

“EFFECT OF *BASTI CHIKITSA* IN *VATASHTHEELA* (BPH) & *MUTRAKRICHCHHRA* (UTI)”

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ABSTRACT:

The pioneer of the ancient surgery, “*Acharya Sushruta*” defined *Vatashtheela* as “a condition in which the *Apana Vayu* due to vitiation produces mobile, elevated & glandular swelling in between the rectum and urinary bladder (or urethra) which obstructs the passage of urine and faces and produces the symptoms like *Sanga* (obstruction) etc”. whereas, *Mutrakrichchhra* is said to be *Vata Pradhana Tridoshaja Vyadhi* and difficulty in micturition is its characteristic feature. Difficulty may be in the form of *Ruja* (painful micturition), *Daha* (burning micturition), *Muhur-Muhur* (frequent micturition) with *Alpata* (reduced per voiding volume), etc. Therefore, the disease *Vatashtheela* may be correlated closely to BPH (Benign Prostatic Hyperplasia) both surgical anomaly and symptoms wise, whereas, *Mutrakrichchhra* correlate with UTI (sp. Lower Urinary Tract Infections) only symptoms wise. Several drugs in different dosage forms and combinations are tailored, in *Ayurvedic* classics for treating *Vatashtheela* & *Mutrakrichchhra*. Among these, the elected drugs are *Narayana Taila* and *Dashamula Kwatha*. These two drugs were used in combination in the form of *Basti* per rectum.

Randomly selected 15 patients were, treated with *Basti* per rectum, irrespective of their religion, race, occupation, habited etc. In BPH irritative as well as obstructive symptoms like incomplete emptying, intermittency, frequency, weak stream, urgency, staining, nocturia, and in UTI burning micturition, painful micturition, frequency & urgency were observed weekly, during 21 days of treatment period and at interval of 15 days, for 2 months of follow up period after completion of the treatment. A satisfactory positive result was obtained and was statically significant without any adverse effects. Though sample size is small and not enough to prove the efficacy, but author has tried to share her experience through this study to state that

Ayurvedic treatment for *Vatashtheela* & *Mutrakrichchhra* is very effective and improves the quality of life of the patients.

Keywords: *Vatashtheela*, BPH, *Mutrakrichchhra*, UTI, *Narayana Taila*, *Dashamula Kwatha*, *Basti Chikitsa*.

INTRODUCTION:

Sushruta, the pioneer of *Shalya Tantra* (Surgery) had enumerated so many urinary disorders like *Mutrakrichchhra* (UTI), *Mootraghata* (obstruction or suppression of urine), and *Ashmari* (urinary stone) etc. with their management. The concept of *Basti* (urinary bladder), *Mutravaha Srotasa* (urinary system), *Mutrotpatti* (urine formation), and *Shukravaha Srotasa* (reproductive system) are explained by the ancient authors in a concise way.

Urological problems remain a very important part of the medical science which becomes evident from the ancient study. A lot of descriptions is available in *Ayurvedic* classics regarding urological problems under the heading of *Mutraghata*, *Mutrakrichchhra*, *Prameha*, and *Ashmari*. Almost all the urological disorders are covered by these chapters directly or indirectly. Among various *Mutraroga*, *Vatashtheela* (Benign Prostatic Hyperplasia) and *Mutrakrichchhra* (Urinary Tract Infection) is the most common disorder of urinary tract, suffering the mankind very frequently. *Krichchhrata* (painful voiding/difficulty in voiding), is the main feature of *Mutrakrichchhra* but sometimes some feature of *Mutra-vibandhata* (obstructions) is also found. Obstruction is the main feature of *Mutraghata*. *Vatashtheela* & *Mutragranthi* shows obstructive uropathy due to enlarged prostate, based on symptomatology. According to *Acharya Sushruta*, due to vitiation of *Apana Vayu* a *Chala*, *Unnata*, *Ashtheelavata Granthi* is developed in the region between the *Guda* and *Basti*, is called *Vatashtheela*.^[1]

Vatashtheela is one of the types of *Mutraghata* that reveal the symptoms of incomplete voiding, hesitancy, dribbling, nocturia, retention of urine, incontinence of urine, etc. These are chiefly the features related to the Lower Urinary Tract Symptoms (LUTS) that can be correlated closely to BPH (Benign Prostatic Hyperplasia) both surgical anomaly and symptoms wise.

“**Benign**” means “**non malignant**” while hyperplasia means-“**Increase in the number of cells.**” BPH is a part of the normal ageing process and non-cancerous disease. Overall, nearly 80% of elderly men develop BPH. According to several autopsy studies, the histologic prevalence of BPH is approximately 10% for men in their 30 years, 20% for men in their 40 years, reaches 50% - 60% for men in their 60 years, and is 80% - 90% for men in their 70 – 80 years.^[2] During bladder filling (storage), emptying (voiding), and post urination or a

combination, LUTS can occur. Storage symptoms are often irritative and can include frequent urination, urgency, urge incontinence, nocturia, and some kind of pain. In males, voiding symptoms can be correlated to obstructive causes, and thus symptoms such as difficulty in emptying bladder, straining, urinary hesitancy, weak stream or post void dribbling can occur.

