

AVASCULAR NECROSIS IN AYURVEDIC PERSPECTIVE**Dr. Mahathi K.*¹, Dr. K. Padma Priyanka² and Dr. P. V. N. R. Prasad³**^{1,2}P.G Scholar, ³Professor and Head of the DepartmentDepartment of Rasashastra and Bhaishajya Kalpana, Dr.N.R.S Government Ayurvedic
College, Vijayawada, Andhra Pradesh, India.Article Received on
15 September 2022,Revised on 05 October 2022,
Accepted on 25 Oct. 2022,

DOI: 10.20959/wjpr202215-26091

Corresponding Author*Dr. Mahathi K.**P.G Scholar Department of
Rasashastra and Bhaishajya
Kalpana, Dr.N.R.S
Government Ayurvedic
College, Vijayawada,
Andhra Pradesh, India.**ABSTRACT**

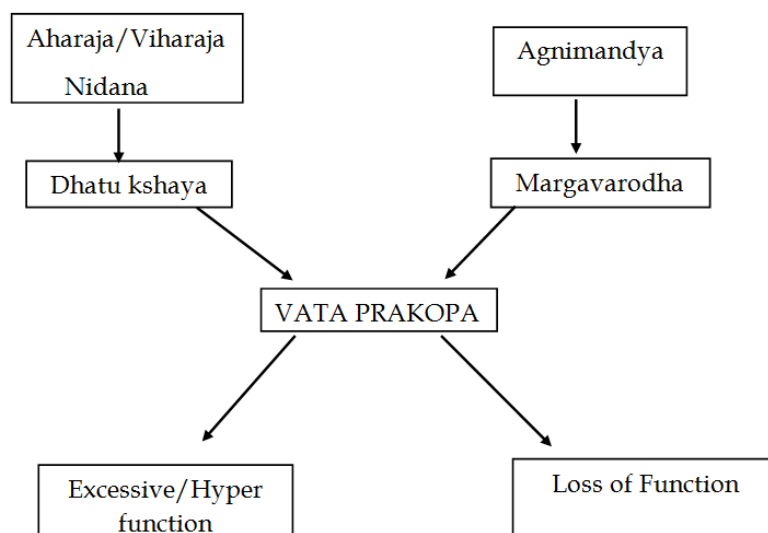
Avascular Necrosis of bone also known as Osteonecrosis describes deaths of bone due to impairment of its blood supply. Prevalence of AVN range from 10,000 and 20,000 among Americans every year. The common age of occurrence is between 30 – 40 years. It occurs most commonly in hip. In contemporary medicine the treatment of AVN comprises of Hip replacement surgery which is invasive and painful. And there is chance of recurrence. In Ayurveda though there is no direct co-relation of any disease it can be assessed through common Nidana, Rupa. In present study comparison between AVN and Asti majja gata vata causes, symptoms and treatment have been elucidated.

KEYWORDS: Astimajjagata vata, AVN, Vata.**INTRODUCTION**

According to Ayurveda functioning of the body is controlled by 3 elements, which in Ayurvedic parlance are termed as Doshas. They are **Vata, Pitta, Kapha**. These, in their equilibrium maintains homeostasis and preserve as well as promote positive health. Any disturbances to their equipoise state leads to disease, degeneration and death. Among these three, Vata is most important because it controls all types of sensations and motor actions, i.e; Sanjnavaha and Chestavaha karmas.

Vata produces innumerable number of diseases, it aggravated to cause diseases in two different ways.

1. By Dhatukshaya
2. By Margavarana



Vata because of various aaharaja, viharaja, karmaja and manasika hetu gets vitiated, moves and localizes in a specific places leading to disease manifestation. This movement, localization, disturbing the normal mechanism is known as “Gatavata.” Gatavata comes under the category where Vata being located in a particular sthana gets vitiated and later causes specific symptoms pertaining to that sthaana.

