

STUDY OF CYSTOSCOPIC FINDINGS IN PATIENTS PRESENTING WITH LOWER URINARY TRACT SYMPTOMS AT A TERTIARY CARE CENTRE

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ABSTRACT

Lower urinary tract symptoms (LUTS) are a collection of symptoms related to problems with voiding, and storage. They generally arise as a result of abnormalities or inadequate functioning of the prostate, urethra, bladder or sphincters. Hospital based cross sectional descriptive study was conducted in the Urology department of a tertiary care hospital in Kathmandu from July 2024 to December 2024. A total of 121 patients underwent cystoscopy during the study period. The mean age of the patient was 53.93 ± 14.752 years and the most common age group was 41- 50 years. Male patients (81.8%) were more than female patients (18.2%). Obstructive symptoms were more common than irritative symptoms. Hematuria was seen in 16 cases (13.2%) and urinary retention was seen 4 cases (3.3%). Benign enlargement of Prostate (BEP) (37.2 %) was the most common finding in cystoscopy followed by urethral stricture (19.8%). A significant association was observed between age categories and cystoscopic findings in patients presenting with LUTS ($p=0.028$). Among the patients with BEP, there was a significant association between age categories and BEP. Cystoscopy is a very common procedure for patients presenting with LUTS and to evaluate lower urinary tract diseases such as various pathologies of urethra, prostate and bladder.

KEYWORDS

Benign enlargement of prostate (BEP), cystoscopy, frequency, lower urinary tract symptoms (LUTS), nocturia

Received on: March 09, 2025

Accepted for publication: May 21, 2025

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DOI: <https://doi.org/10.3126/nmcj.v27i2.80537>

INTRODUCTION

Lower urinary tract symptoms (LUTS) are a collection of symptoms related to problems with voiding, and storage. They generally arise as a result of abnormalities or inadequate functioning of the prostate, urethra, bladder or sphincters. In the past, LUTS in elderly men were always assumed to be directly or indirectly related to Benign enlargement of prostate (BEP). The latest knowledge and development suggest that not all bladder symptoms of elderly men are necessarily linked to the prostate (BEP-LUTS), but instead might be caused by the bladder overactivity-overactive bladder syndrome (OAB), detrusor underactivity or nocturnal polyuria.¹

LUTS are divided into storage and voiding symptoms. Storage symptoms include urinary frequency, nocturia, urgency, urge incontinence, and bladder or urethral pain. Voiding symptoms consist of hesitancy, straining, weak urine stream, a feeling of incomplete emptying, and urine retention.^{2,3} The pathophysiology of LUTS is diverse. In men, BEP is frequently considered to be the major cause of LUTS. Approximately more than 30.0% of men aged 40 to 50 years and older have moderate to severe LUTS.^{1,4} LUTS are common conditions, occurring in both men and women of all ages.² In epidemiological studies, LUTS were found in 57.1% of men and 48.0% of women.⁵ These symptoms cause discomfort and affects self-confidence with several social implications.² LUTS affect the quality of patient's life from different aspects including social, physical and psychological with health cost impact.⁶

Cystoscopy is one of the most important tools for disease diagnosis in urology.^{2,7,8-11} It is one of the most common outpatient procedures of urologic practice that provides to evaluate lower urinary tract diseases such as various pathologies of urethra, prostate and bladder.¹¹ Rigid cystoscopes are suitable for female because of the short urethra that permit straight entrance from the urethral meatus and with topical application of local anesthetic making the patient comfortable and is relatively a painless procedure. For males, discomfort is noted when rigid cystoscopy is used specially when it reaches the membranous and prostatic urethra.^{2,7}

Diagnostic cystoscopy is frequently performed as a day care procedure by urologists and urogynaecologists for LUTS such as urgency, urge incontinence, sensation of incomplete voiding, urinary retention, treatment for recurrent urinary tract infections and chronic

pelvic pain (due to interstitial cystitis).⁹ During analysis, the cystoscope must pass through the urethra to reach the bladder resulting in contact with the urethral mucosal membranes, leading to discomfort and pain. Patients receiving this procedure are thus often stressed, have increased heart rates and elevated blood pressure.⁸

