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A Review Article on *Kurpara Marma Pradesha* (Elbow Joint) with special reference to Sports Related Injuries

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ABSTRACT

INTRODUCTION: *Kurpara Sandhi Marma* is one of the *Vaikalyakaramarma*. If injured it produces deformity or disability of the person. Many types of sports injuries like Tennis elbow, Golfer's elbow etc. are related with elbow joint which will be leading to deformity that can be avoided by proper Ayurvedic treatment.

METHODOLOGY: *Marma* related reference from Samhitha with commentary and modern anatomy books and sports injury related articles are referred.

RESULT: *Kurpara Marma* mentioned in Ayurveda can be anatomically compared with elbow joint. Over excretion of joints and straining of ligaments during sports related actions leads to conditions such as Tennis elbow. This condition is characterized by pain in the region of medial and lateral epicondylar of elbow pain, and when untreated leads to permanent loss or disability of the limb. Ayurvedic treatments such as *Abhyang* (application of oil) and *Pichu* (application of cotton-soaked with medicated oil) can be adopted to avoid permanent disability.

DISCUSSION: The article discusses about *Acharya Sushruta* description of *Kurparamarma* which is located in upper extremity situated in between humerus radius and ulna bone. Its measurement is 3 *Angula Pramana* and its prognosis after injury produces *Kuni*. Elbow joint is synovial joint functionally hinge type joint found between lower end of humerus and upper end of radius and ulna. The point of articulation of three bones the humerus radius and ulna. The articulation of elbow joint occurs between the Trochlea and Capitulum of humerus and trochlear notch of the ulna and head of radius. In Ayurvedic point of view *Kurpara Marma Abhighataja* leads to deformity of elbow, produces swinging of arm, stiffness of arm, painful movement of upper limb.

Conclusion: In day-to-day life, improper use of forearm and arm, any nerve injury, muscle weakness, by various sports activity will hamper the function of elbow joint, so we have to prevent the joint from injury as well *vaiklalyatha* (deformities) by medicated oileation, sudation, application of cotton dipped in medicated oil (*Pichu*), proper massage, traction, exercise etc.

Key Words *Kurpara Marma, Sandhi, Vaikalyakara Marma, Elbow joint, Sports injury*

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INTRODUCTION

The location of *Kurpara Marma pradesha* is mentioned in the upper limb at the joining place of arm and forearm. This area is classified under *vaikalyakara marma* i.e. any injury in this site will result in severe hemorrhage and impairment in the functions of forearm. Anatomically *Kurpara Marma* is comparable with the elbow joint, injury of which leads to disability or loss of mobility and sensations.

Elbow joint is a synovial joint present between the lower end of humerus bone and the upper end of radius and ulna bones. Many complications following injury or trauma are associated with elbow joint such as deformity of elbow, swinging of arm, stiffness of arm, painful and restricted movements of forearm. Various sports related injuries will also lead to conditions such as tennis elbow, golfer's elbow; student elbow, nerve injury, muscle weakness etc. hamper the functions of elbow joint. In Ayurveda, in order to prevent severe deformities and also to aid in improving the stability and integrity of the affected region, application of *Kashyas* (decoction) and *Tailas* (medicated oils) made with drugs which have *Vatahara* (vata alleviating), *Sothahara* (reduce swelling), are prescribed.

MATERIALS AND METHODS

Ayurvedic text books such as *Susrutha samhitha* with its commentary related with reference of

Kurpara marma and modern anatomy text book, clinical anatomy book, sports injury related articles and websites were referred from the literary of Dr. V.P.A. Medical college, Vadnagar, Gujarat were reviewed for this article.

LITERATURE REVIEW

➤ **KURPARA SANDHI MARMA:**

The reference “*Prakoṣṭapragāṇḍayoḥsandhānekūrparanāma, tatrakūṇiḥ*” from *Susrutha Samhita* mentions that the *Kurpara Marma* is situated in the upper limb in the region of joining of arm and forearm (present in between *prakoshta* (radius, and ulna) and *praganda* (humerus) *Asthi*)¹ They are 2 in number 1 on each upper limb. Furthermore, they are classified under *shaakagata marmas* (vital area of limbs) and *sandhigata marma* (vital area related with joint). The other anatomical structures related include namely *sira* (blood vessels), *Asthi* (bone), *Snayu* (ligaments, tendons, nerves) and *Mamsa* (muscles) in less proportion. Measurement of the *Marma* is 3 *Angula pramana* (3 finger liner measurement). On the basis of prognostic criteria, it is placed under *Vaikalyakara Marma* (those which injured result in deformity). Injury to the *Kurpara marma* leads to *kunnataa* (deformity) such as dangling of hand (hanging or swinging loosely), deformity of forearm and stiffness or restricted movements of upper limb.

