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CASE REPORT May-June 2020

Management of Avascular necrosis of the hip joint with *Mustadi Upanah* : Single case study

Sarmah Jyoti Manab[1], Aswal Divya[2], Kumar Pravesh[3], Sharma K. K.[4]

[1,2]Post Graduate Scholar, [3]Associate Professor, [4]Head of the Department, Department of Panchakarma, Rishikul Campus, Haridwar, Uttarakhand Ayurved University, Dehradun, Uttarakhand, INDIA.

ABSTRACT

Avascular necrosis is a disease in which cellular death of bone component occurs due to interruption of the blood supply. Necrosis occurs due to arterial occlusion and lack or insufficient blood supply, the bone tissue dies and there occurs collapsing of that bony segment. The disease generally happens in 35 to 45 years. This case deals with a diagnosed case of avascular necrosis or osteonecrosis of the right femoral head in a 71 years old female. Patient has been suffering from pain in the both hip joints since 6 years. She had undergone conservative treatment for her complaints but symptoms aggravated rapidly since 7 months. So for the management she came to Out Patient Department of Panchakarma, Rishikul Campus where three sittings of local application of *Mustadi Upanaha* on bilateral Hip joints was done. After three sittings, she got significant relief in joint pain and her quality of life. Also day to day activities were markedly improved. The assessment was done based on both subjective as well as objective parameters after each sitting. *Mustadi Upanaha* provides a significant relief in the symptoms in this case.

Key words: *Avascular necrosis, Mustadi Upanaha, Panachakarama.*

INTRODUCTION

Avascular necrosis also known as osteonecrosis is characterised by osseous cell death due to vascular compromise. Ischaemia of the bone tissue occurs leading to infarction which further cause necrosis due to lack of oxidative phosphorylation. Body tissues need oxygen for proper functioning, without which there is impaired metabolic functioning. Avascular necrosis of bone results generally from corticosteroid use, trauma, SLE, pancreatitis, alcoholism, gout, radiation, sickle cell disease, infiltrative disease, (e.g. Gaucher's disease) and Caisson disease.[1] AVN is multifactorial but can begin with interruption of blood and oxygen supply to vasculature in and around bone and progresses to trabecular thinning (also seen in cases of osteoporosis) and eventually, collapse of bone. The most vulnerable site is the femoral head. The site of necrosis is usually immediately below the weight bearing articular surface of the bone (i.e. the anterolateral aspect of the femoral head). This is the site of greatest mechanical stress.

This patient presented with avascular necrosis of left hip with pain referred to the groin region and right knee. The possible cause in this case was history of fall down of many times in her entire life. It appears that this avascular necrosis may have been initially overlooked.

Radiological features of osteonecrosis generally involve collapse of the articular cortex. Fragmentation, mottled trabecular pattern, sclerosis, subchondral cyst, and / or subchondral fracture. This patient's radiographs demonstrated the presence of

Address for correspondence:
Dr. Sarmah Jyoti Manab
Post Graduate Scholar, Department of Panchakarma, Rishikul Campus, Haridwar, Uttarakhand Ayurved University, Dehradun, Uttarakhand, INDIA.
E-mail: manabjysarmah@gmail.com
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irregular outline in left femoral head with sclerosis. Bilateral hip joints spaces were reduced (suggestive of avascular necrosis of left head of femur and osteoarthritic changes of right head of the femur).

Treatment is mainly surgical and generally involves a total hip replacement or arthroplasty for end-stage femoral head osteonecrosis using either a cemented or cementless prosthesis. Cemented total hip arthroplasties have been reported as being inferior with high failure rates in younger patients and in patients with femoral head necrosis because of their inferior durability.

Avascular necrosis can be compared in Ayurveda as *Vatavyadhi*. Symptoms mainly mimic to the *Asthi-Majjagata Vata Lakshanas*. Here *Ruksha, Laghu, Chala Gunas* of *Vata* gets diminishesd. Thus the case presents the clinical features as *Sandhisool, Bhedo Asthi-Parvanam, Satata Ruk, Mamsa Bala Kshaya* and *Aswapna*[2] which correlates the symptoms of Aascular necrosis.