Cystoscopy is the very common procedure to evaluate patients presenting with hematuria also, either microscopic or gross and for other causes like neurological, inflammatory, neoplastic or congenital abnormalities. It is very common to take biopsies from urinary bladder to rule out the underlying carcinoma.¹⁰

The aim of this study was to find out the cystoscopic findings in patients presenting with LUTS since LUTS is a multifactorial entity and very important in view of its prevalence in the community.

MATERIALS AND METHODS

A hospital based cross-sectional descriptive study was carried out in the Department of Urology of Nepal Medical College Teaching Hospital (NMCTH). Ethical approval was taken from Institutional Review Committee (IRC) of NMCTH (Ref. No. 05-081/082). A total of 121 patients attending Urology OPD and undergoing cystoscopic examination from July 2024 to December 2024 were included in the study. All patients 18 years and above with negative Serology report (HIV, HbsAg, Anti- HCV) and ECG in patients >40 years with LUTS undergoing cystoscopy were taken for the study. However, patients who did not give consent and patients with hematuria as the presenting symptom (with no LUTS), uncontrolled coagulopathy and pregnant women were excluded from the study.

Baseline clinical characteristics of the study cohort including age, gender, past surgical and medical history, and medications used (antiplatelets, anticoagulation, α -blockers, and 5- α reductase inhibitors) were collected from the patients' medical records. Patients were subjected to clinical examination including a DRE wherever indicated (after consent). Cystoscopy was performed with the patient in a lithotomy position using a semi rigid video cystoscope with saline irrigation. All the procedures were done by a urologist or a resident, supervised by a senior urologist and the findings were noted.

After cystoscopy around 15-20 minutes later and after passing urine, patients were allowed

to go home. Few of the patients reported minor complications like voiding dysuria, mild hematuria or frequency following cystoscopy and they were all self-limiting. Patients were advised to take plenty of fluids orally and advised to report back to us in case of severe dysuria, rigors or fever. Pathology specimen, in cases of bladder tumor and/ or growth was sent for histopathological examination.

Data collection: All the details were entered in the proforma. Data were evaluated by SPSS-17. Descriptive statistics (mean±standard deviation) were used to analyze the quantitative outcomes. The qualitative data were presented with frequency and percentage. Association between independent variables and cystoscopic findings was analyzed by Chi-square / Fisher's Exact test. P value less than 0.05 was considered statistically significant.

RESULTS

There were 121 patients who underwent cystoscopy during the study period. The youngest patient was 22 years old and eldest patient was 86 years old with mean age of 53.93 ± 14.752 years. The most common age group was 41- 50 years (Table 1). There were more male patients (99, 81.8%) than female patients (22, 18.2%) (Fig. 1).

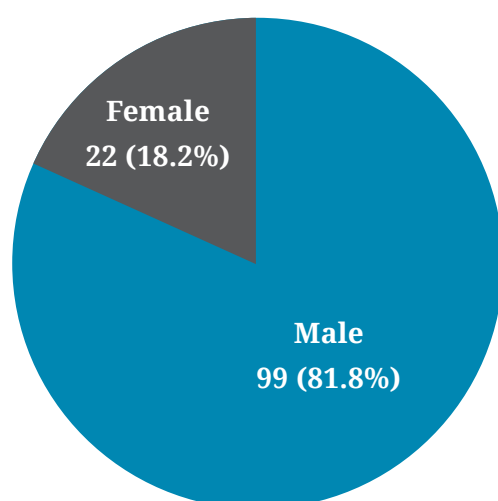


Fig. 1: Gender distribution (n=121)

Patients presented with single and/or multiple symptoms which was either irritative or obstructive or both. Irritative symptoms like frequency, urgency and nocturia and obstructive symptoms like poor stream, intermittency, straining and sense of incomplete void were seen in this study. Most of the patients had obstructive symptoms than irritative symptoms. Among the irritative

