



A COMPREHENSIVE STUDY OF SHAKHAGAT AVEDHYA SIRA AND SHAKHAGAT SIRA MARMA

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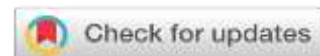
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ABSTRACT

Human Anatomy is an important and fundamental subject for health science. *Acharya Sushruta* defined *Siravedhan* as half *Chikitsa* in *Shalyatantra* and there are several diseases that can be cured by the *Siravedhan* process such as – *Gradhrasi*, *Vishvachi*, *Apasmar*, *Unmad*, etc. However, some *Siras* is contra-indicated for *Siravedhan* and termed as *Avedhya Sira* and puncturing of these *Avedhya Siras* causes harmful effects on the body. The concept of *Marma* is one such imperative and the unique principle of *Ayurveda*. The science of *Marma* known as *Marma Vigyanam* is a dynamic part, specially described in *Sushruta Samhita*. *Ayurveda* classics described “*Maryanti Iti Marmani*”, which means *Marma* are the vital points of the body that show several fatal signs and symptoms on traumatic injury. Some *Marma* and *Avedhya Sira* have the same name e.g., *Urvi Marma- Urvi Sira*, *Lohitaksha Maram - Lohitaksha Sira*.

Keywords: *Sira Marma, Avedhya Sira, Viddha Lakshana*

INTRODUCTION

Ayurveda is a science that deals with the health of the human being. *Ayurveda* is an ancient system of Indian medicine, and its main objective is to maintain the

optimum level of a healthy individual and treat the diseased one. The ancient texts of traditional science described *Rachna Sharir* as an important aspect of

Ayurveda which plays a significant role in the understanding structural concept of the human body.

Marma and *Avedhya Sira* both are vital points of the body. Knowledge of this concept is very helpful during a surgical procedure.

AIMS & OBJECTIVE

- To explore the site of *Shakhagat Avedhya Sira* and *Shakhagat Sira Marma* and their relationship.
- To study the surrounding and underlying structures of *Shakhagat Avedhya Sira* and *Shakhagat Sira Marma* respectively in terms of modern representing Anatomy.

MATERIAL AND METHOD

- Literary study of the *Shakhagat Avedhya Sira* and *Shakhagat Sira Marma* available in *Ayurveda* classics.
- Cadaveric study of the surrounding and underlying structures of *Shakhagat Avedhya Sira* and *Shakhagat Sira Marma*.

This is a comprehensive study of two main fundamental concepts of *Ayurveda* classics. The literary study of

different *Samhitas* as well as ancient books and online sources related to the topic was done.

Classical Review

Shakhagat Avedhya Sira – *Ayurveda* classics described seven hundred *Siras* in the human body.¹ According to *Acharya Sushruta* these *Siras* are divided into three regions – *Shakhagat*, *Kosthagat* and *Urdhvjatrugat* in which six hundred and two are *Vedhya Siras* and ninety-eight are *Avedhya Siras*. puncturing of these *Avedhya Siras* causes harmful effects on the body. The *Avedhya Siras* are the vessels that are prohibited for the *Siravyadha*. Any trauma to *Avedhya Siras* may lead to morbidity or death.² Synonyms of *Sira* are *Nadi* and *Dhamni*.

Jaldhara, *Urvi* and *Lohitaksha* are *Avedhya Siras* in extremities. According to *Acharya Sushruta*, there are four hundred *Siras* in extremities, but only four *Siras* in each limb are *Avedhya*. *Jaldhara* is situated externally and one in each extremity, three internal *Siras* (two *Urvi* and one *Lohitaksha*), thus a total of sixteen *Avedhya Siras* in extremities.

Distribution of Shakhagat Avedhya Sira^{3,4,5}

Name of the <i>Avedhya Sira</i>	SHAKHAGAT AVEDHYA SIRA		
	Sushruta Samhita	Ashtang Sangraha	Ashtang Hridaya
Jaldhara	4	4	4
Urvi	8	8	8
Lohitaksha	4	4	4

SHAKHAGAT SIRA MARMA- *Acharya Charaka*, *Sushruta*, and *Vagbhatta* have mentioned one hundred and seven *Marma* in the human body. *Marma* is structurally classified as *Mansa Marma*, *Sira Marma*, *Snayu Marma*, *Asthi Marma*, and *Sandhi Marma*

according to their *Rachna*. A total of forty-one *Sira Marma* are present in the body in which *Lohitaksha* and *Urvi* both are situated in the *Shakha* region. *Acharya Laghu Vagbhatta* described thirty-seven *Sira Marma* in which *Lohitaksha*, *Urvi*, *Kakshadhar*, and *Vitap* are present in the *Shakha* region.

