

## **The effect of *SandhaniyaMahakashaya* along with diet and exercises in management of *JarawashthaAstikshaya* and *Astibhagna* with special reference to Osteoporosis- A Review**

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### **Abstract-**

Ayurveda is science of life and longevity with the aim of prevention of the disease, rejuvenation of our body system.

*Asthi* is fifth important dhatu. *Astikshaya* is the condition in which there is *kshaya* of *Asthidhatu* commonly occurring in elderly people. *Astikshaya* may be compared to Osteoporosis. Osteoporosis is second most common metabolic bone disease in India, in which there is decrease in bone mass leading to bone fragility and consequently increasing the chances of fracture.

In *Jarawashtha* due to vitiation of *vattadoshakshaya* of all *dhatu*s occur including *asthi*. Ayurveda described *jara* is *svabhavachvyadhi* and it is prone to *vata* related disorder. *Vattaprakopa* leads to *Astikshaya* and his pathology can be treated with proper diet plan with dietary

habits and lifestyle mentioned in Ayurveda.

*Rasayanchikitsa* can also include with diet. *Rasayanadravya* are drugs to promote all *dhatu*s. This drugs like mentioned by *Charaka* in *sandhaniyagana* give nourishment to *Asthidhatu*.

**Keywords:** *Astikshaya*, *Rasayana*, *Jarawastha*, *Sandhaniyagana*

### **Introduction-**

*Astikshya* with special reference to Osteoporosis has become growing health problem in elderly population. *Jarawastha* or *Vrudhakalla* is *Swabhavballapravrutavyadhi* by Acharya Sushruta<sup>[1]</sup>. Acharya Charak said it is *svabhavonishpratikriya*<sup>[2]</sup>

In this phase of life *vata* become dominating in all *doshas*. *Vata* is responsible for almost all *dhatukshaya* (depletion of body tissue) including

*Astikshaya*. *Vata* and *Asthi* have *Ashraya-Aashraayibhava* <sup>[3]</sup>. They are inversely proportional to each other. So *Asthi* directly affected by vitiation by *vatadosha*. *Astikshaya* is explained in 18 types of *kshaya* by Acharya Charak<sup>[4]</sup>.

*Astikshaya*(Osteoporosis) is severe common problem. *Astikshaya* can be compared to Osteoporosis and it is a *rising,global* public health problem. In current era lack of awareness of people about diet, exercise elderly people are suffering from osteoporosis which results in increase in bone fragility and fracture susceptibility. It is growing public health problem worldwide. It causes more than 8.9 million fractures annually in elderly people.<sup>[5]</sup> It affects both genders, however, is more prevalent in woman particularly at menopause. One in three women and one in five men osteoporotic hip fractures in Asia. Bone loss is only partly reversible and treatment available in contemporary science is mainly symptomatic and sometimes surgical intervention require. The treatment in modern medical science includes.<sup>[6]</sup>

1. Calcium supplement
2. Hormone replacement therapy.
3. Bisphosphonates

These medicines are not suited for everyone and not devoid of adverse effect. Early intervention can prevent Osteoporosis in majority.

#### Aim-

1. To study the fundamental concept of *Astikshaya* or Osteoporosis as per Ayurveda.
2. To evaluate effect of dietary habits and lifestyle by Ayurveda.
3. To evaluate effect *Sandhaniyagannadravya* in *Astikshaya* which are safe and

cost effective drugs from classical text commonly used in practise have been analysed in context with *astikshaya* w.s.r. Osteoporosis.

#### *Astikshaya* Causes(Hetu)<sup>[7]</sup>-

Intake of (*dry,katu,tikta, tikshna,vidahi*) food, irregular dietary habits, excess food, lack of exercise cause malnourishment. *Jathargni* (Digestive fire) and *bhootagni* are affected in elderly people by worry, fear (*bhaya*), anger(*krodha*), grief(*shoka*), insomnia (*anindra*) and *vegdharna* in *Jaraawastha*. Even excessive *langhan* (fasting) leads to malnourishment (*apachaya*) leads to *vata* vitiation so ultimately not providing proper nourishment to *Asthidhatu* resulting in *astikshaya*.

#### *Astikshaya* Symptoms <sup>[8,9]</sup>-

- *Asthibheda*
- *Astikshula*
- *Kesh Loma NakhaSmashruVikaar*.
- *Dantapraptan*
- *Sandhishaiyithilya*
- *Rukshta*

#### Material and Methods –

##### Diet

- *Sthira, Vishida, Tikta and RasatmakAahar*
- *Prithvimahbhut* dominating food items
- *Sheetviry*
- *Tiktatasa* good for *asthi*<sup>[10]</sup>
- *SnigdhaAahar*<sup>[11]</sup>
- *Ghrita,kshira* have *rasayan* properties<sup>[12]</sup>
- *Ghrita* is known *vaatshamak* and it provide nourishment to *Asthi*. It is good source of vitamin D. Cow

milk is best source of calcium and other minerals and vitamin D.

