ANATOMICAL INTERPRETATION OF SNAYU SHARIR ACCORDING TO AYURVED AND MODERN SCIENCE

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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 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) ‘Sn’, ‘Sna’ Dhatu when combined with ‘un’ and ‘yuk’ Pratyaya forms the word Snayu.

Upatiti 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 Gulpah 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 Prastha, 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, Vratta, Prathu and Sushira. Vratta (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. Pratavanavati Snayu:- Pratavanavati 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 Pratavanavati 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 Pratavanavati 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 Maahanadi. It is a like 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), Sirv 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 Pitruya Bhav.

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

Concept of Kala:- Kala becomes visible; these are differentiated as Snayu Pratichchana (covered/formed from ligaments), Jarayu Santata (expansion of continuation of foetal covering) and Sleshmveshitth (coated with kapha). 15 The moisture that remains inside the space in the Dhatus 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, Dhammi and Srotas just as the roots, shoots and creepers of lotus plant are spread in the ground full of slit.

Snayu as mooslthan:- Acharya described Snayu and Tvacha are Moolasthan of Mamsavaha Srotas. Injury on Mool 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 Madhyamrogamarga. When Vatadosha get aggravatated in Snayu Grudrasi, Ayama (bending), Kubjatha (short stature), Sthambha (stiffness), Akshepana (convul- sions), etc are the results, and Kapahadosha in Snayu results in pain in Sandhi (joints)(10). In many diseases like Pakshaghatha (paralysis), Viswachi, Khandha, Pangu (lame), 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 regions 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 Snayuarma 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 apponeurosis 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
PrathulaSnayu - Aponeurosis and Fascia SushiraSnayu
- Sphincters and ligament of visceraSnayu are the structures present in the human body which has a close relation with Vata Dosha. 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.

REFERENCE