There are several potential aetiologies of voiding dysfunction. Common causes of obstructive symptoms include prostatitis or an enlarged prostate due to BPH. Other causes are chronic Cystitis, urethral stricture (scar tissue), bladder stone, Urinary bladder tumour (benign or malignant) etc. From similar aetiologies irritative symptoms may result, including bladder infection. Symptoms can arise if there is neuro-sensory dysregulation in the bladder, that may be reflected as sensory unsteadiness, unwarranted bladder contractions, poor bladder compliance or bladder hyperreflexia.

BPH is a common age-related & slow progressive affliction of males and the management of which is achieved by either conservative or surgical methods. Administration of conservative modern treatment like hormone therapy has side effects like impotence, loss of libido, gynaecomastia, etc. Prostatectomy is a golden treatment for BPH but it is associated with so many complications such as post operative morbidity, retrograde ejaculation, impotence, insomnia, etc. The prostatectomy has also its own complications such as haemorrhage, infection, stricture of bladder neck & urethra, incontinence of urine. However, following surgery, even with the relief of obstruction, not all the patients got relieved from their symptoms.

For a healthy life Good urination habits are important. BPH and Urinary Tract Infection (UTI) is a common distressing and occasionally life threatening condition. BPH occurs in elderly man whereas UTI occurs more often in women than in men, at a ratio of 8:1.^[3]

The *Pratyatma Lakshana* of *Mutrakrichchhra* is “**Dukhen Mutra Pravrittih**”^[4] means discomfort during micturition. UTI may be defined as “a condition in which bacteria enter, persist and multiply within the urinary tract”. *Sushruta* has mentioned that *Pratiloma Gati* of *Vata* or *Kupita Vayu* is responsible for various *Mutra Dosha*^[5] or *Basti Roga*.^[6]

The features of *Doshaja Mutrakrichchhra* described in texts (i.e. *Daha*, *Muhurmutrata*, *Ruja*, *Bastigurutva*, *Shotha*, etc.) resemble more closely to features of LUTI (i.e. burning micturition, painful micturition, suprapubic heaviness, etc.) than Upper Urinary Tract Infections (UUTI) (i.e. flank/abdominal pain, nausea-vomiting, costovertebral angle tenderness, high fever, generalized malaise).

UTI result in 3.6 million hospital visits each year and greater than 100,000 hospital admissions annually.^[7] Up to 50% of women have a UTI at some time of their

life. The prevalence of UTI in women is about 3% at the age of 20, increasing by about 1% in each subsequent decade. In men UTI is uncommon, except in the first year of life and in males over 60, in whom urinary tract obstruction is due to prostatic hypertrophy may occurs.

The treatment of UTI in modern medicines via antimicrobial therapies having adverse effect and bacterial resistance to anti-microbial agents has been emerging and rapidly disseminating among many nosocomial and community acquired pathogens is another point of concern.

According to *Ayurvedic* classics, *Vata* is the root cause of all the varieties of *Mutraghata* (including *Vatashtheela*) and *Mutrakrichchhra. Basti* mentioned in *Ayurvedic* classics, which is the treatment of choice in *Vata* pre-dominant diseases. Therefore, *Basti Chikitsa* covers “**Half of the treatment of all the diseases**” and *Basti* has been defined by *Acharya Charaka* as “*Chikitsa-ardhamiti*” [8]

Acharya Sushruta classified diseases into two groups – one which are cured by surgical procedure (*Shastra Saadhya*) and the second ones which are cured by the use of therapies like *Snehaadi*. But having classified this way they are not exclusive of each other that means in *Shastra Saadhya* diseases we can use the therapies like *Snehaadi* whereas in *Snehaadi Saadhya* diseases we cannot use *Shastra karma* (surgical procedures) [9].

As per the *Samprapti* of *Vatashtheela* and *Mutrakrichchhra*, there is deranged function of *Vata Dosh*, esp. *Apana Vayu* with the vitiation of other *dosha*. So, the line of treatment is instituted as *Vatahara, Mutrala, Bastishodhaka, Shothahara, Krimighna, and Lekhana*, etc. to achieve the goal of desired treatment. Therefore, in this study *Basti Chikitsa* are elected for the treatment of *Vatashtheela & Mutrakrichchhra*.

In this research work an attempt was taken to evaluate an *Ayurvedic* non-invasive therapy in the management of the disease *Vatashtheela* (BPH) & *Mutrakrichchhra* (UTI) according to the treatment principles given in *Ayurvedic* texts. Also, the work was aimed to assess its safety & efficacy of the therapy by adopting advanced scientific parameters and to evaluate the changes in maximum urine flow rate (Qmax), PVRU and prostate size (by uroflowmetry and USG whole abdomen).

BASTI CHIKITSA

General Consideration – The classical literature had given a countless significance to *Basti Chikitsa* and points out a varied range of its applicability. According to the principle of *Ayurveda* it is a pioneer method of treatment for the correction of vitiated *Dosha*. *Acharya Sushruta* & others (*Su.Chi.35/14-16; A.H.Su.19/1*) had described that all those drugs or medicaments which are introduced through rectum by the help of *Basti* (bladder) are designated

as “**Basti Karma**”. Though in generic sense, the term ‘**Basti**’ is applied for all kind of *Basti* modalities as *Niruha Basti*, *Anuvasana Basti*, *Uttara Basti* and *Shirobasti* etc.

