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# A conceptual review of *Basti* (Urinary Bladder) as *Pranayatana*

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## ABSTRACT

Ayurveda is a system of medicine, which gives the way of perfect living with nature. It is a science which is on the rise as a result of various discussion and researches from ancient time onwards. It gives equal importance to preventive and curative aspects of disease. As we know the diagnosis of any disease is very important before treatment, similarly the knowledge of *Rachana Sharira* is also important before diagnosis. The word *Pranayatana* is formed by two words – *Prana* + *Ayatana*. Here *Ayatana* means residing place (*Ashraya Sthana*) and *Prana* means live attribute (life). So, the *Sthana* which gives seat for *Prana* is called as *Pranayatana*. *Basti* is one such *Pranayatana* mentioned in *Charaka Samhita*. It has been given much importance that it has been mentioned both in the context of *Dasha Pranayatana* and *Marma*. In this article, an attempt is made to understand and review *Basti* in the context of *Dasha Pranayatana*.

**Key words:** *Pranayatana, Prana, Basti, Marma, Ayurveda*

## INTRODUCTION

Health is a precious possession, wisdom of art, strength and wealth are of no use if health is lacking. The physician must be maintain or to restore his patients health. *Maharshi Sushruta* mentioned that the *Prana* which is in twelve in number i.e *Agni, Soma, Vayu, Satva, Raja, Tama, Panchendriya* (Five Sense Organ) and *Bhutatma* have a power of life that is life energy.<sup>[1]</sup> *Dwadash Prana* is mainly situated in ten place of the body is called as *Dasha Pranayatana*.

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Expect these *Pranayatana* the *Dwadash Prana* are also circulating in other parts of body till death. So that *Prana* is life energy of the body, it is necessary to keep it for life. Some *Acharyas* have described the concept of *Marma* as well as *Dasha Pranayatana* and said *Basti* as one of the *Pranayatana*.

The *Pranayatana* are mentioned below according to different *Acharyas*-

<i>Pranayatana</i>	<i>Charak Sutrasthana</i> 29/3 <sup>[2]</sup>	<i>Charak Sharir Sthana</i> 7/9 <sup>[3]</sup>	<i>Astanga Hridaya Sharir Sthan</i> 3/13 <sup>[4]</sup>
<i>Sankha Pradesh</i>	+	-	-
<i>Marmatraya - Hridaya</i>	+	+	+
<i>Basti</i>	+	+	+
<i>Nabhi</i>	+	+	+
<i>Kantha</i>	+	+	+
<i>Rakta</i>	+	+	+

Shukra	+	+	+
Ojas	+	+	+
Guda	+	+	+
Murdha	-	+	-
Mansa	-	+	-
Shirobandha	-	-	+
Rasabandha	-	-	+

There are Nineteen *Sadya Pranahara Marma* describe in Ayurvedic texts which have vital significance.<sup>[5]</sup> The *Prana* (vital energy) mainly resides in *Hridaya* (Heart), *Murdha* (Head) and *Basti* (Urinary Bladder), Hence one should make every effort to protect them.<sup>[6]</sup> *Basti* is consider as one, among these *Pranayatana* and *Mahamarma*. *Maharshi Sushruta* said that the shape of *Basti* is like *Alabu* (pitcher gourd) and supported by *Sira* and *Snayu*. *Basti* (Urinary Bladder), *Basti Sira* (Head of Bladder), *Paurusha* (Penis), *Vrisna* (Testicles) and *Guda* (Rectum) are interrelated and situated inside the cavity of pelvis. This is the site for urine collection (*Mutrasaya*) is the receptacle of *Mala* (Waste product) and an important seat of *Prana*.<sup>[7]</sup>

*Maharshi Charaka* quotes the *Basti* situated in the middle of *Sthula Guda* (Rectum), *Mushka* (Scrotum), *Sevani* (Raphe) and the *Nadi* (Vas deference) and Ureter transporting *Mutra* and *Sukra*. As different rivers fill the ocean in similar fashion all the *Ambuvaha Srotas* transporting water fill the *Basti*.<sup>[8]</sup>

According to *Maharshi Sushruta Basti Marma* is situated in inside the *Kati Pradesh* which is a site of collection of urine and has less of *Mansa* and *Rakta*. An injury to the bladder kills immediately created *Ashmari Vrana* (abscess due to calculus). A calculus wound is also fatal if it bladder gets injured on both sides. If it is injured on one side only, then *Mutrasravi Vrana* (discharging abscess) is occur.<sup>[9]</sup>

#### Anatomical and Physiological View of Basti

The urinary bladder is a hollow, distensible muscular organ situated in the pelvic cavity posterior to the

pubic symphysis. In males, it is directly anterior to the rectum; in females, it is anterior to the vagina and inferior to the uterus. Folds of the peritoneum hold the urinary bladder in position. When slightly distended due to the accumulation of urine, the urinary bladder is spherical. When it is empty, it collapses. As urine volume increases, it becomes pear-shaped and rises into the abdominal cavity. Urinary bladder capacity averages 700-800 ml. It is smaller in females because the uterus occupies the space just superior to the urinary bladder.

