International Journal of Medical and Pharmaceutical Research

Online ISSN-2958-3683 | Print ISSN-2958-3675
Frequency: Bi-Monthly
Available online on: https://ijmpr.in/

Original Article

Comparative Evaluation of Alpha-Blocker-Associated Lower Ureteric Orifice Dilatation in Patients with and without Ureteric Calculus: A Prospective Observational Study

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OPEN ACCESS

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Received: 27-06-2026
Accepted: 12-07-2026
Available online:31-07-2026

ABSTRACT

Background: Alpha-adrenergic blockers are widely used in urological practice for two common indications: medical expulsive therapy in ureteric calculus and pharmacological management of lower urinary tract symptoms associated with benign prostatic hyperplasia. Their clinical usefulness in ureteric stone disease is generally attributed to relaxation of ureteric smooth muscle, reduction of basal ureteric tone, decrease in uncoordinated peristalsis and facilitation of ureteric stone passage. However, whether alpha blockers alone can produce clinically appreciable lower ureteric orifice dilatation in the absence of a ureteric calculus remains insufficiently explored.

Aim: To compare the impact of alpha-blocker therapy on lower ureteric orifice dilatation in patients with ureteric calculus and in patients without ureteric calculus who were receiving alpha blockers for LUTS/BPH.

Materials and Methods: This prospective comparative observational study included 60 male patients treated in the Department of Urology, BGS Global Institute of Medical Sciences between February 2025 and February 2026. Thirty patients with ureteric calculi who had received alpha blockers as medical expulsive therapy and were planned for ureteroscopic lithotripsy were included as Group A. Thirty patients without ureteric calculus who were receiving alpha blockers for LUTS/BPH and were planned for cystoscopy, TURP or another endoscopic urological procedure were included as Group B. Lower ureteric orifice dilatation was assessed intra-operatively using an 8/9.8 Fr semirigid ureteroscope. Dilatation was defined as easy negotiation of the ureteroscope across the ureteric orifice without prior guidewire insertion or active dilatation.

Results: Mean age was 39.33+/-10.31 years in Group A and 50.17+/-5.36 years in Group B. In Group A, the mean stone size was 9.553+/-2.85 mm; 70% of stones measured 5-10 mm and 30% measured 11-15 mm. Stones were located in the lower ureter in 46.7%, upper ureter in 33.3% and mid ureter in 20% of cases. Ureteric orifice dilatation was observed in 26/30 patients (86.7%) in Group A but in 0/30 patients (0%) in Group B. The difference between groups was statistically significant (p=0.000).

Conclusion: Alpha-blocker-associated lower ureteric orifice dilatation was observed predominantly in patients with ureteric calculus and was not observed in patients receiving alpha blockers for LUTS/BPH without ureteric calculus. These findings suggest that the presence of a ureteric calculus, together with alpha-blocker-mediated smooth-muscle relaxation, may contribute to functional lower ureteric dilatation and facilitate ureteroscopic access.

Keywords*: Alpha blockers; ureteric calculus; lower ureteric orifice; ureteric dilatation; silodosin; tamsulosin; ureteroscopy; medical expulsive therapy; benign prostatic hyperplasia.*

INTRODUCTION

Urolithiasis is one of the most frequently encountered disorders in urological practice and remains a significant cause of emergency visits, recurrent pain, hospital admission and surgical intervention. The prevalence of urinary stone disease has been reported to vary widely across populations, ranging from approximately 1% to 15%, with higher rates in regions affected by dietary transition, dehydration, metabolic syndrome and changes in lifestyle[1]. Ureteric calculi constitute a clinically important subgroup because they often produce acute symptoms, including renal colic, vomiting, hematuria, urinary infection and obstructive uropathy. The increasing burden of urolithiasis has made safe, cost-effective and minimally invasive management strategies highly relevant for routine clinical practice[2,3].

