AN ILLUSTRATIVE DESCRIPTION OF THE DYNAMICS OF MANIPULATION AND MASSAGE TECHNIQUES USING MARMA VITAL LANDMARKS FOR CHRONIC PAIN MANAGEMENT

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ABSTRACT

Pain (Vedana/Shula) is among the most common presenting complaints across both classical and contemporary clinical practice, and its long-term pharmacological management is limited by adverse effects, tolerance, and cost. Ayurveda and Siddha, the two major classical medical systems of the Indian subcontinent, independently developed detailed frameworks for the manipulation of vital points on the body — termed Marma in Ayurveda and Varma(m) in Siddha — as a means of restoring physiological equilibrium and relieving pain without the use of internal medication. This narrative review synthesises descriptions of Marma and Varma from classical textual sources, namely the Sushruta Samhita, Charaka Samhita, and Ashtanga Hridayam for the Ayurvedic tradition, and the classical Siddha Varmam corpus (Varma Beerangi, Varma Sutram and allied texts) for the Siddha tradition, supplemented by two clinically oriented, illustration-rich practitioner textbooks used for technical clarity, and cross-verified through consultation with practising traditional Marma and Varma practitioners as well as Ayurveda and Siddha graduates. The review examines the Tridosha framework and its relationship to pain, the specific role of Vata dosha in nociception, classical methods of Vata Shamana, the surface anatomy and classification of Marma/Varma points, documented manipulation and massage techniques, and the direction and pressure principles governing therapeutic application. Current clinical evidence, largely case reports, case series, and a small number of controlled protocols, is discussed alongside proposed neurophysiological correlates such as gate-control modulation and mechanoreceptor stimulation.Marma manipulation therapy is proposed to exert its therapeutic effect by acting upon *Angirasa*, the subtle substance (sūkṣma padārtha) sustaining the body as prāṇa-rasa within its limbs, thereby correcting disturbances at the srotas level analogous to the restorative action classically attributed to amṛta. By engaging the spiritual heart as the regulatory center of *Angirasa*, manual intervention at Marma points is hypothesized to restore systemic equilibrium and alleviate chronic pain through mechanisms extending beyond conventional anatomical or neuromuscular explanation. The review concludes that Marma and Varma manipulation represent a technically detailed, textually well-documented, non-pharmacological option for acute and chronic pain that merits structured clinical validation while its original technique, described in the classical sources, is preserved without premature modern reinterpretation.

KEYWORDS: Marma, Varma, Vedana, Shula, Tridosha, Vata Dosha, Non-pharmacological pain management, Ayurveda, Siddha.

INTRODUCTION

Pain has been recognised as a distinct clinical entity in the Indian subcontinent's classical medical literature for over two millennia. Ayurveda designates it principally as Vedana or Shula, describing it not merely as a peripheral sensation but as a manifestation of deranged Vata dosha interacting with the other Doshas, Dhatus (tissues), and Srotas (channels) of the body. Parallel to this, the Siddha system of Tamil Nadu and southern Kerala developed the discipline of Varma Kalai, in which 108 vital points

(Varmam) distributed across the body are described as junctions where Naadis (channels), muscle, and bone converge, and through which Vasi (vital energy) is regulated.
Both systems converge on a shared clinical proposition: that carefully directed manual pressure, massage, and manipulation of defined vital points can modulate pain without recourse to internal pharmacological agents. This proposition has considerable contemporary relevance. Chronic musculoskeletal pain is a leading cause of disability worldwide, and long-term reliance on analgesics, particularly opioids and NSAIDs, carries well recognised risks of dependence, gastrointestinal, renal and hepatic morbidity. A textually grounded, non-pharmacological technique that has been practised and refined over centuries therefore warrants systematic documentation and review.
This narrative review sets out to consolidate the classical descriptions of Marma and Varma manipulation as pain-management tools, in their original technical form, before they are filtered through modern biomedical reinterpretation, and to place them alongside the currently available clinical evidence.

2. Aims and Objectives

- To understand the scientific mechanisms proposed to underlie the action of Marma therapy in pain reduction.
- To evaluate Marma therapy as a non-pharmacological pain-management option for a range of chronic and acute painful conditions.
- To document the technical and practical aspects of Marma massage and manipulation technique in its original classical form, avoiding premature modern reinterpretation.

3. METHODOLOGY

This is a narrative review. The primary literature source for Marma in Ayurveda is the Sushruta Samhita, particularly the Sharira Sthana chapter on Marma Sharira, supplemented by the Charaka Samhita and Ashtanga Hridayam. The primary literature source for Varma in the Siddha tradition is the corpus of classical Varmam textbooks, including Varma Beerangi, Varma Sutram, Varma Kalai Kannadi Sutram, and allied palm-leaf-derived manuscripts codified in printed form.
Classical textual authority in this domain is unquestioned; however, most classical texts are relatively sparse in illustration, which limits their direct practical utility for a clinician attempting to reproduce a technique. Two clinically oriented textbooks authored by recognised Marma experts, distinguished by superior descriptive clarity and supporting illustrations, were therefore additionally referred to for their practical and technical utility, without according them equal textual authority to the classical Samhitas. The techniques described were further cross-checked in discussion with renowned local traditional practitioners, and with Ayurveda and Siddha graduates practising Marma and Varma therapy in clinical settings, to confirm fidelity to traditionally transmitted technique.
Literature was organised thematically rather than through a systematic database search protocol, consistent with the narrative review format, and supplemented, where relevant, with indexed contemporary clinical publications on Marma and Varma therapy in pain management, retrieved to contextualise the classical description against present-day clinical evidence.

4. LITERATURE REVIEW

4.1 Pain in the Ayurvedic and Siddha Systems

Ayurveda designates pain principally through the terms Vedana and Shula. Vedana is the broader term for any unpleasant sensory experience, while Shula denotes a more acute, often colicky or piercing quality of pain.
Sharma, in a review on pain management through Marma Chikitsa, notes that pain has both a physical and an emotional component, that the physical component arises from nerve stimulation, and that Ayurvedic literature correlates this experience most closely with the term Vedana1. Charaka Samhita addresses pain within its description of Vata-predominant disease, since Vata is considered the Dosha principally responsible for all forms of somatic sensation, including pain, owing to its qualities of movement (Chala) and its governance of the nervous and motor functions of the body.

