INTERPRETATION OF ‘PESHI’ ON THE BASIS OF LITERARY AND CADAVERIC STUDY

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ABSTRACT
The concept of Snayu and Peshi is in controversy. Most of scholars consider Peshi as a muscle1a and Snayu as ligament, tendon, sphincter, aponeurosis etc1b. Some consider Peshi as fascia, intermuscular septum etc1c and Snayu as muscle1d. Hence to understand about concept of Peshi, it becomes necessary for a scholar to understand what actually Peshi means. For this purpose literature and cadaveric study was done. Most of people consider Peshi as Muscle. The reason may be Peshi covers Sira, Snayu, Asthi, etc. If we consider it as the covering to all the structures then it indicates muscle, which most of the experts might have considered. But if we consider it as individual covering then Peshi may be fascia, intermuscular septum, advenetia of artery and vein, epineurium of nerve, periosteum, fibrous capsule etc. When we conduct region wise dissection, the number of muscles and tendons are fairly similar to number of Snayu than the Peshi.

Keywords: Snayu, Peshi, Muscles, Tendons

INTRODUCTION: Ayurveda is very ancient medical science. At that time, the method of dissection followed by the Sushrutra was entirely different from method of dissection which is followed today. Further, the structures explained by Sushrutra had a physiological base and hence many of these structures explained are not clear to us anatomically. To understand these structures, the concept of correlation began, which led to many controversies. Sushrutra has stated various structures in the body like Sira, Snayu, Asthi, Sandhi etc., their importance and associated pathological conditions in various Sthanas of Samhita. Hence to understand the structural involvement in the clearly the pathological conditions, the concept regarding the particular structure should be clear.

The concept of Snayu and Peshi is one of the controversial concepts. Most of scholars consider Peshi as a muscle1 and Snayu as ligament, tendon, sphincter, aponeurosis etc2. Whereas some consider Peshi as fascia, intermuscular septum etc3, and Snayu as muscle4. Hence to understand about concept of Peshi, it becomes necessary for a scholar to understand what actually Peshi means. We have gone through the literature from Sushrutra Samhita in detail regarding their Karya, Sthana, Sankhya, etc. A human cadaver dissection study was also carried out. During dissection it is observed that, Peshi matches more with fascia, intermuscular septum etc than the Muscle.

AIM: Interpretation of ‘Peshi’ in terms of anatomical structure.
OBJECTIVES:
1. Compilation of literature about Snayu and Peshi from various Samhita.
2. Correlation of Peshi with different structures mentioned in modern texts and
3. Conduction of cadaveric study for the confirmation of a particular anatomical structure out of correlated structures of Peshi mentioned in modern anatomy.

MATERIALS:
1. Literature study: Ayurvedic literature – Brihatrayee and other Samhita and Modern - Graysanatomy, Cunningham,etc. were referred.

METHODS:
Type of Study: Literary and cadaveric study
Place of study: Dept. of Rachana Sharir, Bharati Vidyapeeth (Deemed to be University), College of Ayurved, Pune, India.
Study Design:
1) Literary study is carried out by collecting references regarding Peshi and Snayu from Samhita.
2) The details about Peshi and Snayu from Ayurvedic literature is correlated with structures Mentioned in modern anatomy.
3) The structures correlated with Peshi and Snayu are visualized and confirmed through cadaveric dissection.

The entire study was conducted for rational interpretation of Peshi by answering following two questions with proper justification.

1. Why Peshi is not muscle?
2. Why Snayu can be muscle?

OBSERVATIONS:
Observations while literary and cadaveric studies are noted and put forth as;

1). Why Peshi is not muscle?
a) On the basis of Karya: From a reference regarding Peshi, Sanvrit is its Karya (function) it means covering, i.e. Peshi covers Sira, Snayu, Asthi, etc. Here it seems unclear that whether the covering is for all structures together or for the individual structure. If we consider it as the covering to all the structures then it indicates muscle, which most of the experts might have considered. But if we consider it as individual covering then Peshi may be fascia, intermuscular septum (covering of Snayu), adventia of artery and vein, epineurium of nerve (covering of Sira), periosteum ( covering of Asthi), fibrous capsule (covering of Sandhi) etc. The later opinion looks to be more rational. The following observations are in support to the above statement.

b) On the basis of Sankhya and Sthan:
i) In female 20 extra Peshi have been explained out of which 5 are in each Stana. When we dissect the Sthana (breast) of a female we never found any muscle instead we get suspensory ligaments. So Peshi cannot be the muscle.

ii) Sushruta stated 6 Peshi in Yakruta (liver), Pliha (spleen) Unduka. But when we dissect the particular Sthana (liver and spleen) we never found any muscle.

iii) Sushruta stated 4 Peshi and 36 Snayu in Griva (Neck). When we dissect the particular part we get almost 40 muscles. The number matches with number of Snayu and not with number of Peshi.
1. Table.

