

A Critical Overview on the *Asthi Kshaya* W.S.R.T. Osteoporosis**Dr. Shruti Jondhale**

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Abstract :

Ayurveda is a science which deals with maintaining health and preventing disease in the body. Equilibrium of Dhatus contributes to health. Asthi is fifth dhatu mentioned in the seven Dhatus. It does dharana karma in the body. Disturbance to this equilibrium of Dhatus leads to formation of disease. Decrease in Asthi dhatu is called as Asthi kshaya and it can be compared with osteopenia or osteoporosis according to modern science. Osteoporosis is a global problem and females have higher risk to it, when compared to males. Treatment explained in modern science comes with adverse effects. So this study is attempt to conceptualize the Ayurveda principles related to Asthi dhatu and Asthi dhatu kshay. Asthi dhatu and Vata dosha have interrelationships between them. Also there is relation between Asthidhara kala and Purishadhara kala. Its main location is Pakvashaya (large intestine). Basti treatment is best remedy in the for osteoporosis.

Keywords: *Asthidhatu, Vata dosha, Osteoporosis, Basti.*

Introduction:

Human body is a combination of *Doshas, Dhatus* and *Malas* as per Ayurveda. Health is a state of equilibrium of *Dhatus*.¹ Any other state than this equilibrium is called as Disease. This state may contain either increase or decrease. *Asthi kshay* is a condition of decrease in *Asthi dhatu*. It can be compared to osteopenia or osteoporosis where there is decrease in bone tissue. If bone resorption is more than bone formation, it leads to formation of osteopenia or osteoporosis. It is divided into two types, primary and secondary. Primary osteoporosis occurs naturally due to aging process. Secondary osteoporosis occurs due to any clinical disorders like endocrine disorders, gastrointestinal or biliary tract disease, renal disease.² Modern treatment aims at prevention of further loss of bone tissues by giving calcium, vitamin D supplements with anabolic steroids which may cause severe side effects in the body. Due to this, it is essential to provide safe, efficient, economic, natural and cost effective alternative measure to manage osteopenia or osteoporosis. Keeping this in mind, this present study has been carried out to critically overview *Asthi dhatu kshaya* with special reference to Osteoporosis.

Aims and Objectives –**Aim:**

- To study the *Asthi kshaya* with special reference to osteoporosis.

Objectives:

1. To study the concept of *Asthi kshay* according to Ayurveda.
2. To study the concept of Osteoporosis.

Material and methods –

1. Literary review of *Asthi dhatu* in all *Ayurvedic* texts.
2. Review of available information regarding osteoporosis.
3. Review of internet material, Journals, magazines and previous research papers related to this subject.

Review of literature:***Asthi dhatu:***

Asthi is one of *dhatu* mentioned in total seven *Dhatus*. Others are *Rasa, Rakta, Mamsa, Meda, Majja* and *Shukra*. *Asthi* is at fifth place in nourishment sequence. Means *Rasa dhatu* gets first nourishment, then *Rakta dhatu*, then *Mamsa dhatu* etc. This is the hardest and firmest *dhatu* in the body Gets its nourishment from *Meda dhatu* It is predominantly made up

of *Pruthvi Mahabhuta* (*Pruthvi* or *Prithvi* means “earth”). The qualities of this *dhatu* are strong, rough, dry and hard. The function of *asthi dhatu* is “*dharana*” or support; it keeps the body erect. All the soft structures like muscle, vessels and nerves are found around this *Dhatu*. *Asthi dhatu* gives shape to the skeletal body and protects vital organs such as the heart, lungs etc.

Relation between *Vata dosha* and *Asthi dhatu* : ³

There is interrelationships between *Vata dosha* and *Asthi dhatu*. Whenever *Vata dosha* vitiation occurs, it results in *Asthi dhatu kshay* and Vice versa. It is called *Ashraya ashrayi sambandha*.

Role of *Jatharagni* and *Dhatvagni*: ⁴

According to Ayurveda, *Agni (Jatharagni)* plays major role in digestion of the food and its metabolism & absorption. *Dhatvagni* is a subtype of *Jatharagni* which is responsible for formation of respective potent *Dhatus*. *Asthi dhatu* is produced by the action of *Asthi Dhatvagni*. So it is clear that, proper formation, functioning and proportion of *Dhatus* is mainly dependent on the condition of respective *Dhatvagni*. *Rasa dhatu* is formed by the action of *Rasa Dhatvagni* on *Aahararasa*. In this same way, *Asthi dhatu* is produced by action of *Asthi dhatvagni*. All these *Dhatvagnis* are part of *Jatharagni*. So ultimately *Jatharagni* plays a major role in the formation of all the *Dhatus* including *Asthi dhatu*.