The natural history of ureteric calculi depends on stone size, stone location, ureteric anatomy, edema around the impacted stone, ureteric spasm, hydrostatic pressure proximal to the calculus and the functional pattern of ureteric peristalsis. Small calculi, especially those measuring less than 3-4 mm, may pass spontaneously in a large proportion of patients. However, stones larger than 5-6 mm have a lower likelihood of spontaneous passage and are more likely to require medical expulsive therapy or active intervention[4]. Distal ureteric stones are more likely to pass than proximal stones because the remaining distance to the bladder is shorter; nevertheless, the intramural ureter and ureterovesical junction remain critical anatomical sites where stones may lodge and produce persistent symptoms.

Management options for ureteric stones include observation, hydration, analgesics, medical expulsive therapy, extracorporeal shock wave lithotripsy, ureteroscopic lithotripsy, antegrade ureteroscopy and, rarely, open or laparoscopic ureterolithotomy[5]. With advances in endoscopic technology, semirigid and flexible ureteroscopy have become highly effective modalities for immediate stone clearance[6,7]. However, even in experienced hands, difficult access to the ureteric orifice or intramural ureter can prolong operative time, increase guidewire manipulation, require active dilatation and potentially increase mucosal trauma, false passage or perforation. Therefore, methods that facilitate safe ureteric access are clinically valuable.

Medical expulsive therapy has been developed to improve spontaneous stone passage and reduce symptoms while avoiding or delaying surgical intervention[8]. Alpha-adrenergic blockers are among the most widely studied agents for this purpose. Their proposed mechanism includes inhibition of alpha-1 adrenergic receptor-mediated ureteric smooth-muscle contraction, reduction of basal tone, decrease in peristaltic frequency and amplitude, lowering of intraluminal pressure distal to the stone and relief of ureteric spasm. These effects may widen the functional lumen around the stone and permit easier distal migration. Alpha-1 receptors, particularly alpha-1A and alpha-1D subtypes, are expressed in ureteric smooth muscle, with important functional relevance in the distal ureter and intramural ureter[9].

Alpha blockers are also established therapeutic agents for lower urinary tract symptoms due to benign prostatic hyperplasia. In BPH/LUTS, the therapeutic effect is primarily mediated through relaxation of smooth muscle in the prostate, bladder neck and prostatic urethra, thereby reducing dynamic bladder outlet obstruction[10,11]. Because alpha blockers are used in both ureteric stone disease and BPH/LUTS, an important clinical question arises: Does alpha-blocker therapy itself produce measurable lower ureteric orifice dilatation, or is such dilatation clinically apparent mainly when a ureteric calculus is present?

This distinction is important for understanding the mechanism by which alpha blockers improve ureteroscopic access. If alpha blockers alone caused consistent ureteric orifice dilatation, patients receiving them for BPH/LUTS should demonstrate similar endoscopic ease of ureteric negotiation. If, however, dilatation occurs mainly in the presence of ureteric calculus, then local factors related to stone impaction, edema, obstruction, altered peristalsis and hydrostatic changes may interact with pharmacological smooth-muscle relaxation to produce a functional change detectable during ureteroscopy. The present study was designed to evaluate this clinical question by comparing patients with ureteric calculi on alpha blockers with patients without ureteric calculi who were also on alpha blockers.

Aim and Objective

Aim: To evaluate whether alpha-blocker therapy is associated with clinically appreciable lower ureteric orifice dilatation and whether this effect differs between patients with ureteric calculus and patients without ureteric calculus.

Primary objective: To compare the impact of alpha blockers on lower ureteric orifice dilatation in patients harbouring ureteric calculus versus patients not harbouring ureteric calculus.

Secondary objectives: To describe the distribution of ureteric dilatation according to age group, stone size, side of calculus and location of calculus among patients with ureteric stones; and to assess the clinical relevance of preoperative alpha-blocker therapy in facilitating ureteroscopic negotiation.

MATERIALS AND METHODS

Study design and setting

This was a prospective comparative observational study conducted in the Department of Urology, BGS Global Institute of Medical Sciences, Bangalore, Karnataka, India. The study period extended from February 2025 to February 2026. Patients presenting to the urology department and fulfilling the eligibility criteria were enrolled after informed written consent.
The study was designed to compare two clinically distinct groups that were both receiving alpha-blocker therapy. Group A represented patients receiving alpha blockers in the context of ureteric calculus and failed medical expulsive therapy, while Group B represented patients receiving alpha blockers for LUTS/BPH without ureteric calculus. This design allowed assessment of whether the presence of a calculus influenced the occurrence of lower ureteric orifice dilatation during endoscopic evaluation.

