

**DESCRIPTIVE AND ANALYTICAL STUDY OF SUSHUTOKTA  
VEDHYA AND AVEDHYA SIRA, APPLIED ASPECT OF KURPARGAT  
VEDHYA SIRA W.S.R.TO VEDHANA PRAMANA- A REVIEW STUDY**

**Sachin S. Dargu<sup>1\*</sup> and Rajesh Renukadas Choudhary<sup>2</sup>**

<sup>1</sup>Assistant Professor Rachana Sharir S.S.V.P. Ayurved College Hatta Hingoli.

<sup>2</sup>Associate Professor Rachana Sharir S.S.V.P. Ayurved College Hatta Hingoli.

Article Received on  
22 April 2022,

Revised on 12 May 2022,  
Accepted on 02 June 2022

DOI: 10.20959/wjpr20228-24453

**\*Corresponding Author**

**Sachin S. Dargu**

Assistant Professor Rachana  
Sharir S.S.V.P. Ayurved  
College Hatta Hingoli.

**ABSTRACT**

The knowledge observed by direct perception and that obtained by the study of the science, both together make for enhancement of one's knowledge.<sup>[1]</sup> Anatomy being the basis of surgery probably it was necessary for *Sushruta* to deal anatomical details before preparing for surgery. It is also possible that the knowledge of anatomy got more advanced during the period of *Sushruta*. *Sushruta* was the first scholar scientist who described the method of dissection in study of Anatomy<sup>[2]</sup> *Sushruta* has explained Anatomy of *sira* in *Sharira sthana* 7th chapter "*Siravarna Vibhakta Nama Shariram*". *Sushruta*'s

concepts of "*Sira Shariram*" and "*Sira vedhyavidhi Shariram*" are specifically unique. But the term *sira*, in one place reflects a meaning of blood vessels while at other place, it means nerve. In such condition it is very difficult to know doubtlessly about it like Modern Anatomy. *Ayurvedic* acharyas has used an anatomical term *sira*, which is one of the controversial terms (structure). It is used to represents tubular structure, to carry material such as *Rasa & Rakta*<sup>[3]</sup> There are seven hundred *Sira*<sup>[4]</sup> 700 *siras* distribution as per *Shadanga Sharir* is given as 400 *siras* present in the *Shakhas* (extremities), 136 in *Koshtha* (Trunk) and 164 in parts above the shoulders. 98 *Avedhya siras* and 602 *vedhya siras* in body<sup>[5]</sup> (*Sushruth Samhita Sharir Sthana* 7/20,21 127p Murthy). Diseases of skin, tumors, edema and diseases arising from blood will never occur in persons indulging in bloodletting whenever required<sup>[6]</sup> (*Sushruth Samhita Sutra sthana* 14/34 93p). The applied anatomical aspects of the *vedhya siras* (Veins to be punctured) is mentioned in *Sushruta Samhita* by specific site (place) of *siras* in specific diseases, anatomical positions for *sira vedhan* and size of puncture (in muscular area, bony area and other area).<sup>[7]</sup> (*Sushrut Samhita Sharir Sthana* 8/17,9,8

135,133,132p Murthy) Anatomical applied aspect of the *dakshin kurpargat abhyantar vedhya sira* is the site (place) for *vedhana* mentioned by *sushrutacharya* in *Yakriddalyudara*, in *kphodara*, *kasa* and *shwasa*.<sup>[7]</sup> (*Sushrut Samhita Sharir Sthana* 8/17 135p). There are 20 *Dusta vedhya* i.e. improper puncturing mentioned by *Sushrutacharya* in that *Atividdha* is that puncture which is more than the required measurement in that blood flow either goes inside the body or flows out in large quantity.<sup>[8]</sup> (*Sushrut Samhita sharir Sthana* 8/19 137p). This study may be helpful to evaluate the puncturing size of the *siras* at particular region by determining the anatomical position of *vedhya sira* in the body, whether the *vedhya sira* area mentioned by *sushrutacharya* is muscular, bony or any other form so that the puncturing size mentioned by *sushrutacharya* will be helpful according to the region, disorder and to prevent excess loss of blood during puncturing the vein. As most frequently the cubital region vein puncturing is used for blood sampling and also this vein puncture (*vedhana*) is mentioned by *sushrutacharya* in *yakriddalyudara*, *kaphodara*, *kasa* and *shwasa*. So the *vedhan pramana* of this *sira* according to *sushrutacharya* and modern study is reviewed from the literature study. In muscular areas, puncturing should be size of the *yava* (barley grain) and in other it should be of size one *vrihi* (paddy/rice) using a puncturing needle.<sup>[9]</sup>

