Int J Ayu Pharm Chem
ISSN 2350-0204
www.ijapc.com

Exploration of Anatomical Aspect of *Kurpar Marma*

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ABSTRACT

The science of *Marma* is one of the special facets which is intensely elaborated in *Ayurveda. Marma* are vital points on the body which when injured or traumatized leads to deformity and sometimes even death. Although *Marma* points are said to be fatal but they are also considered as seat of *Prana*. So, *Prana* stimulation or flow of energy can be regularized by means of *Marma* therapy. In present era in spite of various treatment modalities in orthopedic field, we came across various types of post treatment deformities in case of joints trauma. By the collaborative approach of modern modalities and *Marma* therapy we can get much better results in restoring the joint abilities. Working in this direction it is very much required that we explore the *Marma* as they are given in very concise form in classics of *Ayurveda*. So, in this paper we have put our utmost efforts to elaborate the anatomical location, structure, traumatic symptoms of *Kurpar Marma* with the help of both *Ayurveda* and Modern Literature. This will lead to better understanding of *Kurpar Marma* and ultimately advancement in *Marma* therapy with relatively less occurrence of deformities.

Key Words: *Marma, Prana, Kurpar Marma, deformities, Joints Trauma, Orthopedic*

INTRODUCTION

Rachana Sharir is one of those essential elements in *Ayurveda* which emphasizes on the anatomical and physiological aspects of human body. *Marma Sharir* is one such topic in *Rachana Sharir* which comprises of the study of vital points of the body i.e., points or sites at body which are more vulnerable to trauma and causing permanent structural and functional deformities in body. *Marma* the vital points of our body are described in classics of *Ayurveda* by our ancient seers. It is described in all three classical books of *Brihatryee* viz. *Charak Samhita, Sushruta Samhita* and *Ashtang.*

Charak has mentioned *Marma* as such points where sense of pain is felt more intensively comparing to other parts of the body[1].*Raj Nighantu* has mentioned *Marma* as the seat of *Jeev*. These are the places where *Prana*- the force of life is said to be situated. Marma is said to be the sites where there is the conglomeration of *Mansa, Sira, Snayu, Asthi,* and *Sandhi*[2]. *Vagbhatta* has described *Marma* as the place where an injury leads to irregular pulsations, ailment or discomfort (*peeda)* and pain (*ruk)*[3].

Sushruta has described *Marma* according to composition, location, symptoms and effects on body after injury. The science of *Marma* is an

extraordinary and dynamic part mentioned in classics of *Ayurveda* that has tremendous value while performing surgeries. So, for better understanding and efficient therapeutic benefits it is required that *Marma* points should be explored anatomically. In this article *Kurpar Marma* is considered as subject of choice for further anatomical exploration. It will be analyzed in relation to its exact site in purview of Modern Anatomy.

MATERIALS AND METHODS

Review of *Marma* literature from classics of *Ayurveda* specially *Sushruta Samhita* and their relevant commentaries. Relevant structural anatomy is explored with the help of various Modern medical books on Anatomy.

LITERARY REVIEW

Kurpar means the elbow[4].Structurally it is a type of *Sandhi Marma*. *Sandhi* means *Yog* or *Sanyog* or conjuncture or conglutination[5].So, *Kurpar Marma* relates to bony joints in elbow i.e. Elbow joint. It is situated at the junction of *Bahunalak* (humerus) and bones of *Prakoshthasthi* including *Antah* and *Bahi Prakoshthasthi*. This *Marma* is of 3 *Angula Pramana*[6].The *Pramana* of this *marma* can be considered both in depth and width of that area. It is kept under the category of *Vaikalyakara Marma* which are generally of *Saumya Guna*. Due to their cold property, they adhere *prana* within the body i.e. They support life[7]. Trauma to this *Marma* point leads to *Kunita* (dangling of hand).

(Ref: Table 1).

Table 1 Information of *Kurpar Marma*-

S.no	Particulars	Information regarding *Kurpar Marma*
1.	Location	*Urdhwashakha* (upper extremity)
2.	Number	2
3.	Structural particularity	*Sandhi Marma*
4.	Prognostic particularity	*Vaikalyakara Marma*
5.	Anthropometric measurement	3 *Angula*
6.	Traumatic sign on *Marma*	*Kuni* (dangling of hand)

If we explore the Elbow joint anatomically it is a hinge variety of Synovial joint and is located 2-3 cm inferior to the epicondyles of the humerus. The spool shaped trochlea and spheroidal capitulum of the humerus articulates with the trochlear notch of the ulna and the slightly concave superior aspect of the head of the radius, respectively. So, we can say there is humero-ulnar and humero-radial articulations. The structures which form *Kurpar Marma* are approached after dissecting the muscles arising from the lateral and medial epicondyles of the humerus and reflects them distally. Also cut through biceps brachii, brachialis and triceps brachii 3 cm proximal to the elbow joint and reflect them distally. Remove all muscles fused with the fibrous capsule of the elbow joint.

