

ROLE OF PANCHAKARMA IN POST COVID AVASCULAR NECROSIS: A CASE STUDY

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ABSTRACT

COVID-19 is a respiratory illness, global epidemic caused by "SARS Coronavirus 2. It was a pandemic disease of recent outbreak which affected almost all age group worldwide. Although, Corona virus Infections are decreasing in number but the Post Covid complications are still a major cause of worry.^[1] Corticosteroids administered to most patients treated for COVID-19 in hospital also have an adverse effect on bone tissue. Avascular necrosis is one of them, Avascular necrosis is temporary or permanent loss of blood supply to bone, without blood supply bone tissue dies and ultimately bone may collapse and lead to joint destruction within few years.^[2] In Ayurveda we can correlate the symptoms of Avascular necrosis with Asthimajjagata Vata.^[3] A diagnosed case of male patient aged 33yrs old was completely fine before 2yrs, then he had suffered from Covid-19 and after that all the symptoms started gradually. Patient was observed for symptomatic improvements based on assessment done by signs and symptoms. Treatment include Sthanik Snehana, Patrapottali Swedana with Basti. The results were encouraging. The therapy provided marked relief from pain, tenderness, stiffness and improvement in the gait. Conservative management of AVN through Ayurvedic principles provides significant relief and helps to improve quality of life.

KEYWORDS: PostCovid, *Asthipradoshaja Vikara*, *Asthimajjagata Vata*, Avascular necrosis, *Panchakarma*.

INTRODUCTION

Covid Pandemic was at its peak in 2020 and lasted till 2021, but Post Covid complications are observed from 2021 till today. Post Covid complications can damage the lungs, brain, blood vessels, skin, nerves, kidney, heart, bones which increases the risk of long term health issues, Avascular Necrosis is one of them.

Avascular Necrosis is a state where there is osteonecrosis due to lack of interrupted blood supply to the bone. Also called as ischemic bone necrosis or aseptic necrosis.^[4] Without blood supply bone tissue necroses and ultimately the bone may collapse and this stage leads to joint dysfunction within few years. The objective of treatment include preservation of structure and functions of bone and relief from pain.

This condition can be clinically correlated with *Asthipradoshaj Vikara* and *Asthimajjagata Vata* in *Ayurveda*. It occurs due to vitiated *Vata* and *doshas* residing in *Asthi*. Symptoms includes *Asthi Kshaya*, *Asthischoola*, *Asthitoda* (pricking type of pain in bones) which correlates with symptoms of Avascular Necrosis.

Lakshanas of Asthi-Majjagata Vata^[5]*Bhedoasthiparvanam* (breaking sort of pain in bones)*Sandhi Shula* (pain in joints)*Mamsakshaya* (wasting of muscle)*Balakshaya* (weakness)*Aswapna*, *Santataruka* (continuous pain resulting into disturbed sleep)

According to *Ayurveda* Vitiated *Vata*, *Kapha* and *Dushita Rakta* are main leading causes of Avascular Necrosis.

As per *Hetu Sevana* excessive intake of *Katu*, *Amla*, *Snigdha*, *Ushna* *Ahara Sura*, Alcohol intake along with *Vyavaya* and *Vegavarodh*, continuous standing, daily travelling, work in cool place (AC) these are causes of vitiation of *Vata*,^[15] *Kapha*,^[16] and *Rakta dushi*.^[17]

It leads to *Katishoola*, *Ubhaypadshoola*, *Vankshanashula*, *Sandhishula*, disturbed sleep, unsatisfied motion. Later patient was diagnosed with covid 19 and hospitalised for the same, he had *Jirna Jwara* which involved *Meda Asthi Dhatugata Avastha* of *Jwara* leads to *Asthibheda*, *Prakujana*, *Gatravikshepana*.^[18] Due to *Sthansanshraya* *Katishula*, *Vankshanshula*, *Ubhaypadshula* are increased.

Due to increase in *Vata Dosha*, *Rukshtwa* in *Kapha Dosha* occurs. Due to this *Granthi* are formed and *Margavarodh* seen.

As per *Samprapti* of *Dhatukshayjanya Vata vadhi*^[13] due to *Sarakt AsthiKshay*, vitiated *vata*, *Asthivaha Strotas* & *Vata Vrudhi* are important factors, So treatment plan is divided in two parts.