In the Siddha system, the corresponding framework is built around the concept of Vali (Vata) and its role in the movement of Vasi, the vital energy that animates the 72,000 Naadis of the body. Disturbance in the free circulation of Vasi at a Varmam point is understood in Siddha to manifest clinically as localised pain, stiffness, or loss of function, closely paralleling the Ayurvedic description of Vata vitiation at a Marma.

4.2 Tridosha Siddhanta and Pain

The Tridosha Siddhanta is the foundational physiological framework of Ayurveda, describing the body's functions in terms of three regulatory principles: Vata (movement and nervous function), Pitta (transformation and metabolism), and Kapha (structure and lubrication). Health is defined as a state of Dosha equilibrium (Sama Avastha), while disease, including pain, arises from their vitiation (Vishamata).

Among the three, Vata is assigned primacy in the genesis of pain. Classical commentary explains that when a Marma-associated blood vessel (Sira) is injured, consequent loss of Rakta Dhatu leads to aggravation of Vata, which in turn intensifies Pitta and produces severe pain2. Pitta contributes a burning, inflammatory quality to pain, while Kapha, when involved, contributes heaviness, dullness, and a sensation of stiffness accompanying the pain. Practical Marma assessment therefore requires an evaluation of which Dosha predominates in a given painful presentation, since the choice of manipulation technique, direction of pressure, and adjunctive measures are calibrated to pacify the specific Dosha implicated.

This Tridosha-based clinical reasoning distinguishes classical Marma therapy from a purely mechanical or point-based system: the same anatomical point may be treated with different technique, pressure, and direction depending on the Doshic quality of the presenting pain.

4.3 Marma and Pain

The term Marma is defined by Acharya Sushruta on the basis of its potential to cause death or severe morbidity upon injury; Arunadatta's commentary on the Ashtanga Hridayam further clarifies that even where injury to a Marma does not prove fatal, it produces pain of such severity that the patient experiences it as an approach to death3. Sushruta systematically enumerated 107 Marma points, (Fig 1) classifying them by the predominant structure involved (Mamsa, Sira, Snayu, Asthi, Sandhi), by anatomical region (Shakha, Madhya Sharira, Urdhva Jatru Gata), and, most significantly for pain practice, by prognosis following injury: Sadyahpranahara (immediately life-threatening, 19 points), Kalantara Pranahara (delayed fatality, 33 points), Vishalyaghna (fatal on removal of an embedded foreign body, 3 points), Vaikalyakara (causing deformity, 44 points), and Rujakara (causing pain without threat to life or structural integrity, 8 points)4,5.

The Rujakara category, comprising points such as the paired Manibandha (wrist) and Gulpha (ankle) Marma, is of particular relevance to a pain-management review, since these points are described as producing significant local pain on stimulation or injury without the systemic risk associated with the vital-organ Marmas6. This classical prognostic classification allows the practitioner treating pain to select points that carry a favourable safety margin for repeated therapeutic pressure while still eliciting the desired analgesic response through the same neuro-vascular convergence that, in excess, would produce morbidity. Charaka, in contrast to Sushruta's exhaustive structural enumeration, names only three Marma of overriding clinical importance, Murdha (head), Hridaya (heart), and Basti (urinary bladder)7, reflecting a more functional than anatomical emphasis, consistent with his broader concern with systemic disease process (Vata Vyadhi) rather than surgical topography.

