



Treatment Options and Outcomes of Urethral Stricture in Dar Es Salaam, Tanzania. Have we utilized all the Options?

O.V. Nyongole, L. O. Akoko, A.H. Mwanga, C. Mkony

Department of Surgery, School of Medicine, Muhimbili University of Health and Allied Sciences

Correspondence to: O.V. Nyongole, E-mail: onyongole@yahoo.co.uk

Background: *The historical management of urethral strictures constituted regular dilations of the scar tissue but this inevitably failed for long strictures or subjected to secondary trauma, ischemia, scarring and further reduction of luminal caliber. A urethral stricture would best be managed by taking into account its etiology, site, length and caliber as well as applying the right procedure. Length, patient's age and co morbid factors play significant roles in the choice of treatment. Therefore this study was set to document treatment options and early treatment outcomes of urethral stricture among patients seeking urological services in Dar es Salaam.*

Methodology: *This was a hospital based descriptive, prospective study which involved all patients presenting to urology clinics confirmed to have urethral strictures during the period of study from March 2011 to December 2011.*

Results: *A total of 111 patients with urethral strictures were recruited into the study, all were male with age range of 10 – 97 years with a mean of 52.7. DVU was the most performed procedure accounting for 73 (65.8%) of all patients followed by primary urethroplasty at 31 (27.9%) and multistage urethroplasty at 7 (6.3%). DVU was the commonest procedure in all age groups.*

Conclusions: *Three treatment options of urethral stricture DVIU, primary urethroplasty, multistage urethroplasty including clean intermittent catheterization (cic) were adopted as modes of treatment of patients with urethral stricture seeking urological services at Muhimbili National hospital and Tumaini hospital in Dar es Salaam, DVIU being the commonest mode treatment. Primary urethroplasty and DVIU had better treatment outcome during the follow up of 3months.*

Key words: Treatment options, urethral stricture, outcome.

Introduction

The historical management of urethral strictures constituted regular dilations of the scar tissue but this inevitably failed for long strictures and subjected them to secondary trauma, ischaemia, scarring and further reduction of luminal calibre. A urethral stricture would best be managed by taking into account its aetiology, site, length and calibre, patients' age, and co morbid factors.¹⁻⁵ With the passing of time, more objective ways of approaching the management of urethral strictures were instituted.⁶ Pre operative preparations should enable selection of patients for optimal management so that they are offered the most beneficial procedure.

Conservative management is for patients who either are medically unfit for elaborate surgical interventions or on their own choice prefer it over surgery. Urethral stents get incorporated into the urethral wall and are contraindicated in those with previous reconstructive procedures or those with dense strictures as at the end prostheses cause tissue proliferation. They are best reserved for short bulbar strictures. Other conservative management options include use of Suprapubic catheterization, dilatation and Direct Visual Internal Urethrotomy (DVIU)⁶⁻⁷. DVIU is best suited for strictures less than one centimetre in length independent of the aetiology or location. The principle is to have one DVIU or dilatation before resorting to Urethroplasty but primary Urethroplasty is cost effective if a DVIU success rate is estimated at less than 35%⁸⁻⁹. Urethroplasty forms the modern urethral stricture management and is best for recurrent strictures and those greater than one centimetre in length.^{10, 11} Urethroplasty may be a single or staged procedure and may or may not involve the utilization of tissue transfer techniques. The tissue transfer may be in the form of free tissue graft or pedicled island flaps that may be tubularised or onlay¹²⁻¹⁷.

Success in the management is considered to be the absence of obstructive voiding symptoms^{5,18}. Early treatment outcomes include relieving obstructive symptoms without complications within the study period from the treatment date. Strictures in the distal portion like the fossa navicularis will require cosmetic consideration besides the assumption of effective voiding⁸⁻⁹. This study was therefore conducted to document the treatment options used at MNH and Tumaini Hospital and early treatment outcome of urethral stricture.

Patients and Methods

This was a hospital based descriptive, prospective study that involved all patients treated for urethral stricture from March-December 2011. Patients with urethral stricture and consented to be involved in the study were recruited.

