

## LITERARY RESEARCH ON ADHO SHAKHAGAT VEDHYA SIRI

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### ABSTRACT

While learning Anatomy with Ayurvedic perspective, students encounter number of controversial concepts which has to be clarified e.g. *Srotas*, *Snayu*, *Sira*, *Kala* etc. *Sira* is one of the intricate and essential concepts. *Vedhan* of *Sira* (Puncturing of veins) i.e. *Siravedhan* is one of the modality in practice in the management of various diseases. Hence considering its importance a conceptual study has to be carried out to know underlying structure for sites of *Adho Shakhagat Vedhya Sira*. In this study, it is observed that *Sira* can correlate with the blood vessels and Lymphatics. The *Siravedha* sites in *Adho shakha* are identified in terms of modern nomenclature to particular site. Then the identified site is correlated with the underlying superficial vein at the particular location. Thus the underlying superficial veins are confirmed and considered as *Vedhya Sira* of that site in particular diseases. The study confirms that, the *Adho Shakhagat Sira* i.e. 1) Beginning of great saphenous vein has been considered for *Siravedhan* in *Padadaha*, *Padharsha* etc., 2) Great saphenous vein 4 *angula* above the *Gulpha* and 4 *angula* below *Gulpha* for *Siravedhan* in *Vataj* and *Pittaj Shlipad* respectively. 3) Great saphenous vein 4 *angula* above the *Gulpha* in *Krostukashirsha*, *Khanja*, *Pangu* and *Vatvedana*. 4) Small saphenous vein 2 *angula* below *Indrabasti* in *Apachi*. 5) The great saphenous vein 4 *angula* below and above at medial aspect of *Janu Sandhi* in *Grudhrasi*. 6) Superficial veins present in inguinal region have been considered for *Siravedhan* in *Galaganda*.

**Keywords:** *Sira*, *Siravedhan*, *Vedhya Sira*.

### INTRODUCTION

*Sira* is one of the intricate, controversial but essential concepts that is encountered while learning anatomy with Ayurvedic perspective. *Siravedhan* is one of the important modality in

practice in the management of various diseases like *Grudhrasi*, *Unmad*, *Apasmar* etc<sup>1</sup>. However, nowadays *Siravedhan* is found less in practice, may be due to lack of first hand infor-

mation as well as experienced *Vaidyas* or due to lack of confidence. *Sushruta* has mentioned specific sites for *Siravedhan* and he also mentioned sites for *Avedhya Sira*. *Sushruta* has stated *Siravedhan* as a half (prime) the *Chikitsa* in *Shalyatantra* like *Basti* in *Kayachikitsa*<sup>2</sup>. For the desired outcome in treatment and to avoid complications due to puncture of *Avedhya Sira*, complete knowledge of *Siravedhan* is essential. So it becomes invariably essential for *Siravedhan* to find out the anatomical structures to which one can label as *Vedhya* and *Avedhya Sira*. Hence considering its importance a conceptual study has to be carried out to know underlying structure for sites of *Adho Shakhagat Vedhya Sira*.

**AIM:** To confirm anatomical structure of *Adho Shakhagat Vedhya Sira*

**OBJECTIVES:**

1. To confirm exact sites of *Siravedha* in *Adho Shakha* as per modern anatomy

2. To correlate Sites of *Adho Shakhagat Vedhya Sira* with underlying anatomical Structures

**MATERIALS:**

1. Literature: *Bhrihadtrayee*, Previous Research work
2. Modern Literature: Gray's Anatomy, B.D. Chaurasia's Human Anatomy etc.

**METHODOLOGY:-**

**Literature study:**

- A. Corelation of *Sushrutokta Sira* with anatomical structure.
- B. Findings of anatomical location for *Adho Shakhagat* sites of *Siravedhan* and their interpretation with underlying structure.

**A. Corelation of *Sushrutokta Sira* with anatomical structure:**

According to *Ayurveda*, *Sira* nourishes the body<sup>3</sup> and as per the modern science body is nourished by blood vessels and lymphatics.<sup>4</sup> It can be observed easily from following table of comparison On the basis of colour and types of *Sira*.<sup>5,6,7</sup>

