

SHANKHA MARMA AND ITS SADYAHPRANAHARATVA W.S.R TO EPIDURAL HAEMATOMA

*¹Dr. Ayushi Patel, ²Dr. Namrata Tiwari and ³Dr. Dileep Singh

¹First Year MD Scholar, Department of Rachana Sharira, Shri Narayan Prasad Awasthi Government Ayurved College, Raipur (C.G).

²Reader, Department of Rachana Sharira, Shri Narayan Prasad Awasthi Government Ayurved College, Raipur (C.G).

³Lecturer, Department of Rachana Sharira, Shri Narayan Prasad Awasthi Government Ayurved College, Raipur (C.G).

Article Received on
10 Jan. 2023,

Revised on 31 Jan. 2023,
Accepted on 20 Feb. 2023

DOI: 10.20959/wjpr20234-27359

*Corresponding Author

Dr. Ayushi Patel

First Year MD Scholar,
Department of Rachana
Sharira, Shri Narayan
Prasad Awasthi Government
Ayurved College, Raipur
(C.G).

ABSTRACT

The *Marma Sharira* has been the most technically advanced concept given by Acharya Sushruta. Infact the modern surgery is incomplete without the knowledge of these *Marmas* which they call the vital parts of the body. According to *Ayurveda*, these marmas carries *Prana*, *Jivana* or life. Any injury or trauma to these parts can put the life in danger. Out of 107 *Marmas* described in ancient literatures, 19 *Marmas* are categorized as *Sadyahpranahara*, meaning immediately destroying life. *Shankha marma* is one of them. Exploration of the modern anatomy suggests that the structure most closely relevant to the *Shankha marma* is a 'H' shaped suture in the calvarium known as Pterion. The reason it is treated as a vital part or a *Marma* is the presence of the anterior division of the middle meningeal artery just

beneath the pterion which when ruptured mostly in road traffic accidents or sports injury causes Epidural haematoma. The epidural haematoma can end a person's life within a week if any kind of medical intervention is not made as soon as possible. Even if surgical intervention is made to resolve the haematoma, the surgical procedures can lead to many complications which may lead to coma or death within a very short span of time. Hence through this article an attempt has been made to shed some light on the *Sadyapranaharatva* of *shankha marma* with the help of the contemporary science, for the betterment of the society as a whole.

KEYWORDS: *Shankha marma*, *Sadyahpranahara marma*, Pterion, Middle meningeal artery, Epidural haematoma.

INTRODUCTION

The classical concepts of *Ayurveda* have always been the most advanced concepts if they are well understood and implemented. Acharya Sushruta already laid the foundation of Traumatological Anatomy long ago by giving us the concept of *Marma Sharir*. The *Marma Sharir* has been an integral part of *Ayurveda* and now of the modern surgery. The term *Marma* has been derived from the 'Mri' *Dhatu* complying to the death or deformity. The *Marma* in the classical literatures have been defined as those parts which carry the *Prana* or the vital energy and they need to be protected from the traumas otherwise it may cause death or a permanent deformity. These *marmas* are said to be the junction of body and mind and all those elements which build up a body viz, *Mamsa* (muscular tissue), *Sira* (blood vessels), *Snayu* (ligaments), *Asthi* (bones) *Sandhi* (joints).^[1] There are total 107 *Marmas* described in the *Samhitas*. These *marmas* are classified into 5 categories on the basis of manifestations produced when they are injured. The first and the foremost category is the *Sadyahpranahara marma* which are 19 in number and *Shankha marma* (present one on each side of the temporal region) is one of them.^[2] This *Shankha Marma* is anatomically correlated with Pterion, an H shaped suture present in the temporal region on both the sides. Any injury to this part of the skull leads to the rupture of underlying middle meningeal artery causing epidural haematoma. It can immediately put life in danger if any medical intervention is not made as soon as possible.

AIM AND OBJECTIVE

To study and elaborate the *Sadyahpranaharatva* of *shankha marma* correlating both the *Ayurveda* and the modern medical science.

MATERIALS AND METHODS

In this article, relevant literary materials from all the available *Samhitas* and their commentaries have been explored along with the textbooks of modern medical science. Various research articles, journals on *Marmas*, *Shankha marma*, pterion and epidural haematomas have been reviewed to write this article.