➤ **VAIKALYAKARA MARMA²:**

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The total number of *Vaikalyakara Marma* is 44, which produce *Vaiklaytvam* (disability). *Kurpara Marma* is one among the *Vaikalyakara Marma* located in both upper extremities. If a *Vaikalyakara Marma* gets injured, the concerned part of body becomes disabled, but if when treated by efficient physician bad prognosis can be avoided.

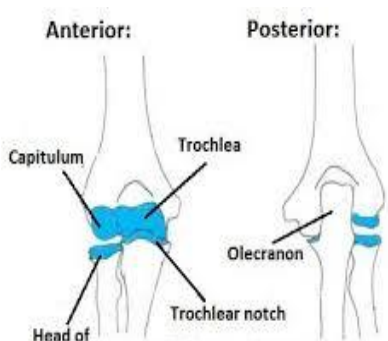


Figure 1 Anatomy of elbow joint

➤ **ELBOW JOINT³:**

The elbow joint is a hinge variety of synovial joint between the lower end of humerus (upper articular surface the capitulum and trochlea) and the upper ends of radius and ulna bones. On extreme flexion, the coronoid fossa lies just above the trochlea and the coronoid process of ulna fits in the anterior fossa. Similarly, the radial fossa just above the capitulum allows for radial head to fit in. Lower articular surface- upper surface of the head of the radius articulates with the capitulum. Trochlear notch of the ulna articulates with the trochlea of the humerus. The elbow joint is continuous with the superior radio-ulnar joint. The humero-radial, the humero-ulnar and the superior radio-ulnar joints are together known as cubital articulations.

Superiorly capsular ligament attached to the lower end of the humerus, covering the capitulum, trochlea, radial fossa, coronoid fossa and the olecranon fossa making them intracapsular⁴. Inferio-medially capsular ligament are attached to the margin of the trochlear notch of the ulna. Inferio-laterally capsular ligament attached to the annular radio-ulnar joint. The anterior and posterior parts of this ligament are thickened. The ulnar collateral ligament is triangular in shape and the apex is attached to the medial epicondyle of the humerus while the base is attached to the ulna. The thick anterior band of the ligament is attached below to the coronoid process and posterior band is attached to the olecranon process. The lower ends are connected to each other by an oblique band which gives attachment to the thinner intermediate fibers of the ligament. Ulna nerve crosses this ligament, and also the flexor digitorum superficialis muscle originates from this ligament. The fan shaped radial collateral or the lateral ligament extends from the lateral epicondyle to the annular ligament. The supinator and extensor carpi brevis get originated from it. The movements of elbow joint included flexion which is produced by brachialis, biceps brachii, and brachioradialis and Extension by triceps brachii and anconeus muscles. Carrying Angle: refers to when the extended forearm the transverse axis of the elbow joint is directed medially and downwards, makes an angle of about 13⁰ the angle permits the forearms to clear

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the hips in swinging movement during walking⁵. It is important for posture maintenance while carrying objects. In full flexion of the elbow and pronation of the forearm the carrying angle disappears. The forearm comes in line with the arm in mid prone position in which the hand is mostly used. The blood supply of the elbow joint is by arterial anastomosis around the elbow formed by the branches of brachial, radial and ulnar artery. Nerve supply is by the Ulnar, Median and Radial nerve.

➤ **SPORT INJURY:**

Injuries that mostly commonly occur during athletic activity or exercise. Elbow joint is the most vulnerable to get damaged because of the stresses to which it is subjected especially in Sports such as tennis, golf etc. Repetitive arm motions can lead to over exertion, and an injury to elbow makes daily activities restricted and painful. The *Kupara Sandhi Marma abhghatha* (injury to elbow joint region) has been explained in the Ayurvedic classic may be correlated with the Sports injuries in elbow joint. Medical science is also in a position to give proper advises in both preventive & curative aspect through better anatomical understanding of elbow joint. Common sports injury of elbow joint includes Tennis elbow, Golfers elbow, Supracondylar fractures, dislocation of elbow, head of radius fracture.

➤ **TENNIS ELBOW⁶:**

Caused by partial tearing or degeneration of the superficial extensor muscles from the lateral

epicondyle of the humerus. It is characterized by pain and tenderness over the lateral epicondyle of the humerus with pain radiating down the lateral side of the forearm, it is common in tennis players and violinists.



Figure 2 Tennis elbow

Medial Elbow Pain: Medial Elbow Pain Causes in Throwers. Repetitive throwing can irritate and inflame the flexor/ pronator tendons where they attach to the humerus bone on the inner side of the elbow. Athletes will have pain on the inside of the elbow when throwing, and if the tendinitis is severe, they will also experience pain during rest.

