

FUNCTIONAL EVALUATION OF *KOORPARA MARMA* (ELBOW REGION) IN ACCIDENTAL TRAUMA

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ABSTRACT

Marmasthana is a vulnerable point and is the seat of *prana* or life. According to classification based on *Parinama* (Prognosis) and *Rachana* (Anatomical predominance), *Koorpara Marma* (situated at elbow region) is *Vaikalyakara* (causing disability) and *Sandhi Marma* (bony joints) respectively. If marmas are injured they do not always result into death but can cause disability or various diseases, which are difficult to cure. If desired to apply concept of *Marma* in *Shalyatantra*, it is essential to confirm the exact form of structure, function and importance of *Marma Sharira* with help of Ayurvedic fundamentals and with its comparison to modern science on the basis of clinically based study. Nowadays, accidents are more common, its prevalence is more especially in road traffic accidents. Traumatic deformities commonly occur at Elbow region which is exposed easily to trauma, causing restricted movements of forearm. At the elbow regions muscular tear, hematoma, ligament tear, bony deformity may occur. Hence, a conceptual and subclinical study was carried out to evaluate *Koorpara MarmaViddhata* (trauma) in relation to accidental trauma from functional aspect with the help of case record form and use of Goniometer for *Sandhi Parikshana* (examination), Oxford pain chart for pain threshold in 30 diagnosed patients of *Koorpara Sandhi MarmaVikalata*. Results were tabulated in form of functional deformities seen.

Keywords: *Koorpara Marma*, *Vaikalyakar Marma*, Functional, *Sandhi Marma*, Accidental trauma

INTRODUCTION

Knowledge of *Marma* can be traced back to vedic period. *Marmachikitsa* is getting more and more impetus now a day, particularly in western world. As far as traumatology is concerned the importance of *Marmachikitsa* is reckoned widely in the western world.

Marma Sharira is the unique province of Ayurveda. The countries like China, Japan,

and Srilanka are using certain vital points in the treatment of various ailments, which coincide with *Marma* points.

Marma concept is stated to be the half part of *Shalyatantra*, trauma to which must be prevented during surgical procedures¹.

Types of accidental trauma at the site of *Marma*^{2,3}.

Patana- falls down.

Peedana - trauma by hand.

Prahara - trauma by stick.

Akshepana- pull with great force.

Vyalamrigadashana- trauma by animal's nails teeth etc.

Trauma to Marma region

Now a day accidental or traumatic deformity commonly occurs at the elbow joint which causes restricted movements of forearm. Due to this great significance, it is necessary to carry out research work related to it. Hence, it is need of hour, to study different *Marma* in an elaborate manner by digging out all the treasure about it in Ayurvedic literature and analyze it in relevant clinical conditions, especially the surgical ones.

Trauma to Vaikalyakara Marma⁴

As *Koorpara Marma* is the *Vaikalyakara Marma*,⁵ which is situated at elbow region, any injury to it causes disability along with deformity of elbow region.

Trauma to Sandhi Marma

Sandhi Marma injury is very painful, even after wound heals some or the other form of deformity is seen or there is decrease in strength and movement of joint. In case of *Koorpara Marma*, bony deformities like cubitusvulgus, cubitusvarus, hyperextension of elbow joint due to supracondylar fracture, epicondylar fracture etc. is seen.

Anatomical position of *Koorpara Marma* is studied with the help of various textual references with the help of dissection on cadaver.

In case of *Sandhi Marma*, the site of injury feels as though full of thorns, even after healing (of wound) there is crooked or bend

1. Either sex
2. Age >16 years

or curved elbow, lameness, decreased strength and movement and emaciation and swelling of the joints⁶.

Hopefully, present work may prove beneficial and be a guideline to vaidyas in *Shalyatantra*, *Chikitsa* and those interested in *Marma Chikitsa* as well.

