The place of urethroplasty in the management of urethral strictures

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Between 1985-1990 28 patients with urethral strictures were operated by different techniques of urethroplasty and the results are being discussed. Follow-up period ranged between 1 to 5 years. Evaluation of our results revealed to be successfull in 23 (82.1%) patients and moderately successful! in 3 (10.7%) patients and unsuccessful! in 2 patients (7.1%). Among the complications impotence was observed in 3 patients and stress incontinence in other 3 patients.

Our results showed that urethroplasty is the treatment of choice in the management of urethral strictures that are resistant to the other treatment modalities. [Turk J Med Res 1993; 11(2): 97-100]

Key Words: Urethral stricture, Urethroplasty

Treatment difficulties and the prognostic variations make the urethral strictures one of the most important subjects in the urologic armamentorium. The treatment modality chosen in these patients depends on the location and extend of the stricture, together with the local unfavorable factors and the patients general status (1-5).

Other than urethroplasty, the treatment alternatives includes simple dilation, antegrad dilation and internal urethrotomy (2,4,6,7). Recently, Laser and internal urethral stents have been widely used in this area (9,10). Urethroplasty, developed by Johanson (1953) and Turner Warwick (1960) and many others is still being used with satisfactory success in selected cases (3,5,7,8,11-14).

In this study, 28 male patients with urethral strictures have undergone to urethroplasty operations of different techniques and the results have been discussed.

PATIENTS AND METHODS

This study included 28 male patients with urethral strictures who applied to urology department in between 1985-1990. The follow-up period was 1 to 5 years.

The patients were subjected to precise history and physical examination preoperatively. By means of urography, the other probable pathologies of the urinary system which associate the urethral stricture were assessed, in order to assess the localization and extend of the stricture, we performed retrograd urethrography to all patients and rectal ultrasonography and sonourethography to selected cases. Voiding cystourethrography was applied to patients with cystotomy, all of the patients were subjected to urethroscopy for direct visualization of lesion. Furthermore, some patients were followed up with uroflowmetry both pre and postoperatively. Urethroplasty procedure was performed under general anestesia. The patient was positioned In lithotomy and in such a manner that gave the surgeon the opportunity of both abdominal and perineal manupulation. First of all the bladder was exposed by suprabubic vertical incision. Metal sonds inserted from opposite directions (one by means of bladder and the other through the urethra) detected the localisation and length of the stricture. Afterwards, a reverse "Y" incision was made through perineum and the subcutaneus tissues were incised up to bulbocavernous and ischiocavernous muscles. Dissecting those muscle bundles urethra was reached. The urethra was mobilised and the stricture area was defined. The proximal and distal dissections were made until the intact urethra was reached. In one stage approaches, after the excission of the scatrisized

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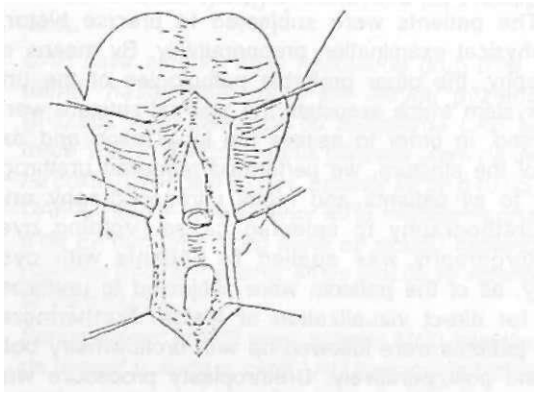
tissue and if the ends could be brought together without tension we sutured then with 3-0 or 4-0 polygalactic acid sutures over an appropriate cathater. The two-stage procedures were applied for extended strictures (more than 3 cms.). In the first step urethral marsupialisation (artificial hypospadias) was performed. Over a 6 to 9 months period the second stage was applied and in this session after the epilation of genital hair the neourethra was constructed with Dennis-Browne technique. During the period between two sessions the patients were followed-up and the dilations were made to proximal and distal end of marsupialised urethral meatus if needed. Patients with proximal prostatic urethral strictures and which did not fallow end to end anastomosis, were subjected to modified pull-through urethroplasty technique. In this method, after the excision of the sclerotic tissue, the distal intact urethra was pulled through the proximal urethra (if it existed) or the urethral tunnel up to the inside of the bladder and fixed to the bladder neck or the ligamentum ileopectina by means of 5 interrupted 3-0 polygalctic acid sutures. In one patients, because of the comppression of the fractured bones to the urethra, partial pubectomy was made and after the urethral mobilisation end to end anastomosis was performed in that session (Figure 1,2,3) 14 to 18 F siliconised Foley cathaters were used as urethral stents depending on the age of the patient and the status of the urethra. Transient cystostomy was applied to 4 patients together with urethral cathaters. Penrose drains were used for perineal and penrose or tupe drains were used for suprapubic wounds. All of the drains were removed in 2 days. Urethral catheters were taken off in 14-21 days postoperatively in one-stage operation whereas they were removed in 10 to 15 days postoperatively in two-stage repair.



