

## AN AYURVEDIC MANAGEMENT OF BASTI SHOOLA W.S.R TO CYSTITIS

Behera Sunita<sup>1</sup>, Brahma Sasmita<sup>2</sup>, Chanana Amrish<sup>3</sup>

<sup>1</sup>PG scholar, <sup>2</sup>PG scholar, <sup>3</sup>Assistant Professor,

Dept. of Rachana Sharir, Ch. Brahm Prakash Ayurved Charak Sansthan, New Delhi, India

Email: [sunita.behera72@gmail.com](mailto:sunita.behera72@gmail.com)

### ABSTRACT

The word *Shoola* refers to any type of pain in body like *Shira shoola*, *Hrid Shoola*, *Basti shoola* etc. The pathology of *Basti Shoola* is described by Sushruta in Uttar Tantra. When *Vata* is aggravated by suppression of urges (urine, feces & flatus) and get placed in *Basti*, *Vamshana* & *Nabhi*. It obstructs the elimination of feces, urine & flatus. This causes *shoola* in *Basti*. Cystitis is one of the most common causes of Bladder pain. The stasis of urine in urinary tract causes development of microorganisms in bladder. The microorganism makes the protective layer of bladder wall leaky thus allow  $K^+$  ions (mediator of Inflammation) to penetrate the protective lining and damage the bladder wall. These  $K^+$  ions attack the free nerve ending of bladder wall and excite pain to travel upward to brain through anterolateral spinothalamic tract.

The treatment of *Basti shoola* involves removal and suppression of toxins (aggravated *vata*) with internal detoxification and removal of blockage from urinary tract. The ethanolic extract of *Gokshura* acts as COX inhibitor and suppresses the expression of the mediators of inflammation, Similarly the active ingredient of Sandal wood (alpha and beta Santalol and santabic acid) are effective against microorganism. *Varun*, *Punarnava* and *Kasni* are some other medicines which are useful in *basti shoola*.

**Keywords:** Ayurvedic management, *Basti shoola*, Cystitis,  $K^+$  ions, spinothalamic tract, cox inhibitor

### INTRODUCTION

Generally *Shoola* refers to any type of pain like *shira shoola*, *basti shoola*. etc. It is formed by the combination of “*shoola*” *dhatu* + “*ka*” *prataya*. The literal meaning of *Shoola dhatu* is *vedana* (Pain)<sup>1</sup>. There are 2 types of *shoola*, *Swatantra* & *Paratantra*. *Paratantra shoola* is considered as upadrava of disease where as *swatantra* is defined as *vyadhi*. Charak & Vagbhata didn't mention *shoola* as a *swatantra vyadhi* but Sushruta has explained it in context of *Basti shoola* in *Uttar tantra*.

**MATERIAL AND METHODS:** - Many Ayurvedic Samhitas, Modern Books and published journals have been referred to collect the material (literature).

1. *Charak Samhita*
2. *Sushruta Samhita*
3. *Ashtanga Hridya*
4. *Madhav Nidan*
5. *Kasyapa Samhita*
6. *Chakradatta tika*
7. Text book of pathology (Harsh Mohan)
8. Text book of Physiology (Guyton & Hall)

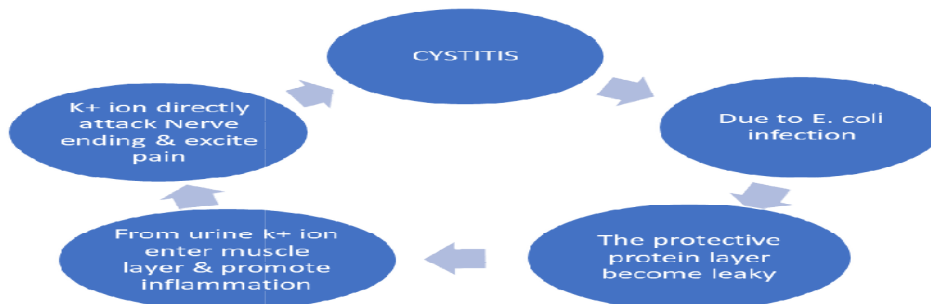
The collected literature from different sources has been explored and analyzed to draw a conclusion.