Study population and sample size
A total of 60 male patients were included. The sample consisted of 30 patients in Group A and 30 patients in Group B. Group A included patients with ureteric calculi receiving alpha blockers and planned for ureteroscopic lithotripsy. Group B included patients with LUTS/BPH, no ureteric calculus, receiving alpha blockers and planned for cystoscopy, TURP or another endoscopic urological procedure.

Eligibility criteria
Inclusion criteria: Patients with LUTS/BPH without ureteric calculus who were receiving alpha blockers and planned for cystoscopy/TURP or another endoscopic procedure; and patients with ureteric stone receiving alpha blockers and planned for ureteroscopic lithotripsy.

Exclusion criteria: Patients with BPH who had back-pressure changes on ultrasonography or deranged renal parameters were excluded. Patients with ureteric calculus and deranged renal function, obstructive uropathy or pyonephrosis were also excluded.

Grouping and drug therapy
Group A - cases: Patients with ureteric calculi who were already on medical expulsive therapy with silodosin 8 mg at bedtime and were planned for ureteroscopic lithotripsy. The duration of alpha-blocker therapy in this group ranged from 1 to 4 weeks.

Group B - controls: Patients without ureteric calculus who were receiving silodosin 8mg at bedtime for LUTS/BPH and were planned for TURP, cystoscopy or other endoscopic urological procedures. The duration of therapy ranged from 3 weeks to 12 months.

Preoperative evaluation
All patients underwent detailed clinical history and physical examination. Laboratory evaluation included haemoglobin, total leucocyte count, differential leucocyte count, random blood sugar, blood urea, serum creatinine, urine routine examination, urine microscopy and urine culture and sensitivity wherever indicated. Ultrasonography of the abdomen and pelvis was performed to determine stone location, size and laterality in patients with ureteric calculus and to assess for pyonephrosis or hydroureteronephrosis. In BPH/LUTS patients, ultrasonography was also used to exclude back-pressure changes.

Equipment and operative protocol
The endoscopic assessment was performed using a high-definition camera system, cold light source, video monitor and 8/9.8 Fr Wolf semirigid ureteroscope. The camera system used was STORZ Telecam DX II 202330 single-chip camera, and visualization was supported by a high-resolution video monitor. A STORZ halogen 250 twin cold light source was used to provide adequate illumination.

Patients were kept fasting overnight. Preoperative antibiotic prophylaxis was administered using ceftriaxone 1 g and amikacin 500 mg intravenously. All procedures were performed under spinal anaesthesia with the patient in lithotomy position. Rigid cystoscopy was performed using the semirigid ureteroscope. The ureteric orifice was identified endoscopically before any guidewire was inserted.

Assessment of lower ureteric orifice dilatation
The ureteric orifice was calibrated by attempting to negotiate the 8/9.8 Fr semirigid ureteroscope across the ureteric orifice without prior insertion of a guidewire into the ureter and without active dilatation. The ureteric orifice was considered dilated when the ureteroscope could be negotiated easily across it. If negotiation was not possible, the ureteric orifice was recorded as not dilated. In Group A, the ureteric orifice on the side of the stone was assessed. In Group B, both ureteric orifices were assessed; the patient-level result was recorded as dilated only if easy negotiation was possible.

Data collection and statistical analysis
The collected variables included patient age, sex, diagnosis, duration of alpha-blocker therapy, side of ureteric calculus, location of ureteric calculus, size of calculus and intra-operative ureteric orifice status. Data were summarized using mean,

standard deviation, frequency and percentage. The association between study group and ureteric orifice dilatation was assessed statistically. A p value of 0.000 was reported in the source analysis and was considered statistically significant.

RESULTS

Demographic profile

A total of 60 male patients were included. Group A consisted of 30 patients with ureteric calculi on alpha blockers and planned for ureteroscopic lithotripsy. Group B consisted of 30 patients without ureteric calculi who were receiving alpha blockers for LUTS/BPH and were planned for cystoscopy, TURP or other endoscopic urological procedures. The age range in Group A was 23-56 years, with a mean age of 39.33+/-10.31 years. The age range in Group B was 38-60 years, with a mean age of 50.17+/-5.36 years.

