



**STUDY OF IMPORTANCE OF KAKSHADHARA MARMA W. S. R TO ERB'S PALSY**

**Pranali Umakant Mangrulkar<sup>1\*</sup>, Milind. B. Nikumbh<sup>2</sup>, Manisha. K. Dawre<sup>3</sup>, Sanjay. T. Rathod<sup>4</sup>**

<sup>1</sup>PG Scholar, <sup>2</sup>Professor and HOD, <sup>3</sup>Associate Professor, <sup>4</sup>Assistant Professor, Rachana Sharir Department, Government Ayurved College, Osmanabad, Maharashtra, India.

**ABSTRACT**

*Ayurveda* is one of the most reliable and complete medical science. The union of *Mamsa*, *Sira*, *Snayu* *Asthi* and *Sandhi* are called as *Marma*. *Acharya Sushruta* stated every aspect of *Marma* like definition, signs and symptoms of *Marma* injury. Total number of *Marma* as described in *Samhitas* are 107 in number. *Marma* science is one of the special aspects deeply elaborated by *Ayurveda*. *Marma* are several vital points on the body having importance regarding traumatic effect. These vital points when exposed to trauma generate the symptoms from pain to fatal effect. These points should be protected from injury. Detail knowledge of *Marma* is important from surgical point of view. *Acharya Sushruta* explain the *Marma viddha lakshana* in detail. Human body when expose to trauma shows various signs and symptoms depending on severity and type of trauma. when the trauma to the *Kakshadhara Marma* causes "Erb's Palsy". Erb's palsy is the paralysis of the arm caused by injury to the upper trunk (C<sub>5</sub>-C<sub>6</sub>) of the brachial plexus. There are other ancient Indian sciences also in which the vital points of human body are described. The main aim of this study is to understand the *kakshadhara Marma*, its location in human body, its applied aspect and to find out any similarity with the vital points explain in *Ayurved* classics.

**KEYWORDS:** *Marma*, *Kakshadhara Marma*, *Pakshaghata*, Erb's palsy.

**INTRODUCTION**

The word *Marma* appeared in *Vedic* period in dictionaries, the word "*Marma*" means mortal spot, vulnerable point, weak or sensitive part of body, joint or articulation core of anything, vital structures<sup>[1]</sup>. *Marma* in *Ayurvedic* classics is illustrated as the vital points in human body. *Marma vigyana* was developed as science of war. There are so many references from *Vedas* regarding attack on *Marma Sthana*. *Acharya Sushruta* classified *Marma* as *Mansa Marma* (Muscular vital points), *Sira Marma* (Vascular vital points), *Snayu Marma* (Ligaments vital point), *Asthi Marma* (Vital points of bone), and *Sandhi Marma* (Vital point of joints)<sup>[6]</sup>. The *Marma* are called vital points because they causes death and they are meeting point of *Mansa* (muscles), *Asthi* (bone), *Snayu* (tendon), *Sira* (veins), *Sandhi* (joints) and *Prana*<sup>[7]</sup>. They are indicated by the predominant structure found in them.

There are five types, *Saddhya pranhar* (Causing sudden death), *Kalantara Pranahara* (Causing death after some times), *Vishlyaghna* (Type of *Parinama*), *Vaikalyakara* (Causing deformity) and *Rujakara Marma* (Causing pain)<sup>[4]</sup>. *Marmas* are the points where injury causes deformity. *Kakshadhara Marma* is one such vital region in human anatomy which falls under the above classification on the basis of structures involved. It is explained as one among the *Snayu Marma*. Totally there are 27 number of *Snayu Marma*<sup>[1]</sup>. *Kakshadhara* and *Vitap* both are considered under *Sira Marma* by *Acharya Vagbhata* so he stated that *Snayu Marma* are 23 in number<sup>[7]</sup>. It is located between *Kaksha* (Axilla) and *Aaksha* (Collar bone). According to *Amarkosha* the meaning of *Kaksha* word is *Bahumoola* (origin of *Bahu*). An

injury to *Kakshadhara Marma* result in deformity in *bahu* (arm), *Pani* (hand), and *Anguli* (fingers)<sup>[2]</sup>. *Kakshadhara Marma* is situated at the shoulder joint. Injury to armpit causes Erb's palsy<sup>[12]</sup>. Erb's palsy is a paralysis of arm caused by injury to the upper trunk (C<sub>5</sub> - C<sub>6</sub>) of the brachial plexus sustained during delivery<sup>[11]</sup>. This also affects the patients with impaired muscular, nervous and circulatory development.

Hence this study is aimed to analysis the anatomical structure of *Kakshadhara Marma* and its *Viddha Lakshana* (Injury effect). Present work is been taken up with an idea of updating early concept of a better understanding of *Kakshadhara Marma* in accordance with the modern and applied anatomy and also explore *Viddhalakshan* of *Kakshadhara Marma* in relation to *Pakshaghata* (Paralysis).

**Material and Methods**

- 1) *Ayurvedic* literature related to *Kakshadhara Marma* was studied from various sources like *Brihat-trayee*.
- 2) Modern literature related to shoulder joint is studied.
- 3) Modern literature related to brachial plexus is studied.
- 4) Modern literature related to Erb's palsy.

