AYUSHDHARA ISSN: 2393-9583 (P)/ 2393-9591 (O)
An International Journal of Research in AYUSH and Allied Systems

Review Article

AN INTEGRATIVE ANATOMICAL CORRELATION OF *MARMA SHARIR* AND MODERN MYOFASCIAL TRIGGER POINTS: IMPLICATIONS FOR CONTEMPORARY PAIN MANAGEMENT

Apporva Jangir[1]*, Rashi Sharma[2], Dharmendra Choudhary[3], Sunil Kumar Yadav[4]
*[1]PG Scholar, [2]PhD Scholar, [3]Assistant Professor, [4]Professor & Head, Department of Rachana Sharir, National Institute of Ayurveda, Deemed University, Jaipur, Rajasthan, India.

Article info
Article History:
Received: 22-11-2025
Accepted: 21-12-2025
Published: 20-01-2026

KEYWORDS:
Marma, Myofascial trigger points, Ayurveda, Pain.

ABSTRACT

Background: *Marma Sharir* represents a distinctive anatomical framework in Ayurveda. *Marma* points are vital sites formed by the convergence of muscles, vessels, ligaments, bones, and joints. In modern medicine, myofascial trigger points are commonly observed as localized areas within skeletal muscles that display increased tenderness and are frequently associated with pain and functional limitation. Although rooted in different medical paradigms, both concepts emphasize structurally vulnerable and clinically significant regions of the human body. **Objective:** To analyse the anatomical and functional correlations between *Marma Sharir* and Myofascial trigger points and to explore their relevance in integrative pain management. **Material and Methods:** Classical Ayurvedic texts including *Sushruta Samhita* and *Ashtanga Hridaya* were reviewed for descriptions of *Marma Sharira*. Contemporary literature related to myofascial trigger points, fascia, neurophysiology, and pain mechanisms was analysed. Correlations were established based on anatomical location, tissue composition, and clinical significance. **Results:** Several *Marmas* demonstrated close anatomical correspondence with commonly identified myofascial trigger points, particularly in regions rich in neurovascular structures and myofascial continuity. Shared features include increased nociceptor density, fascial involvement, and functional vulnerability to mechanical stress. **Conclusion:** *Marma Sharir* and myofascial trigger points exhibit significant anatomical and functional overlap. An integrative interpretation of these concepts provides a rational anatomical basis for combined therapeutic approaches in contemporary pain management.

INTRODUCTION

Musculoskeletal pain disorders are among the leading causes of disability worldwide, significantly affecting quality of life and work productivity.[1] In modern pain science, myofascial dysfunction is recognized as a major contributor to chronic pain syndromes, with myofascial trigger points playing a central role in pain generation and persistence.[2]

Ayurveda, through the concept of *Marma Sharira*, has long emphasized the clinical importance of specific anatomical sites whose injury or dysfunction results in pain, deformity, or even fatal outcomes like death.

Access this article online
Quick Response Code
https://doi.org/10.47070/ayushdhara.v12i6.2381

Although Ayurveda and modern medicine differ in their philosophical foundations, both systems underline the importance of precise anatomical localization and tissue vulnerability. Exploring the anatomical correlation between *Marma Sharir* and myofascial trigger points may provide valuable insights into integrative pain management.

Marma Sharira: Ayurvedic Anatomical Perspective

Classical Ayurvedic texts describe a total of 107 *Marmas* distributed throughout the limbs, trunk, and head–neck region. According to *Sushruta Samhita*, *Marmas* are vital points where *Prana* (life force) resides, and injury to these sites leads to severe consequences such as pain, loss of function, or death.[3]

Structurally, *Marmas* are composed of five anatomical components:

Mamsa (muscle)
Sira (vessels)

Snayu (ligaments, tendons, fascia)
Asthi (bone)
Sandhi (joint)

This composite structural description reflects an advanced understanding of anatomical integration and vulnerability, closely resembling modern concepts of musculoskeletal and neurovascular interdependence.

Myofascial Trigger Points: Modern Anatomical Perspective

Myofascial trigger points (MTrPs) refer to discrete, palpable areas of increased sensitivity found within tightened bands of skeletal muscle and the surrounding fascial tissue. These sensitive regions may produce localized pain, pain referral to distant areas, disturbances in normal muscle function, and accompanying autonomic responses. MTrPs are a central feature of myofascial pain syndrome and are widely recognized as a significant contributor to both acute and chronic musculoskeletal pain conditions.

