



ANATOMICAL INTERPRETATION OF SNAYU SHARIR ACCORDING TO AYURVED AND MODERN SCIENCE

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Article Received on 21/02/2023

Article Revised on 13/03/2023

Article Accepted on 02/04/2023

ABSTRACT

Snayu is one of the important anatomical structures in the human body which is strong and holds all the joints. *Snayu* is most important structure which is closely related to Bone that help in Binding along with *mamsa* and *meda*. All the joints are bound together by *Snayu*. According to shape and location the *Snayu* are of four types: *Pratanvati*, *Vritta*, *Sushira* & *Prithula*. Acharya Sushruta compares the function of *snayu* with Binding plates of Boats, which allows the Boat to bear the weight and float easily in the deep water. In this study the reference related to *snayu* is collected from available literature and tried to explained *snayu* as a structure form i.e Fibrous structure. *Snayu* may be ligament, Tendon, Retinaculum, Aponeurosis.

KEYWORD: *Snayu*, Fibrous Structure.

INTRODUCTION

Depending upon the shape and their locations, the *Snayu* is classified into four types, *Pratanvati*, *Vritta*, *Sushira* and *Prithula*. *Sandhi*(joint) is important for locomotion and other function. The Strength of joint depends upon the *Snayu*, *Asthi* and *Mamsa*. *Snayu* maintains the stability of joint during movement of the body. Any traumatic injury to the joint causes severe pain, swelling, sprain and improper movements of the joint. The role of *Pratanvati Snayu* in stabilizing the joints as per concept of modern medical sciences is very important. Even though its uses are elaborated in Samhitas its application in today's era should be more explained with the help of modern concepts of stabilization of joint. Therefore, this work was undertaken for comparison and application of concept of *Snayu*. The elaboration and clarification of the term *Snayu* is required here along with its parallel correlation with ligaments, tendon and aponeurosis and other relevant structures in modern medical sciences. In this way the anatomical importance of *Pratanvati Snayu* as a structural constituent of human body, its role in the movement of joints and its applied value with a modern and scientific approach could be stabilized. It will also provide the certainty and clarity to the basic concept of *Snayu*.

AIM AND OBJECTIVE

1. To Study the *Snayu Sharir* from available literature.
2. To Study the Structure related to *Snayu* according to modern science.

MATERIAL AND METHODOLOGY

Literature Available from Ayurved and Modern Text. Literary study of *Snayu* was done using all concerned ayurved text book.

Review of literature

Nirukti of Snayu :-The word *Snayu* is formed from the word root (Dhatu) 'Sna'. 'Sna' Dhatu when combined with 'un' and 'yuk' *Pratyaya* forms the word *Snayu*.

Utpatti of Snayu:- From the *Medas* both *Sira* and *Snayu* are formed, *Sira* arise from *Mrudu Paaka* and *Snayu* from *Khara Paaka*. The essence of *Meda* is the *Asthi*, *Snayu* and *Sandhi* and its waste is *Sveda*.

Snayu Sankhya:- According to Sushruta *Snayu* are 900 in number out of which 600 are in *Shakha*, 230 in the *Koshth* and 70 in *Griva* and above. Of these, 6 are present in each of the fingers of the foot, so thirty in total; the same number in *Pada Tala*, the same in *Pada Kurcha* and *Gulpha* the same number in *Jangha*, 10 in *Janu*, 40 in *Uru*, 10 in *Vankshana* – thus these are 150 in one leg in this way other leg and the two are arms described. 60 are present in *Kati*, 80 in *Prustha*, 60 in the two *Parshva*, 30 in *Ura*, 36 in *Griva*, 34 in *Murdha* in this manner 900 *Snayu* are described.

Snayu Bheda (Types of *Snayu*) *Snayu* are of four kinds i.e. *Pratanvati*, *Vrutta*, *Pruthu* and *Sushira*. *Vrutta* (round/ cylindrical) are known as *Kandara* by the experts. *Prathu* (thick big) are present in *Parshva* (flanks), *Uras* (chest) *Prustha* (back) and *Shir* (head).

Sushira (hollow, ring like) are present at the terminal part of *Amashaya* (stomach), *Pakvashaya* (large intestine) and *Basti* (urinary bladder).

1. *Pratanavati Snayu*:- *Pratanavati* means a tendril, a shoot, a low spreading plant, a spreading creeper and branching out. These are said to be present In *Shakha* and all *Sandhi*. So *Pratanavati* type of *Snayu* should be present in all joints of body and extremities and they should be having branching pattern and like a creeper. So the structure which resembles *Pratanavati Snayu* are Ligaments- As these are present in all joints. Nerves- As these are like creepers and have branching pattern.

2. *Vrutta Snayu*:- *Vrutta* means round or circular. These are cord like structures present in the body. Acharya Susruta also calls *Vrutta Snayu* as *Kandara*. *Kandara* is called *MahaSnayu* or *Mahanadi*. It is a cord like structure which is similar to *Snayu* but large in size. So *Kandara* should be large circular or cord like structure. In human the structures resembling *Kandara* or *VruttaSnayu* are Tendons- As these are cord like Large Nerves cords- These are also cord like and resemble tendon.

3. *Pruthula Snayu* :-The word meaning of *Pruthula* is a broad, large or great. So these should be structures which are Large, broad and flat resemble *PruthulaSnayu* in our body are Aponeurosis Fascia.

4. *Sushira Snayu*:- *Sushira* means porous, hollow, cavity etc. Acharya Susruta explains that *Sushira Snayu* is present in the terminal part of regions like *Amashaya*, *Pakvashaya*, *Basti* etc. So these are structures which are porous like in nature and also present in the openings of hollow organs and hold these hollow organs (viscera). So the structures which resemble *Sushira Snayu* are sphincters and visceral ligament.

