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AN INTEGRATIVE ANATOMICAL REVIEW OF PRISHTHA MARMA WITH SPECIAL REFERENCE TO AWABAHUKA AND KATISHOOLA

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ABSTRACT

Ayurveda defines *Marma* as vital anatomical sites where the five principal body structures—*Mamsa* (muscle), *Sira* (vessels), *Snayu* (ligaments/tendons), *Asthi* (bone), and *Sandhi* (joints)—intersect, forming highly sensitive centers of *Prana* that maintain structural and functional integration of the human body. Among the 107 Marmas described in classical Ayurvedic texts, *Prishtha Marma* located on the posterior aspect of the body possess significant clinical importance due to their direct involvement in axial and appendicular locomotion. These Marmas maintain neurovascular regulation, biomechanical stability, and musculoskeletal mobility.Disorders such as *Awabahuka* (correlated with Adhesive Capsulitis/Frozen Shoulder) and *Katishoola* (correlated with Mechanical Low Back Pain) commonly arise due to Vata vitiation in Snayu-dominant Marma regions. Modern literature associates these conditions with capsular fibrosis, myofascial tightness, nerve compression, facet joint degeneration, and postural stress. Prishtha Marmas anatomically correspond to major neural pathways including the suprascapular nerve, axillary nerve, sciatic nerve, and lumbar plexus, as well as fascial components like the thoracolumbar fascia—structures known to influence pain perception, motor coordination, and proprioception. *Marma Chikitsa*, a therapeutic approach involving precise manual manipulation of selective Marmas, has been shown to improve pain threshold, reduce muscle spasm, enhance microcirculation, and restore joint

range of motion through neuromodulation and myofascial release mechanisms. This integrative review aims to correlate Prishtha Marmas with modern neuro-musculoskeletal anatomy and analyze their therapeutic efficacy in Awabahuka and Katishoola. Establishing anatomical-clinical correlations may contribute to evidence-based validation and global acceptance of Ayurvedic Marma-based interventions in musculoskeletal pain management.

KEYWORDS: Prishtha Marma, Marma Chikitsa, Awabahuka, Katishoola, Integrative Anatomy, Neuromusculoskeletal Pain.

INTRODUCTION

Marma science represents a sophisticated and integral component of Ayurvedic *Sharira Rachana* (anatomy), *Chikitsa* (therapy), and surgical precaution. According to *Acharya Sushruta*, Marma are vital anatomical locations where *Mamsa* (muscle), *Sira* (vessels), *Snayu* (ligaments/tendons), *Asthi* (bone), and *Sandhi* (joints) intersect, forming life-sustaining points sensitive to injury or dysfunction.[1] These structural junctions serve as regulators of neural conduction, vascular flow, proprioception, and biomechanical integrity. Trauma or pathological involvement of Marma may result in severe pain, neurovascular impairment, disability, deformity, or even death depending on the functional significance of the affected Marma site.[2]

Among the 107 Marmas described in Ayurvedic texts**,** Prishtha Marma—located in the posterior torso including the scapular region, vertebral column, and pelvic girdle—play a pivotal role in maintaining spinal stability and upper-lower limb coordination. These Marmas correspond closely with the axial musculoskeletal and lumbosacral neurovascular system**,** positioning them as highly relevant targets in pain management and neuromotor rehabilitation.

Two common musculoskeletal disorders associated with dysfunction of Prishtha Marmas are.
Awabahuka – A Vata-dominant condition affecting the *Amsa Sandhi* (scapulohumeral joint), presenting with pain, stiffness, and progressive restriction in shoulder movement. It is clinically correlated with Adhesive Capsulitis / Frozen Shoulder, a condition characterized by capsular fibrosis, myofascial adhesion, and limited range of motion.[3]

Katishoola – A condition of the lumbar region characterized by pain, stiffness and neuro-muscular dysfunction**,** correlated with Mechanical Low Back Pain—one of the leading causes of disability worldwide.[4]

Low back pain affects roughly 70–80% of individuals globally during their lifetime**,** while **Frozen** Shoulder accounts for 2–5% of musculoskeletal disorders, particularly in middle-aged populations and diabetics.[5,6] The chronicity of these conditions results in reduced productivity, impaired quality of life, and a substantial socioeconomic burden.

Modern treatment modalities—such as analgesics, corticosteroid injections, NSAIDs, physiotherapy, and surgical release—may provide symptomatic relief but often fail to address underlying neuro-myofascial components. Recurrence, dependence on medication, procedure-related risks and financial constraints emphasize the need for integrative, safe, cost-effective therapeutic strategies**.**

In this context, Marma Chikitsa—the manual stimulation of selected vital points—emerges as an effective remedy described in classical Ayurveda for musculoskeletal disorders involving Vata aggravation. Marma therapy is believed to.

✔ Enhance microcirculation and nourishment to local tissues.

✔ Restore neuromuscular coordination and fascial glide.

✔ Reduce pain perception via neural modulation.

✔ Improve joint range of motion and muscular strength.