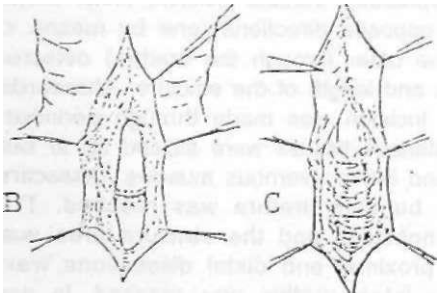


Figure 1. One-stage urethroplasty technique.

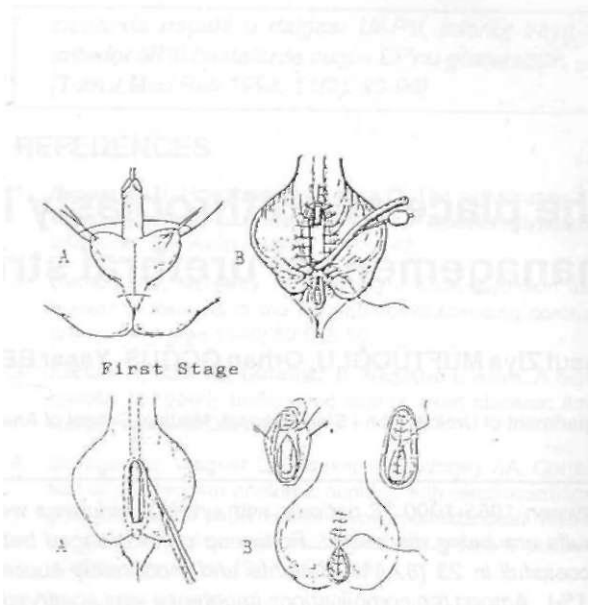


Figure 2. Two-stage urethroplasty technique.

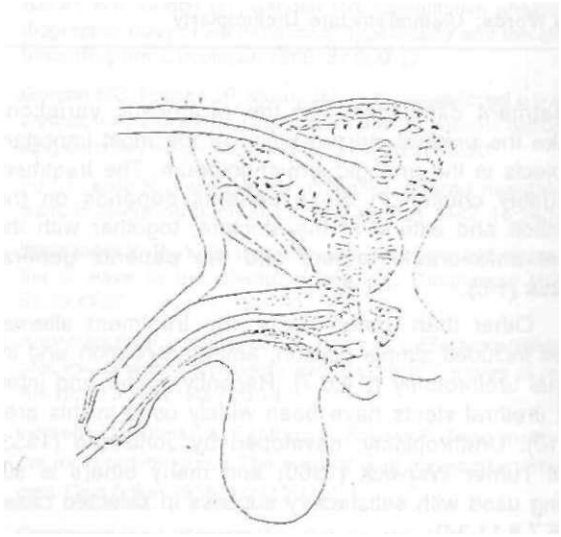


Figure 3. Modified pull-through urethroplasty technique.

Antibacterial therapy lasted until all the cathaters were removed and the urine was proven to be sterile. All of the patients were followed-up for 3 months intervals. They were subjected to retrograd urethrography and uroflowmetry routinely and urethroscopy in selected cases. The patients were cathegorised in terms of prognosis as;

Excellent: Patients with no voiding problems during follow-ups and no evidence of recurrent stricture during periodic evaluations.

Well: Patients required internal urethrotomy or urethral dilatation once a year.

Moderately well: Patients with some voiding problems together with a requirement of urethral dilation or internal urethotomy twice a year.

Poor: Patients who need mentioned approaches more than 2 times a year or who need repeated operation.

First two cathegories were considered as successful!.

RESULTS

The patients' ages ranged in between 13 to 74 (Mean: 40.4) Table 1 demonstrated the classificaiton of the patients in respect to etiology. The leading cause was traffic accidents with 15 patients (53%). Nonspesific contusion was the cause in 5 patients (17.8%). The other etiologic factors of the urethral stricture were infecions in 4 patients (14.3%) instrumental procedures in 2 patients, gunshot wound in 1 patient, and burning in 1 patient.

The stricture was in bulbomembraneous urethra in 11 patients (39.2%), in bulbous urethra in 7 patients (25%), membraneous urethra in 6 patients (21.5%), membranoprostatic in 2 patients. Moreover one ptient had pandular urethral stricture and another one had prostatic urethral stricture (Table 2).

In operative assessments, 7 patients (25%) were found to have strictures less than 1 cm, 15 patients (53.5%) between 1 to 3 cm.s, and 6 patients (21.5%) more than 3 cm.s. (Table 3).

12 patients (42.9%) had previous cystostomy when they applied to hospital. The mean value of maximum flow rate in the remaining 16 patients was 6 ml/min. preoperatively. 24 patients (85.8%) had been experienced multiple treatments such as internal urethrotomy, urethral dilation, surgical treatment or combination of those.

