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## ANATOMICAL INTERPRETATION OF MANIBANDHA MARMA

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### ABSTRACT

*Ayurveda* the science of life, is the most ancient medical science which has focused primarily on preventive aspect rather than curative aspect, *Marma* science is one of the exclusive and unique concepts of *Ayurveda*. *Marma* are critical bodily point and injuries to them can result in extreme pain, incapacity, loss of function, loss of sensation, and death. *Marma* therapy stimulate of these vital points for management of related disorders. Texts give a relatively brief account of *Marma*, therefore the exact position of its exact location has yet to be discovered. All *Ayurvedic Acharyas* described the *Manibandha Marma* under the headings of *Rujakara & Sandhigata Marma*. In this study, we are studying the area of *Manibandha* present anatomical structure like muscles, tendon, vessels, ligaments, bone. Thus, it proved that *Manibandha* is a type of *Sandhi Marma* according to classical texts with correlated to modern text. A detailed study is required to establish the facts in context of contemporary science, this literary study was done by the secondary source of data collection.

**Keywords:** *Manibandha, Ruja, biomechanics of wrist, Marma, Sandhi Marma*

## INTRODUCTION

The science of *Marma* or *Marma Vidhya* is extra ordinary and dynamic therapy. The chapter *Marma Sharira* in *Sushruta Samhita* (ancient manuscript of *Ayurveda*) gives detailed information of *Marmas* based on the body organs or structures involved. The word *Marma* is derived from “*Mri Dhatu*” + “*Manin*” *Prataya* which means causes death, [1] *Jeeva Sthana*, *Sandhi Sthana*, the *Marma* science is one of the exclusive concepts of *Ayurveda*. *Marma* are the site of “*Prana*” & these areas are spread all over the body i.e., head, neck, trunk & extremities [2]. It is the spot of the body which exhibits a peculiar pulsation and cause pain on pressure [3]. These are formed by confluence of five important element or structures like *Mamsa*, *Sira*, *Snayu*, *Asthi* and *Sandhi*. *Acharya Sushruta* has also described that *Vata*, *Pitta*, *Kapha* as well as *Sattva*, *Raja* and *Tama* along with Soul [2] *Chetana Dhatu* resides in *Marma*, that is why trauma over *Marma* causes severe pain. Injury to these areas causes aggravation of *Doshas* which destroy mind and body and finally death results. The direct understanding of these *Marma* in ancient science was evident, but there were no sufficient techniques to make out their original structural aspect involved. *Acharya Dalhan* have defined the *Marma* as “*Maryantiti Marmani*” that means it is spot on the body surface where if any injury or

trauma occurs, causes sudden death. So, these points should be protected from any type of injury. The knowledge of *Marma* becomes very essential in clinical practice for surgeon because any damage or injury may arise various type of complication or death of patient. So, according to *Acharya Sushruta* the knowledge of the *Marma* is half of the knowledge of surgery. The important classification of *Marmas* is based on the consequences or prognosis produced as a result of trauma over *Marmas*. 107 *Marmas* of the body have been again classified into five groups, they are *Sadhya Pranahara* (death immediately after injury), *Kalantara Pranahara* (death after laps of sometime), *Vishalyaghna*, (death after removing the *Shalya*), *Vaikalyakara* (injury causing disability) and *Rujakara* (injury causing severe pain). *Rujakara Marma* are eight in number, two in each extremity. In upper limb *Manibandha* (2) *Kurchsira* (2), in lower limb *Gulpha* (2) and *Kurchsira* (2). Nature of *Rujakara Marma* is producing pain after injury on the sight of *Marma* all six components are found on the *Marma* site along with *Prana* which are found naturally and specifically [3].

## MATERIAL AND METHOD

In this article information have been gathered about *Manibandha Marma* from *Ayurveda* texts mainly *Brihatrayi*, *Laghutrayi* of *Ayurveda Samhita*, *Granthas*.

For better understanding of nomenclature, *Sanskrit* dictionaries were also used a reference source. *Manibandha* as a *Marma* and structurally identity is explored with relation to modern anatomy theoretically with reference to Cunningham's Manual practice of Anatomy. Various medical books are consulted to correlate with the structures, measurement, location and the symptoms occurring on injury to that point. Such literary co-relations are done to determine the exact structural knowledge of the *Manibandha*.

