



AN ANATOMICAL APPROACH TO STHAPANI MARMA; ON THE BASIS OF CADAVERIC DISSECTION

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ABSTRACT

The word “*Marma*” is found in the classical as well as non-classical literature and it is as old as *Veda of Aryans*. “*Marma*” (vital spot) consists of the aggregate of *Mamsa*, *Sira*, *Snayu*, *Asthi* and *Sandhi* in which particularly *Prana* by nature stay. In classification According to *Parinama*, *Acharya Sushruta* described “*Vishalyaghna Marma*”. “*Sthapani*” is a “*Vishalyaghna Marma*”, situated in the *Urdhwajatrugat Pradesh*, between both eye brows. It is a “*Sira Marma*” & shows “*Vishalyaghna*” effect if any *Shalya* inflicted at the site of “*Sthapani Marma*”. So here study explored the “*Sthapani Marma*” in term of regional and cadaveric anatomical approach to find the anatomical structures at the site of “*Sthapani Marma*” which is responsible for its “*Vishalyaghna*” condition.

Keywords Marma, Vishalyaghna, Sthapani, Shalya, Sira, Urdhwajatrugat

INTRODUCTION

Ayurveda is an ancient science. It is universal and it does not change with time. Principles of *Ayurveda* were true in ancient time, they are true in present time, and it will remain true for many centuries in future. The science of *Marma* is special unique principle of *Ayurveda*. Knowledge of *Marma* was not separate from *Ayurveda*. Discussion of the *Marma* points is found in most of the great texts of *Ayurveda* but the most famous text to explore the subject is *Sushruta Samhita*.

Ayurveda Acharyas described the total 107 *Marmas* in our body.¹ They described the effects of trauma to different *Marma* in detail. Among 107 *Marmas* three *Marmas* have special status when these inflicted by a *Shalya* (Foreign body).¹ these come under the category of “*Vishalyaghna Marma*”. These are One “*Sthapani Marma*” & two “*Utshepa Marma*”. “*Sthapani Marma*” situated

“*Bhruvemadhye*”. In “*Sthapani Marma*”, if the *Shalya* is removed then person dies and if the *Shalya* is allowed to remain in situ, the person survive.² This is contradictory to general treatment of any *Shalya*. This condition is worthy for discussion. So here, researcher has attempted to discuss all the facts & findings regarding “*Sthapani Marma*” which are mentioned in ancient literature and reviewed in the light of modern medical science with the help of cadaveric dissection.

AIM & OBJECTIVES

Aim of the study to identify and determine the exact location, dimension and related anatomical structures at the site of “*Sthapani Marma*” with the help of cadaveric dissection.

MATERIAL AND METHODS

The Literary and conceptual study of “*Sthapani Marma*” had been done with the help of *Classical Ayurveda* books like

Brihatthrayi's, *Laghutrayi*'s and other Ayurvedic books including dictionaries and correlated, analyzed and interpreted with the knowledge of contemporary science on the subject. Dissection of head on 5 cadavers performed in the department of *Rachana Sharir*, *Pt. Khushilal Sharma Govt. Ayurved College & Institute, Bhopal* to explore the underlying structure on the sites of "*Sthapani Marma*". Observations & findings were collected correlated and analyzed scientifically in the view of *Ayurveda* description of "*Sthapani Marma*" with the help of modern science. Cadaveric dissection was conducted as per "Grant's Dissector" and with the help of "Cunningham's Manual of Practical Anatomy".

"STHAPANI MARMA" IN AYURVEDA

"*Sthapani Marma*" is a type of "*Vishalyaghna Marma*", situated *Bhruvemadhye* (between both eyebrows).³ It is a "*Sira Marma*", Predominance of "*Vayu Mahabhuta*". Its measurement is *Ardhangul*. It is one in number.⁴ "*Sthapani Marma*" is an "*Urdhwajatrugata Marma*". *Acharya Dalhana* gave his specific opinion that on the structural basis, "*Sthapani Marma*" is lack of *Mamsa*, *Sira* and *Snayu* and reunion of *Asthi* and *Sandhi* result of "*Sthapani Marma*".⁵

Underlying Relevant Anatomical Structures at the Site of "*Sthapani Marma*"

The Scalp

The soft tissues covering the cranial vault form the scalp. The scalp has a rich supply of blood it is supplied by the supratrochlear and the supraorbital arteries & drained by the supraorbital and supratrochlear veins.⁶

Frontal Bone & frontal bony sinuses

The frontal bone is like half a shadow,

irregular cap forming the forehead or fronts. The paired frontal sinuses, situated posterior to the superciliary arches, lie between the outer and inner tables of the frontal bones.⁷

Glabella:It is a cephalometric landmark that is just superior to the nasion. It is the median elevation connecting the two superciliary arches and corresponds to the elevation between the two eyebrows.⁸

Ethmoid Bone, Cribiform plate & Crista galli

The ethmoid bone lies anteriorly in the cranial base. It is having a horizontal, perforated cribiform plate. A thick, smooth, triangular, median crista galli projects up from this plate; to its thin and curved posterior border the superior sagittal sinus is attached.⁹

The Meninges & Cranial Dural Venous Sinuses

The Brain is surrounded by three protective meninges. These are the dura mater, the arachnoid mater & the pia mater. The dura mater is conventionally described as two layers the endosteal layer & the meningeal layer. These are closely united except along certain lines, where they separate to form dural venous sinuses. Dural sinuses are venous channels, draining blood from the brain and cranial bones. They have no valves. Their wall is devoid of muscular tissue.¹⁰

Superior Sagittal Sinus

It occupies the upper convex, attached margin of the falx cerebri. It attached anteriorly at the crista galli. Posteriorly it communicates with other dural venous sinus at the junction of all sinuses called confluence of sinus.¹¹

CADAVERIC STUDY

The dissection work had performed at the site of "*Sthapani Marma*" with the help of dissection instruments as per as disectors.

