

COMPARATIVE STUDY OF AVEDHYA SIRA AND SIRA MARMA WITH W.S.R. TO URVI SIRA IN UPPER EXTREMITY

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ABSTRACT

Acharya Sushruta described various surgeries meticulously. During the ancient time, *Acharya Sushruta* performed various major and minor surgeries with surprisingly great accuracy and thus was able to treat dreadful diseases. The proper knowledge of *Sharira* was essential to meet this high standard of accuracy. Especially, during performing any surgery or *Sira Vedhan* one must be aware of the vital points, *Marma* and the *Avedhya Sira* present in the body. This is because even a slight trauma to these may lead to severe complications such as severe pain, any deformity or even death of a person. There are 107 *Marmas* and 98 *Avedhya Siras* mentioned by *Acharya Sushruta*. Most of the name of *Avedhya Sira* are same as nomenclature of *Marma*. For example, *Brihati* is a name of *Avedhya Sira* and is also a *Marma*. Here an effort has been made to study the role of *Marma Sthan* in confirmations of *Avedhya Sira* with special reference to *Urvi (Bahavi) Sira* in upper extremity.

Keywords: *Avedhya Sira, Marma, Urvi Sira*

INTRODUCTION

Acharya Sushruta who is regarded as the father of surgery described various surgeries meticulously such as *Asthibhanga* (fracture of bones) *Nasa*

Sandhan (Rhinoplasty), Lingnash (cataract) etc. For performing these surgeries, he knows the importance of a through anatomical knowledge therefore he dis-

sected many cadavers (*Shavavichhedanam*) and observed the structures in them. During performing any surgery or *Sira Vedhan*, one must be aware of the vital points, *Marma* and the *Avedhya Sira* present in the body.

The *Marmas* are the vital points of the body. A trauma to *Marma* may cause severe pain, deformity and death. These are the points containing life (*Pra-na Sthana*) where *Marma*, *Sira*,

Snayu, *Asthi* and *Sandhi* come together by nature.¹ Total numbers of *Marmas* are 107 mentioned by *Acharya Sushruta*.² A detailed description composing of the number of *Marmas*, their situations in the body, constitution, their *Anguli Pramana* as well as signs and symptoms when injured is well elaborated in the '*Pratyaksha Marma Nirदेशा*' *Adhyaya of Sushruta Samhita*.

Acharya Charak in *Sutra Sthana* described *Sira* as '*Saranat Sira*'³ means the blood vessels in which *Saran Kriya* of blood takes place. *Saran Kriyas* denotes very slow flow of blood. *Acharya Sushruta* has mentioned 700 *Siras*⁴ in the seventh *Adhyaya* i.e. *Siravarnavibhaktishariropakrama*. *Acharya*

Sushruta keenly observed them, studied in detail and very systematically explained the importance and contraindications of a venipuncture. Out of these 700 *Siras*, 98 are *Avedhya Sira* in human body. The *Siras* which on *Vedhan* or puncture causes *Vaikalya* (deformity) or *Maran* (death) of a person are known as *Avedhya Siras*.⁵ Name of some of the *Marmas* of the body are same as the name of *Avedhya Siras*. These structures should be carefully protected while performing any surgical procedure to avoid any complications. Therefore, a study was carried out to evaluate the importance of *Avedhya Sira* and *Marma* in the present days and to create a relationship between two. *Urvi (Bahavi) Marma* in the upper extremity which acts as both the *Avedhya Sira* and *Sira Marma* was chosen for the study.

Materials and Methods- Material- Relevant textbooks of *Ayurveda*, their commentaries, modern science and cadaver for dissection.

Method- All the references regarding *Avedhya Sira* and *Sira Marma* were collected from the relevant

textbooks of *Ayurveda* as well as modern anatomy. Dissection was carried out as per the guidelines given in *Cunningham's* manual of dissection. Accordingly, dissection was done, and conclusion was drawn.

Urvi (Bahavi) Marma- It is located in the middle of thigh. In case of upper limb, the *Marma* point can be considered as the middle of the arm.⁶

Classification-

- *Sira Marma*⁷
- *Vaikalyakara Marma*⁸
- *Bahu Marma*.⁹
- 1 *Angula*¹⁰
- 12 *angul Praman*¹¹
- 2 in number (one in each arm) Effect of injury- Injury to this *Sira marma* leads to loss of blood and emaciation of the limb.¹²

Arunadatta commenting on this occasion specifies that as the emaciation of the limb will occur, *Sira-vyadha* is prohibited.

Urvi (Bahvi Sira)- The word meaning of *Urvi* is the wide one, the two wide ones.¹³

Acharya Susruta explains that there are two *Siras* named *Urvi* which are not to be punctured.¹⁴ *Dalhanacharya* commenting on the *Urvi Sira* states that these *Siras* are located in the region of *Urvi marma*. Even though two *Urvi Siras* are mentioned, *Acharya Susruta* had mentioned only one *Marma* in name *Urvi*.

Dalhanacharya explains that it is because of the closeness of the *Siras* in the location of the *Marma*, the *Marma* is explained as one even though there are two *Siras*.