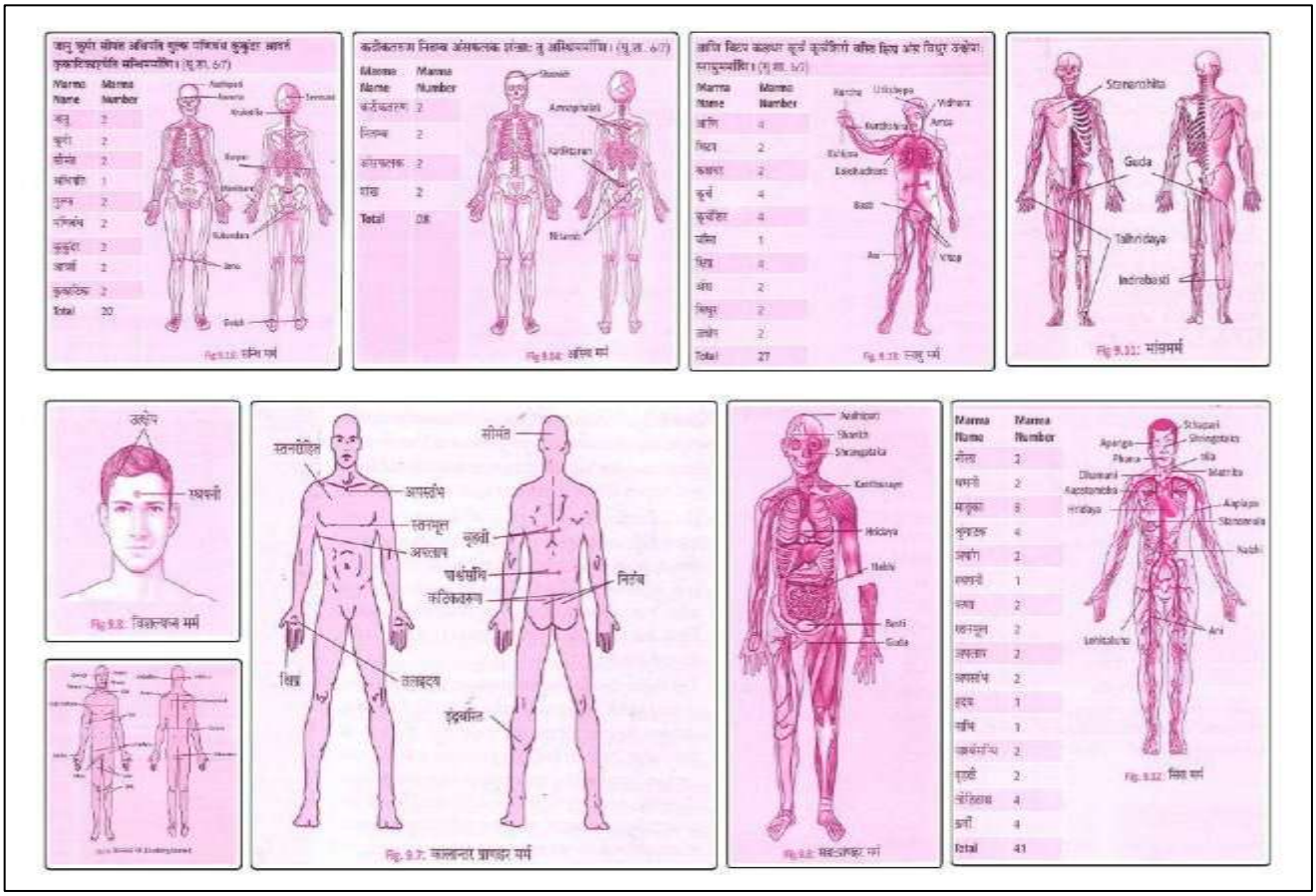

Fig.1: Classification and enumeration of marma landmarks based on Ayurveda classics

4.4 Management of Vata Dosha

Because Vata is held to govern all somatic sensation and movement, its pacification (Vata Shamana) forms the therapeutic backbone of classical pain management, and, by extension, of Marma therapy. Charaka Samhita's Vatavyadhi Chikitsa chapter (Chikitsa Sthana 28) lays out the principal modalities of Vata Shamana: Snehana (oleation, internal and external), Swedana (sudation/fomentation), and Samshodhana (purificatory Panchakarma procedures, particularly Basti)8,9.

Snehana is described as providing immediate nourishment to depleted tissue and restoring strength, digestive capacity, and Prana, while Swedana is specifically credited with prompt relief of Toda (pricking pain), Ruk (ache), Stambha (stiffness), Graha (spasticity), and Aayama (contracture), the very symptom cluster that characterises Vata-type painful disorders8. Classical commentary compares a stiffened limb to dry wood, which, like wood, can only be gradually and safely re-shaped through the combined, repeated application of oiling (Sneha) and heat (Sweda), rather than through abrupt force.

Basti (medicated enema) is repeatedly emphasised across the classics as the single most authoritative measure for Vata Shamana, given Vata's primary seat in the Pakvashaya (colon)10. Externally, Abhyanga (oleated massage) constitutes the direct manual analogue of internal Snehana and forms the technique through which Marma-directed massage is delivered in practice: the medicated oil both lubricates the manipulation and is itself credited with a local Vata-pacifying action at the point of application.

Within this framework, Marma manipulation functions as a targeted, topographically precise adjunct to the broader classical Vata Shamana protocol: where Snehana, Swedana, and Basti address systemic Vata vitiation, direct massage and pressure at the relevant Marma or Varmam point addresses the localised Vata derangement understood to underlie a specific site of pain.

4.5 Qualitative Assessment of Pain and Its Management According to Ayurveda

Classical Ayurveda does not employ a numerical pain scale; instead, pain is qualitatively characterised through descriptive terms that carry diagnostic significance for the underlying Doshic imbalance. Toda (pricking), Chala (migratory), and Ruk with Stambha (ache with stiffness) are typically attributed to

Vata; Daha (burning) and Rakta-varna Shotha (erythematous swelling) accompanying pain are attributed to Pitta; and Guruta (heaviness) or Supti (numbness) accompanying pain point toward Kapha involvement.

This qualitative approach continues to inform the selection of Marma points and adjunct measures in current clinical practice, and contemporary case reports and case series employing standardised instruments such as the Numeric Pain Rating Scale (NPRS) alongside classical Doshic characterisation to document outcomes represent an attempt to bridge this qualitative classical framework with quantifiable modern outcome measures.

4.6 Marma Surface Marking from Literature and Its Classification

Sushruta Samhita's Sharira Sthana describes each of the 107 Marma with reference to precise surface landmarks, dimension (Pramana, typically expressed in Anguli, or finger-breadths), and the tissue predominating at that site4. Marma are classified topographically into Shakha Gata (limb Marma, 44 in the four limbs), Madhya Sharira Gata (trunk Marma), and Urdhva Jatru Gata (Marma above the clavicle, including the head and neck, considered the most concentrated and clinically sensitive region)6.

Ashtanga Hridayam broadly follows Sushruta's classification and numbering, while adding clarificatory detail on individual points; for example, Vagbhata specifically locates Kshipra Marma in the web space between the thumb and index finger (or, in the lower limb, the great toe and second toe), a detail of considerable practical value in surface marking11.

The Siddha Varmam tradition parallels this with its own topographical classification, organising the 108 classical Varmam points regionally (Kandam) and along an energy-centre (Chakra/Aadharam) framework that maps their relationship to the Naadi pathways12,13. A recent documentation study focused specifically on the upper limb identified 33 Varmam points in this region and confirmed close concordance in their surface location across the major classical Varmam texts, notwithstanding minor numerical differences in the total point count between individual manuscripts14. This upper-limb concordance is of direct relevance to hand and wrist pain management, corresponding closely to the Ayurvedic Kshipra and Manibandha Marma of the same region.

4.7 Manipulation Techniques Explained in Marma

The classical Samhitas describe the general principle of Marma stimulation and the consequences of trauma more extensively than a codified, step-by-step manipulation protocol; this descriptive gap is precisely where the two clinically oriented, illustrated practitioner textbooks consulted for this review provide practical elaboration consistent with, and traditionally transmitted alongside, the classical framework.

Marma manipulation, as taught and practised traditionally, and confirmed through consultation with practising Marma and Varma practitioners for this review, employs a combination of techniques: sustained static compression of the point with the thumb or finger pad (Marma Peedana); circular kneading massage around and over the point (Marma Ghattana); and, at selected points, a brief, controlled percussive tap (Marma Taadana), used cautiously and typically reserved for specific indications such as reviving consciousness at Sthapani or Adhipati Marma15. Systematic clinical case reports describe Marma Chikitsa protocols combining site-specific stimulation of a small cluster of related points, applied over a defined course of sessions, as the working format for pain indications16,17,18.

