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## *Basti Marma: Integrating Ayurvedic Concepts with Modern Anatomical Insights*

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### ABSTRACT

*Basti Marma*, described in classical Ayurvedic texts as one among the three seats of *Prana* (vital force), corresponds anatomically to the urinary bladder. *Basti Marma* is classified as a *Sadhyo Pranahara Marma*, indicating a vital site where severe injury can lead to immediate loss of life. *Basti Marma* has been extensively detailed in the *brihatrayi*'s. The Ayurvedic descriptions of *Viddha Lakshanas* demonstrate remarkable accordance with contemporary clinical presentations of bladder rupture, peritonitis, septicemia and death. This review underscores the relevance of *Marma* in modern clinical contexts and highlights the scientific basis of anatomical concepts. This article explores the concept of *Basti Marma* through classical Ayurvedic literature and its relevance in the modern anatomy and surgery. By correlating traditional descriptions with contemporary understanding of urinary bladder anatomy and bladder trauma, it aims to provide an integrative perspective on the clinical significance of *Basti Marma*.

**Keywords:** *Marma, Basti Marma, Urinary Bladder, Sadhyopranahara, Viddha Lakshana*

### INTRODUCTION

#### *Marma*

*Marma*, the science of vital points, is fundamental to Ayurvedic anatomy and surgery. The word *Marma* is derived from the Sanskrit root "*Mri*" meaning death or injury, signifying anatomical junctions where life force is concentrated. *Acharya Sushruta* defines *Marma* as:

“मर्म हि प्राणाश्रितम्।” (S.S. 6/3)

I.e, "*Marma* is the seat of life". It indicates that any significant injury to these anatomical zones directly threatens vital functions<sup>1</sup>.

“सप्तोत्तरं मर्मशतम् । तानि मर्माणि पञ्चात्मकानि भवन्ति; तद्यथा- मांसमर्माणि, सिरामर्माणि, स्नायुमर्माणि, अस्थिमर्माणि, सन्धिमर्माणि चेति । न खलु मांससिरास्नाय्वस्थिसन्धिव्यतिरेकेणान्यानि मर्माणि भवन्ति॥३॥ (S.S. 6/3)

There are 107 *Marmas* in the body. These are of five types: - *Mamsa, Sira, Snayu, Asthi* and *Sandhi Marmas*. Indeed, no *Marma* exists independently apart from these five structural components<sup>1</sup>.

**Basti marma**

"हृदये मूर्ध्नि बस्तौ च नृणां प्राणाः प्रतिष्ठिताः।" (C.Si.9/9)

The vital life force of human beings is located in the *Hridaya* (heart), *Shiras* (head) and *Basti* (urinary bladder). The *Basti* is proclaimed as a primary abode of *Prana*, emphasizing the rationale for treating *Basti* as a *Sadhyopranahara Marma*, i.e., a vital point whose injury produces immediate fatality<sup>2</sup>.

The *Basti*, despite being a hollow visceral organ, occupies a physiologically indispensable role in the maintenance of metabolic homeostasis. *Basti* is the primary seat of *Apana Vayu* responsible for excretion of *mutra*. *Mutra* is one among the *Trimala*. Any disruption to *Basti Marma*, therefore, disrupts the function of *Apana Vayu*, with cascading effects on systemic physiology.

**MATERIALS AND METHODS****Ayurvedic Sources:**

*Sushruta Samhita - Sharirasthana, Sutrasthana*

*Charaka Samhita - Siddhithana, Vimanasthana, Chikitsasthana*

*Ashtanga Hridayam - Sharirasthana*

*Ashtanga Sangraha – Sharirasthana*

**Modern Sources:**

Gray's Anatomy: The Anatomical Basis for Clinical Practice, 41st edition, Churchill Livingstone

Peer-reviewed literature from PubMed on bladder trauma and rupture.

**RESULTS****Classical Description of Basti Marma**

- According to *Sushruta Samhita*,

अल्पमांसशोणितोऽभ्यन्तरतः कट्यां मूत्राशयो बस्तिः, तत्रापि सद्योमरणमश्मरीव्रणादृते | (S.S.6/25)

*Basti Marma* is located in the *Kati Pradesh* (pelvic region), specifically in the lower abdomen, corresponding to the anatomical location of the urinary bladder. It is characterized with less muscular tissue (*Alpa Mamsa*) and minimal blood (*Alpa shonita*)<sup>3</sup>.

तानि स्वपाणितलकुञ्चितसम्मितानि  
शेषाण्यवेहि परिविस्तरतोऽङ्गुलार्धम् ||२९|| (S.S.6/29)

*Basti marma* is 4 *angula* in dimension.<sup>3</sup>

- According to *Ashtanga Hridaya*,

"मूत्राशयो धनुर्वक्रो बस्तिरल्पास्रमांसगः। एकाधोवदनो मध्ये कट्याः सद्यो निहन्त्यसून्।"

(A.H.S. 4/10-11)

Here *Acharya* describes the *Basti* as: arch-shaped, located in the center of the *Kati* (pelvis), having a single downward-facing opening, containing *Alpa Mamsa-shonita* and fatal upon injury<sup>4</sup>.