OBSERVATION

Sadyah-pranahara marma

The term '*Sadyah*' means immediate or sudden while the term '*Pranahara*' means the destroying life. Hence, those *Marmas* which give rise to various life threatening emergencies either immediately when injured or anytime within a span of 7 days are known as *Sadyahpranahara Marmas*. Acharya Sushruta in his *samhita* has narrated two reasons for the *Sadyahpranaharatva* of these *Marmas*. Firstly, these *Marmas* are *Agneya* in nature.^[3] And the *Agneya Guna* is known for its instantaneousness. When these *Marmas* are injured, this *Agneya Guna* rapidly deteriorates, endangering the life. Secondly, all the elements of *Marmas* which have been mentioned earlier (*Mamsa, Sira, Snayu, Asthi, Sandhi*) are all present in the same proportion.^[4] These two reasons make these *Marmas* immediately life threatening. *Sadyahpranahara Marmas* are 19 in number. *Shankha marma* (one on each side) is one of them.

Shankha marma

Shankha Marma is primarily an *Asthi Marma* located above the outer corner of the eyebrows in the middle of the ears and the forehead on both the sides.^[5] These are two in numbers. *Shankha Marma* due to its anatomical location and number is correlated with Pterion.

Pterion

The Pterion is an H shaped junction of the frontal, sphenoid, parietal and temporal sutures within the temporal fossa on both the sides of the skull. It is situated within a circle of 1 cm diameter approximately 2.6 cm on the posterior side and 1.3 cm superiorly to the postero-lateral margin of the zygomatico-frontal suture.^[6] Alternately, the pterion is located approximately 4 cm above the midpoint of zygomatic arch.^[7] The pterion is an important landmark because it overlies a very important artery supplying the meninges i.e the anterior division of the middle meningeal artery.^[8] Also the lateral sulcus of the cerebral hemisphere lies beneath it. Due to the presence of suture between the multiple cranial bones at this site, pterion becomes the thinnest and hence the weakest part in the lateral side of the skull making it vulnerable to fracture even with a slightest blow to the head.^[9]

Middle meningeal artery

The middle meningeal artery is one of the branch of the maxillary artery. The main function of this artery is to provide the vascular supply to the duramater. It passes anterolaterally in a groove in the petrous temporal bone and then divides into anterior and posterior branches.

The anterior division runs anterosuperiorly to reach the pterion where it gets frequently torn, resulting in an epidural hematoma.^[10]

Epidural haematoma

Epidural hematoma is the collection of blood in the space between the duramater and the inner part of the skull.^[11] It is confined by the lateral sutures specially the coronal sutures where the duramater inserts. It is most oftenly caused by a head trauma whether in a road traffic accidents or a sports injury in which the weakest part of the lateral skull i.e. pterion gets fractured causing the rupture of anterior division of middle meningeal artery. It is potentially a fatal condition associated with morbidities like elevation of intracranial pressure, deterioration in the neurological status, herniation of brain etc. and finally leading to mortality anytime between 24 hours to a time span of a week if left untreated and the bleeding continues. Generally to resolve this haematoma, a burr hole is created in the same site as pterion as surgeons find this site easily accessible because of its fragile nature.^[12] Even if this burr hole is created for relieving the pressure, this procedure has its own set of complications such as bleeding, infection, blood clots, brain injury heart attack or stroke which may ultimately lead to death.

DISCUSSION

Acharyas suggest that the *Sadyah pranahara marma* are immediately fatal because they have all the elements of *Marma* (*Mansa, Sira, Snayu, Asthi and Sandhi*) in the same proportion. When we closely observe *Shankha marma* anatomically, we find that the pterion has all the elements of *Marma*. For example, this area is covered by temporal muscle as the *Mamsa* element, pterion itself is a bony structure representing the *Asthi* element, pterion is an H shaped suture which points out to the *Sandhi* element of the *Marma*. Underlying the pterion lies the anterior division of middle meningeal artery which denotes the *Sira* element of the *Marma*. Last but not the least, pterion is a suture and every brain suture has some fibrous connective tissue which may be labelled as the *Snayu* element of the *Marma*.