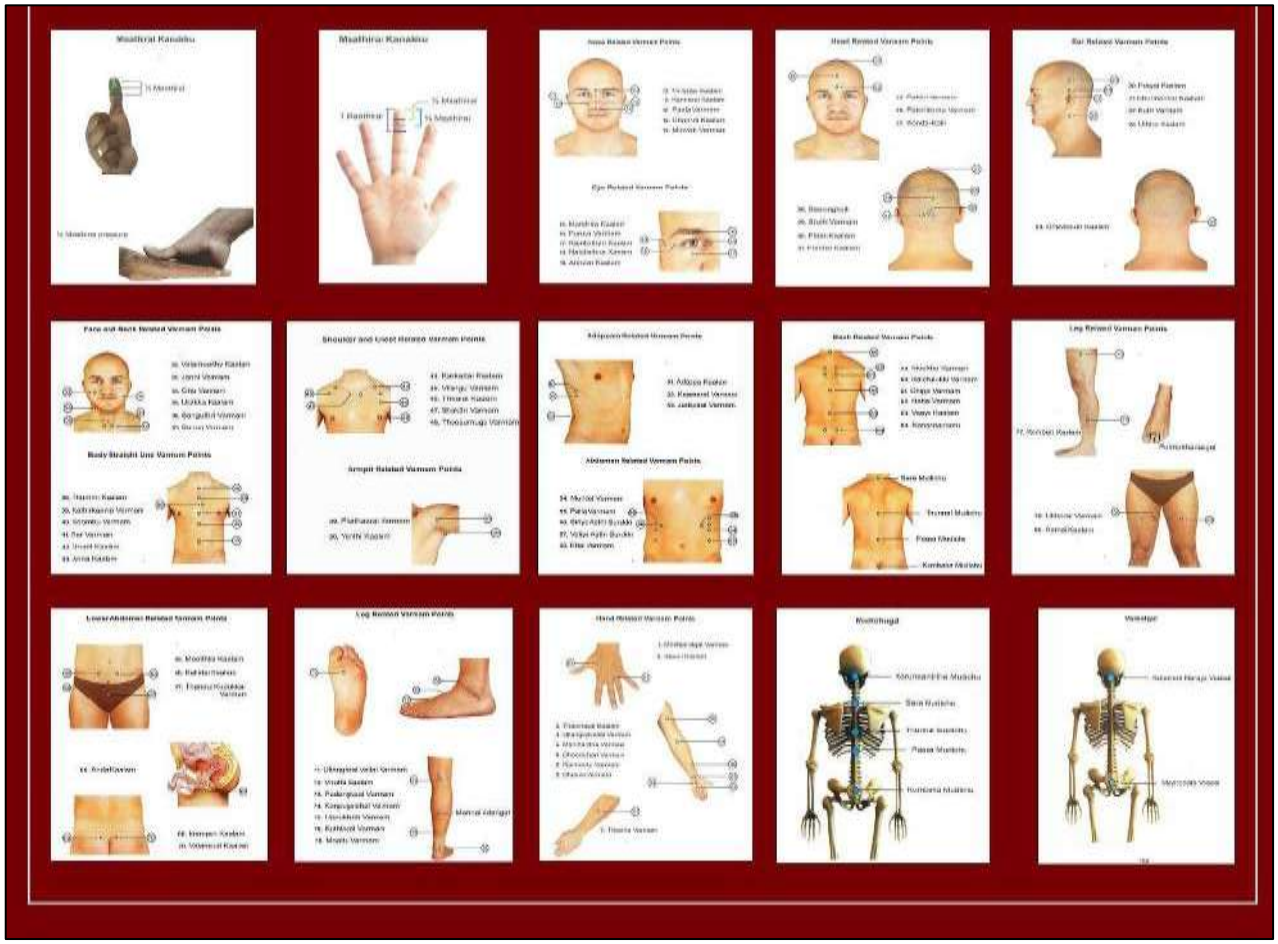

Fig.2: Enumeration of varma landmarks on different parts of body. Also the different types of manipulations based on pressure using the fingers is shown .

The Varma Kalai tradition of Siddha medicine similarly documents a repertoire of manipulation techniques applied to Varmam points, generally combining rotatory pressure, targeted point compression, and traditional herbal oil application (Thylam), with technique selection again governed by the regional and functional classification of the point being addressed(Fig.2)13,19.

4.8 Pressure and Direction of Massage

Direction and depth of applied pressure are described as central determinants of therapeutic effect rather than incidental technique detail. Classical and practitioner sources concur that massage and pressure at a Marma should generally follow the natural course of the underlying Sira (vessel) or Snayu (ligament/tendon) at that site, and that pressure directed toward the heart (centripetal) is favoured for promoting venous and lymphatic return and reducing local Kapha-type stagnation, while pressure applied in a circular, Vata-pacifying rhythm is favoured where Vata predominance (dryness, stiffness, migratory quality) characterises the pain15.

Depth and force of pressure are calibrated according to the prognostic category of the Marma being treated: Rujakara and Vaikalyakara Marma, being more peripheral in structural risk, permit firmer sustained compression, whereas points in the Sadyahpranahara or Kalantara Pranahara categories, where present in a treatment plan (for example Adhipati or Sthapani for head and neck-related pain), are treated with markedly lighter, more superficial pressure, reflecting the classical prognostic warning attached to those sites.

Comparable emphasis on direction is found in the Varmam tradition, where technique is described as varying with the angular relationship (Kona Nilai) between adjoining Varmam points along a given Naadi pathway, a concept structurally analogous to the Ayurvedic emphasis on following the natural course of the Sira or Snayu13.

