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Review Article

Vidhur Marma

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An Anatomical and Clinical Perspective on Avedhya Siras with particular relation to Vidhur Marma

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Ayurveda is an ancient science of life. The concept of Avedhya Siras (non-puncturable veins) holds significant importance in Ayurveda, particularly in the context of surgical and therapeutic interventions like Siravyadha (venesection). The Vidhur Sira is one of them. These vital structures are to be preserved due to their association with major Marmas - vital points in the body. Among these, Vidhura Marma, located near the ear, is classified as a Sira Marma, and Vidhur Sira can be called as Marma Shrit Sira, where injury may lead to complications such as hearing loss or neurological dysfunction. This paper explores the anatomical localization, structural correlations, and clinical significance of Avedhya Siras in the vicinity of Vidhura Marma. Correlation with modern anatomical landmarks, such as the retroauricular region and associated vascular-neural structures like the posterior auricular vein, facial nerve, and external auditory canal, offers a better understanding of the potential consequences of inadvertent injury. Clinically, safeguarding these regions becomes crucial in ENT procedures, minor surgical interventions, and even during massage or Marma Chikitsa. A comprehensive anatomical and clinical perspective not only enhances the relevance of classical Ayurvedic descriptions but also aids in bridging traditional knowledge with modern medical practice for safer and more effective therapeutic outcomes.

Keywords: Avedhya Sira, Vidhur Sira, Marmashrit Sira, Vidhur Marma

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Introduction

In the classical texts of *Ayurveda, Sira* (blood vessels or vital channels) holds a significant role in maintaining the integrity of physiological functions. Among these, certain Siras are termed "*Avedhya*," meaning they are not to be punctured or injured during therapeutic or surgical procedures due to their close proximity to vital structures and their potential to cause grievous complications when damaged. These *Avedhya Siras* are specifically highlighted in Ayurvedic surgical texts such as Sushruta Samhita and are considered critical anatomical landmarks to avoid iatrogenic injuries.

From a modern anatomical perspective, *Avedhya Siras* correspond to major vascular and neurovascular structures that are vital for circulation and nervous system functioning. Injury to such structures may lead to hemorrhage, neurological deficits, or even fatal outcomes, underlining the ancient wisdom in identifying and safeguarding these critical points.

Sira

Perspective on *Sira* is rooted in his comprehensive understanding of human *Sushruta's* anatomy and surgical practices. according to *Acharya Sushruta's* the study of anatomy is very *Sira* (blood vessels).

Origin of *Sira*: *Sushruta* mentions that the *Nabhi* (navel) is the origin of *Sira*, from where it extends throughout the body.**[1]**

Types of *Sira*

Puncturable *Sira*: *Sushruta* categorizes *Sira* into puncturable and *Avedhya Sira* (non-puncturable). He lists 700 *Sira* in total, with 602 being puncturable and 98 being non-puncturable.**[2]** Characteristics of *Sira*: According to *Sushruta*, *Sira* are naturally unstable and may modify their location in the body. *Sushruta* explains the nutritional role of *Sira*, emphasizing their dilatory and contractile properties, which nourish tissues in the body. The analogy of water channels nourishing a garden is used to describe the function of *Sira.***[3]**

Showing classification of *Sira.*

- *Vatavaha Sira* Responsible for the movement and expansion of bodily elements.
- *Pittavaha Sira* Contributing to digestion, metabolism, and complexion.
- *Kaphavaha Sira* Enhancing structural integrity and lubrication.
- *Raktavaha Sira* Facilitating the nourishment and oxygenation of tissues.

Concept of *Vidhur Sira*

Among the 700 Sira described, 98 are classified as *Avedhya Sira*.

The *Vidhur Sira* one of them.

These are further divided regionally as**[4]**

- Extremities: 16
- Trunk (*Koshtha*): 32
- *Urdhvajatrugata* (Head and Neck): 50

According to *Sushrut Sharirsthan*, seventh Adhyay Shlok no.27,

In *Shloka*, *Sushrutachraya* have mentioned 2 *Vidhur Siras*, and which are present behind and below the ear, just below the mastoid bone. Taking into consideration *Vidhur Sira*, structures (vein)can be correlated with posterior auricular vein.

Modern Aspect of *Vidhur Sira*

Posterior Auricular Vein

Vein of the Posterior Auricle It drains into tributaries of the occipital and superficial temporal veins after starting in a parieto-occipital network. It forms the external jugular by descending behind the auricle and joining the posterior division of the retromandibular vein in or immediately below the parotid gland. It gets tributaries and a stylomastoid vein from the auricle's cranial surface.