**Kakshadhara marma**

*Kakshadhara* are devoid of *Asthi*, *Sandhi* and *Sira*. The word *Kaksha* means related with the armpit. The word *Kakshadhara* means the part of the body where the upper arm is connected with the trunk, i.e., the shoulder joint. *Kaksha* means the *Bahu Moola*. Which are two in number.

*Kakshadhara Marma* is situated between the region of arm and the breast.

Injury to *Kakshadhara Marma* will be lead to *Pakshaghata*<sup>[1]</sup>, that is the paralysis of the one side. As per the description, *Kakshadhara Marma sthana* is lies in between the *Kaksha* and *Vaksha* but as the name indicates it is more related to *Kaksha*. It is situated in the region of the body where the upper arm is connected with the trunk. Any injury to this particular *Marmasthana* will lead to *Pakshaghata*, that is paralysis<sup>[2]</sup>.

Name	<i>Kakshadhara</i>
Number	02
Site	At axilla
Type (acco. To <i>Rachna</i> (Structure involved)	<i>Snayu</i>
Type (acco. To <i>Aghataj parinaam</i> (Prognostic)	<i>Vaikalyakara</i>
Type (acco. To <i>Parimaan</i> (Dimensional)	01 <i>Angula</i>

#### Erb's palsy- (erb-duchenne palsy)

Erb's palsy is the paralysis of arm caused by injury to the brachial plexus specifically the upper trunk of

#### Structure involved in *Kakshadhara marma* and erb's palsy

Structures	<i>Kakshadhara Marma</i>	Erb's palsy
Muscles	Pectoralis major, pectoralis minor, deltoid, coracobrachialis, bicep brachi, subscapularis, tapezius, supraspinatus, infra spinatus, teres major, teres minor, and tricep brachi.	Paralysis and atrophy of deltoid, bicep brachi, brachialis, brachioedialis, partly supraspinatus, infraspinatus and supinator.
Vessels	Axillary artery and Axillary vein	Axillary artery and Axillary vein
Nerves	Brachial plexus	Brachial plexus Most commonly involved supscapular, musculocutaneous and axillary nerve
Symptoms	<i>Ayaama, Akshepaka, Stambha, excessive Ruja in Snayus, Yanasthana Ashakthi and Vaikalyatha</i> in Anga.	Pain Loss of sensation Muscle weakness Paralysis of some or all of the muscles of arm

Study of *Kakshadhara Marma* has been carried out by collecting references from different Ayurvedic literature and correlate it with modern anatomy text books and compare with *Marma* explained in Ayurved classics. The *Kakshadhara Marma* lies in the *Kaksha* (Axilla) region, the detail discussion of these points are as follows.

#### Location

As per the available references from the *Samhitas*, the exact location of *Kakshadhara Marma* is mentioned as between *Kaksha* (Axilla) and *Vaksha* (Chest) <sup>[5]</sup>, that will be more related to *Kaksha*. The *Kaksha* region refers to root of the arm i.e., the joint which connects the arm to the shoulder known as *Kaksha Sandhi*. *Vaksha* is the region above the *Hrudaya* (Heart) and below the *Kanta* (Neck). It

brachial plexus. The deformity is known as "policeman's tip hand" or "porter's tip hand"<sup>[8]</sup>. At that point six nerves meet here  $C_5, C_6$ , suprascapular nerve, nerve to subclavius and anterior and posterior division of  $C_5 - C_6$ .

#### Causes

- 1) Dystosia- an abnormal and difficult child birth
- 2) Clavicle fracture
- 3) Trauma to head or shoulder
- 4) During anaesthesia

The brachial plexus is a network of nerves that originate in the neck region and branch off to form most of the other nerves that control movement and sensation in the upper limbs, including the shoulder, arm, fore arm and hand. The radial, median and ulnar nerves originate in the brachial plexus. Palsy means weakness and brachial plexus birth palsy causes arm weakness and loss of motion.

#### Disability

The following movements are lost<sup>[8]</sup>.

- 1) Abduction and lateral rotation of arm.
- 2) Flexion and supination of the fore arm.
- 3) Bicep and supinator jerk are lost.
- 4) Sensations are lost over a small area.

may be considered as the subclavicular region and the region above the breast. The word *Dhara* means bearing or holding. hence it is named as *Kakshadhara*, it is assumed that it holds the *Kaksha* region with the help of muscles and ligaments. So the location of the *Marma* is in between the chest and *Kaksha sandhi* but nearer to the *Kaksha Sandhi* as the name indicates. Specifically, the *Kakshadhara Marma Sthana* is to be considered just below the clavicle nearer to the *Kaksha Sandhi*. The muscles, ligament, blood vessels and nerves in the subclavicular and brachial plexus region are related to the *Kakshadhara Marma sthana*.