**KEYWORDS:** 1) *Sira Sharir* from *Sushruth Samhita Sharir Sthana* chapter 7 & 8. 2) *Avedhya* and *Vedhya Siras* Mentioned in *Sushrut Sharir Sthana*. 3) *Pramana*(Size) of *Vedhya Sira* in accordance to the *Vedhya Sthana*. 4) *Vedhya Pramana* of Cubital region *Vedhya sira* mentioned by *Sushrutacharya* in *Sharir sthana*, with its therapeutic use.

## INTRODUCTION

### Concept of *sira*

#### 1) *Sira*

As per *Charak Sutra Sthana* 30/12 *Sira* means vessels which possess *saran karma* means to carry *rasadi* from one place to other.

#### 2) *Sira paribhasha*

A branch of *Padminikanda* are spreading in *jala*, likewise the *siras* from *Nabhi* are spreading in body in all direction.

#### 3) *Origination of sira*

According to *Sushruta sira* originate in the embryonic life from *nabhi* (Umbilicus) and they spread upward, downward and in oblique fashion from *nabhi* (Umbilicus). This statement of

*Sushruta* is accepted only during embryonic life. In foetus it can be seen also, that number of veins are attached to umbilicus. In the fetal life the *siras* are concerned with the nutrition of the foetus through the umbilical cord, but after birth these *sira* no more exist. *Sushruta* has labeled them “*Nabhiprabhava*” because either they start or end in *nabhi* (umbilicus) in uterine life. Thus *Sushruta*’s description regarding the origin of *sira* seems to be correct.

#### 4) *Sira utpatti*

As per *Sushruta* *Sira* is the *updhatu* of *rakta dhatu*.

#### 5) Structure of *sira*

According to *Sushruta* Structure of *siras* are like the fine fibers in the leaf of a tree, thick at their roots and becoming finer towards the end, the branches of the *sira* resemble the tendrils, the first branch gives out a branch and this again gives out another branch and so on. The blood flows in all the *sira* which are “like water channels going out to the different areas of a garden or agricultural field.

#### 6) *Sira sankhya*

There are 700 *siras* in the body mentioned by *Sushruta*.

- a. Shakhagat Siras (extremities) = 400
- b. Madhya Sharir (Trunk) = 136
- c. Urdhvajatrugat (Above shoulder) = 164

#### 7) *Sira prakara*

Mula *siras* are ten divided according to dosh dominance as ten *vatavaha* *siras*, ten *Pittavaha* *siras*, ten *Kaphava* *siras* and ten *raktvaha* *siras*. Further reaching their seats they are divided as

*Vatavaha* *siras* 10 *Vatasthanagat* *siras* 175 *Pittavaha* *siras* 10 *Pittasthanagat* *siras* 175

*Kaphavaha* *sira* 10 *Kaphasthangat* *siras* 175 *Raktvaha* *siras* 10 *Raktsthangat* *siras* 175

**Table Showing types of *Sira*, color, Function and Modern correlation.**

| Type of <i>sira</i>           | Colour                           | Character               | Function   | Modern correlation <sup>[14]</sup> |
|-------------------------------|----------------------------------|-------------------------|--|------------------------------------|
| <i>Vatavaha</i> <i>siras</i>  | <i>Aruna varna</i> (crimson red) | Filled with <i>vayu</i> | Perform physical functions without hindering the specific functions of <i>buddhi</i> (intellect) and sense organs. | Arteries<br>Nerves                 |
| <i>Pittavaha</i> <i>siras</i> | <i>Neelavarna</i> (blue)         | Warm touch              | Creates luster in the body and develops good appetite.   | Veins                              |
| <i>Kaphava</i>                | <i>Gowravarna</i>                | Cold to                 | Gives lubrication to the   | Lymphatic                          |

|                        |                            |                                       |  |             |
|------------------------|----------------------------|---------------------------------------|--|-------------|
| <i>ha siras</i>        | (white)                    | touch and steady                      | various body parts and produces firmness in the joints. It also improves strength.   |             |
| <i>Raktavaha siras</i> | <i>Rohini varna</i> (red ) | Neither they are too hot nor too cold | Nourishes the <i>dhatu</i> s improves the complexion definite perception of sparsha. | Capillaries |

