

## A CRITICAL STUDY OF SIRAMARMA WITH SPECIAL REFERENCE TO APALAPA MARMA CHIKITSA



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**ABSTRACT-**

**Background:** The science of Ayurveda is timeless. Ayurvedic classics convey several ideas. Among them is the idea of Marma. One of the key subjects covered in Ayurveda is marmasharira. The body's marma is an essential component. The purpose of this study is to examine the regional anatomy of Apalapa Marma in relation to Sira Marma.

**Material and Methods:** Modern science and traditional Ayurvedic literature. Marma dissection is carried out at the Apalapa location, and pertinent photos were collected.

**Observation and Results:** Five cadavers were dissected for this study, and observations were made at the dissection site along with pertinent photos. The results of these observations were then tallied and shown.

**Discussion:** The *Apalapa marma* is one among the *urogata sira marma*, and its location is in the upper part of the *parshwa* (flank), below the *Amsakuta*, having  $\frac{1}{2}$  *angula* in measurement.

**Conclusion:** Consequences of trauma at the site of axilla and thoracic cavity resembles effect of injury as mentioned by *Acharya Susruta* for *Apalapa Marma*.

**Keywords:** *Sira marma*, *Angula pramana*, trauma.

**Introduction:**

*Ayurveda* is an eternal science. Many concepts are explained in the classics of *Ayurveda*. The concept of *Marma* is one of them. *Marma sharira* is one of the important topics discussed in *Ayurveda*. *Marma* is a vital part of the body. Any injury to the *Marma* leads to damage of the local structure, resulting in severe pain, loss of movement, deformity, and sometimes death<sup>[1, 2, & 3]</sup>. *Acharya Susruta*, the father of surgery, is

recognized for his work in the field of anatomy and his interest in traumatology. He keenly observed the injuries of war and collected the data. He applied all the collected information to devise a science to help the injured. These concepts of traumatology were documented in his *Sushruta Samhita* under *Sharira sthana*, where he has elaborated 107 *Marmas*<sup>[4]</sup>. Thus, from a surgical point of view, knowledge of *marma* is important.

1. *Vaidya* in olden times had to deal with more emergencies during the time of war, and it might have been the reason why *marma* was given utmost importance in our *samhitas*.

2. The present work is taken up with an idea of updating the concept of *URAS-GATA SIRA MARMAS* in view of REGIONAL ANATOMY and their APPLIED ANATOMY.

- Applied anatomy provides knowledge of the practical application of anatomical knowledge for diagnosis and treatment.
- **Aplap Marma.** According to Acharya Sushrut, the Aplap Marma is situated below both Ansa and above in the lateral flanks. Acharya Vagbhata also mentioned that it is situated between the back and chest, below the Ansa.
- The *marma* that dominates *sira* in comparison with other *marma vastu* is known as *sira marma*. They are 41 in number.
- The **Siramarma are 41** in number; they are as follows:

- a. **Neela** 2 in number
- b. **Manya** 2 in number
- c. **Matrika** 8 in number
- d. **Sthapani** 1 in number
- e. **Phana** 2 in number
- f. **Stanamula** 2 in number
- g. **Hridaya** 1 in number
- h. **Nabhi** 1 in number
- i. **Parshwasandhi** 2 in number
- j. **Brhati** 2 in number
- k. **Lohitaksha** 4 in number
- l. **Urvi** 4 in number
- m. **Shringataka** 4 in number
- n. **Apanga** 2 in number
- o. **Apastambha** 2 in number

“अंसकूटयोरधस्तातपाश्चोपरभागयोरपलापौनाम,  
तत्रस्केनपूयभावागतेनमरण॥सू.शा.६/२६  
पृष्ठवंशोरसोमध्येतयोरेवचपाश्चवयोः।  
अधोअंसकूटयोवद्यादपलापख्यमवतयोःक्रोष्ठेअसृजापूणेनश्येद्यातेनपूयताम॥  
अ.ह.शा ४/१६”

#### Classification of Aplap Marma:

- **Dimension**- $\frac{1}{2}$  Angul
- **Effect**-Kalantar Pranahar Marma
- **Shadanganusar**-Madhyasharigata Marma
- **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**- Glenohumeral joint. *Sira Marma*

#### 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:
- **The first part**—the part of the artery superior to the pectoralis minor.
- **Second part**—the part of the artery posterior to the pectoralis minor
- **The third part**—the part of the artery inferior to the pectoralis minor.

