	80	RIGHT HIP JOINT
PATIENT 2	40	70	RIGHT HIP JOINT
PATIENT 3	70	30	LEFT HIP HOINT
PATIENT 4	90	50	LEFT HIP JOINT
PATIENT 5	40	50	B/L HIP JOINT

TREATMENT (AYURVEDIC)

Principle of Ayurvedic treatment -Firstly patient was given treatment for aampachana and anulomana.

Rasaraktapachaka Quath- 10 ml.

Anulomanarth – Gandharv Haritaki Churna 2gm H.S.

Sthanik Snehana- Nirgundi Taila + Bala-ashwagandhadi Taila

Swedana- Bashpa Sweda with Dashmul Quath

Oral Ayurveda medicines were administered in the patient. The details are mentioned below

Sr no	Drug	Dose	Anupan	Duration	Settings
1	Dashamoolarishta	10ml-10ml	Luke warm	3 weeks	3 settings
2	AshwgandhaGhanwati	500mg-500mg	Luke Warm	3 weeks	3 settings
3	Trayodashang Guggul	500mg-500mg	Luke Warm	3 weeks	3 settings
4	Rasaraj rasa 1gm +Chopchini+Ashwgandha +GuduchiChurna each 25 gms- mix well & make 40 sachets	1 – 1 Sachet	Luke Warm	3 weeks	3 settings
5	Nirgundi Tail	For L.A.	-	3 weeks	3 settings

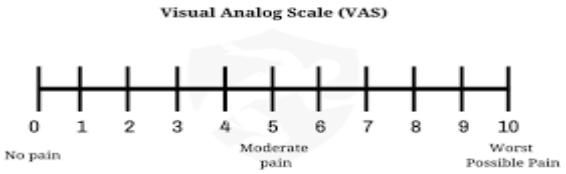
DETAILS OF THERAPIES ADMINISTRATED

Sr.no.	Procedure	Ingredients	Duration
1	Sthanik Snehan	NirgundiTaila+Balaashwagandhadi Taila	Daily
2	Sthanik Swedana	Dashmulquath-bashpasweda	Daily
3	Asthimajja-Tiktaksheer Basti Krama	Anuvasan Basti (Balaashwagandhadi Taila)- 2 D NiruhBasti (DashmulQuath) -1D AnuvasanBasti (Balaashwagandhadi Taila)-1 D Asthi-majja Tiktaksheer Basti -5 D Anuvasan Basti (Balaashwagandhadi Taila)- 1 D	Total 10 days

Assessment on the Basis of Gradation system :

Range of movement of hip joint i.e. Abduction, Adduction, Extension, Flexion, Internal rotation, External rotation was measured

Visual Analogue Scale (VAS) is used for pain & Oxford Hip Score.



VAS Pain Score –In VAS Score “0” denoting No Pain and “10” denoting Worst Pain.

OBSERVATIONS:

Pain was assessed using Visual Analogue Scale (VAS) Score from 0 to 10.

PATIENT ID	VAS BEFORE TREATMENT	VAS AFTER TREATMENT	HIP JOINT INVOLVED
PATIENT 1	8	3	RIGHT HIP JOINT
PATIENT 2	6	4	RIGHT HIP JOINT
PATIENT 3	6	2	LEFT HIP HOINT
PATIENT 4	7	3	LEFT HIP JOINT
PATIENT 5	5	2	B/L HIP JOINT

Assessments of flexion, extension, adduction, abduction, internal rotation and external rotation were made before and after completion of treatment

Improvements in Range of Movement of hip joint are shown in table 3.

Range of Movement (Patient 1)		**Before Treatment (In degree)**	**After Treatment (In degree)**	**Normal Range of Motion (In degree)**
Abduction	RT. Leg	25	35	45
Adduction	RT. Leg	20	25	20
Flexion	RT. Leg	70	90	110-120
Extension	RT. Leg	15	20	20
Internal Rotation	RT. Leg	35	50	30-45
External Rotation	RT. Leg	30	45	40-60

Range of Movement (Patient 2)		**Before Treatment (In degree)**	**After Treatment (In degree)**	**Normal Range of Motion (In degree)**
Abduction	RT. Leg	20	35	45
Adduction	RT. Leg	10	15	20
Flexion	RT. Leg	60	100	110-120
Extension	RT. Leg	10	15	20
Internal Rotation	RT. Leg	20	40	30-45
External Rotation	RT. Leg	35	50	40-60