Posterior Auricular Artery

Auricular Artery Posterior The external carotid gives rise to this little vessel posteriorly, immediately above the digastric and stylohyoid. It splits into auricular and occipital branches as it ascends between the parotid gland and the styloid process to the groove between the auricular cartilage gives and mastoid process. Three identified branches of the posterior auricular artery supply the digastric, stylohyoid, sternocleidomastoid, and parotid glands.

Stylomastoid Artery

Stylomastoid Artery It enters stylomastoid foramen to supply tympanic cavity, mastoid antrum & air cells, facial nerve, and semicircular canals.

In around one-third of people, it is an indirect branch of the posterior auricular (Blunt 1954). The anterior tympanic artery and the posterior tympanic ramus in the young form a circular anastomosis (see below).

Auricular Branch

The Auricular Branch Some branches puncture the cranial aspect of the auricle, while others bend around it to supply its lateral aspect. It ascends deep to the auricularis posterior.

Occipital Branch

It passes laterally across the mastoid process, turning back over the sternocleidomastoid to supply the occipital belly of the occipitofrontalis and scalp above and behind the ear; it anastomosis with the occipital artery.**[5]**

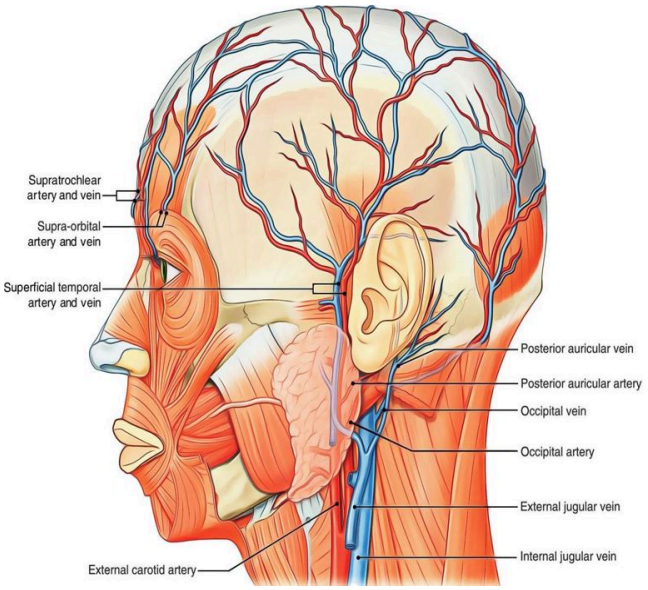


Figure 1: Posterior Auricular Vessels[6]

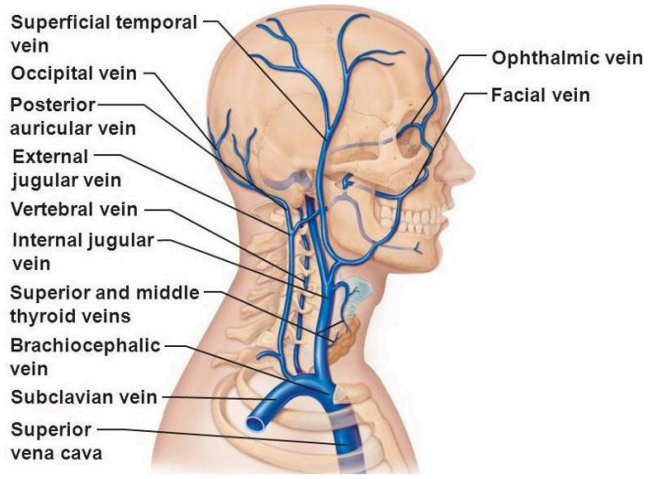


Figure 2: Posterior Auricular Vein

Observations

Concept of *Vidhur Marma*

"This definition is broad and generic. While some of these areas result in significant discomfort and deformity, not all of them cause death. All *Acharyas* described 107 *Marmas*, which were then divided into five categories based on the structure implicated, five on the impact of the damage, and five on the location on the body. *Marmas* can be classified as *Mansa-Marma*, *Sira-Marma, Snayu-Marma*, *Sandhi-Marma,* and *Asthi-Marma* based on anatomical considerations (correspondingly, *Marma* of muscle, blood vessel, ligament, joint, and bone). *Marma* (fatal spots) are a confluence of muscle, veins, ligaments, bones, and joints; in these places prana (life) resides, especially nature; hence, when fatal spots are injured; they produce their respective effects.

Name: Vidhur *Marma*

Sankhya - 2

A/c to *Shadanga -Greeva pradesh*

Rachana - Sira Snayu

A/c to *Parinam*, *Vaikalyakara***[7]**

As there is the predominance of tendons (*Snayu*) in *Vidhur Marma* so *Vidhur Marma* is described as *Snayu Marma* according to *Acharya Sushruta*.**[8]** The *Vidhur Marma* is present behind and below the ear, just below the mastoid bone. It controls functions of the sense organ of hearing. Its injury mainly produces hearing impairment or deafness.

