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SURGICAL TREATMENT OF URETHRAL STRICTURES*

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Turkey has one of the highest rates of traffic accidents in the world; besides the high mortality rate, traffic accidents tend to produce complications concerning orthopedics, neurosurgery and urology, the most frequently encountered urological complication being urethral stricture.

The purpose of this review is to present the results of surgical operations performed in serious urethral strictures.

Material and Methods

Thirty-three cases of urethral stricture admitted to the urological clinic of Hacettepe University in the five-year period between 1979 and 1984, have been included in this study. Patients treated with a procedure other than urethroplasty and patients who could not be followed up for at least 6 months have been excluded.

The ages of the patients ranged from 2 to 66, the average being 19.6 years. The causes of the strictures in these patients were traumatic in 27, infection in 3, iatrogenic in 2 and congenital in one. The strictures were located in the posterior urethra in 31 cases and in the anterior urethra in the other 2.

The indications for the surgical operation and its type depended upon the position, density, and length of the stricture and upon previous interventions other than urethroplasty and their results.

Besides the routine blood and urine examinations, IVP, retrograde urethrography, antegrade urethrography and combined antegrade-retrograde cystourethrography were performed. In patients with impassable strictures antegrade and retrograde cysto-urethroscopy and combined antegrade-retrograde examination with metallic sounds were performed in order to determine as closely as possible the length, location and density of the stricture.

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The surgical procedures performed were:

1. End to end anastomosis

a) Perineal approach. For strictures that could be reached from the perineal area, end to end anastomosis was performed by the perineal approach. The urethra was mobilized distal and proximal to the stricture as much as possible, to provide an end to end anastomosis without even minimal tension. A fenestrated catheter was placed in the anastomosis area for the exudate and blood drainage and a cystostomy was used for urinary diversion.

b) Transpubic approach. In the cases with supradiaphragmatic strictures, the transpubic approach was used to reach the strictured area. After pubectomy, the strictured area was excised with a Gigli saw and the urethra was mobilized proximal and distal to the stricture to provide an end to end anastomosis without any tension. A fenestrated catheter and cystostomy tube were put into place.

2. Marsupialization procedures

In some cases the length of the stricture was more than 3 or 4 cms. In these patients, in spite of maximal mobilization of the urethra end to end anastomosis could not be established, and therefore marsupialization procedures were performed in these patients.

a) Johanson type operation. This was found to be useful only in anterior urethral strictures. Two patients were operated on by this procedure.

b) Perineal flap procedure. In cases with long strictures in the posterior urethra the proximal urethra was marsupialized with the aid of a perineal flap. The posterior urethra was exposed with an inverted U-shaped incision. The tip of the flap was sutured to the proximal urethral opening, and the stitchings were continued to the base of the flap in order to create a tube. The distal end of the urethra was marsupialized as in the Johanson-type operation.

3. Flap tube procedure

In one of the cases the stricture was considered to be irreparable. In this patient a flap tube was prepared from the urinary bladder and pulled through a rectal submucosal tunnel near the anus, to provide continence. A cystostomy tube and a neourethral catheter were inserted [1].

In all patients the urethral or drainage catheter was removed 10 to 21 days postoperatively. The cystostomy catheter was occluded for 24 hours to observe the patient's urination status. If the patient urinated satisfactorily the cystostomy

catheter was removed and a urethral catheter was inserted and left in place until suprapubic leakage ceased.

The results were considered to be "good" in patients who needed no more urethral intervention for urination, "fair" in patients who needed urethral dilation less than once every 6 months, and "poor" in those who could not urinate or needed dilation more than once every 6 months or other interventions.

Results

Perineal approach. In 14 of the 23 patients (60.8%) the results were good, in four (17.4%) they were fair and in another 4 (17.4%) they were poor. One of the patients (4.4%) died due to septicemia.

Transpubic approach. In 6 of the 8 patinets (75%) the results were good and in two poor (25%). In two (33.3%) of the 6 patients suprapubic fistulae developed, surgical intervention becoming necessary in one of them. The fistula was healed by long-standing urethral catheterization in the other.

Johanson type operation. In the two patients who underwent this type of operation good results were obtained.

Perineal flap procedure. In one of the three patients in this group good results were obtained. In two patients strictures developed at the anastomosed area. While one of these patients was cured by urethral dilatation, the other remained cystostomized hopefully waiting for another urethroplasty.

Flap-tube procedure. Although this patient needed some dilatations in the early postoperative period, he can now void satisfactorily.

Discussion

According to Devine[2] whose recommendations we followed for our patients, urethroplasty is indicated:

1. When it is difficult to pass dilating instruments,
2. When the stricture is of such a density that it is necessary to repeat the dilating procedure more than once every 6 months,
3. When complications of the urethral stricture occur,
4. When the frequency and severity of urinary tract infection due to obstruction cannot be controlled,
5. When periurethral abscess, urine extravasation or multiple fistulae occur.

The arterial supply of the urethra arises proximally and distally from branches of the pudental artery at the bulb, and back perfusion derives from the glans at the distal end. Because of this rich blood supply, the urethra can be mobilized as long as necessary[3]. We believe that in most urethral strictures end to end anastomosis can be carried out because of this vascularization. Of our 37 surgical interventions, 31 (83%) were end to end anastomoses.

We obtained good results in 64.5% and poor results in 13% of these operations. The results of the transpubic approach were almost the same as reported by Allen[4]. The perineal flap procedure has not been encountered in the literature. It can be used in long strictures in which end to end anastomosis is impossible. Although no problem has been encountered so far, epilation before the operation would be useful.

The flap-tube procedure has been performed in complete epispadias, vesico-vaginal fistulae with urethral destruction, extrophia vesica and urethral strictures. We believe that it should be used in irreparable urethral strictures before any type of intestinal urinary diversion is undertaken[1].

Summary

The various methods of surgical management of a series of cases of urethral stricture are described and assessed.

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