

Anatomical consideration of *Dhamani marma* in *Ayurveda*

Review article

Bhan Pratap Yadaw^{1*}, Awasthi H H²

1. Senior Resident & Ph.D Scholar, 2. Professor & HOD
Department of Rachana Sharir, Faculty of Ayurveda, IMS, BHU.

Abstract

Ayurveda is an ancient health science devoted to the cure on human suffering and for the care of the health of the people. Injuries involving various types of the structures in the body like *dhamanis* (arteries), muscles, nerves, bones and the visceral organs in general and when in combination specifying *marma*. Among the hidden sciences of India, *marma* science is the most important. *Marmas* are not superficial landmarks on the body surface but these are deep-seated important physio-anatomical structures. *Marma* in *Ayurvedic* classics is illustrated as the vital point in human body, the injury of which leads to termination of life. Descriptions of 107 *marmas* given by all *acharyas* being classified into five varieties on the basis of structure involved; five on the basis of effect of injury and five on the basis of location on the body. According to anatomical consideration *marmas* can be divided into *mansa-marma*, *sira-marma*, *snayu-marma*, *sandhi-marma*, and *asthi-marma* (respectively, *marma* of muscle, blood vessel, ligament, joint and bone). According to *Vagabhatta* there are six types of *marma*. He has enumerated a sixth group of *marma* known as *dhamani marma*. *Dhamani marma* is one such vital region in human anatomy which falls under the classification on the basis of structure involved. This study is aimed to emphasize on why *Ashtanga Hridaya* has considered a separate group called *dhamani marmas* of which other *acharyas* have considered under different groups & finally to conclude with clearing out the controversy & thereby to fulfill the lacuna in the subject.

Keywords: *Ayurveda, Marma, Dhamani, Guda, Apastambha, Vidhura, Sringantaka*

Introduction

Marma is one of the most recognized subjects of *Ayurveda*. Instruction in battle field to protect *marma* (vital parts) and techniques of attacking *marma* places to inactivate the opponent are available in Vedas. These *marmas* are

mentioned and discussed in *Susruta-samhita* as anatomical consideration of different parts of the body. In the chapter on *marma*, in his commentary on the *Susruta-Samhita*, Dr. Ghanekar says-“The definition of *marma* is discussed in different texts as vital organs. In practice it is also apparent that any trauma to these vital parts may lead to death. It is also truth in reference to the heart and brain. Trauma to these parts may lead to loss of vitality so these parts are known as vital parts. The description of *marma* is an important part of *Ayurvedic* anatomy. There is no doubt that there is no proper assessment of the importance of these parts, but there is a very descriptive

*Corresponding Author:

Bhan Pratap Yadaw

Resident & Ph.D Scholar,

Deptt. of Rachana Sharir,

Faculty of Ayurveda,

IMS, BHU. Varanasi,

U.P., Pin-221005

Ph. No: +91-9451149505

E-mail: bhanpratapyadaw@gmail.com

discussion of many body parts available in this chapter, which is not discussed earlier” (1). The term *marma* is derived from the Sanskrita dhatu ‘mri’—*marma*, that means which causes death or disability. The literary meaning of *marma* is shape, element, life spot and conjugation of different body structures, essence and vital part. According to *Ayurvedic* definition, the points which are very vulnerable to injuries and may lead to complications or death are considered as *marmas* (2). It is apparent that there are certain important vital points (places) in the human body, which have hidden, secret and significant energy. *Acharya Susruta* gave much importance to *marma*, he told detailed description on *marma*, their types, numbers, locations and the symptoms if they are injured in *sharirasthana* 6th chapter (3). *Acharya Charaka* gave much importance to the *trimarmas-shira, hridaya & basti* among the 107 *marmas* by keeping physician in mind (4). Detailed description of *marma* is available in both *Astanga Hridaya* (*Sharirasthana* 4th chapter) and *Astanga Sangraha* (*Sharirasthana* 7th chapter) but only *Laghu Vagbhata* mentions about

dhamani marma. Detailed description of the anatomical structures related to the region of *marma* can be placed in various modern anatomy text books (5, 6).

