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VATASTHEELA MUTRAGHAT W.S.R TO BENIGN PROSTATIC HYPERPLASIA – A REVIEW ARTICLE

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ABSTRACT

Benign Prostatic Hyperplasia (BPH) is a major geriatric problem which is described in *Ayurveda* classics as *Vatastheela*, a one type of *Mutraghata* (obstructive uropathy). The term "Mutraghata" consists of two words "Mutra" and "Aghata". The verbal meaning of these two words it "*Mutra*" (urine) and "*Aghata*" (Trauma) explains the etymological meaning as trauma on the urine forming apparatus. The term *Mutraghata* stands for low urine output due to obstruction in the passage of urine. It can be considered as a syndrome, because it covers most of the pathological entity of the urinary system into twelve type of *Mutraghata* are described as obstructive uropathy related to either upper or lower urinary tract. The *Vatastheela, Mutraghata* reflects the symptoms of urinary retention, incomplete voiding, distension etc. These are feature of Lower Urinary Tract Symptoms and can be co-related with Benign Prostatic Hyperplasia.

KEYWORDS: *Astheela, Mutravahasrotas Mutrakrichha,* LUTS, Hypertrophy.

INTRODUCTION

Vatastheela is a disease of *Mutravahasrotas* (urinary tract), one among the 12 types of *Mutraghata* (obstructive uropathy) disorders elaborated by *Acharya Sushruta*,[1] closely resembles to Benign Prostatic Hyperplasia (BPH) of modern medicine in its signs and symptoms.

Sushruta described that *apana vayu*, situating itself in the space between rectum (*shakrina marga)* and urinary bladder (*vasti),* produces a hard (like a stone), immobile and prominent growth. This growth in turn produces obstruction to the stool, urine and flatus (***Vida Mutranil Sanga)*** leading to distension and severe pain over suprapubic region (*vasti pradesha). Sushruta* has used the term *vatashtheela* for this condition.**[2]**

The *Vatastheela Mutraghata* reflects the symptoms of urine retention, incomplete voiding, dribbling, hesitancy, dysuria, straining during urination etc. These are feature of Lower Urinary Tract Symptoms and can be co-related with Benign Prostatic Hyperplasia in modern parlance. Benign prostatic hyperplasia is one of the most prevalent obstructive uropathy of advanced age group people above the incidence has been estimated that 5-10% of men at their age of 40 have Prostatic enlargement & 80% by their age of 80 have evidence of BPH.[3] Clinical features of BPH are hesitancy, dysuria, frequency, urgency, haematuria, pain, retention of urine renal failure, prostatism stream of urine, straining during micturition[4] etc. and often features of acute or chronic retention of urine and uraemia also occurs during progression of disease.

BPH of the geriatric men with histologically proven high incidence in india.[5] The reporting of more cases in Jews community with more surgical intervention was noted. Evidences suggest greater frequency among blacks than whites. In Indians prostatic enlargement is less frequent. In India, it has been reported that post-operative mortality is 3% and a high morbidity of nearly 20% is found in immediate post-operative phase with 2 – 3 % late complications including incontinence and upto 15% of potency problems.

Much advancement both technical and surgical nature have come into existence but still satisfactorily treatment of the problem is not found in modern surgery and urology. The methods like TURP (Trans Urethral Resection of Prostate), TUNA (Trans Urethral Needle Ablation) Trans Urethral Microwave Thermotherapy (TUMT), high- intensity focused ultrasound, Trans Urethral Electro vaporization (TUE),[6] water induced thermotherapy and prostatic stent insertion are in practice but still not comprehensive.

In Ayurveda elaborated description regarding the management of *Astheela* is found across the *samhitas*

and later works of medieval and modern period of Ayurveda. As discussed earlier the main cause for formation of the disease is *Vatadosha*, which is either in *vridhiavastha* or in *avrutaavastha*. Other contributory *doshas* are *Kapha* and *Pitta*.

The major *chikista* sutra formulated for these conditions includes the measures of pacifying *Vata* like *Avagahaswedam*, *Uttaravasti* and other procedures causing the *Vatanulomanam*14. There are many drugs and compounds known to have good effect on Prostate and its pathology.

