



## Clinical Profile and Management of Urethral Strictures in Adults

### KEYWORDS

urethral strictures, retrograde urethrogram, stricture length, urethroplasty, vision internal urethrotomy

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**ABSTRACT** Urethral strictures is one of the major causes for lower urinary tract symptoms in developing countries. It can be asymptomatic or may present with symptoms of urinary tract obstruction. We analyzed 30 patients presenting with symptoms of urethral stricture disease like urgency, frequency of urination, poor urinary stream and balanitisxeroticaobliterance(BXO). After routine investigations and retrograde urethrography(RGU), we divided patients in three groups depending on site of stricture on RGU. They were operated with vision internal urethrotomy, urethroplasty and urethral dilatation. Conclusions were based on recurrence rate after intervention, complications and patient satisfaction.

### Introduction:

Urethral strictures usually occur following injury and subsequent healing and fibrosis of urethral tract following infections, previous urethral instrumentations or trauma.<sup>1</sup> Urethra is divided into anterior(penile and bulbar) and posterior urethra(membranous and prostatic). Most common type of urethral strictures are bulbar type and relatively short. Urethral stricture is significantly more common in men and boys while women and girls rarely develop it. In this study, we have evaluated most common location of strictures in the urethra, the intervention of choice and recurrence rate after intervention.

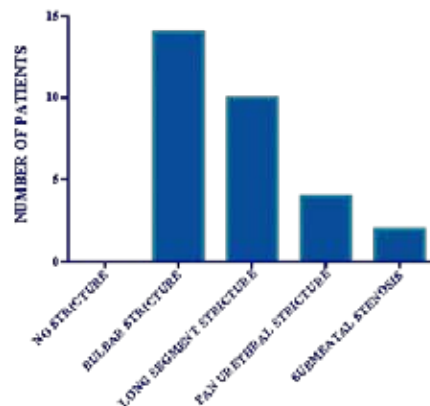
### Materials and methods:

After studying the symptomatology and complete physical examination, the routine blood investigations like hemogram, renal functions, and HIV/ Australia antigen were performed. Radiological investigations like ultrasonography of abdomen and pelvis were performed to look for back pressure changes and urolithiasis. A pre operativeuroflowmetry was performed. Based on retrograde urethrogram findings, patients were divided into three groups. Group A included patients with bulbar strictures, group B with those having panurethral and long segment strictures and group C with those having submeatal stenosis. They were treated with direct vision internal urethrotomy(DVIU), urethroplasty and urethral dilatation respectively.Complications were noted after each intervention. Patients were followed up at 1, 3, and 6 months for recurrence and were evaluated with uroflowmetry

### Result

Table 1 :Site of Stricture

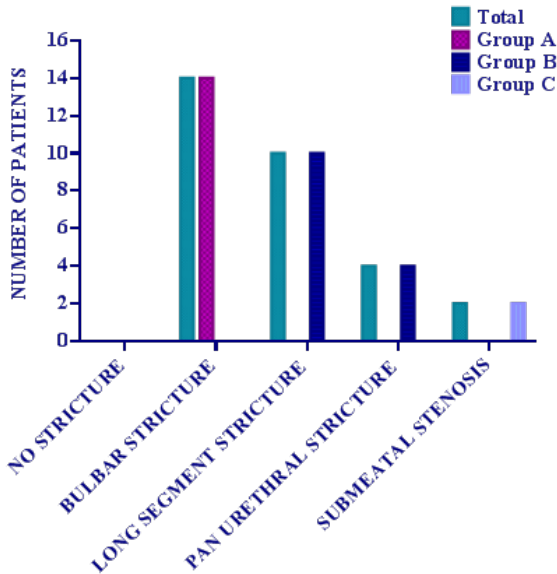
Stricture Site	Number of Patients	%
No Stricture	0	0.00
Bulbar Stricture	14	46.67
Long Segment Stricture	10	33.33
Pan Urethral Stricture	4	13.33
Submeatal Stenosis	2	6.67



Graph 1 :Site of Stricture

Table 2. Intervention

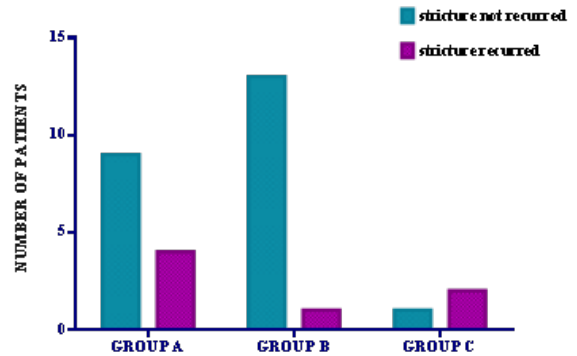
	Total	Group A		Group B		Group C	
		Number of Patients		Number of Patients		Number of Patients	
		Number of Patients	%	Number of Patients	%	Number of Patients	%
No Stricture	0	0	0.00	0	0.00	0	0.00
Bulbar Stricture	14	14	46.67	0	0.00	0	0.00
Long Segment Stricture	10	0	0.00	10	33.33	0	0.00
Pan Urethral Stricture	4	0	0.00	4	13.33	0	0.00
Submeatal Stenosis	2	0	0.00	0	0.00	2	6.67



Graph 2. Intervention

Table 3. STRICTURE RECURRENCE

	GROUP A		GROUP B		GROUP C	
	Number of Patients	(%)	Number of Patients	(%)	Number of Patients	(%)
stricture not recurred	9	69.23	13	92.86	1	33.33
stricture recurred	4	30.77	1	7.14	2	66.67



