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REGIONAL ANATOMY OF NITAMBA MARMA: A CONCEPTUAL REVIEW

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ABSTRACT
Marma Sharir is a specialized field that focuses on vital anatomical sites crucial for surgical practices in Ayurveda. Marma refers to the integration of Mamsa, Sira, Snayu, Asthi, and Sandhi. These sites are essential for the flow of Prana, and any injury to them can result in significant complications, intense pain, or even death. Acharya Sushruta has classified these Marma based on the Shadanga (Gross regional division of human body into six parts) to facilitate a better understanding of their locations, including Sakthi (limbs), Vaksha (thoracic), Udara (abdominal), Prishta (back), and Urdhwa Jatru (above the nape of neck).

Nitamba Marma is categorized as one of the Prishtagata Marma. Aaghatajanya Lakshana exhibits similarities with lumbosacral plexopathy and sciatic nerve injury, where Marma Aaghata Lakshana can serve as indicators of the affected structures. This article aims to elucidate the location of Nitamba Marma and its correlation with anatomical entities, which may contribute to Adhah Kaya Shosha (lower part of the body weakness) and Marana (death).

KEY WORDS: *Nitamba Marma, Asthi Marma, Adhakaya shosha, Ala of ilium.*

INTRODUCTION
Marma Sharir represents a sophisticated understanding of vital anatomical sites that are integral to the practice of surgery within Ayurveda. *Marma* are defined as the convergence of *Mamsa, Sira, Snayu, Asthi*, and *Sandhi,* serving as critical points of *Prana*[1]. Any injury to these sites can result in significant complications, intense pain, or even mortality. Acharya Sushruta has systematically classified these *Marma* based on the *Shadanga* distribution, facilitating a clearer comprehension of their locations, which include *Sakthi* (Limbs), *Vaksha* (Thoracic), *Udara* (abdominal), *Prishta* (Back), and *Urdhavajatru* [2].

The *Prishthagata Marma* are a total of fourteen in number[3], among them *Nitamba Marma* is *Kalanatara Pranahara* [(4)], they are two in number, measure half *Angula* in *Pramana,* they are located on the lateral side of the *Shronikandha* and categorized under *Asthi Marma.* The *Marma,* of gluteal region or related with the pelvic cavity, presents unique challenges for surgical access. Both the gluteal region and pelvis serve as critical conduits for major blood vessels and nerves that supply the lower part of the body including the visceral organs present in the pelvic cavity, perinium and extension of the lower part of the body in the form of modified body part as lower extremities; thus, any trauma in these areas may lead to permanent debility or life-threatening complications.

Notably, *Nitamba Marma*, classified as *Kalantara Pranahara* (causing deformity upon infliction), trauma to the *Nitamba Marma* can result in lower part of the body weakness, indicating potential involvement of the neurovascular structures.

Etymological Description
According to *Shabdakalpadruma*, the term Nitamba means to Iliac crest.
According to *Shabdasagara, Nitamba* refers to a woman's buttocks or posterior in general.
According to Monnier Williams, *Nitamba* means buttocks or hind part.

***Panchavidha* Classification of *Nitamba Marma*:**

Name of *Marma*	Based on the five types of Classification of *Marma*	Description
Nitamba Marma	*Shadanganusara* (Region-wise) classification	*Prishtagata Marma* (Back) is present in the gluteal region.
	Parinamanusara (Effect of injury) classification	*Kalantara Pranahara* -injury death within 15 days of injury
	Pramananusara (Measurement) classification	*Ardha Angula – ½ Angula*
	Sankhyanusara (Numerical) classification	Two in number
	Rachananusara (structural) classification	*Asthi Marma* (Bony structure)

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Location of *Nitamba Marma*

According to *Acharya Sushruta, Nitamba Marma* is present above *Shronikandha* and related laterally with the posterior part of Nitamba Asthi, contributing in the formation of the cavity, the *Shroni Guha* that forms Ashraya for pelvic structures like *Garbhashaya, Mutrashaya, Pakwashaya* and associated structures forming a protective bony cavity[5]. Nitamba Marma is, though identified as Asthi Marma, also composed of other Marma components, including *Mamsa, Sira, Snayu,* and *Sandhi*. Acharya has stated that if injury will lead to emaciation of the lower part of the body and eventually be followed by death.