1) *Shodhan Chikitsa* 2) *Shaman Chikitsa*
Shodhan Chikitsa i.e. *Panchakarma* includes *Sthanik Snehan*, *Patrapottali Sweda*, *Basti*.

Vishyandan (liquefies), *Mardava* (softening), *Kledakarak* (moistening) are properties of *Snehana*^[6] helps to pacify *Vata Dosha*. As *Asthikshay* is having mainly *Vata* predominance, it will help to relive symptoms like pain and stiffness.

Swedana Karma is one of the modality of *Ayurveda* acts as *Sthambhaghna* (removal of stiffness), *Gourvaghna* (loss of heaviness of the body), *Sheetaghna* and *Swedkaraka*⁷. Helps to pacify *Vata* and *Kapha* *Dosha*.

Patra Pottali Sweda which used to induce perspiration through heated pack of specific herbal leaves in the management of *Upastambhita Vata Vyadhi*. It is done when *Vata* and *Kapha Dosha* are vitiated. *Patra Pottali* offers *Sankara Swedana*⁸ due to its *Ushna Guna* which ultimately stimulates sympathetic nervous system and enhances vasodilatation. The effect of *Sara* & *Sukshma Guna* of *Swedana Dravya* liquefies *Dosha* which further excrete out through micropores presenting over the skin.

There is no any other excellent treatment for *Vata Vyadhi* such as *Basti*¹⁹ therapy. In *Matra Basti*¹⁰ *Sneha* used helps in proper *Gati* of *Vata* brings *Gatra Mardavata* and removes *Strotorodha*. *Balaguduchyadi Taila* is having anti-inflammatory, and analgesic effect possess similar effectiveness in treating the inflammation in both acute and chronic *Vata Vyadhi*.

Niruha Basti (decoction enema) is the superlative therapy in *Panchakarma* field and it has ability to reconstruct the damaged muscles and nerves. *Mustadi yapana Basti*¹¹ helps to increase strength of muscles & promoting the blood circulation, with both the *Shodhana* and *Bruhana* properties.

AIM

To study the Role of *Panchakarma* in management of Post Covid Avascular Necrosis.

OBJECTIVE

1. To study the efficacy of *Panchakarma* in Avascular necrosis.
2. To study the importance of *Panchakarma* in Post Covid management.

MATERIALS AND METHODS

CASE REPORT

A young male patient aged 33yrs old, with moderate build, from Dandekar pool, Pune diagnosed with Avascular necrosis on the basis of MRI was came to OPD. With following symptoms-

- Difficulty in standing and sitting postures since 2yrs.
- Severe pain in left hip joint in upper aspect of left thigh since 2 yrs
- pain in right hip joint,
- Lower back pain and stiffness since 2 months.
- Sleep was disturbed due to pain
- Unsatisfied Motions (2-3times/daily).

HISTORY OF PRESENT ILLNESS

Patient was apparently fine 2 yrs back and gradually started suffering from above complaints.

He consulted various Orthopaedic Surgeons for the same and was diagnosed stage three Avascular Necrosis of left femoral head.

He was advised Analgesics, Calcium supplements along with surgical intervention, but the patient was unwilling for surgery, and approached us for *Ayurvedic* treatment.

HISTORY OF PAST ILLNESS

Patient had suffered from Covid-19 in 2020, was on ventilator for 4-5 days and patient was given doses of inj. Remedisivir.

Personal History

Name-XYZ
Age/Sex-33yrs old/M
Marital status-Married
Diet-Mixed
Appetite- Normal
Bowel-Unsatisfied motion
Bladder- Normal
Sleep- Disturbed
Occupation- Lawyer
Allergy- Nil

No K/C/O any major illness

Family History- Nil

Surgical History- Nil

ON EXAMINATION-

BP-130/80mmhg
PR-88/MIN

Systemic Examination

RS- B/L clear
CVS- S1 S2 normal
CNS- conscious and oriented

Investigations - (DATE 29-9-22)

1. CBC-NAD
2. Urine Routine- NAD
3. BSL Random- NAD
4. ECG-NAD

5. MRI of whole spine- no significant abnormality except mild degenerative changes of cervical and lumbar spine
6. MRI of hip joints-(Date 29-9-22) Ficat and Arlet Stage three Avascular Necrosis involving left femoral head.
No evidence of Avascular Necrosis on Right side.