**BASTI:-** With scanty musculature and blood *Basti* is situated in *kati* & is receptacle of urine<sup>2</sup>. It is situated in the midst of the umbilicus, back, waist, groin, scrotum, penis & has one orifice & covered by a thin layer, placed with its face downward<sup>3</sup>. The *Basti* receives and store the urine from different urinary duct and tubes similar to ocean which receives water from the different tributaries of river<sup>4</sup>. The above anatomical and functional description of *Basti* suggests that it is urinary bladder. It is one of the *trimarma* (Vital areas of body) & aggravation of *doshas* at this site leads to *mahagada*<sup>5</sup>. It is also one of the *Sadyapranahara marma*<sup>6</sup>.

**BASTI SHOOLA:-** Due to suppression of urges (urine, feces & flatus) aggravated *vata* give rise to pain in the bladder, umbilicus and waist<sup>7</sup>, the person suffers from dysuria, headache<sup>8</sup> urinary calculus<sup>9</sup>, distension of lower abdomen, pain in penis, rectum, groin region<sup>10</sup>, frequent urination & burning sensation in urine (due to aggravated *Pitta dosha*)<sup>11</sup>. In modern, the bladder is the hollow organ in the lower abdomen that store urine & it is lined with a mucous membrane & coated with a protective layer of protein as a result it is usually highly resistant to infection or irritation. The three most common causes of bladder pain are (a) Interstitial cystitis (b) urinary tract infection (c) bladder cancer. One of the most important causes is interstitial cystitis.

**CYSTITIS-** It is inflammation of urinary bladder characterized by thickening of bladder and diminution of the size of cavity. The wall first become thickened & stretched & eventually tend to atrophy.<sup>12</sup>

**CAUSES OF CYSTITIS:-** The usual causative organism of cystitis is *Escherichia coli* a bacterium that normally inhabits in intestine & is spread from the rectum to the urethra. Around 80% of all urinary tract infection are caused by bacteria from the bowel that reach the urinary tract. The stasis of urine due to suppression of urge for micturition or any other causes may cause overgrowth of bacteria in urinary tract, due to this bacterial infection the normal protective mucous layer (made up by mucins & glycosaminoglycons) becomes leaky and allow substance in urine to pass into the bladder wall.  $K^+$  ion is present in high concentration in urine & is normally not toxic to bladder lining, However, if the tissue lining the inside of bladder are disrupted or are abnormally leaky,  $k^+$  could then penetrate the lining tissue & enter the muscle layer of bladder and causes inflammation and disruption of nerve ending which cause pain in bladder. Other causes of cystitis are Drug induced cystitis, Radiation cystitis, Chemical cystitis, Cystitis associated with diabetes, kidney stone, HIV, Enlarged prostate etc. It is also a form of autoimmune disorder.



**ROLE OF VATA IN BASTI SHOOLA:** -  
 “संज्ञाबहानं नाडीनां प्रतानोद्वेजनोद्भवाः सर्वेऽपि

शूलास्तेनाहुः शूलनामनिलः प्रभुः” The *Sangyavaha nadi* (Sensory nerve endings) are stimulated due to *vata dosha* without *vata* there is no pain<sup>13</sup>. Pain occurs

whenever tissue is being damaged. There are 2 types of pain (a) fast pain (b) slow pain. Fast pain is felt in skin & isn't felt in the deepest tissues of the body but slow pain can occur both in skin & in almost any deep tissue or organ. As *basti* (bladder) is an organ of abdomen, in this region slow pain can occur. Researcher have suggested that intensity of pain felt with the local increase in  $k^+$  ion concentration that directly attack the nerve ending & excite pain by making the nerve membrane more permeable to ions.

