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A Comprehensive Study on *Sira Sharira* w.s.r to *Vedhya Sira* of the Upper Limb

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ABSTRACT

Ayurveda, an ancient science dealing with care of life, does not relate only with medicine and surgery. *Ayurveda* is a medical science with strong basic principles, especially in the areas of anatomy and physiology. Our *Acharyas* were continuously trying to make *Ayurveda* more practical and applied. *Acharya Sushruta's* concepts of "*Sira Sharira*" and "*Sira Vyadhadhi Sharira*" are specifically unique concepts. *Sushruta Samhita* is considered the best treatise to refer *Sharira*. (शारीरे सुश्रुत श्रेष्ठः). *Acharya Sushruta* has described the concept of *Sira*, *Dhamani*, *Srotas* and *Marma*. Among them, the concept of *Sira Sharira* is also explained and they nourish the body by the process of *Upasneha* and *Anugrahana*. *Sira* is originated from *Nabhi* (umbilicus) and then moved upward and downward. *Sira* is one of the structural components of the body, where *Sarana* is present and *Rasadi Dhatus* moves through these structures to give nourishment to the *Dhatu*. Total no. of *Siras* are 700 and out of these 602 are *Vedhya* and 98 are *Avedhya Sira* in human body. *Siravedhanis* is a type of *Raktamokshan*. *Sira Sharira* knowledge is virtually as vital in *Shalyatantra* as *Chikitsa* knowledge is in *Kayachikitsa*, and understanding of *Siras* is essential. It can be said that half *Shalyatantra* is equivalent to "*Siravyadha*" alone i.e. a number of diseases are likely to be cured only through this simplest technique. By the present study it can be concluded that the sites of *Siravedha* are scientific and can be adopted in our clinical practice which is told by *Acharya Sushruta*.

Key Words *Sira*, *Vedhya Sira*, *Avedhya Sira*, *Siravyadha*, *Vein*

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INTRODUCTION

Ayurveda, an ancient science dealing with care of life, does not relate only with medicine and surgery. In *Atharvaveda* there is documentary evidence of the awareness of the circulatory system formed by the extreme flow of water, such as "*Aruna*, *Rohita*, *Tamra*, *Dhuma*" upwards, downwards and peripherally towards "*Jala-Sindu*"¹ From this point of view,

Dhamani and *Hira* are the two colours of fluid that flow through the channel; nevertheless, *Hira* and *Dhamani* are not the same. The bright red colour of fluid belongs to *Dhamani*, whereas coppery red to *Hira*². In 2nd century A.D., Galen described the Aorta as "a trunk divided into many branches and twigs" which nourished the body. Ancient medical practitioners were not even initially aware that arteries and veins did different things for the

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body, but they soon learned that they worked differently when they cut veins full of blood and apparently hollow arteries. The humoral balance was the basis of illness or health, the four humours being blood, phlegm, black bile, and yellow bile, relating to the four Greek classical elements of air, water, earth and fire⁴. According to Galen, the blood was the dominant among all the four humours and the one in most need of control. The physician would either remove "excess" blood from the patient or give them an emetic to induce vomiting, or a diuretic to induce urination in order to balance the humours⁴. Ancient works in the field of *Rachana Sharira* presented by *Acharya Charaka*, *Acharya Sushruta*, & other *Acharyas* are the documentation of profound scientific study. *Acharya Sushruta's* concepts of "*Sira Sharira*" and "*Sira Vyadhavidhi Sharira*" are specifically unique concepts. Since anatomy is the foundation of surgery, it is likely that *Acharya Sushruta* had to deal with anatomical detail before preparing for surgery. Though it was crude it may be taken as a historical landmark in the development of anatomy in India and a clear step of advancement in the knowledge of anatomy. The word *Sira* originated from the Sanskrit root meaning blood vessel. It is said that the word *Sira* derived from the Vedic term *Hira*⁵. The term *Hira* is described as blood carrying channel towards the heart. *Acharya Sushruta* describes a detail structure of *Sira* and says *Sira* are like small water channels (*JalaHarini*) which are

