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Anatomical Interpretation of *Kakshadhara Marma* and its Clinical Importance

Vidya Chandrappa Mangalore¹, Harshavardhan Byalihal², Niyazahmed Kanavi³

¹Post Graduate Scholar, PG Department of Rachana Sharira, Rajiv Gandhi Educational Society's Ayurvedic Medical College and Hospital, Ron, Karnataka, India.

²Professor, PG Department of Rachana Sharira, Rajiv Gandhi Educational Society's Ayurvedic Medical College and Hospital, Ron, Karnataka, India.

³Assistant Professor, PG Department of Rachana Sharira, Rajiv Gandhi Educational Society's Ayurvedic Medical College and Hospital, Ron, Karnataka, India.

ABSTRACT

The term *Marma* indicates the sense of vital parts of the human body. and injury to these spots leads to the death and death like miseries. The Knowledge regarding location and sites of the *Marma* in the body have great importance in Traumatology. *Marmas* are grouped separately on the basis of the structural classification, based on the injury consequence, based on the *Pramana* & based on the location in the body. *Marma Viddha Lakshanas* are explained in detail by the *Acharya Sushruta*. *Kakshadhara Marma* is *Vaikalyakara Marma* in the *Urdhwa Shakha* it is *Snayu Marma* according to the *Sushruta* which causes *Vaikalyata* once injured. The main of the study is to explore the structures present in the *Kakshadhara Marma* and to study its clinical importance.

Key words: *Marma, Vaikalyakara Marma, Kakshadhara Marma, Pakshaghata*

INTRODUCTION

Marma Shareera is one of the important topics discussed in *Ayurveda*. The term is also appeared in Vedic period and dictionaries. It is illustrated as the Vital points in the Human body where the *Mamsa, Sira, Snayu, Asthi* and *Sandhi* along with the *Prana* resides.^[1] Based on the injury consequences there are five types as *Sadyah Pranahara, Kalantara pranahara, Vaishalyaghna, Vaikalyakara* and *Rujakara Marma*.^[2] *Kakshadhara Marma* is vital region in Human anatomy.

Address for correspondence:

Dr. Vidya Chandrappa Mangalore

Post Graduate Scholar, PG Department of Rachana Sharira, Rajiv Gandhi Educational Society's Ayurvedic Medical College and Hospital, Ron, Karnataka, India.

E-mail: vidyacm400.v4@gmail.com

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It is explained as *Vaikalyakara Marma* situated in the *Urdhwa Shakha*.^[3] It is *Snayu Marma* according to *Acharya Sushruta* and *Sira Marma* according to *Acharya Vagbhata*.^[4] It is located between *Kaksha* and *Vaksha*.^[5] According to the *Amarkosha* the meaning of the word *Kaksha* is *Bahumoolam*. An injury to the *Kakshadhara Marma* results in *Pakshaghata*.

Hence the study is aimed to analyze the anatomical structures of the *Kakshadhara Marma* and its *Viddha Lakshana*. Present work is been taken up in updating early concepts of better understanding of *Kakshadhara Marma* in accordance with the modern and applied anatomy. And to explore *Viddha Lakshana* of *Kakshadhara Marma* in relation to *Pakshaghata*.

REVIEW OF LITERATURE

Kakshadhara Marma

Kakshadhara Marma are two in number.^[6] It is located in *Urdhwa Shakha*. It is situated between *Kaksha* and *Vaksha*.^[7] The word *Kakshadhara* means part of body where the upper arm is connected with the trunk i.e., Shoulder joint. *Kaksha* means *Bahumoolam* which are

two in number. *Vaksha* is the region above the *Hridaya* and below the *Kantha*. As per description *Kakshadhara Marmasthana* lies between the *Kaksha* and *Vaksha* but as the name indicates it is more related to *Kaksha*, any injury to this particular *Marmasthana* will lead to *Pakshaghata*.

Name	<i>Kakshadhara</i>
Number	02
Site	(At Axilla)
Type (acc. to <i>Pramana</i>)	01 <i>Angula</i>
Type (acc. to <i>Rachana</i>)	<i>Snayu</i>
Type (acc. to <i>Aghataj Parinaam</i>)	<i>Vaikalyakara</i>
Structures involved	Subscapularis, Pectoralis minor, Brachial plexus, axillary artery, Axillary vein, Axillary lymph node
Signs if injured	<i>Pakshaghata</i>

