ISSN 2456-3110
Vol 9 · Issue 6
June 2024

JAiMS
INTERNATIONAL

Journal of Ayurveda and Integrated Medical Sciences

www.jaims.in

JAIMS

An International Journal for Researches in Ayurveda and Allied Sciences

Maharshi Charaka
Ayurveda

Indexed

Journal of
Ayurveda and Integrated Medical Sciences
ISSN 2456-3110
REVIEW ARTICLE June 2024

A review on *Aplap Marma* and *Apastambha Marma*

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ABSTRACT

Ayurveda is a science of mental, physical and spiritual well-being. *Marmas* is one of the most important concepts of *Ayurveda*. According to some *Acharyas*, *Marmas* are defined as the anatomical places where *Mansa, Sira, Snayu, Asthi, Sandhi* meet together. Total number of *Marma's* is 107. Out of these *Aplap* and *Apastambha Marma* are considered as a *Madhyasharirgata Marma* (*Urogata Marma*). According to effect both are *Kalantar Pranhar Marma* and 2 in numbers. In this article an attempt is made to highlight the Anatomy, Position and Importance of *Aplap* and *Apastambha Marma* with its *Viddha Lakshanas* given in the *Ayurveda* literature.

Key words: *Aplap Marma, Apastambha Marma, Urogata Marma, Kalantar Pranhar Marma*

INTRODUCTION

Ayurveda is a science of mental, physical and spiritual well-being. *Ayurveda* emphasizes good health and prevention and treatment of illness through lifestyle practices.[1] *Marmas* is one of the most important concepts of *Ayurveda*. According to some *Acharyas*, *Marmas* are defined as the anatomical places where *Mansa, Sira, Snayu, Asthi, Sandhi* meet together.[2] *Marmas* are body's vital points where *Prana* resides, injuries to them cause death or disability in the body which is difficult to cure. *Marmas* are considered to be *Vishayardha* of *Shalya* as they are delicate structures and to be protected during surgeries.[3] *Acharyas* like *Sushruta, Charaka* and *Vagbhata* has mentioned total 107 *Marmas* in the body. *Marmas* are classified on different basis like structural or body organs involved, Effect of Trauma over the *Marma* area, Sites and locations of *Marmas,* Measurement/dimention of the *Marma* and by their *Sankya* (number of Marma).[4] The *Aplap* and *Apstambha Marma* are comes under *Urogata Marmas* (Marmas of chest region). The location of *Aplap Marma* is below the *Amsakuta* & above the *Parshwa* whereas the *Apstambha Marma* is present on either side of the chest.[5]

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Submission Date: 14/04/2024 Accepted Date: 22/05/2024

Access this article online

Quick Response Code

Website: www.jaims.in

DOI: 10.21760/jaims.9.6.24

LITERATURE REVIEW

Aplap Marma

According to *Acharya Sushrut* the *Aplap Marma* is situated below both *Ansakuta* and above in the lateral flanks. *Acharya Vagbhatta* also mentioned that it is situated in between the back and chest below the *Ansakuta.*

अंसकूटयोरधस्तात पार्श्वोपरिभागयोरपलापौ नाम,

तत्र रक्तेन पूयभाव गतेन मरण ॥ सू.शा.६/२६ [6]

पृष्ठवंशोरसोमध्ये तयोरेव च पार्श्वयो: | अधोअंसकूटयो विद्यादपलापख्य मर्म तयो: कोष्ठेअसृजापूर्णे नश्येया तेन पूयताम || अ.ह्र.शा ४/१६[7]

Classification of *Aplap Marma*

- Dimension - *½ Angul*
- Effect - *Kalantar Pranahar Marma*
- *Shadanganusar - Madhyasharirgata Marma*

