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OUTCOME OF WOMEN UNDERGOING URETHRAL DILATION UNDER ANESTHESIA

Hypothesis / aims of study

Urethral dilation has been described for use in female urethral stricture disease (1) and "urethral syndrome" defined as lower urinary tract symptoms (LUTS) like dysuria, frequency, and urgency without a specifically identifiable pathology. Although urethral dilation has been performed for a long time (2), there is a dearth of information on its long-term efficacy in women. Our goal was to assess the efficacy and durability of urethral dilation performed under general anesthesia in the treatment of women with varying LUTS due to distal urethral pathology.

Study design, materials and methods

Following IRB approval, consecutive charts of women who underwent urethral dilation under anesthesia (UDA) between 1998 and 2009 were reviewed. Patients with neurogenic bladder, chronic bladder and/or trigonal infection, large bladder prolapse (> Stage II), or luminal distal or mid-urethral stricture were excluded. Baseline evaluation consisted of a review of prior history including urethral dilation, questionnaires including one global quality of life question ranked on a VAS from 0 (perfect) to 10 (terrible) [QoL], presenting symptoms, and examination findings. Additional studies were recommended as clinically indicated such as urethro-cystoscopy, standing lateral voiding cystourethrogram (VCUG) and/or urethral magnetic resonance imaging (MRI) (3). Figure 1 shows the urethral configuration as observed on VCUG and MRI in a typical patient. Urodynamic testing was performed according to ICS recommendations when urethral obstruction was clinically or radiographically suspected. Indication to proceed with a UDA was based on a synthesis of subjective and objective findings as obtained from the evaluation above. To avoid procedural pain and potentially optimize the results of the procedure by allowing a larger size dilation than achievable in an awake patient, urethral dilation was performed under general anesthesia on an outpatient basis by the same operator (PZ) with increasing female sounds up to 41-43Fr. Success was defined as symptoms resolution 6 months after 1 or 2 UDA procedures and no need for a 3rd UDA or other procedure. All patients requiring additional treatment to relieve their LUTS (i.e. 3rd UDA, urethroplasty, intermittent catheterization) at anytime in follow-up past 6 months were considered failures. This success/failure definition was chosen to avoid interpretation bias on "improvement" categories. The 6 month timeline was selected based on the fact that recurrence typically occurs during that interval. All charts were reviewed by an independent investigator (AR). Study flow chart is reported in Figure 2.

Results

One hundred twenty-four women with mean age of 51, mean gravid 2.0, and mean parity 1.7 presented with the following symptoms: frequency (72%), urgency (60%), straining (31%), weak stream (31%), nocturia (73%, defined as >2 episodes/night), incomplete emptying (57%), and urinary incontinence (40% [11% stress, 16% urge, 12% mixed]). In patients with a VCUG available for review, 39 of 48 (81%) had a typical mid to distal urethral narrowing with proximal ballooning. Thirty-six of 69 (52%) urethral MRIs exhibited some degree of peri-urethral fibrosis according to the radiology report, with 25 of 69 (37%) having moderate to severe fibrosis. For those in whom the urodynamic study was interpretable, 63 had a median maximum flow of 10.3 mL/sec (mean 11.2±4.5) and a median detrusor pressure at Qmax of 32.0 cmH2O (mean 39.3±25.4). Of 124 patients, 31 (25%) were lost to follow-up at less than 6 months. Of the remaining 93 patients (mostly Caucasian), 58 (63%) were classified as success with 42 (45%) after 1 UDA and 16 (17%) after a second UDA. The success group had a mean age of 50±16 years and mean follow-up of 68±43 months (range: 8-120). Thirty-five (38%) patients (mean age of 49±15 years) were failures requiring additional management (19 distal urethroplasty, 12 daily intermittent catheterization, 2 with a 3rd UDA, 1 suprapubic tube, and 1 urethrolysis). Six of 42 (14%) patients experiencing success after one UDA had a history of urethral dilation, compared to 21 of 51 (41%) requiring further treatment ($p<0.005$). In patients with available post-operative QoL scores, 24 patients in the success group had a mean QoL of 3.7±2.9 compared to 18 patients in the failure group with a mean QoL of 5.8±2.0.

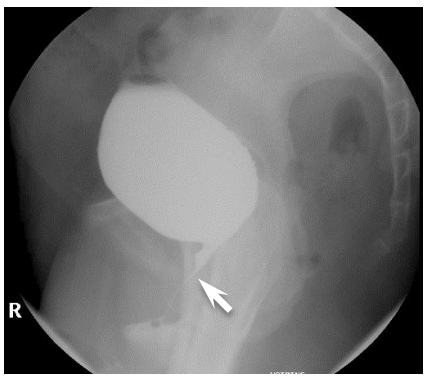

Fig. 1-A. Distal urethral narrowing with proximal ballooning suggestive of obstruction on lateral VCUG (see arrow).