Shakhagat Sira Marma^{6,7,8}

<i>Shakhagat Sira Marma</i>	<i>Sushruta Samhita</i>	<i>Ashtang Sangraha</i>	<i>Ashtang Hridaya</i>
<i>Lohitaksha</i>	+	+	+
<i>Urvi</i>	+	+	+
<i>Kakshadhara</i>	–	–	+
<i>Vitapa</i>	–	–	+

Description of Lohitaksha Marma

Lohitaksha Marma				
Vibhajana	Sushruta Samhita	Ashtang Sangraha	Ashtang Hridaya	Bhavprakash
Sthan	Urvyah-urdhva, Vankshana Adho, Vankshana sandhi uru mule	Urvyastu Urdhava Adho-Vankshana-Sandhe-Uru Mule	Uru Mule	Urvyah-urdhva, Vankshana Adho
Rachna	Sira Marma	Sira Marma	Sira Marma	Sira Marma
Parinaam	Vaikalyakara Marma	Vaikalyakara Marma (Vidhi Bheda)	Vaikalyakara Marma	Vaikalyakara Marma
Parimana	Ardha Angula	Ardha Angula	Ardha Angula	Ardha Angula
Viddha Lakshana	Lohita-kshaya, Maran/Pakshghat	Raktasrava-Pakshghat	Asrak-kshaya, Pakshghat	Shonitkshaya, Pakshghat, Sakthisada

Description of Urvi Marma

Urvi Marma				
Vibhajana	Suhruta Samhita	Ashtang Sangraha	Ashtang Hridaya	Bhavprakash
Sthan	Uru-madhya	Uru- madhye	Uru- madhye	Uru-madhye, Praganda-Madhya
Rachna	Sira Marma	Sira Marma	Sira Marma	Sira Marma
Parinaam	Vaikalyakara Marma	Vaikalyakara Marma (Vidhi Bheda)	Vaikalyakara Marma	Vaikalyakara Marma
Parimana	One Angula	Swa-Angula Parimana	One Angula	One Angula
Viddha Lakshana	Shonitkshaya, Sakthi-shosh	Raktasrava – Sakthi-shosh	Asrak-sankshaya, Sakthi-shosh	Shonitkshaya, Sakthi-shosh, Bahu- shosh

Description of Kakshadhara Marma

Kakshadhara Marma				
Vibhajana	Suhruta Samhita	Ashtang Sangraha	Ashtang Hridaya	Bhavprakash
Sthan	Vaksha and Kaksha madhye	Kaksh-Aksh madhye	Kaksha-Aksh madhye	Vaksha and Kaksha madhye
Rachna	Snayu Marma	Snayu Marma	Sira Marma	Snayu Marma
Parinaam	Vaikalyakara Marma	Vaikalyakara Marma (Vidhi Bheda)	Vaikalyakara Marma	Vaikalyakara Marma
Parimana	One Angula	Swa-Angula Parimana	One Angula	One Angula
Viddha Lakshana	Pakshghat	Kunitvam	Kunitvam	Pakshghat

Description of Vitapa Marma

Vitapa Marma				
Vibhajana	Suhruta Samhita	Ashtang Sangraha	Ashtang Hridaya	Bhavprakash
Sthan	Vankshana- Vrashan-madhye	Vrashana- Vankshana madhye	Mushka- Vankshana madhye	Vankshana- Vrashan-madhye
Rachna	Snayu Marma	Snayu Marma	Sira Marma	Snayu Marma
Parinaam	Vaikalyakara Marma	Vaikalyakara Marma (Vidhi Bheda)	Vaikalyakara Marma	Vaikalyakara Marma
Parimana	One Angula	Swa-Angula Parimana	One Angula	One Angula
Viddha Lakshana	Shandya, Alpa shukrata	Shandya, Alpa-shukrata	Shandata	Shandya, Alpa shukrata

MODERN REVIEW-

Initially, anatomical structures are taken into the account followed by clinical anatomy of the structures underlying the sites of *Shakhagat Avedhya Sira* and *Shakhagat Sira Marma* e.g.