Moreover, *Vayu* is responsible for the formation, communication, and spread of *Sweda*, *Mala*, *Mutra*, *Kapha*, and other biological substances in the body. *Acharya Vagbhata* mentioned (in A.S.) that when *Basti* is administered, it acted on the *Apana Vata* which takes the *Virya* of the *Dravya* upwards and it is then taken over by *Samana Vata*, then by *Vyana Vata* which will circulate it to the whole body and further it is moved in upward direction by *Prana Vata*. Thus, it will act in the whole body and will cure almost all the diseases.

Basti is the principal treatment for *Vatika* disorder. According to *Acharya Charaka* there is no cause greater than *Vata* in the manifestation of the disease and there is no better remedy, other than *Basti*. Hence he has mentioned in *Agraya Sangraha* that “**Bastistantranam**”.^[10] *Sushruta* says *Basti* is useful in treatment of *Vata*, *Pitta* and *Kapha Doshas* and even in the derangement of *Rakta Dhatu*. It is also effective in combination of two *Doshas* or all the three *Doshas* [*Su.Chi.35/6*].

Basti is a type of treatment modality that has got both *Shodhana* & *Sanshamana* action depending on the drugs used. *Basti* in different form has a wide range of application such as restoration of *Virya* (semen), anabolism in emaciated person, *Karshan* in obese person, improvement of vision, prevention of aging, improvement in lustre, strength & healthful longevity. *Basti* eradicates morbid *Vata* from the root along with other *Dosha* & in addition it gives nutrients to the body tissues (*A.S.Su.28/3*). Therefore, *Basti Chikitsa* covers “**Half of the treatment of all the diseases**” (*Ch.Si.1/39* & *Su.Sh.8/23*) and supposed to be the principle (specific) treatment for *Vatika* Disorders (*A.H.Su.1/25*), while some authors consider it as the complete remedy for all the ailments.

Acharya Charaka regarding urinary system mentioned this *Basti Chikitsa* for the treatment of *Mutrakrichchhra* (dysuria) and *Mutrasanga* (retention of urine) [*Ch.Si.2/16*]. Whereas, *Acharya Sushruta* had indicated *Basti Chikitsa* in the management of *Mutrakrichchhra*, *Ashmari*, *Sharkarajanya Shula*, and *Vata-Mutra- Mala avarodha*, etc. [*Su.Chi.35/5*].

It can be inferred from above description that *Basti* proves to be effective and first line of treatment of *Vatika* disorders including *Mutrarogas*.

MATERIAL AND METHODS

AIMS & OBJECTIVES :

- To evaluate the efficacy of *Basti Chikitsa* (*Narayana Taila* and *Dashamula Kwatha*) in the management of *Vatashtheela* (BPH) & *Mutrakrichchhra* (UTI).
- To find out any adverse effect of the treatment (drug), if any, during the therapy and follow up.

SELECTION OF PATIENTS :

The Patients with signs and symptoms of *Vatashtheela* & *Mutrakrichchhra* which were fulfilling the clinical criteria of diagnosis were randomly selected and registered irrespective of their gender, religion, occupation, education, etc. from O.P.D and I.P.D of P.G Department of Shalya Tantra, Rishikul Ayurvedic College and Hospital, Uttarakhand Ayurved University, Haridwar [U.K] India. Total 15 patients were selected for the clinical study. A Specially Designed Research Proforma was prepared for this study and informed written consent of the patient was taken before starting the treatment.

SAMPLING METHODE:

A total number of 15 patients with signs and symptoms of *Vatashtheela* (BPH) and *Mutrakrichchhra* (UTI) were enrolled.

INCLUSION CRITERIA:

- Age - Above 20 years.
- Sex - Either sex, males for *Vatashtheela*.
- Patients with clinical signs & symptoms of *Vatashtheela* & *Mutrakrichchhra*.

EXCLUSION CRITERIA:

- Age below 20 yrs.
- Patient with acute retention.
- Malignant condition of Urogenital system.
- Patient associated with other systemic disorders like Diabetes mellitus, Renal failure, Malignancy etc.
- Patient not willing to undergo trial.

METHOD OF RESEARCH

Table No.1: Study Design:

No. of Patients	Formulation	Dose	Route	Time	Duration
15	<i>Narayana Taila</i> & <i>Dashamula Kwatha</i>	<i>Kwatha</i> 200ml/60ml alternate day + <i>Taila</i> - 20ml per day	<i>Basti</i> per rectum	In morning hours	For 21 days

CRITERIA FOR DIAGNOSIS:

Diagnosis was made on the basis of history, clinical signs & symptoms of *Vatashtheela* (BPH) & *Mutrakrichchhra* (UTI), examinations (general, systemic & per rectal) and investigations.