### Five-Component Analysis of *Basti Marma*

*Marmas* are classified based on five structural components: *Mamsa*, *Sira*, *Snayu*, *Asthi* and *Sandhi*. In *Basti Marma*, all five components are present.

- *Mamsa* - Corresponds to the Detrusor muscle of the bladder wall.
- *Sira* - Corresponds to the blood vessel from superior and inferior vesical arteries and drains through vesical venous plexus which directly drains into the internal iliac veins.
- *Snayu* - Corresponds to the true and false ligaments surrounding the bladder.
- *Asthi* - Corresponds to the pubic bone (pubis).
- *Sandhi* - Corresponds to the pubic symphysis.

The presence of all five components explains why even minor trauma to the *Basti* region can produce devastating systemic consequences which is well-supported by modern surgery.

### *Viddha Lakshanas of Basti Marma*

"तत्र अपि सद्यो मरणम् अश्मरी व्रणाद् ऋते। तत्र अपि उभयतो भिन्ने न जीवति। एकतो भिन्ने मूत्र स्रावी व्रणो भवति। स तु यत्नेन उपक्रान्तो रोहति।" (S.S.6/25)

Injury to *Basti* results in immediate death, with the exception being injury arising from urinary calculus (*Ashmari*). When the bladder is injured on both sides, survival is impossible. A unilateral injury results in urinary leakage, it heals, if managed with diligent care<sup>3</sup>. Similar explanation is given by both *vagbhata acharyas* thereby supporting *viddha lakshanas* of *Marma* as explained by *Acharya Sushruta*<sup>4,5</sup>.

### According to *Charaka Samhita*

"बस्तौ तु वातमूत्रवर्चोनिग्रहवङ्कणमेहनबस्तिशूलकुण्डलोदावर्तगुल्मानिलाष्ठीलोपस्तम्भ नाभिकुक्षिगुदश्रोणिग्रहादयः।" (C.Si.9/6)

*Charaka* explains the results of affliction of the *Basti* region:

- *Vata Mutra Varcha Nigraha* - Retention of Vata, urine, and faeces
- *Vankshana, Mehana and Basti Shoola* - Pain in the inguinal region, penis/urethra, and bladder
- *Basti Kundala* - Spasms and involuntary contractions of the urinary bladder, associated with urinary incontinence
- *Udavarta* - Upward movement of Vayu, causing abdominal distension and discomfort
- *Gulma, Anila Asthila* - Abdominal masses and Vata-related obstructions
- *Nabhi-Kukshi-Guda-Shroni Graha* - Muscular rigidity and stiffness in the umbilical, abdominal, rectal and pelvic regions. All these symptoms can be treated accordingly<sup>6</sup>.

## DISCUSSION

### Discussion on *Viddha lakshanas* by different *acharyas*

The descriptions of *Basti Marma* by *Acharya Sushruta* and both *Acharya Vagbhata*s primarily emphasize the structural and surgical consequences of bladder injury. Their accounts of bladder perforation, urinary leakage and the fatal nature of severe trauma reflect a clear understanding of the anatomical importance of the urinary bladder. In contrast, *Acharya Charaka* focuses on the functional disturbances resulting from affliction of the *Basti region*, describing symptoms such as urinary retention, constipation, pain and Vata derangement. Thus, while *Sushruta* and *Vagbhata* explain *Basti* injury from a surgical perspective, *Charaka* highlights its physiological and *Doshaja* manifestations. Together, these descriptions provide a comprehensive understanding of the clinical significance of *Basti Marma*.

### Discussion on *Viddha lakshanas* of *Sushruta Samhita* correlation with Modern Bladder Trauma

The classical description of *Ubhayato Bhinna* (bilateral injury of the bladder) and consequent immediate death corresponds precisely with the modern surgical entity of **intraperitoneal bladder rupture**. In this condition, urine escapes freely into the peritoneal cavity, initiating a sequence of chemical peritonitis, bacterial contamination, septicemia, multi-organ failure and death. Modern trauma literature indicates that untreated intraperitoneal bladder rupture carries a very high risk of mortality, reflecting the clinical significance recognized in Ayurvedic texts centuries ago.

The description of *Ekato Bhinna Mutra Sravi* (unilateral laceration with urinary leakage, amenable to treatment) corresponds closely with **extraperitoneal bladder rupture**, which accounts for approximately 80–90% of bladder injuries in modern trauma series. Extraperitoneal rupture typically results from pelvic fractures and is characterized by localized urinary extravasation into the perivesical space. The conservative management of bladder injuries using an indwelling urinary catheter reflects the principle described by *Acharya Sushruta* that proper treatment and careful management can promote healing.

