



Talahridaya Marma and Its Clinical Relevance in 3rd Metacarpal Shaft Fractures: An Integrative Perspective

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Introduction

Marma points are described in Ayurvedic classics as vital structural sites where muscles, veins, ligaments, bones, and joints converge. They serve both functional and energetic roles within the body. Among the 107 marmas elaborated in the *Sushruta Samhita*, **Talahridaya Marma** is classified as a *Kalantara Pranahara Marma*—an injury to which may cause delayed fatality or long-term dysfunction rather than immediate death. 1,2.

Located centrally in the palm (and foot), Talahridaya Marma measures approximately $\frac{1}{2}$ **angula** and is associated with tactile sensation, vascular integrity, and coordinated motor activity. 3. Modern anatomical studies correlate this region with the **palmar aspect of the third metacarpal**, including the superficial palmar arch, flexor tendons, and branches of the median nerve. 4,5.

Fractures of the **third metacarpal shaft**, commonly encountered in athletes and manual labourers, may compromise the structures underlying this Marma region, leading to complex neurovascular and functional deficits.

Anatomical Correlation of Talahridaya Marma

Talahridaya Marma is situated at the midpoint of the palm, overlaying the axis of the **third metacarpal bone**. The anatomical structures in this region include:

- Palmar aponeurosis
- Superficial palmar arch
- Branches of the median nerve
- Flexor digitorum superficialis and profundus tendons

Functionally, this zone supports:

- **Fine tactile perception**
- **Arterial perfusion of the palm and digits**
- **Coordinated digital flexion and grip strength**

Trauma to this region—particularly a fracture of the 3rd metacarpal—may compromise these structures, resulting in sensory loss, vascular insufficiency, and impaired motor control.

Clinical Presentation of 3rd Metacarpal Shaft Fracture

Third metacarpal fractures typically occur due to **direct trauma** or **axial loading on a clenched fist**, such as during punching injuries. Standard clinical features include:

- Swelling, tenderness, and ecchymosis over the central palm
- Pain on palpation along the 3rd metacarpal
- Reduced grip strength
- Difficulty in finger flexion or making a fist

Involvement of the Talahridaya Marma zone increases the risk of:

- Neurovascular compromise
- Delayed healing
- Persistent functional impairment

Ayurvedic Perspective

In Ayurveda, injury to Talahridaya Marma leads to “**prāṇa-kṣaya**” (loss of vital energy), **loss of touch sensation** (*sparśa-hāni*), and restricted movement (*gati-sāṅga*) 1,3. As a **Kalantara Pranahara Marma**, its injury may not cause immediate death but can contribute to progressive dysfunction if neglected.

Classical Ayurvedic management principles include:

- **Śamana therapy**: reducing inflammation using cooling, healing formulations
- **Bandhana**: immobilisation using splints and medicated pastes
- **Śodhana**: detoxification therapies when systemic involvement is suspected

These concepts align closely with contemporary fracture care strategies, including immobilisation, anti-inflammatory measures, and surgical stabilisation when required.

Integrative Management Approach

Optimal care of a **3rd metacarpal shaft fracture involving the Talahridaya Marma region** includes:

Modern Orthopaedic Principles

- Accurate fracture reduction (closed or open)
- Immobilisation using appropriate splints or casts
- Monitoring neurovascular status
- Surgical fixation for unstable or displaced fractures

Ayurvedic Supportive Measures

- **Marma Chikitsa** to restore local energy flow
- **Gentle Abhyanga** with suitable taila during the rehabilitation phase
- **Herbal formulations** supporting fracture healing (e.g., *Asthisamharaka*, *Dashamoola*)
- **Physiotherapy** focusing on grip strength and palm mobility

This integrative approach ensures anatomical realignment, functional recovery, and preservation of the Marma's integrity.

Conclusion

Talahridaya Marma holds significant functional and structural relevance from both Ayurvedic and modern anatomical viewpoints. Its involvement in a **third metacarpal shaft fracture** highlights the need for a holistic management strategy that incorporates both traditional Ayurvedic principles and contemporary orthopaedic

practices. A deeper understanding of this Marma can greatly enhance clinical outcomes by preserving fine motor skills, sensory functions, and overall hand performance.

References

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