INVESTIGATIONS:

1. Blood Examination: -

- Hb, T.L.C., D.L.C., E.S.R. Blood sugar (RBS, FBS, PP), S/Bilirubin, H.I.V, HbSAg to assess the general condition of patients.
- Blood urea and Serum creatinine to assess the functional status of urinary system.
- Serum acid phosphates, Serum alkaline phosphates and Serum prostate specific antigen (PSA) to exclude the possibility of carcinomatic conditions of prostate.

2. Urine examination.

4. Ultrasonography (USG) of whole abdomen to see the enlargement of prostate (to know size/volume/weight/post voided residual urine).

5. Urodynamics Evaluation by Uroflowmeter.

PREPARATION OF TRIAL DRUGS:

The trial drug *Narayana Taila* was prepared in **Hans Herbals Pvt. Ltd., Sidcul, Haridwar, UK** under our supervision as per "*Sneha Paka Kalpana*" and *Dashamula Kwatha* was self-prepared daily as per the "*Kwatha Kalpana*" mentioned in classical texts.

Storage of Narayana Taila: The prepared *Narayana Taila* was filtered and preserved in airtight glass bottles.

BASTI PROCEDURE

POORVA KARMA:

- The treatment with *Basti* procedure was explained to all the patients and a **written informed consent** was taken before starting the procedure.
- Patient was advised to go through the natural urges in the morning and to take a light Breakfast before *Basti* in the morning hours.
- *Basti* materials such as prepared *Narayana Taila*, *Dashamula Kwatha*, sterilized Rubber catheter & Syringe (50/60cc), Gloves & Gauze pieces etc. were kept ready before the application, then after patient had been asked to lie down on the table in left lateral position.

PRADHANA KARMA:

Position –

- In the classics, the position that must be followed is left lateral. *Charaka* has given explanation that *Grahani* and *Guda* are coming in the same direction. Therefore, one must follow the same position.^[11]
- Logical thinking says that only in the left lateral position due to the gravitation the drugs may enter into the colon. In the medial side, the middle rectal valve is there which controls the sphincter continence which may get injured when the enema is given in the right lateral position.
- Left lateral position (i.e. with extended left lower limb, flexed right knee & hip towards chest, on a comfortable table or bed. Perianal area was exposed.

Procedure ^[12] –

- First of all, *Dashamula Kwatha* was prepared as per *Kwatha Kalpana Vidhi*. After that, 20ml *Narayana Taila* (every day) and 200ml/60ml (in alternate day i.e. 200ml in first day, 60ml in second day, 200ml in third day and so on ...) lukewarm *Dashamula Kwatha* was taken in a bowl/container and mixed well to form a colloidal mixture, now with the help of 50/60 ml sterile syringe, the nozzle of which was connected with plain rubber catheter no. 8.
- Now, the tip of the rubber catheter was lubricated by oil. Gently the tip of the rubber tube was introduced into the anal orifice for about four *Angula Pramana* (10 cms). Patient was asked to be in relaxed state and then slowly medicament was pushed into the rectum by avoiding entry of air in a slow steady manner.

- Then slowly the catheter was withdrawn with little quantity of medicament remaining inside the syringe. Then patient was advised to lie down in supine position, keeping pillow below buttock, and a gentle tap given over the buttocks. Further the patient was instructed to lie down in supine position for a while.

PASCHATA KARMA:

- After given *Basti*, the patient was instructed to lie down in the left lateral position or in prone position for 10-30 minutes and to hold the *Basti* material as possible. As the patient gets urge for defecation, patient could pass the stool.
- During the course of treatment patient was advised to have *Laghu & Ushna Ahara* on the same day evening and to avoid *Sheet* (to cold), *Vidaahi* (causing burning sensation), *Vishtambhi* (slow movement in G.I. tract), *Ruksha* (too dry & causes aggravation of *Vata*).

CRITERIA FOR GRADING & ASSESSMENT

1. ON SUBJECTIVE PARAMETERS:

Table No.2: Symptom Score According to IPSS (International Prostate Symptom Score) In BPH:

S. No.	Symptoms	Grading	BT	D7	D14	D21
1.	Feeling of incomplete bladder emptying	0 = Not at all 1 = One or less than one 2 = Less than half the time 3 = About half time 4 = More than half time 5 = Almost always				
2.	Frequency of urination (in daytime)	0 = Not at all 1 = One or less than one 2 = Less than half the time 3 = About half time 4 = More than half time 5 = Almost always				
3.	Intermittency of urine stream	0 = Not at all 1 = One or less than one 2 = Less than half the time				

		3 = About half time 4 = More than half time 5 = Almost always				
4.	Urgency of urination	0 = Not at all 1 = One or less than one 2 = Less than half the time 3 = About half time 4 = More than half time 5 = Almost always				
5.	Weak stream	0 = Not at all 1 = One or less than one 2 = Less than half the time 3 = About half time 4 = More than half time 5 = Almost always				
6.	Straining	0 = Not at all 1 = One or less than one 2 = Less than half the time 3 = About half time 4 = More than half time 5 = Almost always				
7.	Nocturia (frequency of urination in night)	0 = Not at all 1 = One time / night 2 = Two time / night 3 = Three time / night 4 = Four time / night 5 = five time or more / night				
	TOTAL SCORE (Out of 35)	1-7 = Mild 8-19 = Moderate 20-35 = Severe				