7. Lipid Profile: Serum LDL Cholesterol-106.3mg/dl (12-7-22)
8. KFT: Serum Creatinine-0.80mg/dl (12-7-22)
9. ESR-19mm/1sthr
10. Serum Uric Acid-7.5mg/dl

Asthavidha Parikshan

1	Nadi	Vata-Kaphaja
2	Mala	Asamyak
3	Mutra	Samyak
4	Jivha	Ishatsam
5	Shabda	Spastha
6	Sparsha	Anushna Shita
7	Druka	Prakrut
8	Aakruti	Madhyam

Dashavidha Parikshana

1	Prakruti	Vata,Kapha
2	Vikruti	Asthivaha,Majjavaha,Raktavaha
3	Sara	Madhyam
4	Sanhanan	Madhyam
5	Satwa	Madhyam
6	Satmya	Shadras
7	Ahara	Mishrahar
8	Vyayamashakti	Madhyam
9	Balashakti	Madhyam
10	Vaya	Tarun Avastha

NIDAN PANCHAK

Hetu

- H/O. Covid 19 before 2yrs,
- prolonged standing and walking work,
- daily travelling,
- stress,exertion,

- oily, spicy and fast food intake
- alcohol drinking

Diagnosis- Asthimajjagata Vata vis-à-vis Avascular necrosis.

Samprapti Ghatak

1	Dosha	Vata
2	Dushya	Vyan vayu,Shleshak kapha, Asthi, Majja, Rakta, Sira, Sandhi, Snayu
3	Strotas	Asthivaha,Majjavah,Raktavaha,Rasavaha
4	Strotodushti	Sanga
5	Rogamarga	Marmasthisandhi
6	Adhistan	Vankshansandhi
7	Udbhavsthan	Ama-Pakvashay
8	Vyakta sthan	Asthi,Sandhi
9	Agni	Prakrut
10	Aama	Dhatwagni mandya janya aama
11	Roga prakrati	Chirkari
12	Sihansamshray	Vankshanpradesha

Treatment

1) Shaman Chikitsa

Sr.no	Drugs	Dose	Time	Anupana	Duration
1	Kaishor Guggulu (500mg)	1tab BD	After meal	Koshna jala	30days
2	Sanshamani Vati (250mg)	2tab BD	After meal	Koshna jala	30days
3	Asthalpa Vati (250mg)	2tab	morning	Milk	30days
4	Vatgajendra Sinha (125mg)	1tab	After meal	Koshna jala	30days
5	Mahamanjishthadi Kadha (400ml)	10ml	After meal	Koshna jala	30days
6	Gandharv Haritaki Vati (50gm)	3gm	At night	Koshna jala	30days

2) Shodhana Chikitsa

Sr.no	Procedure	Dravya and Dose	Days
1	<i>Sthanik snehan (Kati te Ubhaypad)</i>	<i>Balaguduchyadi Taila</i>	8 days
2	<i>Sthanik Patrapottali Sweda (Kati te Ubaypad)</i>	<i>Erandapatra, Sahacharapatra, Nirgundipatra</i>	8days
3	<i>Basti</i>	<i>Balaguduchyadi taila(30ml)+</i>	3Days
	<i>a)Matra Basti</i>	<i>Panchatikta ghruta(30ml)</i>	
	<i>b)Mustadi Yapan Basti</i>	310ml	6days

Basti Pattern

DAY	1	2	3	4	5	6	7	8	9
BASTI	A	N	N	N	A	N	N	N	A

A-Anuvasan Basti with *Balaguduchyadi taila(30ml)*
+*Panchatikta ghruta(30ml)* N-*Mustadi yapan Basti*

One *Anuvasan* and three *Niruha Basti* of total 9 days were planned.

INGREDIENTS OF MUSTADI YAPAN BASTI^[9]