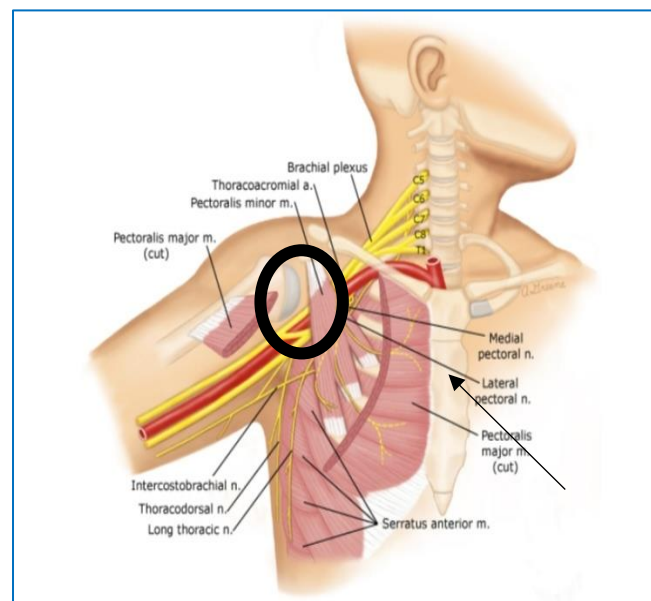


Fig 1: Showing *Kakshadhara Marmasthana*

MATERIALS AND METHODS

- Ayurvedic literature related to *Kakshadhara Marma* was studied from various sources like *Brihatrayee* and *Laghutrayee*.

- Modern literature related to shoulder joint was studied.
- Materials from the electronic media and journals were reviewed.

Cadaveric Study

Dissection at the region of the *Kakshadhara Marma* has been carried out in department of *Sharira Rachana*. Rajiv Gandhi Ayurvedic Medical College, Ron. and structures related to *Marma* were identified. Structures were analyzed and compared on the basis of Ayurvedic literature with special reference to Contemporary sciences.

DISCUSSION

The *Kakshadhara Marma* lies in the *Kaksha* region. The detailed discussion of these points are as follows:

Location

As per available references from the *Samhitas* the exact location of *Kakshadhara Marma* is mentioned as between *Kaksha* and *Vaksha*. But as the name indicates it is more related to *Kaksha*. According to the *Amarkosha* the word *Kaksha* means *Bahumoolam* which refers to the root of the arm i.e., the joint which connects arm to the shoulder is known as *Kaksha Sandhi*. *Vaksha* is the region above the *Hridaya* and below the *Kantha* it may be considered as the region above the breast. The word *Dhara* means bearing or holding. Since it is named as *Kakshadhara*, it is assumed that it holds *Kaksha* region with the help of *Peshi*, *Snayu* etc.

So, the location of the *Marma* is in between chest and shoulder joint. But nearer to the shoulder joint or *Kaksha sandhi* as the name indicates. Thus, *kakshadhara Marmasthana* is to be considered just below the clavicle nearer to *Kaksha Sandhi*. The muscles ligaments, blood vessels & nerves in the subclavicular and brachial plexus region are related to the *Kakshadhara Marmasthana*.

Discussion on *Marmavasthu*

Mamsavastu

Acharya Sushruta has described 10 *Peshi* in *Kaksha* region. The sub clavicular and shoulder regions were

dissected and observed the muscles and other structures. The following muscles were studied and identified.

- Pectoralis Major and minor
- Deltoid
- Coracobrachialis
- Bicep brachii
- Subscapularis
- Trapezius
- Supraspinatus
- Infraspinatus
- Teres major and minor
- Tricep brachii

These 10 muscles may be correlated with the concept of *Sushrutacharya*.

Siravasthu

Acharya Sushruta explains that *Siras* are present in the *Marma* they nourish ligaments, bones, muscles and the joints. The following blood vessels were observed in the *Marmasthana*.

Superior thoracic artery, lateral thoracic artery, thoracoacromial artery, thoracodorsal artery, anterior and posterior circumflex humeral artery. Axillary vein, brachial vein, cephalic vein, subclavian vein, suprascapular artery, superficial cervical artery. These blood vessels may be compared with *Sira* present in *Marmasthana*.

Snayu

Acharya Sushruta explains the *Snayu* present in the *Shakha* and *Sarva Sandhi Pradesh* is *Pratanavati Snayu* which spread like a network. so, this may be compared with nerves of brachial plexus which passes through the *Kaksha Sandhi* or shoulder joint to supply the upper extremities.

Following nerves of the brachial plexus are observed in the subclavicular and shoulder region related to the *Marmasthana*.

- Cords of the brachial plexus.

- Cutaneous branches from axillary nerve.
- Axillary nerve.
- Medial and lateral pectoral nerve
- Median nerve.

