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A CRITICAL REVIEW ON *SADHYAPRANAHARA MARMA* WITH SPECIAL REFERENCE TO SUSHRUTA SAMHITA

[1]Dr Dayana H, [2]Dr Shyny Thankachan
Assistant Professor[1], Associate Professor[2], Dept. of Rachana Shareera, VPSV Ayurveda College, Kottakkal

ABSTRACT

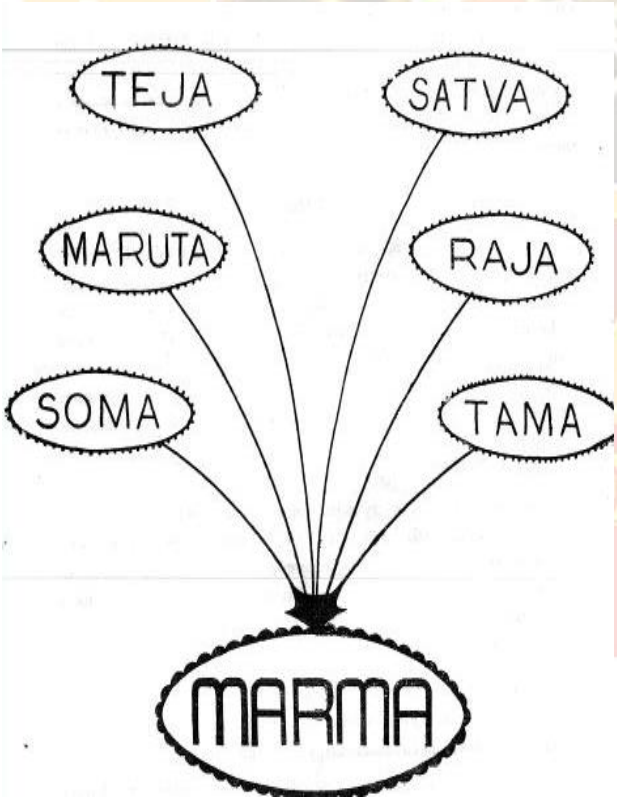
Marma are the special locations of *prana* in our body. Even though it is generally told that injury to *mrma stana* will lead to death, injury to all the *marma* may not lead to death. Instead it may be leading to severe pain or deformities. But *sadhyapranahara marma* is a classification of *marma* which on injury will lead to death with in a period of seven days. Hence the awareness about the locations of *sadyapranahara marma* is more important compared to other *marma.* Understanding the anatomical structures located at the regions of *sadyapranahara marma* and the possible consequences leading to death of the person will be helpful to avoid such injuries while conducting shastra *karma*. By going through the regional anatomy of different *sadhyapraanahara marma*, it is found that vital structures especially important blood vessels are located in these regions.

KEY WORDS – *sadhyapranahara marma, prana, agniguna*

INTRODUCTION

The vulnerable spots in the body were identified at ancient time, which were called *marma*. In olden days *marma vignana* is used in surgical procedures and to treat war injuries. Acharya Sushruth defines *marma* as the anatomical sites where *Mamsa, Sira, Snayu, Sandhi* and *Asthi* meet together and where by nature itself *prana* is specially located.[1] Here *prana* indicates all the basic factors sustaining the life of the person. That is why if any injury occurs to *marma*, the person will not survive. The 7 factors, *soma, maruta, teja, satva, raja, tama* and *bhutatma* are considered as *prana* in *marma pradesha*.[2]

Totally 107 *marma* are explained in *ayurveda*.[3] Depending upon the effect of injury *marma* are classified in to 5 types. They are *sadhya pranahara, kalantara pranahara, visalyaghna, rujakara* and *vaikalyakara*.[4] An injury to *sadhya pranahara marma* leads to death in seven days. Hence it is important in point of current day road accidents. There are 19 *Sadhyapraanahara marma* our body. They are *Shringhataka, Adhipathi, Shankha, KantaSira, Guda, Hridaya, Vasti* and *Nabhi*[5]



1) Sringataka

According to shabdha kalpa druma, the word *srngataka* means, that which has four horn like process. It represents the place of union of four passages.[6] It is a s*iraa marma, jatrurdva marma, swapaanitala pramana* and are four in number.

Location - According to Sushrutha it is present in the area of confluence of *sira* nourishing *ghrana, srotra, akshi* and *jihwa* in the head. [7]

2) Adhipati

The meaning of *adhipati* is given as *raja* or *swami* in Shabdha kalpadruma.[8] It is called *adhipati* as it is the king of all the *marma.* It is a *sandhi marma, jatrurdva marma, ardhangula pramana* and are two in number.