Marma is the combination of *mansa, sira, snayu, asthi* and *sandhi*. Naturally these are life spots. According to *Vagabhatta* those places where any injury may lead to different kinds of pain and tremors are known as *marmas*. All *marmas* can be categorized in five groups, as well as a sixth one as specified by *Vagabhatta*.

- a) *Mansa marma* (*Marmas* of muscles)
- b) *Sira marma* (*Marmas* of blood vessels)
- c) *Snayu marma* (*Marmas* of ligaments/tendon)
- d) *Asthi marma* (*Marmas* of bones)
- e) *Sandhi marma* (*Marmas* of joints)
- f) *Dhamani marma* (*Marmas* of arteries)

This classification has been given by *Laghu Vagbhata* alone. Totally there are nine number of *dhamani marmas* explained in *Ashtanga Hridaya*. They are (1) *Guda marma-1*; (2) *Apastambha marma-2*; (3) *Vidhura marma-2*; (4) *Sringataka marma-4*.

Structural Classification of Marma

S.No.	Structural type of Marma	Sushruta	Astanga Hridaya	Remarks
1.	<i>Mamsa</i>	11	10	<i>Guda Marma</i> held as <i>dhamani Marma</i> by <i>Astanga Hridaya</i>
2.	<i>Sira</i>	41	37	4 <i>Sringataka Marma</i> held as <i>dhamani Marma</i> by <i>Astanga Hridaya</i>
3.	<i>Snayu</i>	27	23	<i>Kakshadhar & Vitap</i> have been upheld <i>Sira</i> by <i>Astanga Hridaya</i>
4.	<i>Asthi</i>	08	08	-
5.	<i>Sandhi</i>	20	20	-
6.	<i>Dhamani</i>	-	09	<i>Guda, Apastambha, Vidhura & Sringataka</i> are <i>Dhamani Marma</i>

Concept of dhamani

The *Atharvaveda* refers to *dhamanis*- which are ducts with thick walls equivalent to arteries; *siras*- which are ducts with thin walls equivalent to veins and still finer ducts are referred to as *snavas* similar to capillaries. *Acharya Charaka* starts from the root meaning of *dhamani*. *Dhamani* is pipe or tubular vessels or canal of the human body starting from heart or from the naval on supported to carry the *rasa*. According to *charaka 'Dhamanadhamanyah'* hence *dhamani* is that tract which produces sound (7). According to *sushruta*, *sira* & *dhamani* are the channels other than *srotas* (8). According *Susruta nabhi* is the site of origin of both *dhamani* and *sira* (9). Even in *Charaka*, *Astanga Sangraha* and *Astanga Hridaya*, *nabhi* word has been used in reference to fetal life. *Susruta* has himself shifted from his own view in relation to the origin of *dhamanis* from *nabhi* to *hridaya* in *sutrasthan 'sonitavarniya adhyaya'* (10). *Charaka* has also mentioned in 30th chapter of *sutrasthan* that the *dhamanis* arise from the *hridaya* (11).

According to *Susruta*, among the *dhamani* arising from the *nabhi*, ten spread upward, ten downward and four sideward (transverse) (12). *Charaka* said that 10 *dhamani* arises from *hridaya* (13). In *Astang Sangraha sharir6/9*, it is said that *dhamani* are twenty four; by them the entire body gets supplied with nourishment similar to a vast plot of land by canals carrying water; from them (*dhamani*) the *nabhi* is surrounded just as a axle hole is surrounded by the spokes (of wheel); at that umbilicus (centre) life is designed to dwell; hence it is seat of internal fire (14). *Bhavprakash* also said that *dhamanis* are originated from *nabhi* and are twenty four in number. From among them, ten spread upwards, ten downwards and four in different directions. These vessels have got minute outlets, through which *rasa* (nutrients) move in entirely similar to the

flower stalk of lotus where pores are present naturally.

