



**CONCEPT OF ASTHI & SANDHI SHARIRA AND RELATED ABNORMALITIES: A REVIEW**

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Article Received on 14/05/2021

Article Revised on 04/06/2021

Article Accepted on 24/06/2021

## ABSTRACT

The structural constitution of human body explained by classic Ayurveda literature and in this regards special emphasis was made towards the Asthi Sharira and Sandhi Sharira. The Asthi and Sandhi play vital role in structural frame work of body, responsible for movements, firmness and strength of body. The Asthi Sharira and Sandhi Sharira involve in function of Sharira dharana, provide shape and protect vital organs of body. However these components of body may suffer with problem of Vriddhi and Kshaya. The healthy state of Asthi dhatu leads strong bones. The knowledge of Asthi and Sandhi Sharira is very important to resolve abnormalities related with these components of body. Considering this present article explored general concept related to anatomical considerations of Asthi & Sandhi Sharira and related abnormalities.

**KEYWORDS:** Ayurveda, Sharira, Asthi, Sandhi.

## INTRODUCTION

The classical approaches of Ayurveda are old as evolution of human civilization; the Ayurveda as most ancient medical science contributed greatly towards the health restoration of human society. Ayurveda described various aspect of diseases and their management, the pathogenesis of many disease associated with anatomical aspects of body therefore it is required to understand various perspective of human body (*Sharira*). The body made up from various *Dhatus* and *Asthi* is one of them, *Asthi* is structural components of human body not only constituent frame work but also provide rigidity and support. The bone tissue is important supportive framework of human body and deformities in *Asthi* leads many orthopedics problems. Knowledge of anatomical aspect of human body is prerequisite to cure pathological problems associated with *Asthi* & *Sandhi Sharira*. Trauma, injury, surgical mistake, congenital disease and age related degeneration are major health issues related to *Asthi Sharira*. Ayurveda mentioned approaches to manage some of the abnormalities related to *Asthi* & *Sandhi Sharira*.<sup>[1-4]</sup>

### ***Asthi Sharira***

As per Ayurveda the major functions of *Asthi Sharira* are *Deha Dharana*, *Majja Pushti* and *Asthi* also provides supports to the *Mamsa* and *Snayu*, *Asthis* connects whole

structure of body and responsible for physical strength. Rigidity, firmness and body frame are resultant of *Asthi Sharira*.

As per Ayurveda there are various types of *Asthi* i.e.; *Kapala-Asthi*, *Valaya-Asthi*, *Taruna-Asthi*, *Nalika-Asthi* and *Ruchaka-Asthi*. The anatomical descriptions of these *Asthis* are follows:

- *Kapala-Asthis* are flat, covers and protects brain. *Kapala-Asthi* is present in *Janu*, *Amsa*, *Nitamba*, *Talu* and *Shankha*, etc.
- *Valaya-Asthis* are round or hemi circle in shape. *Valaya-Asthi* present in *Pani*, *Uru*, *Pada*, *Parshva*, *Valayasthi* and *Prustha*. Bones of *Pada*, *Griva* and *Hasta* also counted in this category by some commentators.
- *Taruna-Asthis* are soft in nature, these are not fully developed i.e. bones of child therefore termed as *Taruna Asthi*. *Taruna Asthis* are *Karna*, *Ghrana*, *Akshikuta* and *Kantha Asth*.
- *Nalika-Asthis* are long, hollow like tubes and reed shaped. Bones of *Pada Anguli*, *Pada Tala*, *Kurcha*, *Hasta Anguli*, *Jangha Asthi* and *Bahu Asthi*, etc. are considered *Nalaka Asthi*.
- *Ruchaka-Asthis* are differently made to chew food and related with taste sensation. *Dashanas* known as *Ruchaka Asthi*, they are 28 or 32, here *Danta* also

considered as *Asthi* along with other associated parts which helps in process of chewing.<sup>[3-6]</sup>

### As per Modern Science

Modern science also described various types of bones as depicted in **Figure 1**, these bones found in various parts of body. Flat bones are found in knee, palate, shoulder,

pelvic, cheek, temples and skull. Teeth also considered as teeth bone found in oral cavity, cartilages bone found in nose, ear, orbit and neck. Curved bones are ribs, vertebrae, and tubular bones are long bones of upper and lower limb. Another contemporary view also categorize bones anatomically as short bones, long bones, flat bones, irregular and sesamoid bones.