AYURVEDIC REVIEW

Samhita Period

The *Samhita* Period (2000-1000 B.C) is supposed to be the golden period when Ayurveda flourished as a scientific and systematic system of medicine. In the *Samhitas*, a detailed description of physiology, aetiopathogenesis, classification and management of diseases of urinary system are available.

Sushruta Samhita

This is the pioneer work in surgery. It has more descriptive explanation regarding the anatomy and physiology of the *Mutravaha Srotas*. The chapter of *Ashmari Nidana* provides the scientific explanation regarding location of *Basti* and urine formation. The *pratilomavayu* is considered as the responsible factor for the diseases of *Basti* Viz, *Mutraghata*, *Ashmari*, *prameha* & *Mutradosha* (Su.ut.-58). *Acharya susruta* has described twelve types of *Mutraghata* in *Uttara Tantra* (su.ut58).

Acharya sushrut also explained *Vataasthila* and *pratyaathila* in *Nidan sthan vatavyadhi nidan* as painful obstructed hard mass like stone.[7]

Charaka Samhita

This comprises sufficient but scattered matter related to anatomy, physiology and pathology of *Mutravaha Srotas* as well as the diagnosis and treatment of its disorder.

In *Sutra Sthana* 4th chapter, *Mutrasangrahaneeya*, *Mutravirajaneeya Maha kashayas* have been dealt.[8] *Basti* and *vankshana* have been considered as the *Moola* of *Mutravaha Srotas* and its *dusti* may lead to excessive urination, increased frequency, and painful micturition.[9]

The disease *Mutraghata* was classified into eight types in *sutra sthana*. Further, in *Siddhi sthana*, thirteen types of *Basti rogas* have been described under the caption of *Mutradosha'*, which are similar to that of *Mutraghata* as explained *sushruta.*

Samgraha period

Ashtanga Sangraha & Ashtanga Hridaya

Mutraghata has been elaborately described in ―*Mutraghata Nidana*[10], which includes *Mutrakricchra* and *Ashmari rogas* too. Anatomical description of *Basti* has been given in the beginning and at the end to conclude the chapter. More interesting thing is that, he has categorized the diseases of *Mutravaha Srotas* into two i.e. *Mutra – Atipravrittijanya* and *Mutra - Apravrittijanya Roga*.

Madava nidana

Mutra kricchra Mutraghata and *Ashmari* have been dealt in separate chapters[11].The description are chiefly based on the concepts of *Charaka* and *Sushruta*. He has given clear differentiation between *Mutra kricchra* and *Mutraghata* on the basis of severity of *vibhanda* to the flow of urine, which is more pronounced in *Mutraghata.*

Classification of *mutraghata*

According to *Acharyas*, *Vatashtheela* is a type of *Mutraghata*. Again controversy exists regarding classification of *Mutraghata* by different scholars. According to *Sushruta* and *Vagbhata*, *Mutraghata* comprises of twelve different conditions. *Charaka* and *Madhavakara* enumerated thirteen types of *Mutraghata* with addition of two new varieties, namely *vidvighata* and *vastikundala.*

Table 1: The different conditions, described as the types of *Mutraghata* by *Sushruta, Charaka, Vagbhata* and *Madhavakara may* be tabulated as following:

SN	***Sushruta (S.U./58)***	***Charaka (Ch.Si./9)***	***Vagbhata* (A.Hr.N./9)**	***Madhavakara* (M.N./31)**
1	*Vatakundalika*	*Vatakundalika*	*Vatakundalika*	*Vatakundalika*
2	***Vatashtheela***	***Ashtheela***	***Vatashtheela***	***Ashtheela***
3	*Vatavasti*	*Vatavasti*	*Vatavasti*	*Vatavasti*
4	*Mutrateeta*	*Mutrateeta*	*Mutrateeta*	*Mutrateeta*
5	*Mutrajathara*	*Mutrajathara*	*Mutrajathara*	*Mutrajathara*
6	*Mutrasanga*	*Mutrasanga*	*Mutrasanga*	*Mutrasanga*
7	*Mutrakshya*	*Mutrakshya*	*Mutrakshya*	*Mutrakshya*
8	*Mutragranthi*	*Mutragranthi*	*Mutragranthi*	*Mutragranthi*
9	*Mutrashukra*	*Kricchra*	*Mutrashukra*	*Mutrashukra*
10	*Ushnavata*	*Ushnavata*	*Ushnavata*	*Ushnavata*
11	*Mutroksada Pittaj*	*Mutroksada*	*Mutrasada*	*Mutrasada*
12	*Mutroksada Kaphaj*	*Vidvighata*	*Vidvighata*	*Vidvighata*
13	-	*Vastikundal*	-	*Vastikundala*