Dhamani marma

According to *Astanga Sangraha*, the *marma* (vital spots) are so called because they cause death; and they are the meeting place of muscle, bones, tendons, veins and joints, life entirely resides in them (any injury or assault to these cause danger to life). They are classified on the predominant structure found in them (15). *Dr. Ghanekar* says that although, *marmas* are combination of *mamsa*, *sira*, *snayu*, *asthi* and *sandhi* but they are named according predominant structure in a particular region of the body. *Dhamani marma* is a result of this concept. In this reference *Acharya Dalhana* says that according to *ashraya* the type of *marma* may be more than described in *samhitas*, but they all are incorporated among five types. The sixth type of *marma* i.e. *dhamani marma* is point of discussion. According to *Astanga Hridaya*, *dhamani marmas* are nine ; *guda-1*, *apastamba-2*, *vidhura-2* and *sringataka-4* (16).

Guda marma

Guda marma is the part, which is attached to the large intestine and serves as the passage for stool and flatus. *Vagbhatta* also approves the anatomical part of description. This leaves no place for doubt, that the structure caudally attached to the end of the large intestine, is *guda*. So far as structural status of *marma* is concerned, *Susruta* upholds it *mamsa marma* where as school of *Vagbhatta* refers it, under *dhamani marma*. Thus a controversy is raised regarding its structural status. The work of *Susruta* is said to be about 1000 BC and *Vagbhatta's* work belongs to the period of five hundred fifty A.D. (550 AD). Examining from this angle, the view of *Vagbhatta* needs more weightage going throughout the *marma nirdesha* of *Susruta samhita*, it is for perusal that *Susruta* has not considered *dhamani marma* as separate

marma, but it shall be undermined thought that the school of *Susruta* was not clear about the differentiation of *dhamani* and *sira*. A thorough exploration of this chapter of *Susruta*, speaks itself that, it has considered *sira* as a vessel. In favor of this concept the structural classification of *marma* may be focused upon. While classifying the *marma* under *sira marma*, *neela* and *manya* have been considered as *sira marma*. But in the usual detailing of *sira marma*, it has been classified that *neela* and *manya* are not vein rather arteries. It is clear from this very fact that *Vagbhata's* classification of *dhamani marma* is nothing, but the sub-classification of *sira*. *Susruta* has considered *guda* under *mamsa marma* and *Vagbhata* classifies it under *dhamani marma* (17).

Apastambha Marma

Bilaterally on the chest there are two *vatahaha nadies*, which cause death on injury due to *kasa* and *swasa* by filling up thorax with *vayu*. This is *kalantar pranahar sira marma*. *Vagbhata* in *Ashtang Sangrah* is of view that an injury to this *marma* thorax fills up with the blood which produces *kasa* and *swasa*. But in *Ashtang hridaya* the situation of the *marma* has been mentioned bilateral to the *urah*. There are two *vatahaha nadies* (*dhamani marma*). Some commentators have interpreted two bronchi for this *marma*. *Dr. Ghanekar* has commented pneumothorax condition for this *marma* considering the traumatic effect. *Dr. Pathak* has presented the views of different treatises and tried to explain the version of *Susruta* and *Vagbhata*. He has accepted both the views and added few structures found joining the *apastambha marma*. 1. Bronchus, 2. Phrenic, 3. Vagus nerves, 4. Common carotid artery, 5. Subclavian vein. He has explained that anatomical considerations taken into account the *marmas* of *urah pradesh* other than *hridaya* are not important from the

determination of structure point of view. Thorax is filled up by firstly heart and secondly lungs. *Hridaya* is available as individual *marma* in treaties but rest of the *marma* in this region are somehow related to pulmones. That is why the traumatic effect of these *marma* is like lung conditions, for example plural effusion in *stanamoola*, hemothorax in *stanarohita*, and empyema thoracic in *apalap* and pneumothorax in *apastambha*. He has also dealt certain surgical conditions of the chest wall. Both of the lungs where right and left bronchi are situated should be included in this and since injury causes pneumothorax resulting in respiratory distress leading to death, it is possible that due to fracture of the bronchus the leakage of air through the vent of the bronchus may cause mediastinal surgical emphysema and hemothorax leading to serious complication like respiratory failure and death, thus two bronchi may be accepted as *marma*. This *marma* is *ardhanguli* in *pramana*. *Vagbhata* has slightly improved about this *marma* and has added two things to it that injury to this *marma* fills up thorax with blood which produces *swasa-kasa* (respiratory failure). The cause of blood in the thorax is *dhamani*. It appears that the injury of wind pipe along with vascular rupture would certainly cause hemothorax as well as pneumothorax, apparently this condition may commonly occurs at the site of hilus of the lung where wind tube and vessels enter or leave the platform (18).

