ANATOMICAL STUDY OF KAKSHADHRUKA MARMA WITH SPECIAL REFERENCE TO VAGHBHATA SAMHITA

Amrutraj Ashok Patil¹, Pramod Appasaheb Budruk²

¹PG Scholar, ²Professor Department of Rachana Sharir, ADAMC, Ashta, Sangali, Maharashtra, India

INTRODUCTION

Marma Vigyana was developed as science of war. There are so many references from Vedas regarding attack on marma sthana of enemies and protecting one’s marmas by wearing protectants. Even in today’s fast life, it is very important to protect our marma sthanas because of heavy road traffic which results in accidents causing injury to Marmas. Developing science invents new military armaments increasing severity of injury during war.

The description of Marma is specialty of Ayurveda. This is a part of Ayurveda Sharir Shastra. Such a description is not seen in any of the Medical System. Knowledge of marmas exists from very ancient time of Vedas (Holy books). But its development took place from Indus valley civilization to the time period of Acharya Charaka, Sushruta and Vaghbhata. Acharya mentioned the total number of Marmas are 107. Acharya Sushruta classified marma as Mamsa

ABSTRACT

Ayurveda is one of the most reliable and complete ancient medical science which have proved for more than 5000 years. Even though the modern science is changing from time to time ayurveda has maintained its special place till death. Firm unions of Mamsa, Sira, Snayu, Asthi, Sandhi and Dhamani are called as marma; which naturally and specifically form the seats of life (Vital parts). Detail knowledge of marma is important from surgical point view; surgical procedures like Agnikarma, Ksharkarma and Shastrakarma are used as part of surgery. While conducting these surgical procedures, the knowledge of marma sthana is required. With proper knowledge of marma sthana we may perform the procedures without any complications. The incidence of trauma takes place in road accidents of two wheeler and four wheelers. Pedestrians also gets injured. From the surgical point of view there is need to study through knowledge of Kakshadhruka marma. The surgical procedures should be redesigned according to knowledge of or detail study of marma. The Kakshadhruka marma is one among the Urdhva-shakhagata marma. It is the Vaikalyakara marma as per prognostic classification and Sira marma as per structural classification according to Vaghbhata samhita. It is present between Kaksha and Aksha. Trauma to Kakshadhruka marma leads to Kunitva. After collecting information from various ancient texts and detailed dissection on cadaver, the structures present at the site Kakshadhruka can be understood as the axilla region. As per ancient texts, it comes under the variety of Vaikalyakara marma resulting in disability or deformity.

Keywords: Marma, Kakshadhruka, Urdhva-shakhagata marma, Vaikalyakara marma, Sira marma, Kunitva.
marma, Sira marma, Snayu marma, Asthi marma and Sandhi marma. Acharya Vagbhata added one or more classification as Dhamani marma respectively. Acharya Vagbhata described the marma sharir in 4th chapter of Sharirsthyan of Ashtang Hridaya. Marma is that place which has unusual throbbing’s and pain on touch\(^1\). The marmas (vital spots) are so called because they cause death; and they are meeting place of mamsa (muscles), asthi (bones), snayu (tendons), dhamani (arteries), sira (veins) and sandhi (joints) \(^2\). They are indicated by the predominant structure found in them\(^3\). There are five types as Sadhyo-pranahara, Kalantara-pranahara, Vishalyaghna, Vaikalyakara and Rujakara. Out of them, Vaikalyakara marmas are the points where injury causes deformity. The Kakshadhruka marma is situated in Urdhva Shakha\(^4\). It is explained as Sira (based on the constitution) marma\(^5\) and Vaikalyakara (based on prognosis of injury)\(^6\), total two in number\(^7\). It is located in between Kaksha (Axilla) and Aksha (collar bone). Injury to Kakshadhruka marma results in Kunitva (distortion of arm)\(^8\). According to Amarkosha, the meaning of Kaksha word is Bahumoola (origin of the Bahu) & depicted the number of Kaksha is two \(^9\). Near to the side of the thoracic region, under the armpit, ribs can be counted \(^10\). According to Monier William’s Sanskrit – English dictionary, Kaksha is the part where the upper arm is connected with the shoulder. Bahumoola means the arm root or root of the arm (armpit). In Parishadyam Shabdartha Shairama, the Kaksha is considered as axilla\(^11\). As per Parishadyam Shabdartha Shairama, Aksha considered collar bone or clavicle\(^12\). In Prayeksha Sharira, Aksha (Akshaka), the long bone present between the Amsamoola (scapula) and Urahamoola (sternum), which is slightly curved\(^13\). An injury to Kakshadhruka marma results in deformity in Bahu (arm), Pani (hand), and Anguli (fingers) \(^14\). An effort is taken to elaborate it with the help of available literature and cadaveric dissection to understand the structures present at its site & prognosis of injury to it.