**PAIN PHYSIOLOGY IN BASTI SHOOLA: -**

From the nerve ending of bladder slow chronic pain is transmitted to the spinal cord by type c fibers at velocity between 0.5 to 2m/sec. Then the peripheral slow –chronic type c pain fiber terminates in the spinal cord almost entirely in lamina 2 & 3 of the dorsal horns, which together are called substantia gelatinosa (function- Relay station for pain & thermal stimuli). Before entering mainly lamina 5, most of the signals then pass through one or more addi-

tional short fiber neuron within the dorsal horn themselves. Here the last neuron in the series give rise to long axon that mostly join the fiber from the fast pain pathway, passing first through the anterior commissure to the opposite side of the cord, & then upward to the brain stem (mid brain, pons, medulla) in the anterolateral pathway. In the brainstem only 1/10 to 1/4 th of fibers pass all the way to thalamus. Instead, most of fiber terminate in (a) reticular nuclei of pons, medulla & mid brain (b) tectal area of mesencephalon (c) periaqueductal region gray region of mid brain. From the brainstem pain areas, the pain signal run upward into nuclei of thalamus, hypothalamus & other basal region of brain. The type c pain fiber terminal entering the spinal cord release glutamate transmitter & substance p transmitter. Glutamate transmitter gives a faster pain sensation, whereas the p transmitter gives a more lagging sensation. Substance p is concerned with slow chronic pain. Slow-chronic pain can usually be localized only to a major part of the body.<sup>14</sup>

SYMPTOMS OF BASTI SHOOLA	SYMPTOMS OF CYSTITIS
1. <i>Basti shoola</i> (Due to <i>vata dosha</i> ) and vankshan aanah	1. Pelvic discomfort, Pain & tenderness around bladder
2. Frequent urination (Due to <i>vata dosha</i> )	2. Frequency
3. <i>Daha</i> (Burning sensation due to <i>pitta dosha</i> )	3. Urgency
4. <i>Mootrakricha</i> (Dysuria due to <i>vata dosha</i> )	4. Painful urination,

**PHARMACODYNAMICS OF CERTAIN DRUGS IN BASTI SHOOLA:-**

The line of treatment involves the removal of toxin (aggravated *vata & pitta dosha*) with internal detoxification (as like *basti-sodhana chikitsa*) cleaning & removing any blockages (*saman chikitsa*) in the urinary tract.

**(a) Gokshura:-** Tribulus terrestris, Family- Zygophyllaceae, Action on *Dosha-Vata pitta saman*, properties-*mutrala*

All parts of tribulus terrestris showed antibacterial activity against Escheri coli, Enterococcus faecalis, Staphylococcus aureus. The methanolic extract of fruit of TT was found to be most active against gram +ve & -ve bacteria. The ethanolic extract of TT in-

hibited the expression of cyclooxygenase-2 (cox-2), It also suppressed the expression of pro-inflammatory cytokines such as tumor necrosis factor alpha (TNF-alpha) & interleukin (IL-4) in macrophage cell line. Ethanolic extract of TT also inhibits the expression of mediators related to inflammation & expression of inflammatory cytokines which has a beneficial effect on various inflammatory condition.<sup>15</sup>

**(b) Chandan: -** Santalum album, Family- Santalaceae, Properties-*Daha saman, mutrala*  
Genitourinary tract infection such as cystitis & gonorrhoea have been treated by sandal wood oil due to its effect on the mucus membrane of genitourinary tract, it helps to remove mucous congestion, restore

mucous membrane & minimize the risk of infection. Maximum inhibitory action of sandal wood oil was recorded against *E.coli* & *Bacillus mycoides*. Santalbic acid a major constituent of seed & Santalol in high or medium concentration in sandal wood oil were active against gram +ve & gram -ve bacteria.<sup>16</sup>