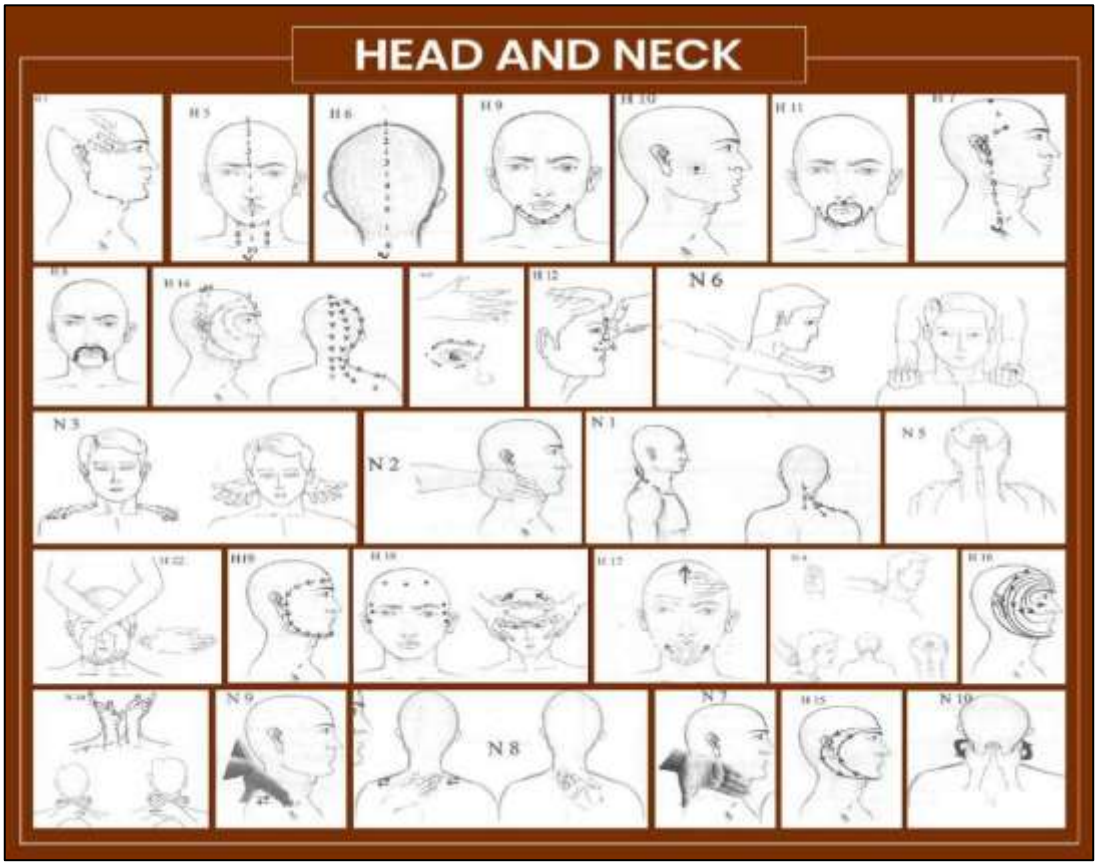

Fig.3: The marma manipulation and point of direction in head and neck.

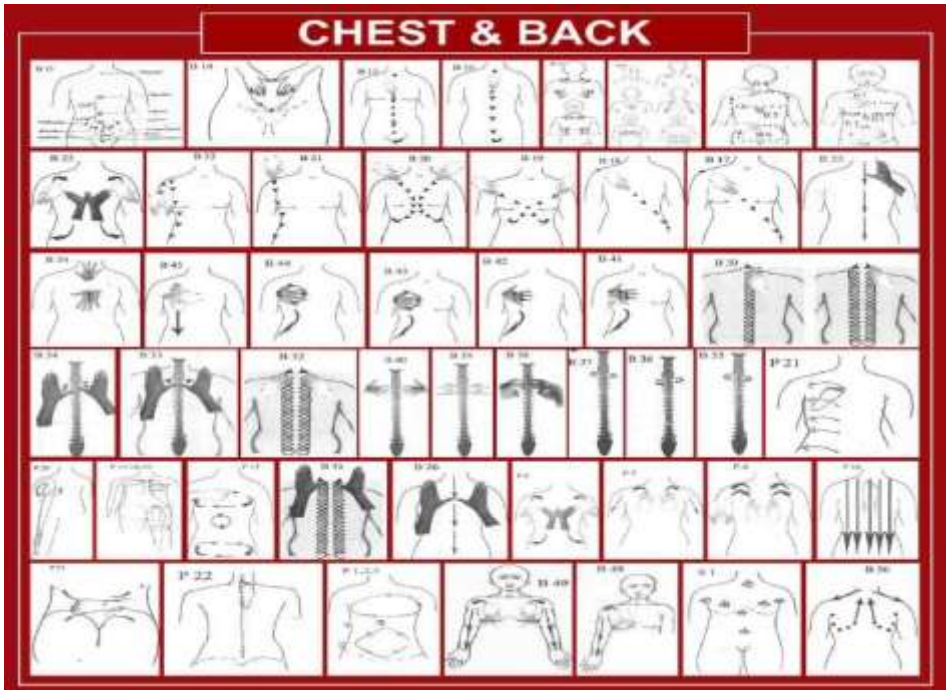

Fig.4: The marma manipulation and point of direction in chest and back.

