

An Observational Study to Correlate Severity of Lower Urinary Tract Symptoms & Size of Median Lobe of Prostate by Digital Rectal Examination in Patients with Benign Prostate Hypertrophy

Hemal Vithani¹, Sunil Kumar Saxena², Ashish Kumar Dubey³, Luv Gupta⁴

¹MBBS, PG Resident General Surgery, Department of Surgery, Bundelkhand Medical College, Sagar (MP)

²MBBS, MS General Surgery, MCH Paediatric Surgery, Professor and Head of Department, Department of Surgery, Bundelkhand Medical College, Sagar (M.P.)

³MBBS, MS General Surgery, Assistant Professor, Department of Surgery, Bundelkhand Medical College, Sagar (M.P.)

⁴MBBS, MS General Surgery, Assistant Professor, Department of Surgery, Bundelkhand Medical College, Sagar (M.P.)

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Corresponding Author: Dr. Hemal Vithani

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Abstract:

Introduction: Benign Prostatic Hyperplasia (BPH) refers to the nonmalignant growth or hyperplasia of prostate tissue and it is a common cause of lower urinary tract symptoms in aged men. Overgrowth of prostatic tissue surrounding the urethra leads to constriction of the urethra and resulting to lower urinary tract symptoms. BPH is often associated with lower urinary tract symptoms (LUTS), but LUTS generally cannot be used to make definitive diagnosis of BPH (5). Enlargement of median lobe of prostate be estimated by digital rectal examination which directly resulting into LUTS.

Objective: To evaluate the association between severity of lower urinary tract symptoms by international prostate scoring system and size of median lobe of prostate by digital rectal examination among the patients with benign prostatic hypertrophy.

Method: The study was observational prospective correlational study conducted between March 2023 to February 2024 in surgery department of Bundelkhand medical college Sagar. All male patients over the age of 45 year with lower urinary tract symptoms suggestive of benign prostatic hyperplasia with fulfilled inclusion & exclusion criteria were consecutively recruited. Clinical evaluation including digital rectal examination of the prostate was done. Symptoms severity was assessed using the self-administered international prostate symptoms score (IPSS) questionnaire.

Results: Subjects having Mild lower urinary tract symptoms commonly corresponded to grade 1 median lobe enlargement which was fully managed by Medical management. Subjects having Moderate lower urinary tract symptoms, most commonly correspond to median lobe grade 2 enlargement from which 72.73% subjects were managed by medical management & 27.27% subjects required surgery. Subjects having Severe lower urinary track symptoms correspond. To median lobe of grade 3 & grade 4 enlargement, from which 80% of subjects were manage by surgery & 20% of subjects were manage by medical management.

Conclusion: There is association between LUTS score & size of median lobe of prostate by digital rectal examination. Patients comes with mild LUTS with grade 1 prostate in digital rectal examination can be managed medically. Most of the patients having moderate LUTS and grade 2 median lobe prostate can be early managed medically. Patients having severe LUTS and grade 3 or 4 median lobe of prostate which can be managed surgically. In rural and remote areas of low- and middle-income countries, where diagnostic imaging is insufficient and, in some instances, completely lacking. In such a situation, relying on digital rectal examination of prostate & managing according to size of median lobe of prostate is become imperative.

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Introduction

Benign prostatic hyperplasia (BPH) refers to the proliferation of smooth muscle and epithelial cells within the prostatic transition zone and clinically

manifests as lower urinary tract symptoms [1]. It is more common in men of African descent than Caucasians [2,3]. BPH can be defined as

enlargement of prostate gland of equivalent weight, more than & equal to 20 g in the presence of symptoms of urinary dysfunction and or a urinary peak flow rate less than 15 ml / second. The normal prostate gland has a five lobes 1) anterior, 2) posterior, 3) two lateral and 4) median lobe. The median and two lateral lobes are most prominent. Worldwide, BPH affect more than 70% of Man of 70 year or older with or without LUTS [4]. BPH is progressive disease and symptoms tend to worsened with time. Identifying that patient at risk of BPH progression is crucial to optimization of their treatment [5]. Although BPH is not usually a life threatening condition, the impact of BPH on quality of life can be significant and should not be underestimated.

Most men who seek medical attention do so because of bothersome LUTS [6]. LUTS comprise storage symptoms (urinary frequency, nocturia, urgency, urinary incontinence), voiding symptoms (weak stream, spraying, intermittency, hesitancy, straining, terminal dribbling), and post micturition symptoms (sensation of incomplete emptying, post micturition dribbling).

