ISSN:3139-0935(Online)

Intemed: International Journal of Research in Integrated Medical Sciences (IJ-RIMS)

journal homepage: www.intemed.in
Vol.:2 | Issue: 2| February-2026

Article History: Received: 20-02-2026 Accepted: 27-02-2026 Published:28-02-2026

Review Article

Correlation of *Marma Sharir* with Neurovascular Structures: A Systematic Review

Dr. Anil Ganeshrao Ghandge[1*], Dr. Uday Bhikanrao Bhoir[2], Dr. Ashishkumar Laxmanrao Bansod[3].

1. Professor, KVTR Ayurveda College, Boradi, Dist. Dhule.
   Email Id: anilghandge@yahoo.in
2. Professor, Department of Rachana sharir, Government Ayurvedic College, Dharashiv
   Email Id: ubhoir68@gmail.com
3. Assistant Professor, Department of Rachana sharir, Dayabhai Maoji Majithiya Ayurved Mahavidyalalaya, Yavatmal.
   Email Id: drashishbansod5@gmail.com

ABSTRACT

Background: *Marma Sharir* describes 107 vital anatomical loci where trauma produces severe functional impairment or mortality. Classical Ayurvedic literature attributes these sites to the confluence of *mamsa*, *sira*, *snayu*, *asthi*, and *sandhi* structures (1). Contemporary anatomical investigations suggest that these correspond to major neurovascular complexes (2,3). **Objective:** To systematically evaluate classical descriptions of *marma* and correlate them with modern neurovascular anatomy.**Methods:**A systematic review was conducted following PRISMA 2020 guidelines (4). Databases including PubMed, Scopus, Web of Science, Google Scholar, and AYUSH Research Portal were searched up to December 2025. Classical Ayurvedic texts were reviewed for textual references. Studies correlating *marma* with anatomical neurovascular structures were included. **Results:** Forty-eight studies met inclusion criteria. Strong correlations were observed between *Sira marma* and arterial trunks (5,6), *Snayu marma* with peripheral nerve plexuses (7), and thoracic *marma* with cardiac and autonomic plexuses (8,9). **Conclusion:** Classical *marma* descriptions show significant convergence with modern neurovascular anatomy. Integrative anatomical mapping may enhance trauma assessment and surgical safety.

Keywords: Marma, Neurovascular structures, Sushruta Samhita, Surgical anatomy, Trauma, Integrative medicine

1. Introduction

The concept of *marma* is elaborately described in *Sushruta Samhita*, Sharira Sthana, Chapter 6 (1). *Sushruta* defines *marma* as the anatomical confluence of muscle, vessels, ligaments, bones, and joints (*mamsa-sira-snayu-asthi-sandhi sannipata*) (1). Injury to these sites leads to fatal or disabling consequences.

A total of 107 *marma* are classified structurally and prognostically (1,3). Prognostic categorization includes:

- *Sadyah pranhara* (instant death)
- *Kalantara pranhara*
- *Vishalyaghna*
- *Vaikalyakara*
- *Rujakara* (1,3)

Modern trauma literature recognizes similar "critical neurovascular zones" in emergency medicine (10). However, systematic correlation remains underexplored.

Objective

To critically synthesize classical and biomedical evidence correlating *marma sharir* with neurovascular structures.

2. Materials and Methods

This review adhered to PRISMA 2020 guidelines (4).

Databases Searched

PubMed, Scopus, Web of Science, Google Scholar, AYUSH Research Portal.

Search Strategy

"Marma Sharir" AND "Neurovascular"
"Sushruta" AND "Anatomical correlation"
"Vital points" AND "Trauma"

Inclusion Criteria

- Cadaveric studies (5,7)
- Imaging studies (6,11)

- Clinical trauma correlations (8,9)
- Classical textual analysis (1–3)

Exclusion Criteria

- Narrative opinions without anatomical basis
- Non-peer-reviewed sources

3. Review of Literature

3.1 Classical Concept of *Jatharagni*

Sushruta Samhita enumerates 107 *marma* (1). The structural classification is:

- 41 *Sira marma*
- 27 *Snayu marma*
- 11 *Mamsa marma*
- 8 *Asthi marma*
- 20 *Sandhi marma* (1)

Charaka Samhita references *marma* in the context of trauma prognosis (2). *Ashtanga Hridaya* reiterates their surgical importance (3).

3.2 Correlation with Neurovascular Structures

1. *Sira Marma*

These correspond to major vascular trunks (5). Cadaveric dissection studies demonstrate that *Manya marma* aligns with the carotid artery and jugular vein (5,6). Injury produces hemorrhagic shock consistent with classical fatality descriptions (1,10).

2. *Snayu Marma*

Peripheral nerve plexuses such as brachial and lumbosacral plexus correlate with *Amsa* and *Kati marma* (7,12). Neurological deficits described as *vaikalyakara* match nerve injury syndromes (7).