#### REVIEW LITERATURE

*Manibandha Marma* is situated at the junction of arm and hand, this indicates towards the wrist joint. This *Marma* is *Sandhi Marma* and prognostically *Kalantara Marma* having two *Angula Pramana* and two in number in each upper limb. Injury to this *Marma* causes *Kunthata* which can correlate with loss of function of hand or with dislocation or disfigurement of hand [4].

“*Anguli Pramana*” as described in *Sushruta Samhita*” *Acharyas* explained the concept *Pramana* of *Swa-Angula*, for the measurement various body parts for that individual. *Swa Angula Pramana* is scientific method stated in *Ayurveda* classical texts. Detail study of literature i.e., *Ayurveda* and modern was done for better understanding of *Sandhi* and its *Pramana Sharira*. Cross-sectional observational study

was done of 30 healthy volunteers for justifying the concept of *Swa Angula Pramana* as described in *Sushruta Samhita*. *Manibandha Sandhi* is *Urdhwashakhagata Sandhi*, which is responsible for various functions of the hand. The *Pramana* of *Manibandha Sandhi* is 12 *Angula* as per *Acharya Sushruta* [5].

To analyse the tissues which were responsible for pain in *Rujakara Marma* & to evaluate pain-threshold relation with this *Marma*. The study involved 60 healthy individuals who volunteered. According to anatomical sites, in Group I was taken to evaluate pain threshold at 8 (Eight) *Rujakara Marmas* (vital spots which have pain due to trauma) sites of body & in Group II the same 60 individuals were taken to measure pain threshold at sites other than *Rujakara Marmas*. The results have shown that eight sites of *Rujakara Marma* have different types of fibrous scleratogenic tissues having high pain threshold nociceptive impulses, which might be the probable reason for *Rujakara Marmas* to have a high pain-threshold in comparison to other sites of the body. Eight sites of *Rujakara Marmas* carrying different fibrous scleratogenic tissues, have comparatively high threshold of nociceptive impulse. This observation further draws the attention to the subject of inquiry that *Manibandha* (wrist) has the highest pain threshold than other *Marma* site of body [6].

Books and online research database have been used to study the modern aspect of the wrist joint. Painful wrist is a challenge for health-care providers. *Manibandha Marma* is a *Rujakara Marma* and *Sandhi Marma*. It comprises various components i.e., carpal bones, distal ends of radius and ulna, various ligaments, tendons, and nerves are situated in the area of wrist joint. These components are equally responsible for painful conditions of the wrist. Hence, all the components of the joint should be considered as a part of the *Manibandha Marma* [7].

“Observational study of *Manibandha Marma* and its location with special reference to wrist pain” This article is the small effort in the field of *Ayurveda* by studying the normal anatomy of *Manibandha Marma* w.s.r. to wrist pain. One can easily put a relation between the two, through *Ayurvedic* view and this will be helpful for students and practitioners of *Ayurveda* to treat the to understand this concept of *Marma* and to prove it according to modern science we must prove it practically by showing its exact anatomical position, its location, what kind of internal structures involves in it so that these are called as vital points. Therefore, through this work, it is an effort to specify and locate exact anatomical position of *Manibandha Marma* through dissection on cadaver and observational study on 30 Randomly

selected patients having wrist pain (*Viddha Lakshana*) [8].

With the help of all this study, it is an attempt to present a proper guideline for surgical and medical management of wrist pain and many treatment methods like *Siravedha*, *Agnikarma* etc can be done harmlessly. Wrist pain is caused by wrist tendonitis, wrist sprain and carpal tunnel syndrome, this condition gives rise to tremendous. Ligament injury is most common cause of any joint injury. So, ligament is important part of *Sandhi* if, ligament is injured than the chances of *Sandhi* injury increases.

*Manibandha Marma* anatomically is explored to be *Marma* of forearm and a *Sandhi Marma*. Besides being a joint between radius and carpals, many other important structures are found here like median nerve, radial nerve, ulnar collateral ligament, radial collateral ligament, dorsal radial collateral ligament, palmar ulnar collateral ligament, palmar radio collateral ligament, carpal tunnel, the bones themselves radius, ulna and beautifully arranged carpals. All these together make this area a very vulnerable point. After anatomically exploring the area considered as the *Manibandha Marma* in the classics, wrist joint or the radio-carpal joint can be considered as the *Manibandha Marma* [9].