Sr.no	Drug name	Latin name	Rasa	Virya	Vipaka	Doshagh nata
1	<i>Musta</i>	<i>Cyperus rotundus</i>	<i>Tikata, katu Kashaya</i>	<i>Shita</i>	<i>Katu</i>	<i>Kaphapitta</i>
2	<i>Ushir</i>	<i>Vetiveria zizanioides</i>	<i>Tikta</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kaphapitta</i>
3	<i>Bala</i>	<i>Sida cordifolia</i>	<i>Madhur</i>	<i>Shita</i>	<i>Madhur</i>	<i>Vatapitta</i>
4	<i>Aaragwadh</i>	<i>Cassia fistula</i>	<i>Madhur</i>	<i>Shita</i>	<i>Madhur</i>	<i>Vatapitta</i>
5	<i>Rasna</i>	<i>Alpinia officinarum</i>	<i>Tikta</i>	<i>Ushna</i>	<i>Katu</i>	<i>Vata</i>
6	<i>Manjishtha</i>	<i>Rubia cordifolia</i>	<i>Tikta, madhur, kashay</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kaphapitta</i>
7	<i>Traymana</i>	<i>Gentiana kuoroo</i>	<i>Tikta</i>	<i>Ushna</i>	<i>Katu</i>	<i>Vatapitta</i>
8	<i>Punarnanva</i>	<i>Boerhavia diffusa</i>	<i>Madhur, tikta</i>	<i>Ushna</i>	<i>Katu</i>	<i>Tridosha</i>
9	<i>Patha</i>	<i>Cissampelos parens</i>	<i>Tikta</i>	<i>Ushna</i>	<i>Katu</i>	<i>kaphapitta</i>
10	<i>Guduchi</i>	<i>Tinospora cordifolia</i>	<i>Tikta Kashay</i>	<i>Ushna</i>	<i>Madhur</i>	<i>Tridosha</i>
11	<i>Laghupanchamula</i>		<i>Kashaya, tikta, madhur</i>	<i>Alpa Ushna</i>	<i>Madhur</i>	<i>Vatapitta</i>
12	<i>Gokshur</i>	<i>Tribulus terrestris</i>	<i>Madhur</i>	<i>Shita</i>	<i>Madhur</i>	<i>vatapitta</i>
13	<i>Madanphal</i>	<i>Randia dumetorum</i>	<i>Madhur</i>	<i>Shita</i>	<i>Madhur</i>	<i>vatapitta</i>

KALKA DRAVYA- *Shatpushpa, Priyangu, Mulethi, Indrayava, daruharidra*

Basti Nirman Vidhi

Honey(40ml)+*Saindhav(2.5gm)*+*Goghruta(20ml)*+*Tila taila(20ml)*+*Kshirpaka(150ML)*+*Mansarasa(80ml)*

PROCEDURE

- Piece of *Mansa(10gm)*+*water(160ml)* 80ml *Shesha*
- *Bharad dravye(30gm)*+*milk(150ml)*+*water(300ml)* 150ml(*Ks hirapak*)

PATRAPOTTALI PINDA SWEDA

Ingredients^[12]

Sr.no	Dravya	Rasa	Virya	Vipaka	Doshagnata
1	<i>Eranda</i>	<i>Madhur Katu, Kashay</i>	<i>Ushna</i>	<i>Madhur</i>	<i>Kaphavata</i>
2	<i>Sahachara</i>	<i>Madhur, Tikta</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kaphavata</i>
3	<i>Nirgundi</i>	<i>Katu, Tikta</i>	<i>Ushna</i>	<i>Katu</i>	<i>Tridosha</i>

Preparation

Leaves are collected, sliced of the medicinal plants, and tied in a bolus.

The bolus is initially placed in a pan and then heated.

It may be dipped in herbal oils or heated at a constant temperature.

Once the bolus is heated, it is removed and *Pottali* is prepared.

Duration of Procedure-20-25 mins.