Cephalic vein, Basilic vein, Axillary vein, Axillary artery, Brachial artery, Great saphenous vein, Femoral vein, Branches of Femoral artery, Femoral triangle, Femoral nerve, Saphenous nerve, Brachial plexus, Clavipectoral fascia, Inguinal canal, Spermatic cord.^{9,10}

DISCUSSION

Urdhav Shakhsagat Avedhya Sira, Sira Marma, and Probable Anatomical Structure at This Site – Jaldhara Avedhya Sira and Kakshadhara Marma-

The name *Jaldhara* denotes the formation of the *Jala* of *Sira* (plexus of veins). *Jaldhara Sira* is the *Bahya Sira* of *Shakha* according to *Ayurveda*. In modern science cephalic vein is one of the most important superficial veins of the upper extremities. It is a principal vein of upper limb circulation conducted by the cephalic vein then it is form the plexus of veins, so venesection or puncturing of the cephalic vein causes severe blood loss. The commentator of *Sushruta Samhita Acharya Dalhan* has described that *Jaldhara* is the *Jala* of *Mansa*, *Sira*, *Snayu*, *Asthi* and *Sandhi* and they covered the *Kurchashira Marma*. In modern science, clavipectoral fascia is a strong sheet of fascia present between the clavicle, pectoralis minor and pectoralis major muscles. It also has subclavius muscle, lateral pectoral nerve, thoraco- acromial vessels, cephalic vein and lymphatics from the infra – clavicular nodes. As per the concept of *Acharya Dalhan* we can consider clavipectoral fascia is similar to *Jaldhara Sira*. The cephalic vein begins from the lateral end of the dorsal venous arch and it is near the location of *Kurchashira Marma* according to the *Ayurveda* concept. Injury to *Kakshadhara Marma* causes *Kunitvam* and

Pakshaghat. In modern science symptoms of the injury to the clavipectoral fascia (lateral pectoral nerve, thoraco-acromial artery, cephalic vein) and *Kakshadhara Marma* is debility of the arm.

Urvi Avedhya Sira and Urvi (Bahvi) Maram-

Urvi is an *Avedhya Sira* as well as *Sira Marma*. The commentator of *Sushruta Samhita Acharya Dalhan* has described that *Urvi Sira* is very closely associated with *Bahvi Marma*. *Urvi Avedhya Sira* causes deformity and death when *Vedhan Karma* is performed on this site and in modern science injury to the brachial artery causes wasting or atrophy of the arm which can be compared with *Urvi Avedhya Sira*. *Bahvi Marma* is present in the middle of the arm. It is a *Vaikalyakar* type of *Marma*. In the upper extremity brachial artery, median nerve, ulnar nerve and radial nerve are present on this site and injury to *Bahvi Marma* leads to atrophy of surrounding muscles which can be compared with the *Viddha Lakshana* of *Bahvi Marma* i.e., *Bahushosh*.

Lohitaksha Avedhya Sira and Lohitaksha Marma-

Lohitaksha is an *Avedhya Sira* well as a *Sira Marma*. The commentator of *Sushruta Samhita Acharya Dalhan* has described that *Lohitaksha Sira* is very closely associated with *Lohitaksha Marma*. *Lohitaksha Avedhya Sira* causes deformity and death when *Vedhan Karma* is performed on this site and in modern science injury to axillary vessels cause deformity of the arm. Which can be compared with *Lohitaksha Avedhya Sira*.

From the above discussion, it can be concluded that the *Viddh Lakshana* of *Lohitaksha Marma* is *Bahushosh* and *Pakshaghat*. This is very much similar to modern science when the injury occurs on axillary vessels it leads to deformity or death due to uncontrolled bleeding this condition leads to paralysis, which can be compared with *Viddha Lakshana* of *Lohitaksha Marma*.

Urdhava Shakhagat Avedhya Sira and Urdhava Shakhagat Sira Marma

Urdhava Shakhagat Avedhya Sira		Urdhava Shakhagat Sira Marma	
Avedhya Sira	Probable anatomical structure at the site	Sira Marma	Probable anatomical structure at the site
Jaldhara Sira	Cephalic vein	Kakshdhara Marma	Clavipectoral fascia, pectoralis minor muscle, and Brachial plexus.
Urvi Sira	Brachial artery and profunda brachii artery	Urvi Marma	Brachial vessels, median nerve
Lohitaksha Sira	Axillary vein	Lohitaksha Marma	Axillary vessels and Axillary nerve

Adho Shakhagat Avedhya Sira, Sira Marma, and Probable Anatomical Structure at This Site – Jaldhara Avedhya Sira and Vitap Marma-