Case Report

A female patient of 71years old having complaint of difficulty in walking and severe pain in hip region radiating to both thighs while sitting, standing, walking since last 7 months. Patient has been suffering from pain in the both hip joints since 6 years in on and off pattern. She had undergone conservative treatment from allopathic hospital for her complaints. Lastly, her symptoms aggravated since 3 months and she is now completely bed ridden unable to do even her day to day personal tasks.

Patient was non diabetic, no history of hypertension, thyroid problem. She was diagnosed case of severe anaemia at the time of routine blood test. There was neither history of trauma nor other medical or surgical illness as well as no history of long use of steroids etc. Patient had often taken allopathic medicine for her pain from pharmacy (self medication).

The Patient, resident of Shaharanpur, U.P. an elderly lady of Hindu community from middle class family. She is habituated to vegetarian diet with addiction to tea (4/5 cup daily). Appetite is reduced. Bowel habit and micturition is normal. She attained menopause 23 years back. Other features of general examinations are within normal limit. There is no family history noted for the same complaint. On examination the basic parameters such as B.P. (110/74 mmHg), Pulse rate (74/min), Respiratory rate (22/min), Heart rate (76/min) are within normal limit. There was marked pallor noted, icterus, cyanosis, edema, dehydration, were not present. No local lymphadenopathy, clubbing noted. On systemic examination, no abnormality detected in cardiovascular, respiratory, central nervous system, gastrointestinal system and urogenital system.

Musculo-skeletal system

Patient was bed ridden. No anatomical deformity detected in spine and upper extremities. Pain and tenderness were noted in sacro-coccyxial region, both hip regions upto thigh region, no swelling, no muscle atrophy, no redness. Painful, restricted movements (all directions) were noted in left hip. Muscle weakness was marked in both hip and thigh region.

During *Dashavidhparikshaya Bhava* examination, patient was observed as,

- ***Pakruti:*** *Kapha-Vata*
- ***Vikriti:*** *Vata predominant*
- ***Sara:*** *Medasarata* in *Pravar; Mamsa* in *Madhyam; Rasa, Rakta, Asthi Majja, Shukrasarata* in *Avar Matra.*
- ***Samhanana:*** *Madhyam*
- ***Pramana:*** *Madhyam*
- ***Satmya:*** *Madhyam*
- ***Satva:*** *Madhyam*
- ***Ahara Shakti:*** *Avara*
- ***Vyayama Shakti:*** *Avara*
- ***Vaya:*** *Vriddhavastha*

Samprapti Ghataka

- ***Dosha -*** *Vata*

- ***Dushya*** - *Rasa, Rakta, Asthi, Majja*
- ***Srotas*** - *Asthivaha, Majjavaha*
- ***Agni*** - *Mandangi*
- ***Rogamarga*** - *Madhyam*
- ***Sadhyasadhyta*** - *Yapya / ashadhya*

The patient was suspected for avascular necrosis of left sided hip joints with differential diagnosis of hip osteoarthritis, healed fracture. Radiological study revealed that there was avascular necrosis of left hip joint and osteoarthritic changes in right hip joint. The cause of the disease was not quite sure, may be repetitive fall down (external trauma), prolonged use of analgesics, anaemia. Risk factors were elderly women with menopause, overweight, less body mobilization. Patient was advised for surgical management, but she was not fit for it. She gave us written consent to continue with Ayurvedic management.

Intervention

Treatment was planned after considering pathogenesis and *Doshik* assessment of the *Roga* and *Rogi. Mustadi Upanaha* was applied in three sittings, each sitting was of 21days. 14days of interval was chosen after each sitting of *Upanaha.* Follow up of the patient was done after completion and starting day of each sitting. The final follow up was done on 105th day of the treatment schedule. Vitals were checked each day prior to the therapy.