MATERIALS AND METHODS

Study was conducted in following phases:

1. Conceptual study: Was carried out by literary review of following texts⁷
 - a) *Ancient materials from Brihat-Trayi*
 - b) Relevant materials

Marma vimarsha – Ram Raksha Pathak

Rachana Sharira – K.K.Pandey

Bruhat Shariram – Varier Parishadyam

Shabdarth Sharira – Gaud

Sushrut Samhita – D.G.Thatte

Pratyaksha Shariram – Gananath Sen

Ayurveda Rahasya Deepika – B.G.Ghanekar

- c) Modern Literature

- Gray's Anatomy
- Textbook of Orthopaedic – Adams Hamblen
- Essential Orthopaedic – J.Maheshwari
- Clinical Orthopaedic Examination – Ronald Mc Rae

2. Subclinical study:

This was conducted by studying the cases of patients undergone accidental trauma for various conditions related to elbow region on retrospective basis. 30 diagnosed patients of *Koorpara Sandhi Marma Vikalata* in relation to accidental trauma was selected.

Inclusion criteria

3. 30 diagnosed patients of accidental trauma to *Koorpara* region

Exclusion criteria

1. Arthritis
 - i. Pyogenic Arthritis
 - ii. Rheumatoid Arthritis
 - iii. Tubercular Arthritis
 - iv. Osteo Arthritis
 - v. Neuropathic Arthritis
 - vi. Hemophilic Arthritis
 2. Other diseases
 - i. Paraplegia
 - ii. Hemiplegia
- iii. Extent of *Koorpara Marma* from Ayurvedic and modern views.
 - iv. Extent of its traumatic condition.
 - v. Functional deformities of *Koorpara Marma* and its evaluation from Ayurvedic and modern view.

METHODOLOGY

Conceptual study

- i. An overview of *Marma* concept.
- ii. Various opinions regarding *Koorpara Marma* as *Sandhi Marma* and *Vaikalyakara Marma* from all possible resources.

Sub clinical study

- i. Case record form was designed to assess the *Koorpara* region traumatic injury.
- ii. Use of Goniometer⁸ for *Sandhi Parikshana* (examination).
- iii. Oxford pain chart for pain threshold in 30 diagnosed patients of *Koorpara Sandhi Marma Vikalata*.

RESULTS AND DISCUSSION

1.1 Percentage of the types of accidental trauma

Sr.no.	Type of accidental trauma	No. of Patients out of 30	Percentage (%)
1.	R.T.A	14	46.67
2.	Fall	14	46.67
3.	Dash	1	3.33
4.	Lifting heavy weight	1	3.33

Table 1.2 *Sthanika Koorpara Sandhi Marma Vidha Lakshanani* (Functional deformity)

Sr.no	Lakshnani	Observed in patients (out of 30)	Percentage (%)
1.	<i>Khanjata</i>	00	00
2.	<i>Balakshaya</i>	30	100
3.	<i>Cheshtakshaya</i>	30	100

Table 1.3 *Vaikalyakara Marma Vidha Lakshanani* (observed after 2 months of trauma)

Sr no.	Lakshanani	Observed in patients (out of 30)	Percentage (%)
1.	<i>Klesha</i>	30	100
2.	<i>Ruja</i>	30	100

Table 1.4 *Ruja* (pain) found after 2 months

Sr.no.	Structures	Observed in patients (out of 30)	Percentage (%)
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1.	No Pain	00	00
2.	Mild pain	00	00
3.	Moderate Pain	30	100
4.	Severe Pain	00	00

Table 1.5 Types of bony fractures seen in patients

Sr.no.	Type of bony fracture	Observed in patients (out of 30)	Percentage (%)
1.	Supracondylar fractures	10	33.33
2.	Radial head(Absent/Removed)	6	20
3.	Medial Epicondyle Fractures	5	16.67
4.	Olecranon Process Fractures	3	10
5.	Radial head fracture	2	6.67
6.	Lateral Epicondyle Fracture	2	6.67

Table 1.6 Kriyatmaka Vikruti (Functional deformities at the structures) at Koorpara Marma region

Normal angle of Flexion	Mean angle of flexion in traumatic patient	Normal angle of Extension	Mean angle of extension in traumatic patient
145 ⁰	113.33 ⁰	0 ⁰	10.5 ⁰

Mean of flexion in traumatic patients was observed 113.33⁰, where as normal angle of flexion is 145⁰. This indicates that angle of flexion is reduced by 31.63.

