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Phana Marma - A Cadaveric Study

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ABSTRACT

Marmas are the vital points in the body. The word *Marma* derived from the Sanskrit root "Mru" and applies to a part or a spot of vital importance in the body, which if injured results in serious consequences. It also denotes the vital force of life. About 107 *Marmas* have been explained in Ayurveda, according to *Acharya Sushruta*, *Jathruurdva Marmas* are considered as major places of *Prana* and *Phanamarma* is one of them belonging to *Vaikalya-Karamarma*, located on either side of nostrils. The term *Phana* means expanded side of the nose or expanded hood of the serpent. When we compare the site of *Phana Marma* there is an difference of opinion between *Acharya Sushruta* and *Vagbhata (Astanga Sangraha)* but both explained the similar *Viddhalaxana*, hence to clarify the doubt regarding it's location the study is undertaken. As no such study regarding *Phanamarma* has been taken up by previous scholars, this subject has attracted me to conduct cadaveric study to ascertain its anatomical limitations, which will be definitely helpful for the future scholars, as lot of dark areas are highlighted concerned to this *Marma*.

Key words: *Phanamarma, Vaikalyakara Marma, Gandhaaganana.*

INTRODUCTION

The concept of *Marma* has been one of the most important subject of Ayurveda, since it forms a common meeting point for various concepts regarding their relative prognostic values. The primitive art of surgery is as old as warfare. Thus war injuries to some extent contributed for the development and growth of ancient surgery and traumatology, without the knowledge of structural anatomy, proficiency cannot be attained in the art of surgery. In ancient days the knowledge of anatomy was mainly supplied by

concept of *Marma*.

Marmas are the vital points in the body. They are 107 in number. Any injury to these *Marmastana* causes either death or deformity depends on its severity. The derivation of *Marma* indicates that it is *Jeevasthan*, *Sandhithana* respectively. All *Acharyas* defined that, it is the conglomeration of *Mamsa, Sira, Snayu, Asthi* and *Sandhi* at one place is called *Marma, Prana* resides specially by nature. *Ashtanga Hridayakara* has additionally included *Dhamani* as one of the component along with other structures.

Surgical operations demanded the accurate knowledge of anatomy but it seems, the concept of *Marma* has supplied them with the knowledge of regional anatomy and the structures involved in the region and considered the knowledge of *Marma* is the *Ardhachikitsa* (half the surgery) of *Shalyatantra*. During *Shastra, Kshara* and *Agni Karmas*, great care should be given to *Marma Sthanas*. Any injury to the *Marma Sthanas* can cause even death. So *Shalya Chikitsaka* protect *Marma* during these *Karmas* to prevent any injury. The concept of *Marma* is also an important classical, anatomical surface landmark for

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the *Siravyadha*. So the knowledge of *Marma Sthana* is required to carry the *Siravyadha*.

The description of *Phana* is available in other contexts also. In the context of *Nasya*, it is explained that the medicine administered through the nasal passage first reaches the *Phana*, spreads to *Murdha*, *Kantha* etc. later to eliminate the *Doshas*. Ayurvedic literature about the concerned topic will be reviewed including the available commentaries and the structures of the region will be explored through cadaveric dissection. The modern aspects of the sense organs, structures, its applied and surgical importance also will be thoroughly studied and all possibilities related to the structure.

AYURVEDA AND PHANA MARMA

Sushruta Samhitha

Acharya Sushruta described the surface area of *Phana Marma* i.e. स्त्रोतोमार्गप्रतिबद्धे it means this *Marma* is lying with in *Srothomarga* with its surface location i.e. घ्राणमार्गमुभयतः and *Vidhalaxanaiegandha Agnana*,^[1] it is a *Vaikalya Kara*^[2] and *Sira Marma*.^[3]

Ashtanga Sangraha

Phana is located on either side of the nostrils adjoining the opening of the ears, inside, are the two *Phana Marma*.^[4] and also it is a *Vaikalyakara*^[5] and *Sira Marma*.^[6]