Broad Classification of Gata Vata Vyadhis

1. Koshtanga-avayava gata vata
2. Dushya gata vata vyadhi
3. Anga-pratyanga gata vatavyadhi

Here Dushyagata or Dhatugata vata vyadhi includes

1. Rasa gata vata
2. Raktha gata vata
3. Mamsa gata vata
4. Medogata vata
5. Asthi-Majja gata vata
6. Shukra gata vata

If vata in aggravated state settles in Asthi and Majja dhatus, it leads to Asthi-majjagata vata vyadhi.

Asthi dhatu and Vata dosha have Ashraya ashrayee Sambandha (inter relationship) because of this Vata vrudhi (aggravation) takes place in Asthi dhatu and, Majja dhatu has Ashraya sambandha with Kapha dosha.

Analyzing the above, it can be understood that the word Gata has two implications. One related with the movement and the other related with occupying. Hence 'Gatatva' of Vata implies an undesirable movement of Vata and its unnecessary occupation of certain sites.

Astimajjagata Vata in classics

Charaka

“Bhedoasthiparvanaam Sandhishoolam Mamsabalakshayaha

Aswapnaha santata ruk cha majjaasthi kupithe anilae” [Ch.Chi.28/33]

Aggravation of vayu in the bones and bone marrow gives rise to the following signs:

1. Cracking of the bones and joints
2. Piercing pain in the joints
3. Diminution of the muscle tissue and strength
4. Insomnia
5. Constant pain

Chikitsa

“Bahya abhyantarataha snehairasthimajjagatam jayet” [Ch.Chi.28]

Bahya and Abhyantara Snehana

Susrutha

“Asthisosham prabhedam cha kuryachoolam cha tacchitaha

Tatha majjagatho ruk cha na kadachith prashamyathi” [Su.Ni.1/28]

Asthi- Dryness of bone, fractures and pain

Majja- Dryness and pain which does not subside at all.

Chikitsa

“Snehopanaha agnikarma bandhanonmardananicha

Snayu sandhi asthi samprapthe kuryadwayavathandrithaha” [Su.Chi.4/8]

When vata effects ligaments, joints, asthi

Snehana, Upanaha, Agnikarma, Bandhana, Unmardana is advised.

Astanga Sangraha

“Sakthisandhyasthishoolam teevram balakshayam

Majjastho asthishu souviryamawapnam sthabdhatham rujam” [A.S.Ni 15/14,15]

Asthi: Severe pain in thighs, joints, and bones

Majja: Asthi sushirya (Osteoporosis), Insomnia, Constant pain

Chikitsa

“Asthimajjo rantharbahi snehaha”

Bahya and Antara Sneha.

General Treatment Principle

- Nidana parivarjana
- Vata kaphahara chikitsa
- Samana chikitsa
- Snehana
- Swedana
- Basti
- Agni karma
- Rasayana chikitsa

Nidana parivarjana

- ✓ Avoid excessive intake of dry, fried and cold food.
- ✓ Avoid doing more exercises, travelling, bending.
- ✓ Avoid lifting heavy weights,
- ✓ Avoid Smoking and alcohol consumption.
- ✓ Avoid Day sleeping and awakening at night
- ✓ Avoid Excessive indulgence in sexual activities.
- ✓ Avoid sitting for long period and in improper posture
- ✓ Avoid Shoka, krodha etc

Samana chikitsa**Herbal Drugs**

- Bhallataka
- Trikatu

- Shunti
- Rasona
- Nirgundi
- Bala
- Eranda
- Rasna
- Sahacharadi Kashaya (in Apana vata involvement)
- Rasna eranda Kashaya (Swelling and inflammation)
- Maha raja prasarini (In Spasticity)
- Lakshadi guggulu (For Degeneration)
- Pushkara guggulu (Improves blood circulation)
- Kaishora guggulu (In obstruction)
- Guggulu tiktaka ghrita

Rasa oushadas

- Rasa sindura (For Peripheral vasodilation)
- Gandha taila (For Degeneration)
- Pravala pishti (Increases bone Nutrition)
- Vata vidhwamsini rasa (Acute pain)
- Vata gajankusha (Vata kapha involvement)
- Srngi Bhasma (for Vasodilation or Obstruction)