Ingredients

A) Fine *Churna* of *Musta, Surakitta, Til, Kustha, Devdaru, Tagar* in equal amount

B) *Saindhav Lavana* - Q.S..

C) Cow's milk - Q.S.

D) Curd (cow) - Q.S.

E) *Chatursneha (Ghrit, Taila, Vasa, Majja* in equal amount) - Q.S.[3]

Preparation/ Procedure of application of *Mustadi Upanaha*

The above mentioned contents are mixed together and cooked under medium flame until it becomes semisolid form. The material was applied in the affected part, covered with *Eranda Patra* and finally tied with cloth. The *Upanaha Dravya* is to be removed after 6 hours and then the part to be washed with lukewarm water.

Observation and Results

Special gradation of symptoms was used for assessment of therapeutic effect.

Table 1: Assessment of subjective and objective criteria.

	Day 0	Day 21	Day 36	Day 57	Day 71	Day 92	Day 105
Pain	8	6	6	5	4	3	2
Walking time with support	Bed ridden	2 min	3 min	10 mi	15 min	25 min	As she wishes
Walking time without support	Unable to walk	Unable to walk	1 min	2 min	5 min	5 min	10 min
Walking Steps in 5 min	No steps	5 steps	10 steps	14 steps	24 steps	35 steps	44 steps
Range of Movement (in degrees with goniometer - Left Hip Joint)							
	Day 0	Day 21	Day 36	Day 57	Day 71	Day 92	Day 105
Flexion	60	64	68	76	84	90	96
Extension	4	4	4	6	6	8	12
Internal rotation	10	12	16	18	18	20	24
External rotation	10	14	16	16	18	20	22

Pain (Visual Analog Score) (Fig. No. 1)

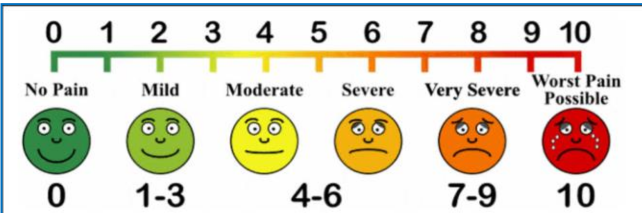
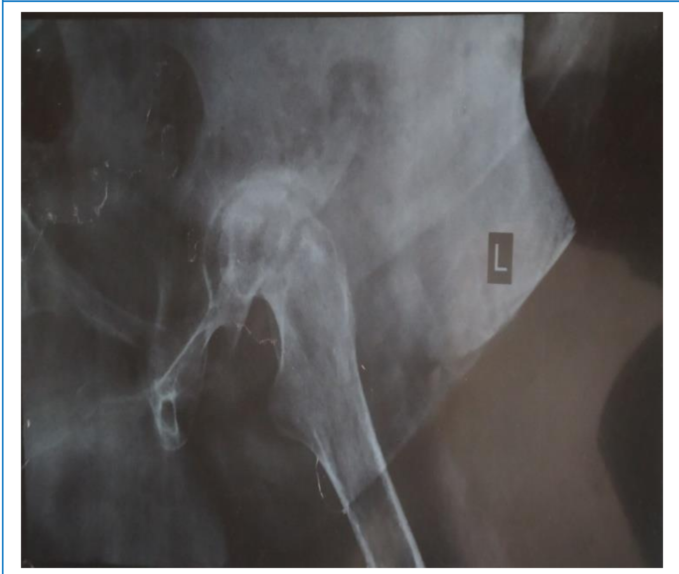
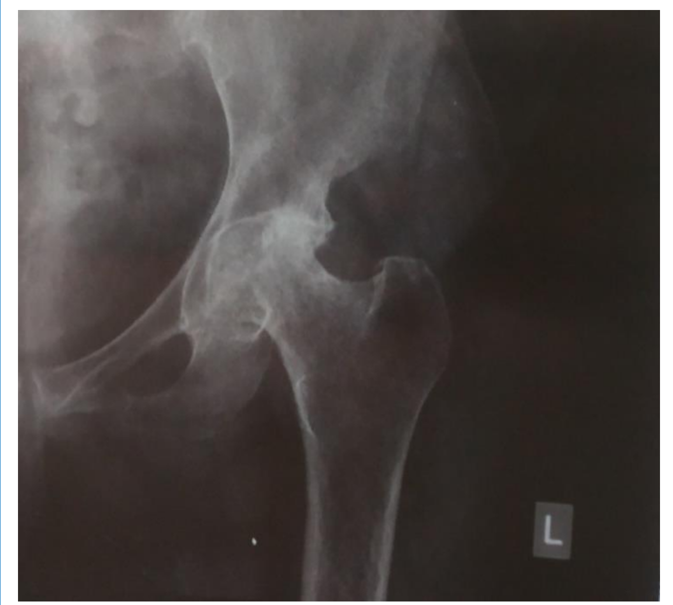