Table No.3: Scoring Pattern of UTI:

S. No.	Symptoms	Grading	BT	D7	D14	D21
1.	Burning micturition	0 = Burning absent 1 = Mild burning 2 = Moderate burning 3 = Severe burning				
2.	Painful micturition*ADL = Activities of daily life	0 = No pain 1 = Mild pain (nagging, annoying, interfering little with ADLs) 2 = Moderate pain (interferes significantly with ADLs) 3 = Severe pain (disabling, unable to perform ADLs)				
3.	Frequency of micturition	0 = 5-7 times 1 = 8-10 times 2 = 11-13 times 3 = More than 13 times				
4.	Urgency	0 = Absent 1 = Urgency but under control 2 = Urgency difficult to control 3 = Beyond control, even passes few drops of urine				

Table No.4: Grading Based on Total Score of IPSS (Maximum Score 35):

Grade	Symptom Score	Severity
G ₀	00	Not at all
G ₁	1 – 7	Mild
G ₂	8 – 19	Moderate
G ₃	20 – 35	Severe

2. ON OBJECTIVE PARAMETER:

a). Uroflowmetry (Qmax -maximum flow rate):

1. Gr 0: Qmax = > 15 ml / sec
2. Gr 1: Qmax = 13-15 ml / sec
3. Gr 2: Qmax = 10-12 ml / sec
4. Gr 3: Qmax = 7-9 ml / sec
5. Gr 4: Qmax = < 7 ml / sec

b). Ultrasonography (USG) whole Abd.: for weight/size/post voided residual urine and PVRU.

ASSESSMENT: The overall effect of the therapy was assessed by the patients sign and symptoms according to subjective & objective parameters. Assessment was done on every 7 days during 21 days of treatment period.

DURATION OF THERAPY: The duration of therapy was 21 Days.

FOLLOW UP: Cases were follow up at interval of 15 days, for a period of 2 months after completion of therapy.

STATISTICAL ANALYSIS

The Parameters of assessment was graded and statistically analysed.

1. **STATISTICAL TEST:** All information which were based on subjective and objective parameters were gathered and statistical analysis was done in the form of Mean (X), Standard deviation (S.D.), Standard error (S.E.), and Friedman's test.
2. **RESULT INTERPRETATION:** The obtained results were interpreted as follow –
 - If $p > 0.05$ - Not significant (NS).
 - If $p = 0.01$ to 0.05 - Significant (S)
 - If $p \leq 0.001$ - Highly significant (HS)

PRESENTATION OF DATA:

All collected clinical data was compiled and presented as –

- General observations.
- Effect of therapy on subjective and objective parameters.
- Overall effect of therapy.

RESULT

EFFECT OF THERAPY ON SUBJECTIVE PARAMETERS

VATASHTHEELA (BPH):

In this present research work total 15 patients were enrolled, out of which all the patients had completed this clinical trial and results are statistically analysed.

Since observations are on ordinal scale (gradations), we have used “Friedman’s test” to test efficacy at each follow up.

Table No.5: Effect of Therapy on Incomplete Bladder Emptying:

Incomplete bladder emptying	N	Mean	SD		% Effect	Friedman's Test	df	P value
BT	15	2.67	0.98	3.87	00	41.279	3.00	0.001
Day 7	15	1.80	0.77	2.63	32.50			
Day 14	15	1.60	0.51	2.43	40.00			
Day 21	15	0.40	0.51	1.07	85.00			

From above Table we can observe that p-values is less than 0.05. Hence, we conclude that effect observed is significant.

Table No.6: Effect of Therapy on Frequency of Urination:

Frequency of Urination	N	Mean	SD		% Effect	Friedman's Test	df	P value
BT	15	2.60	1.06	3.87	00.00	42.248	3.00	0.001
Day 7	15	1.73	0.88	2.70	33.33			
Day 14	15	1.47	0.52	2.43	43.59			
Day 21	15	0.33	0.49	1.00	87.18			

From above Table we can observe that p-values is less than 0.05. Hence, we conclude that effect observed is significant.

Table No.7: Effect of Therapy on Intermittency of Urine Stream:

Intermittency of Urine Stream	N	Mean	SD		% Effect	Friedman's Test	df	P value
BT	15	2.27	1.22	3.70	00.00	38.700	3.00	0.001
Day 7	15	1.53	0.92	2.70	32.35			
Day 14	15	1.33	0.62	2.50	41.18			
Day 21	15	0.27	0.46	1.10	88.24			

From above Table we can observe that p-values is less than 0.05. Hence, we conclude that effect observed is significant.

Table No.8: Effect of Therapy on Urgency of Urination:

Urgency of Urination	N	Mean	SD		% Effect	Friedman's Test	df	P value
BT	15	2.80	0.86	3.93	00.00	43.267	3.00	0.000
Day 7	15	1.87	0.74	2.63	33.33			
Day 14	15	1.67	0.49	2.43	40.48			
Day 21	15	0.33	0.49	1.00	88.10			

From above Table we can observe that p-values is less than 0.05. Hence, we conclude that effect observed is significant.