Snehana

Snehana with

- Sahacharadi taila
- Maha Narayana taila
- Nirgundi taila
- Murivenna taila
- Maha masha taila
- Ksheera bala taila

Swedana

- Nadi sweda

- Upanaha sweda with vata kapha hara dravyas
- Shastika shali pinda sweda

Basti

Anuvasana basti

- Maha Narayana taila
- Nirgundi taila
- Danvantari taila
- Sahacharadi taila

Niruha basti

- Eranda moola Kashaya
- Sahacharadi Kashaya
- Rasna eranda Kashaya
- Rasna saptaka Kashaya

Agnikarma

According to Sushrut Samhita, relapse of the disease is not seen if the patient is treated with Agnikarma procedure.

Rasayana karma

To avoid recurrence of disease Rasayana therapy is given

- Bhallataka rasayana
 - Bhallataka lehya
 - Amrita prasha gritha
- } (In case of Non-diabetic patient)
- Bhallataka vati
 - Rasabhra guggulu
 - Rasana pinda lehya
 - Swarna makshika bhasma
- (In case of diabetic patient)

Avascular Necrosis

Avascular Necrosis or Osteonecrosis is a degenerative bone condition characterised by death of the cellular components of bone due to loss of blood supply. It is also called as Aseptic necrosis and Ischaemic bone necrosis. It mainly effects the epiphysis of long bone at weight bearing joints.

Common Sites: Femoral head, Knee, Talus and humeral head. The hip is most common location overall.

Causes: A broken bone or dislocated joint can interrupt the blood flow to a section of bone. Avascular necrosis is also associated with long-term use of high-dose steroid medications and excessive alcohol intake.

Anyone can be affected, but the condition is most common in people between the ages of 30 and 50.

- **Joint or Bone Injury:** A serious trauma or an injury can destroy the adjacent blood vessels, cutting the blood supply to your bones.
- **Fatty Deposits:** The fatty deposits can be another leading cause of Avascular Necrosis. The lipids are capable of blocking your blood vessels which eventually blocks the blood supply to your tissues. Fatty deposits are likely to form in the small-sized blood vessels of human who consume an excessive amount of alcohol.
- **Certain Medical Conditions:** The patients suffering from sickle cell anaemia or Gaucher's disease are at higher risks of Avascular Necrosis than normal people. The chemotherapy and kidney transplantation can also weaken your blood vessel, obstructing the blood supply within your bone. It is important to note that certain ailments, such as Diabetes, HIV, Pancreatitis, and more, increase the risk of Avascular Necrosis.
- **Unknown causes:** One-fourth of the Osteonecrosis cases occur due to unknown causes.

Pathophysiology

Due to causes like trauma, fatty deposits, certain diseases



Haematopoietic cells are most sensitive to low oxygen



Die after reduction of blood supply (within 12 hours)



Bone cells die within 12 - 48 hours

Bone marrow cells die within 5 days

Signs and symptoms

The presentation is with pain localised to the affected site, which is exacerbated by weight bearing.

Types of Avascular necrosis

1. **Preiser disease:** When AVN affects the scaphoid bone.
2. **Kohler disease:** When AVN affects the navicular bone of foot, primarily seen in children
3. **Kienbock's disease:** When it affects the lunate bone in wrist.

Diagnosis

X-ray: Normal in early stages, later shows evidence of osteosclerosis and deformity of affected bone.

MRI: Shows evidence of subchondrial necrotic bone and bone marrow oedema.

Stages of Avascular necrosis**Stage 1**

X-ray : minor osteopenia

MRI : oedema

Symptoms : Pain typically in the groin.

Stage 2

X-ray : Mixed osteopenia, Sclerosis and or Sub chondral cysts.

MRI : Geographic defect.

Symptoms : Pain and stiffness.

Stage 3

X-ray : Crescent sign and eventual cortical collapse

MRI : Same as X-ray.