#### Branches of the axillary artery:

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

#### 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 hemothysis.

#### Aim and Objectives:

- **Aim:** Study on *Sira Marma* w.s.r. to the regional anatomy of *Apalapa Marma*.
- **Objectives:**
  - ✓ To locate the site of *Apalapa marma*.
  - ✓ To study the regional anatomy of *Apalapa*.

#### Material and Methods:

##### Material:

1. Instruments required for cadaver dissection.
  - ✓ Artery forceps
  - ✓ Tooth forceps
  - ✓ Blunt forceps
  - ✓ Pointed forceps
  - ✓ B P handle, blade (22 number )
  - ✓ Allies forceps
  - ✓ Babcock forceps
  - ✓ C retractor
  - ✓ Hecksaw blade with holder

2. Vernier calipers, measuring tape—for locating the *Marma*.

Cadavers (03) have been provided by the Department of Rachana Sharira, OMAyurveda college, Betul, M.P.

- **Inclusion criteria:** Cadavers that are properly preserved.
- **Exclusion criteria:** Cadavers with deformity in the thoracic region and axilla.

**Method:**

1. Three cadavers were selected which falls under the inclusion criteria.
2. As per the opinion of *Acharya Sushruta*, the site of *Apalapa Marma* was located.
3. Dissection of the *Apalapa Marma* region was

performed using the instruments, the regional anatomy of the *Apalapa Marma* region was done, structures were identified, and relevant photographs were taken.

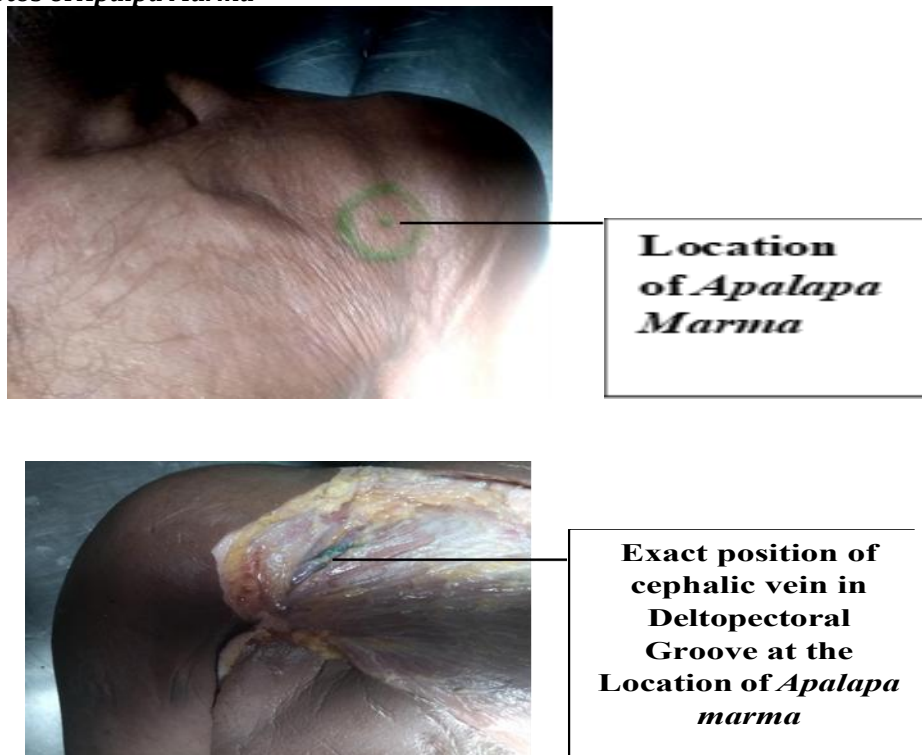
**Observation and Results:**

**Locating the site of *Aplapa marma*-**

- ✓ Measurement of *Angula pramana* was noted by measuring the width of the proximal interphalangeal joint in every cadaver using the vernier calipers.
- ✓ *Aplapa marma* was located below the *amsakuta* (coracoid process), and at the upper part of the *parsva* (flank). A point is noted at this site, and a circular area is marked with 1/2 *angula* diameter.