Table 1: Age distribution (n=121)

Age group (years)	n	%	Mean \pm S.D (years)	Median (years)
21 – 30	4	3.3		
31 – 40	22	18.2		
41 – 50	28	23.1		
51 – 60	22	18.2	53.93 ± 14.752	54
61-70	26	21.5		
71- 80	17	14.0		
>80	2	1.7		
Total	121	100.0		

symptoms, nocturia (50.0%, n=86) was the most common symptom followed by frequency (27.9%, n=86) and among the obstructive symptoms, poor stream (36.0%, n=186) was the most common symptom followed by straining (29.6%, n=186). Other symptoms like hematuria

Table 2: Distribution of LUTS

Symptoms (LUTS)		
Irritative symptoms*	n (86)	% (100)
Nocturia	43	50.0
Frequency	24	27.9
Urgency	19	22.1
Obstructive symptoms*	n (186)	% (100)
Poor stream	67	36.0
Straining	55	29.6
Intermittency	48	25.8
Sense of incomplete void	16	8.6
Others**	n (20/121)	% (16.5/100)
Hematuria	16	13.2
Urine retention	4	3.3

*Patient may have been presented with more than one irritative and/or obstructive symptoms.

**Others symptom (hematuria and urine retention) was seen in 20 patients out of 121

Table 3: Distribution of cystoscopic findings (n=121)

Cystoscopic findings	n	%
BEP	45	37.2
Stricture urethra	24	19.8
Cystitis	23	19.0
UB mass	3	2.5
Normal cystoscopy	26	21.5
Total	121	100.0

Table 4: Association between age categories and LUTS (n=121)

LUTS		Age categories		n	p-value
		<54 years	≥ 54 years		
Irritative symptoms	Present	32	39	71	0.236
	Absent	28	22	50	
Obstructive symptoms	Present	36	44	80	0.159
	Absent	24	17	41	
Other symptoms	Present	9	11	20	0.653
	Absent	51	50	101	

Table 5: Association between age categories and cystoscopy findings (n=121)

Age categories	Cystoscopy findings		n	p-value*
	Normal	Abnormal		
<54 years	18 (30%)	42 (70%)	60 (100%)	0.028
≥ 54 years	8 (13.1%)	53 (86.9%)	61 (100%)	
Total	26 (21.5%)	95 (78.5%)	121 (100%)	

*P value derived from Fisher's exact test

Table 6: Association between age categories and BEP (n=99)

Age categories	BPH		n	p-value*
	Present	Absent		
<54 years	3 (7.1%)	39 (92.9%)	42 (100%)	<0.0001
≥54 years	42 (73.7%)	15 (26.3%)	57 (100%)	
Total	45 (45.5%)	54 (54.5%)	99 (100%)	

*P value derived from Fisher's exact test

(13.3%) and urinary retention (3.3%) were also present. (Table 2). Cystoscopy revealed BEP in 45 cases (37.2 %) and urethral stricture in 24 cases (19.8%). Normal cystoscopic finding was seen in 26 cases (21.5%) (Table 3).

Association between age categories and LUTS (irritative symptoms, obstructive symptoms and other symptoms) were not significant (Table 4). A significant association was observed between age categories and cystoscopic findings in patients presenting with LUTS (p=0.028) (Table 5). Among the patients with BEP, there was a significant association between age categories and BEP among male patients (Table 6).