<table>
<thead>
<tr>
<th>Example</th>
<th>No of Peshi</th>
<th>No. of Snayu</th>
<th>No. of muscles</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Stana</td>
<td>5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>In Yakruta and Pliha (Liver &amp; Spleen)</td>
<td>6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>In Griva (Neck)</td>
<td>4</td>
<td>36</td>
<td>Near about 40</td>
</tr>
</tbody>
</table>

From this above information we can say that Peshi cannot be exactly correlated with the muscles.

2) Why Snayu can be muscle?
   a) On the basis of Karya: Sushruta tells about SnayuVidhya Lakshana. Here commenting on the word “Kriyaswashaktistumula” Dalhana says that the body movement like Utkshepana, Apakshepana, Prasaran (relaxation), Ankunchan (contraction) etc. functions has to be considered for Kriya. Hence we can say that the above mentioned functions (Karya) are of Snayu. All these functions are more related with the functions of muscles.
   b) On the basis of Prakara, Swaroop and Sthana: Four types of Snayu are being mentioned on the basis of Swaroop as follows:
      1) Pratanvat: The meaning of word Pratanvat means tendril or a plant with tendrils or branching out or ramification. In the cadaver dissection such structures are seen as different tendons of the muscles like extensor digitorum longus, flexor digitorum profundus which have a single belly with four branches (tendons). Most of such structures are in extremities and Sushruta also says that Pratanvat Snayu are found in Shakha and Sandhi. Hence we can compare Pratanvat Snayu with muscles with branched tendons of extremities.
      2) Vrutta: The meaning of word Vrutta means round, rounded. During dissection we have observed different muscles which are rounded like Sartorius, rectus abdomens, rectus femorius etc. Hence, here we can compare Vrutta Snayu with rounded muscles.
      3) Pruthula: The meaning of word Pruthula means flat, broad, large etc. According to the Sushruta these are the Snayu which are present in Parshwa, Prusta, Ura and Shira. In cadaveric dissection of above sites we observe the muscles like trapezius in Prushta, lattsiimus dorsi in Parshwa, pectoralis major in Ura and occipito-frontalis in Shira, which are the flat muscles according to the modern. Hence we may compare Pruthula Snayu with the flat muscles.
      4) Sushir: The meaning of word Sushir is tube, hollow space. According to the Sushruta this Sushir Snayu are present at the end part of Amashaya (stomach), Pakvashaya (large intestine) and Basti (urinary bladder). While dissecting these particular sites it is observed that the sphincters which are pyloric sphincter in stomach, anal sphincter in anus and urethral sphincter in urinary bladder. Hence we may compare Sushir Snayu with sphincters.

DISCUSSION:
   1) On the basis of literary research:
1. When we go through the word *Peshi* then its functions are stated as covering of various structures like *Sira, Snayu, Asthi* etc. When we correlate this to the modern literature then they are the fascia, intermuscular septum, fibrous capsule, periostium etc.

2. When we go through the *Sthana* and *Sankhya* of *Peshi*. Sushruta mentioned that there are *Peshi* in *Stana* (breast), *Yakruta* (liver), *Pliha* (spleen) etc. But during dissection no muscles observed at these sites. So *Peshi* cannot be the muscle.

3. According to Dalhanacharya Akunchan, *Prasaran, Utkshepana, Apakshepana* etc. are the functions of *Sanyu*. Contraction (Akunchan) is the basic function which is performed by the muscle as per modern literature.

4. The function of *Snayu* is contraction and hence it can be identified as the muscle. So here *Snayu* can be correlated with muscles.

5. When we go through word meaning of different types of *Snayu* then the *Pratanvat* means tendons, *Vrutta* means long and rounded, *Pruthula* means flat and broad and *Sushir* means sphincters, which are the types of muscles (on the basis of shape).

6. When we consider the neck region here Sushruta mentioned 4 *Peshi* and 36 *Snayu*, when we go through the modern literature there are near about 40 muscles present in this region. Number of muscles matches more with number of *Snayu* than that of *Peshi*.

2) On the basis of cadaveric study:

When we go through the *Sthana* and *Sankhya* of *Peshi*. Sushruta mentioned that there are *Peshis* in *Stana* (breast), *Yakruta* (liver), *Pliha* (spleen) etc. But during dissection no muscles observed at these sites. So *Peshi* cannot be the muscle.

CONCLUSION:
By illicting Definition, *sthana, kriya*, number of *Peshi* mentioned in Ayurvedic literature and then correlating it with modern texts and observing same in the cadaveric study. We may conclude that

1) *Peshi* mentioned by the Sushruta are actually the fascia, intermuscular septum, adventitia of artery and vein, epineurium of nerve, periostium, fibrous capsule etc and

2) *Peshi* can not the muscle.

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Figure 1

Figure 2

Figure 3

Figure 4

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