

**A CONCEPTUAL REVIEW ON TARUNASTHI WITH SPECIAL REFERENCE TO  
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**INTRODUCTION**

The precise knowledge of body parts is useful for health maintenance and improvement. If body constituents are known properly then the factors helpful for up-gradation of health can be easily understood. "Sharir" provides thorough information about these constituents of the body. So the study of "sharir" is inevitable in any medical science.

Like trees are supported by core, human body stands with the help of essence of body called the 'Asthi'. Though disintegration of muscles, skin and other soft tissue occurs, gist bones do not mould "Mamsa-pinda" bounded to 'Asthi' with the help of 'Sira' and 'Snayu' can't either collapse or prolepses because of its patronage. So the 'asthis' are of utmost importance. All the movement of human being is an endowment of the Asthi because they serve as levers for muscular actions.

"Asthis" are classified into 5 types, viz. Kapalasthi, Ruchakasthi, Tarunasthi, Valayasthi and Nalakasthi. The concept of "Tarunasthi" is a genuine concept of Ayurveda. This is because, Tarunasthi are not included under asthi (bones) in modern anatomy. Hence a deep study of Tarunasthi becomes necessary.

Tarunasthi are present in Ghrana, Karna, Greewa and Akshi-kosha. Though specific locations of Tarunasthi have been mentioned in Ayurvedic texts, these are found all over the body. This research aims at studying Tarunasthi and Mandal-sandhi found in Klomanadi. It is also my attempt to re-assess the locations of above mentioned Tarunasthis in the Ayurvedic texts. The aggregation of two or more structures is known as 'Sandhi'. 'Cheshtawanta-sandhi' and 'Sthira-sandhi' are two types of Sandhi. Again anatomically sandhis are classified into 8 types i.e. Kora, Ulukhala, Samudga, Pratara, Tunnasevane, Vayastunda, Mandala and Shankhavarta. Mandala sandhis are found in Kantha-hridaya, Netra and Klomanadi. Structurally mandal-sandhis are rounded joints. The difference of opinion is found in Ayurvedic texts regarding the number of mandal-sandhi. Therefore this research will help in determining the number of mandal sandhis. While

searching for review of previous studies at various places, the topic tarunashti and mandal-sandhi were untraced. Tarunasthis can be correlated with cartilages of modern science. The cartilages play an important role in the skeletal frame-work of body. Also it is seen that most of the bones are cartilaginous before their ossification, so it is my attempt that such a fundamental thing should not remain unclear. It will help for updating Ayurvedic literature.

Klomanadi is again one of the obscure topic which has cartilages. Difference of opinion in the text of Astang-sangraha and Sushruta-samhita is found about klomanadi. Charakacharya has included 'Kantha' in Dashpranayatana and 'Kloma' in Panchdashakostanga. These two organs are related to klomanadi hence anatomical study of klomanadi is necessary.

**CONCEPTUAL REVIEW ON TARUNASTHI**

Tarun (meaning):- Komal, Mulayam, Navin, Taja, Saras.

**Tarunasthi**

- Type of Asthi
- Tarunam-Asthi
- Komal – Asthi

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Tarunasthis are numerous and precarious in number. Nails and teeth originate from the Twacha. Hard bones are of four types viz. Kapalasthi, Valayasthi, Nalakasthi and Vishamasthi. Tarunasthi are not included in above mentioned four types. For example Tarunasthi are present at vertebral column in the form of intervertebral

discs, also in joints, chondral part of ribs, nasal wall, pinna of ear and in trachea, bronchi and their branches.

### **Uroh-asthi agrapatra (xiphoid Process)**

It is a cartilaginous third part of sternum, which is superiorly attached to the body of sternum. It is raised anteriorly during hepatomegaly. Its anterior part receives insertion of abdominalis transversalis, while the anterior part of diaphragm muscle is attached on its posterior surface. In old age it ossifies and becomes tough.

### **Upa-parshuka (costal cartilage)**

Like 24 ribs (12 on each side of sternum), these are attached to tip of ribs which are cartilaginous. In the ancient texts these are counted in Urohasthis.

### **Nasasthi (nasal cartilage)**

Inferior nasal cartilage unites to form the lower portion of nasal wall.