Anatomical and Structural Characteristics

Anatomically, myofascial trigger points are commonly found at musculotendinous junctions, motor end-plate zones, and regions of dense fascial interconnections. These locations are structurally vulnerable due to the convergence of muscle fibers, connective tissue, nerves, and microvasculature. Palpation typically reveals a taut band within the affected muscle, and compression of the trigger point often elicits a local twitch response, reflecting an involuntary spinal reflex mediated by sensitized muscle spindles.

Histological and imaging studies suggest that trigger points are associated with localized contractures of sarcomeres, increased stiffness of surrounding fascia, and alterations in extracellular matrix composition. These microstructural changes contribute to impaired muscle extensibility and altered biomechanical behavior.

Neurophysiological and Biochemical Mechanisms

The pathophysiology of myofascial trigger points is multifactorial and involves complex interactions between peripheral tissues and the nervous system. Key mechanisms include:

- Dysregulated acetylcholine activity at the neuromuscular junction resulting in sustained muscle contraction.
- Compromised local blood flow leading to ischemic and hypoxic tissue conditions.
- Local build-up of pain-producing and inflammatory biochemical substances.
- Increased sensitivity of pain receptors in the affected muscle region.

Persistent nociceptive input from active trigger points can also lead to central sensitization, amplifying pain perception and contributing to widespread pain and chronicity.

Referred Pain and Autonomic Phenomena

A distinctive clinical feature of myofascial trigger points is their ability to produce referred pain, often following predictable patterns that do not correspond to dermatomal distributions. Referred pain from trigger points occurs due to shared neural pathways at the spinal level, where sensory signals from muscles and overlying skin are processed together.

In addition to pain, trigger points may evoke autonomic responses, including local sweating, vasoconstriction, or vasodilation, pilomotor activity, and temperature changes. These findings further support the involvement of the autonomic nervous system in myofascial pain pathology.

Functional and Biomechanical Implications

Functionally, active trigger points impair normal muscle performance, leading to reduced strength, altered recruitment patterns, restricted range of motion, and postural imbalance. Chronic presence of trigger points can disrupt normal movement patterns, increasing mechanical stress on adjacent muscles and joints and perpetuating a cycle of pain and dysfunction.

From a biomechanical perspective, trigger points alter fascial tension and force transmission across myofascial chains. This concept aligns with contemporary models of fascial continuity, emphasizing that localized myofascial dysfunction can have regional and even distant functional consequences.

Clinical Relevance in Pain Syndromes

Myofascial trigger points are frequently identified in commonly affected postural and overused muscles, such as the upper trapezius, levator scapulae, gluteus medius, piriformis, and paraspinal muscles. They play a significant role in conditions including:

- Chronic neck and shoulder pain
- Low back pain
- Tension-type headaches
- Temporomandibular disorders
- Fibromyalgia-like pain presentations

Recognition of myofascial trigger points as distinct anatomical and functional entities has led to the development of targeted therapeutic interventions such as manual trigger point release, dry needling, acupuncture, and myofascial release techniques.

DISCUSSION

Anatomical Correlation Between *Marma Sharir* and Myofascial Trigger Points

A comparative anatomical analysis of *Marma Sharir* and myofascial trigger points reveals substantial overlap in terms of location, structural composition, neurovascular complexity, and functional behavior. Although originating from distinct medical traditions, both concepts describe strategically vulnerable anatomical regions that play a central role in pain perception, movement regulation, and functional integrity of the musculoskeletal system.

Topographical Correspondence

Marmas are consistently located at junctional regions of the body where multiple anatomical structures converge, including muscles, tendons, fascia, nerves, vessels, bones, and joints. Similarly, myofascial trigger points are predominantly identified at musculotendinous junctions, motor end-plate zones, and fascial intersections. These areas are subjected to high mechanical stress during posture and movement, rendering them particularly susceptible to microtrauma and dysfunction.

