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Is there a way to predict failure after direct vision internal urethrotomy for single and short bulbar urethral strictures?

Ahmed M. Harraz *, Ahmed El-Assmy, Osama Mahmoud, Amr A. Elbakry, Mohamed Tharwat, Helmy Omar, Hashim Farg, Mahmoud Laymon, Ahmed Mosbah

Urology and Nephrology Center, Mansoura University, Egypt

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KEYWORDS

Direct vision internal urethrotomy;
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ABBREVIATIONS

BMI, body mass index;
DVIU, direct vision internal urethrotomy;
RSD, regular self-dilatation;

Abstract ***Objective:*** To identify patient and stricture characteristics predicting failure after direct vision internal urethrotomy (DVIU) for single and short (< 2 cm) bulbar urethral strictures.

Patients and methods: We retrospectively analysed the records of adult patients who underwent DVIU between January 2002 and 2013. The patients' demographics and stricture characteristics were analysed. The primary outcome was procedure failure, defined as the need for regular self-dilatation (RSD), redo DVIU or substitution urethroplasty. Predictors of failure were analysed.

Results: In all, 430 adult patients with a mean (SD) age of 50 (15) years were included. The main causes of stricture were idiopathic followed by iatrogenic in 51.6% and 26.3% of patients, respectively. Most patients presented with obstructive lower urinary tract symptoms (68.9%) and strictures were proximal bulbar, i.e. just close to the external urethral sphincter, in 35.3%. The median (range) follow-up duration was 29 (3–132) months. In all, 250 (58.1%) patients did not require any

* Corresponding author at: Urology and Nephrology Center, Mansoura University, 35516, Egypt. Fax: +20 502263717.
E-mail address: ahmed.harraz@hotmail.com (A.M. Harraz).

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RUG, retrograde urethrography

further instrumentation, while RSD was maintained in 116 (27%) patients, including 28 (6.5%) who required a redo DVIU or urethroplasty. In 64 (6.5%) patients, a redo DVIU or urethroplasty was performed. On multivariate analysis, older age at presentation [odds ratio (OR) 1.017; $P = 0.03$], obesity (OR 1.664; $P = 0.015$), and idiopathic strictures (OR 3.107; $P = 0.035$) were independent predictors of failure after DVIU.

Conclusion: The failure rate after DVIU accounted for 41.8% of our present cohort with older age at presentation, obesity, and idiopathic strictures independent predictors of failure after DVIU. This information is important in counselling patients before surgery.

Introduction

Urethral dilatation and direct vision internal urethrotomy (DVIU) are feasible and minimally invasive treatment options for men with short anterior urethral strictures. In addition, it represents a valuable option after failed posterior urethroplasty [1,2]. The procedures can be performed under local anaesthesia and as an outpatient procedure with rapid recovery. In the current literature there is a marked variability in reporting of outcomes after DVIU, with stricture-free rates ranging from 10% to 90% [3]. However, in nationwide surveys, urologists prefer to perform DVIU even when the risk of recurrence is virtually 100% [4]. Similarly, DVIU was the most common procedure followed by urethral dilatation, stent/steroid injection in a review of Medicare claims [5]. However, it has been shown that multiple transurethral manipulations increases the complexity and disease duration when patients are referred for definitive urethroplasty [6].

Therefore, identifying patients at risk of recurrence after DVIU is crucial. There is paucity of research regarding factors predicting failure after DIVU, notably with no standardised definition of failure [7]. In the present study, we investigated stricture characteristics and clinical predictors of failure after DVIU performed for single and short bulbar urethral strictures in a large contemporary series.

Patients and methods

After obtaining Institutional Review Board approval, we retrospectively analysed our electronic database for adult patients (aged > 18 years) who underwent DVIU for strictures of the anterior urethra between January 2002 and January 2013. In this analysis, only patients with single and short bulbar urethral strictures (< 2 cm) were included. Paediatric patients and patients who underwent DVIU after failed urethroplasty were excluded. The patients' demographics were retrieved and included age, associated comorbidities, and body mass index (BMI). The cause of stricture was determined to be inflammatory if the patient had had previous episodes of urethral infection or a sexually transmitted disease, iatrogenic if there was history of urethral instrumentation, traumatic if there was a previous history of urethral trauma, and idiopathic if there was no relevant history.

After receiving an appropriate prophylactic single dose of antibiotic, the procedure was typically performed under spinal anaesthesia in lithotomy position and was accomplished by performing a dorsal cut of the fibrous strictured area at the 12 O'clock position until bleeding and visual confirmation of healthy tissue was confirmed. If required, repetition of cuts in the same incision area was performed. Patients were kept in hospital overnight and were discharged on the first postoperative day with an indwelling urethral catheter. Patients received antibiotics for the duration that the catheter was *in situ*. The catheter was left *in situ* for an average of 10 days. Regular self-dilatation (RSD) was typically performed for a select group of patients based on the complexity of the stricture and the surgeon perspectives. Our routine RSD regimen included regular dilatation three-times weekly for the first month, and then gradually reducing the frequency to once weekly for the following 3 months. All patients were scheduled for the first follow-up at ⩽3 months of the procedure, with patients' symptoms evaluated and uroflowmetry performed. If indicated, ascending urethrography and cystoscopy were performed if there was a recurrence of obstructive symptoms and an obstructive uroflowmetry pattern. Only patients who completed ⩾3 months follow-up were included.

The primary outcome of the study was failure of DVIU, defined as the need for further instrumentation, i.e. if patients required maintenance RSD, redo DVIU, or urethroplasty. Failure was tested for association with various preoperative and operative parameters to detect significant variables. For association between categorical variables, the chi-square test was used, while the Student's *t*-test was used for comparing means between