Data was collected through personal interviews and patient case notes where treatment options and outcome were documented. Patients were assessed for urine flow rate before and three months after treatment to document an improvement. Patients who had DVIU had catheter removed 24 hours post procedure while post urethroplasty the catheter was removed after 21 days. Urine flow rate was assessed at removal of catheter and three months later. Those who could not void at removal of catheter were considered to have persistence of stricture while those who showed improvement at removal of catheter but had difficulty at three months were considered as having a recurrence. The flow rate was determined by checking the volume of urine voided against time. Information collected was entered into a structured questionnaire.

All the collected data were recorded into the checklist for storage of information and were checked by the research team for completeness and consistency. Data collected were analyzed by Statistical Package for the Social Sciences (SPSS) 18 for the Windows program where cross-tabulations were performed. Ethical approval was obtained from MUHAS Research and Publications Committee. No patient was denied appropriate and adequate treatment upon not consenting. All patients' information was kept confidential.

Study limitations

Duration of follow up to assess the treatment outcome was less than 1 year as the success in the stricture management can only be claimed after many years, patients can fare on well for 10 years or more before suffering recurrence.¹³⁻¹⁴

Results

A total of 111 patients with urethral strictures were recruited into the study, all were male with age range of 10 – 97 years with a mean of 52.7. DVIU was the most performed procedure accounting for 73 (65.8%) of all patients followed by primary Urethroplasty at 31 (27.9%) and multistage Urethroplasty at 7 (6.3%). Most patients were > 60 years of age accounting for 47 (42.3%) followed by those between 45 – 60 years at 27 (24.3%), those <30 years at 22 (19.8%) and the least were aged 31 – 44 years at 15 (13.5%). Overall, DVIU was the commonest procedure in all age groups (Table 1).

Table 1: Shows age distribution by procedure done

Treatment Given	AGE GROUPS								Total	
	<30		31-44		45-60		>60			
	No	%	No	%	No	%	No	%	No	%
DVIU	12	54.5	11	73.3	19	70.4	31	66.0	73	65.8
Primary urethroplasty	7	31.8	4	26.7	5	18.5	15	31.9	31	27.9
Multistage Urethroplasty	3	13.6	0	0	3	11.1	1	2.1	7	6.3
Total	22	19.8	15	13.5	27	24.3	47	42.3	111	100

Most patients received DVIU as the primary treatment of choice, 70 (63.1%) followed by primary urethroplasty at 28 (25.2%) and multistage was least at 5 (4.5%). Two patients underwent all the three procedures and one patient received primary Urethroplasty and DVIU. [Figure 1]

Figure 1. Shows treatment options offered

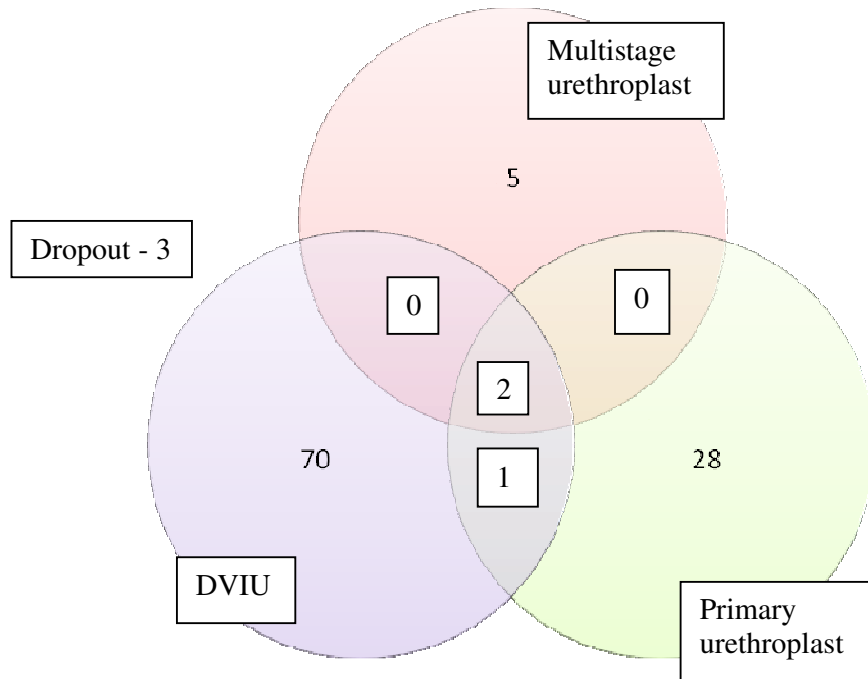


Table 2. Treatment Options and Outcomes

Treatment (n=108)	Failure Rate (%)
Direct Vision Internal Urethrotomy (5/71)	7
Multi Stage Urethroplasty (4/7)	57
Primary Urethroplasty (3/30)	10

Three patients were lost to follow up of which 2 were treated by DVIU and one by primary Urethroplasty. Multistage Urethroplasty had the highest failure rate at 57% (Table 2).

