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*
INTRODUCTION

Marma concept is stated to be the half part of Shalya tantra, trauma to which must be prevented during surgical procedures. Types of accidental trauma at the site of Marma.

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

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 Shabdarchar 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

<table>
<thead>
<tr>
<th>Sr. no.</th>
<th>Type of accidental trauma</th>
<th>No. of Patients out of 30</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>R.T.A</td>
<td>14</td>
<td>46.67</td>
</tr>
<tr>
<td>2</td>
<td>Fall</td>
<td>14</td>
<td>46.67</td>
</tr>
<tr>
<td>3</td>
<td>Dash</td>
<td>1</td>
<td>3.33</td>
</tr>
<tr>
<td>4</td>
<td>Lifting heavy weight</td>
<td>1</td>
<td>3.33</td>
</tr>
</tbody>
</table>

Table 1.2 Sthanika Koorpara Sandhi Marma Viddha Lakshanani (Structural deformity)

<table>
<thead>
<tr>
<th>Sr. no.</th>
<th>Lakshanani</th>
<th>Observed in patients (out of 30)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vastushukairivakee rna</td>
<td>24</td>
<td>80</td>
</tr>
<tr>
<td>2</td>
<td>Kuni</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>Sandhi shosh</td>
<td>01</td>
<td>3.33</td>
</tr>
<tr>
<td>4</td>
<td>Sandhiparpa shopha</td>
<td>10</td>
<td>33.33</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Sr. no.</th>
<th>Anatomical structures</th>
<th>Observed in patients (out of 30)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mamsa</td>
<td>22</td>
<td>73.33</td>
</tr>
<tr>
<td>2</td>
<td>Sira</td>
<td>02</td>
<td>6.66</td>
</tr>
<tr>
<td>3</td>
<td>Snayu</td>
<td>21</td>
<td>70</td>
</tr>
<tr>
<td>4</td>
<td>Asthi</td>
<td>25</td>
<td>83.33</td>
</tr>
<tr>
<td>5</td>
<td>Sandhi</td>
<td>26</td>
<td>86.66</td>
</tr>
</tbody>
</table>

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

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

Table 1.5 Types of bony fractures seen in patients

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

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 Vikriti* as *Sandhi Rachana* is prominently present at the elbow region.

As per the symptoms of trauma to *Sandhi* quoted by *Vagbhata* following observations were seen:

- **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*
REFERENCES


