



STUDY OF AVEDHYA SIRA IN GRIVA (NECK) REGION W.S.R. TO FATALITY

¹Dr. Suryakant D. Rokade, ²Dr. Pradnya R. Deshpande and *Dr. Neha B. Pitla

¹Hod, Professor, Government Ayurved College, Nanded, Maharashtra.

²Assistant Professor, Government Ayurved College, Nanded, Maharashtra.

*Author for Correspondence: Dr. Neha B. Pitla

Hod, Professor, Government Ayurved College, Nanded, Maharashtra.

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ABSTRACT

Ayurveda is the science of healthy life. In Ayurveda texts there are brief descriptions of body and its anatomical structures. The *Sushruta Samhita* is one of the great treatises of Ayurveda. *Sushruta* has clarified the details among *Sira*, *Dhamani* and *Strotas* (channels of body). *Sira* has been described in the *Sharir Sthana* of *Sushruta Samhita*. *Sira* in one place reflects a meaning of blood vessels while at other place it means nerve. *Sushruta* has mentioned four types of *Sira* – *Aruna*, *Neela*, *Shweta*, *Lohita* which are relevant with *Vata*, *Pitta*, *kapha* and *Rakta* (basic functional units of body). These *Sira* are basically of two types *Vedhya* and *Avedhya Siras*. *Acharya Sushruta* has mentioned that puncturing of *Avedhya Siras* may cause disability or death of the person. *Avedhya Siras* are 98 in number of which 16 are present in the neck region which are strictly prohibited for puncturing. In 21st century the complexities of surgeries have increased greatly and the mode of injury have become complex. So in today's era these are having extreme importance aspect. In this paper *Avedhya Siras* of the neck region will be identified according to modern and Ayurveda to avoid the fatalities caused due to their puncture.

KEYWORDS: *Sira*, *Avedhya Sira*, Neck, *Sushruta Samhita*.

INTRODUCTION

Ayurveda is not only science of medicine but also the way of life style. It is well organized system of medicine that has unique techniques for harmonious living. The preventive aspect is given more importance than curative aspect. Ayurveda speaks of every elements and facts of human life offering guidance that have been tested and refined over many centuries to all those who speak greater harmony, peace and longevity. The human body is considered as a attain *Purusharthas*. Considering this our *Acharyas* have given importance to *sharir*, its anatomical and physiological aspect and are dealt in detail. One among such concept in anatomical aspect is *Sira*. The knowledge of *Sira Sharir* is of utmost importance in *Shalya tantra* (surgery). It can be said that half or rather entire *Shalyatantra* is equivalent to *sira vedhya* alone. i.e number of diseases are likely to be cured only through its simplest technique. In medical science it is important to have better idea on what all things are prohibited than what all are possible treatment, since performing the prohibited may endanger the life of the patients same is in case of *Avedhya siras*. It is said that the word *sira* is derived from the Vedic term "*hira*". The term *hira* is described as blood carrying channel towards the heart.^[1] *Ayurvedic Acharyas* has used an anatomical term *sira*, which is one of the controversial term related to structure, to carry material such as *Rasa* and *Rakta* and it is one of the synonyms as *strotas*.^[2]

Acharya Charaka said *sira* as the one which is responsible for slow flow of blood i.e *saran kriya*.^[3] According to *Acharya Sushruta*, *sira* spread upward, downward and in oblique manner from nabhi.^[4] The *vedhya* and *avedhya* types of *sira* are important in treatment of trauma, the knowledge of these will help in easy prognosis of the condition and helps the physician to manage the situation and life of the patient. Here the *avedhya siras* which are not supposed to be punctured during surgery. There are total 98 *avedhya siras* of which 16 are in *Shakha*, 32 in *koshtha* and 50 in *Urdhva Jatru* region. There are total 16 *avedhya siras* in the neck (*griva*) region.^[5] So in treatment and surgical procedures, study of *Avedhya sira* is important. This study is aimed to identify the *Avedhya siras* mentioned in *Sharir sthana* with comparison to the blood vessels or structures of the neck region as per the modern Anatomy.