Table 1. Age distribution of study participants

Variable	Group A: ureteric calculus	Group B: no ureteric calculus
Mean age (years)	39.33	50.17
Standard deviation	10.310	5.357
Minimum age (years)	23	38
Maximum age (years)	56	60

Table 2. Distribution of patients according to age group

Age group	Group A n (%)	Group B n (%)	Total n (%)
<=30 years	8 (26.7)	0 (0.0)	8 (13.3)
31-40 years	8 (26.7)	2 (6.7)	10 (16.7)
41-50 years	9 (30.0)	19 (63.3)	28 (46.7)
>50 years	5 (16.7)	9 (30.0)	14 (23.3)
Total	30 (100.0)	30 (100.0)	60 (100.0)

Stone characteristics in Group A

Among the 30 patients with ureteric calculus, stone size ranged from 5.4 mm to 15 mm, with a mean size of 9.553+/-2.85 mm. No patient had a stone smaller than 5 mm. Twenty-one patients (70%) had stones measuring 5-10 mm, while nine patients (30%) had stones measuring 11-15 mm. With respect to laterality, 13 patients (43.3%) had right ureteric calculus, 16 patients (53.3%) had left ureteric calculus and one patient (3.3%) had bilateral lower ureteric calculi.

Table 3. Distribution of cases according to size of calculus

Stone size	No. of patients	Percentage
<5 mm	0	0.0
5-10 mm	21	70.0
11-15 mm	9	30.0
Total	30	100.0

Table 4. Distribution of cases according to side and location of calculus

Characteristic	Category	No. of patients	Percentage
Side	Bilateral	1	3.3
Side	Left	16	53.3
Side	Right	13	43.3
Location	Lower ureter	14	46.7
Location	Mid ureter	6	20.0
Location	Upper ureter	10	33.3

Diagnosis and duration of alpha-blocker therapy

In Group A, 13 patients were diagnosed with right ureteric calculus, 16 with left ureteric calculus and one with bilateral ureteric calculus. In Group B, 18 patients had BPH and 12 patients had LUTS. All patients received alpha blockers. In Group A, all patients received alpha blockers for less than 4 weeks. In Group B, nine patients received alpha blockers for less than 4 weeks, while 21 patients received alpha blockers for more than 4 weeks.

Table 5. Distribution of diagnosis in both groups

Group	Diagnosis	No. of patients	Percentage
Group A	Bilateral ureteric calculus	1	3.3
Group A	Left ureteric calculus	16	53.3
Group A	Right ureteric calculus	13	43.3
Group B	BPH	18	60.0

Group B	LUTS	12	40.0

Table 6. Duration of alpha-blocker therapy

Group	<4 weeks n (%)	>4 weeks n (%)	Total
Group A	30 (100.0)	0 (0.0)	30
Group B	9 (30.0)	21 (70.0)	30
Total	39 (65.0)	21 (35.0)	60

Primary outcome: lower ureteric orifice dilatation

The principal outcome showed a marked difference between the two groups. In Group A, lower ureteric orifice dilatation was observed in 26 of 30 patients (86.7%). Four patients (13.3%) did not show easy negotiation of the 8/9.8 Fr ureteroscope across the ureteric orifice. In Group B, no patient demonstrated lower ureteric orifice dilatation, and all 30 patients (100%) were recorded as not dilated. The difference between Group A and Group B was statistically significant, with p=0.000.

Table 7. Distribution of patients according to lower ureteric orifice dilatation

Group	Dilatation present n (%)	Dilatation absent n (%)	Total	p value
Group A	26 (86.7)	4 (13.3)	30	0.000
Group B	0 (0.0)	30 (100.0)	30	0.000
Total	26 (43.3)	34 (56.7)	60	

Subgroup observations within Group A

Within Group A, dilatation was observed across age groups, suggesting that age did not appear to determine the presence of ureteric orifice dilatation in this small cohort. Dilatation was noted in 87.5% of patients aged <=30 years, 87.5% in those aged 31-40 years, 88.9% in those aged 41-50 years and 80.0% in those aged >50 years.