#### Mamsa

*Acharya Sushruta* has described 10 *Peshi* (Muscles) in *Kaksha* region<sup>[2]</sup>. The subclavicular and

shoulder region has been dissected and observed the muscles and other structures. The following muscles were studied and identified;

Pectoralis major, pectoralis minor, deltoid, coracobrachialis, biceps brachii, subscapularis, trapezius, supraspinatus, infraspinatus, teres major, teres minor, and triceps brachii. These 10 muscles may be correlated with the concept of *Aacharya Sushruta*.

#### Sira

*Acharya Sushruta* explains that *Siras* (Vessels) are present in *Marmas*. They nourish the ligaments, bones, muscles and joints. The following blood vessels are observed in the *Marmasthana*;

Superior thoracic artery, lateral thoracic artery, thoracoacromial artery, circumflex scapular 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 the *Siras* present in *Marmasthana*<sup>[8]</sup>.

#### Nerves

The following nerves were observed in the subclavicular and shoulder region related with *Marma Sthana*<sup>[8]</sup>.

Posterior subclavicular nerve, cutaneous branches from axillary nerve, cords of brachial plexus, axillary nerve, medial and lateral pectoral nerve, median nerve.

#### Snayu

According to modern explanation the following ligaments are found during dissection<sup>[8]</sup>.

Superior, middle and inferior glenohumeral ligament, coracoacromial ligament, capsular ligament, acromioclavicular ligament, transverse humeral ligament. The fascia that has been observed are the deep fascia covering the deltoid, subscapular fascia, clavipectoral fascia. Since *Snayus* does the *Anga Bandhans*, these ligaments may be compared with *Snayu* in *Marmasthana*.

#### Asthi and Sandhi

*Acharya Sushruta* said that one *Asthi* is present in the *Bahu* and two in the *Amsa phalaka* (Scapula)<sup>[8]</sup>. These results in *Kaksha sandhi* (Shoulder joint). It is a form of *Ulukhalsandhi*. As per the modern science the articular parts of the humerus, scapula, and clavicle are observed as the bony parts and joint formed is the glenohumeral joint which is the ball and socket variety of synovial joint. These bony parts are compared as *Asthi* the *Marmasthana* and glenohumeral joint may be compared as *Sandhi* in the *Marmasthana*.

#### DISCUSSION

As per *Rachana Sharir* the *Kakshadhara* is a *Snayu Marma* according to *Sushruta* and *Sira Marma* according to *Vagbhata*. According to *Viddhalakshana* it is *Vaikalyakar Marma*. The *Snayu Marma Viddhalakshana* are *Akshepaka* (Convulsion), *Stambha* (Stiffness), excessive *Ruja* in *Snayus* (Excessive pain in ligaments), *Yanasthana Ashakthi* and *Vaikalyatha* (Deformity) in *Anga*. In the case of *Kakshadhara Marma Vidha* the symptoms explain is *Pakshaghata*. It is a *Snayu Marma* and *Snayu* observed in relation to *Marmas* are glenohumeral ligaments, coracoclavicular ligament,

transverse humeral ligament, coracoacromial ligament, coracoclavicular ligament, and the clavipectoral fascia. Injury to these ligament will lead to the disability of joint. The clavipectoral fascia is a very important structure that protect the axillary vessels and nerves. The structure piercing the fascia are thoracoacromial artery, cephalic vein, and lateral pectoral nerve. An injury to clavipectoral fascia will damage these structures. An injury to the fascia can damage axillary artery, axillary vein, and axillary nerve. These all will lead to the disability of the arm. *Acharya Vagbhata* highlighted the importance of *Siras* in this region. The blood vessels related to *Kakshadhara Marma* are axillary artery, superior thoracic artery, thoracoacromial artery etc. An injury to these vessels will result in severe blood loss and lack of blood supply to the muscles of arm. This will lead to *Pakshaghata*.

In Erb's palsy structure involved are upper trunk of the brachial plexus, specially suprascapular nerve, musculocutaneous nerve and axillary nerve, axillary vessels, injury in the armpit causes Erb's palsy. The symptoms in *Kakshadhara Marma* and Erb's palsy are same.

#### CONCLUSION

From the above classical description and practical observation, I conclude that *Pakshaghata* observed at *Kakshadhara Marma* can be called as Erb's palsy. The structures affected in Erb's palsy are C<sub>5</sub>, C<sub>6</sub>, suprascapular nerve, nerve to subclavius and anterior and posterior division of C<sub>5</sub> - C<sub>6</sub>. The *Viddhalakshana* documented by *Acharyas* at the *Kakshadhara Marma* shows similarity with the signs and symptoms of Erb's palsy caused by dystosia. The affected parts are the brachial plexus situated in between the *Vaksha* and *Kaksha* region. At this site, *Acharya Sushruta* have stated the site of *Kakshadhara Marma*. Finally we can conclude that in *Viddhalakshana* of *Kakshadhara Marma* the injury to brachial plexus and in Erb's palsy there is trauma to upper trunk of brachial plexus.

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**\*Address for correspondence**

**Dr. Pranali Umakant Mangrule**

PG Scholar

Rachana Sharir Department

GAC, Osmanabad, Maharashtra-

413501, India.

Email: [mangrulepranali@gmail.com](mailto:mangrulepranali@gmail.com)

Mob no: 9860194244, 9890000503