### 8) *Sira swaroopa*

*Vatavaha Siras* are light red in color, carrying *vata*., *Pittavaha Siras* are warm and blue in color. *Kaphavaha* are white and stable. *Raktavaha Siras* are red in color neither hot nor very cold.

### 9) *Sira Karya*

According to *sushrutacharya* the *karya of siras*.

#### a) *Vatvaha siras*

Performs physical function without any obstruction promotes the intellect to work proper and prevent the mental deviation.

#### b) *Pittvaha siras*

*Pitta* circulating in its own *sira* gives glow to the body, taste of food maintains the digestive power and increases the immunity against disease.

#### c) *Kaphavaha siras*

Maintains viscosity of various parts of the body, stability of joints, increases the strength and immunity.

#### d) *Raktvaha siras*

*Rakt* circulating in its own *sira*, nourishes all *dhatu*s gives colour to the body, receives tactile sensations and performs its other normal functions.

### 10) *Sira as sarvavahatvam*

*Siras* do not carry either *vata* alone, *pitta* alone or *kapha* alone hence all *siras* are said to carry all *doshas*. Aggravated *doshas* intimately mixed with one another and circulating in the *siras* are to over run their usual seats since they carry all the *doshas*.

### 11) *Shakhagat siras (limb)*

*Vata* carrying *siras* are twenty 25 in one leg, same number in the other leg and also in two arms. Same number is for *pittava*, *Kaphavaha* and *Raktvaha siras*.

## 12) *Sira marmas*

According to *Sushruta* Marma is the vital spot in the body where confluence of *mans* (muscles), *sira*(blood vessels), *snayu* (ligaments), *asthi* (bones) and *sandhi* (joints) present. In these places *prana* resides specially by nature, therefore any trauma on any one of these *Marmas* invariably causes death (18). Total numbers of *Marmas* are 107. According structure he was classified *Marmas* into 5 types. In this one variety is *Sira Marma*, these are 41. They are-

|                          |                         |                           |
|--------------------------|-------------------------|---------------------------|
| □□ <i>Niladhamani</i> -4 | □□ <i>Matrika</i> -8    | □□ <i>Srngataka</i> -4    |
| □□ <i>Apanga</i> -2      | □□ <i>Sthapani</i> -1   | □□ <i>Phana</i> -2        |
| □□ <i>Stanamula</i> -2   | □□ <i>Apalapa</i> -2    | □□ <i>Apastambha</i> -2   |
| □□ <i>Hridaya</i> -1     | □□ <i>Nabhi</i> -1      | □□ <i>Parsvasandhi</i> -2 |
| □□ <i>Brhati</i> -2      | □□ <i>Lohitaksha</i> -4 | □□ <i>Urvi</i> -4         |

## 13) Important *siras* in the body

*Sushruta* has explained some important *siras* in the body under the heading of *Avedhaya sira* and *Sira marma*.

## 14) *Avedhya sira*

Some *siras* are not suitable for venepuncture. These *siras* are called *Avedhya sira*. A surgeon should not perform venesection on this *siras* would definitely cause disability or death. Among seven hundred *sira* only 98 *sira* are considered as *Avedhya sira*. Remaining can be choosing for venepuncture in certain diseases.

## 15) *Avedhya sira sankhya*

Total 98 *siras* are mentioned by *sushrutacharya* which should not be cut.