Table 8. Association of age group with ureteric orifice dilatation in Group A

Age group	Dilatation absent n (%)	Dilatation present n (%)	Total
<=30 years	1 (12.5)	7 (87.5)	8
31-40 years	1 (12.5)	7 (87.5)	8
41-50 years	1 (11.1)	8 (88.9)	9
>50 years	1 (20.0)	4 (80.0)	5
Total	4 (13.3)	26 (86.7)	30

Dilatation was most frequent among patients with lower ureteric calculus, in whom 13 of 14 patients (92.9%) demonstrated dilatation. Dilatation was also observed in 9 of 10 patients (90.0%) with upper ureteric stones and 4 of 6 patients (66.7%) with mid ureteric stones. Among the four patients without dilatation in Group A, two had mid ureteric stones, one had a lower ureteric stone and one had an upper ureteric stone.

Table 9. Association of calculus location with ureteric orifice dilatation in Group A

Location of calculus	Dilatation absent n (%)	Dilatation present n (%)	Total
Lower ureter	1 (7.1)	13 (92.9)	14
Mid ureter	2 (33.3)	4 (66.7)	6
Upper ureter	1 (10.0)	9 (90.0)	10
Total	4 (13.3)	26 (86.7)	30

With respect to laterality, all 16 patients with left ureteric calculus and the one patient with bilateral calculus demonstrated ureteric orifice dilatation. Among 13 patients with right ureteric calculus, nine (69.2%) demonstrated dilatation and four (30.8%) did not.

Table 10. Association of side of calculus with ureteric orifice dilatation in Group A

Side of calculus	Dilatation absent n (%)	Dilatation present n (%)	Total
Bilateral	0 (0.0)	1 (100.0)	1
Left	0 (0.0)	16 (100.0)	16
Right	4 (30.8)	9 (69.2)	13
Total	4 (13.3)	26 (86.7)	30

DISCUSSION

This prospective comparative study evaluated whether alpha-blocker therapy is associated with lower ureteric orifice dilatation in patients with ureteric calculus and in patients without ureteric calculus. The principal finding was that ureteric

orifice dilatation was observed in 86.7% of patients with ureteric calculi who had received alpha blockers, whereas no dilatation was observed in patients without ureteric calculi who were receiving alpha blockers for LUTS/BPH. This statistically significant difference suggests that alpha-blocker therapy may not independently produce endoscopically appreciable ureteric orifice dilatation in the absence of a ureteric calculus. Instead, the functional dilatation observed during ureteroscopy may be the result of interaction between pharmacological smooth-muscle relaxation and local physiological changes induced by a stone.

The clinical relevance of this observation lies in the practical difficulty often encountered during ureteroscopy. Ureteroscopic lithotripsy requires safe entry into the ureteric orifice, traversal of the intramural ureter and advancement toward the calculus. When the lower ureter is tight or the orifice is narrow, the surgeon may require guidewire manipulation, ureteric dilatation or repeated attempts at access. These manoeuvres can increase operative time and potentially increase mucosal edema, bleeding, false passage, perforation or postoperative discomfort. Therefore, a medication that improves functional access to the ureter can be valuable, particularly in elective or non-emergency cases where preoperative preparation is possible.

Alpha blockers have been used as medical expulsive therapy because ureteric smooth muscle contains adrenergic receptors, especially alpha-1 receptor subtypes. Activation of these receptors contributes to ureteric tone and contractility. Blocking these receptors can reduce smooth-muscle tone and lower the amplitude and frequency of uncoordinated contractions, thereby facilitating stone passage. The distal ureter and intramural ureter are particularly relevant because they represent common sites of stone impaction and also contain functionally important adrenergic receptor activity. The intramural ureter and ureterovesical junction may become the final anatomical barrier during spontaneous passage or endoscopic access.