Symptoms : Pain and stiffness with or without radiating to knee and limp

Stage 4

X-ray: End stage with evidence of second degree degenerative changes

MRI: Same as X-ray.

Symptoms: Pain and Limp.

Treatment

- The most common method of treating AVN is Total Hip replacement it has a downsides including long recovery time and short lifespan of hip joint. It is the effective means of treatment in older population.
- Other techniques like metal-on-metal resurfacing which is not suitable in all cases, its suitability depends on how much damage has occurred to the femoral head. Bisphosphonates which reduce the rate of bone breakdown may prevent collapse (specifically of the hip) due to AVN.
- Other treatments include core decompression, where internal bone pressure is relieved by drilling a hole into the bone, and a living bone chip and an electrical device to stimulate new vascular growth are implanted.

Comparison between Asthimajjagata vata and Avascular necrosis

Comparison of nidana

ASTHIMAJJAGATA VATA	AVASCULAR NECROSIS
Abhigata	Joint or bone trauma
Asrk srava	Certain diseases which reduces blood flow like sickle cell disease, thrombo embolic obstruction.
Visama upachara (Administration of inappropriate therapeutic measures)	Improper/Excessive steroidal use, radiation therapy, Bisphosphonates use
Roga atikarshana (Emaciation due to certain diseases)	Gaucher's disease, HIV, SLE

Comparision of Symptoms

ASTHIMAJJAGATA VATA	AVASCULAR NECROSIS
Bhedo asthiparvana(Cracking pain in the joints)	Discomfort and stiffness in the joint
Sandhi shoola(Pain in the joint)	Pain in the joint
Mamsa bala kshaya	Decreased ability to move
Satatam ruk	Pain increases as weight on the joint increases Persistant pain as the time passes

DISCUSSION

As above mentioned, detailed description of Vata, Gata vata, Classification of Gata vata, Asthi majja gata vata along with its treatment, Avascular necrosis along with its treatment, comparision between both Avascular necrosis and Asthi majja gata vata is given. Based on causes, signs and symptoms of Asthi majja gata vata can be compared with Avascular necrosis which is caused by risk factors like trauma, steroidal use, excessive alcohol use, bisphosphonate use and certain treatments like radiation therapy, Organ transplantation etc;

and Astimajja gata vata caused due to abhigata, asrk srava, Vishama upachara, roga atikarshana. Signs and Symptoms of avascular necrosis include pain and discomfort in a joint which increases over time, decreased ability to move, pain increases as weight on joint increases.

Mainly it can be diagnosed by X-ray and MRI. Signs and Symptoms of Astimajja gata vata includes cracking of bones and joints, piercing pain in joints, diminution of strength and muscle tissue, insomnia and constant pain.

CONCLUSION

Though AVN is compared with many other vata rogas, based on causes, signs and symptoms it can be compared with Asthimajja gata vata. In contemporary medicine AVN is treated by some methods like Total hip replacement surgery, metal and metal resurfacing technique, core decompression and bisphosphonates which is also a cause of AVN.

These techniques though offer instant results but are not long lasting.

The recurrence rate is high, and thus people are in search of alternatives. In contrast Ayurveda have variety of natural medication in the treatment of AVN. So, there is a need to carry out a research work to provide an efficacious and cost-effective treatment by Ayurvedic management as mentioned in the classics.

REFERENCES

1. The Principles and Practice of Kaya Chikitsa by Dr.S.Suresh babu, 3(1): 5.
2. Charaka Samhitha by R.K.Sharma and Bhagwan dash Chikitsa sthana, 28.
3. Susrutha Samhitha by Prof. K. R. Srikantha Murthy Nidana sthana, 1.
4. Susrutha Samhitha by Prof. K. R. Srikantha Murthy Chikitsa sthana, 4.
5. Astanga sangraha of Vagbhata by Prof. K. R. Srikantha Murthy Nidana sthana, 15.
6. Harshmohan Textbook of Pathology 7th edition, 26.
7. Davidson's Principles and Practice of Medicine Ed.22nd, 1130.
8. Avascular necrosis www.webmd.com.