The structures found after the dissection of site of *Kurpar Marma* are (Ref: Figure 1&2)-

1. Bicipital Aponeurosis (insertion of Biceps brachii), Brachialis, Brachioradialis, Flexor carpi

ulnaris, Flexor carpi radialis, Palmaris longus – (*Mansa* component).

2. Bifurcation of brachial artery into Radial & Ulnar artery, Ulnar nerve, Radial nerve & Median nerve – (*Sira* component).

3. Capsular ligament, Radial and Ulnar collateral ligaments – (*Snayu* component).

4. Lower end of humerus – Trochlea & Capitulum, upper end of radius & ulna, olecranon process &coronoid process. – (*Asthi* component).

5. Humeroulnar, Humeroradial and Radioulnar joints – (*Sandhi* component).

Figure 1-

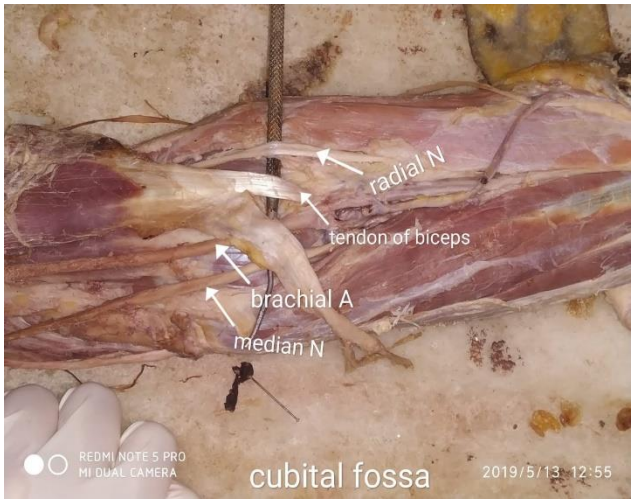

Figure 1 Pic showing contents of Cubital Fossa

Figure 2-

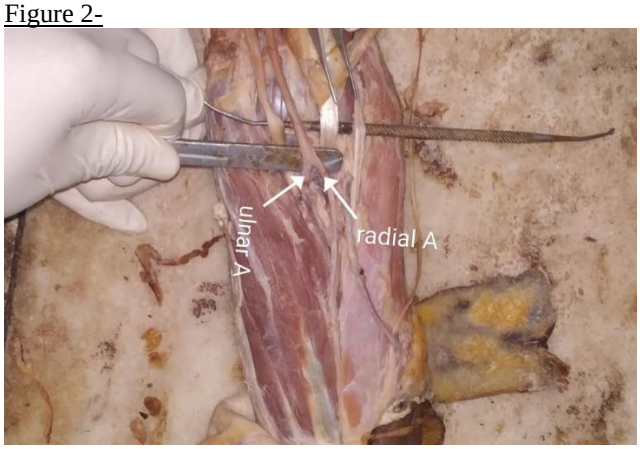

Figure 2 Pic showing bifurcation of Brachial Artery into Radial A. & Ulnar A.

Sushruta has stated that *Marma* is an aggregation of *Mansa, Sira, Snayu, Asthi and Sandhi*[8].We used to find an aggregation of all these contents more or less at this site hence proving the statement of *Sushruta*.

As we come across the elbow joint, we find that humero-radial and humero-ulnar joints form a complex hinge that enables flexion and extension of forearm. The humero-radial joint, in conjunction with proximal and distal radio-ulnar joint allows full pronation and supination of the forearm. The humero-ulnar joint is continuous with two pivot joints between distal humerus and proximal radius and between proximal radius and ulna.

