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Review Article

A REVIEW ON COMPREHENSIVE UNDERSTANDING OF *APASTAMBHA MARMA* AND ITS CLINICAL SIGNIFICANCE

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ABSTRACT

The word *Marma* denotes the vital spots of the body. *Marma Shareera* is widely discussed in *Ayurveda*. The structural entity of these spots is not clearly explained in the classical texts so we cannot rule out the exact structural components involved. *Apastambha Marma* is one among 107 *Marma* explained in Classical textbooks. According to *Sushruta,* it is classified under *Sira* variety and it is an *Urogata Kalantara Pranahara Marma.* But *Vagbhata* has mentioned it as a type of *Dhamani Marma* on the basis of its structural entity. It measures about 1/2 *Angula Pramana*. *Acharya Sushruta* mentions its location as *Uras*, bilaterally where two *Vatavaha Sira* (tubular structures carrying air) are seen. *Vagbhata* says that it is situated in the *Uras* on both sides of the *Parshwa.* The *Viddha Lakshana* of this *Marma* as per *Sushruta* is *Vatapoornakoshtataya, Kasa, Shwasa* and *Marana.* However, there is a difference of opinion with *Vagbhata*; he has explained *Raktena Poornakoshta* instead of *Vatapoornakoshtataya*. **Result:** The marked area for the *Apastambha Marma* is at the level of 3rd costal cartilage on both the sides of the chest just lateral to the midline. As the measurement in *Angula* (1 cm) is not apparent so it is taken as the lengthwise, breadth wise and depth-wise. **Conclusion:** The area of about 2 cm lateral to carina which is the common site of injury in the bronchus can be taken as the site of *Apastambha Marma* as rupture of the bronchus leads to pneumothorax and the individual will show symptoms of breathing difficulty such as *Kasa*, *Shwasa* and in severe cases it may lead to the death. This explanation holds true for the *Viddha Lakshana* mentioned by *Sushruta*. Taking *Shonitapoornakoshta* this into consideration, pulmonary and bronchial vessels can be taken as the structures involved in *Apastambha Marma* which also holds good for the explanation of structural composition as per Vagbhata also i.e., it is a *Dhamani Marma*. Thus, we can conclude that the two Principal Bronchus along with the pulmonary vessels and bronchial vessels should be considered as the site of *Apastambha Marma*.

KEYWORDS: *Marma, Apastambha Marma, Sira, Dhamani.*

INTRODUCTION

The concept of *Pratyanga* was explained by *Sushruta* after explaining the formation of *Garbha* and definition of *Shareera.* He considered *Marma* as *Pratyanga* based on *Sankhya.*[1] *Marma Shareera* is one of the important topic discussed in Ayurveda. Different schools of thoughts have analyzed this subject differently and developed their own thoughts. *Acharya Charaka* has mentioned 107 *Marma* but he discussed mainly *Trimarma* namely *Hrudaya*, *Shiras* & *Basti*. [2] Acharya *Sushruta* also described in detail about these 107 *Marma* along with their *Viddha Lakshana*.[3] *Marma* is considered as half of the knowledge of *Shalyatantra*, as injury to these areas can be fatal; if anyone survives by the efficiency of the physician, he is sure to suffer from deformities post effect.[4] The *Apastambha Marma* is an *Urogata Kalantarapranahara Marma* and it is a *Sira Marma*. It is two in number. The injury effect of this *Marma* is mentioned as *Vatapoornakoshtataya*, *kasa*, *Shwasa* which ultimately leads to *Marana*. [5] There is also a mention of *Raktapoornakoshta* as the effect of injury and it is a type of *Dhamani Marma*. [6]

REVIEW OF LITERATURE

Anguli Pramana of *Apastambha Marma* is 1/2 Angula.[7] The measurement of half *Angula* is approximately 1 cm.[8] *Sushruta* mentions that it is located in the *Uras* on both sides where two *Vatavahasira* (tubular structures carrying air) are seen. The *Viddhalakshana* of this *Marma* is *Vatapoornakoshtataya, Kasa, Shwasa* and *Marana*. [9] *Vagbhata* says that it is situated in the *Uras* on both sides of the *Parshwa*. It is the site where *Vatavahasira* carrying *Anila* (air) are located. Injury to this *Marma*