DISCUSSION

According to Ayurveda *Sharir* is divided into six regions of which 4 are *shakhas* which include extremities, the middle portion and the head region. The head region which includes the neck consists of some important structures which can lead to fatality if injured. There are 164 *siras* mentioned in the head region of which 56 *siras* are present in the neck region.

Sira and Avedhya Sira

Sira is formed from *asruk/rakta*. *Sira* is formed from the *snehamsha* of *medas* and *mansa* along with the help of *vayu* undergoing *mrudu paka*.^[6] *Nabhi* is considered as *prabhva sthana* or *mula* of *sira* (site of origin). *Hrudaya* (heart) is the site where *mula siras* are attached and it helps in the production of *oja* (consciousness) throughout the body. *Siras* are numerated as 700.^[7] All these *siras* are connected to the *nabhi* (umbilicus) and spread in all directions. *Prana* resides in the *siras* and the umbilicus is the seat of *prana*. In *Sushruta Samhita* *sira* has been used in two purposes in general, *Sira* has been used to denote the vessels otherwise in specific sense *sira* means veins. He includes artery, vein, capillary and lymphatics in *sira*. Apart from this in *Sushrut Samhita*, in some references

like *sira marma*, *sira* has been used to denote the nerve. These *siras* are having specific function according to the nature of substance it carries. These *siras* are spreaded in the body like water channels in a garden in general it helps in doing *upsnehana*, *anugrahana* and especially *aakunchana*, *prasarna* etc of body. In short, *siras* are channels of body conducting blood and contain one of predominant *dosha*. *Siras* are classified into 4 types.^[8] These are *vata vaha Siras*, *Pitta vaha Siras*, *kapha vaha Siras* and *Rakta vaha siras*. In these four types of *Siras*, every type of *sira* has specific type of character, colour and function. There are 10 *siras* of each *vata vaha pitta vaha*, *kapha vaha* and *rakta vaha siras* which are further divided into 175 each to make a total of 700 *siras*.

Function of four types of *sira* and its modern correlation.

TYPE OF SIRA	COLOUR	CHARACTER	FUNCTION	MODERN CORRELATION
<i>Vata vaha 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> and sense organs	Arteries Nerves
<i>Pitta vaha Siras</i>	<i>Neela varna</i> (blue)	Warm touch	Creates lustre in the body and develops good appetite	Veins
<i>Kapha vaha Siras</i>	<i>Gowra varna</i> (white)	Cold to touch	Gives lubrication to the various body parts and produces firmness in the joints. It also improves strength	Lymphatic
<i>Rakta vaha Siras</i>	<i>Rohini varna</i> (red)	Neither they are too hot nor too cold	Nourishes the <i>dhatus</i> improves the complexion definite perception of <i>sparsha</i>	Capillaries

Avedhya sira are those vessel which should not be subjected to cut or punctured or else prove to be fatal.

Avedhya Sira according to Acharya Sushruta

Sr.No	Location	Total no of <i>Siras</i>	<i>Avedhya Siras</i>
1	<i>Shakha</i>	400	16
2	<i>Koshtha</i>	136	32
3	<i>Urdhvajatrugata</i>	164	50
	TOTAL	700	98

Ashtang sangraha is also having the same opinion. Acharya *vagbhata* has slightly modified the knowledge of *avedhya siras*, his concept is that apart from these 98 *avedhya siras*, those *siras* which are oblique, short and tortuous and narrowly placed in the subject should also be included under this heading. There are 16 *Avedhya sira* in the neck (*Griva*) region of which 12 are *marmasangyak*, 2 *krukatika* and 2 *vidhur*.^[9]

Importance of *Sira* in *Marma*

Marmas are vital points where there is the conglomeration of *mamsa*, *sira*, *snayu*, *asthi* and *sandhi* in different proportion, the type of *marma* is determined by the abundances or scarcity of these structure in the *marma*. *Prana* resides in this place by nature and when these are injured it produces their respective results. There are four types of *siras* in the body as mentioned above which provide nourishment to the body The

marma sthanas provide ashray to all the four *siras*. Hence when *kshatha* (injury) occurs to the *marma sthana* it results in excess *srava* (oozing or bleeding) which leads to *dhatukshya* (blood loss) and there by *vata vridhi*. This further aggravates *pitta* which further creates different types of severe pain and other *upadravas* (complications) and ultimately lead to death of the individual. *Sira marma* are forty one in number.^[10]