Range of Movement (Patient 3)		**Before Treatment (In degree)**	**After Treatment (In degree)**	**Normal Range of Motion (In degree)**
Abduction	Lt. Leg	10	40	45
Adduction	Lt. Leg	15	20	20
Flexion	Lt. Leg	90	110	110-120
Extension	Lt. Leg	20	20	20
Internal Rotation	Lt. Leg	30	45	30-45
External Rotation	Lt. Leg	25	60	40-60

Range of Movement (Patient 4)		**Before Treatment (In degree)**	**After Treatment (In degree)**	**Normal Range of Motion (In degree)**
Abduction	Lt. Leg	30	45	45
Adduction	Lt. Leg	20	30	20
Flexion	Lt. Leg	70	110	110-120
Extension	Lt. Leg	15	20	20
Internal Rotation	Lt. Leg	30	35	30-45
External Rotation	Lt. Leg	40	40	40-60

Range of Movement (Patient 5)		**Before Treatment (In degree)**	**After Treatment (In degree)**	**Normal Range of Motion (In degree)**
Abduction	B/L LEG	20	30	45
Adduction	B/L LEG	10	10	20
Flexion	B/L LEG	80	100	110-120
Extension	B/L LEG	20	20	20
Internal Rotation	B/L LEG	15	35	30-45
External Rotation	B/L LEG	15	40	40-60

Oxford Hip Score was done before treatment and after the completion of treatment. Significant improvement found in Oxford Hip Score which is shown in table no 4.

PATIENT ID	OXFORD HIP SCORE BEFORE TRATMET	OXFORD HIP SCORE AFTER TREATMENT	HIP JOINT INVOLVED
PATIENT 1	19	39	RIGHT HIP JOINT
PATIENT 2	24	40	RIGHT HIP JOINT
PATIENT 3	19	35	LEFT HIP HOINT
PATIENT 4	21	33	LEFT HIP JOINT
PATIENT 5	18	37	B/L HIP JOINT

GRADING FOR THE OXFORD HIP SCORE:

Score 0 to 19:indicate severe hip arthritis. It is highly likely that you may well require some form of surgical intervention, contact your family physician for a consult with an Orthopaedic Surgeon.

Score 20 to 29: May indicate moderate to severe hip arthritis. See your family physician for an assessment and x-ray. Consider a consult with an Orthopaedic Surgeon.

Score 30 to 39: May indicate mild to moderate hip arthritis. Consider seeing you family physician for an assessment and possible x-ray. You may benefit from non-surgical treatment, such as exercise, weight loss, and /or anti-inflammatory medication.

Score 40 to 48: May indicate satisfactory joint function. May not require any treatment.

SCIENTIFIC BACKGROUND SIGNIFICANCE:

Avascular Necrosis of Femur head is a condition that can be understood in light of vatvyadhivikar Asthigat Vikar.

According to principle of ashraya-ashrayeebhava, Asthi Dhatu and Vata Dosha are inversely proportional to each other as per Vriddhi and kshaya are considered. Hence when vata increased by attisevena of its hetu the asthi is liable to undergo khsaya.

Vata dosha increased in asthidhatu or sandhi causes severe and continuous pain along with difficulty in movements, restricted movements and swelling.

The treatment of asthivahastroto vikar as explained by Aacharya is **Tikta Dravya siddha ksheera,Ghrita ,basti.**

अस्थ्याश्रयाणां व्याधीनां पञ्चकर्माणि भेषजम् |

बस्त्य: क्षीरसर्पिषी तिक्तकोपहितानी च||२७||

Also in Bhaishyjya-ratnavali, vatavyadhi Chikitsa-Adhikar : **Trayodoshang Guggula** is advised in Dhatukshaya and dhosha which can be useful in Asthikshaya like AVN of femur.

And **Rasaraj rasa** is a drug which is a Suvarna kalpa and can be used in every disease mostly it acts / works on asthi and majja dhatu.

Trayodoshanga -Guggula – Bhaishajya-Ratnavali, Vatavyadhi.

Hence combined therapy of Trayodashang-Guggula , Bruhutvat Chintamani and Tikta Dravya siddha ksheera Basti was planned in the conservative management of avascular necrosis of femur head.

DISCUSSION :

Avascular necrosis (AVN) involves the death of bone tissue resulting from compromised blood flow. In the early stages, patients may remain asymptomatic. The pathology may involve complex interactions between the affected bone and adjacent joint surfaces. Etiologically, AVN can be classified as traumatic or nontraumatic. The nontraumatic form is often due to vascular occlusion caused by intraosseous or extravascular compression of blood vessels supplying the femoral head, leading to ischemia. Obstruction of blood flow may occur secondary to fat embolism, especially in cases with elevated lipid levels, or due to the aggregation of necrotic red blood cells, such as in sickle cell disease, which is frequently observed.