Table No.9: Effect of Therapy on Weak Stream:

Weak Stream	N	Mean	SD		% Effect	Friedman's Test	df	P value
BT	15	2.13	1.36	3.60	00.00	36.193	3.00	0.001
Day 7	15	1.47	0.99	2.63	31.25			
Day 14	15	1.40	0.83	2.57	34.38			
Day 21	15	0.27	0.46	1.20	87.50			

From above Table we can observe that p-values is less than 0.05. Hence, we conclude that effect observed is significant.

Table No.10: Effect of Therapy on Straining:

Straining	N	Mean	SD		% Effect	Friedman's Test	df	P value
BT	15	2.93	0.80	4.00	00.00	44.431	3.00	0.000
Day 7	15	1.93	0.80	2.57	34.09			
Day 14	15	1.80	0.56	2.43	38.64			
Day 21	15	0.40	0.63	1.00	86.36			

From above Table we can observe that p-values is less than 0.05. Hence, we conclude that effect observed is significant.

Table No.11: Effect of Therapy on Nocturia:

Nocturia	N	Mean	SD		% Effect	Friedman's Test	df	P value
BT	15	1.80	1.15	3.53	00.00	34.223	3.00	0.001
Day 7	15	1.20	0.77	2.63	33.33			
Day 14	15	1.13	0.64	2.57	37.04			
Day 21	15	0.20	0.41	1.27	88.89			

From above Table we can observe that p-values is less than 0.05. Hence, we conclude that effect observed is significant.

Table No.12: Effect of Therapy on Total IPSS Score:

Total IPSS Score	N	Mean	SD		% Effect	Friedman's Test	df	P value
BT	15	17.20	2.70	4.00	00.00	45.000	3.00	0.001
Day 7	15	12.20	1.90	3.00	29.07			
Day 14	15	8.87	1.36	2.00	48.45			
Day 21	15	2.20	1.47	1.00	87.21			

From above Table we can observe that p-values is less than 0.05. Hence, we conclude that effect observed is significant.

MUTRAKRICHCHHRA (UTI):

Table No.13: Effect of Therapy on Burning Micturition:

Burning Micturition	N	Mean	SD		% Effect	Friedman's Test	df	P value
BT	15	1.80	0.41	3.87	00.00	37.576	3.00	0.000
Day 7	15	1.00	0.00	2.53	44.44			
Day 14	15	0.87	0.35	2.27	51.85			
Day 21	15	0.27	0.46	1.33	85.19			

From above Table we can observe that p-values is less than 0.05. Hence, we conclude that effect observed is significant.

Table No.14: Effect of Therapy on Painful Micturition:

Painful Micturition	N	Mean	SD		% Effect	Friedman's Test	df	P value
BT	15	1.80	0.41	3.80	00.00	39.000	3.00	0.001
Day 7	15	1.00	0.00	2.50	44.44			
Day 14	15	1.00	0.00	2.50	44.44			
Day 21	15	0.20	0.41	1.20	88.89			

From above Table we can observe that p-values is less than 0.05. Hence, we conclude that effect observed is significant.

Table No.15: Effect of Therapy on Frequency of Urination:

Frequency of Urination	N	Mean	SD		% Effect	Friedman's Test	df	P value
BT	15	1.67	0.90	3.50	00.00	38.000	3.00	0.001
Day 7	15	1.13	0.52	2.70	32.00			
Day 14	15	1.13	0.52	2.70	32.00			
Day 21	15	0.20	0.41	1.10	88.00			

From above Table we can observe that p-values is less than 0.05. Hence, we conclude that effect observed is significant.

Table No.16: Effect of Therapy on Urgency:

Urgency	N	Mean	SD		% Effect	Friedman's Test	df	P value
BT	15	1.93	0.80	3.67	00.00	39.821	3.00	0.000
Day 7	15	1.27	0.46	2.63	34.48			
Day 14	15	1.27	0.46	2.63	34.48			
Day 21	15	0.20	0.41	1.07	89.66			

From above Table we can observe that p-values is less than 0.05. Hence, we conclude that effect observed is significant.

EFFECT OF THERAPY ON OBJECTIVE PARAMETERS:

Table No.17: Effect of Therapy on Uroflowmetry (Qmax):

Uroflowmetry (Qmax)	N	Mean	SD		% Effect	Friedman's Test	df	P value
BT	15	2.13	1.19	3.67	00.00	34.698	3.00	0.001
Day 7	15	1.40	0.83	2.53	34.38			
Day 14	15	1.33	0.72	2.47	37.50			
Day 21	15	0.27	0.46	1.33	87.50			

From above Table we can observe that p-values is less than 0.05. Hence, we conclude that effect observed is significant.

❖ The Clinical trial of *Basti Chikitsa* depicted Highly significant ($P \leq 0.001$) results over all the mentioned symptoms / parameters.