spread in garden or they are like water channels which supply fields (*Kulya*) and these *Siras* do the function similar to that of *Jalaharanior Kulya* that is they supply the nutrition to the target structure and thereby nourishes, protect, help in different other functions like movement, speech, sleep, awakening etc⁶. *Acharya Sushruta* also said regarding structure of *Sira* with the example of leaf. He says the *Sira* show branching pattern similar to that of venules of the leaf. *Acharya Charaka*, *Sushruta*, and *Vagbhata*, however, offered a strong opinion on the distinction between *Sira*, *Dhamani* and *Srotas*. The fundamental distinction between *Dhamani* v / s *Sira* and *Srotas* is an act of pulsation or *Dhamana*. *Dhamani* is therefore recognized by *Dhamana* action⁷. In 9th chapter of *Sharira Sthana* "*Dhamani Sharira Vyakaranam*" *Sushruta* speaks more clearly, he explains that "some say that there is no difference among *Sira*, *Dhamani*, and *Srotas*, as *Dhamani* and *Srotas* are only *Sira Vikara*⁸. Which is not correct. *Dhamani* and *Srotas* are entities other than *Siras*. According to *Dalhana Acharya*, *Teekakar* of *Sushruta Samhita* *Sira* is *Upadhatu* of *Rakta Dhatu* therefore *Rakta* built *Sira*⁹. The *Nabhi* is the root of all the *Siras* present in the body, and from there they spread in all directions¹⁰. *Siras* surround the Umbilicus, close to the axillary hole surrounded by spokes.

Number & Distribution of *Siras*

Among these 700 *Siras*, *Mulasira* are 40 in number¹¹. They are *Doshanusara Sira*
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Sankhya¹², **Koshtagata Siras**¹³ and **Sakhagata Sira** as shown in Table 1, 2 and 3.

Table 1 Doshanusara Sira Sankhya¹²

S.No	Name of Siras	No.
1.	VatavahaSiras	175
2.	PittavahaSiras	175
3.	KaphavahaSiras	175
4.	RaktavahaSiras	175
Total		700

Table 2 Total No. Koshtagata Siras¹³

S.No	Siras	No.
1.	Guda, Sisna, Sroni	08
2.	Parswa	04
3.	Prushta	6
4.	Udara	6
5.	Vaksha	10
Total		34
1.	VatavahaSiras	34
2.	PittavahaSiras	34
3.	KaphavahaSiras	34
4.	RaktavahaSiras	34
Total		136

Table 3 Sakhagata Siras

S.No	Siras	Total count
1.	VatavahaSiras	25x4
2.	PittavahaSiras	25x4
3.	KaphavahaSiras	25x4
4.	RaktavahaSiras	25x4
Total		100

Total no. of Siras are 700 out of these 602 are Vedhya and 98 are Avedhya Siras in human body¹⁴ as seen in Table 4^{15,16}.

Siravedhanis a type of Raktamokshan. In this process deeply rooted Doshas in Rakta are

Table 4 Vedhya and Avedhya Siras according to Acharya Sushruta and Acharya Vagbhata^{15,16}

Location	Total no. of Siras	Vedhya Siras	Avedhyasiras	Reference
Shaka	400	384	16	Sushruta, Vagbhata
Madhya Shareera	136	104	32	Sushruta, Vagbhata
Urdhvajatru	164	114	50	Sushruta, Vagbhata
Shroni	32	29	03	Sushruta, Vagbhata
Parshva sandhi	16	14	02	Sushruta, Vagbhata
Prushta	24	20	04	Sushruta, Vagbhata
Udara	24	20	04	Sushruta, Vagbhata
Vaksha	40	24	14	Sushruta, Vagbhata
Greeva	56	24	16	Sushruta
			06	Vagbhata
Hanu	16	12	04	Sushruta, Vagbhata
Jihva	36	32	04	Sushruta
	16	08	04	Vagbhata

removed in a specific disease specific Siras to be punctured.

Vedhya Sira in upper limb¹⁷

The school of Sushruta has mentioned the VedhyaSiras of extremities in connection of the disease which are most probably the superficial veins of the limbs. Similarly, other Acharya also mention the site of Vedhyain the upper extremities.

Pleehodara:-

Siravedhan should be done specially in the left arm at the medial side of elbow joint (Kurpara Sandhi) and also between the Kanisthika and Anamika finger of the left arm.

Yakrudalyudara (Kaphodara):

In diseases of Yakrudalyudara, Siravedhan should be done specially in the right upper limb at the medial side of elbow joint (Kurpara Sandhi).

Kasa-Shwasa: In diseases of Kasa-Shwasasame as Yakrudalyudara (Kaphodara)

Vishwachi: In Vishwachi, Siravedhan should be done at 4 Angula above or below Kurpara Sandhi.

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<i>Netra</i>	38	29	09	<i>Sushruta</i>
	56	43	13	<i>Vagbhatt</i>
<i>Karna</i>	10	08	02	<i>Sushruta, Vagbhatt</i>
<i>Lalata</i>	60	52	08	<i>Sushruta</i>
		53	07	<i>Vagbhatt</i>
<i>Shankha</i>	10	08	02	<i>Sushruta</i>
<i>Pradesha</i>	16	14	02	<i>Vagbhatt</i>
<i>Moordha</i>	12	04	08	<i>Sushruta</i>

Apachi: In *Apachi*, *Siravyadha* is done at 2 *Angula* below the *IndrabastiMarma*.