S.N.	AYURVEDA	MODERN
1	<i>Aruna (Vatavahi)</i> Convey <i>Vata dosha</i> . <u>Blackish red</u> in colour. Minute, if pressed suddenly get emptied and after removing pressure suddenly fill.	<b>Capillary</b> Convey deoxygenated blood. <u>Blackish red</u> in appearance. Minute, if pressed suddenly emptied and after removing pressure suddenly fill.
2	<i>Neela (Pittavahi)</i> Convey <i>Pitta dosha</i> . <u>Blue</u> in appearance and are warm.	<b>Vein</b> Convey deoxygenated blood. <u>Blue</u> in appearance.
3	<i>Gauri (Kaphavahi)</i> Convey <i>Kapha dosha</i> . <u>White</u> in colour. Steady, sheet and nutritive.	<b>Lymph vessel</b> Convey lymph. <u>White</u> or colourless. They are nutritive, cold and beaded.
4	<i>Rohini (Raktavahi)</i> Convey <i>Suddha Rakta</i> . <u>Red</u> in colour. Neither warm nor cold.	<b>Artery</b> Convey oxygenated blood and nutritive. <u>Red</u> in appearance.

Hence, we can correlate the *Sira* with the blood vessels and Lymphatics as follows:

1. *Aruna Sira* can be correlated with Capillaries.
2. *Neela Sira* can be correlated with Veins.

3. *Gauri Sira* can be correlated with Lymph vessels.
4. *Rohini Sira* can be correlated with Arteries.

## **B. Findings of anatomical location for *Adho Shakhagat* sites of *Siravedhan* and their interpretation with underlying structure**

The *Vedhya Sira in Adho Shakha* are explained based on following points for *Siravedhan* indicated *Vyadhi*.<sup>8</sup>

i) Site with justification ii) Structures at considered site

### **1. *Padadaha, Padharsha, Chippa, Visarpra, Vatkantak, Vicharchika, and Padadari etc.***<sup>8</sup>

In diseases like *Padadaha, Padharsha, Chippa, Visarpra, Vatkantak, Vicharchika, and Padadari etc.*, the vein situated 2 *angula* above the *Kshipra Marma* should be punctured using *Vrihimukha*.

**i) Site with justification:** Site of *Kshipra Marma*<sup>9</sup> is in between great toe and first little toe (at the distal part of the first metatarsal space). Here we considered dorsal aspect of foot because here subcutaneous veins are easily seen than the planter aspect. 2 *angula* above *Kshipra Marma* this site is a space between 1<sup>st</sup> and 2<sup>nd</sup> metatarsal bone.

**ii) Structures at considered site:** When we see this site, here tributaries of great saphenous veins are present. Great saphenous vein begin from medial end of the dorsal venous arch and runs upwards and backwards anterior to the medial malleolus<sup>10</sup>.

So, as per the above context in all said diseases, medial end of the dorsal venous arch i.e. beginning of great saphenous vein can be considered for *Siravedha*, which coincides with the site 2 *angula* above *Kshipra Marma*.

### **2. *Shlipad*:**<sup>8</sup>

In *Vataj Shlipad* the surgeon should puncture the vein 4 *angula*, above and in *Pittaj Shlipad* 4 *angula* below the *Gulpha Sandhi* (ankle joint)<sup>11</sup>.

**i) Site with justification:** Here we have to consider that lateral and medial aspect of leg and

foot respectively for above and below the *Gulpha Sandhi*. Lateral aspect of leg is bulky due to multiple muscles but medial aspect is subcutaneous shows dominant vein unlike lateral aspect. Same scenario is observed regarding dorsum of foot. So 4 *angula* above from the ankle joint considered medial aspect of leg, and 4 *angula* below considered medial border of dorsum of the foot because, here prominent veins are easily seen than the other aspects.

**ii) Structures at considered site:** 4 *angula* below ankle joint is beginning of great saphenous vein and above 4 *angula* from ankle joint here also great saphenous vein on the medial aspect of leg<sup>10</sup>.

So, in *Vataj Shlipad* 4 *angula* above the *Gulpha*, and in *Pittaj Shlipad* 4 *angula* below *Gulpha*, great saphenous vein can be considered (punctured) for *Siravedha*.

### **3. *Krostukashirsha, Khanja, Pangu and Vatvedana*:**<sup>8</sup>

In *Krostukashirsha, Khanja, Pangu, and Vatvedana, Siravedha* should be done in *Jangha*, at 4 *angula* above the *Gulpha* (ankle joint).

**i) Site with justification:** Here we have to consider that lateral and medial aspect of leg above the *Gulpha Sandhi*. Lateral aspect of leg is bulky due to multiple muscles but medial aspect is subcutaneous shows dominant vein. So we considered medial aspect of leg, because here prominent veins are easily seen.

**ii) Structures at considered site:** On the medial aspect of leg 4 *angula* above from ankle joint is great saphenous vein<sup>10</sup>.

So, in above said *Vyadhi*, we can consider Great saphenous vein for *Siravedhan*.

