ANATOMICAL AND STRUCTURAL CONSIDERATIONS OF KURPAR MARMA

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ABSTRACT

Marmas are vital points in the body which prove to be fatal when subjected to trauma. Detailed knowledge of Marma is important from surgical point of view. While conducting surgical procedures, the knowledge of Marma-Sthanas is required, to avoid complications. In trauma cases, the knowledge of trauma site, structures involved and deformity identification is necessary, so both - from treatment and surgical aspect, Marma studies are important. So here is an attempt to study the anatomical and structural composition and the Viddha lakshan of Kurpar Marma “Kurparkhyae Kuni”.

KEYWORDS: Kurpar Marma, Vaikalyakar Marma, Sanchuita bahu madhya, Sandhi Marma.

INTRODUCTION

Without implementation of principles, any science cannot stand for long time. These principles are scattered throughout the treatise and thus their study is need of the hour.

Ayurveda has its own principles or concept which stands in modern era also. The concept of Marma is one such imperative and unique principles of Ayurveda.
Historical review

In connection to Marma we get many references in Vedas. As in RigVeda the words like Varma and Drapi are mentioned. The ancient kings were using “Kavacha”, which is some kind of body armour to protect the body from enemy weapons on Marma Sthana in the war field.\textsuperscript{[1]} We can get the references about the war between Lord Indra and demon called Vratra. To kill that demon lord Indra used the weapon made of Vajraayudha by hitting on Marma Sthana.\textsuperscript{[2]}

Acharya Charaka explains Marma in Trimarmeeya Chikitsa Adhyaya and Trimarmeeya Siddhi Adhyaya. He gave more importance to the TriMarma that is Shira, Hridaya and Basti as he is more related to Kaya Chikitsa. But he also mentioned that according to the surgery point of view, total numbers of Marma are 107.\textsuperscript{[3]}

As we know Sushruta Samhita is Shalya Tantra Pradhana and Acharya Susruta gave much more importance to Marma Shareera. He told detailed description of all the 107 Marma, their types, numbers, locations and symptoms if they injured.\textsuperscript{[4]}

MATERIALS

1. Ayurveda literature.
2. Modern literature.
3. Cadaveric study.

METHODS

1. Study of Vaikalyakara Marma from Ayurveda literature.
2. Detailed study of Kurpar Marma from Ayurveda literature and modern text.
3. Viddha lakshan of Kurpar Marma will be studied with the help of Ayurveda and modern literature.
4. Cadaveric dissection of Kurpar Sandhi will be done to verify the observation from literary study.

OBSERVATION

Cadeveric study of kurpar marma

It is observed that after taking incision on skin of the elbow joint and fascia is removed, in the deep fascia - the median cubital vein lies connected to cephalic and the basilic vein. After removing the deep fascia, the bicipital aponeurosis which are formed from
the long tendons of biceps are exposed. Next, the contents of cubital fossa which are — median nerve, brachial artery, tendon of biceps and superficial branch of radial nerve are observed from medial to lateral side. After cutting biceps tendon and separating the neurovascular bundle, one can see the articular surface of elbow joint which are trochlea and capitulum of humerus, also trochlear notch of ulna and head of radius. Posteriorly, the olecranon process and olecranon fossa are seen after separating skin and fascia. Behind medial epicondyle lies the ulnar nerve.

The structural study of Kurpar Marma with the help of dissection shows that there is an aggregation of muscles (bicep, bicipital aponeurosis, common flexor origin, common extensor origin, bracioradialis etc.), nerves (ulnar, median, radial nerve), artery (brachial artery), veins (basilic, cephalic), ligaments and bones (lower end of humerus, upper end of radius and ulna). After doing dissection it was observed that it is a Sandhi Marma. So injury to this region may result into damage to any of the above structure. In the applied anatomy of the elbow joint, it was seen that in Supracondylar fracture — fall on the outsretched hand with hyperextension of the elbow with abduction and adduction, with hand dorsiflexed, causes Supracondylar fracture. In this, arm is shortened, swelling is more, crepitus is present, olecranon is below intercondylar line, movements are restricted, radial nerve is commonly affected (ref-Text book of orthopedics 4th edition by john ebnezar).

Posterior dislocation of radius — It is associated with fracture of the coronoid process. The triangular relationship between the olecranon and the two humeral epicondyles is lost. Forearm is short, olecranon is above the intercondylar line, step sign is positive, movements are grossly restricted, median and ulnar nerve is injured.

Subluxation of the head of radius — Occurs in children when the forearm is suddenly pulled in pronation. The head of the radius slips out from the annular ligament.

**Cadaveric study**

**Dissection of kurpar marma**

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nerve, brachial artery, tendon of biceps and superficial branch of radial nerve are observed from medial to lateral side. After cutting biceps tendon and separating the neurovascular bundle, one can see the articular surface of elbow joint which are trochlea and capitulum of humerus also trochlear notch of ulna and head of radius. Posteriorly the olecranon process and olecranon fossa are seen after separating skin and fascia. Behind medial epicondyle lies the ulnar nerve.