AIMS AND OBJECTIVES

AIM

A Comprehensive study on *SiraSharira* with special reference to *VedhyaSira* of the upper limb.

OBJECTIVES

- (1) To do the literary study of *SiraSharira* and *VedhyaSira* of upper limb.
- (2) To locate the site of *VedhyaSira* of upper limb.
- (3) To study the regional anatomy of *VedhyaSira* of upper limb by performing dissection.

MATERIALS AND METHODS

Material for Review of Literature: Classical text books of *Ayurveda* with their original commentaries and previous works which are relevant to the present study.

Modern Medical Science: Articles, papers published in indexed journals related to regional anatomy of Upper limb which are relevant to the present study.

Methods: In observation study, Dissection of the upper limb in five cadavers was carried out in the P.G. department of *RachanaSharir*, J.S. Ayurveda Mahavidyalya college Nadiad.

Anatomical structures found in the site of *Vedhya Siras* of upper limb were confirmed with the help of cadaver dissection conducted in P.G. Dept. of *Rachana Sharira*, J S. Ayurved Mahavidhyalay Nadiad.

OBSERVATION AND RESULT

The dissection of five cadavers in which ten upper limb specimens has been carried out as per Cunningham's Manual of practical anatomy. Cadaveric dissection procedures were carried out layer by layer, observed in detail and different structures and their relations with each other were studied in detail. The structures which are related to *SiraSharir* and *Vedhya* and *AvedhyaSira* of upper limb were observed in detail.

DISCUSSION

Acharya Sushruta have classified *Sira* by considering into their applied importance and traumatological after effect into *Vedhya* and *AvedhyaSira*. By observing effect of *Siravyadha* in some particular *Siras* *Acharya* categorized them under *Vedhya Siras*, whereas few *Siras* he found at the location of *Marma*. The *Siras* which are vital and on injury which

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may cause complication are considered as *Avedhya Siras* and *Acharya Sushruta* give guidelines that such *Siras* should be avoided for *Siravyadha*.

❖ *Pleehodar*

Structures at considered site

Site of *vedhyasira* 1: At the left region of elbow prominent median cubital veins links cephalic and basilic vein. It receives number of tributaries from the front of forearm and gives off the median vein, which pierces the facial roof of antero-cubital fossa to join the venae comitantes of brachial artery. So the vein recommended

for *Siravyadha* may be median cubital vein of left elbow.

Figure no 1. location of site of *Sira*

Figure no 2. location of site of *Sira*

Site of *vedhyasira* 2: *Acharya Sushruta* has indicated select vein situated in between little finger and ring finger for *Siravedhana*. As per context, dorsal digital veins from lateral side of the little finger and medial side of ring finger of left hand can be considered for *siravyadha*.



Fig. no 1 Location of site of *Sira*

Significance: In *Pleehodar*, *Siravyadha* can be done at either median cubital vein of the left



Fig. no 2 Location of site of *Sira*

elbow joint, or left dorsal digital veins in between little and ring fingers of left hand.

❖ *Yakrudalyudara (kaphodara)*

In diseases of *Yakrudalyudara*, *Siravedhana* should be done especially in the right upper limb at the medial side of elbow joint (*Kurpara Sandhi*) in the center of the arm or in the area between *Kanistika* and *Anamika* (between the right little and ring fingers). *Acharya Sushruta* told medial aspect of *Kurpara*, in anatomy elbow joint have only anterior and posterior aspect. Hence, here we consider medial aspect of anterior side of the elbow, or in between little and ring finger of right hand.

Structures at considered site

Site of *VedhyaSira* 1: At the right region of elbow prominent median cubital veins links cephalic and basilica vein. It receives number of tributaries from the front of forearm and gives off the median vein, which pierces the facial roof of antero-cubital fossa to join the venae comitantes of brachial artery. So the vein recommended for *Siravedha* be median cubital vein of right elbow.

Site of *VedhyaSira* 2: Alternative, *Acharya Sushruta* has indicated select vein situated in between little finger and ring finger for

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Siravedhana. As per context, dorsal digital veins from lateral side of the little finger and medial side of the ring finger of right hand may be consider for *Siravedha*.

Significance: In *Yakrudalyudara*, *Siravyadha* can be done at either median cubital vein of the right elbow joint, or right dorsal digital veins in between little and ring finger of left hand.