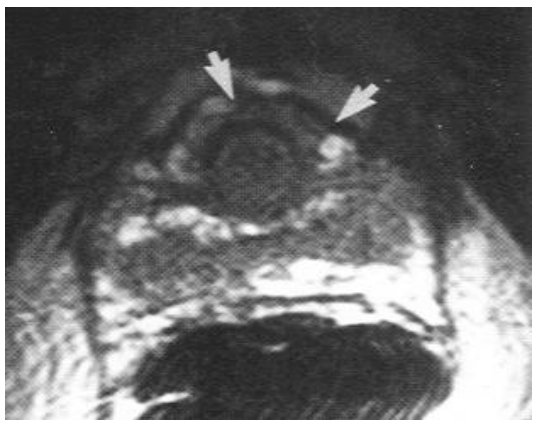

Fig. 1-B. Distal peri-urethral fibrosis documented on urethral MRI (see arrows).

Interpretation of results

To our knowledge this is the first study assessing the mid-term outcome of urethral dilation performed under general anesthesia for LUTS related to non-luminal distal urethral pathology. UDA can be successful as a first line treatment regardless of a prior history of failed urethral dilation(s), although such a history portends a worse outcome.

Concluding message

UDA can be used as a first line treatment with reasonable efficacy and durability in the management of women experiencing LUTS secondary to distal urethral pathology.

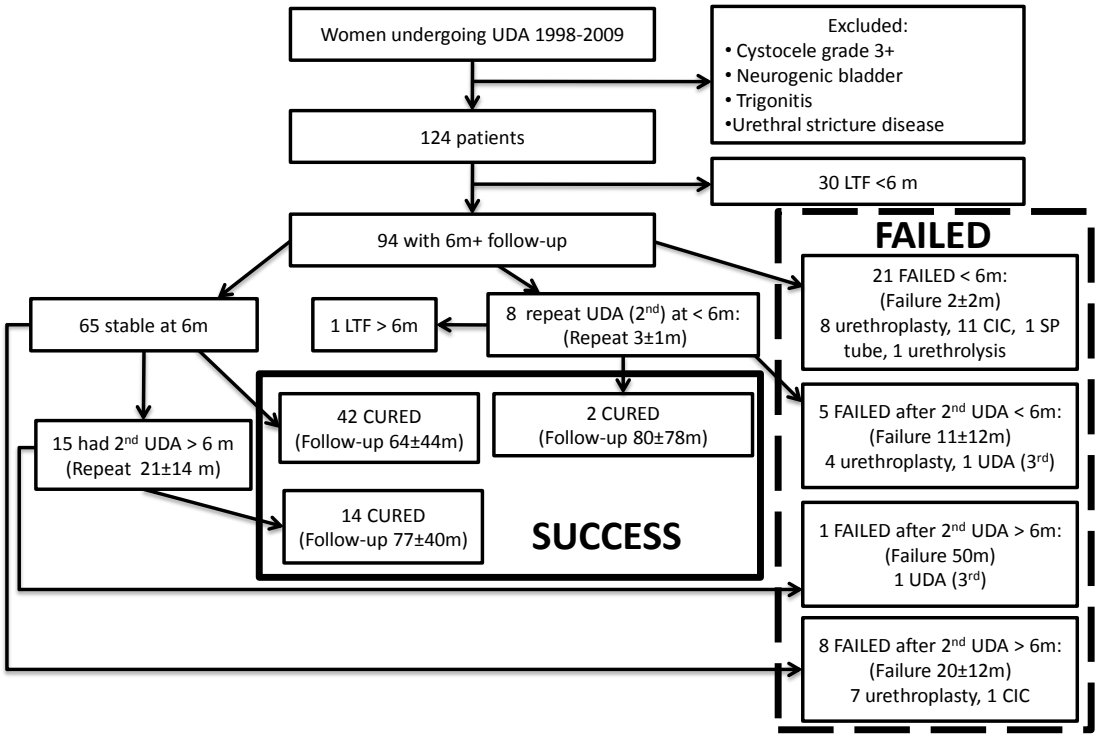

Fig. 2. Flow chart of study of patients undergoing UDA. Time in months (m) given as mean.

References

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What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**IRB - Institutional Review Board**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**No**