will lead to *Raktena Poornakoshta*, *Shwasa*, *Kasa* and *Nashyate*.[10] According to *Aruna Datta*, it is mentioned that it is two in number.[11] Recent authors have correlated different locations for *Apastambha Marma*. It lies medial and downwards of the nipples at the level of the third thoracic vertebra. It controls *Kledakakapha, asthivaha and Medovaha srotas*.[12] In an article, it was mentioned that the area of *Apastambha Marma* corresponds to the bronchus and it is located in front of the chest, the divisions of the wind pipe which enter the lungs. Recent authors have also interpreted different structures to be correlated to *Apastambha Marma*. It was opined that the pulmonary artery and tributaries of pulmonary vein, descending aorta, drainage to pectoral group and tracheo-bronchial as well as broncho-pulmonary segments, pectoralis major, pectoralis minor and intercostal muscles are the structures which can be correlated to *Apastambha Marma*. [12] Reference of Phrenic nerve, Vagus nerve, common carotid artery and subclavian vein to be considered as *Apastambha Marma* was also found. Most of the references found for the structure to be considered as *Apastambha Marma* included bronchus as one of the common structure along with other structures. [13]

Kalantara Pranahara Marma possesses the qualities of *Soma* and *Agni*. *Agni* is quick in action and it will be extinguished immediately but the quality of Soma is such that it disappears gradually. Hence, when these two *Guna* are combined, they produce an effect which has the qualities of both and thus, its effect will be seen after a certain period of time and not immediately. [14]

Rapid accumulation of blood (*Raktapoorna koshta*) and air (*Vatapoornakoshta*) in thoracic cavity can be due to perforation of a lung or large bronchus. Pulmonary injury and injuries involving the pleural space includes pneumothorax and Haemothorax.

Pneumothorax refers to the presence of air in the pleural space which occurs when air leaks in to the space between the lung and chest wall. Thus, air pushes on the outside of the lung and makes it collapse.[15] It may be spontaneous or due to trauma to the chest. Traumatic pneumothorax is usually caused by some penetrating injury to the chest wall, but sometimes the trauma pierces the lung and thus leads to the accumulation of air within the pleural spaces.[16] Pneumothorax can be a complete lung collapse or a collapse of only a portion of the lung. [17] Pneumothorax may have as much clinical significance as a fluid collection in the lungs because it also causes compression, collapse and atelectasis of the lung and may be responsible for marked respiratory distress.[16] Its symptoms include sudden chest pain and shortness of breath.

Haemothorax refers to collection of blood between chest wall and lung. If the haematocrit is more than half of that in the peripheral blood, the patient is considered to have a haemothorax. [18] The most common cause is traumatic injury to the chest due to punctured wound from a broken rib or blunt force from car accident. This ruptured membrane spills blood into the pleural space which has no way to be drained. Its symptoms include chest pain especially when breathing. Massive haemothorax is when the accumulation of blood is large, being atleast 1000 millilitres (1 litre). This can lead to shock.

DISCUSSION

The location of *Apastambha Marma* is mentioned as bilateral of the chest where two *Vatavaha Nadi* (which purvey air) are situated. The gross location is marked laterally on the two sides of the third costal cartilage which roughly corresponds to the location of hila of the lungs. Both the hila of the lungs where right and left pulmonary bronchi are situated should be included in this as injury to this area causes pneumothorax resulting in respiratory distress leading to death which is the *Viddha Lakshana* mentioned for *Apastambha Marma*. The pulmonary root connects the medial surface of the lung to the heart and trachea and it is composed of a group of structures which either enter or exit the hilum. The structures are principal bronchus, pulmonary artery, two pulmonary veins, bronchial arteries and veins, a pulmonary autonomic plexus, lymph vessels, bronchopulmonary lymph nodes and loose connective tissue, all these are enveloped by the pleura. [19]

The *ApastambhaMarma* is 1/2 Angula. Half *Angula* is approximately 1 cm. [20] In classical texts, each *Marma* has its own dimension as- half *Angula*, One *Angula*, two *Angula*, three *Angula* and four *Angula* but the dimension of *Marma* is not mentioned in terms of length, breadth, and depth hence the measurement is taken in all these aspects.