A midpoint between two eyebrows where slightly pulpy feeling of the skin and subcutaneous tissue found was a glabellar point. A 4-inch long and 1 mm thick nail had been inserted in the glabellar region with the help of the drainer, until the resistance had stopped. Now incision, cutting of the calveria, study of the superficial and deep structures had been done at the site of "Sthapani Marma" as per dissection. The position of the superior sagittal sinus was reviewed. Researcher had been used the nail, vernier caliper & scale for the measurement of the depth

(parimana) of "Sthapani Marma". During dissection researcher was found these structures;^{12, 13}

Superficial structures:

- Scalp.
- Supraorbital & supratrochlear vessels & nerves.
- Frontal bone & frontal air sinuses

Deep structures:

- Cribriform plate of ethmoid bone & crista galli
- Meninges & Superior sagittal sinus
- Frontal part of the brain



Image no.01 & 02 "Incision at the site of glabella" & "Nailing at the site of Sthapani Marma"



Image no. 03 & 04 "Nail pierces the frontal bone, frontal sinus & reaches near the crista galli" & "Measurement of nail through scale"

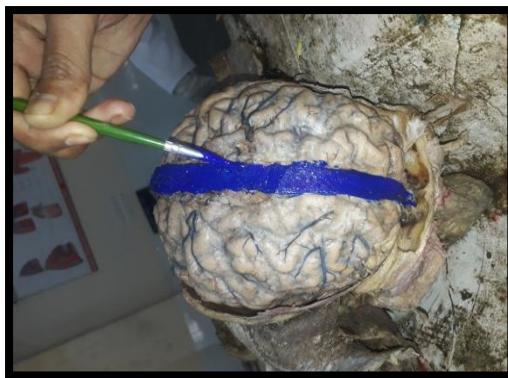


Image no. 05 & 06 “Superior sagittal sinus (highlighted blue colour)” & Different dural sinuses & their inter-connection

DISCUSSION

- The “*Sthapani Marma*” lies between two *Bhrus* (eyebrows). Observation during dissection researcher found glabella point in that location so anatomically it can be correlated with glabellar point. An injury to this may cause death by profuse bleeding. All *Ayurveda Acharyas* stated same position of “*Sthapani Marma*”.
- According to *Acharya Sushruta*, “*Sthapani Marma*” is a “*Sira Marma*”. Observation during dissection researcher found *Sira* (veins) and dural venous sinus at the site of “*Sthapani Bindu*” so it had been confirmed that there is predominance of *Sira* in this region.
- The *Parimana* of “*Sthapani Marma*” is *Ardhangul* which is nearer to 1 cm.⁶ during dissection researcher had been used nail, scale and vernier caliper for the measurement the *Parimana* (depth) of “*Sthapani Marma*”. On observation researcher found that all responsible anatomical structures i.e. frontal sinuses, superior sagittal sinus and other related structures situated within *Ardhangul Parimana*.
- When a *Shalya* (Foreign body) penetrates the “*Sthapani Bindu*” (glabellar region) then it pierces the skin & subcutaneous tissue of the forehead. Which consists of supra trochlear & supra orbital

vessels etc. The rupture of these vessels do not concern with “*Vishalyaghna*” Condition. If the *Shalya* enters too deep and breaks the frontal bone, along with walls of the frontal sinus & its contents & crista galli etc. it has also torn the duramater, lacerating the superior sagittal sinus after breaking the crista galli. Superior sagittal sinus is responsible for the “*Vishalyaghna*” condition due to its location and nature.

- Frontal sinus is a bony sinus. Frontal sinuses are two in number where as the *Acharaya Sushruta* indicated that the “*Sthapani Marma*” is one in number.
- Frontal sinus is occupying the underlying eyebrows area superficially and two arteries cross to it, anterior ethmoidal and Supra orbital artery. These are not the major structure. If at all trauma hits the “*Sthapani*” region in Frontal Sinus, than only the medial part is affected and contents in this part cannot give rise to profuse haemorrhagic conditions.

CONCLUSION: “*Sthapani Marma*” is a “*Sira Marma*” situated between both eyebrows. Anatomically it can be correlated with Glabella point. *Parimana* of “*Sthapani Marma*” is “*Ardhangul*”, which is nearer to 1 cm. & superior sagittal sinus lies within this “*Ardhangul Pramana*”. Superior sagittal sinus is a venous sinus structurally it can be consid-

ered as a “*Sira Marma*”. The number of “*Sthapani Marma*” mentioned in *Ayurveda* classics is one, which resembles with the number of Superior sagittal sinus, which is also one in number. Superior sagittal sinus is more significant for traumatic dural venous sinus injury compare to other dural venous sinus. In acute haemorrhagic condition when the deeper structures i.e. superior sagittal sinus etc. get damage at the site of “*Sthapani Marma*” then it needs microsurgery to repair, which is very difficult. Therefore, self-removal of *Shalya* (foreign body) after suppuration is the only alternative left to save the life. It fortifies the concept of “*Vishalyaghna Marma*”.

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