Secondly, the *Shankha marma* is a *Sadyahpranahara Marma* and *Sadyapranahara Marmas* are *Agneya* in nature as mentioned in the literature. According to *Ayurveda*, *Rakta dhatu* (blood) is *Agneya* in nature. When the blood flows inside the artery, it nourishes the part which it supplies but when the artery ruptures and blood starts accumulating, it loses its *Agneya Tatva* or contemporarily the nourishing properties and causes various clinical manifestations. Since, we also include the middle meningeal artery along with pterion as the

Shankha marma, we observe that when the injury happens pterion, being the thinnest gets easily fractured and ruptures the underlying middle meningeal artery, blood from the ruptured artery starts coming out rapidly (since its an arterial blood) and starts accumulating forming an epidural haematoma which becomes the main cause of the fatality. This haematoma starts elevating intracranial pressure, causing compression on the brain. The symptoms progresses from a mere confusion, dizziness, slurred speech to critically fatal medical emergency in no time if any intervention is not made. If an epidural haematoma is left untreated and the bleeding continues, brain compression increases and even worse symptoms like seizures, breathing difficulties, loss of brain functions, coma and eventually death follows in less than a week. Surgical intervention is the only treatment for this condition. Burr holes are created to evacuate an epidural hematoma, but this procedure also has its own set of life threatening complications like bleeding, infection, blood clots, brain injury, heart attack or stroke which may also end up a person's life suddenly or within a week.

CONCLUSION

On the basis of the above observation and discussion a conclusion can be made that even without the modern imaging technologies like CT scans and MRIs, our Acharyas knew about the grave consequences of the injury occurring in the *Shankha Marma* or pterion. The epidural hematoma is the ultimate life threatening consequence of the the injury to this *Marma*. This condition is fatal within a week without immediate intervention. Even with the surgical interventions like burr hole evacuation and craniotomy, there is a very high risk of mortality associated with it. Hence, it fairly proves the *Sadyapranaharatva* of the *Shankha marma*. Therefore, it is mandatory for the general population, atheletes as well as the neurosurgeons to have the knowledge about the *Shankha Marma* and be cautious about protecting it even from the slightest trauma.

REFERENCES

1. Kaviraja Ambika Dutta Shastri, edited Sushruta Samhita Shareer Sthana, Commentary of Ayurveda-Tattva-Sandipika, Chapter 6/3-5, Vol-1, Reprint Edition 2010, Chaukhambha Sanskrit Sansthan, Varanasi, P.67.
2. Kaviraja Ambika Dutta Shastri, edited Sushruta Samhita Shareer Sthana, Commentary of Ayurveda-Tattva-Sandipika, Chapter 6/9, Vol-1, Reprint Edition 2010, Chaukhambha Sanskrit Sansthan, Varanasi, P.68.
3. Kaviraja Ambika Dutta Shastri, edited Sushruta Samhita Shareer Sthana, Commentary of

- Ayurveda-Tattva-Sandipika, Chapter 6/16, Vol-1, Reprint Edition 2010, Chaukhambha Sanskrit Sansthan, Varanasi, P.68.
4. Ghanekar Dr Bhaskar Govind. Ayurveda Rahusya Deepika Hindi Commentary on Sushruta Samhita sharir Sthanam, New Delhi, Mehar Chand Lachmandas Publication 1998. Su. Sharir, 6/18.
 5. Ghanekar Dr Bhaskar Govind. Ayurveda Rahusya Deepika Hindi Commentary on Sushruta Samhita sharir Sthanam, New Delhi, Mehar Chand Lachmandas Publication 1998. Su. Sharir, 6/12.
 6. Richard S. Snell, Clinical Anatomy, 9th edition, 2012, Wolter Kluwer (India) New Delhi, P-532.
 7. Parveen J. Kumar, Michael L. Clarke, Clinical Medicine, 6th edition, Elsevier Saunders, 2005.
 8. Richard S. Snell, Clinical neuroanatomy, 7th edition, 2012, Wolter Kluwer (India) New Delhi, P-307.
 9. B D Chaurasia, Human Anatomy Vol-3, 5th edition 2010, CBS Publisher, New Delhi-India.
 10. Keith L. Moore, Arthur F. Dalley, Anne M.R. Agur, Moore Clinically Oriented Anatomy, 7th edition, 2007, Wolter Kluwer (India) New Delhi, P-704-705.
 11. Kumar, Abbas, Fausto, Robbins and Cotran Pathologic Basis of Disease, 7th edition, Elsevier, 2004; P-1359.
 12. Somen Das, A Concise Textbook of Surgery, 10th edition, Dr. S. Das, 13, Old Mayors' Court, Kolkata, 2018; P-404.
 13. Susan standing, Gray's Anatomy, 41st edition, Elsevier limited, 2016.