On the perusal of above mentioned table few dis-similies in number and nomenclature are assertable. The *vatashtheela* is described by *Sushruta* and *Vagbhata.* While *Charaka* and *Madhavakara* have mentioned *ashtheela* in place of *vatashtheela*. But the features of *vatashtheela* and *ashtheela* are more or less identical. Similarly the *Mutragranthi*, depicted by *Sushruta, Vagbhata* and *Madhavakara,* is replaced by *raktagranthi* which is described by *Charaka* only. The symptoms and site of lesion of *raktagranthi* is similar to that of *Mutragranthi,* except etiological factors. According to *Charaka, raktagranthi* is caused by *rakta,* vitiated by *vata* and *kapha doshas* where as *Sushruta* and other consider it to be small and fixed spherical growth, presenting suddenly inside the neck of urinary bladder. The other difference of opinion exists in nomenclature of *Mutrashukra* and *kricchra (Mutrakricchra).*

Sushruta, Vagbhata and *Madhavakara* have described the *Mutrashukra* whereas only *Charaka* has mentioned the term *kricchra (Mutrakriccha).* But the features are similar. Another dissension is assertable in the description of *mutrouksada* as *Sushruta* has depicted two types of *mutrouksada (pittaja)* and *kaphaja* and counted them as separate entity while the *Charaka, Vagbhata* and *Madhavakara* have included these two varieties into one. Here *Vagbhata* and *Madhavakara* are dissenter as they mentioned *Mutrasada* in place *mutrouksada.*

The description of each and every variety of *Mutraghata* will be given individually based on mainly *Sushruta* and *Charaka's* concept. On the basis of clinical features, it has been efforted to correlate the different types of *Mutraghata* with different pathological conditions of urinary system described in allopathic system of medicine.

Vatastheela

Although, regarding nomenclature of this disease there is difference in opinion among the treatisers but the described features are almost same. *Sushruta* described that *apana vayu,* situating itself in the space between rectum (*shakrina marga)* and urinary bladder (*vasti),* produces a hard (like a stone), immobile and prominent growth. This growth in turn produces obstruction to the stool, urine and flatus (***vinaMutranil sanga)*** leading to distension and severe pain over suprapubic region (*vasti pradesha). Sushruta* has used the term *vatashtheela* for this condition.[12]

Charaka has mentioned this disease with the name of *ashtheela.* According to him, vitiated *vayu* causes obstruction to the outlet of urinary bladder *(vasti)* and rectum *(guda)* leading to distension of (lower) abdomen (*adhyamana)* and produces a prominent, immobile, extremely painful stone mass which is in turn causes obstruction in the passage of urine and faeces.[13]

Sushruta has used the same term *vatashtheela* in the chapter of *vatavyadhi nidana* with almost similar features. The elevated, prominent, large, stony hard growth causes obstruction of the external outlet (of urine and faeces), is known as *vatashtheela.*[14]

Thus feature of *vatashtheela* present exact similar with enlargement of prostate gland because this is the only structure which is situated between the rectum and the urinary bladder and causes obstruction to urinary outflow resulting in retention of urine and distension of suprapubic region and looks like a stony hard when it is enucleated.