Location -It is located within the head at its peripheral portion and is the meeting place of *sira*, marked externally by the ring of hairs.[9]

3) Shankha

The meaning of shankha is given as lalatasti and asti located near to karna in Sabdha kalpa druma.[10] It is an *asthi*

marma, jatrurdva marma, ardhangula pramana and are two in number.

Location -It is present above the level of tail of eyebrow and in between the ear and forehead. [11]

4) Matruka(Kanta sira)

Matruka marma is a *sira marma, jatrurdva marma, swapanitala pramana* and are eight in number.

Location - They are the four *sira* located on either side of the neck.[12]

5) Guda

The word *guda* is derived from '*gu' dhathu*. It means that which does the function of expulsion of faeces.[13] It is a *mamsa marma, udara marma, swapanitala pramana* and is one in number.

Location -It is the terminal part of *stoolantra* and its function is expulsion of faeces and flatus.[14]

6) Nabhi

In Shabda kalpadruma the meaning of nabhi is given as udaraavarta.[15] It is a *siraa marma, udara marma, swapanitala pramana* and is one in number.

Location -In Sushruta samhitaa its location is told as, in between *pakwashya* and *aamashaya* and it is the place of origin of *sira.*[16]

7) Hrudaya

The ethimological meaning suggests the function of the organ. 'hru'- aaharana - means to bring back forcibly (dilatation), da - aadana - means to donate (contraction), ya - aayama - Means to relax (relaxation). It is a *siraa marma, ura marma, swapanitala pramana* and it is one in number.

Location - It is located in the *ura* between the *stana* near the opening of *aamashaya*. It is the *staana* for *satwa raja* and *tama.*[17]

8) Vasti

In Amarakosha meaning of *vasti* is told as region below *nabhi* and it is the *puta* of *mootra*.[18] It is a *snaayu marma, udara marma, swapanitala pramana* and it is one in number.

Location - It is having alpa mamsa and soonita and is the seat for mootra.[19] Injury to this marma leads to death, except when wound is due to renal calculus. Even in that disease person does not survive if the urinary bladder is torn at both sides. If injury is in any one side there will be a wound which exudes urine. This will be treated only if all the effort is put by the physician.[20]

DISCUSSION

Discussion on sadhyapranahara marma

The word *sadhyapranahara* even though means which leads to sudden loss of *prana,* it will lead to death in a period of 7 days.[21] Even though in general it is told that *marma* is that which causes death, it is only *sadhyapranahara marma* which cause earlier death of the person. The others, *kalantarapranahara* leads to death in fifteen to thirty days, *vishlyghna* only if the *shalya* is removed and *vaikalyakara* and *rujakara* cause deformities and pain respectively. Hence *sadhyapraanahara marma* are more importent amoung all the *marma*. Acharya Sushrutha has given the reason behind, why this particular class of *marma* are producing sudden death. This is due to the predominance of *agni guna* located in these regions.[22] While studying the regional anatomy of these *marma* we can see that many vital structures are located in these regions.

1) Srngataka

Location: - According to Sushrutha the characteristic feature of this *marma* is, it is the meeting place of the *sira* nourishing the nose, ears, eyes and tongue. As most of the vessels nourishing these structures drains directly or in directly in to cavernous sinus, the location of *marma* can be taken as at the region of cavernous sinus including its tributaries & contents according to modern anatomy. Ashtanga Sangrahakara, in the chapter of *nasya vidhi* says the medicine installed in to the nose moves up to the *srngataka.* The veins draining the nasal mucosa drains in to cavernous sinus. Hence according to this reference also the location of *srngataka* can be taken as cavernous sinus.

Marma vidha lakshana: - Any severe injury on the head can be transmitted to cavernous sinus causing intracranial haemorrhage. Haematoma in the region around cavernous sinus is the most important factor of death. Haemorrhage and ischemia of the internal carotid artery can also leads to brain stroke and death.

The possible modern correlations of the *panchatma sannipatha* are,

Mamsa –

Sira – Cavernous sinus, Intercavernous sinus and venous connections of

cavernous sinus, Cavernous part of internal carotid artery.

Snayu – Diaphragm sellae, part of duramater which form the roof & lateral wall of cavernous sinus.

Sandhi – articulations of anterior, posterior & lateral surfaces of body of sphenoid, communications and tributaries of cavernous sinus.

