Original Article

Management of Bulbar Urethral Strictures by Direct Vision Internal Urethrotomy: Experience from a Nigerian Teaching Hospital

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ABSTRACT

Background: Urethral stricture is a common cause of bladder outflow obstruction, and its management contributes significantly to the workload in urologic practice.

Aim(s): To evaluate the role of direct vision internal urethrotomy (DVIU) in the management of bulbar urethral strictures.

Methods: A retrospective review done at a University Teaching Hospital in Nigeria. Patients who had DVIU for the management of bulbar urethral strictures between July 2008 and June 2015 were studied. Information extracted and analysed were the patients' age, stricture characteristics, DVIU technique, outcome and complications. Statistical Package for Social Sciences version 20 was used for data analysis.

Results: A total of 63 patients had DVIU for bulbar urethral strictures during the period, of which 48 patients (76.2%) were studied. Their ages ranged between 32 and 70 years (mean 49 years). They all had solitary, short-segment, incomplete, bulbar urethral strictures confirmed pre-operatively by retrograde urethrogram. In addition, 36 (75%) also had urethrosonography which confirmed superficial spongiofibrosis. In 28 cases (58%), stricture aetiology was post-inflammatory, while in 12 (25%) and 8 (17%) patients, strictures were due to iatrogenic reasons (post-catheterisation) and straddle injuries, respectively. The DVIU was done by the same group of surgeons. Success rate was 66.7% after first DVIU and increased to 75.0% after a second DVIU was done for those with unsatisfactory outcome after first surgery. Mean follow-up period was 15 months.

Conclusion: In well-selected patients, DVIU is an option for successful treatment of bulbar urethral strictures.

Key words: Bulbar urethral stricture, direct vision internal urethrotomy, Ile-Ife

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INTRODUCTION

Urethral stricture is a common urological condition in our environment.[1] Its treatment contributes significantly to the workload for urologists.[2] This treatment could be by urethroplasty, direct vision internal urethrotomy (DVIU) or urethral dilatation (bougienage). Urethroplasty is indicated for complete, long-segment, multiple or complex urethral strictures.[3] Urethrotomy and bougienage are indicated for solitary, incomplete, short-segment urethral strictures. Bougienage is however beginning to lose popularity worldwide because it is a blind procedure that could be discomforting, sometimes traumatic and required to be repeated regularly for life.

Since its introduction by Sachse[4] in 1974, the use of DVIU has increasingly been embraced in urologic practice across many hospitals. It involves cutting the urethral stricture with a urethrotome under direct vision at 12 o'clock position.[5]

We performed this study to evaluate the role of DVIU in the management of bulbar urethral stricture in a Nigerian

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teaching hospital and hereby present our findings in relation to documented literature on the subject.

METHODS

This is a retrospective review of all patients who had DVIU for the treatment of bulbar urethral strictures in our university teaching hospital over a 7-year period (July 2008–June 2015). After obtaining ethical approval, data regarding the age, stricture characteristics (such as aetiology, location and completeness), DVIU technique, outcome and complications were extracted from hospital records and analysed using the Statistical Package for Social Sciences (SPSS) software for windows; version 21 (Released 2007; IBM Corp., Armonk, New-York, USA.

All the patients had DVIU done in lithotomy position under regional anaesthesia. After administering an intravenous fluoroquinolone antibiotic, the meatus was calibrated and a well-lubricated 18.5Fr urethroscope sheath with zero-degree telescope and urethrotome [Figure 1] was introduced into the urethra. This was advanced to the stricture site under direct endoscopic vision. A guidewire was passed through the urethrotome and threaded into the pin-hole opening in the strictured segment. The cold knife was then advanced under vision into the stricture. The proximal end of the urethrotome was depressed and cut upwards at the 12 o'clock position through the stricture until grossly normal urethra was visualised. This process was repeated until well enough space was created in the urethra to allow passage of an 18Fr silicone-coated Foley's catheter which was used to stent the urethra. Proximal urine diversion with a suprapubic catheter was done for all patients. Postoperatively, patients were observed for haematuria and discharged home once the urine was clear. Average follow-up was for 15 months.

RESULTS

A total of 63 male patients had DVIU for bulbar urethral strictures during the period, of which 48 patients (76.2%) were studied. The remaining 15 patients (23.8%) had incomplete records and were excluded from analysis. The age of the patients studied ranged between 32 and 70 years, with a mean age of 49 years. They all had solitary, short-segment, incomplete, bulbar urethral strictures confirmed pre-operatively by retrograde urethrogram (RUG). In addition, 36 (75%) also had urethrosonography which confirmed minimal (superficial) spongiofibrosis. Post-inflammatory strictures predominated among the patients studied [Figure 2]. The DVIU was done by the same group of surgeons. Duration of hospital stay was between 3 and 8 days while period of post-operative urethral stenting ranged from 14 to 21 days. Eight patients (16.7%) had mild haematuria which resolved spontaneously while four patients (8.3%) had clot retention managed by bladder irrigation. One patient (2.1%) experienced post-operative acute epididymo-orchitis while there was no penile oedema (from urine extravasation) or mortality experienced in any patient.