**Instruments used**

Toothed forceps, Artery Foreceps, Plain Foreceps, Blade, Scalpel

![Fig. 1: Site showing elbow.](image1)

![Fig. 2: Showing the superficial fascia.](image2)
Fig. 3: Showing the bicep muscle.

Fig. 4: Showing the insertion of tricep.

Fig. 5: Showing brachial artery, Median nerve.
Fig. 6: Showing elbow joint with ligament.

OBSERVATION
Study of Kurpar Sandhi Marma has been carried out by collecting reference from different Ayurvedic literatures and modern anatomy text books and studied critically. Structures present in the Kurpar Marma pradesha are identified with the help of dissection. The Kurpar Marma lies in the Kurpar Sandhi, the detailed discussion of this is as follows:

Location
As per the available reference from Samhita, the exact location of Kurpar Sandhi Marma is mentioned as junction between Bahu and Prabahu. So the junction of Bahu and Prabahu may be considered as elbow joint.

Mansa
According to Acharya Sushruta, 5 Peshi’s are present in the Kurpar Sandhi. We won’t find any detailed reference regarding these Peshis present in the Kurpar Sandhi. While dissecting the elbow region we observed the following muscles which are present in and around the elbow joint. So the Peshis may be considered as those which help in movement of elbow joint and are originated and inserted in relation to Elbow Joint.

Anteriorly – Following muscles were observed
Tendon of Biceps & Bicipital Aponeurosis Brachialis, Brachioradialis.
Origin of Flexor Group of Muscles of forearm from the medial epicondyle.
Origin of Extensor Group of Muscles of forearm from the lateral epicondyle.

Posteriorly – Following muscles were observed
Anconeus, Tendon of Triceps muscle, Pronatortereres.
Sira
In the context of Siravedha vidhi sharira, while explaining the Siravedha in the disease Yakrutdalyodara, it has been explained as Siravedha should be done at the Dakshina Kurpar Sandhi and in Plihodara at Vama Kurpar Sandhi. So with this reference we may consider the Siras lies in the Kurpar Sandhi Marma. The superficial veins like Cephalic, Basilic and Cubital veins may correspond to this in the Kurpar Marma Sthana.

Snaayu
Prataanvati variety of Snaayu are present in Urdhwa Shaakha. Acharya Sushruta has explained ten Snayus are present in Kurpar Sandhi. According to modern explanation the following ligaments are found during dissection in the elbow joint:
- Capsular ligament.
- Anterior and Posterior ligaments.
- Ulnar collateral ligament.
- Radialcollateral ligament.
- Annular ligament.
- Quadrat ligament.

Asthi
Aachaarya Sushruta opines that, there is one Kurpar Asthi in the Kurpar Sandhi. In the elbow region the articular parts of the humerus, radius and ulna are observed as bony parts which help to form the elbow joint. These bony parts may be considered as the Asthi in the Marma Sthana.

Sandhi
The Kurpar Sandhi is a Sandamsha Kora variety of Chestavanta Sandhi. The Shleshaka Kapha and Shleshmadhara Kala are located in all the Sandhis. As per modern concept, this joint is hinge variety of synovial joint. The same synovial membrane and synovial fluid may correlate with the Shleshaka Kapha and Shleshmadhara Kala respectively.

According to modern science the elbow joint includes:
- Humeroradial joint – Hinge joint.
- Humeroulnar joint – Hingejoint
- Superior radioulnar joint – Pivot joint.
These joints may be correlated with classification explained by Dr. Gananath Sen, has total elbow joint as a Kora Sandhi. The humero-radial and humero-ulnar joints are types of Sandamsha Kora (hinge joint), the superior radio-ulnar joint is Chakra Kora Sandhi (pivot joint) variety of Kora Sandhi.

**DISCUSSION**

Kurpar Marma is 3 Angula Pramana. The area occupied by the Marma is explained in terms of own finger’s breadth (Anguli), as diameter present over the middle of Kurpar Sandhi with the structures involving in and around the elbow joint.

The Sandhi Marma Viddha Lakshana – Kunihi corresponds to shortening of Limb. The fracture of the bones and related muscle injury definitely leads to shortening of the limb i.e. Kunihi.

This Vaikalyakara Marma has predominance of Soma Guna, as Shleshaka Kapha present in the Sandhi gets vitiated when the Marma Vedha occurs, leading to Vikalata. Kapha Dosha is predominantly formed from Ap-Mahabhoota, responsible for strength.

**CONCLUSION**

Kurpar Marma Sthana is in the region of Kurpar Sandhi (elbow joint), which is formed by the articulations of the lower end of the Humerus and upper end of the Radius and Ulna including surrounding structures. It is a Vaikalyakar Marma and Sandhi Marma.

So as per the observation we may consider Kunihi (Sankuchita Baahu Madhye) – Shortening of the limb is because of fractures of bones like lower end Humerus upper ends of Radius and Ulna, subluxation and posterior dislocation of the Radius.

In fact fractures will lead to damage of surrounding structures like muscles, ligaments and vessels. Here in the elbow region most of the muscles get insertion in the form of tendon. So any tendon injury will lead to loss of relevant particular movement.

**REFERENCES**


