



TO STUDY THE CONCEPT OF *ASTHIKSHAYA* (OSTEOPOROSIS) WSR TO *STROTAS*

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Article Received on 07/02/2019

Article Revised on 27/02/2019

Article Accepted on 21/03/2019

ABSTRACT

Ayurveda is a holistic health science. The principle aim of *Ayurveda* is to maintain the health of healthy people and to cure the disease of patient. In present scenario many Non communicable diseases creates more challenges in front of health science. A Non communicable disease (NCD) is a medical condition or disease that is non infectious or non contagious. Osteoporosis (OP) is an important non communicable disease. The incidence of osteoporosis is increasing day by day. It is more common in women and old age people. Osteoporosis is a metabolic systemic disease which is characterised by reduced bone mass and changes in bony tissue. *Ayurveda* is recognized as leading life science and explain ways to prevent and manage life style disorders. *Ayurvedic* principles give much knowledge in the form of proper diet (*Ahara*), life style management (*Dincharya*), rejuvenation therapy (*Rasayana*) etc. In *Ayurveda* there is no exact clinical condition mentioned in *samhitas* like Osteoporosis. But *Ayurvedic* literature described eighteen types of *kshaya*. Among those *Asthikshaya* may be considered as osteoporosis. This paper presents an *ayurvedic* concept regarding the role of *Strotas* in *asthikshaya* which is described in *Ayurvedic samhitas*.

KEYWORDS: Asthi dhatu, Asthivaha Strotas, Asthikshaya, Osteoporosis.

INTRODUCTION

Ayurveda says that “*Dosha dhatu mala mulam hi shareeram*”.^[1] It means *Shareera* is made up of *tridoshas*, *saptadhatu*s and *trimalas*, this indicates the anatomical as well as physiological components of the body. The seven *dhatu*s are *rasa*, *rakta*, *mansa*, *meda*, *asthi*, *majja*, *shukra*. The function of *dhatu* is *dharana* of the *Shareera* i.e. “*dharnaat dhatavahah*”. The balancing state of all seven *dhatu*s is called health and their disequilibrium is called disease.^[2] This disequilibrium may either be increase or decrease in *dhatu*s. Increase in *dhatu* is called *dhatu vriddhi* and condition of decreases is called *dhatu kshaya*. In *charaka samhita sutrasthan* there is eighteen types of *kshaya* are described³. *Asthikshaya* (decrease in bone tissue) is a type of *dhatu kshaya*. In *Asthikshaya* there is reduction of *Asthi dhatu*. This leads to symptoms related to *asthi vikrati*. Similarly to this, there is a state known as Osteoporosis in modern medical science. Osteoporosis means ‘Porous bones’ or “Brittleness of the bones” due to decrease in bone mineral density (BMD). In *Ayurveda* there are many *upakarma* (procedures) to prevent and manage the condition like *asthikshaya*.

AIMS AND OBJECTIVES

1. To understand the concept of *Asthikshaya* according to *Ayurveda*.

2. To study the role of *Strotas* in *asthikshaya*.

3. To review the study of Osteoporosis according to modern science.

MATERIAL AND METHOD

The study is based on review of *ayurvedic samhitas* and Modern text. In this study the following points is going to be discussed.

1. A Collective study on *Asthi Dhatu*, *Strotas* & *Asthikshaya* from *Ayurvedic samhita*.
2. A collective study on Osteoporosis from modern text.
3. Various research articles published in online journals.

Ayurvedic Review

Asthi Dhatu: *Asthi dhatu* is the fifth *dhatu* among all seven *dhatu*s. According to *ayurveda* the origin of *asthi dhatu* is *pitraj bhavatmaka*⁴. In the process of *dhatu poshana*, part of *medo dhatu* reaches in next *Strotas* that is *asthivaha Strotas*, it takes part in production of *asthi dhatu*. *Asthi dhatwagni* acts on part of *ahara rasa* as well as nutrients which are coming from *medovaha Strotas*, and then produces *asthi dhatu*. There are two types of *dhatu*, i.e. *sthayi dhatu* and *poshaka dhatu*. *Asthi* or bone can be considered as *sthayi dhatu*, not the whole *asthi dhatu*. According to *Chakrapani* commentary on *Charaka vimana sthana* that, *Asthi dhatu* is also in liquid

form called as *Poshaka Asthi* that flows through the *Asthivaha Strotas* and nourishes the *sthayi Asthi dhatu*.^[5]

Total no. of *asthi* which is described in *ayurvedic* classics is as below.