Vidhura marma

Acharya Susruta and *Vagbhata* both considered *vidhur marma* under *vaikalyakara* category. In other classification *Susruta* has considered it under *snayu marma*, where as *vagbhata* considered it under *dhamani marma* on structural basis. It is located just behind and below to the auricle of the ear especially at the mastoid process and its size is around *ardhanguli* (nearly 1cm. in

radius) according to *Susruta*. In this account *Vagbhata* has repeated the same. Stylomastoid artery and facial nerve is specially found at the sight of *vidhura marma*. At remote level under the consideration of anatomical structures vestibule-cochlear nerve and the mastoid air cells can also be included under this as they have the values in the development of complication. Injury at *vidhura marma* may leads to deafness. Since *Susruta* has opined that *vidhura marma* is a *snayu marma* and also he has duly submitted the list of all the *marmas* with vascular significance *sira marma*. Here this is highly exciting to point out why not *vagbhata* followed the same features under *vidhura marma* as presented by *Sushrut*. What were his specific reservations on disclosing the *vidhura marma* with vascular significance especially putting in it the category of *dhamani marma*. Since *Sushrut* has presented *vidhura marma* under *snayu* category he would have certainly observed the facial nerve underlying at the site *marma*. What additional information *Vagbhata* could gather which had led him to say that *vidhura* is *dhamani marma* (19). Regarding the nerve cords present all over the body, *Susruta* has most likely considered these as *snayu* (ligaments) itself, since nerve cords and ligaments both resemble each other closely viz, both are white or slightly yellowish in color, solid, long, cylindrical and rope like structures. *Susruta* has counted quite a large number of *snayu* (ligaments) and classified these into four kinds. Among these the *vritta snayu* may be assumed a nerve cords (20).

Vagbhata had no doubt a highly, probing vision and analyzing grey matter, otherwise such exclusive performance was impossible, *dhamani* is very important structure which is almost developed to function for the supply of nutrients rich in *prana* factor. If arterial supply of an organ is cut it will certainly result into loss of function of that organ, specifying to

disability or otherwise because of severe loss of blood leading to death. Blood supply of tympanic membrane- tympanic membrane is very important part of the organ of hearing; it functions for the reception of the hearing impulse and transfer it to the auditory ossicles. Tympanic membrane functions through the way of vibration according to the incoming sound waves. The normal status of tympanic membrane specifying to normal hearing is maintained by the supply of blood through the following arteries- 1. stylomastoid artery branch of posterior auricular artery 2. anterior tympanic a branch of maxillary artery 3. deep auricular a branch of maxillary artery. *Vidhura marma* is presented by *Susruta* as *snayu marma*, where as the *marma* site has no structure except facial nerve as *snayu*, which itself has very remote relation with hearing. An injury involving facial nerve may only cause hyperacusia only if the branch supplying to stapedius muscle is affected. Quoting *vidhura marma* as *snayu marma* is not very significant. It is particularly because *Vagbhata* has referred it under *dhamani marma*. The presence of stylomastoid artery in this account is suggestive to confirm that version of *Vagbhata* at the point of *dhamani marma* has no controversy. Nerve structure at the level of the site of *vidhura marma* existing in the form of facial nerve is having a very remote value and the deafness is very rare with this. Therefore the values of stylomastoid artery are paramount and they only attract to the complication of deafness due to trauma(21).