As per *Acharya Vagbhata*, *Nitamba Marma* are present on *Shronikarna,* covering the visceral organs, and it is *Asthi Marma*[7]

As Per Recent Authors

Some of the recent authors have quoted the location of *Nitamba Marma* as related to ala of ilium,[8] as per another it is said to be related to the floating ribs along with lumbar plexus and other structures in proximity[9] and other quotes it as the ala of sacrum.[10]

Review as per Contemporary Science

The bony structure present in the lower part of body, protecting and supporting visceral organs, is the bony pelvis made up of Sacrum posteriorly articulating on either side with iliac part of hip bone forming sacroiliac joint, with fusion of anteroinferior part called the pubis of hip bone forming pubic symphysis, a secondary cartilaginous joint. Thus, forming the pelvis, it is divided into greater pelvis and lesser pelvis and supports structures like the caecum, terminal part of the ileum, and appendix on the right side and the lower half of the descending colon on left side as contents of the greater pelvis. The true pelvis is made up of the sigmoid colon, rectum, uterus, fallopian tubes, and ovary in females, along with the Urinary bladder, terminal part of the ureter, seminal vesicles, ductus deferens, prostate, ejaculatory duct, and other associated neurovascular structures.

Hip Bone/Pelvic Bone -The hip bone, also known as the innominate bone, is irregular. It is made of three parts. The ilium is present superiorly, the pubis antero-inferiorly, and the ischium, postero-inferiorly. The ilium has an upper end, known as the iliac crest.

The gluteal surface is the outer surface of the ilium. It is divided into four areas by three gluteal lines. The Sacro-pelvic surface of the ilium can be subdivided into three parts: the iliac tuberosity, the auricular surface, and the pelvic surface. The auricular surface is articular but pitted and lies antero-inferior to the iliac tuberosity. It articulates with the sacrum to form the sacroiliac joint.[11]

Sacrum: The Sacrum is a large, triangular fusion of five vertebrae and forms the posterosuperior wall of the pelvic cavity, wedged between the two innominate bones. The caudal apex articulated with the coccyx at the Sacro-coccygeal joint and its superior, wider base with the fifth lumbar vertebra at the lumbosacral angle. Its dorsal surface is convex, pelvic concave, and its set oblique and curved longitudinally. The auricular surface is covered by hyaline cartilage ad formed entirely by costal elements. The rough area behind the auricular surface is shows two or three marked depressions for attachment of strong interosseous Sacro-iliac ligaments. Below the auricular surface gluteus maximus, the Sacro-tuberous and sacrospinous ligaments are attached, and coccygeus is attached from before backwards.[12]

Sacro Iliac Joint - The sacroiliac joint is a synovial articulation present between the sacral and iliac auricular surfaces, often termed plane, its flat only in infants; in adults, the surfaces are irregular and sometimes sinuous. It is an amphiarthrodial joint. Their curvatures and irregularities are greater in males and reciprocal. They restrict movements and contribute to the joint's considerable strength in transmitting weight from the vertebral column to the lower limbs.[13]

Iliacus -It is a triangular muscle, arising from the superior two-thirds of the concavity of iliac fossa, inner lip of the iliac crest, ventral Sacro -iliac joint and ilio-lumbar ligaments and upper surface of the lateral part of the sacrum. Most fibers converge into the lateral side of the strong tendon of psoas major and then insert into lesser trochanter.[14] This muscle is innervated by femoral nerve, L2 and L3.