Several clinically significant *Marmas*- such as *Amsa* (shoulder), *Kukundara* (gluteal region), *Kshipra* (interdigital spaces), and *Katikataruna* (hip region)- demonstrate close spatial correspondence with well-documented trigger point locations in the upper trapezius, gluteus medius, intrinsic hand muscles, and piriformis muscle respectively. This topographical overlap suggests that both systems identify functionally critical points through anatomical vulnerability rather than arbitrary localization.

Structural and Tissue Composition Correlation

Classical Ayurvedic texts describe *Marmas* as being composed of five fundamental anatomical elements: *Mamsa* (muscle), *Sira* (vessels), *Snayu* (ligaments, tendons, and fascia), *Asthi* (bone), and *Sandhi* (joint). This composite structural description closely mirrors modern anatomical understanding of trigger point sites, which involve:

- Skeletal muscle fibers and motor end plates
- Fascial layers and intermuscular septa
- Microvascular networks
- Sensory and autonomic nerve fibers

The inclusion of *Snayu* in *Marma* composition is particularly noteworthy, as contemporary research emphasizes the role of fascia in force transmission, proprioception, and pain modulation. Trigger points are now increasingly understood as myofascial phenomena, reinforcing the anatomical validity of *Marma Sharir* descriptions.

Neurovascular Density and Pain Sensitivity

Both *Marmas* and myofascial trigger points are characterized by high neurovascular density, which explains their heightened sensitivity to mechanical, thermal, and chemical stimuli. Modern studies demonstrate that trigger point regions contain increased concentrations of nociceptors and sensitized nerve endings, along with altered microcirculation and local ischemia.

Ayurvedic texts attribute the vital nature of *Marmas* to the presence of *Prana*, which can be anatomically interpreted as the integrated function of neural and vascular elements essential for tissue viability and sensory-motor coordination. Injury or dysfunction at these sites, therefore, results in disproportionate pain, functional impairment, or systemic effects, a phenomenon also observed clinically with active trigger points.

Fascial Continuity and Referred Pain Patterns

One of the most compelling correlations between *Marma Sharir* and myofascial trigger points lies in the phenomenon of referred pain. Trigger points characteristically produce pain patterns that extend beyond the local site and follow predictable but non-dermatomal pathways. This is explained by both central neural convergence and myofascial continuity.

Ayurvedic descriptions of *Marma* injury frequently mention pain radiation along specific regions or functional pathways, which can be anatomically correlated with modern concepts of fascial chains and myofascial meridians. The involvement of *Snayu* in Marmas provides a classical explanation for tension transmission and distant symptom manifestation, supporting the idea that Marmas function within an interconnected fascial network rather than as isolated points.

Functional Vulnerability and Biomechanical Significance

From a biomechanical perspective, both Marmas and trigger points are located in regions critical for load transfer, postural stability, and coordinated movement. Dysfunction at these sites disrupts normal muscle activation patterns, alters joint mechanics, and increases strain on adjacent structures. Over time, this can lead to compensatory movement strategies, chronic pain, and functional disability.

Classical Ayurvedic texts emphasize that trauma to *Marmas* results in loss of strength, deformity, or restricted movement- clinical outcomes that parallel modern observations of muscle inhibition, weakness, and reduced range of motion associated with active trigger points.

Clinical Behavior and Therapeutic Responsiveness

Another significant area of convergence is the clinical response to mechanical stimulation. Both *Marmas* and trigger points exhibit pronounced sensitivity to palpation and respond therapeutically to targeted manual or needling interventions. The elicitation of pain relief following stimulation of specific *Marmas* aligns closely with modern trigger point therapies such as dry needling, ischemic compression, and myofascial release.

This therapeutic responsiveness further supports the anatomical equivalence of these points and highlights the potential for integrative treatment strategies that draw upon both traditional and contemporary anatomical knowledge.