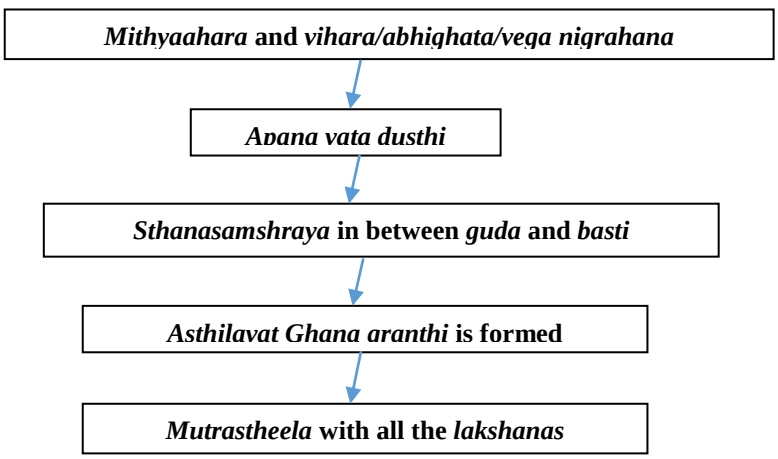
Based on the type of probable pathology

Growth

Vatashtheela

In classics *vatashtheela* is defined as a condition where the swelling or mass appears in between rectum and urinary bladder causing obstruction to the passage of urine. As the prostate is only structure lying between urinary bladder and rectum and the symptoms of *vatashtheela* are similar to those of enlarged prostate, the *vatashtheela is being considered as* **enlarged prostate.** Under the different cause of prostatic enlargement, neoplasia (growth) is one. So *vatashtheela* is included under growth (neoplasia).

Samprapti[15]



BENIGN PROSTATIC HYPERPLASIA (B.P.H)

It is benign enlargement of prostate which occurs after 50 years, usually between 60 and 70 years. Its age related progressive benign condition of the prostate gland. Also called as Benign Prostatic Hypertrophy, Benign Prostatic Hyperplasia, and Nodular hyperplasia of prostate, benign enlargement of the prostate, Enlarged Prostate or EP. BPH is very commonly affecting about one third of men population over 50yrs of age, Occurs in early age very rarely.

Peak incidence– between 60 – 70 Yrs. Incidence increases with age (90 % cases after 8th decade). The cause for BPH is possibly an imbalance in the hormonal control of the gland. The median lobe of the gland enlarges upwards and encroaches within the sphincter vesicle, located at the neck of the bladder. The leakage of urine in to the prostatic urethra causes an intense reflex desire to micturate. The enlargement of the median and lateral lobes of the gland produces elongation and lateral compression and distortion of the urethra so that the patient experiences difficulty in passing urine and the stream is weak. Back pressure effects on the ureters and both kidney are a common complication. The enlargement of the uvula vesical (owing to the enlarged median lobe) results in the formation of a pouch of stagnant urine behind the urethral orifice within the bladder. The stagnant urine frequently becomes infected and inflamed bladder (cystitis) ads to the patient's symptoms. **Etiology:** It is involuntary hyperplasia due to disturbance of the ratio and quantity of circulating androgens and estrogens. The exact etiology is unknown but there are 2 main theories to explain BPH.[16]

- **Hormonal Theory** – (similar to fibroadenosis in females) As Age advances Involuntary hyperplasia due to decrease in Circulating DHT and estrogen ratio Levels of Testosterones falls Corresponding estrogen falls not proportionally Stimulates the prostatic gland . Activation of alpha-1 adrenoreceptors, which increase bladder neck and prostate smooth muscle tone. [Barry et al, 1992; Sagalowski and Wilson, 1998; Barry and Roehrborn, 2001].
- **Neoplastic Theory**- Fibrous tissue Proliferation of Muscle tissue of Prostate gland Glandular tissue.

Fibro-myo-adenoma of Prostate

BPH may only be defined histologically. BPH in the clinical setting is characterized by lower urinary tract symptoms (LUTS). It mainly affects the quality of life (QOL). For a symptom free man at age 46, the risk of clinical BPH over the coming 30 years, if he survives, is 45%.[17]

Risk factors for BPH

The only age and presence of circulating androgens are defined as risk factors. BPH does not develop in men who castrated before the age of forty.[18]

Genetics

It appears to run in families. If one or more first degree relatives are affected, an individual is at high risk of being afflicted by the disorder. The incidence of BPH is highest and starts earliest in blacks than Caucasians and is lesser incidence seen in Asians comparably.

Diet

Large amount of vegetable and soya products (soyabean) in the diet may lower the rate of BPH. In certain vegetables and soya are said to be high in phyto-estrogen, such as genestin, that have anti-androgenic effects. Alcohol, diet and other lifestyle factors increases the possibilities of risk of BPH. Increased beef intake was weakly related to an increased risk.

Pathophysiology of BPH:

BPH usually involves median and lateral lobes or one of them. It involves adenomatous zone of prostate, i.e. sub mucosal gland.