OVERALL EFFECT OF THERAPY

Table No.18: Overall Effect of Therapy:

Effect of Therapy	No. of Patients	% Effect
Complete Cured	1	6.66%
Marked Improvement	8	53.33%
Moderate Improvement	5	33.33%
Mild Improvement	1	6.66%
Unchanged	0	0.00%

Further, it is observed that 1 (6.66%) patient is completely cured, 8 (53.33%) patients were revealed marked improvement, 5 (33.33%) patients shown moderate improvement and 1 (6.66%) patient shown mild improvement. Whereas, none of the patients belong to unchanged.

DISCUSSION

ON SUBJECTIVE PARAMETERS OF VATASHTHEELA (BPH):

1. Effect on Incomplete Bladder Emptying:

- The mean score of Incomplete bladders emptying was 3.87 (BT) which was reduced to 1.07 after therapy with 85% relief, and p-value is 0.001 which is statistically highly significant.
- As we known the *Vata dosha* is the prime cause for the disease *Vatashtheela & Basti Chikitsa* is the best treatment for *Vatika* disorders. So, from the above data it is clear that *Basti Chikitsa* having the potency to pacify the vitiated *Vata dosha* and improved the bladder function by increasing its tone as well as reducing the size of the prostate.
- Ultimately the bladder outflow obstruction (BOO) was improved that's why improvement in incomplete bladder emptying was found.

2. Effect on Frequency of Urination:

- The mean score of Frequency of Urination was 3.87 (BT) which was reduced to 1.00 after therapy with 87.18% relief, and p-value is 0.001 which is statistically highly significant.
- In BPH, hypertrophy of urinary bladder muscles occurs, and bladder tone affected that's why small amount of urine result as urge for urination that leads to frequency of urination. Since *Basti Chikitsa* having the potency to pacify vitiated *Vata* (esp. *Apana Vayu*) as well as properties like *Balya*, *Rasayana*, *Shothahara*, *Krimihara* etc. of the formulated *Basti* drugs, are helpful to improve the function of Detrusor muscles of bladder and also reducing the prostate size. Therefore, encouraging effect of therapy was found on Frequency of Urination.

3. Effect on Intermittency of Urine Stream:

- The mean score of Intermittency of Urine Stream was 3.70 (BT) which was reduced to 1.10 after therapy with 88.24% relief, and p-value is 0.001 which is statistically highly significant.

- Intermittency shows that the weak bladder muscle which is unable to completely evacuate bladder in a single flow of urine due to stasis, inflammation, straining & narrowing of the urethra.
- The effect of *Basti Chikitsa* was seen on *Vata dosha* and the drugs used for *Basti* shows the properties such as *Mutrala*, *Vata-shamaka*, *Bastishodhaka*, *Balya*, *Shothahara* etc. which have the potency to provide strength to the *Basti-Snayu* and improve the function of bladder which lead to easy release of urine from *Basti* (bladder) without much effort.

4. Effect on Urgency of Urination:

- The mean score of Urgency of Urination was 3.93 (BT) which was reduced to 1.00 after therapy with 88.10% relief, and p-value is < 0.001 which is statistically highly significant.
- As the internal sphincter function is deranged due to prostatic invasion into the bladder that leads to escape of small amount of urine into the prostatic urethra. So, there is an intense urge to excrete this urine immediately which is called urgency (*Muhurmutrata*). Since formulated drugs used as *Basti Chikitsa* having *Shothahara* property, it reduces the size of prostate, that's why there is no invasion of prostate into the bladder and decrease in this irritative symptoms will indicate relief in *Vatashtheela* (BPH).

5. Effect on Weak Stream:

- The mean score of Weak Stream was 3.60 (BT) which was reduced to 1.20 after therapy with 87.50% relief, and p-value is 0.001 which is statistically highly significant.
- At this time micturition is probably due to vesical introversion of the sensitive prostatic mucosa because of intravesical enlargement of the prostate due to its (prostate) enlargement, elongation of prostatic urethra occurs & its calibre decreases. This alteration in urethra induces weak urine stream.
- So, reduction in this symptom reveal that *Basti Chikitsa* having the potency to reduce the root causes of this symptom.

6. Effect on Straining:

- The mean score of Straining was 4.00 (BT) which was reduced to 1.00 after therapy with 86.36% relief, and p-value is < 0.001 which is statistically highly significant.
- In the case of BPH, the resistance of the bladder outlet increases and the calibre of prostatic urethra decreases, so that patients with BPH strains during micturition will completely empty their bladder.

- The % relief in this symptom show that the *Basti Chikitsa* having the capability to decrease the bladder outlet resistance & enhance the calibre of urethra by reducing the size of prostate gland and other causes which are responsible for this symptom.

7. Effect on Nocturia:

- The mean score of Nocturia was 3.53 (BT) which was reduced to 1.27 after therapy with 88.89% relief, and p-value is 0.001 which is statistically highly significant.
- The *Vatashtheela* (BPH) patients commonly complains the most irritative symptom nocturia due to predominance of *Apana Vayu*.
- *Vata dosha* continues to generate unnecessary contractions of bladder, in which some amount of urine & *Shotha* already exists. Collectively, they generate nocturia. *Basti Chikitsa* pacify *Vata dosha* & *Shotha* of bladder. So, patient comes to ease.