Discussion

DVIU is best suited for strictures less than one centimetre in length independent of the aetiology or location. DVIU constituted 65.8% of the provided treatments followed by primary (one stage) urethroplasty (27.9%) in this study. This is similar to what has been reported from other centres and at KCMC¹⁹ DVIU was used in 50% followed by urethroplasties in 43.2%^{2,5,19}. The principle is to have one DVIU or dilatation before resorting to urethroplasty but primary urethroplasty is cost effective if a DVIU success rate is less than 35%⁸ or in more than a single recurrence after DVIU and in young patients^{6,14}. In this study 71 patients were treated by DVIU, (93%) were symptom free at follow up of three months. DVIU and urethroplasty are primary methods of managing urethral stricture with excision of stricture and primary anastomosis for stricture management with intent to cure^{2,5}.

In this study multistage urethroplasty was done in those patients with longer or multiple strictures accounting for 6.3% of the provided treatments this was complemented by clean intermittent

catheterization (CIC)²⁰. This is similar to what was reported by Webster et al that the most important consideration in stricture management is length with multistage repairs being reserved for long or multiple strictures^{10,21}.

Success in the treatment of urethral stricture is considered to be absence of obstructive symptoms¹³. In 7 patients treated by Multi stage urethroplasty in 57% patients symptoms recurred during follow up period while in 30 patients who were treated by Primary Urethroplasty the success rate was of 90% with three patients having persistence of symptoms despite the treatment given in the three months follow up although successful DVIU depends on a length less than 1cm, single site, stricture on original as opposed to a neourethra and a calibre more than 15F⁵.

Failed urethral stricture repair complicates management due to fibrosis, impaired vascularity and limited urethra available for mobilization²¹⁻²³. This could be the same in those patients treated by multi stage urethroplasty and had recurrent stricture or persistent stricture in this study. The duration of follow up of three months was short to assess the treatment outcome. This also could probably explain why few patients reported complications²⁴⁻²⁷. It was observed that the number of patients with urethral stricture who were awaiting treatment at MNH was high; this could be explained by shortage resources such as urethroplasty kits but also limited number of operating days of patients with urethral stricture. This was contrary to Tumaini Hospital where despite having a small bed capacity it serves a significant number. This may be due to good hospital policy and administration including having motivated and committed staff.

Conclusion

Three treatment options of urethral stricture DVIU, primary urethroplasty, multistage urethroplasty including clean intermittent catheterization (cic) were adopted as modes of treatment of patients with urethral stricture seeking urological services at Muhimbili National hospital and Tumaini hospital in Dar es Salaam. DVIU remains the commonest mode treatment of patients with urethral stricture seeking urological services at Muhimbili National Hospital and Tumaini Hospital in Dar es Salaam. Primary urethroplasty and DVIU had better treatment outcome during the follow up of 3months.

Acknowledgement

The Authors would like to thank all the Consultants, Specialists, Residents, Registrars and Nurses at Muhimbili National Hospital and Tumaini Hospital for all the invaluable assistance and support they offered us during all the stages in the preparation of this work.