1. <i>Vedavadi</i>	<i>Charaka samhita, ashtang sangraha, ashtang hridaya, kashyapa samhita</i>	360
2. <i>Shalyatantravadi</i>	<i>Sushruta samhita, bhavaprakasha</i>	300

***Sushruta* described 5 types of *asthi*, these are as follows^[6]**

1. *Kapalasthi*
2. *Ruchakasthi*
3. *Tarunasthi*
4. *Valayasthi*
5. *Nalakasthi*

According to *sharangdhara samhita upadhatu* of *asthi dhatu* is “*danta*”. The *asthi dhatu mala* is described by *acharyas* as follows.

1.	<i>Charaka samhita</i>	<i>Loma, kesha</i>
2.	<i>Sushruta samhita</i>	<i>Nakha, roma, kesha</i>
3.	<i>Sharangdhara samhita</i>	<i>Nakha</i>

Asthi kshaya: Eighteen types of *Kshaya* had been described by *Acharya Charaka*. Out of them three are because of *dosha*, seven are because of *dhatu*, seven are due to *Mala kshaya* and one is due to *Oja kshaya*. *Asthi kshaya* is a type of *Dhatu Kshaya*.

Sign and Symptoms of *Asthi kshaya*

In *Ayurvedic* classics there is no exact clinical condition mentioned similar to Osteoporosis but it can be correlated to *Asthi kshaya*. The clinical features of *Asthi kshaya* are *Asthishula*, *Toda*, and *Sandhi Shaithilya*, *Kesha*, *Loma*, *Nakha*, *Danta Vikara* and *Paata*, *Dourbalya*, *Rukshata*^[7] etc.

One more condition is mentioned in *ayurveda* related to this point, named as *asthisaushirya*. *Asthisaushirya* is only a symptom under the condition of *majjakshaya*, not the separate condition. According to *Hemadri* commentary the meaning of word ‘*saushirya*’ is ‘*sarandhratvam*’ which means with pores.^[8]

Strotas* Involved in *Asthi kshaya

1. *Asthivaha Strotas*: *Strotas* are the channels of circulation that carry the nutrients of *dhatu*s. According to *chakrapani poshak asthi* flows in *asthivaha Strotas* in the form of *asthayi asthi dhatu*, and provides nutrients to *sthayi asthi dhatu* (bone). When *asthivaha Strotas dushti* happens the flow of *poshak asthi dhatu* will also be affected. This produces *asthi kshaya*.

2. *Medovaha Strotas*: *Medo dhatu* is the just previous to *asthi dhatu* and provides the *poshakansh sara* to the *asthi*

dhatu. When *medovaha Strotas dusti* occurs it leads to the lack of *poshakansh sara*. This results less nourishment of next *dhatu* i.e. *asthi dhatu*, hence *asthi kshaya* originates.

3. *Majjavaha Strotas*: *Majjavaha strotas dushti* like *viruddha* and *abhishyandi ahara* causes *amotpatti*. *Ama* can cause obstruction in way of *vata (margavrodh)*, as well as shortage of nutrients in *dhatu poshana* process it can result in form of *asthi kshaya*.

4. *Purishvaha Strotas*: *Dalhana* said that *asthidhara kala* is same like *purishdhara kala*.^[9] So according to this consideration whenever *dusti* of *purishvaha Strotas* takes place it also leads to the *dusti* of *asthivaha Strotas*. This ultimately results in *asthi kshaya*. So above described *Strotas* is related to the *asthi kshaya*.