Description in ancient literatures of *Vidhur Marma*

कर्णपृष्ठतोऽधः संश्रिते विधुरे नाम, तत्र बाधिर्यम् । (सु॰शा06/21)

अधस्तात्कर्णयोर्निस्ने विधुरे श्रुतिहारिणी । (अष्टांगहृदय 4/27)

अधस्तात्कर्णयोः कर्णपृष्ठयोरघो ।(अरुणदत्त, अ. ह. शा. 4/29)

कर्णपृष्ठयोरधः संस्ते विधुरे, तयोबाधिर्यम् । (अ॰सं॰शा॰ 7/20)

चतुःषष्टिसिराशतं जत्रण उर्ध्व भवति, द्वे विधुरयोः, एवं ग्रीवायां षोडशाण्यध्या । (सु॰शा॰ 7/25)

One of the *Vaikalyakara Marma* found in *Urdhwajatru* (Head and Neck) *Pradesha* (Region) is *Vidhura Marma*. There are differences in *Acharyagana's* views on the identification of *Vidhura Marma's* structural entity.

According to *Acharya Sushruta* and *Acharya Vagbhata*, *Snayu* and *Dhamani* are the two main structural entities found in the *Vidhura Marma* point.

Underlying Anatomical Structures

Stylomastoid artery and facial nerve is specially found at the site of *Marma* passing through the stylomastoid foramen. At remote level under the consideration of anatomical structures vestibulo-cochlear nerve and the mastoid air cells can also be included under this as they have the values in the development of complications. *Vidhura Marma* with vascular significance especially putting it in the category of *Dhamani Marma*. Probably *Vagbhata* had duly perceived the following:

That normally injury can't directly affect to the internal structures without involving the external and superficial structures firstly.

Mamsa - tympanic membrane

Asthi - Mastoid process of temporal bone

Sira - Stylo-mastoid artery branch of posterior auricular artery.

Snayu - tympanic branch of Glossopharyngeal nerve, Vestibule cochlear nerve and its branches (8th cranial nerve or auditory nerve).

Sandhi (joints) **-** joints of ossicles.

Anatomy of posterior Auricular Artery as a *Dhamni Marma* according to *Vagbhatta*

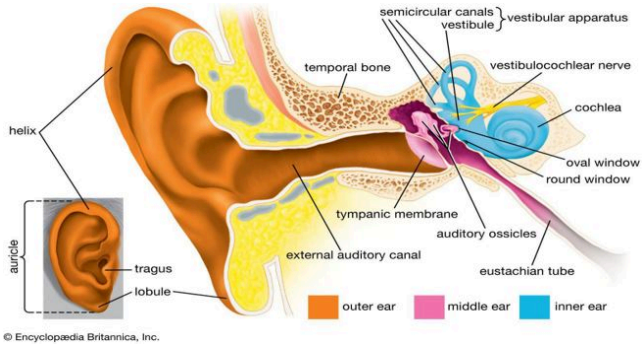
The posterior auricular artery arises from the posterior aspect of the external carotid artery just above the posterior belly of digastric. It runs upwards and backwards deep to the parotid gland but superficial to the styloid process. It crosses the base of the mastoid process and behind the auricle. It supplies the back of the auricle the skin over the mastoid process and over the back of the scalp. it cut in incision for mastoid operation. Its styloid branch enters the styloid process and supplies the middle ear, mastoid antrum, air cells, semicircular canal and facial nerve.

Anatomy of Vestibulocochlear nerve

The auditory receptors are the hair cells of the organ of corti situated in the cochlear duct of the inner ear. The first sensory neuron lies in the spiral ganglion of bipolar cell situated around modiolus at the base of spiral lamina.

Peripheral process are distributed to Organ of corti, and central process form cochlear nerve, which ends in dorsal and ventral cochlear nerve which ends in dorsal and ventral cochlear nuclei lying in relation to inferior cerebellar peduncle. Second neuron fibers start from dorsal and ventral nucei; their axon form trepezoid body and in dorsal nucleus of trepezoid body of same as well as opposite side. Third neuron fibers from dorsal nucei of trepezoid body ascend as lateral lemniscus on both side; some of fibre of lateral lemniscus end in inferior colliculus for auditory reflex activities mediated through testobulbar and tectospinal Rest of lateral lemniscus relays in medial geniculate body. Fourth neuron fibre from medial geniculate body give rise to auditory radiations, which pass through sublentiform part of internal capsule and are projected to auditory cortex of temporal lobe.**[9]**

Anatomy of Tympanic Membrane



The eardrum separates the outer ear from the middle ear. Creates a barrier that protects the middle and inner areas from foreign objects.