DISCUSSION

Nitamba Marma is a *Prushta, Kalantara Pranahara Marma* and is *Asthi Marma*. They are two in number.

Acharya Sushruta has mentioned that *Nitamba Marma* is located above *Shronikandha* and is present in the form of a posterolateral bony shield covering and protecting the visceral organs present within the territory of the pelvic cavity. Further, he explains that injury to *Nitamba Marma* causes weakness in the lower part of the body and followed by death if not treated.

Binding both sides of *Shroniguha*, the bony extension is in the form of an auricle where it forms a protective bony covering, which helps in securing and safeguarding the most vital visceral organs like the caecum with appendix, part of the ascending colon, part of the descending colon, sigmoid colon, and rectum as parts of the digestive system, part of the ureter, urinary bladder, prostate, ductus deferens, and seminal vesicle as parts of the urogenital system in males, and ovaries, fallopian tubes, uterus, supra-vaginal part of the cervix, and the upper one-third of the vagina as parts of the female genital system. Along with this, the neurovascular structures seen are the bifurcation of the terminal part of the aorta into the common iliac artery, which divides at the lateral margin of the pelvic brim to give rise to the external iliac artery and the common iliac artery.

While external iliac artery continues downwards and laterally to pass through inguinal ligament it becomes continue as femoral artery which supply lower limb by further branching. The deep circumflex artery to pectineus is given by external iliac artery at the level of groove of groin (mid inguinal point).

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Further the internal iliac artery enters true pelvis and divide into anterior and posterior divisions. Anterior Branches of internal iliac artery are Superior vesicle artery, Inferior vesicle artery, Uterine artery, Middle rectal artery, Vaginal artery, Obturator artery, Middle pudendal artery, Inferior gluteal artery

The posterior branches of the internal iliac artery are the Ilio-lumbar artery, the lateral sacral artery, Superior gluteal artery
In the same way, there will be venous drainage, which ultimately reaches the inferior vena cava.

The nerves present in the bony pelvic cavity that help in *Ashayachadana* are branches derived from the lower part of the lumbar plexus and branches of the sacral plexus that emerge through ventral foramina present in the pelvic surface of the sacrum, along with branches of the lumbar plexus emerging from the intervertebral foramina of lumbar vertebrae.

Shronikandasayaupari means that which is present above *Shronikaanda.* This refers to the *Shroni* as a bony pelvis that helps in the formation of *Shroniguha,* made up of the two hip bones, and *Kanda* refers to the vertebral column. Nitamba refers for the pelvic bone or hipbone that forms the gluteal region dorsally and helps in *Aashayacchadana* anteromedially, protecting Ashaya present in *Shroniguha*, the pelvic cavity. *Shronikaanda* refers to the sacrum, which is held in the central axis and articulates with the L5 vertebrae and its further extension upwards. *Asahyachadana* refers to that wider part of the pelvic bone that beholds the organs (*Ashaya* like *Pakwashaya, Mutrashaya, Garbhashaya*) in the pelvic cavity, including both true pelvis and false pelvis with associated accessory structures along with neurovascular entities.

Thus, the location *Nitamba Marma* is identified as the superolateral aspect of the junction between the fifth lumbar(L5) and sacrum and is referred as ala of the ilium. The structures present in this region are lumbo-sacral trunk, obturator nerve, obturator artery, obturator vein, and common iliac artery and vein. The impact of injury to this point of *Ardhangula Pramana* area due to trauma like road accidents, penetrating injury etc. may lead to hemorrhage/compression of bony parts of ilium over neurovascular structure or there may be severing of nerves causing *Shosha* and because of acute infection and inflammation of soft tissue due to fracture of ala of ilium causing *Shopha* (edema), all the structures present in pelvic cavity gets affected including lower part of the body. If not treated within a stipulated period and diagnosis, the individual may die *(Maranam*).