Therapeutic approaches predominantly involve agents that improve blood flow, such as anticoagulants, or lipid-lowering medications.

In the present case, the patient had a recent history of COVID-19 infection. The treatment protocol incorporated Ayurvedic interventions. Initial management included oral administration of **Aampachana** with **Rasaraktapachak kwath** and **Anulomana** using **Gandharva-Haritiki Churna**. Subsequently**, sthanika snehana** was performed with **Nirgundi taila** and **Bala-ashwagandhadi taila**, followed by **Bashpaswedan** using **Dashmul kwath**.

These therapies aim to alleviate **srotorodha** (blockages) and promote the **Sthirikaraṇa** (firmness) of the affected tissues, addressing the root causes linked to Vata and Kapha doshas—considered fundamental in the development of Asthimajjagata Vata. The use of Patra Pinda Sweda, known for its properties of srotoshodhana (clearing channels), Kapha and Vata pacification, was chosen based on classical references, especially to manage pain, stiffness, and swelling associated with joint conditions. The chosen medications possess Vatahara qualities, characterized by their Ushna Virya (hot potency), Snigdha (unctuousness), and Sukshma (subtle) Gunas, contributing to analgesic and anti-inflammatory effects.

For further management, Basti therapy was employed—specifically **Tikta Siddha Basti** followed by **Ajjaasthi-majjakshir Basti—**owing to Basti's recognized efficacy in pacifying Vatadosha. **Bala-ashwagandhadi Taila** was used in **Anuvasana Basti** to support bone health. Since AVN involves the deterioration of the bone tissue, particularly the asthi dhatu, formulations like Tikta Siddha Basti containing herbs such as Guduchi, Ashwagandha, Shatavari, and Gokshura were indicated, considering their properties of nourishing and rejuvenating bone tissue. The medications Nirgundi and Bala-ashwagandhadi Taila are known for their Snigdha (unctuous), Guru (heavy), and Ushna (hot) qualities, which help alleviate Vata dosha and improve circulation in the affected hip joint. The blockage of small blood vessels supplying the femoral head results in compromised blood flow, leading to AVN. The obstruction of Raktavaha srotas (blood channels) is thus central to the pathogenesis, causing Kshaya (degeneration) of the bone tissue.

Ksheera Basti, a medicated enema using milk, is a type of Niruha Basti with properties of Madhura (sweet) and Snigdha, aiding in Vata pacification and promoting tissue nourishment, thereby supporting bone regeneration.

Rasaraj Ras, an Ayurvedic formulation, is believed to support cardiac and digestive health, and may aid in strengthening bones, joints, and muscles. Its combination of herbal ingredients, including Rasasindoor, Abhraka bhasma, Suvarna bhasma, Loha bhasma, Roupya bhasma, Vanga bhasma, along with herbs such as Ashwagandha, Lavang, Jayapatri, Ksheerkakoli, Kumari Swarasa, and Kakmachi Swarasa, is thought to enhance overall vitality.

Trayodashang Guggul is another classical Ayurvedic preparation that may help alleviate acute pain and stiffness in joints such as the back and ankles, containing ingredients like Babhooltwak, Ashwagandha, Hapusha, Guduchi, Shatavari, Gokshur, Vruddhadaru, Rasna, which are traditionally used to manage inflammation and promote joint health.

CONCLUSION:

Since there is no permanent cure for AVN (Avascular Necrosis), treatments like core decompression in the early stages and hip replacement in later stages are common options, though they come with their own risks and complications. In this case, the patient experienced a positive outcome, with improvements in the range of motion that helped prevent further deterioration and supported the health of the affected bone.

The treatment provided was non-invasive and cost-effective. While it couldn't completely reverse the anatomical changes caused by the disease, it played a significant role in preventing further complications. After treatment, the patient was able to resume normal daily activities easily, and the results were encouraging. This study suggests that therapies like Tiktaksheera Basti and Ajasthi-majjaksheer Basti can offer meaningful relief from symptoms of AVN. Over a three-month period, the patient experienced notable improvements, including reduced hip pain, better movement of the hip joint, and improved walking ability. Overall, the patient benefited from reduced symptoms and was able to perform daily activities more comfortably

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