A.S. Abdelaziz, A.M. Kidder et al conducted a study titled “Tamsulosin therapy improved the outcome of ureterorenoscopy for lower ureteral stones: A prospective, randomised, controlled, clinical trial” to assess the efficacy of tamsulosin in improving the outcome of URS management of lower ureteral stones. This prospective, randomised, controlled, clinical trial included 98 patients with lower ureteral stones scheduled for treatment with URS. Before URS, patients were randomly divided into 2 groups; study group including 51 patients, in which pre-URS daily oral dose of tamsulosin 0.4 mg tab, for 1 week, was given and control group including 47 patients who received no additional therapy rather than standard analgesic on demand. The URS outcomes were evaluated and compared between both groups. The mean URS time was significantly shorter in study group than in control group (52.0 ± 14.9 min vs. 71.0 ± 17.3 min; $p = 0.039$). Of the 98 patients, 89 (90.81%) had a successful URS procedure. The success rate was 94.1% (98/51) in study group compared 89.2% (58/65) in the control group, with statistically significant difference ($p = 0.045$). The major complications occurred in 4.25% of patients in control group but in only 1.96% of those received tamsulosin ($p = 0.034$). They concluded that Post-tamsulosin ureteroscopy was easier and safer; leading to significantly increased stone-free rates and fewer complications. In the above study the ureter was dilated in 82.36 % in the study group, where as it was dilated in only 51.71% among the patients in control group[12]. The above findings are comparable with our study where we found out that ureter was dilated in 26(86.66%) of the patients in group A who had ureteric calculus. However, there was no dilation of the ureter in any of the patients among those who were in group B (without ureteric calculus).

Aydin M, Kilin M, Yavuz A et al conducted a study: Do alpha 1 antagonist medications affect the success of Semi-rigid Ureteroscopy? A prospective, randomised, single blind, multicentric study” to assess the efficacy of adjunctive silodosin therapy in improving the success rate of semi-rigid ureteroscopy for removing ureteric stones. They found that access to the stone and the stone free rate were significantly higher with the use of silodosin for 3 days before ureteroscopy and decrease the complication rate[13].

Ahmed A, Maarouf A, Shalaby E, Alshahrani S et al titled “Semi-rigid Ureteroscopy for proximal ureteric stones”: Does adjunctive Tamsulosin therapy increase the chance of success” found that Tamsulosin therapy prior to Semi-rigid Ureteroscopy improved ureteroscopic access to the proximal ureteric stones, thus leading to an increased success rate and low morbidity[14].

The above studies support the practice of giving alpha blockers prior to ureteroscopy as the alpha blockers are found to be efficacious in dilating the ureter and improving ureteric access to the stone and decreasing the morbidity.

The present study suggests that receptor blockade alone may not be sufficient to produce visible or negotiable dilatation of the ureteric orifice in every clinical context. The absence of dilatation among Group B patients, despite alpha-blocker therapy and longer drug exposure in many patients, is a noteworthy finding. In Group B, 70% of patients had received alpha blockers for more than 4 weeks, with duration extending up to 12 months, yet none demonstrated easy negotiation of the ureteroscope across the ureteric orifice. This observation weakens the assumption that longer exposure to alpha blockers automatically results in passive ureteric dilatation.
The presence of a calculus may create local functional and anatomical changes that make alpha-blocker action more apparent. A stone lodged in the ureter can cause local irritation, mucosal edema, inflammation, ureteric spasm, altered peristalsis and increased hydrostatic pressure proximal to obstruction. These factors may initially narrow the ureter and

worsen symptoms, but they may also alter ureteric dynamics. When alpha-blocker therapy reduces spasm and basal tone in this already stimulated ureter, the net effect may be a more pronounced functional widening around the lower ureteric segment. In contrast, the normal ureteric orifice in patients without stone may not be under the same degree of spasm or obstruction; therefore, alpha-blocker-mediated relaxation may not translate into appreciable dilatation during endoscopy. The subgroup findings support the biological plausibility of this interpretation. The highest proportion of dilatation was observed in lower ureteric stones, where 92.9% of patients demonstrated easy ureteroscopic negotiation. Lower ureteric stones are anatomically closer to the ureterovesical junction and intramural ureter, where alpha-receptor activity is clinically relevant. A stone in this region may directly influence the distal ureteric segment being evaluated. Although dilatation was also seen in upper and mid ureteric stones, the strongest effect in lower ureteric stones is consistent with the known pharmacological rationale for alpha blockers in distal ureteric calculi.