Shringatak marma

According to *Susruta* it is a confluence of *siras* situated in between the veins nursing nose, ear, eye and tongue. They are four in number and produce instant death on injury. The structural status is *sira*. *Vagbhata* in *Ashtang Hridaya* has counted this *marma* under

dhamani marma. The *siras* nursing tongue, nose, eye, and ear meet in the region of *talū*, the mouth of the four of them is *shringatak*. *Dalhana* has clarified *Susruta's* view that confluence of four *siras* nourishing nose, ear, eye, and tongue and opening into the structure is known as *shringatak*. *Ghanekar* considers that confluence of cavernous and inter-cavernous sinuses situated in the base of skull is *shringatak*. Veins of eye directly drain into it; veins of nose and ear indirectly join it. Its shape is quadrangular. The *marma* is situated in head region though *Sushrut* has taken this *marma* under head-neck region (*urdhvajatrugat*) but the surface anatomy described in classical books localizes it in head region. *Vagbhatta* has clarified it by locating in *talū pradēsh* that means the correct situation of this *marma* is lying in *talū pradēsh* (roof of the oral cavity). The surface anatomy of it is the centre of the veins, nourishing eye, ear, nose and tongue. Moreover these *siras* meet in *talū pradēsh* where they open into the *sira* in structure known as *shringatak*. Therefore it is the structures *sira*, (vascular) in status, lying in the roof of the oral cavity, placed in between the *siras* nourishing eye, ear, nose and tongue and receives the openings of four veins. It is four in number, which is undisputed. According to *Sushrut* the structural status of this *marma* is *sira*, which has been contradicted by *Vagbhatta*. He has labeled it *dhamani* (artery). If the word *sira* of *Sushrut* is taken as vessels the controversy is resolved. The references are there which prove themselves that *Susruta's* general meaning of *sira* is vessel especially regarding *marmas*.

On the basis of the classical literature *Dr. Ghanekar* for the first time concluded cavernous and inter cavernous sinuses *shringatak marma*. Probably, he has concluded on the basis of idea given *Rasyogasagar*. Though, *Vagbhatta's* view as *dhamani marma* can also be justified by the intra cavernous internal carotid artery.

This is the only venous structure which could be known as venous as well as arterial in status. Therefore *Susruta's* view regarding *sira* (vessel) is very well justified by interpreting cavernous sinus as *shringatak marma*. It may be concluded obviously by above discussion, if *shringatak marma* is cavernous sinus then it is rare traumatic condition but equally instant fatal and usually associated with the basilar fracture (middle cranial fossa) of the skull(22).

Conclusion

Marmas are classified on the predominant structure found in them. Although, *marmas* are combination of *mamsa*, *sira*, *snayu*, *asthi* and *sandhi* but they are named according predominant structure in a particular region of the body. *Dhamani marma* is results of this concept; here surgical involvement of arteries is important. Here the number of total *marmas* (107) is same in both *Susruta* and *Astanga Hridaya*, number of types of *marma* is six i.e. *dhamani marma* is extra. Authors correlate *dhamani marma* to arteries accepting the definition that *dhamanis* are called because they pulsate. The nervous tissue, more than any other tissue of the body, depends for its normal functioning on the continuous supply of arterial blood. So, the importance of *dhamani* as a *marma* is well established.

References:

1. *Ghanekar B.G.*, Commentator, *sushruta samhita sharer sthan*, 6th chapter-pratyek *marmanirdesha shariram*, reprint, New Delhi, Meharchand *Lkshaman das Publications*, 2008, page-183
2. *Dr. Sunil Kumar Joshi*, *Marma Science and Princi ples of Marma Therapy*, First Edition, Delhi, *Vani Publications*, August 2010,, page-34
3. *Sushrutha. Yadavji Trikamji Acharya*, editor. *Sushrutha Samhitha* with