DISCUSSION

Diagnostic cystoscopy is a useful procedure in patients presenting with LUTS. Several studies show that the prevalence of LUTS is high.^{1,4} An epidemiological study of LUTS in Indian male population showed that the patients with LUTS attending a urology clinic was 41.0%,

increasing with age: 14.1%, 41.5% and 60.8% of patients aged 18–49, 50–64 and ≥65 years, respectively.¹ In this study, the youngest patient was 22 years old and eldest patient was 86 years old with mean age of 53.93±14.752 years. The most common age group was 41- 50 years. In a study done in Eastern part of Nepal, the mean age of patients with urinary symptoms undergoing cystoscopy was 45.77±21-75 years.⁹ However in Iraq, the mean age of the patients with LUTS undergoing cystoscopy was much lower, that is 38 years.² There were more male patients (81.8%) than female patients (18.2%) in our study which is very similar to other studies.^{2,12} Contrast to this, a study conducted in Pakistan showed that female patients were more common and urethral stenosis was the most common pathology.¹³

Most of the patients in our study had obstructive symptoms than irritative symptoms. In some patients, both obstructive and irritative symptoms were seen. Among the irritative symptoms, nocturia (43 cases, 50.0%) was more common and this finding was similar to studies

done by Vishwakarma *et al*¹ and Ridder *et al*,⁴ respectively. In contrast to this, Pradhan *et al*⁹ found urgency as the most frequent indication for cystoscopy. In the obstructive symptoms, poor stream was the most common symptom (36.0%) followed by straining (29.6%). This finding was similar to finding of Vishwakarma *et al*.¹ Hematuria was seen in 16 cases (13.3%) and urinary retention was seen 4 cases (3.3%). Singh *et al*¹² reported gross hematuria in 3.0% and microscopic hematuria in 13.0% of patients with LUTS. Bladder tumor was seen in 3.0% patient who had microscopic hematuria.

The most common cause of LUTS in our study was found to be BEP (37.2%), followed by stricture urethra (19.8%) in cystoscopy. This finding is similar to the finding of several similar studies.^{1,2,12,13} However, one study showed that female patients had no significant specific finding.² LUTS associated with BEP were present in almost 20–30% of the male population aged 50 or over.¹⁴ It is seen that the prevalence of moderate/severe LUTS was 16.6% in men over 40 years of age.¹⁵ Several other studies showed that there is maximum incidence of BEP (45.6%) among patients with LUTS.^{12, 16-18}

Lower urinary tract calculi are also common in patients with LUTS. This contributed to around 4% of total number of patients in a study done by Singh *et al*.¹² Young *et al*¹⁸ found 8.8% cases of bladder calculi in their study. However, there was no case of bladder calculi in our study.

Cystoscopy remains the criterion standard for evaluating bladder cancer. The diagnostic yield of cystoscopy for detecting bladder cancer ranges from 2.7% - 13.0%.^{12,19,20} Bladder mass was seen in 2.5% cases in our study. Bladder cancer was diagnosed in 5.0% and 10.5% of

patients respectively in studies done by Sabhan *et al*² and Singh *et al*.¹² Dobbs *et al*¹⁷ showed 4.1% incidence of LUTS as the sole presenting symptom in patients with newly diagnosed bladder cancer. Suspicious bladder mucosal lesions are seen as abnormal erythematous patches on bladder mucosa. Many times, it come out to be benign after histopathological examination as in the studies done by Sabhan *et al*² and Khadra *et al*.²¹

Our study showed normal cystoscopic findings in 21.5% cases and rest of the cases showing some pathology. In a study conducted by Kumar *et al*,²² out of 1390 patients, cystoscopy had positive findings in 46.14% of patients. Another study by Muhammad *et al*¹³ on 1500 cases, found that there was detection of various pathologies by cystoscopy in 32.0% cases.

Association between age categories and LUTS (irritative symptoms, obstructive symptoms and other symptoms) were not significant in our study. A significant association was observed between age categories and cystoscopic findings in patients presenting with LUTS ($p=0.028$). Sabhan *et al*² showed no significant difference between men and women with regard to the cystoscopic findings ($p=0.2$). Among the patients with BEP, there was a significant association between age categories and BEP among male patients.

Due to bothersome symptoms, LUTS can affect the quality of life. Cystoscopy is an effective and well tolerated diagnostic tool for arriving at a definite diagnosis in cases of patients coming with LUTS.

Conflict of interest: None

Source of research fund: None

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