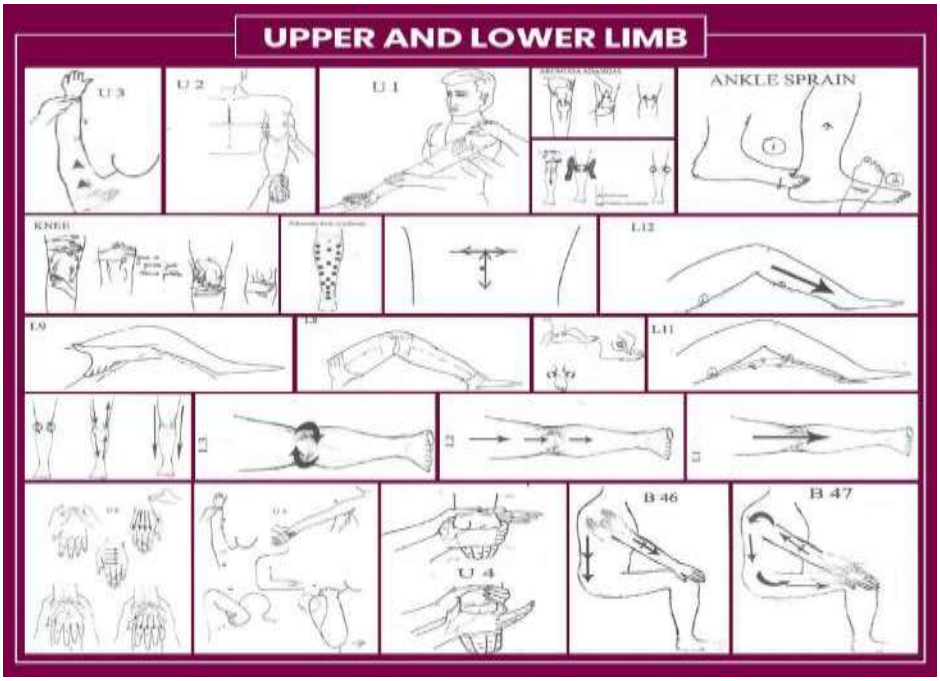

Fig 5: The marma manipulation and point of direction in upper and lower limb.

4.9 Non-Pharmacological Approach

Marma Chikitsa is explicitly framed in the contemporary Ayurvedic literature as an emergent, evidence-oriented non-pharmacological modality; one review notes that appropriately administered Marma stimulation supports the body's own natural healing mediators, drawing an explicit parallel with prostaglandin-mediated physiological pain modulation, alongside the classical Prana-based explanation1.

A proposed contemporary neurophysiological mechanism draws on Gate Control Theory: nonnoxious mechanical stimulation delivered at a Marma or Varmam point is understood to preferentially activate large-diameter A-beta mechanoreceptor afferents, which inhibit transmission of nociceptive signals carried by smaller A-delta and C fibres at the dorsal horn, thereby "closing the gate" to the ascending pain signal20. This is presented as directly analogous to the mechanisms proposed for acupuncture-related analgesia, where persistent-pain modulation has similarly been linked to peripheral afferent stimulation and descending inhibitory pathways21. A further proposed contributory mechanism is local neuromodulation with downstream effects on mood and central pain processing, extending beyond purely local analgesia20.

Documented clinical applications of Marma therapy for pain span a wide range of musculoskeletal and neurological conditions. Case studies and case series report symptomatic benefit in cervical spondylosis through stimulation of Krikatika, Amsa, Amsaphalaka, Kshipra, and Indravasti Marma16; in lumbar spondylosis (Katigraha) through Katikataruna and Kukundara Marma17,22; and in brachial plexitis, where combined Marma stimulation produced substantive improvement in pain, stiffness, and range of motion with no adverse events on follow-up23. A pilot study has also examined Marma-based intervention in post-stroke rehabilitation24, and a registered randomised controlled trial protocol is currently evaluating Marma therapy against physiotherapy for pain in lumbar disc herniation with radiculopathy, an indication of the field's gradual movement toward more rigorous comparative evidence25.

Parallel Siddha clinical evidence includes a case series demonstrating significant reduction in pain and disability, measured via the Numeric Pain Rating Scale and Neck Disability Index, following Varmam therapy in cervical spondylosis (Ceganavatham)26, and a broader review reporting an estimated 60–70% clinical improvement across the range of conditions to which Varmam physical manipulation has traditionally been applied13. Comparative work evaluating Marma stimulation against Transcutaneous Electrical Nerve Stimulation (TENS) in lumbar spondylosis further situates Marma technique alongside an established modern non-pharmacological modality, a comparison the review's authors intended to test Marma's relative clinical standing27.

Across this literature, the consistent findings are the absence of reported adverse effects, low cost and accessibility, and a favourable safety profile relative to pharmacological alternatives, positioning both Marma and Varma manipulation as credible non-pharmacological options meriting larger, bettercontrolled clinical evaluation.

5. DISCUSSION

The classical descriptions reviewed here indicate that Marma and Varma manipulation were never conceived as an undifferentiated system of pressing points, but as a technically layered clinical practice, grounded in the Tridosha framework, calibrated by the specific pain qualities (Vedana/Shula characteristics) presented, and delivered through prognostically informed point selection, direction, and pressure. The strong internal consistency between the Ayurvedic Marma and Siddha Varmam classification systems, despite their independent textual traditions and differing regional origins, is notable and lends the shared underlying anatomical premise a measure of cross-traditional corroboration.

Current clinical evidence remains predominantly at the level of case reports and small case series, with only an emerging body of controlled protocol-driven research. This evidentiary gap should not, however, be read as an absence of therapeutic plausibility: the consistency of anatomical point description across independent classical sources, the concordance between classical Rujakara point selection and documented pain-relevant anatomical structures, and a biologically coherent proposed mechanism in Gate Control Theory together support the case for structured clinical trials of adequate scale and rigor.

Siras, Nāḍīs, and the Proposed *Angirasa* Mechanism in Massage Therapy

Siras as an Integrated Network: The siras may be understood as a functional network comprising arteries, veins, and nerves existing together as a single interconnected unit, rather than as separate, independently acting structures. This assumption reflects the close anatomical co-location of vascular and neural elements within a shared tissue plane, allowing them to be treated conceptually as one functional whole. Massage is proposed to act upon the siras in this integrated sense — a single manual intervention thereby influencing the vascular and neural components of the network together, rather than targeting either in isolation.