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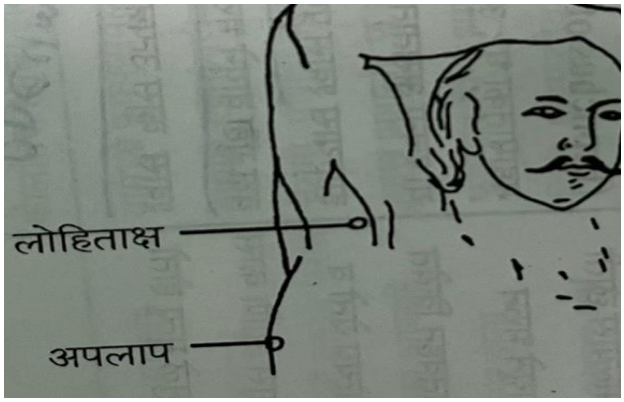
- Structural basis - *Sira Marma*
- Number – 2



Regional anatomy of *Aplap Marma*[5]

- *Mamsa* - Pectoralis major & minor
- *Sira* - Axillary artery, Superior thoracic artery, acromiothoracic artery, lateral thoracic artery, subscapular artery, lymphatics & lymph glands.
- *Snayu* - Clavipectoral fascia, brachial plexus
- *Asthi* - Ribs, scapula & clavicle
- *Sandhi* - Gleno-humeral joint.

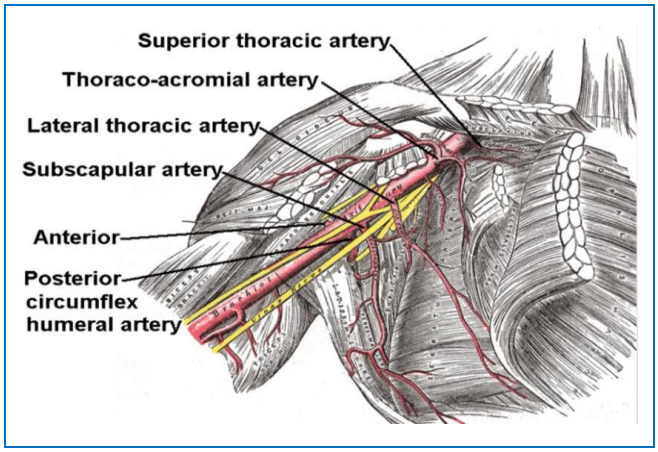
Axillary artery[8]

- Origin - at the lateral margin of the first rib, before which it is called the subclavian artery.
- The pectoralis minor muscle is used as a landmark for dividing the axillary artery into three parts:

1. First part - the part of the artery superior to the pectoralis minor.
2. Second part - the part of the artery posterior to the pectoralis minor.
3. Third part - the part of the artery inferior to the pectoralis minor.

Branches of axillary artery

- Superior thoracic,
- Thoracoacromial,
- Lateral thoracic,
- Subscapular,
- Anterior circumflex humeral,
- Posterior circumflex humeral



Brachial plexus[9]

- The brachial plexus is a network of nerves formed by the anterior rami of the lower four cervical nerves and first thoracic nerve (C5, C6, C7, C8, and T1).
- This plexus extends from the spinal cord, through the cervico-axillary canal in the neck, over the first rib, and into the armpit.
- It supplies afferent and efferent nerve fibers to the chest, shoulder, arm, forearm, and hand.

Clinical significance

A significant injury to the axillary artery will often present with one or more of the hard signs of vascular injury (loss of pulse, active arterial haemorrhage, expanding haematoma and bruit / thrill over a haematoma) indicating ischaemia and / or active haemorrhage. Clinical symptoms due to trauma include cardiac arrest or hemodynamic insufficiency due to massive hemorrhagic or cardiac tamponade, and dyspnea due to hemothorax or hemoptysis.

