Use of Silodosin to Visualize the Posterior Urethra in Pelvic Floor Urethral Distraction Defect Patients

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Background: Retrograde urethrogram and voiding cystourethrogram are used to define length and location of urethral stricture prior to surgery. We used a single dose of silodosin prior to VCUG to relax the bladder neck and achieve visualization of posterior urethra.

Objectives: To evaluate the efficacy of silodosin in visualization of posterior urethra during VCUG, and to compare the findings with a control group.

Patients and Methods: Patients were divided into two groups A and B containing 20 and 15 patients, respectively. Patients in group A were given a single dose of silodosin prior to radiological studies.

Results: In group A 19 out of 20 patients were able to achieve satisfactory bladder neck opening while in group B 10 out of 15 patients were able to achieve bladder neck opening.

Conclusions: Silodosin use prior to VCUG confers a statistically significant increase in bladder neck opening and visualization of posterior urethra.

Keywords: Silodosin; Urinary Bladder Neck Obstruction; VCUG; MCU; Urethral Stricture; Retrograde Urethrogram; Voiding Cystourethrogram

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in group B. In group A, 19 out of the 20 patients were able to achieve satisfactory opening of the bladder neck, while in group B, 10 out of the 15 patients were able to open the bladder neck. The results were analyzed using a paired t-test (95% confidence interval, P = 0.027). No patient reported any adverse effects after the single dose of silodosin.

5. Discussion

A combined RGU and VCUG has remained the bedrock of the diagnosis of urethral stricture, although both magnetic resonance urethrography and urethral ultrasound have been shown to be superior (2). A poorly performed urethrogram leads to an incorrect estimation of the stricture length (3). Sometimes the bladder neck fails to open on VCUG, which leads to an erroneous estimation of the stricture length. The evaluation of the posterior urethra is extremely important in PFUDD patients as this is a critical factor determining the success of surgical procedures. The disruption of urethral continuity as well as the presence of hematoma and spongiofibrosis in the surrounding tissues can give rise to the wide separation of the urethral ends. Although a static cystogram has been regarded as a sign of an intact bladder neck, this finding can be misleading. These patients are often on prolonged suprapubic diversion, which results in decreased bladder capacity and inability to tolerate sufficient bladder distension to open the bladder neck voluntarily. A technique of passing a curved urethral sound antegrade from the suprapubic tract into the posterior urethra has been described to identify the proximal limit of stricture. However, this can cause bleeding and bladder neck injury (4).

Magnetic resonance urethrography has been used to evaluate obliterative posterior urethral stricture. It uses T1 and T2 echo-weighed spin sequences after the distension of the urethra with a sterile lubricating jelly. It has been reported to produce excellent images of urethral stricture along with spongiofibrosis. Its disadvantages include its limited availability and the high cost of the investigation (4).

Sonourethrography has also been used to evaluate the urethra. The examination is performed after the instillation of sterile saline into the urethra using 7.5-MHZ probes. The probe is placed on the ventral surface of the penis to evaluate the penile and bulbar urethra. The degree of spongiofibrosis can be assessed by noting the distensibility of the urethra. Sonourethrography provides limited imaging of the posterior urethra. Transperineal imaging has been advocated to overcome this limitation. A further limitation is the high degree of technical expertise required for the scan as most radiologists do not routinely perform this investigation (5).

The antegrade urethrogram technique has been described to visualize the proximal bulb urethra in anterior urethra stricture patients. An optical cystoscope is passed antegrade via the suprapubic cystostomy tract into the posterior urethra, and a ureteric catheter is used to inject the contrast prior to imaging. This technique is not useful to evaluate the posterior urethra because the contrast rapidly passes into the bladder without entering the posterior urethra. Also, it requires anesthesia and an operating theatre complex (6).

Silodosin is an alpha-1A-adrenoceptor antagonist used for the treatment of the lower urinary tract symptoms associated with benign prostatic hyperplasia. It relaxes the bladder neck and prostatic urethra and has been shown to increase the urinary flow rates 2 - 6 hours after the first dose (1). It is associated with a high degree of affinity for the 1A subtype of alpha-adrenoceptors, predominantly located in the prostate and lower urinary tract. Silodosin is associated with a low incidence of side effects (e.g. orthostatic hypotension and retrograde ejaculation) due to its selective action (7, 8). The ingestion of a single dose of silodosin led to a statistically significant increase in the bladder neck opening in our study. No adverse events were reported by our patients. Silodosin was evaluated for this function by Nagathan et al. (9) in 40 patients. They reported good bladder neck opening in 10 out of 12 patients. Often anxious patients fail to void during VCUG when the voiding command is given. This leads to multiple fluoroscopic images being obtained with increase in the radiation exposure of the patient. Silodosin circumvents these problems by opening the bladder neck and ensuring the flow of the contrast into the posterior urethra.

In our cohort of patients, silodosin use prior to VCUG conferred a statistically significant increase in the visualization of the posterior urethra and was safe with no adverse effects.

Authors’ Contributions

All authors have contributed equally to data acquisition, setting objectives, planning the study, and literature search.

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