8. Effect on Total IPSS:

- The mean score of Total IPSS was 4.00 (BT) which was reduced to 1.00 after therapy with 87.21% relief, and p-value is 0.001 which is statistically highly significant.
- Above data reflects that *Basti Chikitsa* is very effective in reducing all the 7 LUTS which is included in IPSS.

ON SUBJECTIVE PARAMETERS OF MUTRAKRICHCHHRA (UTI):

9. Effect on Burning Micturition:

- The mean score of Burning Micturition was 3.87 (BT) which was reduced to 1.33 after therapy with 85.19% relief, and p-value is < 0.001 which is statistically highly significant.
- This symptom is especially due to vitiation of *Pitta dosha* (as we know *Pitta dosha* is responsible for *Daha* i.e. burning) along with *Vata dosha*. *Basti Chikitsa* pacify *Vata* and *Pitta dosha* and formulated drugs used for *Basti Chikitsa* having *Mutrala*, *Bastishodhaka*, *Sheetal*, *Dahashamaka*, *Krimighna*, *Shothahara* & *V-P Shamaka* etc. properties which reduces the burning micturition effectively. So, patients got relief in this symptom of *Mutrakrichchhra* (UTI).

10. Effect on Painful Micturition:

- The mean score of Painful Micturition was 3.80 (BT) which was reduced to 1.20 after therapy with 88.89% relief, and p-value is 0.001 which is statistically highly significant.
- As we know that existence of pain is due to *Vata dosha* and *Prakrita Mutra* is considered as *Avedanam*, which is achieved by *Basti Chikitsa* because they are

Vatahara & Shulahara. The formulated drugs used in this therapy also removes *Mutravaha Srotodushti* from tissue level, pacifies *Doshas*, improves *Agni*, and brings *Prakritavastha*. It also has analgesic properties.

11. Effect on Frequency of Micturition:

- The mean score of Frequency of Micturition was 3.50 (BT) which was reduced to 1.10 after therapy with 88% relief, and p-value is 0.001 which is statistically highly significant.
- Since undue contractions of bladder is the *Karma* of *Prakupita Vata* that have been stopped by *Basti Chikitsa* by its *Vatahara* property. Thus, the urinary bladder performs *Samyaka Mutradharana* and patients got relief from this symptom.

12. Effect on urgency:

- The mean score of Urgency was 3.67 (BT) which was reduced to 1.07 after therapy with 89.66% relief, and p-value is < 0.001 which is statistically highly significant.
- All the discomfort in LUTIs are due to *Apakwa Mutra*. *Aama Mutrata* and *Shotha* in urinary tract (i.e. *Mutravaha Srotasa*) leads to irritation of urinary bladder and urination. Therefore, there is an intense urge to excrete the *Aama Mutra* immediately that is termed as Urgency. *Basti Chikitsa* pacify *Vata dosha* and by its *Shothahara*, *Agnidipana*, *Bastishodhaka* etc. properties of formulated drugs remove *Aama Mutra* and *Shotha*. That's why patients got relief in this symptom.

DISCUSSION ON OBJECTIVE PARAMETERS:

13. Effect on Maximum Flow Rate (Qmax):

- The mean score of Uroflowmetry (Qmax) was 3.67 (BT) which was reduced to 1.33 after therapy with 87.50% relief, and p-value is 0.001 which is statistically highly significant.
- Abnormal flow may be due to obstruction (of any aetiology) or detrusor hypo contractibility. Improvement in the Qmax is obviously due to improved force of urine flow. This may be either due to increased bladder contractibility or decreased resistance to the flow of urine in the urethra.

14. Effect on Prostate Size / Volume:

All the 15 patients which were enrolled in this research work had completed this clinical trial, out of which we have got only 07 USG reports after completion of treatment. These reports show, outstanding response of therapy on the prostate size (volume) as well as on PVRU.

On the basis of these some USG reports, we have concluded that the treatment used in this study definitely reduces the Prostate size & PVRU. But unfortunately, due to lack of USG reports of all 15 patients that completed this clinical trial, we can't show its result statistically.

CONCLUSION

- ❖ The elected formulations for clinical trial i.e. *Basti Chikitsa (Narayana Taila + Dashamula Kwatha)* had shown *Tridosha Shamaka* (esp. *Vata-Kapha shamaka*) action and *Dipana, Pachana, Lekhana, Bastishodhaka, Balya, Shothahara, Mutrala, Krimighna, Rasayana, Ojovardhaka* etc. properties and may be held responsible for breaking the *Samprapti of Vatashtheela (BPH)* and *Mutrakrichchhra (UTI)* as well as correction in imbalanced level of sex hormones and improving bladder functions by improving bladder muscle tone.
- ❖ There was no any untoward effect or adverse drug reaction (ADR) and recurrence recorded during treatment & follow up among all the patients and it is clinically proven as a safe and effective therapy.
- ❖ In this research work, it was noted that the patients which was suffering from *Vatashtheela (BPH)* in their early age of life, showed better response to this therapy as compare to advanced aged patients.

Thus, it can conclude that *Basti Chikitsa* can be used as a successful conservative treatment modality in the patients suffering from *Vatashtheela (BPH)* & *Mutrakrichchhra (UTI)*.

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