Snayu Prayojan:-In the context of *Snayu Prayojan* (function of *Snayu*) Sushruta mentioned that *Snayu* is like ropes in our body. Like the rope holds the wooden planks together, *Snayu* holds the body together making it capable of weight bearing. So long as the joints are fastened tightly by *Snayu* in many ways. In the end it can be correlate the ligament because ligament also firmly attached to the joints, fixed and support the joint and make a joint weight bearing part of body. Neither *Asthi*, *Peshi* (muscles), *Sira* nor *Sandhi* kills the person when injured just as *Snayu*.

Concept of Snayuarma:- The muscles present on the sclera increasing in thickness, rough and very white in colour is called as *Snayuarma*.

Developmentally –*Snayu* is originated from *Pitruja Bhav*.

On the basis of Marma – *Aani*, *Vitap*, *Kakshadhar*, *Kurcha*, *Kurchashir*, *Basti*, *Kshipra*, *Vidur*. These are the *sanyu marma*, most of the *snayu marma* are *Vaikalyakar marma*. Acharya Vagbhat explain *snayu marma viddhalakshan* as Bending of Body, Convulsion, sever pain.

Concept of Kala:- *Kala* becomes visible; these are differentiated as *Snayu Praticchana* (covered/formed from ligaments), *Jarayu Santata* (expansion of continuation of foetal covering) and *Sleshmveshtith* (coated with kapha). 15 The moisture that remains inside the space in the *Dhatu* gets (*Paka*) processed by the *Ushma* present in them, forms into structure similar to those found in tree and becomes covered with *Snayu*, *Sleshma* and *Jarayu*. It is called as *Kala*. The first *Kala* is *Mamsadhara Kala*, which is present inside the muscles, and which allows the *Sira*, *Snayu* and *Dhamani* to spread their branches inside the muscles. 17 Among them, the first one is by name *Mamsadhara*, within which are spread the *Sira*, *Snayu*, *Dhamni* and *Srotas* just as the roots, shoots and creepers of lotus plant are spread in the ground full of slit.

Snayu as moolsthan:- Acharya described *Snayu* and *Tvacha* are *Moolasthan* of *Mamsavaha Srotas*. Injury on *Moola Sthan*, effect on it's depending entity. *Mamsa Dhatu* present muscles form in the body. Every movement of the body depend on the muscle and *Snayu* is also involved in the locomotor activity. Inserting or ending part of muscle is known as a tendon and it is attached to the bones, holds the muscle (sustain) and covered by skin. Any injury to these structures will effect on muscle function. So in the end we can say that *Snayu* is structurally similar to tendon in the context of *Moolasthan* of *Mamsavaha Srotas*.

On the basis of lakshan:-*Snayu* is considered as the structure which comes in *Madhyamarogamarga*. When *Vatadosha* get aggravated in *Snayu Grudrasi*, *Ayama* (bending), *Kubjatha* (short stature), *Sthambha* (stiffness), *Akshepana* (convulsions). etc are the results, and *Kaphadosha* in *Snayu* results in pain in *Sandhi* (joints)(10). In many diseases like *Pakshaghatha* (paralysis), *Viswachi*, *Khanja*, *Pangu* (lane), *Kushta* (skin diseases) etc there is the involvement of vitiation of *Dosha* either in *Snayu* or *Kandara* along with other structures like *Sira*.

According to Modern Science

Retinaculum :-Any of several fibrous bands of fascia that pass over or under tendons (as at or near the ankle or wrist) and help to keep them in place. Extensor Retinaculum, Flexor Retinaculum.

Aponeurosis:- A broad flat sheet of dense fibrous collagenous connective tissue that covers, invests, and forms the terminations and attachments of various muscles.

Ligament:- A tough fibrous band of tissue connecting the articular extremities of bones or supporting an organ in place. It link 2 bone together at joint. Ligament are in elastic but flexible. Ligament Strengthen the joint and limit its movement to certain direction.

Tendon :- A tough cord or band of dense white fibrous connective tissue that unites a muscle with some other part (such as a bone) and transmits the force which the muscle exerts. It contains bundle of Type I Collagen fibres arranged in compact parallel. It is inelastic but flexible.

Fascia:-Connective tissue forming layer of variable thickness in all region of the body. It includes the sheet of fibrous tissue that encloses muscle and muscle groups and separate them into layer.

CONCLUSION

Snayu is a structure which performs the function of holding and binding the various structures of human body like bones, muscles and adipose tissue. *Snayu* is used as bow string owing to its strength. Detailed observation of these structures reveals them as generally fibrous structures which are strong enough to withstand a certain amount of tension. Observations of *Snayu* show it as a white, tough structure. An overall observation of these structures gives an impression that *Snayu* is a fibrous structure visible in the body. Aponeurosis, ligament, tendons, retinaculum, nerve, deep fascia and other fibrous structures in the body fits into the above description. such as ligament in binding bone and joints; tendon in binding the muscle and dura matter and aponeurosis in binding the Meda. *Snayu* are of four kinds; we can consider below mentioned entity.

Pratanavati Snayu – Ligaments of the limbs and nerve
Vrutta Snayu -Tendons and large nerve cord
Pruthula Snayu - Aponeurosis and Fascia
Sushira Snayu - Sphincters and ligament of viscera
Snayu are the structures present in the human body which has a close relation with *Vatadosha*. It is one among the *Upadhatu* which helps the *Dharana*(maintainence) of body. The study of human body structures is very much essential for preventive as well as curative measures. Knowledge of *Snayu* is very much essential for surgeons as well as physicians who are mainly dealing with *Shalya* (foreign body) and vitiation of *Dosha* in *Dhatu* and *Upadhatu* respectively.

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