

The Management of Bulbar Urethral Stricture Disease Before Referral for Definitive Repair: Have Practice Patterns Changed?

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OBJECTIVE	To describe the management of patients with bulbar urethral stricture disease before referral for definitive urethroplasty and determine if practice patterns have changed with respect to endoscopic interventions.
MATERIALS AND METHODS	We performed an institutional review board–approved retrospective review and recorded patient demographics, stricture-related information, and all procedures performed for bulbar urethral stricture disease before initial presentation at our institution. Included procedures were: UroLume stent (AMS, Minnetonka, MN), laser urethrotomy, direct visual urethrotomy (DVIU), and dilation of urethral stricture. Patients with prior urethroplasty were excluded. We compared the differences between procedures when stratified by stricture length.
RESULTS	We identified 363 men who underwent urethroplasty for bulbar urethral stricture disease from January 1996 to September 2011. Of the total, 235 men (65%) had a prior DVIU, whereas 65 of these men (28%) had multiple DVIUs. One hundred ninety-nine men (55%) had a prior dilation and 155 of these men (78%) had multiple dilations. The remaining procedures consisted of laser urethrotomy (6; 2%), and UroLume stent (4; 1%). Twenty-four patients (6%) had no procedures before referral. There was no statistically significant difference between numbers of prior procedures when stratified by stricture length. From 1996 to 2010, there was no appreciable change in number of procedures before referral, with ~70% of patients with ≥ 2 prior procedures.
CONCLUSION	Our institution has not seen a measurable change in practice patterns before referral from 1996 to 2010. Future studies are needed to determine if the change in referral patterns in 2011 represents a future trend. UROLOGY 84: 946–949, 2014. © 2014 Elsevier Inc.

Currently no definitive guidelines exist for the management of bulbar urethral stricture disease with choices of initial treatment ranging from a variety of endoscopic (eg, dilation, internal urethrotomy) and surgical options (eg, urethroplasty). Factors at play in the decision for management include length and etiology of urethral stricture, patient preference, number and type of prior procedures, and the urologist's experience and preference.¹ Urethral dilation and urethrotomy are currently the most common procedures used to treat urethral stricture disease.^{2–7} However, they have high recurrence rates and may lead to repeated endoscopic procedures that can

make eventual urethral reconstruction more challenging.^{1,8,9} Furthermore, evidence suggests if a single attempt at endoscopic management fails the next most cost-effective treatment modality is formal urethral reconstruction.^{10,11} Therefore, it is important to understand the practice patterns in the management of bulbar urethral stricture disease. The goal of this study is to describe the management of patients with bulbar urethral stricture disease before referral for definitive urethroplasty and determine if practice patterns have changed over the last decade with respect to endoscopic interventions. Our hypothesis is that with the recent body of evidence indicating decreased efficacy of repeated endoscopic management for urethral stricture disease, patients are being referred for definitive urethroplasty with less prior interventions.

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MATERIALS AND METHODS

We conducted an institutional review board–approved retrospective chart review of the Duke urethroplasty database for patients who underwent urethroplasty for bulbar urethral

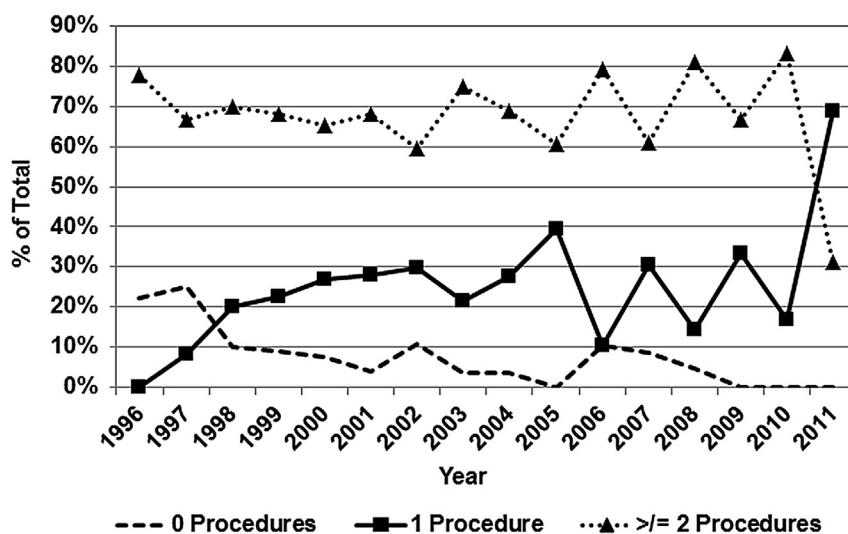


Figure 1. Trends in number of procedures before referral for urethroplasty.