➤ **ULNAR COLLATERAL LIGAMENT INJURY⁷-**

The ulnar collateral ligament (UCL) is the most commonly injured ligament in throwers. Injuries of the UCL can range from minor damage and inflammation to a complete tear of the ligament. Athletes will have pain on the inside of the elbow, and frequently notice decreased throwing velocity. Athletes with UCL injuries should not be allowed to pitch until they have been evaluated.

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Neurological injuries such as C8-T1 nerve and ulnar neuritis can manifest as medial elbow pain.

Medial epicondylitis is commonly known as *golfer's elbow*⁸. This does not mean that only golfers have this condition. But the golf swing is a common cause of medial epicondylitis. Many other repetitive activities can also lead to golfer's elbow-throwing, chopping wood with an ax, running a chain saw, and using many types of hand tools. Any activities that stress the same forearm muscles can cause symptoms of golfer's elbow. It is a tendinopathy of the insertion of the flexors of the fingers and pronator. Golfers elbow very similar to the tennis elbow but occurs at the medial side of the elbow, where the pronator teres and the flexors of the wrist are originates. Tensing of these muscles by resisted wrist and finger flexion in pronation will provoke pain. Medial Epicondylitis (Golfer's Elbow) commonly involves the wrist and finger flexors -common flexor tendon. The lateral epicondylitis with repetitive tendon injuries leads to angio fibroblastic degeneration or tendinosis.

➤ TREATMENT OF ELBOW INJURIES⁹:

It consists of rest, holding cold compress, non-steroidal anti-inflammatory drugs, local anesthetic and steroid injection, and physiotherapy. Tennis player exercises, light pocket, smaller grip, elbow support. Chronic cases require surgery.

In Ayurvedic prospective injury increases *vata*, so, the treatment should consist basically of

Vathahara, drugs (pacification of *vata*) in the treatment. They include *lepam* (external application of medicated paste) with *Vatahara*, *Sothahara* (pacification of pain and swelling) and *raktaprasadak* drugs (purification of raktadhathu), *Pichu* (application of cloth or cotton dipped in oil or *kashaya*), and *Dhara* (pouring medicated oil) with *Vathahara tailas*¹⁰.

➤ GENERAL PREVENTIVE MEASURES OF ELBOW¹²:

1. Don't carry objects that are too heavy
2. Stretch before and after physical exercise.
3. Do stretching and range-of-motion exercise with finger and wrist to prevent stiffening of the tendon of the elbow.
4. Gently bend, straighten, and rotate your wrist, if pain is there then stopping the exercise.
5. To prevent strain of muscles, use the correct movement or positions during activities.
6. Avoid over use of arm, doing repeated movement, which will cause injury to the bursa.
7. Wear seat belt while travelling in a motor vehicle.
8. Wear protective gear during sports or recreation such as roller-skating or soccer.
9. Supportive splints reduce the risk of injury.
10. Wear protective clothing to protect sports injury.

DISCUSSION

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Elbow joint is a compound para condylar joint as the lower end of humerus articulate with the radius and ulna. It is a hinge joint allowing only flexion and extension, arch of 150 degree. The stability of joint produced by the wrench shaped articular surface of the olecranon and the pulley shaped trochlea of the humerus. It also has strong medial and lateral ligament. All this anatomical structure makes the joint respond differently to trauma, exercise and massage etc. In spite of this anatomical structure, it is vulnerable to the traumatic effect of these region produce pain and inflammation and loss of function. Blunt trauma produces permanent disability. In Ayurvedic point of view *Kurpara Marma abhighataja* leads to deformity of elbow, produces swinging of arm, stiffness of arm, painful restricted movement of upper limb. Because of these disabilities our *Acharyas* have mentioned *Kurpara Marma* under *Vaikalyakara marma*.

CONCLUSION

Kurpara Marma is one of the *Vaikalyakara Marma* (loss of function due to injury). *Kurpara Marma* or *Kurpara Sandhi Marma* includes the proximal radioulnar and the joint between humerus and radioulnar joint. An injury to this *Marma* causes deformity, pain and swelling. The articulation of elbow joint occurs between the trochlea and capitulum of humerus and trochlear notch of the ulna and head of radius. The elbow is

capable of simple hinge movement of flexion and extension. Injury oriented deformity in sports at elbow joint, such as injuries like Tennis elbow, Golfers elbow and medial epicondyle pain causes dislocation, subluxation, sprain, instability, leading to severe pain stiffness and deformity. Deformities and complications can be avoided by certain Ayurvedic treatment and preventive measures especially with *vata* alleviating drugs.

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