### **4. *Apachi*:**<sup>8</sup>

In *Apachi, Siravedha* is done at 2 *angula* below the *Indrabasti Marma*.

**i) Site with justification:** Here we have to finalize the site of *Indrabasti Marma*. *Sushruta* has not specified the site of *Indrabasti Marma*. If we see the treaty of *Dalhanacharya*, he has stated the site of *Indrabasti* is 13 *angula* above the *Parshni*<sup>9</sup> (calcaneum). When we observe this considered site there is bifurcation of popliteal artery (at the lower apex of the popliteal fossa.) injury to this site the symptoms of *Vidha lakshana* of *Indrabasti Marma* is seen, and it is type of *Mansa Marma*. So location of *Indrabasti Marma* is on calf muscles.

**ii) Structures at considered site:** Here the small saphenous vein is easily visible on back of the leg 2 *angula* below the *Indrabasti Marma*. The small saphenous vein receives many cutaneous tributaries in the leg<sup>12</sup>.

So, small saphenous vein on back of leg 2 *angula* below *Indrabasti* can be considered for *Siravedha* in *Apachi Vyadhi*.

#### 5. *Grudhrasi*:<sup>8</sup>

In *Grudhrasi*, *Siravedha* should be done 4 *angula* either above or below the *Janu* (Knee joint).

**i) Site with justification:** Here, we have to consider four aspect of 4 *angula* above and below knee region. When we see these sites the prominent veins are seen only from medial aspect. So we considered medial aspect.

**ii) Structures at considered site:** The great saphenous vein is easily seen in this site. The

vein has several communications through the deep fascia with deep veins<sup>10</sup>.

So, the great saphenous vein 4 *angula* below and above at medial aspect of *Janu Sandhi* can be considered for *Siravedhn* in *Grudhrasi Vyadhi*.

#### 6. *Galaganda*:<sup>8</sup>

In *Galaganda*, *Siravedha* should be done at the *Urumula Samistha Sira* (root of the thigh).

**ii) Site with justification:** Groin region (Inguinal ligament) separates abdomen from thigh. So this part is considered as the root of the lower extremity.

#### ii) Structures at considered site:

The superficial epigastric vein runs downwards and laterally from umbilicus and drain into femoral vein (great saphenous vein).

The superficial circumflex iliac vein runs downwards from lateral side of the inguinal ligament, it pierces the fascia lata lateral to the saphenous opening, and drains in to femoral vein<sup>13</sup>. (Great saphenous vein)

So, any of these veins can be considered for *Siravedha* in *Galaganda Vyadhi*. (Veins present in inguinal region).

#### OBSERVATIONS:

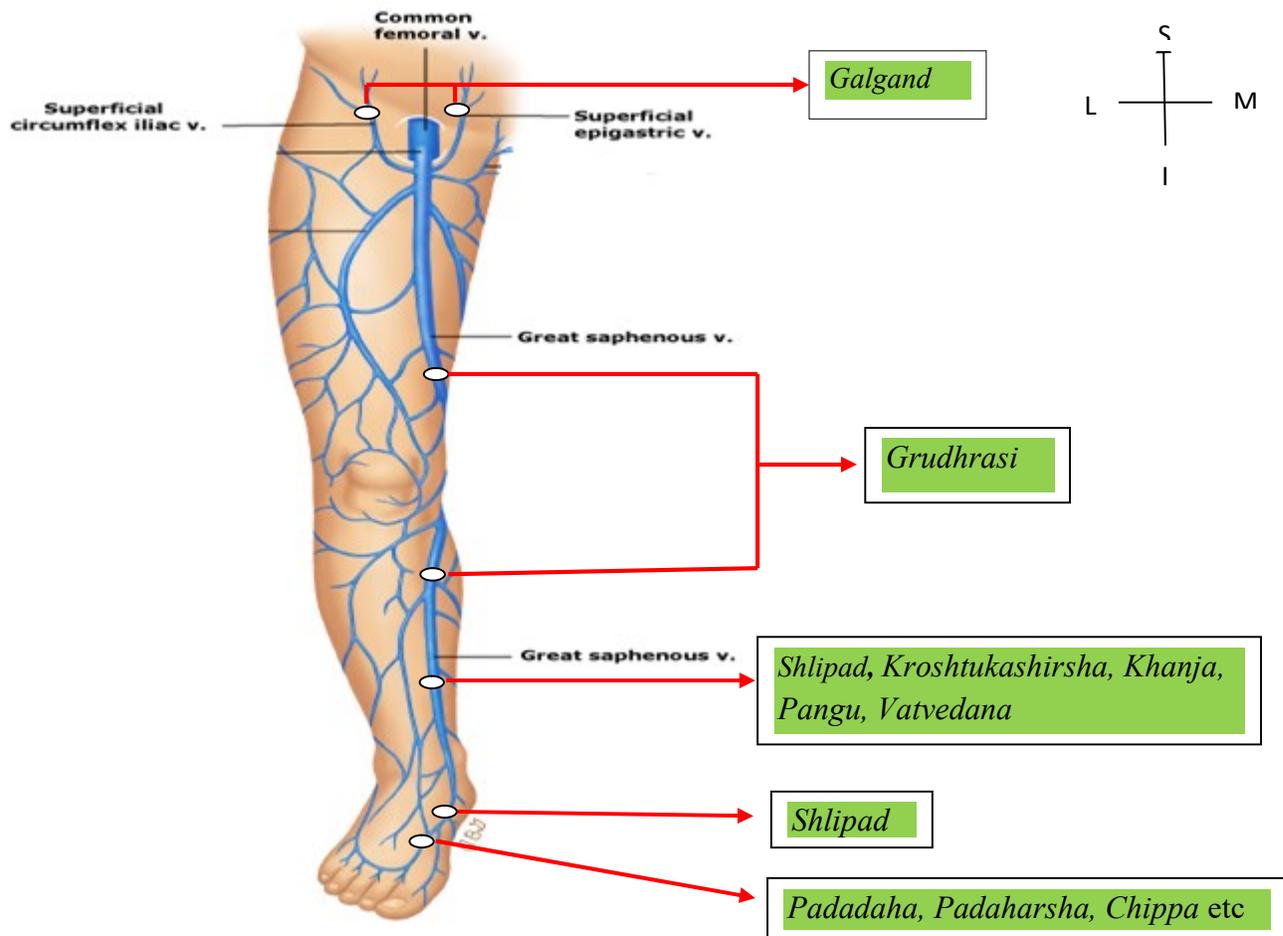
The site of *Siravedhan* can be interpreted with the modern anatomical structures listed in tables. Here, we have considered superficial veins at that particular site as *Vedhya Sira*.