Asthi – body of sphenoid

2) Adhipatti

Location:-The location can be considered as region of confluence of sinus as it is the site of *sira sandhi.* It is located at the region of external occipital protuberance. Here there is the meeting of intra cranial venous sinuses. The confluence of sinus is the connecting point of the superior sagital sinus, straight sinus and occipital sinus. By considering this union of venous sinuses it is considered as the *sandhi marma.*

Marma vidha lakshana :-The sinuses can be injured by trauma. The skull fracture can damage the dura mater. It will result in thrombosis within the dural sinuses. The dural sinus thrombosis can lead to hemorrhagic infraction which in turn will lead to serious consequences including neurological deficits and death.

The possible modern correlations of the *panchatma sannipatha* are,

Mamsa – Trapezius muscle

Sira – Dural venous sinuses

Snayu –Ligamentum nuchae, Tendon of Trapezius

Sandhi –Union of intracranial dural venous sinuses

Asthi – Occipital bone (External occipital protuberance)

3) Shankha marma

Location: - It is located above the tail of the eye brow between the ear and fore head. It is located at the region of temple which lies superficial squamous part of temporal bone. Deep to this region anterior branch of middle meningeal artery passes.

Marma vidha lakshana – A blow on the thin bone of the temporal plate may torn the middle meningeal artery. It leads to considerable haemorrhage between the dura and the bone (Extra dural haemorrhage) producing compression of the brain. Uncus herniates through tentorial hiatus and mid brain gets distorted at the tentorial hiatus. This

causes pressure on the reticular system of the midbrain. With more haematoma formation and with greater rise of intracranial pressure death will occur.

The possible modern correlations of the *panchatma sannipatha* are,

Mamsa – Temporalis muscle

Sira – Superficial temporal vessels, deep temporal vessels, middle meningeal vessels.

Snayu – Temporal fascia

Sandhi – Joint between the squamous part of temporal bone and parietal bone, squamous part of temporal bone and greater wing of sphenoid bone.

Asthi – Squamous part of temporal bone

4) Kantasira

Location-It is the region on either side of the neck where the 4 *sira* named *matruka* are located. Hence the location of the *marma* can be within the neck in and around the region of carotid triangle where the common carotid artery divides in to internal and external carotid arteries on either side of thyroid cartilage. The 8 *matruka* can be taken as the external and internal carotid arteries and external and internal jugular veins which are located on either side of the neck.

Marma vidha lakshana:-

- Hemorrhage from the carotid artery may be severe, with consequent hypotension or shock. It can leads to a central neurologic deficit and death.
- Air embolism is a serious complication of a lacerated wall of the internal jugular vein. Because the wall of this large vein contains little smooth muscle, its injury is not followed by contraction and retraction (as occurs with arterial injuries). Moreover, the adventitia of the vein wall is attached to the deep fascia of the carotid sheath, which hinders the collapse of the vein.
- Division of external jugular vein in the supraclavicular space may cause air embolism and consequent death because the cut ends of the vein are prevented from retraction and closure by the fascia attached firmly to the vein.

The possible modern correlations of the *panchatma sannipatha* are,

Mamsa – Muscle Platisma and Sternocleidomastoid muscle

Sira – Internal and external jugular vein, internal and external carotid arteries

Snayu –Vagus nerve, investing layer of deep cervical fascia, carotid sheath

Sandhi –Connections between the tracheal rings, thyroid cartilage and cricoid cartilage, between cricoid cartilage and tracheal rings

Asthi – Tracheal rings, cricoid cartilage, thyroid cartilage

5) Guda

Location: – located in the pelvic cavity and is the distal part of the large intestine.

Marma vidha lakshana – Because of closeness of arteries, veins & nerves form the plexus at the site of anal canal, the structures damage of one structure can cause damage to another structures also. This structural damage in severe conditions may lead to shock that is haemorrhagic & neurogenic shock, which in turn will lead to death. The profuse haemorrhage can due to the presence of portocaval anastomosis in the sub mucosal layer of anal canal where the superior rectal vein (portal) anastomoses with the middle and inferior rectal vein (systemic). Valves are absent in the superior, middle & inferior rectal veins. Hence any injury at the site causes severe bleeding directly from the portal vein. Force of Gravity is more in that location which can also contribute to a comparatively more bleeding.

The possible modern correlations of the *panchatma sannipatha* are,

Mamsa – the circular and longitudinal muscle coat of rectum & anal canal including the anal sphincters.

Sira – arterial and venous plexuses, superior rectal artery, inferior mesenteric artery.

Snayu – supports of rectum.

Asthi – coccyx.

Sandhi –inter coccygeal joints, sacro coccygeal joint, junction between venous, arterial and nerve plexuses.