Graph 3. Stricture Recurrence

**Discussion:**

**Site of stricture (RGU/MCU)**

After performing an RGU/ MCU, out of total patients, majority (14 patients, 46.67%) presented with bulbar stricture, 10 (33.33%) with long segment stricture, 4 (13.33%) with pan urethral stricture and 2 (6.67%) with sub meatal stenosis. Similarly, Fall et al., recorded 414 male urethral stricture disease cases and found the most common site of stricture was at the bulbar urethra (72.7%).<sup>2</sup>

**Intervention**

After performing an RGU/ MCU, out of total patients, 14 patients (46.67%) presented with bulbar stricture in whom intervention of choice was DVIU (Group A), 10 (33.33%) with long segment stricture, 4 (13.33%) with pan urethral stricture in whom intervention of choice was Urethroplasty (Group B) and 2 (6.67%) with sub meatal stenosis in whom intervention of choice was Dilatation (Group C). In our study, we have opted for DVIU in stricture length <1.5 cm and Urethroplasty in stricture length >1.5 cm. Mathur et al in his study of 127 patients treated by Urethroplasty in whom stricture length was ranging from 2.5 to 12.5 cm measured intraoperatively.<sup>3</sup>Rourke et al (2006) reported that in the treatment of short segment bulbous urethral strictures, DVIU is more costly than primary reconstruction. From a fiscal standpoint urethral reconstruction should be considered over DVIU in the majority of clinical circumstances.<sup>4</sup>Kulkarni et al. (2009) concluded that in patients with penile urethral strictures or panurethral strictures, the use of one-stage oral graft urethroplasty showed greater success than the staged procedures.<sup>5</sup>

**Recurrence**

All the patients were followed at first, third and sixth month. We have also analyzed our data for the recurrence of stricture in treated patients in all the groups. During follow up, Group A, B and C patients showed 4 (30.77%), 1 (7.14%) and 2 (66.67%) cases of stricture recurrence. However, Group B patients showed high efficiency in cure as 13 (92.86%) patient did not develop stricture recurrence.

Five patients (Group A and Group B) who had stricture length ≥1.1 cm and two patients (Group C) who had stricture length ≥0.8 cm with urinary tract infection showed stricture recurrence were treated with urethroplasty as a modality of treatment.

Heyns et al. analyzed the role of repeated urethrotomies in patients who had a stricture recurrence after the first urethrotomy. These authors feel that repeat urethrotomy has no role when stricture recurrence occurs within 3 months

of the DVIU or recurs after a second urethrotomy.<sup>6</sup>In a study involving 126 patients who underwent internal urethrotomy, Greenwell *et al.* compared outcomes of patients who underwent either a subsequent urethrotomy or urethroplasty following a failed urethrotomy (51%). These authors demonstrated that repeat urethrotomy was neither cost-effective nor clinically effective.<sup>7</sup>Rourke and Jordan constructed a decision analysis model to determine the cost-minimized treatment of short segment (2 cm) bulbar urethral strictures. They demonstrated that management of such strictures is less costly using open urethral reconstruction as compared to DVIU.<sup>8</sup>

#### Conclusion:

1. Bulbar urethral strictures present most commonly as compared to other type of strictures
2. Direct vision internal urethrotomy(DVIU) is the procedure of choice in strictures upto 1 cm on retrograde urethrography while urethroplasty is the procedure of choice for strictures more than 1 cm in length.
3. Urethroplasty though being a difficult technique to perform; in the hands of a good surgeon remains a suitable treatment for long segment and pan urethral strictures. Sub meatal stenosis, mostly due BXO is best treated by urethral dilatation
4. Recurrent strictures after DVIU are best treated by urethroplasty

#### REFERENCE

1. Brandes SB. Urethral Stricture Evaluation and Surgical Management <http://urology.wustl.edu/en/Patient-Care/Urethral-Stricture-Disease/Urethral-Stricture-Evaluation>. | 2. Fall B, Sow Y, Mansouri I, et al. Etiology and current clinical characteristics of male urethral stricture disease: experience from a public teaching hospital in Senegal. *IntUrolNephrol*. 2011 Dec;43(4):969-74. | 3. Mathur R, Aggarwal G, Satsangi B, et al. Comprehensive analysis of etiology on the prognosis of urethral strictures. *IntBraz J Urol* 2011;37:362-9; discussion 369-70. | 4. Rourke KF, Jordan GH. Primary urethral reconstruction: the cost minimized approach to the bulbous urethral stricture. *J Urol*. 2005;173(4):1206-10 | 5. Kulkarni SB, Kulkarni JS, Kirpekar DV. Full-length buccal mucosa dorsal onlay graft urethroplasty for BalanitisXeroticaObliterans. *EurUrol* 2000;37(Suppl 2):157 | 6. Heyns CF, Steenkamp JW, DeKock ML, et al. Treatment of male urethral strictures: Is repeated dilatation or urethrotomy useful. *J Urol* 1998; 160:356-8. | 7. Greenwell T, Venn S, Mundy A. Changing practice in anterior urethroplasty. *BJU Int* 1998.83631-635.635 | 8. Rourke KF, Jordan GH. Primary urethral reconstruction: the cost minimized approach to the bulbous urethral stricture. *J Urol*. 2005;173(4):1206-10.