### Pathophysiology of Bladder Rupture

Bladder rupture, though relatively uncommon (incidence 1–1.8% in pelvic trauma), carries significant morbidity and mortality. The pathophysiological cascade following intraperitoneal rupture unfolds as follows:

- Urine leakage into the peritoneal cavity → Chemical peritonitis due to urea and ammonia
- Peritoneal edema and inflammation → Pain, guarding and abdominal distension
- Secondary bacterial contamination → Infective peritonitis → Sepsis and septic shock
- Systemic inflammatory response → Multi organ failure → Death

The Ayurvedic framework of *Apana Vayu Vimarga Gamana* reflects an understanding of this pathophysiological cascade in conceptual terms: the disruption of physiological function leads to retention of waste products, pain in the lower abdomen and urogenital tract and systemic deterioration consistent with modern descriptions of uroperitoneum and sepsis.

- The observations of *Acharya Sushruta* regarding the *Ubhayato Bhinna*, life-threatening nature of *Basti* injury are supported by contemporary clinical reports. Kiriya et al. described a case of spontaneous urinary bladder rupture presenting as acute abdomen and initially misdiagnosed as gastrointestinal perforation<sup>7</sup>. The delay in diagnosis led to uroperitoneum and severe systemic complications, highlighting the potentially fatal consequences of bladder rupture when not recognized and managed promptly. This finding resonates with *Sadyopranahara Marma*, emphasizing the critical importance of early diagnosis and timely intervention in injuries affecting the urinary bladder.

- *Acharya Sushruta's* statement that a *Ekato Bhinna Mutra Sravi*, can heal with proper treatment appears closely related to the surgical management of *Ashmari* mentioned by *Acharya Sushruta* in *chikitsa sthana*. During this planned *Shashtra Karma*, an incision is made on the *Basti* for the removal of urinary calculi, yet it is not considered fatal<sup>8</sup>. This suggests that the *Ekato Bhinna* described by *Sushruta* can also be comparable to a limited and surgically controlled injury of the bladder. In contrast to accidental or extensive trauma, such injuries can heal successfully with appropriate care. This highlights the sophisticated surgical understanding of *Acharya Sushruta*, who recognized that the outcome of *Basti* injury depends not only on the site involved but also on the extent, nature and management of the injury.

### Discussion on *Viddha lakshanas* of *Charaka samhita* correlation with Modern Bladder Trauma: Uroperitoneum

Uroperitoneum (urinary peritonitis) is a condition defined by the presence of urine within the peritoneal cavity. Its clinical presentation is characterized by vague hypogastric pain, abdominal distension due to paralytic ileus, partial or complete cessation of urine output and signs of peritoneal irritation on rectal examination combined with ascites. The insidious onset and misleading symptomatology of uroperitoneum are recognized as key factors contributing to diagnostic delay and increased mortality<sup>8,9</sup>.

According to *Charaka*, *Basti* affliction, including *Vankshana Mehana Basti Shoola*, *Udavarta* and *Nabhi-Kukshi-Guda-Shroni Graha*, collectively mirrors the clinical presentation of uroperitoneum with extraordinary precision, demonstrating that *Acharya Charaka* had detailed observational understanding of bladder pathology.

### Importance and Protection of Basti Marma

हृदये मूर्ध्नि बस्तौ च नृणां प्राणाः प्रतिष्ठिताः।  
तस्मात्तेषां सदा यत्नं कुर्वीत परिपालने॥९॥ (C.Si.9/9)

Three essential protective measures for vital organs including the *Basti*:

- Avoidance of causative factors of injury (*Abadha Varjana*)
- Adherence to *Swasthavritta* (healthy lifestyle and regimen)
- Prompt and effective treatment of any disease affecting these vital organs

These principles align seamlessly with modern preventive and emergency medicine: avoidance of trauma, maintenance of health through lifestyle interventions and urgent surgical intervention in cases of bladder injury<sup>6</sup>.

*Basti* is regarded as one of the three principal seats of *Prana* serves as the reservoir and passage for urine and is closely associated with the normal functioning of *Apana Vata*. Injury or any disease affecting *Basti* can lead to disturbances in urination, resulting in serious morbidity and in severe cases, mortality. From a modern perspective, the urinary bladder is essential for urine storage and controlled voiding. Severe bladder injuries may result in urinary leakage, infection, sepsis and life-threatening complications. Therefore, both *Ayurveda* and contemporary medicine stress the importance of protecting the *Basti*.

### CONCLUSION

*Basti Marma*, described in *Ayurveda* as a vital seat of *Prana*, shows remarkable correlation with the modern understanding of the urinary bladder and its clinical significance. The classical descriptions of bladder injury by *Acharya Sushruta* and *Acharya Charaka* closely parallel contemporary concepts of bladder trauma, urinary dysfunction, and pelvic pathology. Furthermore, the 5 compositions of *Basti Marma* demonstrates a systematic anatomical understanding that can be correlated with anatomical structures of the urinary bladder. Thus, *basti marma* can be considered as a *Sadhyopranahara marma*. Hence the protection of this region should be done and care should be taken during the surgical procedures.

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