6) Hrudaya marma

Location:–Its location is told as the ura pradesha, between the stana and above the opening of amashaya. Hence its location can be taken within the chest, at the region of heart. The heart is located almost in the middle of the chest. It is placed obliquely behind the body of sternum with its 1/3 lying to the right and 2/3 to the left of the median plane. The cardiac orifice of stomach is located below the heart.

Marma vidha lakshana:-

The heart, although protected by the thoracic cage, can be squeezed between the sternum and the vertebral column, when the thorax is subjected to a severe frontal impact. In both blunt and penetrating injuries to the heart, the valve cusps, the papillary muscles, and the chordae tendineae can be damaged. Hence a major trauma can leads to cardiac arrest. The cardiac arrest is in fact cardio pulmonary arrest, is an unexpected cessation of effective ventilation and circulation in a person which can ultimately lead to death.

The possible modern correlations of the *panchatma sannipatha* are,

Mamsa – Musculature of heart, intercostal muscles

Sira –Aorta, Pulmonary artery, Superior and inferior vena cava, Pulmonary vein, Coronary artery, Coronary sinus and its tributaries.

Snayu – Pericardium

Sandhi – Sterno costal joints, Costochondral joint

Asthi – Ribs, Costal cartilages, Sternum

Vasti marma

Location: – Location of *marma* is told as the region below *nabhi,* and as the seat for *mootra*. Hence it is located within the pelvic cavity at the region of urinary bladder, as urinary bladder is told as the store house of urine and is located within the pelvis.

Marma vidha lakshana – The bladder may rupture intra peritoneally or extra peritoneally.

- Intra peritoneal rupture usually involves the superior wall of the bladder and occurs most commonly when the bladder is full and has extended up into the abdomen. Urine and blood escape freely into the peritoneal cavity. It can lead to peritonitis and death.
- Extra peritoneal rupture involves the anterior part of the bladder wall below the level of the peritoneal reflection. This causes extravasation of urine. Gradually infection may develop to cause deep pelvic abscess and severe pelvic Inflammation from extravasation. Death can also take place due to septic shock from peritonitis.

The possible modern correlations of the *panchatma sannipatha* are,

Mamsa –The muscle coat of urinary bladder, levator ani, obturator internus

Sira –Superior and inferior vesical artery, vesical venous plexus.

Snayu – ligaments of bladder,

Sandhi – symphysis pubis

Asthi – sacrum, ischium and pubis.

7) Nabhi marma

Location: – located between the *amashaya and pakwashaya*. The level of umbilicus corresponds almost with the junction between stomach and small intestine. It can be considered as origin of *sira* only in embryological life. In adult life there will be porto caval anastomosis and the level of umbilicus is water shed line.

Marma vidha lakshana –

- Extensive soft tissue injuries and intra-abdominal injuries can lead to traumatic shock. In this type of shock there will be hypo volemia due to bleeding both externally and internally from ruptured vessels of mesentery along with toxic factors resulting from fragments of tissue entering the blood stream. This activates intravascular inflammatory response. The vascular permeability also increases resulting in further hypovolaemia.
- A penetrating injury to the abdomen can involve the peritoneum and coils of abdomen leading to peritonitis and death due to septic shock.
- Death can also be due to vasovagal shock. This will be produced due to blockade of sympathetic nervous system resulting in loss of arterial or venous tone with pooling of blood in the dilated peripheral venous system. This causes reduced venous return to the heart leading to low cardiac output and bradycardia. Blood flow to the brain will be reduced causing cerebral hypoxia and unconsciousness.

The possible modern correlations of the *panchatma sannipatha* are,

Mamsa – Rectus abdominis

Sira –Para umbilical vein and its anastomosis

Snayu –Rectus sheath

Sandhi – Porta caval anastomosis. In embryonic life it is the point of meeting

of four folds that is two lateral, one head fold and one tail fold.

Asthi – 3rd and 4th lumbar vertebrae

CONCLUSION

Sadhyapraanahara marma are those injury to which leads to death with in a period of 7 days. It is due to the fast action of *agni mahabhuta* which is predominant in *sadhyapranahara marma pradesha,* the death of the person occurs so fast. By going through the regional anatomy of different sadhyapraanahara marma it is found that vital structures especially important blood vessels are located in these regions.

The death can occur due to the following reasons,

1) Due to profuse blood loss it can lead to hypovolaemic shock and complications due to haematoma produced after an internal haemorrhage.
2) Air embolism.
3) Cardiogenic shock
4) Septic shock
5) Traumatic shock

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Corresponding author:
Dr Dayana H,
Assistant Professor, Dept. of Rachana Shareera, VPSV Ayurveda College, Kottakkal
Email: drdayanah@gmail.com

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