As it is appearent in Table 4, 18 patients (64.3%) have undergone one-stage procedures, whereas 7 (25%) to two-stage operations. Other than those, modified pull-through urethroplasty was performed in 3 patients (10.7%).

The results assessed in 1-5 years follow-up were demonstrated in Table 5. 18 patients with one-stage, end-to-end operations experienced 9 (50%) excellent, 5 (27.7%) well, 2 (11.2%) moderately well and 2 poor results.

Taking the overall patients into consideration; 23 patients (82.1%) were successfully treated. There were few complications. 3 patients experienced impotence, 3 patients stress incontinence and 2 patients transient perineal fistula during controls. But the fistulas healed spontaneously. In spite of the antibiotic prophilaxy 2 patients suffered from wound infection.

Table **1**. The etiologic classification of urethral strictures

Etiology	Number	%
Traffical Accident	15	53.5
Infections	4	14.3
Nonspesific Contusions	5	17.8
Instrumental Manupulation	2	7.2
Burning	1	3.6
Gun-Shot	1	3.6
Total	28	100

Table **2.** Localisation of urethralstrictures

Localization	Number	%
Panduler	1	3.6
Bulber	7	25
Membraneous	6	21.5
Bulbomemrraneous	11	39.2
membranoprostatic	2	7.2
Prostatic	1	3.6
Total	28	100

Table **3.** Extend of urethral stricture

	Number	%
Less Than 1 cm.	7	25
between 1-3 cm	15	53.5
More than 3 cm	6	21.5
Total	28	100

Table **4.** The type of urethroplasty applied

	Number	%
One-Stage (Urethro-urethral Anastomosis)	18	64.3
One-Stage (Modified Pull-Through)	3	10.7
Two-Stage	7	25
Total	28	100

DISCUSSION

Urethroplasty is the treatment of choice in patients with urethral stricture who did not respond satisfactorily to internal urethrotomy treatment, patients with frequent recurrences and patients who could not be subjected to internal urethrotomy because of local unfavorable factors (3,5,7,8).

Webster et al. reported 91% success with one or two-stage reperations in their 100-patients series (14). Somerville et al.obtained 87% success rate in their two-stage urethroplasty series (12).

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Table 5. The results of urethroplasty operations

	Total	One-Stage	Two-Stage	Pull-Trough
Excellent	17(60.7%)	9 (50%)	6 (85%)	2 (66.6%)
Well	6(21.4%)	5 (27.7%)	1 (14.3%)	–
Moderately Well	3(10.7%)	2(11.1%)	–	1 (33.4%)
Poor	2(7.1%)	2.(11%)	–	–
successful (Excellent+Well)	23 (82.1%)	14(77.7%)	7(100%)	2 (66.6%)

Jakse reported 93% satisactory results with end-to-end anastomotic technique (13). On the other hand, Netto, by transpubic approache, reported 89% success rate in posterior urethral strictures in children, and 68% success rate in adults. Besides, he obtained 80% statisfactory outcome with pull-through technique in children and 66% in adults (8).

In our study, the overall success was 82.1%. This rate was 77.7% in one-stage operations. Two-stage reperations and pull-through operations are too limited in number to make interpretations in this respect.

Taking the high incidence of patients treated previously by other treatment modalities into account (85.9%), the results obtained from urethroplasty operations are encouraging. However, one can encounter some serious complications such as impotence and stress incontinence, we think that these complications results from nerves and external sphincter injuries during calleous tissue excision from prostatic and membraneous urethral strictures.Thus we believe that internal urethrotomy as a less invasive method should be the first treatment step in these patients.

It is clear that the ideal approach is one-stage urethroplasty. But unfortunately not every patients is appropriate for this approach. In spite of the increased morbidity risk due to repeated anesthesia and long hospital stay in two-stage reperations.it is a promising technique especially in extended strictures. In such technique it is mostly possible to repair almost the entire urethra. Pull-through technique might be the treatment of choice in patients who fitted into this criteria and the pull-through technique resulted with satisfactory outcomes.

As a conclusion: in selected primary cases and especially in secondary cases who resisted to previous treatments or who experienced frequent recurrences, urethroplasty should be the treatment of choice, since this approach can provide the highest complete cure rates in such patients.

Üretral striktürlerin tedavisinde üretroplastininyeri

1985-90 yılları arasında üretral striktürü olan 28 hasta farklı üretroplasti teknikleriyle öpere edildi ve sonuçlar tartışıldı. Takip süresi 1-5 yıl arasındaydı. Sonuçların değerlendirilmesinde 23 hastada (%82.1) başarılı, 3 hastada (%10.7) kısmen başarılı ve 2 hastada (%7.1) ise başarısız bulundu. Komplikasyon olarak 3 hastada empotans ve 3 hastada da stres inkontinansı izlendi. Sonuç olarak diğer tedavilere dirençli üretral striktürlerin tedavisinde üretroplastinin seçilecek yöntem olduğu kanaatine varıldı.

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