Modern Review

Osteoporosis: Osteoporosis is a condition that weakens bones, making them fragile and more likely to break. Osteoporosis means “porous bone. Greek word osteon means the bone tissue & porosis is derived from latin word “porous” which means “full of pores”. Thus combined meaning of the word Osteoporosis is “porous bones”. Osteoporotic bones have lost density or mass and contain abnormal tissue structure. As bones become less dense, they weaken and are more likely to break. The spine, hips, ribs and wrists are common areas of bone fractures from osteoporosis. Osteoporosis is a growing public health problem worldwide and is one of the most common bone disorders in India. Bone density is determined by the amount of bone present in the skeletal structure. Osteoporosis develops slowly over several years and often only diagnosed when a minor fall or sudden impact causes a bone fracture. The adult skeleton undergoes a continuous process of remodelling where in bone resorption is coupled with bone formation. When bone resorption exceeds to formation, then Osteoporosis occurs.

Risk Factors of Osteoporosis^[10]

1. Age:- Old age is more affected from osteoporosis
2. Gender: - Women get osteoporosis more often than men.
3. Family history
4. Sex hormone: - Low oestrogen level in women and low testosterone in men causes osteoporosis.
5. Nutritional factors
6. Genetic factors
7. Life style factors

Symptoms of Osteoporosis

Symptoms of Osteoporosis include

- 1) Pain (due to fractures)
- 2) Tenderness
- 3) General debility
- 4) Muscular weakness
- 5) Abdominal distension
- 6) Insomnia

- 7) Loss of appetite.
- 8) Osteo-arthritis.
- 9) Kyphosis and Scoliosis.

Diagnosis

Radiological Assessment: X-ray, Bone mineral density (BMD) measurements, Quantitative computed tomography (QCT), MRI and Ultrasound.

DISCUSSION

We saw that teeth, nails and hairs are related to the *asthi dhatu*. That's why reduction of *asthi dhatu* shows the symptoms of destruction in nails, teeth and hairs also. These features are mentioned as the symptoms of *asthikshaya*.

There is no direct reference between *asthikshaya* and osteoporosis, but the main symptom of osteoporosis is porous bone and these features are related to *majjakshaya*.^[11] *Majja* is the next *dhatu* of *asthi* according to "*dhatu poshana nyaya*". Hence in the process of *kshaya*, *Majjakshaya* occurs when there is no proper supply of nutrients from *Asthi dhatu* because of *asthikshaya*. So we can say that the *asthikshaya* is responsible for osteoporosis.

According to "*ashrayaashrayi bhava*", the *asthi dhatu* is the *ashraya* of *vata*.^[12] As *ashtang hridaya* says that the increase & decrease of *Asthi* & *vata* are inversely proportional to each other i.e. when *vata* increases *asthidhatu* decreases & when *vata* decreases *asthi dhatu* becomes increase.^[13] *Ayurveda* says that *vata dosha* is dominating in *vrriddhavastha* (old age), so this can lead to decrease of bone in old age. Previous studies suggest that lower level of oestrogen causes menopause symptoms. Menopause marks the transition from *pitta* phase to *vata* phase of life. In this stage some symptoms of increased *vata* appear, like vaginal dryness, clouded mind and thin dry skin. This indicates lower oestrogen level causes increase in *vata*, and increased *vata* results in *asthikshaya*. That's why after menopause women are more prone to affect osteoporosis.

CONCLUSION

From above all discussed point and review on *ayurvedic samhitas*, we can say that *ayurvedic samhitas* described *asthi* (bone) in form of *sthayi asthi dhatu* and the function of *sthayi asthi dhatu* is *Shareera dhaaran* (stability).

Increased *vata* is responsible for *asthikshaya* that's why the prevalence of osteoporosis is more in old age people. The symptoms of *asthikshaya* are almost similar to osteoporosis, but main symptom (porous bone) is described under *majjakshaya*. *Asthi* is filled by *majja* and *asthikshaya* is the main cause of *majjakshaya*, so ultimately *asthikshaya* is responsible for porous bone (osteoporosis).

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