According to the modern explanation following ligaments are found during dissection.

- Superior, middle & inferior glenohumeral ligaments.
- Coracoacromial ligament.
- Capsular ligament.
- Acromioclavicular ligament
- Transverse humeral ligament.

The fascia that has been observed are deep fascia covering deltoid, Subscapular fascia, clavipectoral fascia. Since *Snayu* does the *Angabhandhan* these ligaments and fascia may be compared with the *Snayu* in the *Marmasthana*.

Asthi and Sandhi

Acharya Sushruta said that one *Asthi* is present in *Bahu* and two in the *Amsa phalaka* this results in *Kaksha sandhi* (Shoulder joint). It is a form of the *Ulukala Sandhi*. According to the modern, articular parts of the humerus scapula and clavicle are observed as the bony parts and the joint formed is Glenohumeral joint which is ball and socket variety of synovial joint. The bony parts are considered as the *Asthi* in the *Marmasthana* and glenohumeral joint may be considered as *Sandhi* in the *Marmasthana*.

Discussion on Pramana

The measurement of each *Marma* has been explained in term of definite *Pramana* in *Samhitas*. The *Pramana* of *Kakshadhara Marma* has been explained as one *Angula*. It is area occupied by the *Marma* in terms of own finger's breath (*Svanguli*). *Acharya Sushruta* while explaining about *Pramana* of *Kakshadhara* he explained just as one *Angula Pramana*. Without much explanation about its upper limit and lower limit of the site of the *Marma* and also regarding length, breadth and depth of the *Marma*. So here one *Angula Pramana*

is considered equally as length, breadth or as diameter present in the *Kaksha* region. This helps to determine the location and to assess the structures present in and around the *Marma*.

Discussion on Marma Viddha Lakshana

The prognosis of the injury depends upon the site of injury, depth of injury, force at which the injury caused. However, the site and structures are involved are the factor which discriminate the severity of the injury.

As per *Rachananusara* the *Kakshadhara Marma* is a *Snayu Marma* according to *Sushruta* and *Sira Marma* according to *Vagbhata*. Based on *Viddha Lakshana* it is *Vaikalyakara Marma*. The *Snayu Marma Viddha Lakshanas* are *Ayaama*, *Akshepaka*, *Stambha*, excessive *Ruja* in *Snayu*. *Vaikalyatha* in *Anga*. In case of *Kakshadhara Marmaviddha* the symptom explained is *Pakshaghata*.

Acharya Sushruta explains that if the injury occurs to the surrounding of *Sadyah Pranahara Marma* leads to the effect of *Kalantara Pranahara Marma*. Similarly, an injury to *Kalantara Pranahara Marma* leads to the effect of *Vaikalyakara Marma*. Similarly, *Vaishalyaghna* leads to *Vaikalyakara*, *Vaikalyakara* leads to *Rujakara* effect and *Rujakara* may not cause severe pain. *Acharya Dalhana* commented on this as *Antheviddha Lakshana* of *Sushruta*.

Based on this since *Kakshadhara Marma* is *Vaikalyakara Marma*, whenever injury occurs to the surrounding or peripheral parts of the *Marma*, effect of *Rujakara Marma* is observed. symptoms such as severe pain due to which reduced/ altered movements are observed in these conditions.

Acharya Sushruta explains *Pratanavati Snayu* are network like structures which are present in *Shakha* and *Sandhi Pradesh*. *Kakshadhara Marma* is situated in *Bahumula* at *Urdhwa Shakha* and in *Kaksha Sandhi*. So, specifically predominance of *Snayu Marma* at the *Kakshadhara Marma Pradesh* is *Pratanavati Snayu*. This may be compared with the Brachial plexus which branch like a network to supply the upper arm and forearm. Whenever an injury occurs to nerves of brachial plexus, the affected parts are situated in

between *Vaksha* and *Kaksha* region. At this site *Acharya Sushruta* have stated the site of *Kakshadhara Marma*. So, whenever an injury occurs to nerves of brachial plexus it results in reduced/ loss of functions of upper arm. Which results in paralysis of affected arm. Which may be compared with *Viddha lakshana* of *Kakshadhara Marma* i.e., *Pakshaghata*.

Any injury structures which are related to *Kakshadhara Marma* such as compression of the trunk of brachial plexus in aneurysm of axillary artery. Injury to the upper trunk of brachial plexus i.e., Erb's paralysis. Injury to the lower trunk of Brachial plexus i.e., Klumpke's paralysis. Axillary nerve injury due to shoulder dislocation, musculocutaneous nerve injury may lead to the following impairments inability of flexion of elbow and depression of shoulder joint. Nerve injury may lead to paralysis and wasting of the muscles of the arm.