stricture disease from January 1996 to September 2011. We recorded patient demographics, time to referral from diagnosis of urethral stricture, and stricture-related information including etiology, operative stricture length, location, repair type, and all procedures performed for bulbar urethral stricture disease before initial presentation at our institution. All prior procedures included for analysis were UroLume stent, laser urethrotomy, direct visual urethrotomy (DVIU), and dilation of urethral stricture. Patients with history of urethral reconstruction were excluded from this study. Two-tailed *t* test was used to compare differences in mean age and, chi square test was used to compare differences between procedures when stratified by stricture length. The Fisher exact test was used to compare recurrence rates among groups when stratified by number of prior procedures. Wilcoxon rank-sum test was used to compare median time to referral and recurrence. All statistical tests were performed using JMP Pro 10 software (Cary, NC).

RESULTS

We identified 363 men who underwent urethroplasty for bulbar urethral stricture disease during the time period reviewed. The average age of these men was 42 years \pm 15 years and operative stricture length was 1.96 cm \pm 1.2 cm. Stricture etiology in our cohort was idiopathic (197 [54%]), traumatic (82 [23%]), iatrogenic (54 [15%]), infectious (18 [5%]), hypospadias cripple (5 [1%]), radiation induced (4 [1.1%]), and lichen sclerosus (3 [1%]). The men underwent the following repair types: excision and primary anastomosis (205 [56%]), augmented anastomotic repair (128 [35%]), dorsal onlay (15 [4%]), perineal urethrostomy (9 [2%]), staged repair (3 [1%]), and flap-based repair (3 [1%]).

Two hundred and thirty-five men (65%) had a prior DVIU, whereas 65 of 363 (18%) of the study cohort had multiple DVIUs. Additionally, 199 men (55%) had a prior dilation and 155 of 363 (43%) of the study cohort had multiple dilations. The remaining procedures consisted of laser urethrotomy (6 [2%]), and UroLume stent (4 [1%]). Twenty-four patients (6%) had no procedures

before referral. During the time period reviewed, 95 patients (26.2%) had 1 procedure before referral, including DVIU (49 of 363 [13.5%]) and dilation (19 of 363 [5.2%]). Also, 244 patients (67.2%) had multiple procedures before referral, with 127 of 363 patients (35%) having both a dilation and DVIU. Furthermore, 64 of the 245 patients (26%) with ≥ 2 procedures were listed as having a nonspecific number of multiple procedures because of language in the electronic medical record (eg, “multiple dilations” or “multiple DVIUs”).

The median time to referral from diagnosis of stricture disease was 5 years among all patients. This was significantly different between those who had 1 prior procedure vs those with ≥ 2 prior procedures (2 years [0.16-15 years] vs 6 years [0.4-31 years]; $P < .001$).

Figure 1 reveals that from 1996 to 2010, there was no appreciable change in number of procedures before referral, with $\sim 70\%$ of patients with ≥ 2 prior procedures. However, this was abruptly reversed in 2011 with 70% of referred patients having had only 1 prior procedure and 30% referred with ≥ 2 .

The data listed in Table 1 demonstrate that there was no statistically significant difference between numbers of prior procedures when stratified by stricture length as ≤ 2 cm or > 2 cm.

Among the 363 patients, we had sufficient data to determine recurrence in 327 (90%). Among the 218 men with ≥ 2 prior procedures, 16 men (7.4%) experienced recurrence at a median time of 16 months from surgery. Among the 87 patients with 1 prior procedure, 4 (4.6%) experienced recurrence at a median time of 4 months from surgery. The median time to recurrence was not statistically significant between these groups (4 vs 16 months; $P = .25$). Lastly, among the 22 patients with no prior procedures, 1 (4.5%) experienced recurrence at a median follow-up time of 9.5 months. There was no statistically significant difference between recurrence rates among these groups ($P = .45$).

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