**MATERIALS AND METHODOLOGY**

**Materials –**
1. Available literature regarding marmas - Ayurvedic and modern material.
2. Two cadavers – one male, one female.
3. Dissection kit.

**Methodology –**

**Study type – observational study**
1. Literature study – collection of information regarding Kakshadhruka marma from ancient texts like Ashtang Hridaya, Amarkosha is done in detail.
2. Cadaveric study – dissection of two cadavers (one male and one female) is done in dissection hall of department of Sharira Rachana, ADMAC Ashta. At first markings are done on cadaver regarding the position of Kakshadhruka marma in between axilla (Kaksha) and clavicle (Aksha) explained in ayurvedic texts. Axilla and pectoral region is dissected as per the guidelines given in the Cunningham’s manual of practical anatomy\(^15\) and Human anatomy by B. D. Chaurasia\(^16\). Superficial and deep dissection is done carefully to study the structures present at the marked site.
3. The information collected from literature is correlated to the findings from dissection and conclusion is drawn.

**OBSERVATIONS**

The site of Kakshadhruka marma is given in Vaghhbata samhita as – it is situated between axilla and clavicle.
Following observations were obtained during the study.

Table 1 - Observations obtained from literature study of Kakshadhruka marma

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Features</th>
<th>Vaghbhata</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Numbers</td>
<td>02 (01 in each upper limb)</td>
</tr>
<tr>
<td>2</td>
<td>Type</td>
<td>Sira Marma</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vaikalyakara Marma</td>
</tr>
<tr>
<td>3</td>
<td>Position</td>
<td>Located in between Kaksha and Aksha</td>
</tr>
<tr>
<td>4</td>
<td>Dimension</td>
<td>01 Angula</td>
</tr>
<tr>
<td>5</td>
<td>Viddha Lakshana</td>
<td>Kuniiva (Distortion of arm)</td>
</tr>
<tr>
<td></td>
<td>(Prognosis of injury)</td>
<td>Deformity in Bahu (arm), Pani (hand) and Anguli (fingers)</td>
</tr>
</tbody>
</table>

Table 2 – Anatomical correlation of Marma Rachana with modern anatomy

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Marma Rachana</th>
<th>Modern correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mamsa</td>
<td>Muscles</td>
</tr>
<tr>
<td>2</td>
<td>Asthi</td>
<td>Bones</td>
</tr>
<tr>
<td>3</td>
<td>Snayu</td>
<td>Ligaments</td>
</tr>
<tr>
<td>4</td>
<td>Dhamani</td>
<td>Arteries</td>
</tr>
<tr>
<td>5</td>
<td>Sira</td>
<td>Veins, Nerves</td>
</tr>
<tr>
<td>6</td>
<td>Sandhi</td>
<td>Joints</td>
</tr>
</tbody>
</table>

Table 3 – Anatomical structures seen at the site of Kakshadhruka Marma

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Marma Rachana</th>
<th>Modern correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mamsa</td>
<td>Clavicular part of the Pectoralis major, part of the Pectoralis minor, part of the Subclavius, Clavipectoral fascia</td>
</tr>
<tr>
<td>2</td>
<td>Asthi</td>
<td>Clavicle</td>
</tr>
<tr>
<td>3</td>
<td>Snayu</td>
<td>No direct observation regarding Snayu was obtained</td>
</tr>
<tr>
<td>4</td>
<td>Dhamani</td>
<td>1st part of the Axillary artery</td>
</tr>
<tr>
<td>5</td>
<td>Sira</td>
<td>Axillary vein and its tributaries, with the cords of the Brachial plexus including lateral, medial and posterior cords.</td>
</tr>
<tr>
<td>6</td>
<td>Sandhi</td>
<td>No direct observation regarding Sandhi was obtained</td>
</tr>
</tbody>
</table>
Figure 1 – showing location of Kakshadhruka marma

Dissection photo 1 – showing location of Kakshadhruka marma on Cadaver

Figure 2 – showing location of Kakshadhruka marma

Dissection photo 2 – showing location of Kakshadhruka marma on cadaver.

Dissection photo 3 – showing location of Kakshadhruka marma with its correlating structures.
DISCUSSION

Marmas are the vital points in our body where structures i.e. Mamsa, Asthi, Snayu, Dhamani, Sira and Sandhi meet together. Although it is said that at a time there is simultaneous presence of all structures, sometimes some of the structures are seen to be recessive. Based on the above criteria, the Marmas are placed in different groups and given some special names. The prognosis of injury depends upon the site of injury, depth of injury, force at which the injury is caused etc. Based on prognosis of injury at the site of Marma, they are classified under five headings as Sadhya-Pranahara, Kalantaraprana, Vishalyaghna, Vaikalyakara and Rujakara. Each of these words has got a specific meaning indicating the prognosis.