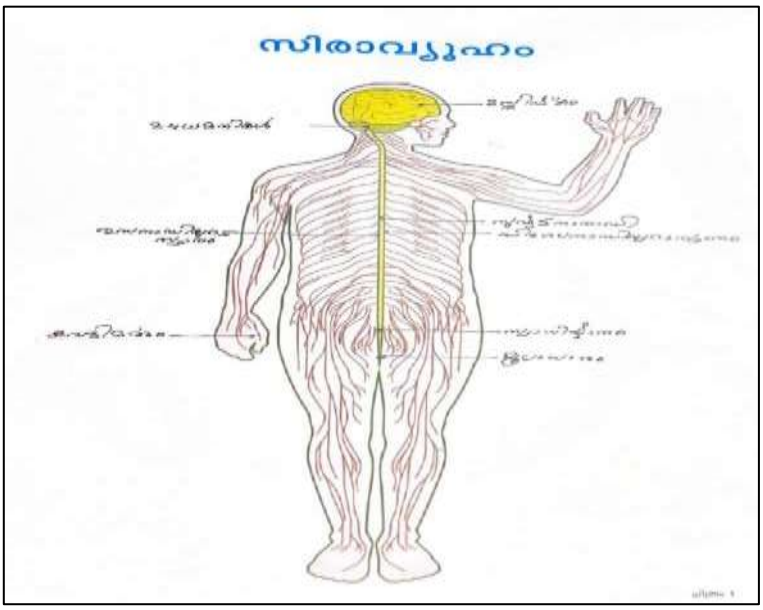

Fig: 6: The arrangement of sira as per classical textbooks

Points and Channels of Interconnection: The cakras are considered the principal interconnecting points within this network, serving as junctions at which the distributed activity of the siras converges. In addition to the cakras, the daśavidha nāḍīs represent a further set of connecting channels through which the network is organised, distributing functional activity across different regions of the body. Together,

the cakras and nāḍīs provide the structural logic by which a network of siras spread throughout the body can be understood as coordinated rather than fragmented.

Angirasa-- The Proposed Mechanism of Action: The mode of action of massage may be explained as a correction of the flow of *Angirasa* — a sūkṣma padārtha, or subtle substance, proposed to nourish the siras. *Angirasa* means the prime rasa. Since it grants protection to the body like a mother, this rasa can be given the status of mother. *Angirasa* is conceptually compared to amṛta in relation to the brain: just as amṛta is traditionally understood to sustain and nourish the brain, *Angirasa* is proposed to perform an analogous nourishing function for the siras throughout the body.

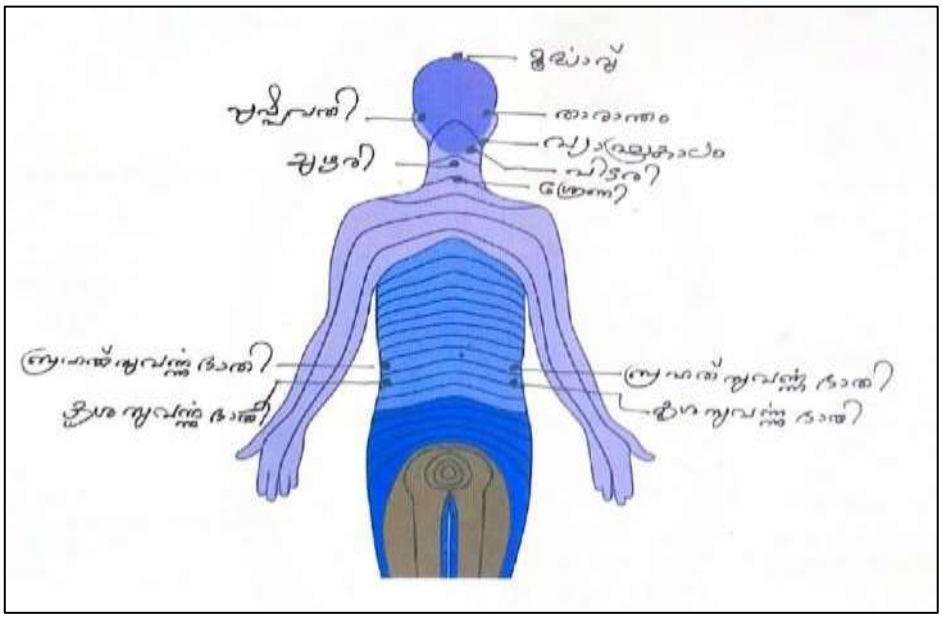

Fig:7. Different manipulation points as per classical literature

The significance of *Angirasa* is considered to extend beyond simple tissue nourishment, as its flow is proposed to be governed through the spiritual heart. This connection positions *Angirasa* not merely as a locally acting nutritive substance but as one regulated by a higher centre associated with the hṛdaya, linking the physiological maintenance of the siras to a broader psychophysiological regulatory function. *Angirasa*-as-substance operates at the srotas level, regulating tissue and channel function much as amṛta is classically described as sustaining and renewing the body from within. It must be subtle enough to evade gross sensory or anatomical detection, while remaining causally efficacious within the physical srotas.

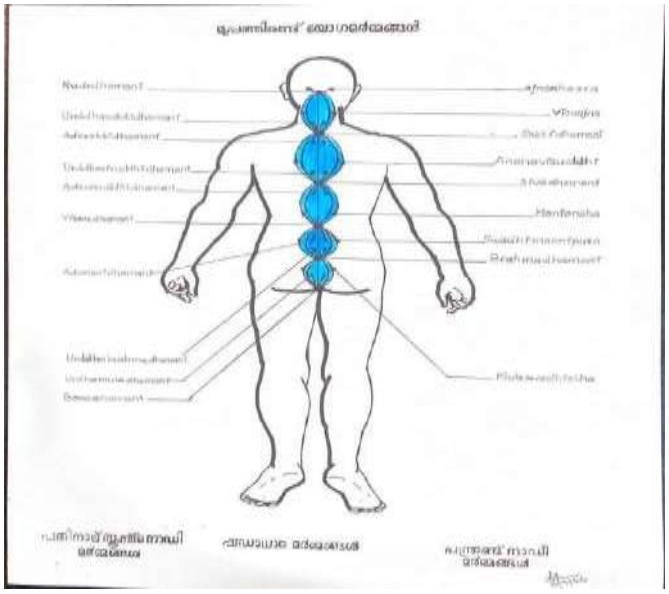

Fig 8: Yoga marma enumerated as per classics

When the flow of *Angirasa* is corrected, pain is proposed to be relieved. This provides the theoretical basis by which massage — through its mechanical action on the siras — may be understood to restore the disturbed flow of *Angirasa* and thereby produce a therapeutic, pain-relieving effect.
Srotas as the Unit of Treatment: The srotas is taken as the unit for treatment within this framework. Rather than directing therapeutic attention only to the specific site of pain, the srotas is treated as the broader functional pathway within which the siras, nāḍīs, cakras, and the flow of *Angirasa* are considered together, positioning treatment at the level of the system rather than the isolated symptomatic point.