✔ Maintain functional integrity of Prana Vaha Srotas.

Modern anatomical science supports these effects through correlations with nerve plexuses, myofascial trigger points, motor end plates, proprioceptive receptors, and vascular perfusion zones**.**

Given the structural proximity of Prishtha Marmas to major neural pathways such as the brachial plexus, suprascapular nerve, sciatic nerve**,** and fascial networks including the thoracolumbar fascia**,** their stimulation provides a biomechanical and neurophysiological basis for therapeutic success in conditions like Awabahuka and Katishoola.

Thus, this review aims to.

 Elaborate Prishtha Marma and their Ayurvedic principles.

 Establish modern anatomical correlations relevant to shoulder and lumbar pathology.

 Analyze the therapeutic mechanism of Marma Chikitsa in pain and mobility disorders.

A comprehensive integration of ancient Ayurvedic doctrine with modern neuromusculoskeletal science may strengthen the clinical utility of Marma-based interventions and promote their global acceptance in rehabilitation medicine.

CONCEPTUAL FRAMEWORK OF MARMA

Definition

Marma is derived from the Sanskrit root *"Mri"—to die*, indicating potential fatality when injured.[6]

Vagbhat describes Marmas as highly sensitive structures due to the presence of Prana, generating intense pain on insult.[7]

Composition of Marma

Sushruta lists five essential structural components.[8]

- Mamsa (muscle)
- Sira (blood vessels)
- Snayu (tendons/ligaments)
- Asthi (bones)
- Sandhi (joints)

Classification

Based on structural dominance[9]

Category	No. of Marmas	Clinical impact
Mamsa	11	Severe pain & disability
Sira	41	Hemorrhage risk
Snayu	27	Spasm, restricted movement
Asthi	8	Fracture & deformity
Sandhi	20	Joint instability

Total Marmas = **107**

DETAILED STUDY OF PRISHTHA MARMA

Sushruta identifies **14 Marmas** on the back.[1]

Marma	Type	No.	Approx. Modern Correlation	Vyadhikar Effects
Katikataruna	Asthi	2	Lumbosacral facets, Sacroiliac notch	Severe disability
Kukundara	Sandhi	2	Ischial tuberosity & sciatic nerve	Sensory–motor loss
Nitamba	Asthi	2	Iliac crest & gluteal insertion	Muscle wasting
Parshvasandhi	Sira	2	Common iliac vascular plexus	Hemorrhage
Brihati	Sira	2	Subscapular artery & plexus	Shock/bleeding
Ansaphalaka	Asthi	2	Spine of scapula & suprascapular nerve	Shoulder muscle atrophy
Ansa	Snayu	2	Glenohumeral ligaments, trapezius	Upper limb stiffness

Prishtha Marma & Neuromusculoskeletal Correlation

Modern anatomical relationships relevant to clinical pain.

Marma	Neural Structure	Functional Significance
Amsa	Axillary nerve	Deltoid mobility
Ansaphalaka	Suprascapular nerve	Rotator cuff coordination
Brihati	Thoracodorsal & dorsal scapular nerves	Scapular stabilization
Katikataruna	L4–S1 spinal nerves	Posture, gait stability
Kukundara	Sciatic nerve origin	Lower limb motor–sensory output

The pathophysiological involvement leads to.

- Myofascial tension bands
- Joint hypomobility
- Nerve compression
- Local ischemia → Pain

CORRELATION WITH AWABAHUKA (FROZEN SHOULDER)

Awabahuka is described as Vata-prakopa leading to **Sira & Snayu involvement** in Amsa Sandhi.[10]

Modern Equivalent

Adhesive Capsulitis

- Progressive capsular fibrosis
- Rotator cuff dysfunction
- Reduced joint lubrication due to synovial adhesions[3]

Marmas Involved

- Amsa
- Ansaphalaka

- Brihati

Functional impact

- Reduced abduction & external rotation
- Shoulder girdle fatigue
- Pain radiating to the arm

CORRELATION WITH KATISHOOLA (LOW BACK PAIN)

Katishoola arises due to Vata impairment in lumbosacral structures.[11]

Modern Equivalent

Mechanical Low Back Pain

Causes

- Disc dehydration
- Ligamentous strain
- Myofascial trigger points
- Spinal facet joint osteoarthritis[12]

Marmas Involved

- Katikataruna
- Kukundara
- Nitamba
- Parshvasandhi

Functional consequences

- Restricted trunk mobility
- Sciatic-type radiation
- Pelvic imbalance

THERAPEUTIC SIGNIFICANCE — MARMA CHIKITSA

Marma therapy is based on gentle manual stimulation for Prana reset and neuromuscular harmonization.

Mechanisms of Action (Scientific Basis)

Mechanism	Clinical Impact
Pain gate modulation (Melzack & Wall Theory)	Immediate pain relief
Parasympathetic activation	Relaxation, reduced muscle spasm
Myofascial release & trigger point deactivation	Functional mobility gain
Improved microcirculation	Reduced inflammation
Neuroplastic adaptability	Better motor control

Oil Used: Mahanarayana Taila / Dhanwantaram Taila → Lubricates Snayu & Sira.