- Nibandha Sangraha of Dalhanacharya. 8thed. Varanasi: Choukhamba Surabharathi Publication; 2005.Pp-824, p369-376
4. Agnivesha. Yadavji Trikamji Acharya, editor. Charaka Samhitha, revised by Charaka & Dridabala, with Ayurveda Deepika commentary of Chakrapani Datha. Varanasi: Choukhamba Surabharathi; 2008. Pp-738, p-597
 5. William L Peter & Warwick Roger, editor. Gray's Anatomy.36th ed. Edinburgh: Churchill Livingstone;1980,Pp1578,p1358,p1359,p288-292,p293-314
 6. Romanes G J,editor. Cunningham's Manual of Practical Anatomy,15thed. New York: Oxford university press 1996; volume 2- Pp298,p11-77,p200-210 : volume 3-Pp346,p3-27,p35-92,p135-165
 7. Agnivesha, Arthedasamahamuliya 30th chapter, sutra sthan in Sharma RK and Dash B.Charaksamhita (with English translation and critical exposition based on Chakrapani dutt's Ayurveda dipika) vol I, Chowkhambha Sanskrita Series, Varanasi, sixth Edition;2009. p.596.
 8. Susruta, Dhamanivyakarna 9th chapter, sharirsthan in Murthy Shrikant KR, Susruta Samhita Vol. I, English translation Chowkhambha orientalia, Varanasi, Reprint edition; 2010.p.151.
 9. Susruta, Dhamanivyakarna 9th chapter, sharirsthan in Murthy Shrikant KR, Susruta Samhita Vol. I, English translation Chowkhambha orientalia, Varanasi, Reprint edition; 2010.p.141.
 10. Susruta, 'sonitavarniya adhyaya 14th chapter, sutrasthan in Murthy Shrikant KR, Susruta Samhita Vol. I, English translation Chowkhambha orientalia, Varanasi, Reprint edition; 2010.p.86.
 11. Agnivesha, Arthedasamahamuliya 30th chapter, sutra sthan in Sharma RK and Dash B.Charaksamhita (with English translation and critical exposition based on Chakrapani dutt's Ayurveda dipika) vol I, Chowkhambha Sanskrita Series, Varanasi, sixth Edition;2009. p.595.
 12. Susruta, Dhamanivyakarna 9th chapter, sharirsthan in Murthy Shrikant KR, Susruta Samhita Vol. I, English translation Chowkhambha orientalia, Varanasi, Reprint edition; 2010.p.141.
 13. Agnivesha, Arthedasamahamuliya 30th chapter, sutra sthan in Sharma RK and Dash B.Charaksamhita (with English translation and critical exposition based on Chakrapani dutt's Ayurveda dipika) vol I, Chowkhambha Sanskrita Series, Varanasi, sixth Edition;2009. p.595.
 14. Astanga Samgraha, Siravibhag 6th chapter, sharirasthan by Prof KR Srikantha Murthy English translation Vol. II Chowkhambha orientalia, Varanasi, reprint edition;2009. p.78-79.
 15. Astanga Samgraha, Marmavibhag 7th chapter, sharirasthan by Prof KR Srikantha Murthy English translation Vol. II Chowkhambha orientalia, Varanasi, reprint edition;2009. p.94.
 16. Astanga Hridaya, Marmavibhag 4th chapter, sharirasthan by Prof KR Srikantha Murthy English translation Vol. I Chowkhambha krishnadas academy, Varanasi, edition-7th 2010. p.428.
 17. Mishra JN, Chouhan Pradeep Kumar, Marma and its management,



- Chowkhambha orientalia, Varanasi, first edition; 2005.p.126-130.
18. Mishra JN, Chouhan Pradeep Kumar, Marma and its management, Chowkhambha orientalia, Varanasi, first edition; 2005.p.158-160.
19. Mishra JN, Chouhan Pradeep Kumar, Marma and its management, Chowkhambha orientalia, Varanasi, first edition; 2005.p.204-205.
20. Susruta, Dhamanivyakarna 9th chapter, sharirsthan notes in Murthy Shrikant KR, Susruta Samhita Vol. I, English translation Chowkhambha orientalia, Varanasi, Reprint edition; 2010.p.147.
21. Channamallikarjun et. al: A Critical Review of Vidhura Marma w.r.t. the Significance of Dhamani Marma, www.iamj.in IAMJ: Volume 1; Issue 5; Sept – Oct 2013
22. Mishra JN, Chouhan Pradeep Kumar, Marma and its management, Chowkhambha orientalia, Varanasi, first edition; 2005.p.219,221,223.