Cone-shaped in appearance about 17.5 mm in diameter

The eardrum vibrates in response to sound pressure waves.

It is placed obliquely at an angle of 55 degree with floor of meatus.**[10]**

At remote level under the consideration of anatomical structures, vestibulocochlear nerve and the mastoid air cells can also be included under this, as these have the values in the development of complications. *Sushruta* has included in this most of the structures that are surrounded by the fibrous sheath as *Snayu Marma* i.e., Nerves which supply to ear and tympanic membrane. *Acharya Vagbhatta* describes the separate category of *Marma,* i.e., *Hamani Marma*, which includes *Vidhura Marma*.

Discussion

Discussion on the Correlation Between *Vidhur Sira* and *Vidhur Marma***.** The relationship between *Vidhur Sira* and *Vidhur Marma* highlights an important connection between *Ayurvedic* anatomical structures and therapeutic interventions for ear health. The discussion revolves around their location, function, clinical importance, and therapeutic applications in treating auditory disorders.

Anatomical Correlation

Both *Vidhur Sira* and *Vidhur Marma* are located posterior to the ear, near the mastoid process. While *Vidhur Sira* represents vascular structures (veins and circulation), *Vidhur Marma* is a *Marma* point that holds both vascular and neurological significance. The *Vidhur Sira* is part of the venous system and is crucial for blood circulation in the head and ear region. *Vidhur Marma* is categorized as a *Shira Marma*, which suggests that it plays a role in vascular integrity and nerve function. This anatomical proximity suggests that both structures are physiologically interconnected, with *Vidhur Sira* supplying and draining blood to the ear and surrounding regions, while *Vidhur Marma* acts as a vital energy center for auditory functions.

Functional Correlation

Vidhur Sira and *Vidhur Marma* serve a common function - maintaining auditory health.

Vidhur Sira Function: Helps in maintaining proper blood circulation to the ear and head, and its dysfunction can lead to ear diseases like tinnitus, hearing loss, and congestion.

Vidhur Marma Function: Plays crucial role in hearing & balance, & its injury can cause deafness (*Badhirya*) due to neurological impairment. From modern anatomical perspective, this region correlates with mastoid emissary veins, auditory nerve pathways, & lymphatic drainage, which are essential for sound conduction and balance.

Clinical & Therapeutic Correlation

The therapeutic applications of *Vidhur Sira* and *Vidhur Marma* are aligned in *Ayurveda*, particularly for treating *Karna Roga* (ear disorders). *Siravyadha* (Bloodletting) at *Vidhur Sira*. *Sushruta Samhita*, *Sutrasthana* 14/35-36, recommends *Siravyadha* at *Vidhur Sira* for treating Tinnitus (*Karnanada*). Hearing impairment (*Badhirya*) Ear congestion and inflammation Bloodletting improves circulation, removes stagnant blood and toxins (*Dushta Rakta*), and enhances auditory function.

Marma* Therapy at *Vidhur Marma

Sushruta Samhita, *Sharira Sthana* 6/29, mentions that injury to *Vidhur Marma* can lead to deafness.

Gentle massage and stimulation of *Vidhur Marma* can:

- Enhance nerve conduction in the auditory region.
- Improve blood circulation and lymphatic drainage.
- Alleviate ear disorders like tinnitus, vertigo, and hearing loss.

Integration of both therapies: *Ayurvedic* practitioners often combine *Siravyadha* at *Vidhur Sira* with *Marma* therapy at *Vidhur Marma* for synergistic benefits in ear disease treatment.

***Ayurvedic* Perspective vs. Modern Correlation**

Ayurveda provides a holistic approach to ear health, but modern anatomical correlations strengthen its validity:

Modern research on blood circulation and neural connections in the auditory system suggests that these Ayurvedic interventions may influence vascular and nerve-related auditory conditions.

Conclusion

Vidhur Sira and *Vidhur Marma* are closely linked in both location and function - both are found behind the ear and are significant for auditory health.

Therapeutic importance: Bloodletting (*Siravyadha*) at *Vidhur Sira* aligns with *Marma* therapy at *Vidhur Marma* for treating ear disorders.

Ayurvedic texts emphasize that injury or improper handling of *Vidhur Marma* can lead to deafness, reinforcing its critical role in hearing function.

Thus, *Vidhur Sira* and *Vidhur Marma* share a deep correlation in *Ayurveda*, as both influence the ear's vascular and neural health. *Vidhur Sira* is an *Avedhya Mamarmashrit Sira* so avoid *Siravydha Karma*.

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