Procedure

- **Pressure**: Mild–moderate using thumb pulp
- **Duration**: 15–20 min / session
- **Frequency**: Daily for 14 days
- **Position**: Prone + Supine
- **Repetitions**: 30 per Marma per session

Self-care teaching helps prolong therapeutic results.

DISCUSSION

Prishtha Marmas represent crucial neuromusculoskeletal convergence zones responsible for the stability and coordinated functioning of the spine, shoulder girdle, and pelvic complex. Ayurveda attributes Vata vitiation as the primary pathology in *Awabahuka* and *Katishoola,* where deranged neuromotor control leads to stiffness (*Stambha*), pain (*Shoola*), and functional limitation (*Cheshtahani*). These classical descriptions remarkably align with modern findings such as myofascial contracture, joint capsule restriction, neural entrapment, and altered proprioception.

Biomechanical & Neuromyofascial Relevance

Posterior chain musculature and fascia form a continuous kinetic network stretching from occiput → scapula → thoracolumbar fascia → gluteal region → hamstrings. Irritation of a single Prishtha Marma—for instance, Katikataruna or Ansaphalaka—may lead to compensatory hyperactivity across the chain, perpetuating pain cycles.

Modern research supports that.

✔ Thoracolumbar fascia stiffness contributes to low back pain

✔ Scapular dyskinesis triggers shoulder capsular tightness

✔ Pelvic misalignment alters spinal load and induces nociceptive signaling

Thus, the clinical manifestations described in Ayurveda reflect highly relevant biomechanical dysfunctions acknowledged today.

Neurological Correlation of Prishtha Marma

Marma points precisely overlie.

- **Nerve plexuses:** brachial plexus, lumbar plexus, sacral plexus
- **Peripheral nerves:** suprascapular, axillary, sciatic
- **Motor end plates & proprioceptors:** muscle spindles, Golgi tendon organs

Stimulation of these regions can modulate afferent input to the spinal cord and motor cortex, aiding in.

✓ Neurological reset of aberrant muscle guarding

✓ Improved coordination of rotator cuff & paraspinal stabilizers

✓ Pain-gate modulation via inhibitory interneurons

Physiological Mechanisms Behind Marma Chikitsa

Marma stimulation exerts multidimensional effects.

Mechanism	Therapeutic Effect	Evidence
Endogenous opioid release	↓ Pain, relaxation	Neuroscience studies on acupoint & trigger point therapy
Enhanced microcirculation	↓ Ischemia, ↓ inflammation	Doppler and perfusion studies
Myofascial release	↑ ROM, ↓ stiffness	Fascia-based rehabilitation models
Neuromodulation	Improves motor unit recruitment	EMG-based studies
Biopsychosocial relaxation	↓ Anxiety & pain perception	Chronic pain behavioral research

These scientific insights validate the Ayurvedic concept of **Prana flow restoration** through Marma manipulation.

Clinical Evidence Supporting Marma Therapy

Multiple controlled studies (Ayurvedic and integrative) report improvements in.

- Visual Analog Scale (VAS) scores
- Shoulder Pain and Disability Index (SPADI) in adhesive capsulitis
- Modified Oswestry Disability Index (MODI) in chronic low back pain
- Range of Motion (ROM) in both disorders

Marma therapy demonstrated equal or superior outcomes compared to physiotherapy and analgesics—without adverse effects.

Integrative Clinical Implication

Considering.

✔ Avoidable side-effects of NSAIDs

✔ High recurrence with only physiotherapy

✔ Cost burden of surgery and injections

→ Marma Chikitsa stands as a viable, safe, non-pharmacological, cost-effective modality.

It addresses root-level neuromusculoskeletal dysfunction rather than offering temporary symptom relief.

Synthesis of Ayurvedic and Modern Perspectives

Ayurvedic Pathogenesis	Modern Equivalent
Vata vitiation in Snayu & Sandhi	Capsular fibrosis, nerve tension
Srotorodha (obstruction)	Myofascial trigger points
Sankocha (contracture)	Reduced joint mobility
Shoola (pain)	Nociceptive sensitization

This correlation demonstrates Ayurveda's advanced anatomical insight, centuries ahead of modern conceptualization.

CONCLUSION

Prishtha Marmas show strong correlations with key neurovascular and musculoskeletal structures responsible for upper limb and spinal function. Dysfunction in these Marmas manifests as Awabahuka and Katishoola, leading to major disability worldwide. Marma Chikitsa offers a targeted therapeutic approach that restores neuromyofascial balance, enhances circulation, and modulates pain perception without adverse effects. Integrating traditional Marma knowledge with modern clinical anatomy provides a scientifically sound framework for developing evidence-based rehabilitative strategies in Ayurveda. Further randomized trials with imaging, EMG, and objective functional markers can strengthen the acceptance of Marma-based protocols in global pain management.

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