*Rujakara Marma* are eight in number, two in each extremity. In upper limb *Manibandha*

(2) and *Kurcasira* (2), in lower limb *Gulpha* (2) and *Kurcasira* (2). Nature of these *Rujakara Marma* is producing pain after injury on the sight of *Marma* all six components are found on the *Marma* site along with prana which are found naturally and specially. *Manibandha Marma* is Located at the junction between forearm and hand [10].

- Number: Two (one in each upper extremity).
- Location (*Sthan*): Upper extremity (*Urdhva Shakhagat Marma*).
- Trauma (*Abhighat Parinam*): Continuous painful (*Rujakara*).
- Structure (*Sanrachana*): Wrist joint (*Sandhi Marma*).
- Measurement (*Pramana*): Two *Anguli* (two finger breadth)
- *Viddh lakshana*: *Kunthata* (restriction in the wrist joint movements and become less powerful).

## DISCUSSION

*Manibandha* is wrist where the carpal bones are arranged together in a fist. Structurally, it is a type of *Sandhi Marma* which means joint, mostly it is taken to be bony joints. It is situated at the junction of two bones of forearm that is, *Prakoshthasthi* and the bones of *Manibandha* which are taken to be as carpals bones. After anatomically

exploring the area considered as the *Manibandha Marma* in the classics, wrist joint or the radio-carpal joint can be considered as the *Manibandha Marma*. Location is at the junction of radioulnar (distal) joint and carpals that is the radio carpal joint.<sup>8</sup> Injury to this *Marma* leads to persistent pain. As we know trauma to joint leads to continuous pain for a long time Colle's fracture and the degenerative joint diseases of wrist are very painful. The fractures may lead to deformity like dinner fork deformity, displacement of lunate can lead to compression of median nerve resulting in carpal tunnel syndrome. Thus, features like *Stabdhata*, *Kunthata* are well understood [9].

Ligament and capsular injuries at the wrist are usually referred as dorsiflexed wrist. A ligament or a capsule supporting the fine and delicate nerve fibres are also stretched and led to partial joint differentiation which may be permanent. The tendon injuries are less common as compared to ligaments, the tendons and ligaments around the *Manibandha Marma* are comparability more vulnerable due to mobility [11].

The components which are found on *Manibandha Marma* may be consider as- [10]

- *Mamsa*: Abductor pollicis brevis, flexor pollicis brevis, adductor pollicis, abductor

digiti minimi, palmaris brevis, flexor digiti minimus brevis.

- *Sira*: Radial & ulnar arteries, nerves and their branches.
- *Snayu*: Palmar and dorsal radial-carpal & ulnar carpal ligament, lateral ulnar & radial carpal ligament.
- *Asthi*: Lower end of radius, ulna & carpal bones (proximal row).
- *Sandhi*: Lower radio-ulnar & radio carpal joint.

#### Anatomical structures [4], [12]

- Articular capsule
- Ulnar collateral ligament
- Radio carpal ligament
- Anterior and posterior ligaments
- Radial collateral ligaments
- Intercarpal ligament

#### Muscles involve in movements of wrist joint

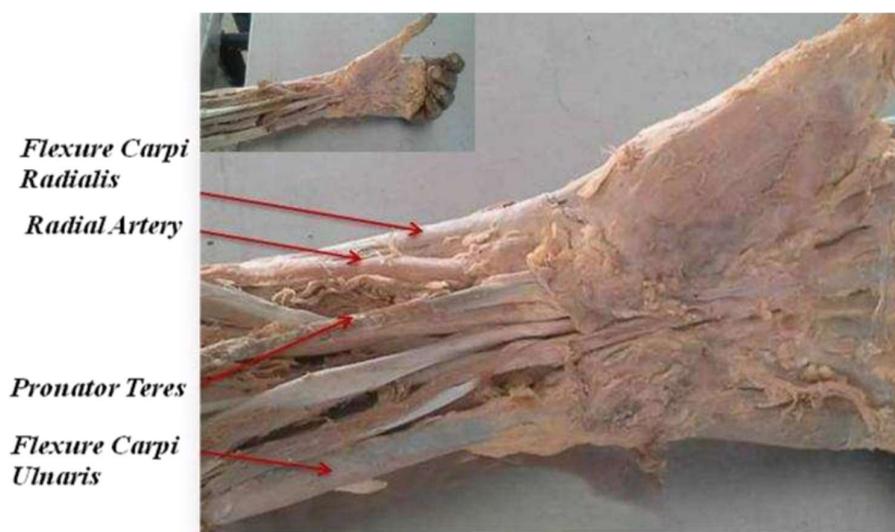
- Flexion- Flexor carpi radialis and ulnaris act as prime movers, and