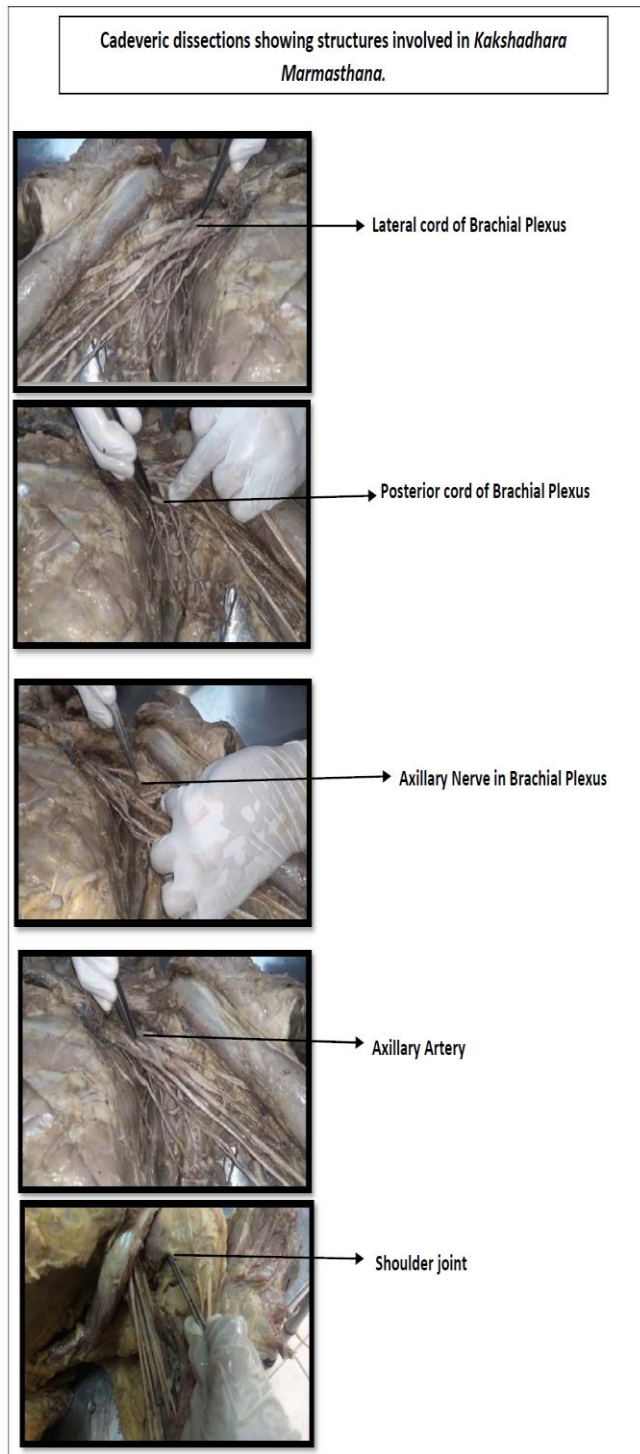
The *Snayu's* may also be compared with ligaments in relation to the *Marmasthana*, ligaments observed in this *Marmasthana* are glenohumeral ligaments, coracoacromial ligament, coracoclavicular ligaments the transverse humeral ligament injury to these ligaments will lead to the disability of the joint. Further these ligaments are also innervated by nerves of brachial plexus.

Acharya Vagbhata highlights importance of *Sira* in *Kakshadhara Marmasthana*. The blood vessels such as axillary artery and its branches, axillary vein which accompany the brachial plexus during their course. Injury to these structures results in loss of blood supply and lack of blood and nerve supply to the muscles of the arm results in disability of the arm. The disability of arm in all these occasions refers to *Pakshaghata* in *Ayurveda*.

CONCLUSION

From the above description we can conclude that *Kakshadhara Marma* can be compared with brachial plexus. Injury to these may lead to paralysis of upper extremity. Hence, it is considered under *Vaikalyakara Marma*. These *Marma* have abundance of *Snayu* that's why considered under *Snayu Marma* by the *Acharyas*.

If the injury occurs directly on *Kakshadhara Marma Sthana* it results in *Pakshaghata*, in less severe condition or if injury takes place surrounding of *Kakshadhara Marma Pradesh*, based on *Antheviddha Lakshana* of *Sushruta* effect of *Rujakara Marma* is observed. Due to excessive *Ruja* there is altered movements and disability of the arm.



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