Mean of Extension in traumatic patients was observed 10.5⁰, where as normal angle of

Extension is 0⁰. This indicates that angle of Extension is reduced by – 10.5.

Table 1.7 Kriyatmaka Vikruti (Functional deformities at the structures) at Koorpara Marma region

Normal angle of Supination	Mean angle of Supination in traumatic patient	Normal Angle of Pronation	Mean angle of Pronation in traumatic patient
80 ⁰	72.66 ⁰	75 ⁰	65.83 ⁰

Mean of Supination in traumatic patients was observed 72.66⁰, where as normal angle of Supination is 80⁰. This indicates that angle of Supination is reduced by 7.34

Mean of Pronation in traumatic patients was observed 65.83⁰, where as normal angle of Pronation is 75⁰. This indicates that angle of Pronation is reduced by 9.17.

On elaboration of data of 30 patients, RTA(Road Traffic Accident) was found as the major cause of trauma (46.67%). When a person falls down from a vehicle (especially two wheeler) during RTA he/she directly slides over the road on the elbow because of

defence mechanism. History of Patana (fall) was found in 28/30 patients.

1/30 patient had history of dash by a heavy vehicle at the elbow region. Patient had medial collateral ligament tear and joint collection resulting in restricted movements. 1/30 patient had history of daily heavy weight lifting, resulting in stretching of muscles and ulnar nerve thickening. The observational finding reveals Sandhi Viddhata more than any other Kriyatmaka Vikritis Sandhi Rachana is prominently present at the elbow region.

As per the symptoms of trauma to *Sandhi* quoted by *Vagbhata* following observations were seen⁶.

Vastushukairivakeerna (fragments of bones disperses like thorns over the traumatized area) was seen in 80% cases.

Kuni (crooked or bent or curved joint that remains even after surgical intervention) was seen in 100% cases. Even though there is much reduction of severity over the traumatized area, yet the structural and functional deformities remain over a long duration.

Sandhishosha (muscle wasting) this is seen mainly due to trauma to nerve and blood vessels. In case of elbow joint this may be due to sudden pressure over the brachial artery. This was seen in 3.33% cases.

Sandhiparva Shopha (inflammation) was seen in 33.33% cases. Trauma to inner region of joint i.e; articular bony injury, injury to synovial membrane, bursa injury etc. may cause this symptom.

Khanjata (proceed with difficulty) was found in 0% of the cases.

When the above *Lakashana* are present in patient, obviously, *Balakshaya* and *Cheshtakshaya* are found in almost all the patients.

In this study *Balakshaya* and *Cheshtakshaya* were found in 100% cases.

After analysis of *Ruja* (Pain) it was found that moderate pain was found in all the patients even after 6-8 weeks of injury. Severity of pain reduces gradually as healing of deformed area takes place.

Out of 5 structures present at the site of *marma* region the most affected structures due to accidental trauma were *Mamsa*, *Snayu*, *Asthi* and *Sandhi* (46.67%).

Similarly, supracondylar fracture was seen in 33.33% of cases.

Mostly in the Accidental Trauma when angle of Flexion is 100° then approximately 15° extension is seen. When angle of Flexion is 120° then approximately 10° extension is seen. When angle of Flexion is 130° then approximately 5° extension is seen.

CONCLUSION

1. Accidental trauma to *Koorpara Marma* leads to Functional deformity at the site of Elbow joint.

2. *Balakshaya* and *Cheshata-kshaya Lakshana* (Functional deformity) was found in maximum patients.

3. Functional deformity mainly examined by naked eye, with the help of Goniometer, Oxford pain chart proved statistically significant. (p<0.05)

4. Out of five structural components constituting *Marma*, '*Sandhi*' structure *viddhata* (trauma) is more common at the site of *Koorpara Marma* due to which functional deformity is seen.

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