Jaldhara Avedhya Sira is a *Bhaya Sira* of *Shakha* according to *Ayurveda*. In modern science, the great saphenous vein is one of the most important superficial veins of the lower extremities. It is the major vein of the lower limb and injury or *Vedhan* to it causes deformity due to blood loss and creates ischemic condition and deformity. The great saphenous vein finally drains into the femoral vein which is considered the main vein in the thigh near the sapheno-femoral junction in the femoral triangle. Structures present in this area are - the inguinal ligament, adductor longus muscle, sartorius muscle, adductor canal, fascia lata, superficial inguinal lymph nodes, femoral nerve branches, branches of the femoral artery with accompanying vein, the upper part of the great saphenous vein, cribriform fascia. As per the concept of *Acharya Dalhan*, we can consider the femoral triangle is similar to *Jaldhara Sira*. The great saphenous vein begins from the lateral end of the dorsal venous arch and it is near the location of *Kurchashir Marma* according to the *Ayurveda* concept. *Vitap Marma* is *Vaikalyakar Marma* according to *Acharya Sushruta*. In modern classics, the inguinal canal, inguinal ligament, lacunar ligament, conjoint tendon, spermatic cord and testicular vessels are present on the site of *Vitap Marma*. Injury to it may cause impotency or sterility. In the female injury to *Vitap Marma* may affect the round ligament and disturb the normal position of the ovary and uterus. This may affect the ovulation process, transportation of the ovum to the fallopian tube and proper propagation of sperm, these all conditions lead to

infertility. *Jaldhara Avedhya Sira* is situated superficially in the lower limb and causes deformity or death on *Vedhan* or injury to it. *Buy Vitap Marma* is situated deep inside and injury to it causes infertility. So, from the above discussion, it can be concluded that these two structures are vital but different from each other.

Urvi Avedhya Sira and Urvi Marma -

Urvi is an *Avedhya Sira* and also a *Sira Marma*. The commentator of *Sushruta Samhita Acharya Dalhan* has described that *Urvi Sira* is very closely associated with the *Urvi Marma*. *Urvi Avedhya Sira* causes deformity and death when *Vedhan Karma* is performed on this site, and in modern science injury to the femoral artery and femoral vein causes deformity of the lower limb which can be compared with *Urvi Avedhya Sira*. *Urvi Marma* is situated in the middle of the thigh. In modern science femoral vessels, the Adductor canal and the saphenous nerve are situated at this site. Injury to femoral vessels causes atrophy or wasting of muscles of the leg due to loss of blood which can be compared with the *Viddha Lakshana Sakthishosh*.

Lohitaksha Avedhya Sira and Lohitaksha Marma-

Lohitaksha is an *Avedhya Sira* well as a *Sira Marma*. The commentator of *Sushruta Samhita Acharya Dalhan* has described that *Lohitaksha Sira* is associated with the *Lohitaksha Marma*. *Lohitaksha Avedhya Sira* causes deformity and death when *Vedhan Karma* is performed on this site. The same has been defined in modern science injury to femoral vessels causes deformity of the lower limb, which can be compared with *Lohitaksha Avedhya Sira*. From the above discussion, it can be concluded that the *Viddh Lakshana* of *Lohitaksha Marma* is *Sakthishosh* and *Pakshaghat*. Where in modern science femoral vessels and femoral

nerves are found at the site of *Lohitaksha Marma*. Injury to femoral vessels causes atrophy of the lower

limb due to blood loss. Which can be compared with *Viddha Lakshana* of *Lohitaksha Marma*.

Adha Shakhagat Avedhya Sira and Adha Shakhagat Sira Marma

Adha Shakhagat Avedhya Sira		Urdha Shakhagat Sira Marma	
Avedhya Sira	Probable anatomical structure at the site	Sira Marma	Probable anatomical structure at the site
Jaldhara Sira	Great Saphenous vein	Vitap Marma	Inguinal ligament and its content (spermatic cord) in male/Round ligament in female.
Urvi Sira	The femoral artery, Femoral vein	Urvi Marma	Adductor canal femoral vessels
Lohitaksha Sira	profunda femoris vessels	Lohitaksha Marma	femoral vessels, saphenous vein, femoral nerve, obturator nerve

CONCLUSION

Avedhya Siras and *Sira Marmas* are not the same exactly, but they are anatomically closely related. *Sira* is one of the important component of *Marma*. So, it can be considered that *Avedhya Sira* and *Sira Marma* have a definite relationship. The symptoms of the injury on *Avedhya Sira* and *Sira Marma* are common so it can be concluded that *Avedhya Sira* is the main component of *Sira Marma*.

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