



ANATOMICAL EXPLORATION OF NEELA AND MANYA MARMA

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ABSTRACT

Marma is one among the core concepts and unique principle in Ayurveda. Marma constitute the science of specific vital points in the body, where Prana resides. Neela and Manya Marma are two each, located on either side of Kanthanadi and classified as Sira Marma. As there is limited material in classics and differing opinions on the conformation of Neela and Manya Marma, the current investigation aims to determine the actual position and possible structural entity of Marma corelating with its Viddhalakshana. Also there is a close relationship between neurovascular anatomy and vascular injury.

KEYWORDS : Marma, Neela Marma, Manya Marma

INTRODUCTION

For true understanding of human anatomy, Sushruta emphasized the importance of cadaveric dissection which forms the fundamental elements. Marma is one among the core concepts and unique principle in Ayurveda. Marma constitute the science of specific vital points in the body, where Prana resides. Neela and Manya Marma are two each, located on either side of Kanthanadi and classified as Sira Marma, however both are referred to as 'Dhamani'. Indu teeka commentary on Ashtanga Sangraha states that Neela and Manya are Sira Marma, not Dhamani Marma. Laghu Vaghbata identified it as Sira Marma and characterised Dhamani Marma as a different entity. Because there is limited material in classics and differing opinions on the conformation of Neela and Manya Marma, the current investigation aims to determine the actual position and possible structural entity of Marma corelating with its Viddhalakshana.

DISCUSSION

To determine the likely structural entity of Neela and Manya Marma, prior knowledge of Kantha nadi is required. Sushruta believes Mandala Sandhi is located in Kantha, while Dalhana clarifies that three Mandala Sandhi exist in Kanthanadi. Kantha denotes 'kantadhwani', a media responsible for phonation, while Nadi alludes to tubular structure. We can see that Dalhana rightly pointed out Kantha nadi, which is located in Kantha. Swarayantra creates a variety of sounds and is covered in Taruna asthi, which connects the upper half to Jihwamoola and the lower section to Klomanalika or Swasa nalika. In modern parlance, the larynx is an organ for phonation that is coated in cartilages and connects the top half with the oropharynx, where the root of the tongue is located, and the bottom section to the trachea. Hence we can consider Kanthanadi as larynx.

Sira is a channel that allows continuous movement and transports substances from one location to another; for example, 'Deshantharagamanathwath' implies 'Avaya vanthara gamana'. The term Avayavanthara refers to the circulation of blood from one organ to another or deep inside tissues, implying the function of venous circulation.

As previously noted, Neela Marma is located on both sides of Kanthanadi. The Internal Jugular Vein (IJV), which is the continuation of the sigmoid sinus, carries venous blood of metabolic waste forced out of the brain. IJV possesses pulsation, which is related to the Dhmana attribute of Dhamani, hence it is referred to as Dhamani due to its function. It contains Pitta together with Neela varna and

Ushna Guna, as well as metabolites from the head. According to the preceding discussion, Sira may be associated as a vein, and IJV can be related to Neela Sira, as the name implies Neela falls within the classification of Sira.

Dhamani are hollow tubes that contain Dhmana or Spandana (throbbing activity or pulse), which may be easily seen in arteries. Dhamani's Moola is Mahat, which is a synonym for Hridaya. It indicates that Dhamani originates from Hridaya, implying that arteries begin from the heart. Sushruta emphasised Dhamani and assigned all functions since they provide Tridosha, Rasa, and Rakta. Urdhaga Dhamani perceive Shabda, Sparsha, Rupa, Rasa, and Gandha, with two Dhamani carrying Shabda and two Dhamani carrying Rasa. Manya is a Dhamani located on the slopes of Gala, and the absence of Spandan results in sudden death. Similarly, carotid artery pulse can be felt in the anterior forefront of the neck, on the sides of the larynx, and along the anterior border of the sternocleidomastoid muscle.

Similar to how Manya Dhamani is pulsatile and exists on both sides of Kantha Nadi, Common Carotid Artery (CCA) splits into External Carotid Artery (ECA) and Internal Carotid Artery (ICA) at the level of thyroid cartilage. The ECA branches into the lingual artery, facial artery, ascending pharyngeal artery, and laryngeal artery (a branch of the superior thyroid artery). Mookata, Swara vaikrita, and Arasgrahita are examples of Viddhalakshana caused by atherosclerotic alterations, stress, compression, etc. The larynx and ECA's anatomical locations are more similar to Manya Marma and Kantha Nadi. Therefore, it appears that Sushruta's conviction as Manya Marma, located on both sides of Kantha Nadi, is acceptable in this context.

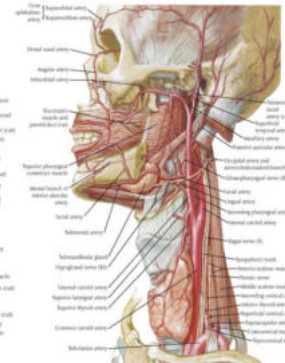
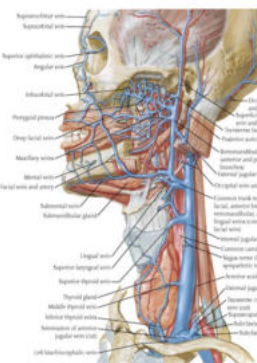