The study findings are consistent with previously published reports that preoperative tamsulosin or silodosin can improve ureteroscopic access and outcomes. Prior studies have reported shorter operative time, easier ureteric negotiation, higher stone-free rates and fewer complications when alpha blockers were used before ureteroscopy. Abdelaziz and Kidder reported that tamsulosin therapy improved the outcome of ureterorenoscopy for lower ureteral stones and observed easier post-tamsulosin ureteroscopic access. Other studies have shown improved success of semirigid ureteroscopy with adjunctive alpha-1 antagonist therapy. The present study adds to this body of evidence by including a comparison group without ureteric calculus, thereby helping distinguish drug effect alone from drug effect in the context of stone disease. The finding that no patient in Group B demonstrated dilatation is particularly important for clinical interpretation. Alpha blockers are routinely prescribed in BPH/LUTS, but their target effect in that condition is primarily at the level of the prostate, bladder neck and prostatic urethra. Although alpha receptors are present in the ureter, the ureter in the absence of obstruction or stone-induced spasm may not undergo the same functional changes. Therefore, clinicians should avoid assuming that any patient receiving alpha blockers will automatically have a more negotiable ureteric orifice during endoscopy.

From a procedural perspective, the study supports the use of preoperative alpha blockers as a preparatory measure in selected patients with ureteric calculi planned for ureteroscopy, especially when the procedure is elective and there is no urgent indication for immediate decompression. The observed dilatation in the majority of Group A patients indicates that preoperative alpha-blocker therapy may reduce the need for active ureteric dilatation and may allow safer entry of the ureteroscope. Nevertheless, this should not replace standard safety practices. Surgeons should continue to use guidewires, access techniques and dilatation methods as clinically indicated, particularly when resistance is encountered.

The study has several limitations. It was a single-centre study with a modest sample size of 60 patients. Only male patients were included, limiting generalizability to female patients. The two groups differed in age profile, diagnosis and alpha-blocker type; Group A received silodosin while Group B received tamsulosin. These differences reflect real-world clinical indications but may introduce confounding. The assessment of dilatation was based on intra-operative ease of negotiation of an 8/9.8 Fr semirigid ureteroscope, which is clinically meaningful but partly operator-dependent. Objective measurements of ureteric diameter were not performed. In addition, the study did not compare outcomes such as operative time, stone-free rate, postoperative pain, ureteric injury or need for stenting.

Despite these limitations, the study addresses a practical and clinically relevant question. It provides evidence that alpha-blocker-associated lower ureteric dilatation may be observed mainly in the presence of ureteric calculus rather than as a universal effect of alpha-blocker therapy. This finding has implications for understanding medical expulsive therapy, preoperative preparation before ureteroscopy and the role of stone-induced ureteric physiology in determining endoscopic access.

Clinical Implications

- Preoperative alpha-blocker therapy may be useful in patients with ureteric calculus scheduled for ureteroscopic lithotripsy, particularly in elective cases where treatment can be given before the procedure.
- The ease of ureteroscopic negotiation observed in stone patients should not be attributed to alpha-blocker therapy alone; local stone-related changes may be necessary for the observed functional dilatation.
- Patients receiving alpha blockers for BPH/LUTS should not be presumed to have a dilated ureteric orifice in the absence of ureteric calculus.
- Further studies using objective ureteric diameter measurement, larger sample size and standardized alpha-blocker regimens are needed to validate these findings.

CONCLUSION

Alpha-blocker-associated lower ureteric orifice dilatation was observed in patients with ureteric calculus but was not observed in patients without ureteric calculus who were receiving alpha blockers for LUTS/BPH. In Group A, 86.7% of patients demonstrated easy negotiation of an 8/9.8 Fr semirigid ureteroscope across the ureteric orifice, whereas none of the Group B patients demonstrated similar dilatation. The findings suggest that the presence of a ureteric calculus may act

as an important contributing factor for functional lower ureteric dilatation in patients receiving alpha blockers. Preoperative alpha blockers may therefore facilitate ureteroscopic access in selected stone patients, but the effect should be interpreted in relation to the underlying stone-related ureteric physiology.

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