**(c) Varun:-** *Crataeva nurvala*, Family-Capparaceae, Action on *Dosha- kaphavatta saman*, Properties-*mutrala*

It is one of the best natural remedies for cystitis. Lupeol (content of varun) has been extensively studied for its inhibitory effect on inflammation under in vitro & in animal model of inflammation. Lupeol treatment significantly reduced prostaglandin E<sub>2</sub> (PGE<sub>2</sub>) production in macrophages. Topical application of lupeol decreases myelo peroxidase level thus causing reduction in cell infiltration into inflamed tissue in mice. It was reported that lupeol exhibited anti-inflammatory effect in variety of acute & chronic inflammatory test model in rat & mice.<sup>17</sup>

**(C) Punarnava:-** *Boerhavia diffusa*, family-Nyctaginaceae, Action on *Dosha- Tridoshara*, properties-*mutrala*)

It is considered as one of the top herbal remedies for cystitis as it is highly diuretic. This plant is also called *sothaghni* which means that who alleviate inflammation. Wahi et al isolated alkaloid punarnavine & water soluble base choline from BD roots & evaluated them for effect on diuresis. In vitro studies—it was observed that ethanolic & aqueous extract possess antibacterial activity against *E.coli* & *Bacillus subtilis*. Liriodendrin, quercetin & kaempferol have been reported from various extract from roots & leaves of plant have shown anti-inflammatory activity. Borrelli & coworker have shown spasmolytic effect of methanolic root extract of BD.<sup>18</sup>

**(e)Kasni:-** *Cichorium intybus* family-Compositae, Action on *Dosha, kaphavatta saman*, properties-*mutrala*)

It is one of the most potent herbs for bladder infection. It is a diuretic & well known for its antibacterial properties. The crude aqueous & organic seed ex-

tract were found to be active against *E.coli*, *candida albican*, *staphylococcus aureus*. The ethyl acetate extract inhibited the production of prostaglandin E<sub>2</sub> in a dose dependant manner. The oxalic acid, quinic acid, shikimic acid of *kasni* help in detachment of dead cell for the cultured substratum.<sup>19</sup>

#### TREATMENT FOR BASTI SHOOLA: -

- Charak- *Swedan, Avagahan, Abhyanga, Basti chikitsa & avapidaka nasya* of ghee.<sup>20</sup>
- Vagbhatta- *Ghritapan* (before meal) & at night after meal.<sup>21</sup>
- Sushruta- *Vatahara chikitsa/Vatavyadhi chikitsa*.
- The *matulunga juice* or decoction of *sighru* added with *yavaksara* & honey should be taken in case of pain in side, *basti* region & cardiac region.<sup>22</sup>
- *Hingu, patha, trikatu, ksara, rock-salt, hapusa, chavya, ajaji, dhanya, dadima, sati & saubarcala* should be powdered very fine, drinking of this powder with hot water, curd, wine & *asavas* cures tympanitis, pain of bladder & cardiac pain.<sup>23</sup>
- Other medicines are *Gokshuradi guggul, Chandanadi vati, Varunadi vati, Punarnava rista, Dasamoolarista*.

#### DIET & LIFE STYLE: -

- To prevent problems of urinary system it is always important to drink adequate liquid every day.
- Persons living or working in humid atmosphere tend to sweat more leading to loss of water from the body. This too can cause urinary problem. People exposed to such environment should drink adequate liquid like water, fruit juices, coconut water which protect the person from urinary infection.
- Eating more fruits & vegetables will help to increase the immunity & prevent persistent attack of infection.

## CONCLUSION

From the above literature the pathophysiology and management of *Basti shoola* can be concluded as: -

The suppression of urine causes stasis of urine in urinary tract which lead overgrowth of bacteria in urinary bladder. The bladder wall gets damaged by the bacteria (predominantly E.coli) and makes it leaky for K ions. These K ions in urine attack on free nerve endings (aggravation of *vata*) of the bladder wall and stimulates the pain signal upward to thalamus by anterolateral spinothalamic pathway (traverse of *Vata*). In management of *basti shoola*, *Gokshura*, *Chandan*, *Varun*, *Punarnava*, *Kasni* are advised due to their anti-inflammatory, anti-bacterial & diuretic action. These drugs also have inhibitory action on cyclooxygenase (cox-2) pathway, a chemical mediator in Inflammation.

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