As per Ayurveda classics each *Marma* is composed of *Mamsa*, *Sira*, *Snayu*, *Asthi* and *Sandhi* but out of this one structure is predominant in each *Marma* and hence it is classified accordingly. *Sushruta* has mentioned *Apastambha Marma* as a *Sira Marma*.[21] *Sira* are the tubular structures (nerve, vein, arteries, tendons etc.) in the body or the structures where the action of *Sarana* (continuous flow) takes place. According to *Acharya Vagbhata,* it is a *Dhamani Marma*. *Dhamani* is a structure which carry *Rasa* all over the body and maintains the *Poshana* of the body.[22] They are those structures that which blows or strokes and they start pulsating when they get filled with nutrient fluid.

The *Rachananusara* composition of *Apastambha Marma* includes the following: *Mamsa*: Pectoralis major muscle, External Intercostal muscles between 2nd and 3rd and 3rd and 4th costal cartilages, Internal Intercostal Muscles to the 2nd, 3rd and 4th ribs, Transversus thoracis Muscle; *Sira*: Bronchial Veins, Pulmonary Veins, Bronchi; *Snayu* (neuroconnective tissue): Elastic connective tissue which helps in recoiling of lungs, pleura, endothoracic fascia, phrenic nerve, Vagus Nerve, Pulmonary Plexus. *Asthi*: Ribs, 2nd, 3rd, 4th costal cartilages, incomplete or semicircular cartilaginous plates of bronchial tree. *Sandhi*: 2nd, 3rd & 4th costochondral junctions, region of carina, region between the manubrium sterni and body of sternum; *Dhamani*: Pulmonary Artery.

Marma are classified according to traumatological effect as- *Sadya Pranahara*, *Kalantara Pranahara, Vishalyagnya, Vaikalyakara,* and *Rujakara Marma.* The *Viddha Lakshana* of the individual *Marma* has also been explained by *Sushruta*. *Acharya Sushruta* and *Vagbhata* mentioned it as *Kalantara Pranahara Marma. Sushruta* mentioned the *Viddha Lakshana* of *Apastambha Marma* as *Vatapoornakoshtataya, Kasa, Shwasa* and *Marana* whereas *Vagbhata* mentioned it as *Raktapoornakoshta* instead of *Vatapoornakoshta*. *Kalantara Pranahara Marma* possess the qualities of *Soma* and *Agni*. *Agni* is quick in action and hence it will be extinguished immediately but the quality of *Soma* is such that it disappears gradually. Hence, when these two *Guna* are combined, they produce an effect which has the qualities of both thereby the effect will be seen only after acertain period of time and not immediately.

Sushruta opined that bilaterally in the chest are two *Vatavaha Nadi's* which cause death on injury due to symptoms like *Kasa* and *Shwasa* by filling up of thorax with *Vayu* whereas *Vagbhata* in *Ashtanga Sangraha* is of the view that the thorax gets filled with blood which in turn produces *Kasa* and *Shwasa* on injury to this *Marma*.

According to recent author, Dr. Patil, he has suggested that both the hila of lungs where right & left bronchi are situated should be considered as the site of *Apastambha Marma* as injury to this site causes pneumothorax resulting in respiratory distress leading to death. It is possible that due to trauma the fragments of ribs pierce the bronchus due to which there is leakage of air through the vent of the bronchus and may cause mediastinal surgical emphysema and haemothorax leading to serious complications like respiratory failure and death. It appears that the injury to windpipe along with vascular rupture would certainly cause haemothorax as well as pneumothorax, apparently this condition may commonly occur at this site of hila of the lungs where windpipe or vessels enter or leave the lung. [23]

The main presenting feature of chest injury was pneumothorax and haemopneumothorax (83 %) with the majority having fractured ribs.[24] Pneumothorax refers to the presence of air in the pleural space which may be spontaneous or due to trauma to the chest. A pneumothorax is collapsed lung which may be a complete lung collapse or of only a portion of the lung. It occurs when air leaks in to the space between the lung and chest wall. Haemothorax refers to collection of blood between chest wall and lung. The symptoms are chest pain especially when breathing, cold, pale or clammy skin, rapid heart rate, low blood pressure, tense, rapid or shallow breathing, feeling of restlessness, anxiety.