Out of 41 Gunas, 20 Sharir-guna (gurwadi guna) are very helpful to understand the accretion and wane of 'Sharirdhatu'. These 'Gurwadi Gunas' are Guru, Laghu, Sheeta, Ushna, Snigdha, Ruksha, Manda, Teekshna, Sthira, Sara, Mrudu, Kathina, Vishada, Picchila, Shlakshna, Khara, Sukshma, Sthula, Sandra and Drava. Of these 20 Guna, intake of Guru-aahar and vihara nourishes the gunas, which are guru (heavy), in nature. And those, which are laghu in nature, get decreased. Similarly Laghu-Sharirdhatu are well fed by intake of laghu-aahar-vihara and Guru-Sharirdhatu decline by laghu-aahar-vihara.

In this way accretion in all dhatu guna takes place by intake of similar guna and wane by intake of adverse guna. So the growth of 'Mamsa-tatva' is relatively more by consumption of 'Mamsadhatu' than other dhatus of the body. For such increase in 'Raktadhatu' one should eat raktadhatu, eating 'Medas' will increase medodhatu, intake of 'Vasa' will raise vasa, consumption of Tarunasthi will produce growth of Asthidhatu, eating 'Majja' will update majjadhatu, 'Shukra' consumption will increase sukradhatu and similarly Garbha (Faetus) will grow by aamgarbha (egg).

### **Locations of Tarunasthi in the body**

Sushruta in his sharirsthana 5/20, and in Ashtang sangraha sharir 5/72 say that The Tarunasthis are located at Ghrana, Karna, Greeva and Akshikosh.

**GHRANA:-** Ghrana is one of the 'Buddhindriya' (Sense organ). It is rich in 'Parthivatva'. It holds and identifies the smell so it is called 'Ghrana'. Pruthivi is its material, Nasika is its location, Gandha (smell) is matter, and Smell sense is 'Indriyabuddhi'. It is a location of Bahirmukh srotasa (external openings), there are two nasal openings regarded as 'Bahirmukh srotasa'. Also it is one of location of Kaphadosha.

It is regarded as olfactory area of the nose. Ingenious commentator shri Arundatta mentioned a note on Ghrana

is a specific location in nose and this particular part is 'Ghranendriya-adhishtan'.

### **1. Nasa (nose)**

'Nasa' or 'Nasika' having location of 'Ghranendriya' also provide safe and straight passage for conduction of air to the lungs. So it is included in respiratory system. It is also called Nasika, it is one of "Sheersha-pratyangam" (upper organ of body). Nasa-randhras are two in number and these are included in nine 'Bahirmukh srotasa'.

'Nasika' is a one of the location of sense organ, i.e. 'Ghrana'. It measures about four Anguli in length. It is a functional area of 'Udan-vayu' because the places of Udan-vayu are Nasa, Gala, Urah and Nabhi. Nasa is also called the entrance for Sheerah (Caput). Nasya aushadhi (nasal drug) administered through this route is acquired by 'Moordha' (brain) via Srotah-srungataka. It is very effective in diseases of eye, ear, throat etc. and all diseases of head and neck.

### **2. Karna (ear)**

It is a sense organ, which is situated in 'Jatrurdhva' position. Karna is a location of 'Shrotendriya'. It measures about four Angula in length. Sometime it is pierced in children and women for jewellery purpose. Karna, Shravana, Shrotra or Shabdapath are the well-known synonyms of the ear. It is a habitation of 'Shrotendriya'. It can be said as organ of hearing.

Acharya Charak clearly mentioned 'Karnashashkuli' or 'Karnashashkulika' (Pinna) in 56 Pratyangas (organs). Karnashashkuli consists of Tarunasthi, which is covered by a thin coat of Twacha and Mamsa. It is attached to the lateral side of 'Shankhasthi' i.e. temporal bone. It is pinna shaped so it is called pinna of ear or an auricle.

**Karnaputraka (bahyakarna):** It is a part of external ear, it is one of Pratyanga of the body. These are two in number, one on each side. Karnaputraka is a small, curved and triangular flap, which projects backwards over the orifice of the meatus. It is also called as tragus.

Karnapali or ear lobule is lowermost dangling part of the external ear. It is pierced through 'Daivakruta' hole for jewellery purpose.

### **3. Greeva**

Greeva is a Pratyanga of body, it is also called as 'Manya'. It represents Kaphasthana. The distance between Greeva and 'Drushtimandala' is four angula. It is situated inferior to head. Sushrutacharya mentions twenty angula as circumference of greeva and it is one in number.

The number of bones in Greeva and above its i.e. head is 63.