Apastambha Marma

According to *Acharya Sushrut* the location of *Apstambha Marma* is mentioned as on the two sides of the chest, which purvey air. In *Astanga Hridaya*, *Viddha Lakshana* of the *Apastambha Marma* is mentioned as the *Raktena Purna Kosta*[10] (accumulation of blood in the chest) instead of *Vata Purna Kosta* as mentioned in *Susruta Samhita*.[11]

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उभयत्रोरसो नाडयौ वातवहे अपस्तंभौ नाम

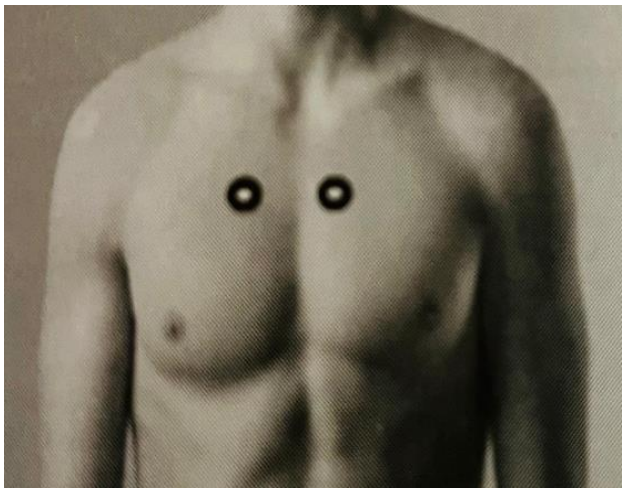
तत्र वातपूर्णकोष्ठतया कासश्वासाभयां च मरणम ॥ सु.शा.६/२६[6]

अपस्तम्भावुर: पार्श्वे नाड्यावनिलवाहिनी |

रक्तेन पूर्णकोष्ठ्योत्र श्वासात्कासाच्च नश्यति || अ.ह्र.शा ४/१५[7]

Classification of *Apstambha Marma*-

- Dimention - 1/2 *Angul*
- Effect - *Kalantar Pranahar Marma*
- *Shadanganusar - Madhyasharirgata*
- Structural basis - *Sira Marma (Su.)/Dhamani Marma (Va.)*
- Number – 2



Regional anatomy (*Marma Vastu*)[5]

- *Mamsa* - Bronchus, Bronchiole
- *Sira* - Bronchial artery & vein, Pulmonary artery & vein, common carotid artery, sub clavian artery
- *Snayu* - Phrenic & Vagus nerve,
- *Asthi* - Ribs, sternum, 3rd thoracic vertebra
- *Sandhi* - Sterno-costal joint

Bronchus[12]

- Trachea ends at the level of the sternal angle (T5) where it divides into two main bronchi, one for each lung. Each main bronchus branches out into smaller intrapulmonary bronchi that supply air to the various pulmonary lobes and segments.
- Beyond moving air throughout your lungs, the bronchi are responsible for protecting your lungs from possible infection or injury. Mucus cells lining the bronchi moisturize the air as it enters your lungs.
- Clinical significance - Bronchial injury is rare and serious complication after a blunt trauma, It can lead to recurrent pneumothorax, empyema, atelectasis, pneumonia, mediastinitis and respiratory failure.

Pulmonary vessels[13]

- The pulmonary arteries and the pulmonary veins are the vessels of the pulmonary circulation; which means they are responsible for carrying the oxygenated blood to the heart from the lungs and carrying the deoxygenated blood from the heart to the lungs.
- Main pulmonary artery divides into right pulmonary artery and left pulmonary artery. Your right and left pulmonary arteries lead to your right lung and left lung, respectively.
- Clinical significance
    1. Injury to pulmonary vessels leads to symptoms like breathing difficulty, stridor, and respiratory failure due to airway blockage, subcutaneous emphysema, hoarseness of voice or aphonia, haemoptysis, and other symptoms due to associated injury.
    2. Clinical findings of tracheobronchial injuries (TBIs) include subcutaneous emphysema, pneumomediastinum, and pneumothorax.[14]

Phrenic nerve[15]

- The Phrenic nerve is a mixed nerve arising from the anterior rami of C3-C5 spinal nerves, which are components of the cervical plexus.
- It arises in the neck and descends vertically through the thorax to end on the diaphragm.
- It is the only nerve that provides motor innervation to the diaphragm, with the left and right phrenic nerves innervating their corresponding ipsilateral hemidiaphragms.