A central methodological caution raised by this review concerns technique fidelity. As Marma and Varma therapy is increasingly incorporated into integrative pain-management settings, there is a risk that the original, textually and practitioner-verified technique, including its specific pressure, direction, and Dosha-based point-selection logic, is diluted or substituted with a generic acupressurestyle approach that does not reflect the classical description. This review has therefore deliberately prioritised documentation of the original technique over speculative modern reinterpretation, consistent with its stated objective.

6. CONCLUSION

Marma manipulation in Ayurveda and Varma manipulation in Siddha medicine constitute a textually well-documented, technically detailed, and independently corroborated non-pharmacological approach to pain management, grounded in the Tridosha Siddhanta and, in particular, in the classical understanding of Vata dosha as the principal mediator of somatic pain. Classical surface-marking, prognostic classification, and manipulation technique, supplemented by clinically oriented illustrated texts and verified against living traditional practice, offer a coherent and reproducible clinical framework. Preliminary contemporary clinical evidence and a proposed Gate Control-based neurophysiological mechanism lend this framework growing biomedical plausibility. Larger controlled trials, conducted with fidelity to the original classical and traditionally transmitted technique, are needed to establish Marma and Varma therapy as a validated non-pharmacological option within contemporary pain-management practice.

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Conflict of interest
The authors declare no conflict of interest.

REFERENCES

1. Sharma S. Pain management through Marma Chikitsa. J Ayurveda Integr Med Sci. 2022.
2. Shastri AD. Sushruta Samhita, Sharira Sthana, Marma Sharira Adhyaya. Varanasi: Chaukhambha Sanskrit Sansthan; reprint 2012.
3. Dharmawiki. Marma (मर्म) — definitions of Sushruta and Arunadatta's commentary on Ashtanga Hridayam. Available from: dharmawiki.org.
4. Shastri AD. Sushruta Samhita, Ayurveda Tattva Sandipika, Sharira Sthana 6. Varanasi: Chaukhambha Sanskrit Sansthan; 2012.
5. Carakasamhitaonline.com. Marma — classification and prognosis of Sadyahpranahara, Kalantara Pranahara, Vishalyaghna, Vaikalyakara and Rujakara Marma [Su. Sa. Sharira Sthana, Ghanekar Tika 6/23, 6/30].
6. Dalai SK. The chapter 'Marma Sharira' of Sushruta is mirror of surgery. Int J Sci Healthc Res. 2019;4(2):62-69.
7. Charaka Samhita, Chikitsa Sthana 26/1. Available from: carakasamhitaonline.com.
8. Easy Ayurveda Hospital. Charaka Vatavyadhi Chikitsa, Chikitsa Sthana 28 — Snehana and Swedana in Vatavyadhi. Available from: easyayurveda.com.

9. Acharya VJT. Charaka Samhita of Agnivesha, revised by Charaka and Dridhabala with Ayurveda Dipika of Chakrapanidatta, Chikitsa Sthana 28, Vatavyadhi Chikitsa. Varanasi: Chaukhamba Sanskrit Sansthan; reprint.
10. International Journal of AYUSH. Ayurveda review on Vata Vyadhi: management of Pakshavadha, Ekangavata, Sarvangavata and Ardita.
11. Analytical study on the classification of Kshipra Marma as Kalantara Pranahara Marma in Ayurvedic literature. Int J Res Appl Sci Eng Technol. 2025.
12. A review on fundamental principles of Varmam — an ancient Siddha medical science. Available from: academia.edu.
13. Application of Varmam (physical manipulation therapy of traditional Siddha medicine) for contemporary health issues: an update.
14. Documentation of Varmam points located in the upper limb. Int J Creat Res Thoughts. 2022;10(11).
15. Joshi SK. Marma Science and Principles of Marma Therapy. New Delhi: Vani Publications; 2019.
16. Uikey RR, Marwaha R, Gupta P, Bhalerao N. Efficacy of Marma Chikitsa in pain management of cervical spondylosis — a single case study. J Ayurveda Integr Med Sci. 2023;8(12):295-8.
17. Raypure S, Marwaha R, Bhalerao N. Evaluation of the effect of Marma Chikitsa in the pain management of Katigraha (Lumbar Spondylosis) — a single case study. J Ayurveda Integr Med Sci. 2024;9(7):335-8.
18. Central Council for Research in Ayurvedic Sciences (CCRAS). Marma Chikitsa — Basic Tenets in Ayurveda and Therapeutic Approach. New Delhi: Government of India; 2020.
19. Frawley D, Ranade S, Lele A. Ayurveda and Marma Therapy. Delhi: Chaukhambha Sanskrit Pratishthan; 2008.
20. Chaudhari P, et al. Marma Therapy — a healing touch for pain with Gate Control Theory and neuromodulation technique. AYUSHDHARA. 2024;11(6).
21. Zhang R, Lao L, Ren K, Berman BM. Mechanisms of acupuncture-electroacupuncture on persistent pain. Anesthesiology. 2014;120:482-503.
22. Harnessing ancient wisdom: pain management in Katigraha through Marma Chikitsa. ResearchGate, 2024.
23. Phull G, Phull R, Bhardwaj A. Management of brachial plexitis through Marma therapy: a case report. Int J Ayurvedic Med. 2024.
24. Fox M, Dickens A, Greaves C, et al. Marma therapy for stroke rehabilitation — a pilot study. J Rehabil Med. 2006;38:268-271.
25. Mundada P, Joshi SK, Khanduri S, Kumar T, Saxena V, Garg D, Lavaniya VK, Narayanan VR, Mahajon B, Rao BCS, Srikanth N. Evaluating the efficacy of Marma therapy for pain in lumbar disc herniation with radiculopathy: protocol for a randomized controlled trial. JMIR Res Protoc. 2026;15:e85720.
26. Effect of Siddha Varmam therapy in the management of cervical spondylosis — a case series. Available from: PMC.
27. Prabhu N, Tantry G. Comparative clinical study on efficacy of Marma Chikitsa and stimulation of Marma by TENS (Transcutaneous Electrical Nerve Stimulation) in the management of lumbar spondylosis.