DISCUSSION

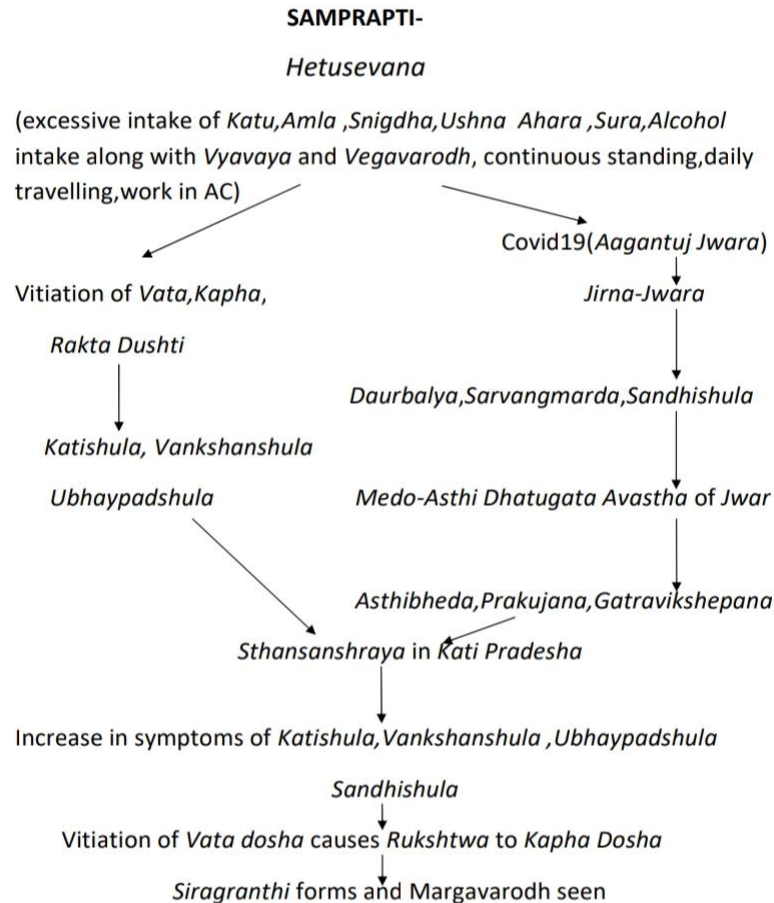
AVN is caused by occlusion of blood due to intra vesicular or outer compression of blood vessel to reduce blood flow on the femoral head. Obstruction of blood might be due to fat embolism because of increased lipid profile. Therefore, treatment modalities depend on mostly blood thinner and lipid lowering agents.

In this present case there was no history of trauma or other factors which reduces bone composition. Patient

had history of Covid 19 so patient took Corticosteroids with Ecosprin. There were disturbances found in lipid profile. He had increased Cholesterol level and history of Alcohol intake.

According to *Ayurvedic* point of view, there is no direct mention of avascular necrosis but on the basis of clinical

presentation, there is predominance of *Vata Kapha Dosha* and *Vikruti* of *Asthi* and *Rakta Dhatu*. In AVN, the blood (*Rakta Dhatu*) supply to the femoral head is decreased due to *Margavrodha* (occlusion of blood vessels) ultimately leads to necrosis. *Margavrodha* is responsible for aggravation of *Vata Dosha* and increase in *Vata Dosha* finally resulting into loss of *Asthi Dhatu*.



Patra Pinda Sweda was described as *Sandhichestakara*, *Srotosuddhikara*, and *Kapha-Vatanirodhana* by considering this property it was planned accordingly. Also, the main complaint was pain which is observed in many cases of *Asthimajjagata Vata*. *Patra Pinda Swedana* was planned on behalf of reducing pain, stiffness and swelling. The medications utilized are having *Vatahara* property having *Ushna Virya, Snigdha* and *Sukshma Guna*.

"*Basti*" is the first line of treatment for *Vata Dosha*. It is also used for *Pitta, Kapha Dosha* along with *Rakta*. It reaches *Sukshma Strotas* resulting in pacifying *Vata Dosha*. *Ushna, Ruksha* and *Tikshna* properties help in decreasing *Sheeta* and *Snigdha* properties of *Kapha* effortlessly.

MODE OF ACTION

1. ***Kaishor Guggulu***- is a drug of choice in *Vatarakta* where obstruction in blood vessels is main pathology. So, here it is very useful for improvement

of blood circulation.^[14] whereas *Guggulu* is having *Lekhana* properties (Scraping and Clearing the channels), it balances *Tridosha* and increase in digestive fire. It acts as a "*Srotoshodhak*" and is very beneficial in diseases like *Asthi Kshaya, Asthi Majjagata Vata* etc.

2. ***Asthi Kalpa Vati***- It is composed of all calcium rich drugs and hence is used in fracture, osteoporosis, AVN etc.
3. ***Sanshamani Vati***-Anti-inflammatory properties. Medicine helps to strengthen the bodys immune system and enhance bodys ability to fight against the various bacterial and viral infections.
4. ***Vatagajendrasinha Rasa***-Used in critical *Vata* disorders. Useful in sciatica, stiffness in joints, cervical and lumbar spondylitis.
5. ***Chavanprasha Avaleha***-Boosts energy, stamina and increases immunity. With presence of *Ashwagandha, Shatavari* and *Bala* it provides health benefits. *Shatavari* has property of *Uttarottar Dhatu Utpatti*, which helps to regenerate *Asthi Dhatu*, while

Bala and *Ashwagandha* helps to strengthen *Asthi Dhatu*.