Fig 1 showing veins of neck region Fig 2 showing arteries of neck region

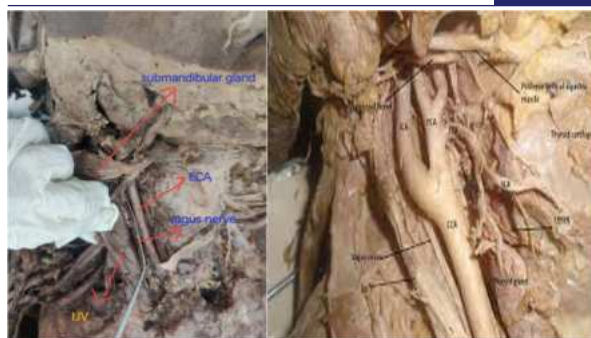


Fig.3& 4 showing dissected images of underlying structures of *Neela* and *Manya Marma*

Neela and *Manya* as *Marma*

Marmavastu, or *Marma*, is an amalgam of *Mamsa*, *Sira*, *Snayu*, *Asthi*, and *Sandhi*. *Neela* and *Manya Marma* are *Sira Marma* that are located on either side of *Kantha nadi* in the lateral portion of the neck. The region is referred to as *Manya Pradeshha*. The *Mamsa* component is made up of the intrinsic laryngeal muscles as well as the tongue, palate, lips, etc. Included in the *Snayu* component are the lingual, glossopharyngeal, and vagus nerves, among others. *Asthi* are composed of cartilages such as arytenoids, cricoids, and thyroid. The cricothyroid, thyro arytenoids joints, etc., are parts of the *Sandhi* component.

Neela and *Manya Marma* are categorised as *Vaikalyakara Marma*. *Mookata*, *Swaravaikrita*, and *Arasagrahi* are three specific symptoms of *Neela* and *Manya Marma* damage that are discussed by *Sushruta* and *Vridha Vagbhata*.

Talk about *Mookata*: *Shabdavahi Dhamani* is obstructed by an aggravated *Vata* and a *Kapha*, which results in *Mookata*¹⁰ (vocal or speech loss). The lungs, trachea, larynx, tongue, palate, uvula, teeth, and lips are the primary organs thought to be involved in speech. One branch of the ECA supplies the larynx with blood through the superior thyroid artery. The larynx receives its supply from the superior laryngeal artery, a branch of the superior thyroid artery, which itself comes from ECA.

The tongue is supplied by the lingual artery, a branch of the ECA. The ECA is the primary blood vessel supplying the lips through the facial artery, which branches in the inferior and superior labial arteries on either side of the mouth's angle. The larger palatine artery, a branch of the maxillary artery that arises from the ECA, and the ascending palatine artery, a branch of the facial artery, provide the arterial supply to the palate. It is evident from this that the ECA and its branches provide the majority of the blood flow to speech-related anatomy.

According to Waheed et al, a blunt carotid artery injury typically results in the formation of a hematoma due to the abrupt trauma. People who have a carotid artery contusion may experience symptoms such as dysphonia, hoarseness of voice, dysphagia, and others that are associated with laryngeal and tracheal injuries.¹¹ William et al. performed a prospective case study on 128 individuals who had undergone carotid endarterectomy procedures to see whether cranial nerve damage caused abnormalities in motor speech. Before surgery, two days after surgery, and six weeks afterward, the patients were assessed, and significant alterations in voice and tongue movements were detected. Thirty of these had abnormalities in the function of the superior and recurrent laryngeal nerves. In 15% of cases, integrated motor speech was considered abnormal. Six weeks after surgery, a large number of impairments had disappeared and a 4.5% prevalence of superior and recurrent laryngeal nerve impairment was marked.¹²

The most prevalent condition associated with voice disorders is hoarseness of voice. A disorder known as dysphonia is characterised by changes in vocal quality, pitch, loudness, or effort that hinder speech or lower one's quality of life when using one's voice. The vagus nerve is vulnerable to harm from neck trauma or neck mass because it is enclosed within the carotid sheath as it descends down the neck.¹³ The inability to feel flavour is referred to as *Arasagrahana*. According to Kezrian, the lingual neurovascular bundles and the hypoglossal nerve pass through the inferolateral regions of the tongue base. Taste disturbance, tongue weakness or numbness, and airway obstruction can all result from neurovascular damage.¹⁴

According to Cowart BJ, taste impairment may be exacerbated by upper respiratory viral infections and head trauma.¹⁵ In the anterior two thirds of the tongue, the patient had ipsilateral ageusia and carotid dissection, which Hulsbomer described as likely the result of a chorda tympani lesion. The intimate physical relationship between the chorda tympani in the short petrous bone and the internal carotid artery explains ageusia in carotid dissection. Since only branches of the external carotid artery supply blood to the chorda tympani, reduced perfusion of the vasa nervorum can be ruled out as a possible cause.¹⁶

The close anatomical relationship between the chorda tympani in the short petrous bone and the internal carotid artery explains ageusia in carotid dissection.

Since only branches of the external carotid artery supply blood to the chorda tympani, reduced perfusion of the vasa nervorum can be ruled out as a possible cause. This suggests a connection between *Neela* and *Manya Marma's* neurovascular entity, which results in *Mookata*, *Swaravaikrita*, and *Arasagrahi* as *Viddhalakshna*.

CONCLUSION

We can comprehend that there is a close relationship between neurovascular anatomy and vascular injury by examining case reports of speech difficulties and taste sensation loss. The impairment of speech and taste is triggered by hematoma formation in the carotid arteries.

Particular structural concerned with speech and taste loss are supplied and drained of blood via ECA and IJV. Any disruption in the vascular supply results in a deficiency in neurological function. The following findings are derived from a survey of the literature, cadaveric dissection, and observations. One can think of *Neela Marma* as the IJV, *Manya Marma* as the ECA, and *Kantha nadi* as the larynx.

Conflicts Of Interest – NIL

Source Of Support - NIL

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