The most widely used to symptoms score is the international prostate symptoms score. It is a reliable and valid instrument to measure subjective severity of lower urinary tract symptoms and progression over time.

Estimation of prostatic volume has been found to be important for choosing surgical technique as well as medical treatment [7,8]. Although prostate volume does not correlate with symptomatology as patient with a small prostate can have a significant symptoms while those with larger prostate with mild symptoms. it is generally accepted that in rural and remote areas of low- and middle-income countries, diagnostic imaging is open insufficient and, in some instances, completely lacking. In such a situation, relying on digital rectal examination becomes imperative. The median Lobe, which

arises from the peri urethral zone between the urethra and ejaculated ducts.

Its upper surface is bound by the bladder trigon and project into the bladder producing the uvula Vesicae, While the lateral lobe hypertrophy would cause compression of the prosthetic urethra and the median lobe IPP(intra vascial prostatic protrusion) may trigger ball valve type of obstruction, disrupting laminar flow at the bladder neck and distorting the funneling effect of the normal prosthetic urethral angle [9].

And leading to kinetic movement of the bladder during micturition. This would be responsible for more obstruction then if there were no protrusion and just bilateral hypertrophied lateral lobe, as the strong bladder contraction could force open a channel between the lobe but tend to aggravate the ball valve effect in median lobe enlargement.

Method:

A total of 60, patient with LUTS, suggestive of BPH in age more than 45 year and prospectively recruited from March 2023 to February 2024. Patient with lover, urinary tract symptoms due to other cause than the benign prosthetic hypertrophy & the patient with severe other comorbidity are excluded. Institutional ethical committee approval obtained before the study and informed bilingual written consent obtained before including the patient as a study subject. All subjects where interviewed and examined by a single observer.

All enrolled, patient were evaluated at a time of initial visit using the international prostate symptoms score, which is a self-administered questionnaires. Questionnaire has seven items and each has score of 0 to 5 with total score of 35. It also assesses the quality of life which has values from 0 to 6. the patient were categorized into three group as mild (0-7), moderate (8-19), and severe (20-35).

Table 1:

In The Past 30 Days:	Not at All	Almost Never	A Few Times	Someti mes	Most Times	Almost Always
How often do you feel like you didn't completely empty your bladder?	0	1	2	3	4	5
How often do you have to pee every two hours or less?	0	1	2	3	4	5
While peeing. how often do you feel you have to start and stop?	0	1	2	3	4	5
How often do you find it difficult to hold in your pee and go to the bathroom later?	0	1	2	3	4	5
How often did your pee come out slowly?	0	1	2	3	4	5
How often did you have to push to start peeing?	0	1	2	3	4	5
	Never	Time	2Times	3Times	4Times	5 more Times

How many times do you usually wake up at night to pee?	0	1	2	3	4	5
How do you feel your peeing? <ul style="list-style-type: none"> Extremely Dissatisfied Mostly Dissatisfied Slightly Dissatisfied Neither satisfied or dissatisfied Slightly satisfied Mostly satisfied Extremely satisfied 						

Digital rectal examination:

Digital rectal examination was done on each patient to assess the size of median, lobe of prostate and its characteristics of prostate. Patient with suspected, malignant prostate were excluded from the study and investigated appropriately. DRE assesses the posterior surface of a 3-dimensional prostate and in those with predominant median lobe

Grading of prostate done in digital rectal examination by size of median lobe of prostate:-

Grade-1 Easy accessible upper limit +unnoticed median sulcus + one finger width depth of lateral sulcus

Grade-2 Accessibility of upper limit of prostate with little effort + 1 but < 2 finger width depth of lateral sulcus + prominent median sulcus

Grade-3

Accessibility of the upper limit of prostate with marked difficulty + about 2 finger depth width of lateral sulcus + obliteration of median sulcus with rounded posterior surface

Grade-4

Inability to access the upper limit even with effort + >2 finger depth lateral sulcus + obliteration of median sulcus with rounded posterior surface.