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- Thus, the phrenic nerve stimulates the movements and plays a crucial role in breathing.
- Clinical Significance - Injury to one phrenic nerve leads to paralysis of the ipsilateral diaphragm, often leading to symptoms of dyspnea, may improve with time. If both phrenic nerves are injured, both diaphragms are affected.

Discussion and Conclusion

The location of *Apalap Marma* is considered below both *Ansakuta* and above in the lateral flanks. *Viddha Lakshanas* of *Aplap Marma* includes *Rakta Puyatwa* & leads to death. *Acharya Sushrut* and *Vagbhata* mentioned it as a *Sira Marma* (blood vessels). As above given structures can be correlated to the *Aplap Marma* are mainly axillary artery with its branches & brachial plexus. A significant injury to the axillary artery will often present with one or more of the hard signs of vascular injury (loss of pulse, active arterial haemorrhage, expanding haematoma and bruit / thrill over a haematoma) indicating ischaemia and / or active haemorrhage. Clinical symptoms due to trauma include cardiac arrest or hemodynamic insufficiency due to massive hemorrhagic or cardiac tamponade, and dyspnea due to hemothorax *(Raktpurn Koshta*) or hemoptysis *(Rakta Puyatwa*). A study performed by McCready RA., Procter CD. & Hyde GL and published in journal of vascular surgery. 3(1):24-31, 1986, also proved that traumatic vascular injuries to the axillary and subclavian vessels are often associated with formation of hematoma that leads to permanent neurologic impairment by compression or direct injury to the brachial plexus.

The location of *Apastambha Marma* is considered as in the chest bilaterally. The number of *Marma* mentioned are two and that which conduct *Vayu* (air). Hence this description goes in favour of principle bronchus carrying the respiratory air to the lungs. The trachea cannot be considered because the number of trachea is only one.[16]

Apastambha Marma is considered structurally under *Sira/damani Marma*, which is considered commonly as blood vessels. Here it can be correlated with Pulmonary vessels and Phrenic nerve. The *Viddha Lakshana* of the *Apastambha Marma* is mentioned as *Vata Purna Kosta* (Pneumothorax) in *Sushruta Samhita* and as *Rakta Purna Kosta* (Haemothorax) in *Astanga Hridaya*. But the symptoms like *Kasa* (Cough), *Swasa* (Breathlessness) and *Marana* (Death) are similar in both the texts. These symptoms can be correlated with Bronchial injury which leads to recurrent pneumothorax, empyema, atelectasis, pneumonia, mediastinitis and respiratory failure. And Injury to pulmonary vessels leads to symptoms like breathing difficulty, stridor, and respiratory failure due to airway blockage, subcutaneous emphysema, hoarseness of voice or aphonia, hemoptysis. tracheobronchial injuries (TBIs) include subcutaneous emphysema, pneumomediastinum, and pneumothorax.

The incidence of airway injury is about 1–3% of all blunt chest injuries. Approximately 75% of the injuries occur within 2 cm from the carina which goes in favour of *Ardhangulapramana* of that particular part.[17] Considering the literature related to *Apastambha Marma* and different case reports, the area about 2 cm lateral to carina which is the common site of injury in the bronchus can be taken as location of the *Marma.* As it is a *Sira/Dhamani Marma* it is better to include the pulmonary vessels under the *Marma* responsible for maintaining the patency of *Vatavaha Nadi*.[11]

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How to cite this article: Snehal R Bisen, Diksha R Kapgate, Gopal B Sharma. A review on Aplap Marma and Apastambha Marma. J Ayurveda Integr Med Sci 2024;6:159-163.
http://dx.doi.org/10.21760/jaims.9.6.24

Source of Support: Nil, **Conflict of Interest:** None declared.

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