Surgical outcome was objectively assessed with uroflowmetry and post-void residual urine volume done 3-monthly after the procedure. Success rate was 66.7% (32) after first DVIU and increased to 75.0% (36) after a second DVIU was done for those with unsatisfactory outcome after first surgery.

Further evaluation of the 12 patients with failed outcome from DVIU revealed that 3 (25%) had urethrosonography while 9 (75%) did not before the DVIU was done. All 12 patients with unsatisfactory outcome after the second DVIU however had urethroplasty, with good outcome [Table I].

DISCUSSION

In this study, the mean age of our patients was 49 years, which is similar to the mean age of urethral stricture disease reported from other studies in our environment.[3,6] Post-inflammatory aetiology predominated in our findings, comparable with reports from other centres in Nigeria.[1,3] Although post-inflammatory strictures are generally soft and supposedly more amenable to DVIU compared with traumatic strictures, the stricture aetiology did not influence the outcome of DVIU in our study, consistent with findings by other researchers.[1,7]

Table I: Outcome of direct vision internal urethrotomy

	Satisfactory (%)	Unsatisfactory (%)
Outcome after first DVIU	32 patients (66.7)	16 patients (33.3)
Outcome after second DVIU	4 patients (8.3)	12 patients (25.0)
Total	36 (75.0)	12 (25.0)

DVIU: Direct vision internal urethrotomy

Figure 1: TTelescope (0°) coupled to the urethrotome

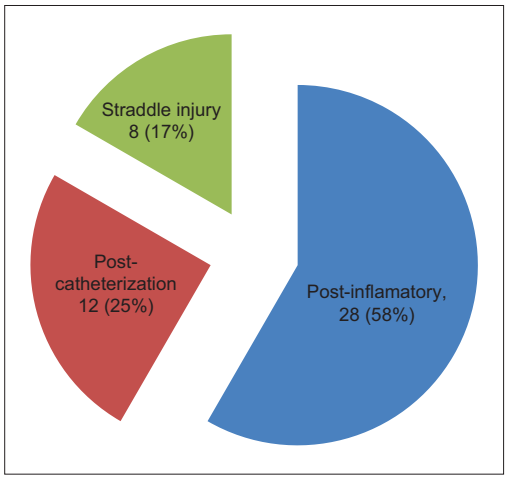

Figure 2: Aetiology of urethral stricture

The outcome of DVIU in our patients was comparable with results from other series published in literature. Seventy-five per cent of our patients had satisfactory urinary flow rates and acceptably low post-void residual urine volumes over an average follow-up duration of 15 months. This is comparable to findings of Shittu[3], Holm-Nielsen *et al*.[8] and Ahmed and Kalayi,[9] who reported cure rates between 75% and 77% after DVIU. Ramyil *et al*.[1] also found satisfactory outcome in 80% of their patients after one or more sessions of DVIU, with a recurrence rate of 32.9%. However, there are contrasting reports from other parts of the world. A report published by Santucci and Eisenberg[10] showed a curative success rate of DVIU to be only 9% while Pansadoro and Emiliozzi[7] reported a curative success rate of 32%. A possible explanation for the differing results is that the follow-up period in their studies was much longer, compared to follow-up periods in our environment. Many of the patients in our study were lost to follow-up early and our 15-month mean follow-up duration is relatively low.

Our patients were assessed postoperatively using uroflowmetry and post-void residual urine volume, which are objective surgical outcome measures.[2] This is an improvement on similar work in Nigeria by Ramyil *et al*.[1] and Shittu[3], who followed up the patients in their study mainly by clinical evaluation.

All our patients had pre-operative RUG that showed solitary, short-segment, incomplete, bulbar urethral strictures, which has been associated with good outcome from DVIU.[7] However, the degree of spongiofibrosis could not be fully assessed pre-operatively in 12 (25%) patients who did not have urethrosonography. Considering the fact that majority (75%) of patients who had unsatisfactory outcome after two sessions of DVIU were the ones who did not have urethrosonography done to ascertain extent of spongiofibrosis before surgery, there is a possibility that true stricture length and degree of spongiofibrosis are not accurately ascertained by RUG alone.

The patients with unsatisfactory outcome after the second DVIU however had urethroplasty done with satisfactory outcome. The DVIU that had earlier been done for them did not adversely affect the procedure or outcome from urethroplasty, consistent with experience from other centres.[1,3]

CONCLUSION

DVIU is an option for the treatment of solitary, incomplete, short-segment, bulbar urethral strictures. With strict patient selection including urethrosonography to confirm minimal spongiofibrosis, good outcome is relatively guaranteed. There is however need for more studies on a prospective basis with larger patient cohort to assess the long-term outcomes in our environment.

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Conflicts of interest

There are no conflicts of interest.

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