Kala Sharir:

Acharya Sushruta mentioned that *Pakvashaya* (large Intestine) is called as *Purishadhara kala*. He also stated that these *Purishadhara kala* resembles with *Asthidhara kala* (fifth kala) in their functioning. Due to this, the normal condition of large Intestine i.e. *pakvashaya*, which is main location of *Vata dosha*, is essential for normal formation and Functioning of *Asthi dhatu*. ⁵

Asthivaha srotas:

The *srotas* of *Asthi dhatu* is called as *Asthivaha srotas*. Causes of *Asthivaha srotus dushti* are – ⁶

- *Ati vyayama* (excessive heavy exercise)
- *Ati sankshobha* (excessive strenuous work out)
- *Asthi vighatana* (trauma to bones)
- Vitiation of *Vata dosha*

Asthi pradoshaj Vyadhi ⁷

- *Asthi bheda*
- *Asthi shula*
- Decolouration of hair and nails
- Dental pains and decay

Osteoporosis –

Causes : ²

- Senility
- Post Menopausal
- Protein deficiency
- Malnutrition
- Malabsorption
- Excessive protein loss
- Hyperthyroidism
- Cushing syndrome
- Drug induced osteoporosis
- Long term steroid therapy
- Phenobarbitone therapy

Clinical features ²

Generally osteoporosis is asymptomatic unless it shows complication like fractures. These loss of bone mass is due to loss of strength so that trauma is sufficient to cause a fracture. Generally dorso lumbar side is most common for fractures. Pain evolved due to these fractures is the cause for patient for going to physician. Other fractures includes Colle's fracture and fracture of neck of femur.

Examination: ⁸

The findings are so subtle and that can be missed. A slight loss of the height and increased kyphosis due to the compression of the anterior part of the vertebral bodies is seen in most cases.

Radiological observations:

Radiological evidence of decreased bone mass is more reliable, but about 30 % of bone mass gets lost before it appears on X- rays. The features which appears on X-ray are –

- Loss of vertical height of vertebra due to collapse
- Cod fish appearance i.e. a disc bulge in the adjacent vertebral bodies so that disc becomes convex
- Ground glass appearance of bones

Densitometry:⁹

This is the best method to classify the degree of osteoporosis, where the absorption of photons emitted from the gamma emitting isotopes by the bone calcium is measured. There are two types of bone densitometry available

1. Ultra sound based
2. Densitometry

It is the gold standard in the quantification of the bone mass.

Management:

Asthi kshaya (osteoporosis) can be treated with *shodhana Chikitsa* or *shamana Chikitsa* as per Ayurveda. In *Shodhan chikitsa*, Basti treatment is mainly preferred due to

1. Basti is prime treatment of *Vata dosha*¹⁰
2. It causes balancing of *agni* (also *dhatvagni*)
3. Causes normal movement of *Vata dosha* and *purish mala* from large Intestine.

Acharya Sushruta stated that, *Purishadhara kala* (*Pakvashaya* – large Intestine) resembles with *Asthidhara kala* (fifth kala) in their functioning. Hence *Basti* treatment helps in treating Vitiated *Vata* and *Asthi dhatu* simultaneously. For *Asthi dhatu Chikitsa*, *Panchtiktak Kshir basti* (drugs possessed with milk) is preferred due to

1. *Tikta rasa* is *sukshma stotogami* and having properties of *dipana* and *pachana*. It helps in removal of any obstruction in the *srotas* and helps in providing nourishment to deeply situated *Dhatu*s like *Asthi* and *majja*.¹¹
2. As these *basti* is prepared with milk, which has *Vata shamak* properties due to its *Madhura rasa*, it is very useful in the management of Vitiated *Vata dosha* in very deeply situated *Asthi* and *majja Dhatu*.¹²
3. In these, drugs are saturated with qualities of milk. Milk has *Rasayana* (rejuvenating) property.¹³ So body gets rejuvenated and helps to prevent the further bone degeneration and provides a sustained growth of *Asthi dhatu*.¹⁴

Asthi kshaya (osteoporosis) can be treated with *shamana Chikitsa* as per Ayurveda. Here we have to consider *Vata dosha* and *Asthi dhatvagni*. As there is interrelationships between *Vata dosha* and

Asthi dhatu (increase in *Vata dosha* causes *Asthi kshaya* and vice versa), we have to use the drugs having exactly opposite properties to *Vata dosha*. Properties which are responsible for *shamana* of *Vata dosha* are *Snigdha*, *guru*, *shlakshna*, *sthira* etc.¹⁵ Drugs which have these properties are *tail* (oil), *ghruta*, *dashamula*, *bala* etc. Also we have to correct *Asthi Dhatvagni* by use of *tikta rasatmaka dravas* which possess *dipana* and *pachana* property. In this, *panchtiktak ghrita* is important.¹⁶ As functioning of *Asthi dhatvagni* is corrected, it leads to normal formation, functioning and proportion of *Asthi dhatu* in the body. Using these principle, *Asthi dhatu kshaya* (Osteoporosis) is treated by correcting *Asthi dhatvagni*.

Discussion and Conclusion:

Asthi is fifth *dhatu* mentioned in sequence of seven *Dhatu*s. There is interrelationships between *Vata dosha* and *Asthi dhatu*. If there is increase in *Vata dosha*, it causes decrease in *Asthi dhatu* and vice versa. The formation, functioning and proportion of *Asthi dhatu* depends upon *Asthi Dhatvagni*. So disturbance in *Vata dosha* and *Asthi dhatvagni* affects *Asthi dhatu*.

Asthi kshaya (Osteoporosis) can be very well managed with the use of Ayurveda principles which causes normal functioning of *Vata dosha* and *Asthi dhatvagni*. It ultimately leads to prevention of *Asthi kshaya*. It is achieved by following ways – 1) correction of functioning of *Asthi dhatvagni*, 2) *Vata dosha shamana Chikitsa* 3) *Basti* and *Rasayana* treatment.

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