The word ‘Vaikalyakara’ is derived from ‘Vaikalya’ which means deprived of some part or abnormality or deformity or disability to do something. Thus, the Vaikalyakara Marmas are those points in the human body, injury to which can result in structural or functional deformity. As per the dominant anatomical structure involved, the prognosis of injury varies from distortion of arm to paralysis or sometimes even death.

In case of Kakshadhruka marma, the structures that were seen are –

1. Mamsa (muscles and fasciae) – Clavicular part of the Pectoralis major, part of the Pectoralis minor, part of the Subclavius, Clavipectoral fascia.
2. Asthi (bone) – Clavicle
3. Snayu (ligament) – No direct observation regarding Snayu was obtained.
4. Dhamani (artery) – 1st part of the Axillary artery.
5. Sira (veins and nerves) - Axillary vein and its tributaries, with the cords of the Brachial plexus including lateral, medial and posterior cords.
6. Sandhi (Joints) - No direct observation regarding Sandhi was obtained.

From above these considerations, it can be said that the dominant structures at this site – Sira should be considered as Axillary vein, its tributaries and Brachial plexus with its cords i.e. lateral, medial and posterior. Kakshadhruka marma included in Vaikalyakara group. As per the Vaghbhata, ‘Kunitva’ occurs after marma abhigata. As per modern science injury to nerve or nerve plexuses results in having some kind of deformity. Erb’s paralysis, Klumpke’s Paralysis, Shoulder dislocation results in inability of abduction of shoulder. As nerves are supplied to muscles and joints. So injury to nerves result in dysfunction of muscles or joints results in deformity.

CONCLUSION

Following conclusions has been drawn from the observations obtained during the conceptual and cadaveric study of Kakshadhruka marma.

- **Kakshadhruka marma sthana** (location) found in between the Kaksha (axilla) and Aksha (clavicle), as per Vaghbhata samhita.
- Based on the structural classification, it is of Sira marma.
- Dominant structure at the site of Kakshadhruka marma is brachial plexus and can be correlated as Sira.
- Injury to Kakshadhruka marma results in Kunitva i.e. deformity or disability of arm due to damage of the brachial plexus.
- **Kakshadhruka marma** is 1 Angula in dimension.

REFERENCES
1. K. R. Srikantha Murthy, Ashtang Hridayam (Sharirasthana), Chapter 4, Citation no. 37, Reprint 2003, Chowkhamba Press, Page no. 427
2. K. R. Srikantha Murthy, Ashtang Hridayam (Sharirasthana), Chapter 4, Citation no. 38, Reprint 2003, Chowkhamba Press, Page no. 427
3. K. R. Srikantha Murthy, Ashtang Hridayam (Sharirasthana), Chapter 4, Citation no. 39, Reprint 2003, Chowkhamba Press, Page no. 427
4. K. R. Srikantha Murthy, Ashtang Hridayam (Sharirasthana), Chapter 4, Citation no. 8-9, Reprint 2003, Chowkhamba Press, Page no. 423
5. K. R. Srikantha Murthy, Ashtang Hridayam (Sharirasthana), Chapter 4, Citation no. 45, Reprint 2003, Chowkhamba Press, Page no. 428
6. K. R. Srikantha Murthy, Ashtang Hridayam (Sharirasthana), Chapter 4, Citation no. 57-58, Reprint 2003, Chowkhamba Press, Page no. 430
7. K. R. Srikantha Murthy, Ashtang Hridayam (Sharirasthana), Chapter 4, Citation no. 43, Reprint 2003, Chowkhamba Press, Page no. 428
8. K. R. Srikantha Murthy, Ashtang Hridayam (Sharirasthana), Chapter 4, Citation no. 9, Reprint 2003, Chowkhamba Press, Page no. 423
14. Hari Sadasiva Sastri Paradakara Bhisagacarya, Ashtang Hrudaya with Sarvangasundara of Arunadatta and Ayurvedarasayana of Hemadri, Chapter no. 5, Citation no. 9, Reprint 2007, Chouhkamba Surbharathi Publications, Page no. 410

CORRESPONDING AUTHOR
Dr. Amrutraj Ashok Patil
Matruchhya Building Main Road Ogalewadi, Karad, Satara, Maharashtra, India
Email: dr.amrutrajpatil@gmail.com

Source of support: Nil
Conflict of interest: None Declared