#### 4. Akshi-kosha

Following words are seen mentioned in various Ayurvedic texts. These are used either as synonymous or related parts of eyelids. Akshikosh, Akshiputa, Akshibandhani, Akshivartma, Akshivartma-Kosh, Netrakosh, Netracchadan, Netraputa, Vartma, Vartma-kosh, Vartma-patala, Vartma-mandala, Vartma-Mandaltarunasthi, Vartma-sandhi, Vartmashuklasandhi. While describing the places of Tarunasthi Sushrutacharya mentioned the word 'Akshikosh'.

The word 'Akshikosh' signals sheath or saccular structure. Since it is a place of Tarunasthi, one cartilaginous structure found here is Tarsal cartilage. If Akshikosh is a saccular and cartilaginous structure then it is nothing but an eyelid.

#### DISCUSSION AND CONCLUSION APPLIED ASPECT OF TARUNASTHI

Curable 'Kushtha' (Leprosy) when ignored, the vitiated kaphadosha will lead to the formation of worms. These worms simultaneously eat Twacha, Rakta, Mamsa, Lasika, Sira, Snayu and Tarunasthi.

Raktaj Krumi after multiplication increase in abundant quantity and start eating to destroy various tissues of the body like Twacha, Sira, Snayu, Mamsa and Tarunasthi.

Inhalation of irritant smell, sunrays, thread, grass and other Vayu wreathing focuses when scraps the nasal Tarunasthi, it vitiates the local Vayu. Further it causes inflammation of nasal cartilages and remaining vayu when stuck it get transferred to 'Shrungatak'. As the transferred Vayu comes back it causes sneezing, such a pathological condition is known as 'Bhrushkshava'.

Both the type of Kshara (Bahyaparimarjan and Antah-parimarjan) should not be applied over vital parts like Marma, Sira, Snayu, Sandhi, Tarunasthi, Sevani, Dhamani, Gala (Throat), Nabhi (Umbilicus), inside nails etc.

- **Tarunasthi- Marma**

The two 'Nitamba Marma' are placed under Tarunasthi attached on the each side of the ribs, which covers the organs above the 'Kshronikarna'. If it is hurt then oedema develops over lower body parts, gradually loses power and finally death occurs.

#### APPLIED PART OF CARTILAGE

##### Chondroma

This tumour consists of a mass of cartilage, which originates from the pre-cartilaginous cells of the bone. There are four varieties of chondroma.

- Short bone chondroma
- Long bone chondroma
- Flat bone chondroma and
- Benign chondroblastoma

The tumour may arise from any bone and may even arise in synovial membrane.

**i) Short bone chondroma:** This is the commonest variety of chondroma. It usually occurs in one of the short long bones e.g. metacarpal, metatarsal and proximal phalanx.

Two varieties are usually seen.

##### A) Enchondroma

is a condition in which the tumour is entirely within the medulla. Treatment - is excision of the tumour material and covering it with chip grafts.

**B) Ecchondroma:** It protrudes well beyond the confines of the bone. Treatment - is again excision alongwith its lining capsule followed by bone graft or bone chips inserted in the gap.

**ii) Long bone chondroma:** Very rarely chondroma may affect long bones. The patients are usually teenagers or young adults. They usually complain of a constant ache at the tumour site.

Long bone chondromas are mostly ecchondromas and malignancy may supervene. Treatment- is excision, particularly due to possibility of malignant change.

##### iii) Greenstick fracture

As the bones of the children are resilient, these are liable to bend due to trauma. But fracture occurs at one cortex when the angulation goes beyond the limit of bending. Such fracture through one cortex while the opposite cortex remains intact is termed 'greenstick fracture'.

#### CONCLUSION

Reviewing the available literature, the following conclusions are obtained. Asthi is one of Sharir-dhatu which is constructed for the support of body. It is classified into 5 type viz. Kapalasthi, Ruchakasthi, Tarunasthi, Valayasthi and Nalakasthi. Asthi can be correlated with 'bone' of modern science, hyaline cartilage is a prototypical form of bone.

Tarunasthi is a type of Asthi according to Ayurveda. It is synonymous to cartilage of modern science. All the three types of cartilage i.e. Hyaline cartilage, fibro-cartilage and elastic cartilage, constitute an Ayurvedic term 'Tarunasthi'. Sandhis are described in the context of Asthi. Anatomically sandhis are of 8 type viz. Kora, Ulukhala, Samugda, Pratara, Tunna-sevane, Wayastunda, Mandala and Shankhavarta. Mandalsandhi are the cartilaginous joints. These cartilaginous joints are ring shaped or rounded in structure. Mandalsandhi are usually found in cartilaginous respiratory tubes i.e. swasapath.

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