- Median lobe enlarges in to the bladder.
- Lateral lobes narrow the urethra causing obstruction.
- Urethral above the verumonatum gets elongated and narrowed.
- Bladder initially takes the pressure burden causing trabeculations, sacculations and later diverticula formation.
- Enlarged prostate compresses the prostatic venous plexus causing congestion, called as vesical piles leading to Haematuria.
- Incrimination of BPH as the source of Haematuria before excluding other causes is termed as "Decoy prostate".
- Kidney and ureter: Back pressure causes hydroureter and hydronephrosis.
- Secondary ascending infection can cause acute or chronic pyelonephritis.
- Often severe obstruction can lead to obstructive Uropathy with renal failure.
- BPH causes impotence.[19]

Natural history: Natural history of BPH is involving two phases.

- **First Phase: (Pathological):** It is asymptomatic and involves a progression develop in almost all men if they live long enough but in only about half will progress to macroscopic BPH. This would suggest that additional factors are necessary to cause microscopic BPH will progress to macroscopic BPH. The pathological phase involves development of hyperplastic changes in the transitional zone of the prostate.
- **Second phase (Clinical):** It involves the progression from pathological to 'clinical BPH', which is synonymous with the development of LUTS. Only about one half of patients with macroscopic BPH progresses to develop clinical BPH.[20]

Disease Manifestations of BPH as Lower Urinary Tract Symptoms (LUTS)[21]

- It's suggestive of BPH highly prevalent and the majority of LUTS in men is produced by BPH, but may be contributed to by a variety of conditions.
- Urodynamically proven bladder outlet obstruction may result from, BPH, Bladder neck stenosis, Bladder neck hypertrophy, Prostate cancer, Urethral strictures, and functional obstruction due to neuropathic conditions.
- It is important to realize that the relationship between anatomical prostate enlargement, symptoms of prostatism and urodynamic evidence of Bladder outflow obstruction (BOO). Urologists prefer the term 'Lower Urinary Tract Symptoms' (LUTS) and discourage that use of the descriptive term 'Prostatism'.[22]
- LUTS are traditionally divided into voiding or obstructive and storage or irritative symptoms. Voiding symptoms are more common, however it is storage symptoms that are most bother-some and have a greater impact on a patient`s life.

Table 2: Classification of Lower Urinary Tract Symptoms (LUTS) of BPH.

Voiding/ Obstructive symptoms		Storage / Irritative symptoms
Hesitancy	Straining to pass urine	Urinary frequency
Poor stream	Prolonged micturition	Urgency
Intermittent stream	Terminal dribbling	Urge incontinence
Sense of incomplete bladder emptying		Nocturia

Complications of BPH[23]

- Retention of Urine (Acute and Chronic)
- Recurrent Lower Urinary Tract Infection (UTI)
- Bladder calculi (stones)
- Detrusor (Bladder) Instability
- Renal Insufficiency
- Hematuria.

Diagnosis

- **Medical History:** A detailed medical history focused on urinary tract, previous surgical procedures and general health status to be taken.
- International prostate symptoms score (IPSS)/AUA symptom index.[24]
- **Physical Examination**
- **Digital Rectal Examination (DRE)[25]** DRE is the important examination in case of Prostatic disorders. The prostate is palpable with significant features.

(1) Size (Normal or Enlarged).
(2) Consistency (Soft, elastic, firm or hard).
(3) Surface (Smooth, granular, or nodular).
(4) Upper limit (Approachable or not).
(5) Rectal Mucosa (Free or adherent).

The Earliest change in BPH is loss of median depression or furrow. With increasing size, the prostate extends laterally and cephalic until the examining finger cannot reach the base of the gland. In BPH enlarged lateral lobe is evident smooth convex, typical elastic, unduly soft (adenomatous) but the fibrous part may give the firm consistency (fibro muscular) to prostate. Residual urine may be felt as fluctuating swelling above the prostate.

The size of prostate on rectal examination does not correlated with the severity of symptoms. Patient with marked lateral lobe enlargement may have no obstructive symptoms. Men with median lobe enlargement may experience marked outlet obstructive symptoms and retention of urine without palpable enlargement of gland.

For the determination of accurate size of gland the Trans-abdominal or Trans-rectal ultrasonography is required.

C. If possible the patient should be watched at the time of micturition. The loss of projectile stream and dribbling are good findings in favor of diagnosis of BPH.