Shakhagat – 16 Madhya sharir- 32 Urdhvajatrugat-50

| Regions/<br>Locations                       | Numbers | Sanskrit names   | According to Dr. B.G. Ghanekar (Sushruta sharirasthana commentary) modern correlation of <i>Avedhya sira</i> <sup>[16]</sup> |
|---|---------|--|--|
| <i>Sakthies</i> /bahu (limbs )              | 4*4=16  | <i>Jaladhara</i> =1<br><i>Urvi</i> =2<br><i>Lohitaksa</i> =1 | Great sephanous veins, femoral vessels, cephalic veins, brachial vessels, axillary vessels                                   |
| <i>Shroni</i> (inguinal and gluteal region) | 8       | (i) <i>Vitapa</i> (inguinal or groin)                        | spermatic vessels<br>Gluteal vessels   |

|  |    |   |  |
|--|----|---|--|
|  |    | (ii) <i>Katikataruna</i>  |  |
| <i>Parshva</i> (flanks)  | 4  | -   | There is no such big artery and vein in the lateral side of the body.  |
| <i>Prishtha vansha</i>   | 2  | <i>Brihati</i>  | Subscapular artery   |
| <i>Udara</i> (above the penis and the side of <i>romaraji</i> )  | 4  | -   | Inferior epigastric vessels  |
| <i>Vaksha</i> (thorax/ chest)  | 14 | (i) <i>Hridaya</i><br>(ii) <i>Stanamoola</i><br>(iii) <i>Stanarohita</i><br>(iv) <i>Apalapa</i> | Intercostal vessels<br>Internal mammary vessels<br>Lateral thoracic vessels  |
| <i>Greeva</i> (neck)   | 16 | (i) <i>Ashta-matrika</i><br>(ii) <i>Krikatika</i><br>(iii) <i>Vidhur</i>                        | External, internal carotid arteries and jugular veins.<br>Occipital vessels<br>Posterior auricular vessels                   |
| <i>Hanusandhigata</i> (tempero-mandibular joint)   | 4  | -   | Internal maxillary Vessels   |
| <i>Jihva</i> (tongue)  | 4  | (i) <i>Rasavaha</i><br>(ii) <i>Vakvaha</i>  | Profunda Lingulae Vessels  |
| <i>Nasa</i> (Nose)   | 5  | <i>Aupnasika</i>  | Angular vessels  |
| <i>Talu</i> (Palate)   | 2  | <i>Talu Sira</i>  | Palatine vessels   |
| <i>Netra</i> (eyes)  | 2  | <i>Apang sira</i>   | Zygomatico-Temporal vessels  |
| <i>Karna</i> (ear)   | 2  | <i>Shabdvahi Sira</i>   | Anterior tympanic vessels  |
| <i>Lalata- nasa- netra gata</i> (vessels located in forehead but runs towards the nose and eyes orbit) | 5  | (i) <i>Keshantanugata sira</i> (hairline)<br>(ii) <i>Aavarta</i><br>(iii) <i>Sthapani</i>       | The nasal branch of frontal vein and branches of superficial temporal arteries. Frontal branch of superficial temporal vein. |
| <i>Shankha</i> (Temporal)  | 2  | <i>Shankhsandhigat Sira</i>   | Superficial temporal vessels in temporal region.   |
| <i>Murdha</i> (Head)   | 8  | (i) <i>Utkshepa</i><br>(ii) <i>Seemanta</i><br>(iii) <i>Adhipati</i>                            | Parietal branch of superficial temporal vessels. Branches of occipital and superficial temporal vessels.                     |

The blood. *Raktmokshana* by *shastra* is of two types mentioned by *sushutacharya*.

According to *sushrutacharya Shastra* *yukta raktmokshana* is of two types

a) *Prachanna*

b) *Siravyadha*

**16) Concept of *yakriddalyudara*:** *Acharya Sushrutacharya* described *Yakriddalyudara*. As per the description some of the etiological factors such in persons who are habituated to food which cause burning sensation during digestion, and which produce more moisture in the

tissues, then the *asrk* (blood) and *kapha* become vitiated greatly, make enlargement of *yakrt* (liver) on right side giving rise to enlargement of the abdomen is known as Yakreddalyudara.<sup>[1]</sup>

This *Yakriddalyudara* can be co-relate with the hepatomegaly.<sup>[2]</sup> Ayush portal-1337-EK-4.6