Griva (Neck region)- Modern aspect related to *avedhya sira*^[11]

The beauty of neck lies in its deep or cervical fascia. The side of the neck presents a somewhat quadrilateral outline, limited, above by the lower of the body of the mandible and an imaginary line extending from the angle of mandible to the mastoid process; by the upper border of the clavicle; in front by the midline of the neck; behind by the anterior margin of the trapezius. The

sternocleidomastoid is an important landmark between the anterior and posterior triangles. The anterior triangle is further divided into muscular, carotid, submandibular and submental and the posterior into occipital and subclavian triangles. The back of the neck consists of the vertebral column which provides a median axis for the body. There are big muscles from the sacrum to the skull in different strata which keep the spine straight. The only triangle of the upper most part here is the suboccipital triangle containing the third part of the vertebral artery, which enters the skull to supply the brain.

On the basis of traumatic effect of *avedhya sira*, vessels in neck and *marmas*, we found interrelation as follows. The 16 *Avedhya Siras* mentioned above can be compared to the following structures in modern anatomy. The 12 *marmasangyak* can be considered as The External carotid artery, The External Jugular vein, the internal carotid artery and the internal jugular vein. The 2 *krukatika* with the occipital vessels and 2 *vidhur* with the posterior auricular vessels.

External carotid artery is one of the terminal branches of the common carotid artery. It lies anterior to the internal carotid artery and is the chief artery of supply to structures in the front of the neck and in the face. In the carotid triangle, the external carotid artery is comparatively superficial and lies under cover of the anterior border of the sternocleidomastoid. The external carotid artery gives of eight branches of arteries.

The Internal carotid artery is a terminal branch of the common carotid artery. It arises around the level of the fourth cervical vertebra. It runs vertically upward in the carotid sheath and enters the skull through the carotid canal. It is relatively superficial at its start where it is contained in the carotid triangle of the neck and lies behind and medial to the external carotid.

The External Jugular vein commences in the substance of the parotid gland on a level with the angle of mandible and runs perpendicular down the neck in the direction of a line drawn from the angle of mandible to the middle of the clavicle. It crosses the sternocleidomastoid obliquely and in the subclavian triangle perforates the deep fascia and ends in the subclavian vein.

The Internal Jugular vein begins in the posterior compartment of the jugular foramen at the base of the skull. It runs down the neck in a vertical direction being at one end lateral to the internal carotid artery and then lateral to the common carotid artery and at the root of the neck. It unites with the subclavian vein to form brachiocephalic vein.

The posterior auricular artery arises from the posterior aspect of the external carotid just above the posterior belly of the 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

ascends behind the auricle. It supplies the back of the auricle, the skin over the mastoid process and over the back of the scalp.

The occipital artery arises from the external carotid artery opposite the origin of the facial artery. It runs backwards and upwards deep to the lower border of the posterior belly of the digastric, crossing the carotid sheath and the accessory and the hypoglossal nerves. It runs deep to the mastoid process and to the muscles attached to it.

The fatalities of the above vessels are as follows.

The carotid vessels injury lead to abrupt decrease of blood flow towards the brain leading to single sided paralysis, decreased cognitive functions, shock, reflex bradycardia, syncope, cardiac arrest and death.

The jugular vessels injury lead to mild to severe facial oedema, papillary oedema with blindness, intracranial hypertension, coma and death.

The occipital vessels injury leads to true or pseudoaneurysm which may be caused due to blunt, penetrating injury or iatrogenic. The posterior auricular vessels trauma may lead to deafness¹⁵.

CONCLUSION

According to Ayurveda, *griva* is the part of *Urdhwajatru*. It is site of *sira* as well as several vital points i.e. *marma*. *Avedhya sira* as well as *marmas*, both lead to fatality on severe injury. Most of *avedhya siras* are located at the area resembling *marma* containing important vessels. Fatality of *marma* is nothing but due to injury to specific *avedhya sira* causing haemorrhage, ischaemia.

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