Investigations

A. Urine analysis: Urine analysis is essential to rule out the urinary tract infections and Haematuria due to non-BPH pathologies. Urine cytology should be considered in men with severe irritable symptoms especially if they have history of smoking.

B. Haematological investigations

General blood picture for TLC, DLC and ESR should be performed to assess the general condition of patient and disease condition. Fasting blood sugar should be done to exclude diabetes.Blood urea, nitrogen and serum creatinine are important investigation to assess renal function.

Prostate Specific Antigen (PSA) estimation[26]

PSA values tend to rise with age and this causes difficulty defining the normal range and knowing when referral and biopsy are indicated. The PSA test limitations are-

- The PSA test is not diagnostic of prostatic cancer.
- Conditions such as BPH, prostatitis and lower urinary tract infections can also cause an elevated PSA. About two-thirds of men with an elevated PSA do NOT have prostate cancer.
- Up to 20% of all men with clinically significant prostate cancer will have a normal PSA.
- The PSA test cannot differentiate between early-stage aggressive tumors and tumors that are not aggressive.

The International Consultation on BPH recommends that 'PSA should be tested before active treatment of BPH is chosen if the diagnosis of prostate cancer would make a difference in management' [International Consensus Committee, 1993a].

PSA range
0.1- 4 ng/ml – Normal range
4.1- 10 ng/ml – BPH or early carcinoma.
More than 10 ng/ml – Prostate cancer to be considered

C. Post void residual (PVR) estimation[27]
Although there is a high degree of extra individual variation in the PVR it may still provide valuable information with regard to bladder emptying. It may not distinguish adequately between bladder outlet obstruction and poor detrusor function. Greater than 300 ml considered a potential risk factor for upper urinary tract dilation and renal impairment.

D. Uroflowmetry[28] Uroflowmetry is the electronic recording of the urinary flow rate throughout the course of micturition. It is a common non-invasive urodynamic test used in the diagnostic evaluation of patients presenting with symptom of BOO. Some considers Uroflowmetry most useful urodynamic technique for the assessment of obstructive uropathy.

D. Imaging techniques
Plain X-Ray KUB region, IVU, USG, Urethrocystoscopy.

E. Biopsy
Mechanical obstruction: It is well recognized that BPH develops as spherical masses of epithelial and stromal elements of the glands. These masses enlarge; they form lobes of varying configuration.

Dynamic obstruction: Prostatic capsule is rich in adrenergic and cholinergic nerve supply. Thus, the capsule confines the enlarging adenoma anatomically and produces variable tension according to the variation on the degree of autonomic stimulation. This dynamic component is responsible for the variability in the symptoms, experienced by the patients.

DISCUSSION

Vatastheela Mutraghat is a most common obstructive urological condition of old age. In pathophysiology of Mootraghata, there is involvement of Mutravaha Srotasa especially Basti (bladder).The *Vatastheela Mutraghata* growth in turn produces obstruction to the stool, urine and flatus (***vina Mutranil sanga)*** leading to distension and severe pain over suprapubic region (*vasti pradesha).* Total twelve type of *Mutraghata* are described as obstructive uropathy related to either upper or lower urinary tract. The *Vatastheela, Mutraghata* reflects the symptoms of urinary retention, incomplete voiding, distension etc. These are feature of Lower Urinary Tract Symptoms (LUTS) and can be co-related with Benign Prostatic Hyperplasia.

Mechanical obstruction: It is well recognized that BPH develops as spherical masses of epithelial and stromal elements of the glands. These masses enlarge; they form lobes of varying configuration.

Dynamic obstruction: Prostatic capsule is rich in adrenergic and cholinergic nerve supply. Thus, the capsule confines the enlarging adenoma anatomically and produces variable tension according to the variation on the degree of autonomic stimulation. This dynamic component is responsible for the variability in the symptoms, experienced by the patients.

CONCLUSION

In Ayurveda vatastheela is very much similar to Benign Prostratic Hyperplasia. *Sushruta* described that *apana vayu*, situating itself in the space between rectum (*shakrina marga)* and urinary bladder (*vasti),* produces a hard (like a stone), immobile and prominent growth which produce mechanical obstruction due to abnormal growth as well as symptoms due to neurogenic stimulation . As the prostate is only structure lying between urinary bladder and rectum and the symptoms of *vatashtheela* are similar to those of enlarged prostate, the *vatashtheela is being considered as* enlarged prostate.

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