If the pulmonary artery is injured, there will be difficulty in breathing and in severe cases it may lead to death due to insufficient blood flow from the right ventricle to the lungs. However, there will be hypoxia of the lungs if the pulmonary veins are injured due to insufficient supply of blood (oxygenated) from the lungs to the heart. Blood gets accumulated in the pleural cavity which holds true for the *Viddha Lakshana* mentioned by *Vagbhata* i.e., *Shonitapoornakoshta* if the pulmonary vessels and bronchial vessels are injured at the point of *Apastambha Marma*. The amount of blood accumulated depends on the impact of injury. This shows that injury to the *Apastambha Marma has* led to entry of foreign substances with the rupture of blood vessels in the walls of the bronchus which in turn is responsible for symptoms like *Shonitapoorna koshta* (Haemothorax), *Kasa* (cough reflex) and *Shwasa* (breathlessness). Taking the *Viddha Lakshana* of *Kasa*, *Shwasa*, *Raktapoornakoshta* and *Marana* into consideration, pulmonary vessels and bronchial vessels can be taken as the structure involved in *Apastambha Marma*. It holds good for the explanation as per *Vagbhata* also i.e., it is a *Dhamani Marma.* When the phrenic nerve is injured, the symptoms seen are hiccups and the most severe impact is paralysis of the diaphragm which prevents the patient to be able to regulate breathing on his/her own. This structure can be taken into account considering the *Viddha Lakshana* of *Kasa, Shwasa* and *Marana.* Rupture of the bronchus leads to pneumothorax and the individual will show symptoms of breathing difficulty. When the mediastinal pleura is punctured pneumothorax can be seen which will cause breathing related symptoms such as *Kasa, Shwasa* and in severe cases it may lead to the death of the individual. Bronchus can be correlated to *Vatavahanadi* which *Sushruta* and

Aruna Dutta has clearly mentioned while mentioning the location of *Apastambha Marma* i.e., it is located on the two sides of the chest where the *Vatavahanadi* are situated. Traumatic rupture of the intrathoracic trachea and bronchus usually occurs due to compressive injury of the chest and the most frequent site is 2.5 cm of the carina especially in the main bronchi which is the site of *Apastambha Marma*. Minimal bleeding into thoracic cavity with tension pneumothorax can cause death several hours after injury.

CONCLUSION

Apastambha Marma is one among the 107 *Marma* of the human body. It is two in number. It is *Kalantara Pranahara Marma.* It is located in the *Uras*. Though it is mentioned as a *Kalantara Pranahara Marma* it can also lead to immediate death as it is a *Marma* and by definition of *Marma*, these are the vital spots in the body which causes severe pain and death. In other types of *Marma* other than the *Sadyapranahara Marma*, they can also lead to immediate death. We can take the bronchus along with pulmonary vessels and bronchial vessels as the site of *Apastambha Marma* which also justifies the explanation given by *Acharya Sushruta* and *Vagbhata* i.e., injury to this area will lead to respiratory distress such as cough, dyspnea, pneumothorax, haemothorax and death.

REFERENCES:

1. Acharya Y.T. Sushruta Samhita with Nibhandha sangraha commentary of Dalhanacharya. Reprint ed. Varanasi (India): Chaukambha Sankrit Sansthan; 2010.p.364.
2. Acharya J.T. Charaka Samhita with Ayurveda Deepika commentary of Chakrapani Datta. Reprint ed. Varanasi (India): Chaukhamba orientali; 2011.p.597.
3. Acharya Y.T. Sushruta Samhita with Nibhandha sangraha commentary of Dalhanacharya. Reprint ed. Varanasi (India): Chaukambha Sankrit Sansthan; 2010.p.369.
4. Acharya Y.T. Sushruta Samhita with Nibhandha sangraha commentary of Dalhanacharya. Reprint ed. Varanasi (India): Chaukambha Sankrit Sansthan; 2010.p.375.
5. Acharya Y.T. Sushruta Samhita with Nibhandha sangraha commentary of Dalhanacharya. Reprint ed. Varanasi (India): Chaukambha Sankrit Sansthan; 2010.p.373.
6. Paradakara HSS. Ashtanga Hridayam with Sarvanga Sundaram commentary of Arunadutta and Ayurveda Rasayana of Hemadri. Reprint ed. Varanasi (India): Chaukhambha Sanskrit Orientalia; 2010.p.411.
7. Raja Radhakantadeva. Shivaradaprasadvasuna and Sriharicharanavasuna, editor. Shabda kalpadruma 3rd Part. Delhi: Naga publishers; Reprint: 1987; Pp- 792; P-324.
8. Acharya Y.T. Sushruta Samhita with Nibhandha sangraha commentary of Dalhanacharya. Reprint ed. Varanasi (India): Chaukambha Sankrit Sansthan; 2010. p.370.
9. Sushruta. Vaidya Jadavji Trikamji Acharya and Narayan Ram Acharya, editor. Sushruta Samhita with the Nibandha Sangraha commentary of Sri Dalhanacharya and the Nyaya Chandrika Panjika commentary of Gayadasacharya. Varanasi: Chaukhamba Surbharati Prakashan; Reprint: 2012; Pp-824, P-373.
10. Paradakara HSS. Ashtanga Hridayam with Sarvanga Sundaram commentary of Arunadutta and Ayurveda Rasayana of Hemadri. Reprint ed. Varanasi (India): Chaukhambha Sanskrit Orientalia; 2010.p.411.
11. Paradakara HSS. Ashtanga Hridayam with Sarvanga Sundaram commentary of Arunadutta and Ayurveda Rasayana of Hemadri. Reprint ed. Varanasi (India): Chaukhambha Sanskrit Orientalia; 2010.p.411.
12. Lele A, Ranade S, Frawly D. The Secrets of Marma – The Lost Secrets of Ayurveda. Delhi: Chaukhambha Sanskrit Pratishthan; reprinted, 2011.p.68. Varanasi: Chaukambha Sanskrit Sansthan; 2010. p.371-72,377.
13. Gopal U.B, Sanjay B.S, Shankara B et al. A Review on Apastambha Marma. IJRAP.2016; Vol 7(2):p.1-3.
14. Sushruta, Sushruta Samhita with Nibandha sangraha commentary of Sri Dalhanacharya & the Nyayachandrika Panjika of Sri Gayadasacharya on Nidanasthana edited by Vaidya Yadavji Trikamji Acharya. Reprint ed.
15. Bintcliffe, Oliver; Maskell, Nick (8 May 2014). Spontaneous Pneumothorax. BMJ (Clinical Research Ed)348: g2928.doi:10.1136/bmj.g2928.PMID 24812003.
16. Kumar V, Abbas A.K, Fausto N, Aster J.C. Robbins and Cotran Pathologic Basis of Disease. 8th ed. Philadelphia: Saunders; reprint 2011:p.732.
17. Snell R.S. Clinical Anatomy for Medical Students. 6th ed. United States: Lippincott Williams & Wilkins; 2000:p.126.
18. Fauci A.S, Braunwald E, Kasper D.L, Hauser S.l, Longo D.L, Jameson J.L, Loscalzo J. Harrison's Principles of Internal Medicine. 17th ed. United States: The McGraw-Hill Companies, Inc; 2008:p.1659.

19. Bannister L.H, Berry M.M, Collins P, Dyson M, Dussek J.E, Ferfuson M.W.J. Gray's Anatomy. 38th ed, United Kingdom: Harcourt Publishers; reprint 1999: p.1659.
20. Vishwanath K, Concept of Pramana Shareera with special reference to determine the stature from Prabahu (Brachium), Dissertation. Bangalore: Rajiv Gandhi University of Health Sciences; 2006.
21. Sushruta, Sushruta Samhita with Nibandha sangraha commentary of Sri Dalhanacharya & the Nyayachandrika Panjika of Sri Gayadasacharya on Nidanasthana edited by Vaidya Yadavji Trikamji Acharya. Reprint ed. aranasi: Chaukambha Sanskrit Sansthan; 2010. (Sushruta Sutrasthana 25/34-35).p.373.
22. Paradakara H.S.S. Ashtanga Hridayam with Sarvanga Sundaram commentary of Arunadutta and Ayurveda Rasayana of Hemadri. Reprint ed. Varanasi (India): Chaumkhambha Sanskrit Orientalia; 2010.p.414.
23. Mishra J.N. Chouhan P.K. Marma andIts Management. Varanasi Chaukhambha Orientalia. 1st ed. 2005, p.157-161.
24. Kalyanaraman R, De Mello WF, Ravishankar M. Management of Chest Injuries- A 5 Year Retrospective Study. Injury. 1998; Vol 29: 443-6.

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