Table 2: Radiological findings are noted as.

Before Treatment

Impression - narrowing of joint space with irregular margin, Juxta articular sclerosis
After Treatment

Impression - mild increase in joint space, joint line formed

Discussion

Avascular necrosis is characterised by osseous cell death due to vascular compromise. Avascular necrosis of bone results generally from corticosteroid use, trauma, SLE, pancreatitis, alcoholism, gout, radiation, sickle cell disease, infiltrative disease, (e.g. Gaucher's disease) and Caisson disease. The most commonly affected site is the femoral head and patient is usually hip and referred knee pain. This patient presented with avascular necrosis of left hip with pain referred to the left thigh region. The possible cause in this case was history of fall down of many times in her entire life. It appears that his avascular necrosis may have been initially overlooked.

Upanaha is a treatment module in Ayurveda which comes under *Swedana Karma*. It is categorised under both *Niragni*[4] and *Sagni*[5] *Swedana*. *Upanaha Sweda* is *Vata Shamaka*, by virtue of its *Ushna*, *Snigdha Guna*. It combats with the properties of *Vatadosha* like *Rukshata, Laghuta, Chala. Upanaha Swedayogya* drugs are mainly of *Guru*, *Ushna*, *Tikshna* and *Sukshma* quality. By virtue of these qualities drug enters the *Dhatus* one by one i.e. *Rasa*, *Rakta*, *Mamsa*, *Medaasthi*,*Majja* and *Sukra. Ushna*, *Tikshna Gunas* of drug intensify the *Dhatwagni.* The *Swedan Karma* itself clears the *Srotas* of the body. *Ushna*, *Tikshna*, *Sara* and *Sukshma* properties of drugs opens up the *Srotas* which are under obstruction. Out of four *Tiryakdhamanis*, each one is divided into hundred and thousand times thus become innumerable. These supply the body like network and their openings are attached to *Roomakupa*. *Virya* of *Bahya Chikitsa* like *Upanaha* etc. enter into the body after undergoing *Paka* by *Bhrajak Pitta* in the skin.

Upanaha stimulates the local superficial capillaries and arteriole causing local hyperaemic and reflex vasodilatation. This in turn insist the vascular absorption of active principles of the drugs. Lipophilic materials used in the *Upanaha* can easily be absorbed via trans-dermal absorption. Temperature raises the chemical activity in cell and metabolic rate increases. Heat is effective to provide analgesic effect and assist resolution of pain muscle guarding spasm. Heating of

peripheral nerve elevates pain threshold remarkably reduce muscle spasm. Temperature elevation in combination with a stretch can alter elastic properties of connective tissues, which in turn helps in reduction of local muscle guarding due to inflammatory process.

CONCLUSION

Avascular Necrosis must include as a differential diagnosis in patient presented with hip pain along with difficulty in movement of lower limb whenever patient come with secondary to trauma and / or long standing NSAID use. Final diagnosis is made with the help of x-ray or MRI. Ayurvedic treatment with *Panchakarma* procedure is a ray of hope in the management of avuscular necrosis.

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