Ashtanga Hridayam

Acharya Vagbhata described that on either side of the nostrils, adjoining the opening of the ears, inside the throat, are the two *Phana Marma* situated^[7] and it is also a *Vaikalyakara*^[8] and *Siramarma*.^[9]

Acharya Bhavamishra

Acharya Bhavamishra has mentioned that both side into the nostril *phana marma* is situated. It measures *Ardha Angula*, the *Phana Marma* is one of the *Vaikalyakara Marma* and its *Viddha Laxana* is *Gandha Agyana*.^[10]

Anatomy

Olfactory Receptors: The olfactory receptors are embedded in a specialized patch of yellow-tinted mucous membrane in the roof of the nasal cavity.

These receptors are bipolar neurons covered with modified, non-motile cilia. Axons from the olfactory receptors enter small nerve bundles (collectively termed the 1st cranial nerve) which pass through the perforations in the cribiform plate of the ethmoid bone and promptly enter the olfactory bulb. These nerve bundles can be severed as a result of skull fractures or other pathology in this region with a resulting partial or complete anosmia (loss of sense of smell).

Olfactory Bulb: The olfactory bulbs lie on the ventral aspect of the frontal lobes. The olfactory bulbs and all other parts of the olfactory pathways are telencephalic derivatives. Within the olfactory bulbs the olfactory nerves synapse on mitral cells whose axons project directly to the olfactory cortex.

Olfactory Tract: The olfactory tract connects the olfactory bulb with the cerebral hemispheres. Axons of mitral cells pass directly back to the olfactory cortex on the ipsilateralside.

Surgical Importance

1. Injury to the nasal mucosa, olfactory nerve fibres, olfactory bulbs, or the olfactory tracts may lead to impaired smell. In severe head injury, the olfactory bulbs may be torn away from the olfactory nerve fibres may be torn as they pass through a fractured cribiformplate. If all the nerve bundles on one side are torn, a complete loss of smell will occur on that side consequently, anosmia may be a clue to a fracture.
2. Trauma to the anterior base of the skull and dura may be associated with fracture of the nasal bones which leads to CSF leak from the nose. It is called as CSF rhinorrhoea.

Methodology

- The literary study on *Phana Marma* will be collected from the *Brihathrayi's*, *Laghuthrayi's* and other classical texts including dictionaries, journals, presented papers, previous dissertation works done etc. and correlated, analyzed with the knowledge of contemporary science on the subject.

- Dissection of regional anatomical study of *Phana Marma* will be done in Four Male Cadavers in Dept. of *Rachana Shareera*, N. K. Jabashetty Ayurveda Medical College & PG Center, Bidar. Observations are analyzed and correlated with the view of ancient description of *Phana Marma* by *Acharyas* with special reference to modern science.
- The method of dissection was followed by the Cunningham's Practical Anatomy in the maximum way.
- Anatomical structures found in the region of *Phana Marma* were confirmed with the help of cadaver dissection conducted in Department of *Rachana Shareera*, N. K. Jabashetty Ayurveda Medical College & PG Center, Bidar.

DISSECTION FINDINGS



Fig. 1: Superior concha



Fig. 2: Middle concha



Fig. 3: Inferior concha



Fig. 4: Opening of auditory tube



Fig. 5: Site of olfactory nerve & mucous membrane



Fig. 6: Olfactory bulb & tracts

CONCLUSION

Phana Marma is one among the *Urdhwajathrugatha Vaikalyakara Marma*, *Ardhaanguli Pramana*, *Siramarma*, they are two in numbers, if injured causes *Gandhaaganana* or anosmia and deserves special importance as it is related with all the sense organs. On the basis of available references and after the cadaveric dissection, it was concluded that the *Phana Marma* may be correlated with the region of Olfactory bulb, Olfactory nerve fibres and Upper part of nasal mucous membrane. Trauma on *Phana Marma* causes fracture of cribiform plate of ethmoid bone causes rupture of ethmoidal artery which supplies mucus membrane of nasal cavity resulting to anosmia. *Phana* means hood of the serpent and the olfactory bulb also looks like a hood of the serpent and both the numbers are also same i.e. two.

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