In the floor of the urinary bladder is a small triangular area called the trigone. The two posterior corners of the trigone contain the two ureteral openings; the opening into the urethra, the internal urethral orifice, lies in the anterior corner. Because its mucosa is firmly bound to the muscularis, the trigone has a smooth appearance.

Three coats make up the wall of the urinary bladder. The deepest is the mucosa, a mucous membrane composed of transitional epithelium and an underlying lamina propria similar to that of the ureters. Rugae (the folds in the mucosa) are also present to permit expansion of the urinary bladder. Surrounding the mucosa is the intermediate muscularis, also called the detrusor muscle, which consists of three layers of smooth muscle fibers: the inner longitudinal, middle circular, and outer longitudinal layers. Around the opening to the urethra the circular fibers form an internal urethral sphincter; inferior to it is the external urethral sphincter, which is composed of skeletal muscle and is a modification of the deep muscles of the perineum. The most superficial coat of the urinary bladder on the posterior and inferior surfaces is the adventitia, a layer of areolar connective tissue that is continuous with that of the ureters. Over the superior surface of the urinary bladder is the serosa, a layer of visceral peritoneum.<sup>[10]</sup>

#### Arterial Supply

1. The main supply comes from the superior and inferior vesical arteries, branches of anterior trunk of the internal iliac artery.

2. Additional supply is derived from the obturator, and inferior gluteal arteries; and in females from the uterine and vaginal arteries instead of inferior vesical.

### Venous Drainage

Venous Drainage lying on the inferolateral surfaces of the bladder there is a vesical venous plexus. Veins from this plexus pass backwards in the posterior ligaments of the bladder, and drain into the internal iliac veins.

### Nerve Supply

The urinary bladder is supplied by the vesical plexus of nerves which is made up of fibres derived from the inferior hypogastric plexus. The vesical plexus contains both sympathetic and parasympathetic components, each of which contains motor or efferent and sensory or afferent fibres.

1. Parasympathetic efferent fibres or *nervi erigentes*, S2, S3, S4 are motor to the detrusor muscle. These nerves do not supply the preprostatic sphincter. If these are destroyed, normal micturition is not possible.
2. Sympathetic efferent fibres (T11 to L2) are said to be inhibitory to the detrusor and motor to the preprostatic sphincter mechanism.
3. The somatic, pudendal nerve (S2, S3, S4) supplies the sphincter urethrae which is voluntary and is situated within the wall of urethra.
4. Sensory nerves: Pain sensations, caused by distension or spasm of the bladder wall, are carried mainly by parasympathetic nerves and partly by sympathetic nerves. In the spinal cord, pain arising in bladder passes through the lateral spinothalamic tract, and awareness of bladder distension is mediated through the posterior columns. Bilateral anterolateral cordotomy, therefore, selectively abolishes pain without affecting the awareness of bladder distension and the desire to micturate.<sup>11</sup>

### DISCUSSION

*Basti* is the reservoir of urine. *Vayu* is one of the *Prana* of the *Dwadasha Prana*. *Vayu's* main function are

regulates the nervous processes involved with movements, elimination, eating, drinking and thoughts. *Apana Vayu* is a type of *Vayu* and its support to lower abdomen from umbilicus to pelvic region, control all movements that go downward and out. In the urinary bladder when 300-400 ml of urine accumulated, afferent autonomic nerve fiber in the bladder wall activated. In the infant this initiates the spinal reflex and micturition occurs due to response of parasympathetic stimulation of the bladder, causing contraction of detrusor muscle and relaxation of the internal urethral sphincter. Urine is expelled from the bladder and passes through the urethral before leaving the body.

When the nervous system is fully developed, the micturition reflex is stimulated but sensory impulses also pass upwards to the brain and there is awareness of the need to pass urine. By learned and conscious effort, contraction of the external urethral sphincter and the muscle of the pelvic floor can inhibit micturition until it is convenient to empty the bladder.

In adults, urine is passing when the detrusor muscle contracts, and there is reflex relaxation of the internal sphincter and voluntary relaxation of the external sphincter.

Here we see control of micturition after urinary bladder control is established the mechanism is correlated to function of *Apana Vayu* and *Vata-Nadi* is correlated with nerve of urinary bladder. In this mechanism parasympathetic nerves, sympathetic nerve to external sphincter and somatic nerve to internal sphincter are involved, which helps relaxation and contraction of sphincter. If they are not function properly then many urine related disease are developed, e.g. retention of urine etc.

### CONCLUSION

*Basti* is *Snayu Marma* and *Sadyah Pranahara* in nature and injury to get *Ashmari Vrana* and immediate death may occur. Bladder stone are small mineral masses that develop in the bladder, usually urine become concentrated. During spinal injury after complete transection of spinal cord above sacral segment,

urinary bladder losses stone and fail to give response to micturition reflex. So, the bladder is completely filled and later urine overflow by dribbling. In this condition, if direct injury to urinary bladder can cause rupture of bladder leading to shock and death due to acute infection developing peritonitis. To overcome from these condition, we should have details knowledge about the vital organ of our body, So, the proper protection may be provided and faulty procedure may be avoided during surgery.

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