References

1. Figueroa JC, Hoenig DM. Use of flexible paediatric cystoscope in the staging and management of urethral stricture disease. *J Endourol.*2004; 18(1):119-21.
2. Greenwell TJ, Castle C, Andrich DE et al. Repeat urethrotomy and dilatation for the treatment of urethral stricture neither clinically effective nor cost effective. *J Uro.*2004; 173(1):275-7.
3. Das Shusrata S of India, the pioneer in the treatment of urethral stricture. *Sur.Gyn. and Obstet* (1983), 157:6,581-582.
4. Smith AL, Ferlise VJ, Rovner ES. Female urethral strictures: Successful management with long term clean intermittent catheterization after urethral dilation. *BJU Int.* 2006; 98(1):96-9.
5. Pansadoro V, Emilozzi P. Internal urethrotomy in the management of anterior urethral strictures: Long term follow up. *J Uro.*1996; 156(1):78-9.
6. Rourke KF, McCammon KA, Sunfest JM et al. Open reconstruction of paediatric and adolescent urethral strictures: long-term follow up. *J Urol.*2003; 169(5):1818-21

7. Smith D. Disorders of the penis and male urethra in General urology Ed:Lange Medical Publications:1988; 10th edition :485-497
8. Wright JL, Wessels H, Nathens AB et al. What is the most cost effective treatment for 1 to 2cm bulbar urethral strictures; societal approach using decision analysis.Urology.2006; 67(5):889-93.
9. Ogbonna BC. Managing patients with a urethral stricture; a cost benefits analysis of treatment options. Br J Urol.1998; 81(5); 741-4.
10. Webster GD, Koefoot RB, Sihelnik SA. Urethroplasty management in 100 cases of urethral strictures: a rationale for procedure selection. J Urol.2003; 169(5):1818-21
11. Nabi G, Dogra PN. Endoscopic management of post traumatic prostatic and supra prostatic strictures using Neodymium-YAG Laser.Int J Urol.2002; 9(12):710-4.
12. Zinman L. Optimal management of 3 to 6 centimeter anterior urethral stricture. Curr Urol Rep.2000; 1(3):180-9.
13. Husmann DA, Rathbun SR. Long term follow up of visual internal urethrotomy for management of short(less than 1 cm) penile urethral strictures following hypospadias repair. J Urol.2006; 176(4):1738-41.
14. Hafez AT, EL-Assmy A, Dawaba MS et al. Long term outcome of visual internal urethrotomy for the management of paediatric urethral strictures. J Urol.2005; 173(2):595-7.
15. Griffith HB. An operation for urethral stricture. E.Afr.Med.J.1962; 39(9): 580-585
16. Klonsia JW, Madden DL, Fucillo DA, Traub RG, Mattson JM, Kreslewicz AG. The etiology of non-specific urethritis in active duty marines.J.of Urol.1978; 120:67-69
17. Kirei B. Operative management of urethral strictures in Muhimbili Medical Center, Dar es Salaam: A three year experience. Proc.of the .A.Assoc.of.Surg.1987; vol.9.
18. Macleod DAD. Anterior urethral injuries. Injury 8 (1):25-30.
19. Mteta KA, Musau PM, Kategile AM, Kaali S. The profile and Management of urethral strictures at Kilimanjaro Christian Medical Center (K.C.M.C), Moshi, Tanzania. BJUI.2009; 934(5): 73.
20. Piechota H, Bruehl P, Gertke L, Siejekabd J. Catheter drainage of the bladder today Deutsches Aerteblatt 2000; 4:168-174
21. Mchembe MD, Kategile AM, Yongolo CMA. Balanitis Xerotica Obliterans; An experience with Buccal Mucosa On lay Flap Graft. East and Central Africa Journal of surgery.2011; 16(2)
22. Modgar I, Hertz M, Gold Wasser B, Ora H, Manim and Jonas P. Urethral strictures in boys.Urol.1987; 30: 46-49
23. Blandy JP: Urethral Stricture. Postgraduate. Med J. 1980; 56: 383-418.
24. Mkony CA. The endoscopic management of urethral stricture in Dar es Salaam. East and Central Afr.J.Surg .1999; 5(1): 39-42.
25. Zango B, Kambou T. Internal endoscopic urethrotomy for stricture at the hospital of Bob-Dioulasso: Feasibility of the technique in precarious situations and short-term results. Bull Soc Pathol Exot.2003; 96(2):92-5.
26. Kulkarni SB, Barbagli G, Kulkarni JS, Romano G, Lazzeri M. Posterior urethral stricture after pelvic fracture urethral distraction defects in developing and developed countries, and choice of surgical technique. J Urol. (2010); 183(3):1049-54.
27. Baskin LS, McAninch JW: Childhood urethral injuries: perspectives on outcome and treatment. Br J Urol. 1993; 72: 241-6.