Impact of Gluteal region injuries on major Neurovascular and Muscular entities causing the *Adhakaya Shosha:*

Superior Gluteal Artery

- The superior gluteal artery is the first branch of the internal iliac artery. Its position in the sciatic notch makes it prone to laceration from acetabular fracture fragments or traction injury from displacement of an unstable hemipelvis.
- Injury to the superior gluteal artery can cause gluteal compartment syndrome in trauma patients. Severe hematomas may develop due to the spontaneous rupture of the superior gluteal artery.
- Patients may experience severe buttock pain, swelling, tenderness, and hypertonicity. Such patients often appear pale, with their legs unable to be elevated.

Femoral` Artery[14]

- Clinical signs of femoral artery injury are diminished pulse, limb ischemia, enlarging hematoma, and bleeding from the artery.
- Hemorrhage (Internal bleeding) may lead to thigh swelling and shock.
- Expanding Hematoma may cause Rapid swelling in the groin or upper thigh

Lumbo-sacral Trunk[15]

- LS plexopathy is usually present with low back and/or leg pain. They can also experience motor weakness, other sensory symptoms of numbness, paresthesia, and/or sphincter dysfunction.
- hypoesthesia or paresthesia of the Lateral thigh, lateral leg, and dorsum of the foot: (via lateral cutaneous nerve of the thigh and the superficial peroneal nerve)

Obturator Nerve

- Trauma to the obturator nerve, symptoms include medial thigh or groin pain, weakness with leg adduction, and sensory loss in the medial thigh of the affected side.

Obturator Artery

- Injury to the obturator artery leads to hemorrhage, hypovolemic shock.
- Medial thigh pain or numbness.
- Muscle weakness in the medial side of the thigh
- Hematuria (Blood in the urine, particularly if there's concurrent bladder or urethral trauma).

Inferior Gluteal Artery

- Pain and Swelling in the Gluteal Region
- If the artery is lacerated, a large hematoma can form, potentially compressing surrounding structures.
- Due to compression of the sciatica nerve, there may be sciatica-like symptoms, radiating pain down the leg, and weakness or numbness in the posterior thigh or leg.

Sciatic Nerve

- Trauma to the sciatic nerve leads to motor deficits like hamstring weakness (knee flexion weakness), weakness in leg muscles (foot drop), and weak plantar flexion.
- Trophic and autonomic changes in chronic or severe trauma, nail, skin changes, and muscle wasting.

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Vesical Arteries

Symptoms of trauma to the vesical arteries are as follows

- Hematuria (Blood in Urine), Suprapubic or pelvic pain, swelling in the suprapubic region or Pelvis, and severe cases, it may lead to Hypotension or Shock.

Iliacus Muscle

- Iliacus Hematoma Signs (esp. in trauma or anticoagulation, Sudden severe groin pain, swelling, mass in lower abdomen or pelvis, Possible femoral nerve compression.
  In cases of chronic injury, muscle atrophy or tightness may occur.

CONCLUSION

The classical texts of Ayurveda define Marma as a reservoir of *prana*, the seat of *Tridosha* and *Triguna, Atma*, and *Chetana*. It is described as a conglomeration of *Mamsa, Sira, Snayu, Asthi*, and *Sandhi*, rendering the area susceptible to injury. Marmas are classified into several groups, each named after its predominant structural characteristics. *Nitamba Marma,* known as *Kalantara Pranahara*, is located on the lateral side of *Shronikanda*, where it conceals vital visceral organs.

The Nitamba Marma is anatomically composed of various components, including muscular structures such as the gluteus muscles, psoas major, and iliacus; vascular elements like the gluteal arteries; neuro-connective components including the anterior and posterior Sacro-iliac ligaments, nerves, and plexuses; skeletal component includes the iliac part of the pelvic bone sacrum; and an articular component represented by the Sacro-iliac joint. The intricate composition of the *Marma* underscores its complexity and its significant potential impact on an individual's overall health.