**Figure 1: Types of Bones as per Modern Science.**

### *Asthi Jala / Anatomical Network*

*Asthijala* is one the network-like structures amongst the four *Jala* (network like frame), the other network are *Mamsa Jala*, *Sira Jala* and *Snayu Jala*. These all networks are associated with each other. They are present in ankle joints, wrist and interlinked together.

### Abnormalities related to *Asthi*

Dietary, lifestyle, injury and surgical factors, etc. are major causes of vitiation of *Asthi Dhatu*, dietary causes includes excessive consumption of *Vata* aggravating foods, possessing *Ruksha*, *Sheeta* and *Khara* properties. Lifestyle causes includes; excessive or inappropriate physical exercise, jerky movements, sedentary life style, long riding and activities which causes pressure on bones. These factors can leads abnormalities like; loss of scalp, fatigue, joints problem, pain, immobility and loss strength of bone so they become fragile and deformities, etc.

The major injury to bone results *Bhagna* (fracture) in which painful symptoms of restricted movement arises in affected bony tissue. *Acharya Sharangadhara* has described varieties of *Bhagna* i.e.; *Bhagna prista*, *Vidari*, *Vivartita*, *Vishlishata*, *Adhogata*, *Urdhvagata*, *Sandhibhagna* and *Tiryaka kshipata*. *Bhagna Chikitsa* described for the management of *Bhagna* and other abnormalities related to the *Asthi Sharira*.

The different bones respond differently for trauma or injury as follows:

- *Tarunasthi* becomes bending due to the injury
- *Nalkasthi* break or fractured due to the injury
- *Kapalasthi* sustain as crack after trauma
- *Ruchkasthi* get fragmented as consequences of injury
- *Valayasthi* get crack or break as resultant of injury/trauma

### *Sandhi Sharira*

The *Sandhi* is meeting point of two or more structures, *Sandhi* or joint formed due to the joining/meeting of two or more bony structures. The classification of *Sandhi* on the basis of movements is *Alpacheshta*, *Acheshta* and *Bahucheshta*, on the basis of structure they are classified as *Kora*, *Samudga*, *Ulukhala*, *Pratara*, *Vayastunda*, *Tunnasevani*, *Mandala* and *Shankhavarta*.

*Ulukhala Sandhi* looks like stone grinder, *Samudga Sandhi* looks like a box, *Pratara Sandhi*, are flat and floating; *Tunnasevani Sandhi* resembles dentate edges, *Vayastunda Sandhi* situated within *Shankhasthi* both side of chin, *Mandala Sandhi* are oval or round and *Shankhavarta Sandhi* are circular in nature.<sup>[6-9]</sup>

- *Kora Sandhi* found in *Manibandha*, *Anguli*, *Gulpha*, *Kurpara* and *Janu*.
- *Udukhal* found in *Vankshana*, *Dashana* and *Kaksha*
- *Samudga* locate in *Guda*, *Nitamba* and *Bhaga*
- *Pratara* locate in *Greeva* & *Prushthavansha*
- *Tunnasevani* resides in *Katikapala*
- *Hanu* is *Vayastunda*
- *Mandala* formed in *Hrudaya* & *Kantha*
- *Shankhavarta Sandhi* occurs in *Shrotra* & *Shringatka*.

### CONCLUSION

Ayurveda has given prime focuses to *Asthi Sharira* since classical texts considered *Asthi Sharira* as *Saara* of body. *Asthi Sharira* are responsible or various function in body including *Majja Pushti*, *Deha Dharana*, provides supports to the other body parts; *Mamsa* and *Snayu*, *Asthis* gives strength, imparts rigidity & firmness to the body. There are various types of *Asthi* i.e.; *Kapala*, *Valaya*, *Taruna*, *Nalika* and *Ruchaka Asthi*. These different *Asthis* found in various parts of body. Similarly Ayurveda mentioned concept of *Sandhi Sharira* as meeting point of two or more structures. There are

various types of *Sandhi* which found in different region of body, on the basis of structure they are classified as *Kora*, *Samudga*, *Ulukhala*, *Pratara*, *Vayasatunda*, *Tunnasevani*, *Mandala* and *Shankhavarta*. *Sandhi* connects tissue and responsible for mobility and flexibility.

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