

Structural Evaluation of *Koorpara marma* (elbow region) in Accidental Trauma

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Abstract

Sound knowledge of *Marma sthana* (vulnerable points) behind structural component is essential. According to *Parinam* (Prognosis) and *Rachana* (Anatomical predominance), *Koorpara Marma* (vulnerable point at elbow region) is *Vaikalyakar* (injury to this type of vulnerable point causes disability) and *Sandhi Marma* (vulnerable point at bony joints), respectively. No injury to *Marma* is free from adverse effects. It may cause disability or even death. If we desire to apply concept of *Marma* in *Shalya tantra*, it is essential to confirm the exact form of structure and importance of *Marma Sharir* with help of Ayurvedic fundamentals and with its comparison to modern science on the basis of clinical study. Nowadays, road traffic accidents are more common. Traumatic deformities commonly occur at Elbow region which is exposed easily to trauma, causing restricted movements of forearm along with, hematoma, ligament tear and bony deformity. Hence, a conceptual and subclinical study was carried out to evaluate *Koorpara Marma* Viddhata in relation to accidental trauma from structural aspect with help of case record form and radiological investigations in 30 diagnosed patients of *Koorpara Sandhi Marma Vikalata*. Results were tabulated in form of structural deformities seen.

Keywords

Koorpara Marma, Vaikalyakar Marma, Sandhi Marma, Accidental trauma



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INTRODUCTION

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

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

Patan - fall down

Peedan - trauma by hand

Prahar - trauma by stick

Akshepan - pull with great force

Vyalmrigadarshan - trauma by animals nails teeth etc.

Trauma to *Marma* region

Injury to *Marma* leads to adverse effects; moreover these injuries may cause disability or even death. Due to this great significance of *Marma vidnyan*, 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 testify it in relevant clinical conditions, especially the surgical ones.

Trauma to *Vaikalyakar Marma*⁴

As *Koorpara Marma* is the *Vaikalyakar Marma*, which is situated at elbow region, any injury to it causes inability 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 cubitus vulgus, cubitus varus, 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.

Lot of work has been carried out on different aspects of *Shakhashrit* as well as *Sadhya pranhar Marma*, but work on *Koorpara Marma* in accidental trauma from structural aspect is still awaited.

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

MATERIALS AND METHODS

Study was conducted in following phases:

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

- i. *Marma vimarsha* – Ram Raksha Pathak
- ii. *Rachana Sharir* – K.K.Pandey
- iii. *Bruhat Shariram* – Varier
- iv. *Parishadyam Shabdarth Sharir* – Gaud
- v. *Sushrut Samhita* – D.G.Thatte
- vi. *Pratyaksh Shariram* – Gananath Sen
- vii. *Ayurved Rahasya Deepika* – B.G.Ghanekar

c) Modern Literature

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

2. Subclinical study:

This was conducted by studying the cases of patients who had suffered accidental trauma in various conditions related to elbow region on retrospective basis. Thirty diagnosed patients of *Koorpara Sandhi Marma Vikalata* in relation to accidental trauma were selected.

Inclusion criteria

1. Either sex
2. Age >16 years
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

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.
- iii. Extent of *Koorpara Marma* from Ayurvedic and modern views.
- iv. Extent of its traumatic condition.
- v. Structural deformities of *Koorpara Marma* and its evaluation from Ayurvedic and modern view.

Sub clinical study

- i. Case record form was designed to assess the *Koorpara* region in traumatic injury.
- ii. Radiological investigations like X-ray, USG was done.

**Table 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 Viddha Lakshanani* (Structural deformity)

Sr.no	Lakshnani	Observed in patients (out of 30)	Percentage (%)
1.	<i>Vastushukairivakeerina</i>	24	80
2.	<i>Kuni</i>	30	100
3.	<i>Sandhi shosh</i>	01	3.33
4.	<i>Sandhiparva shopha</i>	10	33.33

Table 1.3 *Rachnatmak vikruti* (Anatomical deformities to the structure) at *Koorpara Marma* region

Sr no.	Anatomical structures	Observed in patients (out of 30)	Percentage (%)
1.	Mamsa	22	73.33
2.	Sira	02	6.66
3.	Snayu	21	70
4.	Asthi	25	83.33
5.	Sandhi	26	86.66

Table 1.4 *Rachnatmak Vikruti* (Anatomical deformities to the structure) at *Koorpara Marma* region

Sr.no.	Structures	Observed in patients (out of 30)	Percentage (%)
1.	<i>Mamsa, Snayu, Asthi, Sandhi</i>	14	46.67
2.	<i>Mamsa,</i>	4	13.33

Sr.no.	Structures	Observed in patients (out of 30)	Percentage (%)
3.	<i>Asthi, Sandhi</i>	4	13.33
4.	<i>Mamsa, Snayu</i>	3	10.00
5.	<i>Snayu, Asthi, Sandhi</i>	2	6.67
6.	<i>Mamsa, Sira, Snayu</i>	1	3.33
7.	<i>Sira, Asthi, Sandhi</i>	1	3.33
8.	<i>Snayu, Sandhi</i>	1	3.33

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

RESULTS AND DISCUSSION

- Percentage of the types of accidental trauma

Table 1.1

- Sthanika Koorpara Sandhi Marma Viddha Lakshanani* (Structural deformity)

Table 1.2



- *Rachnatmak vikruti* (Anatomical deformities to the structure) at *Koorpar marma* region

Table 1.3

- *Rachnatmak vikruti* (Anatomical deformities to the structure) at *Koorpar Marma* region

Table 1.4

- Types of bony fractures seen in patients

Table 1.5

On elaboration of data of 30 patients it was found that RTA (Road Traffic Accident) is 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 defense mechanism.

History of *Patan* (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 *Rachanatmak*

Vikruti as *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) 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 not found in any of the 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.

CONCLUSION

Following conclusion has been drawn from the conceptual and subclinical data observed.

1. Accidental trauma to *Koorpara Marma* leads to structural deformity at the site of Elbow joint.
2. *Kuni Lakshna* (structural deformity) was found in maximum patients.
3. Structural deformity mainly examined by naked eye, X-ray and USG proved statistically significant. ($p < 0.05$)
4. Out of five structural components constituting *Marma*, '*Sandhi*' structure *Viddhata* is more common at the site of *Koorpara Marma*

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