6. **Gandharva Haritaki Churna**-Given as an *Anulomak Dravya*, helps in release from indigestion, constipation.

MODE OF ACTION OF STHANIK SNEHANA

Sthanik Snehana with *Balaguduchyadi Taila* was advised, most of the drugs shows a characteristics of *Ushna Virya* with *Laghu*, *Ruksha* and *Tikshna Guna*, which helps in easy absorption of drug in the body, where as *Tila*, *Rasna* and *Guduchi* are *Guru* and *Snigdha* in nature which helps to pacify the vitiated *Vata Dosh*. *Madhura Vipaka* have a *VataPitta Shamaka* property. When used externally as *Abhyanga* it may work with the theory that *Taila* helps in formation of lipoidal bond, It improves local blood and lymphatic circulation and thereby improving local tissue metabolism. It relaxes local stiffness by effect of heat and thereby reduces pain. The *Sneha* is absorbed through skin site of *Bhrajaka Pitta* and can reach up to *Dhatu*.

Mode of Action of Patrapottali Sweda

The medications utilized are having *Vatahara* property by virtue of *Ushna Virya*, *Snigdha* and *Sukshma Guna*, due to which it helps to relieve pain and stiffness, provide proper movements of joint and pacifies *Vata Kapha Doshas*.

Vata and *Kapha* are root cause of *Asthimajjagata Vata*. *Patra Pinda Sweda* is described as *Sandhichestakara*, *Srotosuddhikara*, and *Kapha- Vatanirodhana*, by considering this property it was planned accordingly. Also, the main complaint was pain which is observed in many cases of *Asthimajjagata Vata*.

Patra Pinda Swedana was planned on behalf of reducing pain, stiffness and swelling. It is referenced in the *Swedopaga Gana* of *Acharya Charaka*.^[8]

ROLE OF ANUVASAN BASTI

Anuvasan Basti controls morbid *Vata* and *Pitta*, strengthens the bones, joints, muscles, soft tissues and soothes nerves.

Balaguduchyadi Taila is acting at the level of *Rakta*, *Asthi* and *Majja Dhatu*. Hence effective in treating the inflammation seen in both acute and chronic *Vata Vyadhi*.

Panchatikta Ghrita is recommended highly for chronic bone conditions, including osteoporosis, arthritis, etc. This medicine's *Snigdha* properties prevent bone dehydration, improve collagen, and repair bone tissues.

ROLE OF MUSTADI YAPAN BASTI

Due to *Sadhyo Balajana* and *Rasayana* effect of *Basti*. The immensely number of nerves which located in femoral head can get nourished directly. So can be supposed in AVN muscle weakness, is getting decreased

and muscles gets proper nourishment daily by given *Mustadi Yapana Basti*.

Due to *Madura, Guru* and *Jeevaneeya* properties of milk gives *Rasayana Vrishya*, *Balya*, *Medhya* and *Brihamana* benefits." Due to *Yogavahi*, *Rasayana* and *Tridosahara* properties of honey helps to nourish the muscles and scraps adhered *Doshas* from *Strotas*. *Kalka Dravya* i.e. Paste helps to increase the functions of *Brunhana* & *Balya* upon the properties which they have and also gives required thickness to the *Basti* material So *Basti* may be retained in *Pakvashaya* for appropriate time. Due to *Sukshma* property of rock salt it reaches up to the microchannel of the body.

RESULT

Parameters	Before Treatment		After Treatment	
VAS	7		4	
SLRT	Right	Left	Right	Left
ACTIVE	50 ⁰	50 ⁰	70 ⁰	60 ⁰
PASSIVE	70 ⁰	60 ⁰	80 ⁰	70 ⁰

After completion of the treatment, patient showed substantial recovery in all parameters. After follow up functional ability of patient were improved markedly. Walking ability also improved. Patient showed good response to the treatment.

CONCLUSION

Ayurveda Panchkarma management of AVN showed significant result in this case. Moderate improvement was found in pain and stiffness, range of movement of hip joint and difficulty in walking. This case study suggested that *Sthanik snehana, Patrapottali sweda, Bastikarma* may provide a significant result in *Asthi Majjagat Vata* i.e. AVN.

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