***Vedhya sira as per Sushrut in Various Disorders and Vedhana praman (size) as per Sushrut:***

| Disorder  | Vedhya Sira Sthana  | Vedhana Pramana(size) |
|---|---|-----------------------|
| Padadaha, Padaharsha, Chippa, Vatarakta, Padadari, Vatakantanka Avabahuka   | 2 angula above from Kshipra marma   | yava (barley grain)   |
| Vata-rogas, such as Kroshtuka-shirah (Synovites), maimedness (Pangu) and lameness (Khanja), the Sira (vein) of the Jangha | Four fingers above the Gulpha, should be opened.  | yava (barley grain)   |
| Apachi (scrofula)   | The vein should be opened simultaneously with the appearance of the disease two fingers below the Indravasti-marma. | yava (barley grain)   |
| Gridhrasi (sciatica)  | The vein should be opened four fingers above or below the Janu (knee-joint).  | yava (barley grain)   |
| Goitre  | The veins attached to the roots of the Uru (thighs) should be opened.   | yava (barley grain)   |
| enlarged spleen, Yakriddalyodara or Kaphodara,  | the vein near the Kurparasandhi (elbow-joint) of the left hand<br>The corresponding vein in the right hand          | yava (barley grain)   |
| Vishvaci  | Four fingers above or below the Kurpara-sandhi  | yava (barley grain)   |
| Pravahika (diarrhea) attended with Shula (colic),   | The vein within two fingers width around of the Pelvis (Shroni)   | yava (barley grain)   |
| Parikartika   | The vein of the penis should be opened  | yava (barley grain)   |
| Upadansha, Shuka-dosha and seminal  | The vein on either side of the scrotum should be  | yava (barley grain)   |



|   |   |                     |
|---|---|---------------------|
| disorders.  | opened  |                     |
| Dakodara (ascites)  | The vein four fingers below the navel and on the left side of the Sevani (suture) should be opened  | yava (barley grain) |
| internal abscess and colic in the sides (Pleurodynia)   | the vein in the region between the breast and the left armpit should be opened.   | vrihi (paddy/rice)  |
| Avavahuka and Vahushosha (atrophy of the hand)  | The vein between the Amsas (Shoulder) to be opened.   | vrihi (paddy/rice)  |
| Tritiyaka (Tertian) fever   | The vein inside the Trika-Sandhi should be opened.  | vrihi (paddy/rice)  |
| Caturthaka fever  | a vein joined with either side of and below the shoulder-joint should be opened   | vrihi (paddy/rice)  |
| Apasmara  | The middle vein adjacent to the joint of the jaw-bones (Hanu-Sandhi) should be opened.  | vrihi (paddy/rice)  |
| insanity and hysteria (Apasmara)  | The vein between the temple and the edge of the sculp or those in the Apanga (tips of the eyes), the forehead or the chest should be opened | vrihi (paddy/rice)  |
| diseases of the tongue and the teeth  | The veins on the under-surface (Adho-Jihva) of the tongue should be opened.   | yava (barley grain) |
| Disease of the Palate   | The local vein opened   | yava (barley grain) |
| Inflammatory ear-ache (Karna-Shula)   | vein along the region above the ears should be opened   |                     |
| Diseases of the nose and specially in a case of the loss of the smelling faculty  | The vein at the tip of the nose should be opened.   | vrihi (paddy/rice)  |
| Eye-diseases, such as Timira (blindness), Akshipaka (ophthalmia) etc., as well as in diseases of the head and in Adhimantha | the veins about the nose, the forehead and the Apanga (the outer canthus of the eyes)   | vrihi (paddy/rice)  |



### The Yantra-Vidhi

The patient whose vein is to be operated upon should be seated on a stool to the height of an Aratni (distance of the elbow from the tip of the small finger) with his face turned towards the sun. He should keep his legs in a drawn up or contracted posture resting his elbows (Kurpara) on his knee-joints and the hands with his two thumbs closed in his fists placed on (the upper ends of) his Manyas (sterno mastoid muscles), Then having cast the binding linen on the two closed fists thus placed on the neck, the surgeon should ask another man from the back side of the patient to take hold of the two ends of the cloth with his left hand having the palm turned upward, and then ask him to tie up with his right hand the bandage round the part, neither too diffusely nor too tightly nor too loosely, so as to raise the vein and to press the bandage round the back for a good out-flow of blood. Then he (surgeon) should perform the operation in the desired spot, the patient having been previously asked to sit with his mouth full of air (*i.e.*, he should confine his breathing till the surgical operation is completed). This proceeding should be adopted in opening any vein of the head, save those which are situated in the cavity of the mouth.<sup>[7]</sup>