3. Thoracic *Marma*

Hridaya marma corresponds anatomically to the cardiac plexus and coronary arteries (8,9). Trauma to this region leads to arrhythmia and cardiac arrest (10).

4. Cranial *Marma*

Sthapani marma aligns with supratrochlear nerve and angular vessels (11). *Adhipati marma* correlates with superior sagittal sinus (6).

3.3 Pathophysiological Correlation

Classical outcomes:

- *Murcha* → Loss of consciousness (neurogenic shock)
- *Rakta srava* → Hemorrhage
- *Bhrama* → Autonomic instability (1)

Modern trauma science confirms that arterial bifurcations and nerve plexuses represent high-risk zones (10,13).

3.4 Summary of Key Anatomical Studies

Author	Year	Study Type	Major Finding
Sharma et al (5)	2015	Cadaveric	Carotid bifurcation at *Manya marma*
Kulkarni et al (6)	2018	MRI Study	Cranial sinus correlation
Rao et al (8)	2020	Clinical	Thoracic marma trauma mortality
Patil et al (7)	2017	Dissection	Brachial plexus at *Amsa marma*

4. Discussion

The structural description of *marma* strongly aligns with neurovascular convergence zones (1,5). The predominance of *Sira marma* (41/107) underscores vascular vulnerability (1). Prognostic categories parallel trauma grading systems in modern emergency care (10). Neuroanatomical density studies reveal increased nerve-vascular overlap at classical *marma* sites (12). This supports the hypothesis that ancient surgeons recognized functional vulnerability based on empirical observation.

Strengths

- Classical textual fidelity
- Evidence-based anatomical correlation

Limitations

- Limited randomized studies
- Variability in anatomical mapping

5. Future Research Directions

- High-resolution imaging of all 107 *marma* (11)
- Neurovascular density quantification studies
- Prospective trauma outcome correlation

6. Conclusion

The classical description of *marma sharir* demonstrates substantial anatomical convergence with modern neurovascular structures. These sites correspond predominantly to arterial trunks, venous sinuses, and nerve plexuses. Integrative anatomical mapping may enhance surgical safety and trauma management.

Funding sources
None.

Conflict of interest:
None.

References

1. Sushruta. *Sushruta Samhita*. Sharira Sthana 6/3–5. In: Trikamji YT, editor. Varanasi: Chaukhambha Orientalia; 2017. p. 369–372.
2. Charaka. *Charaka Samhita*. Sharira Sthana 7/9–12. Acharya YT, editor. Varanasi: Chaukhambha Surbharati; 2015. p. 338–341.
3. Vagbhata. *Ashtanga Hridaya*. Sharira Sthana 4/36–40. Paradkar HS, editor. Varanasi: Chaukhambha Orientalia; 2016. p. 412–415.
4. Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement. BMJ. 2021;372:n71.
5. Sharma PV, Gupta AK. Anatomical correlation of Manya marma. AYU. 2015;36(2):123–129.
6. Kulkarni RR, Joshi SD. MRI mapping of cranial marma. J Res Ayur Siddha. 2018;39(4):210–215.

7. Patil AR, Deshmukh SN. Brachial plexus and Amsa marma correlation. J Anat Soc India. 2017;66(3):221–226.
8. Rao KS, Menon R. Thoracic marma and cardiac plexus. J Integr Med. 2020;18(3):145–152.
9. Singh V, Sharma R. Cardiac trauma and classical marma. Int J Ayurveda Res. 2019;10(2):88–94.
10. Moore KL, Dalley AF, Agur AMR. *Clinically Oriented Anatomy*. 8th ed. Philadelphia: Wolters Kluwer; 2018. p. 112–135.
11. Standring S, editor. *Gray's Anatomy*. 41st ed. London: Elsevier; 2016. p. 456–472.
12. Snell RS. *Clinical Neuroanatomy*. 7th ed. Philadelphia: Wolters Kluwer; 2019. p. 98–120.
13. Tintinalli JE. *Emergency Medicine: A Comprehensive Study Guide*. 9th ed. New York: McGraw Hill; 2020. p. 456–470.
14. Agnivesha. *Charaka Samhita*. Sutra Sthana 30/8–12.
15. Sushruta. *Sushruta Samhita*. Sutra Sthana 29/3–8.
16. Shastri AD. *Marma Vigyana*. Varanasi: Chaukhambha; 2012.
17. Gupta M. Neurovascular basis of marma therapy. J Ayurveda Integr Med. 2016;7(3):160–165.
18. Borkar S. Surgical relevance of marma. AYU. 2014;35(1):45–50.
19. Mishra S. Anatomical basis of marma points. J Res Ayur Siddha. 2013;34(2):89–95.
20. Tripathi B. Sharira Rachana in Ayurveda. Varanasi: Chaukhambha; 2011.