There is a high degree of congruity between deep trochlea of humerus and the large trochlear notch of the ulna. This stable arrangement is enhanced by strong medial and lateral collateral ligaments and in full extension by the anterior capsule. The humero-ulnar and humero-radial articulations have ulnar and radial collateral ligaments. The ulnar ligament is a triangular ligament having anterior, posterior and inferior bands connected by thinner tissue. The anterior band is attached by its apex to anterior aspect of medial epicondyle and by base to medial margin of coronoid. The posterior band's apex attaches to back of medial epicondyle and base to medial margin of olecranon. Inferior band runs between olecranon and coronoid process. The radial collateral ligament is attached to lateral epicondyle and to the annular ligament. The proximal radio ulnar joint has annular and quadrate ligament.

Movements- Movements at the elbow joint are usually associated with movements at humero-

ulnar, humero-radial, proximal and distal radio ulnar joints. The main movements are-

- **Flexion**- The flexion movement is brought about by brachialis and biceps brachii. The brachioradialis can produce rapid flexion in the absence of resistance even when the chief flexors are paralysed. In case of presence of resistance, the brachioradialis and pronator teres assist the chief flexors in producing slower flexion.
- **Extension**- The chief extensor of elbow joint is the triceps brachii, especially the medial head. It is weakly assisted by anconeus.

Blood supply- The vascular supply is derived from rich periarticular anastomotic plexus around the elbow joint.

Innervation- The joint gets its innervation from Ulnar nerve, Radial nerve, Median nerve and Musculocutaneous nerve.

Dislocation of the elbow is usually posterior and is often associated with the fracture of the coronoid process. The triangular relationship between the olecranon and two humeral epicondyles is lost[9].Injury to ulnar nerve may occur, resulting in numbness of little finger and weakness of flexion and adduction of wrist[10].Subluxation of the head of radius occurs in children when forearm is suddenly pulled in pronation. The head of the radius pulls out from the annular ligament. The proximal part of the torn ligament may become trapped between the head of the radius and the capitulum of the humerus. The source of pain is pinched annular ligament[11].Tennis Elbow occurs on abrupt pronation with fully extended elbow. It may lead to pain and tenderness over lateral epicondyle- the common extensor origin. Golfer's Elbow is the microtrauma of medial epicondyle of humerus. The common flexor origin undergoes repetitive strain and results in a painful condition on medial side of the elbow joint. Under optimal position of the elbow: Generally, elbow flexion between 30 and 40 degrees is sufficient to perform common activities of day-to-day life like eating, dressing up, combing hairs etc. Because of this reason people who have lost terminal flexion and extension after a traumatic injury or fracture are able to accomplish their personal tasks without much problems.

DISCUSSION

After anatomically exploring the area considered as area of *Kurpar marma* in our classics, we found that elbow joint with humero-radial, humero-ulnar and proximal radio-ulnar can be considered as the exact location of *Kurpar Marma*.

An injury to the structures associated with *Kurpar Sandhi Marma* leads to paralysis, dangling of hand, wrist drop, restricted flexion and extension movement, pronation and supination movement[12]. *Kurpar Marma* is *Vaikalyakar marma* as some deformities still remains at injured site in spite of taking good care. The prognosis of the diseases in this area is bad.

The area between the medial and lateral epicondyles of humerus is roughly 3 *Angula* and is enriched with arteries, veins, nerves and muscles so, it fulfils the anthropometric measurement criteria of *Kurpar marma*.

The important structure present in this region is *Sandhi* (joint) and other structures are surrounding and supplying to the joint. So, we can say that *Kurpara marma* is *Sandhi marma*.

The weakness in forearm muscles occur when the brachial artery and peripheral nerves fails to supply in elbow joint injuries and as a result the "*Kunitwa"* – sign mentioned by *Acharya Sushruta* is justified. Moreover, in dislocation of elbow joint, injury to ulnar nerve may occur resulting in weakness of flexion and adduction of wrist which can be corelated to condition *Kunitwa.*

CONCLUSION

Therefore, *Kurpar Marma* is anatomically explored to be the *Marma* of *Urdhwashakha* and it's a *Sandhi Marma* being a joint between humero-radial, humero-ulnar and proximal radio-ulnar bones. It becomes a vulnerable area due to the presence of radial and ulnar collateral ligaments, radial nerve, ulnar nerve and median nerve, various muscles etc. It is considered prognostically as *Vaikalyakara Marma* due to similarity in grave features. Thus, this site should be protected from any traumatic injury which would further protect one from grievous after effects. The utmost care should be taken in normal healthy individuals especially sports person to avoid any trauma to site of *Kurpar Marma* as its traumatic results are very grievous. Thus, the juncture point of humero-ulnar, humero-radial and proximal radio-ulnar along with radial nerve, ulnar nerve and median nerve is considered as the *Kurpar marma*.

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