**Photos**

**Dissection photos of *Apalapa Marma***



**Fig. 2** Exact position of cephalic vein in deltopectoral groove at the location of *Apalapa marma*

Table 1 shows *Angulapramana* in all 3 cadavers.

| Sr. N | Cadaver | Side  | <i>Angulapramana</i> in Cm |
|-------|---------|-------|----------------------------|
| 1     | First   | Right | 2.13                       |
| 2     |         | Left  | 1.90                       |
| 3     | Second  | Right | 1.60                       |
| 4     |         | Left  | 1.60                       |
| 5     | Third   | Right | 1.31                       |
| 6     |         | Left  | 1.31                       |

**Structure observed in dissection at the site of *Apalapa marma***

1. Superficial fascia
2. Fat
3. Delto pectoral groove containing cephalic vein
4. Deep fascia or deep pectoral fascia
5. In the axillary fold occasional lymph nodes.
6. Pectoralis major

**Table-2** Comparison of structures found in all Three cadavers

| S.N. | Structure                                     | First |    | Second |    | Third |    | total |
|------|---|-------|----|--------|----|-------|----|-------|
|      |   | Rt    | Lt | Rt     | Lt | Rt    | Lt |       |
| 1    | Superficial fascia                            | 1     | 1  | 1      | 1  | 1     | 1  | 6     |
| 2    | Fat   | 1     | 1  | 1      | 1  | 1     | 1  | 6     |
| 3    | Deltopectoral groove containing cephalic vein | 1     | 1  | 1      | 1  | 1     | 1  | 6     |
| 4    | Deep fascia or deep pectoral fascia           | 1     | 1  | 1      | 1  | 1     | 1  | 6     |
| 5    | Lymph node                                    | 1     | 1  | 1      | 1  | 1     | 1  | 6     |
| 6    | Pectoralis major                              | 1     | 1  | 1      | 1  | 1     | 1  | 6     |

1=present,0=absent

**Discussion:**

The dissection of the site of *Apalapa Marma* was conducted in 3 cadavers. The observation reveals the following structures in the site of *Apalapa marma*: superficial fascia, fat, deltopectoral groove containing cephalic vein, axillary vein with apical lymph node, and pectoralis major muscle. Lymph nodes were absent in 2 cadavers; other structures were present in all 5 cadavers.

The delto pectoral groove or triangle is the triangular space formed by the clavicle, the lateral border of the pectoralis major, and the lateral border of the deltoid muscle. This gap is not covered by any extra thoracic muscle of the pectoral region. This may be a vulnerable sight were damage to the cephalic vein, axillary vessels may occur by any piercing injury.

Such injury may result in hemorrhage, which may collect in the axilla. If this condition is not treated, it may result in septicemia and death.

At this site of *Apalapa marma*, the veins are more vulnerable because they are superficial in position. In the superficial fascia, i.e., in the

deltopectoral groove, there is the cephalic vein, and deep to the pectoralis major muscle lies the axillary vein, and damage to these vessels is likely to occur as the axillary vein overlaps the axillary artery.

There is no description regarding the specific regional anatomy of *Apastambha marma* available in the classical texts of Ayurveda. *Sushruta Samhita* has directly specified the organs by quoting *vata-vaha-nadi* and mentioned their number as two, and they are located within the thoracic cavity. This description goes in favour of the principal bronchus carrying the respiratory air to the lungs.

The trachea cannot be considered here, as the number of tracheae is only one. By considering the above facts, the region of the *Apastambha marma* is inferred as the site of the root of the lungs. The dissection of the site of *Apastambha marma* was carried out in 05 cadavers, and it revealed the following structures:

They are the thoracic wall, mediastinum (middle mediastinum), right and left principal bronchi,

right and left phrenic nerves, right and left pulmonary trunk, right and left pulmonary arteries, right and left bronchial artery and vein, broncho-pulmonary lymph nodes, and anterior and posterior pulmonary plexus of nerves.

*Sushruta Samhita* has mentioned injury to the *Apastambha marma*. This phenomenon suggests the consequence of injury to the principal bronchus. The other symptoms include *shwasa* (dyspnoea), *kasa* (cough), and *marana* (death).

Gunshot wounds of the tracheobronchial tree have a higher rate of mortality due to inadequate availability of replacement of tracheobronchial defects.

### Conclusion:

After going through the literature review, observational study—results of observation and critical discussion on literary review and observational results—the following conclusions have been drawn:

The *Apalapa marma* is one among the *urogata sira marma*, and its location is in the upper part of the *parshwa* (flank), below the *Amsakuta*, having  $\frac{1}{2}$  *angula* in measurement.

As per contemporary anatomy, the site of *Apalapa* can be considered the deltopectoral triangle, which is located below the level of the clavicle and coracoid process.

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