❖ **Kasa-Shwasa**

In diseases of *Kasa-Shwasa*, Same as *Yakrutdalyudar*.

❖ **Vishwachi**

In *Vishwachi* pain in the arm will be similar to that of *Grudhrasi*, so *Siravedha* should be done at 4 *Angula* above or below *Kurpara Sandhi*.

Sitewithjustification: 4 *Angula* above the *Kurpara* and 4 *Angula* below the *Kurpara* on both aspects.

Structures at considered site: 4 *Angula* above and below from the elbow joint on both lateral and medial aspect we may found there are two prominent veins. One is cephalic vein and another is Basilic vein. Cephalic vein that begins from the lateral end of the dorsal venous arch. It runs upwards wind around the lateral border of forearm, continues upwards along the lateral border of biceps. It pierces deep fascia of pectoralis major. It pierces the clavipectoral fascia and joints of axillary vein. Basilic vein which is a post-axial vein of upper limb that begins with the dorsal venous arch runs upwards along the medial border of the fore

arm winds around the elbow where it pierces the deep fascia and lastly runs around the medial side of the brachial artery.

Significance: it can be considering these cephalic and basilic veins 4 *Angula* above and below for *Siravedha* in *Vishwachi Vyadhi*.

❖ **Apachi**

In *Apachi*, *Siravedha* is done at two *Angula* below the *Indrabasti Marma*.

Site with justification: *Indrabasti marma* is the variety of *Mamsamarma* and according to *Acharya Sushruta* location of *Indrabastimarma* is situated between elbow and wrist (*Prakoshta Madhya*), slightly towards thehand.Partofforearmwhichissituatedbetweene lbowandwristiscalled *Prakoshta*. Normally the length of adult *Prakoshta* is approx 16 *angula*. Location of *Indrabasti marma* is “*Prakoshtamadhyaprat*” so it will be present 8 *Angula*cm fromelbow to wrist.

Structures at considered site: Here no any major vein present in the location of *Indrabasti Marma*. But the commonly median ante brachial vein or unnamed branches of vein is visible on front of the forearm 2 *Angula* below the *Indrabasti Marma*.

Significance: Median ante brachial vein is visible on front of the forearm 2 *Angula* below should be considered.

Table 5 Comparison of structures which found in all 10 upper limbs of five cadavers

Table 5 Comparison of structures which found in all 10 upper limbs of five cadavers

S.NO.	Structure	First		second		Third		Forth		Five		total
		Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	

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1	Cephalic vein	1	0	1	0	1	0	1	0	1	0	05
2	Median cubital vein	1	1	1	1	1	1	1	1	1	1	10
3	Brachial vein	1	0	1	0	1	0	1	0	1	0	05
4	Basilic vein	1	0	1	0	1	0	1	0	1	0	05
5	Median antebrachial vein	1	0	1	0	1	0	1	0	1	0	05
6	Dorsal digital vein	1	1	1	1	1	1	1	1	1	1	10

1 = present and 0 = absent



Fig no 3. Cephalic Vein, Median Cubital Vein, Cephalic Vein of Forearm and Median Antebranchial vein

CONCLUSION

The structure which are found at the site of *VedhyaSira* in 10 limbs of five human cadavers are skin, superficial fascia containing cephalic vein, cephalic vein of forearm, basilic vein, median cubital vein in right cubital fossa, brachial vein, median antebrachial vein, median cubital vein in left cubital fossa, dorsal digital vein in left hand, Dorsal digital vein in right hand and also the muscle of front of arm and forearm. In *Pleehodar*, *Siravyadha* can be done at either median cubital vein of the left elbow joint, or left dorsal digital veins in between little and ring finger of left hand. In *Yakrudalyudara*, *Siravyadhac*an be done at either median cubital vein of the right elbow joint, or right dorsal digital veins in between little and ring finger of left hand. In diseases of *Kasa-Shwasa*, same as *Yakrutdalyudar*. In *Vishvachi*, *Siravyadha* can be considering these cephalic and basilic veins 4 *Angula*above

andbelow4 *Angula* above or below *Kurpara Sandhi*. In *Apachi*, *Siravyadha* can be Median ante brachial vein is visible on front of the forearm 2 *Angula* below should be considered. The knowledge of *Sirasharira* is almost importance in *Shalyatantra* as *Chikitsain basti* in *Kayachikitsa*, knowledge of *Siras* requires prime importance. It can have said that half *Shalyatantra* is equivalent to “*Siravyadha*” alone i.e. a number of diseases are likely to cured through this simplest technique.

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