- *Vasa* and *majja* (Animal fat and Bone marrow) describe in Ayurveda good for *Asthi*, *Sandhi*, and *Asthibhagna*<sup>[13]</sup>.

So elderly people diet must include milk, *ghrita* and chicken, mutton stalk.

*Shukadhanya* described in text (*shashtishaali* and *raktashaali*) are good for *Asthibhagna* explained by Sushruta in *asthibhagnachikitsa*.<sup>[14]</sup>

*Godhuma* (wheat chapati) helpful for bone fracture.<sup>[15]</sup>

**Shakavarga:** These vegetables, fruits have *rasayan* effects.

- *Jivanti*- leaves of (*Lepadinia reticula*)
- *Punarnava*- leaves of (*Boehaviadiiffusa*)
- *Shatavari*- shoot of (*Asparagus Racemosus*)
- *Bala* – (*Sida Cordifolia*)
- *Shingataka* – (*Trapa bispinosa*)
- *Varahakanda* – (*Dioscoriambulifera*)
- *Khajura* – (*Phoenix dactylifera*)
- *Mrudvika* – (*Vitus vinifera*)

### Rules of dietary conduct-

The principle of eight rules of dietary processing( *AshataAaharVidhiVisheshayatane*)<sup>[16]</sup>. *Prakruti* (original qualities of food), *Karana*( producing specific qualities by processing and cooking food), *Samayoga* (combination), *Rashi* (Quantity), *Desh* (place of origin of food), *Kala* ( time factor), *Upayogasanstha* (rules of intake), *Upayokta*(user).

*AcharyaCharaka* emphasized that wise person should understand good and bad outcomes of right and wrong eating habits. Acharya mentioned 12 rules of consuming food (*Dwadashbhojanvidhi*)<sup>[17]</sup> which must followed elderly people while eating the food to get proper beneficial effect of food.

- Eat warm.
- Eat unctuous food
- Not to eat too fast.
- Not to eat too slow
- Do not talk while eating.
- Do not laugh while eating
- Food intake with self confidence.
- Eat in pleasant place with full concentration.( Do not watch television or screen while eating)
- *Meetaahar*: one must fill half your stomach with solid food , a quarter with liquids and keep a quarter empty. Overeating results in partially digested food which in responsible for producing *ama*’.
- *Jirnaahar*: One must eat after digestion of first meal. Digestive system takes 4 to 5 hours to digest the food.
- *Sarvarasaabhyasa*: Include all six taste in your meal sweet, sour, salty, pungent, bitter and astringent.<sup>[18]</sup>

Similarly, the concept of **virudhahara** (dietary incompatibility) and its 18 types to be observed in dietary care and people should aware about it.

### Lifestyle:

Not only diet can change *Asthikshaya* pathology, but changes in **lifestyle with physicalexercises are necessary** to maintain bone mass.

Lifestyle must be like mentioned in *Aachar Rasayana* by Acharya Charaka.<sup>[19]</sup> For e.g. quit alcohol and smoking.

Exercises like walking, cycling, swimming and practising suitable *Yogasana* should be included in daily regimen. Asana in upright posture are most important.

- All types of stretching (*sukshma vyayama*)
- Sun salutation (*Suryanamaskar*)
- *Trikonasana*
- *Vrukshasana*
- *Veerasana*

#### DRUGS-

Acharya Charaka mentioned 50 *Mahakashaya* in forth chapter of *Sutrasthana*. This group consists of 10 herbs each exhibiting one common pharmacological action. One such group is the *sandhaniya Mahakashaya*<sup>[20]</sup> called unifying medicine. It includes

*Madhuyashti, Guduchi, Prishnaparni, Patha, Lajalu, Mocharas, Dhataki, Lodhara, Priyangu, Kaphala*. It is well known fact that these plants can repair the wound and fracture in their natural way. These drugs help in regeneration and healing of the damage body tissues so in this article four plants *Madhuyashti, Guduchi, Prishnaparni, Priyangu* from this *Mahakashaya* group are reviewed regarding their ability to manage the healing of the bone either porotic or fractured.

With all these drugs we can *siddha Ghrita* or *Kshira (kshirpak)* to administer to *Asthikshaya* patient.