Injury to Nitamba Marma leads to a series of consequential effects, primarily resulting from penetrating trauma to the neurovascular structures associated with the ala of the ilium, such as the internal iliac artery, gluteal arteries, and lumbo-sacral plexus. This injury can cause significant emaciation of the lower extremities, hypovolemic shock, and ultimately, may result in fatality.

The blending of Ayurvedic *Marma* theory with anatomical and pathophysiological insights deepens our understanding of how a seemingly small region can have systemic, even fatal, consequences when injured.

REFERENCES

1. *Acharya JT. Sushrutha Samhita with Nibandha Sangraha commentary of Dalhanacharya and the Nyayachandrika Panjika of Sri Gayadasacharya Chaukambha Orientalia, 2021; p.371.*
2. *Kaviraja Ambika Dutta Shastri, Edited Sushruta Samhita Shareera Sthana Commentary of Ayurveda-Tattva-Sandipika, Chapter 6/7,10,13,29,30, Vol-1, Reprint Edition 2010, Chaukhambha Sanskrit Sansthan, Varanasi, P-67,68,76.*
3. *Susruta. Yadavji Trikamji Acharya, editor Sushruta Samhita with Nibandha Sangraha of Dalhanacharya ed Varanasi: Chaukhambha Orientalia; 2002; p-373*
4. *Acharya JT. The Nibandha Sangraha commentary of Dalhanacharya and the Nyayachandrika Panjika of Sri Gayadasacharya on Sushrutha Samhita, Chapter 6, Verse 5. Varanasi: Chaukambha Orientalia, 2021; 370.*
5. *K R Srikantha murthy. Sushruta Samhita text, English translation, notes, appendices, and index, Shareera Sthana; Pratyeka Marma Nirdesha Shareera: chapter-6, verse-26. Varanasi; Chaukamba Orientalia vol-1;113.*
6. *Susruta. Yadavji Trikamji Acharya, editor Susruta Samhita with Nibandha Sangraha of Dalhanacharya ed Varanasi: Chaukhambha Orientalia; Dalhana on Sushrutha Samhitha Sharira Sthana Ch. 6 Shloka No. 26; 2002; p-374*
7. *K R Srikantha murthy. Ashtanga Sangraha text, English translation, notes, appendices, and index, Shareera Sthana; Pratyeka Marma Vibhaga Shareera: chapter-4, verse-07. Varanasi; Chaukamba Orientalia vol-2; 92.*
8. *Sushruta Samhita, Shareera Sthana, Ayurvedarahasya dipika, Hindi commentary by Dr.B.G.Ghanekar, published by Meharchand Lacchamandas publications, New Delhi, 14th edition 1999 ;178.*
9. *Pathak, R.R, Marma Vigyana, Jai Krishnadas Haridas Gupta, Chaukamba Sanskrit series office Varanasi 1949 ;75,76.*
10. *Thatte D.G, A text book of Shareera Rachana vijnana chapter 16, Chaukamba Sanskrit series office 2005;609.*
11. *Gray's Anatomy. 38th ed. Williams PL, Bannister LH, editors. London: Churchill Livingstone; 2000, p -663.*
12. *. Gray H. Gray's Anatomy. 38th ed. Williams PL, Bannister LH, editors. London: Churchill Livingstone; 2000, p -663*
13. *Gray H. Gray's Anatomy. 38th ed. Williams PL, Bannister LH, editors. London: Churchill Livingstone; 2000, p -528*
14. *Al Kheraiji A, Al Hakbani A. Combined injury of femoral artery and femoral nerve after blunt trauma to the proximal femur: A case report. Int J Surg Case Rep. 2020; 77:695-697. doi: 10.1016/j.ijscr.2020.11.036. Epub 2020 Nov 23. PMID: 33395876; PMCID: PMC7711178.*
15. *Ehler E, Vyšata O, Včelák R, Pazdera L. Painful lumbosacral plexopathy: a case report. Medicine (Baltimore). 2015 May;94(17):e766.*