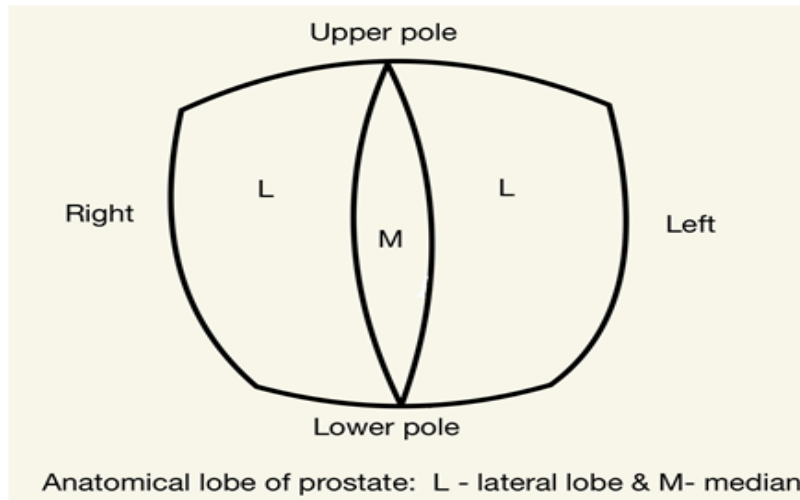


Figure 1:

Correlations between size of median lobe of prostate and IPSS score done.

Results: 30 Subjects were enrolled for the study. The subjects were studied for lower urinary tract symptoms grade and it was correspondence with median lobe enlargement grade by digital rectal examination.

Table 2: Total patients with LUTS grade & grade of size of median lobe

LUTS grade	Number of patients	Median lobe grade 1	Median lobe grade 2	Median lobe grade 3	Median lobe grade 4	Total
Mild (0 to 8)	3	3				3
Moderate (9-19)	22	1	19	2	0	22
Severe (20-35)	5		1	2	2	5
Total	30					

Three Patients presented with mild lower urinary tract symptoms, all of which corresponded to median lobe grade one enlargement. All the patients belonging to this group could manage medically.

Table 3: Management of patients with different grade of median lobe enlargement with mild LUTS

Mild LUTS	Grade 1	Grade2	Grade3	Grade4	Total
Medical	3	-	-	-	3(100%)
Surgical	-	-	-	-	0

Majority of patients belonged to 2nd group, 22 out of 30 subjects presented with moderate lower urinary tract symptoms.

Out of this 22 subject, 19 subjects, had median lobe grade 2, followed in frequency by 2 subjects having median lobe grade 3, least commonly encountered in one subject belonging to median lobe grade 1 enlargement group. In this group, median lobe grade 1 subject recovered by medical management.

19 subject belonging to median lobe enlargement grade 2.

Group were given medical management following with 14 subject recovered medically but five subjects had to be taken for surgical management. 1 out of 2 subject belonging to median lobe grade 3 group Was managed medically and the other surgically. Then no subject with moderate LUTS showed correspondence to grade 4 median lobes.

Table 4: Management of patients with different grade of median lobe enlargement with moderate LUTS

Moderate LUTS	Grade1	Grade2	Grade3	Grade4	Total
Medical	1	14	1	0	16(72.72%)
Surgical	0	5	1	0	6(27.27%)

5 out of 30 patients showed the severe LUTS. None of this correspondence to median lobe grade 1. Only one subject corresponded to median lobe grade 2, managed medically. Two subject's correspondent to grade 3 & the remaining two corresponded to grade 4, all of which were managed surgically.

Table 5: Management of patients with different grade of median lobe enlargement with severe LUTS

Severe LUTS	Grade1	Grade2	Grade3	Grade4	Total
Medical	0	1	0	0	1(20%)
Surgical	0	0	2	2	4(80%)

Conclusion & summary

Subjects having Mild lower urinary tract symptoms commonly corresponded to grade 1 median lobe enlargement which was fully managed by medical management.

Subjects having Moderate lower urinary tract symptoms, most commonly correspond to median lobe grade 2 enlargement from which 72.73% subjects were manage by medical management & 27.27% subjects required surgery.

Subjects having Severe lower urinary tract symptoms correspond to median lobe of grade 3 & grade 4 enlargement, from which 80% of subjects were manage by surgery & 20% of subjects were manage by medical management.

There is association between LUTS score & size of median lobe of prostate by digital rectal examination. Patients comes with mild LUTS with grade 1 prostate in digital rectal examination can be managed medically.

Most of the patients having moderate LUTS and grade 2 median lobes prostate can be early managed medically. Patients having severe LUTS and grade 3 or 4 median lobe of prostate which can be managed surgically.

In rural and remote areas of low and middle income countries, where diagnostic imaging is insufficient and in some instances completely lacking. In such a situation, relying on digital rectal examination of

prostate & managing according to size of median lobe of prostate is become imperative.

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