Dalhanacharya also mentioned that the *Marmas* located in arm should be named according to the location. So *Urvi Marma* in hand refers to *Bahvi Marma*.¹⁵

According to Dr. *Bhaskar Govind Ghanekar*, *Urvi Sira (Bahavi)* in upper extremity can be considered as brachial vessels.¹⁶

Brachial Artery- It is a continuation of the axillary artery, begins at the distal (inferior) border of the tendon of *teres major* and ends about a centimeter distal

to the elbow joint (at the level of neck of the radius) by dividing into radial and ulnar arteries. At first it is medial to the humerus, but gradually spirals anterior to it until it lies midway between the humeral epicondyles. Its pulsation can be felt throughout. Branches of the brachial artery are profunda brachii, nutrient, superior, middle and inferior ulnar collateral, deltoid, muscular, radial and ulnar arteries.

The profunda brachy is a large branch from the posteromedial aspect of the brachial artery, distal to the teres major. It follows the radial nerve closely, at first posteriorly between the long and medial heads of triceps, then in the spiral groove covered by the lateral head of triceps.¹⁷

Brachial Veins- The brachial veins flank the brachial artery, as venae comitantes with tributaries similar to the arterial branches; near the lower margin of subscapularis they join the axillary vein. The medial branch, however, often joins the basilic before it becomes the axillary. These deep veins have numerous anastomoses with each other and with the superficial veins.¹⁸

Applied Anatomy-

The brachial artery pulsation is important and regular clinical practice as this is the most common artery used for measurement of blood pressure. The pulsation of brachial artery can be felt or auscultated in front of the elbow just medial to the tendon of biceps while recording blood pressure. Although the artery can be compressed along its course it can be compressed most favourably in the middle of the arm, where the artery lies on the tendon of the coracobrachialis. The biceps can be made prominent by flexing the elbow.¹⁹

Cadaveric Study- Dissection of the cadaver for the purpose to see superficial vessels, we followed the Cunningham's Manual of practical anatomy.

Upper Limb-

- First of all, we place the cadaver in supine position and made midline incision from the jugular notch to the xiphisternal junction.
- We made an incision from the jugular notch along the clavicle to the acromion and then from the xiphisternal junction to the anterior axillary

fold (left the nipple surrounding skin in position as a landmark). Continued this incision down the lateral side of the arm to a point that is approximately halfway down the arm.

- Then made an incision begins from halfway anteriorly of the arm to the tip of the middle finger.
- While dissecting the cadaver for the purpose to observe superficial vessels the upper limb, there was no need to open the pectoral region totally.
- The flaps of skin and superficial fascia were reflected laterally by blunt dissection.
- The deep fascia was divided in the deltopectoral groove to uncover the cephalic vein.
- The cephalic vein was followed through the upper part of the clavipectoral fascia to the axillary vein.
- Coracobrachialis and short head of biceps muscle were exposed. And then the axillary artery and median nerve were founded out medial to these muscles.
- Medial to the axillary artery, the axillary vein was identified with the medial cutaneous nerve of the forearm between them and posterior to that the larger ulnar nerve.
- In the arm the brachial artery was found superficial and was covered by the layers of skin, as well as the superficial and deep fasciae, except in the cubital fossa (where the bicipital aponeurosis, covers the artery) and near the distal attachment of coracobrachialis, where the median nerve crosses the brachial artery.
- We saw the brachial artery in the lower half of the upper arm, lateral to the median nerve as the nerve crosses the brachial artery from lateral to medial side.
- The radial nerve on the posterior aspect of the artery before it enters the radial groove was seen.

DISCUSSION

Acharya Sushruta may be indirectly saying that the *Jaladhara Sira* is situated superficially since he has used the word *Abhyantar* for *Lohitaksha* and *Urvi Sira* next to *Jaladhara*.

Urvi Sira is present in lower extremity and its counterpart in upper extremity is named as *Bahavi*. *Urvi (Bahavi)* is an *Avedhya Sira* as well as *Sira marma* and is situated in the middle of the arm. Injury to this *Marma* causes atrophy or wasting of muscles of the arm from the loss of blood and blood loss may lead to death. It is a *Vaikalyakar* type of *marma*. So, the site of *Urvi (Bahavi) marma* can be considered as site for *Bahavi Sira*.

In the upper extremity, brachial artery and profunda brachii artery was found in this site. Brachial artery is a continuation of axillary artery and axillary artery is continuation of subclavian artery, it is directly connected to arch of aorta then attached to heart. Thus, due to direct connection with heart, velocity of blood is increase, so any puncturing or venesection of these vessels may cause severe blood loss. Brachial artery supplies the brachioradialis, supinator and brachialis muscles. Therefore, due to loss of blood by puncturing the brachial artery, it may cause wasting or atrophy of the muscles of arm. Therefore, brachial artery and profunda brachii artery can be considered as *Avedhya Sira*. Results of trauma to *Bahavi Marma* and puncture of *Urvi Sira* are almost similar; hence, we can establish a relationship between them.

CONCLUSION

- *Sira* is one of the important components of *Marma*, according to the definition of *Marma*. So *Avedhya Sira* and *Sira Marma* have definite relationship.
- *Urvi (Bahavi) Avedhya Sira* and *Bahavi Sira Marma* have almost same structural involvements.
- The sign and symptoms occurring after injury to both *Urvi Sira* and *Urvi Marma* are almost similar. i.e., deformity or death.
- In the upper extremity *Urvi (Bahavi) Sira* can be correlated with brachial artery and profunda brachii artery.

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