In the case of opening a vein (Sira) in the leg, the affected leg should be placed on a level ground, while the other leg should be held in a somewhat contracted posture, at a little higher place. The affected leg should be bound with a piece of linen below its knee-joint and pressed with the hands down to the ankle. A ligature of the above kind should then be tied four fingers above the region to be incised upon, after which the vein should be opened.<sup>[8]</sup>

In the case of opening a vein (Sira) in the arms, the patient should be caused to sit easily and fixedly with his two thumbs closed in his fists (as above). A ligature of the above-mentioned kind (rope etc.,) should be tied (four fingers above the part to be incised upon and the vein opened in the aforesaid manner. The knee-joint and the elbow should be held in a contracted or drawn up posture at the time of opening a vein in a case of Gridhrasi (Sciatica) and Vishvaci, respectively. The patient should hold his back raised up and expanded and his head (and shoulders) bent down at the time of opening a vein in the back, shoulders and the Sroni (hips). He should hold his head thrust back and his chest and body expanded at the time of opening a vein in the chest or in the abdomen.<sup>[9-12]</sup>

He shall embrace his own body with his arms at the time of opening a vein in his sides. The penis should be drawn downward (*i.e.*, in an flaccid state) on a similar occasion in that region. The tongue should be raised up to the roof of the mouth and its fore-part supported by

the teeth at the time of opening a vein in its under-surface. The patient should be told to keep his mouth fully open at the time of opening a vein in the gums or in the palate. Similarly a Surgeon should devise proper and adequate means for the purpose of raising up (distinct appearance of) a Sira (vein) and determine the nature of the bandage to be used therein according to the exigencies (*i.e.*, the health and the kind of diseases of the patient), of each case.<sup>[13–17]</sup>

An incision to the depth of a barley-corn should be made with a Vrihimukha instrument (into a vein situated) in the muscular parts of the body, whereas the instrument should be thrust only half that depth or to the depth of a *Vrihi* seed in other places (*Vrihi* here signifies *Shukadkanya* as well as *Rakta-shali*) An incision over a bone should be made with the Kutharika (small surgical axe) to the half depth of a barleycorn.<sup>[18–19]</sup>

## BIBLIOGRAPHY

1. Sushruta samhita – Sharir sthanaam by Prof. K. R. Srikanta Murthy Chaukhambha Orientalia-Varanasi Edition, 2012; 1.
2. Sushruta Samhita – Sharir Sthanam, Sanskrit text with Ayurvedrahasyadipika Hindi Commentary by Dr. Bhaskar Govind Ghanekar, Meherchand Lachmandas Publication, Daryaganj, New Delhi- Janaury, 2019.
3. Clinical Anatomy- Richard S. Snell – Chapter, 9: 9.
4. Charak Samhita (English Translation) by Prof. P.V. Sharma Chaukhambha Orientalia, Varanasi, 2001; 2: 6.
5. Charak Samhita of Agnivesh revised by charak and Drudhabala by Sri Satya Narayan Shastri, Pt kasinatha shastri, Dr. Gorakhnath Chaturvedi, chaukhambha Bharati Academy Varanasi, 1989; 16.
6. Ashtang Hridayam text with English Translation, - K. R Srikantha Murthy, Published by Chaukhamba Krishnadas academy, Varanasi, 2007; 1.
7. Ashtang Sangraham text with English Translation, - K.R Srikantha Murthy Published by Chaukhambha Orientalia Varanasi, 2003; 1.
8. Cunninghams Manual of Practical anatomy by G.J. Romanes, ELBS oxford university, 1992; 15.
9. Grays anatomy by Peter L. Willams and Roger Warwick, Churchill Livingstone, NewYork, 1980; 36.