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Critical anatomical review of *Tarunasthi* (cartilage tissue) in Ayurveda

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ABSTRACT

The human anatomy (*Shareera Rachana*) is an important for allied health sciences. It is one of the fundamental subject to the health science. Acharyas like *Sushruta*, *Charaka* and *Vagbhata* were given importance to the knowledge of *Rachana Shareera*. *Tarunasthis* are consider as a bone in Ayurvedic science are synonymous to cartilages described in modern medical science. It comes under 5 types of *Asthi*. Its locations mentioned in Ayurvedic text are *Ghrana*, *Karna*, *Greeva* and *Akshikosh*. The description of *Tarunasthi* is sporadic and scattered all over in Ayurvedic texts. In this review of applied part of *Tarunasthi* and its importance in *Sharira* has been discussed.

Key words: *Asthi*, *Tarunasthi*, *cartilage tissue*.

INTRODUCTION

Life Acharya *Sushruta* states that the aim of describing “*Shareera Sthanam*” is to acquire a complete knowledge of the *Shareera*. Ayurveda have classified the elements of the body under three fundamental components viz. *Dosha*, *Dhatu* and *Mala*. These three entities are responsible for the maintenance of the structural and functional integrity of the body. They mentioned that, the bone do not decay after death and remains as for longer duration. The *Asthi* is the *Pitrujabhava Avayava* and formed by the *Prithvi* and *Apamahabhuta*. The shape of the body is due to the articulation of the bony frame work, this bony framework supports the body just like trees stands on

support of their inner wood. In the Ayurvedic science *Asthis* are classified into five group viz. *Kapalasthi*, *Ruchakasthi*, *Tarunasthi*, *Valayasthi* and *Nalakasthi*. Similar opinion is found regarding 5 types of *Asthi*, in various Ayurvedic texts. *Taruna* (derivation and meaning), *Komal*, *Mulayam*, *Navin*, *Taja*, *Saras*.^[1] *Tarunasthi* means *Komal* (soft), *Asthi* (bone). *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.

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Locations of *Tarunasthi* in the body^[2]

The *Tarunasthis* are located at *Ghrana*, *Karna*, *Greeva* and *Akshikosh*.

- Ghrana* (nose):** *Ghrana* is one of the ‘*Buddhindriya*’ (Sense organ). It is rich in ‘*Parthiv Tatva*’. 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. *Ghrana* is a specific location in nose and this particular part is 'Ghranendriya - Adhishtan'.^[3] '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 area of 'Nasaputa' is one *Anguli*. It is also stated that including *Tarunasthi* the measurement of *Nasaputa* is two *Anguli*.^[4]

2. **Karna (ear):** It is a sense organ, which is situated in 'Jatrurdhva' position. *Karna* is a location of 'Shrotrendriya'. It measures about four *Angula* in length. Some time 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 'Shrotrendriya'. It can be said as organ of hearing. *Acharya Charak* clearly mentioned 'Karnashashkuli' or 'Karna-shashkulika' (Pinna) in 56 *Pratyangas* (organ).^[5] *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.^[6] *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. *Karnaputrika* is a small, curved and triangular flap, which projects backwards over the orifice of the meatus. It is also called as *tragus*.^[7] *Karnapali* or ear lobule is lower most 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 *Angulas* circumference of *Greeva* and it is one in number. The number of bones in *Greeva* and above its i.e. head is 63.^[8]

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*, *Vartma-shuklasandhi*. 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.
5. **Tarunasthi-Marma:**^[9] The two 'Nitamba Marma' are placed under *Tarunasthis* 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.

DISCUSSION

In modern science elastic cartilages are placed at locations where vibrational functions are needed. *Tarunasthis* can be co-related with cartilages of modern science. Cartilages are chiefly divided into three group viz. Hyaline cartilage, Fibro-cartilage and Elastic cartilage. Cartilages of 'Ghrana' and *Greewa* are hyaline cartilage. External ear contains yellow elastic cartilage. Fibro-cartilage is not present in 'Akshikosh' but a cartilage like structure which is composed of fibrous tissue is present. It is called as tarsal plate which helps for the formation of eyelid skeleton. Hence it can be said that all three types of cartilage i.e. hyaline cartilage, fibro-cartilage and elastic cartilage, may be included in Ayurvedic term 'Tarunasthi'.

Applied part of Tarunasthi

Tarunasthi droops by an accent, the same breaks *Nalakasthi*, ruptures (Shatteres) *Kapalasthi* and disband *Ruchakasthi* and *Valayasthis*. *Kushtha* -

Dereliction - *Kaphaprakopa* : Curable '*Kushtha*' (Leprosy) when ignored, the vitiated *kaphadosha* help to the formation of worms. These worms simultaneously eat *Twacha*, *Rakta*, *Mamsa*, *Lasika*, *Sira*, *Snayu* and *Tarunasthi*.^[10] *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*.^[11] 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 '*Shrungata*'. As the transferred *Vayu* comes back it causes sneezing, such a pathological condition is known as '*Bhrushkshava*'.^[12] 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.

CONCLUSION

Tarunasthi is a type of *Asthi* according to Ayurveda. It is synonymous to cartilage of modern science. The cartilages which are soft and flexible are only included in *Tarunasthi*. If it is compared with modern science, all the three locations i.e. *Ghrana*, *Karna* and *Grewa* contain the hyaline and elastic type of cartilages.

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