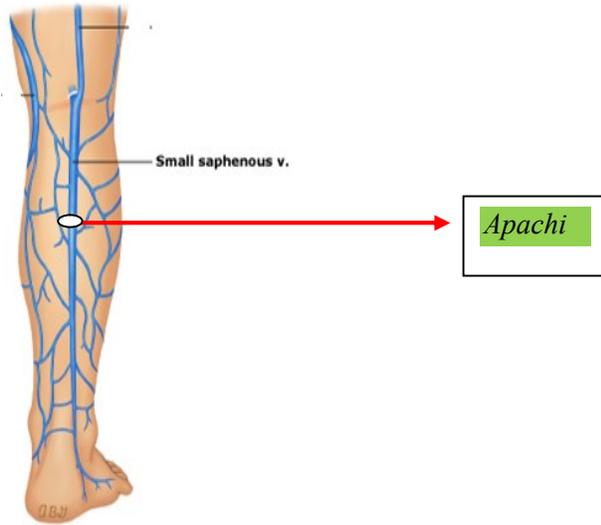
#### *Adhoshakha* - Interpretative sites of *Vedhya Sira*

S.N.	<i>Vyadhi</i> <sup>8</sup>	<i>Sushrutokta sites for Siravedha</i> <sup>8</sup>	Modern structure and site
1	<i>Padadaha, Padharsha, Chippa, Visarpa, Vatkantak, Vicharchika, Padadari</i> etc.	2 <i>Angula</i> above <i>Kshipra Marma</i> by <i>Vrihimukha</i>	Begining of great saphenous vein. 2 <i>angula</i> above from point between Great toe and first little toe. <sup>10</sup> See Fig. No. 1.
2	<i>Shlipada</i>	4 <i>Angula</i> above or below <i>Gulpha</i>	Great saphenous vein 4 <i>angula</i> above or below from ankle joint <sup>10</sup> . See Fig. No. 1.

3	<i>Kroshtukashirsha, Khanja, Pangu, Vatvedana</i>	4 Angula above <i>Gulpha</i>	Great saphenous vein 4 <i>angula</i> above from the ankle joint. <sup>10</sup> See Fig. No. 1.
4	<i>Apachi</i>	2 Angula below <i>Indrabasti</i>	Small saphenous vein 2 <i>angula</i> below the <i>Indrabasti Marma</i> <sup>12</sup> . See Fig. No. 2.
5	<i>Grudhrasi</i>	4Angula above or below <i>Janu</i>	Great saphenous vein. 4 <i>angula</i> either above or below the Knee joint. <sup>10</sup> See Fig. No. 1.
6	<i>Galganda</i>	<i>Sira</i> of <i>Urumula</i>	The superficial epigastric veins, The superficial circumflex iliac veins <sup>13</sup> See Fig. No. 1.