**Bhavprakashasamhita** mentioned the *guna* and *karma* of drugs are listed in following table. Acharya Vagbhata mentioned that *Priyangu* is the best *sadhankardravya*.<sup>[21]</sup> Acharya Sushruta also mentioned *priyangu adiganaas* unifying (*sandhaniya*) function.<sup>[22]</sup>

Drugs Name	Botanical Name	Family	Rasa	Vipaka	Virya	Guna	Karma
<i>Madhuka</i> <sup>[23]</sup>	<i>Glycyrrhiza Glabra</i>	<i>Fabaceae</i>	<i>Madhur</i>	<i>Madhur</i>	<i>Sheeta</i>	<i>Guru Snigdha</i>	<i>Balya, Varnya, Vranahara, Shothahara, Vishagna, Raktapittashamak</i>
<i>Madhuparni/Guduchi</i> <sup>[24]</sup>	<i>Tinospora Cordifolia</i>	<i>Menispermaceae</i>	<i>Tikta Kashaya</i>	<i>Madhur</i>	<i>Ushna</i>	<i>Snigdha, Mrudu</i>	<i>Rasayana, Balya, Deepana, Amahara</i>
<i>Prishnaparni</i> <sup>[25]</sup>	<i>Uraria Picta</i>	<i>Fabaceae</i>	<i>Madhur Katu</i>	<i>Madhur</i>	<i>Ushna</i>	<i>Laghu Sara</i>	<i>Tridoshashamak, Vranahara, Dahashamak, Jwarghna</i>
<i>Priyangu</i> <sup>[26]</sup>	<i>Callicarpa Macrophylla</i>	<i>Lamiaceae</i>	<i>Tikta Kashaya Madhur</i>	<i>Katu</i>	<i>Sheeta</i>	<i>Guru Rukasha</i>	<i>Vatahara, Dahahara, Jwarghara, Vishghana</i> <b>Best</b> <b>Bhagnasandhankar</b> in <i>Agrasngraha</i>

### Modern aspect of Drugs

*Madhuka*<sup>[27]</sup> (*Glycyrrhiza glabra*): commonly called as Liquorice / sweet wood is drug with sweet taste .It helps in accelerating wound healing .The potent chemical constituents, such as Glycyrrhizic acid and Glabridia are having anti-oxidant and anti inflammatory properties. The drug provides nourishment to tissues, promote proper blood supply to the ulcer. It helps healing the wound gives stability to newly form tissue.

*Madhuparni/Guduchi*<sup>[28]</sup> (*Tinospora Cordifolia*) : A variety of active components derived from the plant like alkaloids , steroids, *diterpenoid* lactones , *aliphatics* and glycosides is known for *immunomodulating*, anti-neoplastic activities' also has anti-diabetic, anti-periodic, anti-spasmodic, anti-inflammatory, anti-arthritis, anti-oxidant, anti-allergic, anti-stress, anti-leprotic, anti-malarial, *hepatoprotective* properties

*Prishniparni* (*Urariapicta*)<sup>[29]</sup> : It is perennial herb with distinct leaves . It is important ingredient of 10 herbs of *Dashmoola* which is known anti-inflammatory formulation. The useful part are roots. Roots are having anti-microbial and anti –*inflammatory*, anti septic properties. Leaves are also having anti-septic properties., used for treatment of wounds. And because of early accumulation of phosphorus and more deposition of calcium, it's very useful for fracture healing.

*Priyangu*<sup>[30]</sup> (*Callicarpa Macrophylla*): There are 2 varieties *Priyangu*, *Gandhapriyangu*. The second one is fragrant one. All parts of plant are used root, bark, leaves

flower and fruits. Alcoholic extract of stem showed presence of glycosides, flavinoids, tannins, carbohydrates, steroids and absence of alkaloids, saporine ,proteins and amino acids. While aqueous extract shows same constituents. Pharmacological properties are analgesics, digestive, blood purifier. Bark is used in the treatment of rheumatism. The plant has many chemical constituents which are responsible for various pharmacological and medicinal properties.

### Discussion:

In this article, *Asthikshaya* is considered is due to *Jarawasthadhatukshaya*. And treatment of *Asthikshaya* should be done considering *vataprakopa*. So one must follow the diet, dietary rules, life style and exercises mentioned in this article to prevent the complication(fractures) of *Asthikshaya* . Also the plants discussed in article are *pruthvimahabhuta* dominating drugs, having *snigdha*, *deepanguna*. Though they are having *tikta*, *katu*, *kashayarasathat* may aggravate *vata*, they can be administer with *ghrita* or *kshira* . These plant *siddhaghrita* or *kshira* provide nourishment to *Asthi*.

### Conclusion:

*Asthikshaya* (Osteoporosis) is most common metabolic bone disorder characterised by reduced bone mass and osteoporotic fracture. This condition seriously affects the quality of life of individual and needs an effective treatment without adverse effect. So diet, lifestyle with



exercises and drugs/plants mentioned in *sandhaniyamahakashaya* are proved helpful in osteoporotic changes. These drugs are easily available, simple for administration and devoid of any adverse reactions. Further clinical studies can be planned to establish their role in the management of *Asthikshaya*.

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**Conflict of Interest:**

Non

**DOI:**

<https://doi.org/10.52482/ayurline.v5i03.591>

**Source of**

**funding:** Nil

**Cite this article:**

*The effect of SandhaniyaMahakashaya along with diet and exercises in management of JarawashthaAstikshaya and Astibhagna with special reference to Osteoporosis- A Review*  
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*Ayurline: International Journal of Research In Indian Medicine 2021; 5(4):01-08*