Table 1: Structural Correlation Between Selected *Marmas* and Myofascial Trigger Points

Marma	Classical Location	Modern Anatomical Correlate	Clinical Significance
Amsa	Shoulder region	Upper trapezius trigger point	Neck and shoulder pain
Kshipra	Web of hand/foot	Intrinsic muscle trigger points	Referred limb pain
Kukundara	Gluteal region	Gluteus medius trigger point	Low back pain
Katikataruna	Hip region	Piriformis trigger point	Sciatic-like pain

CLINICAL IMPLICATIONS IN INTEGRATIVE PAIN MANAGEMENT

Understanding the anatomical convergence of *Marma Sharir* and Myofascial trigger points supports integrative therapeutic strategies such as:

- More accurate localization of pain-generating structures, Identification of vulnerable muscle–fascial–neurovascular junctions and understanding referred pain patterns described in both systems
- Structural explanation of *Prana*-related vulnerability using neurovascular density.
- Expansion of Non-Pharmacological Treatment Options like –
    - ❖ Mapping trigger points to Marmas supports rational use of non-drug therapies, including:
    - ❖ *Marma* therapy
    - ❖ Dry needling and acupuncture and cupping therapy.
    - ❖ Myofascial release techniques
    - ❖ Manual therapies and postural corrective exercises.
- As many chronic pain syndromes respond poorly to single-system interventions. An integrative approach:
    - ❖ Addresses both local tissue dysfunction and systemic imbalance.
    - ❖ Enhances long-term pain relief and functional recovery.
    - ❖ Provides individualized treatment planning.

Scope for Future Research

- ✓ Imaging-based anatomical mapping of *Marmas* and trigger points.
- ✓ Neurophysiological assessment of pain sensitivity at *Marma* sites.
- ✓ Randomized clinical trials evaluating *Marma*-based interventions.

These investigations can strengthen the evidence base for integrative pain management.

CONCLUSION

Marma Sharir and myofascial trigger points offer two complementary perspectives for understanding anatomically sensitive regions that play a crucial role in pain generation and functional disturbance. Their significant overlap in location, tissue composition, and functional behavior provides a strong anatomical basis for integrative pain management, bridging classical Ayurvedic anatomy with modern medical science. This convergence suggests that *Marma Sharir* reflects an early, systematic recognition of myofascial and neurovascular vulnerability. Correlating *Marma* locations with established trigger point anatomy enhances the clinical relevance of Ayurvedic concepts while offering modern pain science a broader, structurally grounded perspective. Importantly, such integration supports safer, targeted, and non-pharmacological therapeutic strategies, particularly for chronic musculoskeletal pain. Although primarily analytical, this work lays a foundation for future anatomical, neurophysiological, and clinical research aimed at developing standardized integrative diagnostic and therapeutic protocols.

REFERENCES

1. Sushruta. Sushruta Samhita. Sharira Sthana. Varanasi: Chaukhambha Orientalia; 2014.
2. Vagbhata. Ashtanga Hridaya. Sharira Sthana. Varanasi: Chaukhambha Surbharati Prakashan; 2015.
3. Simons DG, Travell JG, Simons LS. Myofascial pain and dysfunction: The trigger point manual. 2nd ed. Baltimore: Williams & Wilkins; 1999.

4. Shah JP, Thaker N, Heimur J, Aredo JV, Sikdar S, Gerber L. Myofascial trigger points then and now: A historical and scientific perspective. PM R. 2015; 7(7): 746-61.
5. Stecco C. Functional atlas of the human fascial system. Edinburgh: Elsevier; 2015.
6. Gerwin RD. Diagnosis of myofascial pain syndrome. Phys Med Rehabil Clin N Am. 2014; 25(2): 341-55.
7. Dommerholt J, Fernández-de-las-Peñas C. Trigger point dry needling: An evidence and clinical-based approach. Edinburgh: Elsevier; 2018.
8. Langevin HM, Huijing PA. Communicating about fascia: History, pitfalls, and recommendations. J Bodyw Mov Ther. 2009; 13(1): 3-8.

Cite this article as:
Apporva Jangir, Rashi Sharma, Dharmendra Choudhary, Sunil Kumar Yadav. An Integrative Anatomical Correlation of Marma Sharir and Modern Myofascial Trigger Points: Implications for Contemporary Pain Management. AYUSHDHARA, 2025;12(6):380-384.
https://doi.org/10.47070/ayushdhara.v12i6.2381
Source of support: Nil, Conflict of interest: None Declared

***Address for correspondence**
Dr. Apporva Jangir
PG Scholar,
Department of Rachana Sharir,
National Institute of Ayurveda,
Deemed University, Jaipur.
Email: apoorvajangir.7@gmail.com