**Fig. 1. Ant. Aspect of Rt. lower extremity**



**Fig. 2. Post. Aspect of Rt. leg**

## DISCUSSION

In this conceptual study, discussion regarding general interpretation of *Vedhya Sira* is essential to further know the underlying structure for *Adho Shakhagat Vedhya Sira*. **Interpretation of *Vedhya Sira*:** In *Sushruta Samhita*, exact numbers of *Avedhya Sira* are given with their name and site but, while explaining *Siravedha*, specific name and number of *Vedhya Sira* is not mentioned. However, only sites of *Siravedha* are stated. Though the sites of *Siravedha* are mentioned in *Samhita*, the interpretation about underlying structure of these sites is not available in any texts and literary research related to *Vedhya Sira*. So we tried to interpret underlying structure for *Vedhya Sira* through this study for clarity of the concept.

A) On the basis of *swabhav* of *Sira*: In the 8th chapter of *Sharirasthan*, *Sushruta* described about *swabhav* of *Sira* that nobody is trained in puncturing *Sira* as they are unsteady i.e. change their position like fish. Hence has to be punctured skillfully.<sup>14</sup> Feature of *Vedhya Sira* is *Matsyavat* means slippery in nature and as we ob-

serve practically, superficial veins where deep fascia is absent e.g. dorsum of hand and foot are also slippery. So *Vedhya Sira* has been considered as superficial veins.

B) On the basis of procedure for *Siravedha*: *Sushruta* told that *Sira* must be visible before *Vedhan* and to make them visible should be tied with cloth, leather, inner bark of trees, creeper, slender branch or any other material.<sup>15</sup> In modern treatment tourniquet is applied to make superficial veins prominent<sup>16</sup>. From this context also, it is clear that superficial veins should be considered for *Siravedha vidhi*. With these aforesaid two references - A. *Swabhav* of *Sira* and B. Procedure of *Siravedha*, it is clear that only superficial veins can be considered for *Siravedha*.

**Interpretation of sites of *Adho Shakhagat Vedhya Sira*:** The probable confirmation of anatomical structure for *Adho Shakhagat Vedhya Sira* has been discussed on the basis of interpretation of observations drawn from Conceptual study. The correlation of *Adho Shakhagat Vedhya Sira* with underlying anatomical structure is carried

out with the textual references available regarding *Siravedha* sites in *Adho Shakha* mentioned in various diseases like *Padadaha*, *Shlipad*, *Krostukashirsha*, *Apachi*, *Grudhrasi*, *Galaganda*. The *Siravedha* sites in *Adho Shakha* are identified in terms of modern nomenclature to particular site. Then the identified site is correlated with the underlying superficial vein at the particular location. Thus the underlying superficial veins are confirmed and considered as *Vedhya Sira* of that site in particular diseases.

E.g. In *Apachi*, *Siravedhan* site is 2 *angula* below the *Indrabasti Marma*. As per modern anatomy the location of *Indrabasti Marma* is on calf muscles. The underlying structure 2 *angula* below this site is small saphenous vein. So, small saphenous vein on back of leg 2 *angula* below *Indrabasti* has been considered as *Vedhya Sira* in *Apachi Vyadhi*.

## CONCLUSION

The present conceptual study confirms that, the *Adho Shakhagat Vedhya Sira* are the superficial veins of the particular sites as:

1. Medial end of the dorsal venous arch i.e. beginning of great saphenous vein has been considered for *Siravedhan* in *Padadaha*, *Padharsha*, *Chippa*, *Visarpra*, *Vatkantak*, *Vicharchika*, and *Padadari* etc.,
2. Great saphenous vein 4 *angula* above the *Gulpha* and 4 *angula* below *Gulpha* have been considered (punctured) for *Siravedhan* in *Vataj* and *Pittaj Shlipad* respectively.
3. Great saphenous vein 4 *angula* above the *Gulpha* (ankle joint) has been considered for *Siravedhan* in *Krostukashirsha*, *Khanja*, *Pangu*, and *Vatvedana*.
4. Small saphenous vein on back of leg 2 *angula* below *Indrabasti* has been considered for *Siravedha* in *Apachi Vyadhi*.

5. The great saphenous vein 4 *angula* below and above at medial aspect of *Janu Sandhi* has been considered for *Siravedha* in *Grudhrasi Vyadhi*.
6. Superficial veins present in inguinal region have been considered for *Siravedha* in *Galaganda Vyadhi*.

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