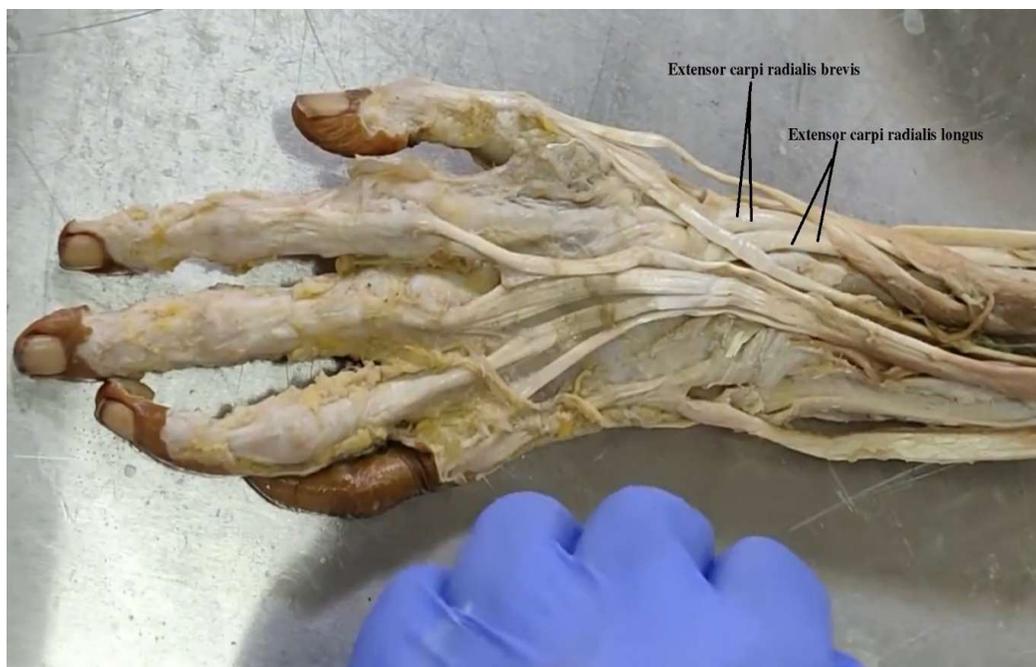
assisted by flexor digitorum superficialis and profundus, flexor pollicis longus and abductor pollicis longus.

- Extension- Extensor carpi radialis longus and brevis, extensor carpi ulnaris act as prime movers, and assisted by extensor digitorum, extensor indicis, extensor pollicis longus and extensor digiti minimi.
- Adduction- Flexor and extensor carpi ulnaris.
- Abduction- Abductor pollicis longus, flexor carpi radialis, extensor carpi radialis longus and brevis [13].

**NERVE**- The nerves to the wrist joint are derived from the anterior interosseous branch of the median nerve, the posterior interosseous branch of the radial nerve & the dorsal and deep branches of the ulnar nerve.

**Artery**- Anterior and posterior carpal branches of radial and ulnar arteries [14].





## CONCLUSION

*Rujakara Marma* predominantly have the properties of fire and air, both of which produce pain. According to *Acharya Sushruta*, *Manibandha Marma* is classified in *Rujakara Marma* so both *Agni* and *Vayu* properties are produced pain in the region of *Manibandha* or wrist. *Manibandha Marma* Located at the junction of radioulnar (distal) joint and carpals that is the radio carpal joint. It is as *Sandhi Marma* and if any type of injury occurs over *Manibandha Marma* than maximum chances of joint injury and main symptom occur pain i.e., *Ruja* so it is a *Rujakara Marma*. Wrist pain is caused by wrist tendonitis, wrist sprain and Carpal tunnel syndrome This condition gives rise to tremendous. Ligament injury is most common cause of any joint injury.

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