

LONG-TERM OUTCOME OF URETHROPLASTY AFTER FAILED URETHROTOMY VERSUS PRIMARY REPAIR

GUIDO BARBAGLI, ENZO PALMINTERI, MASSIMO LAZZERI, GIORGIO GUAZZONI
AND DAMIANO TURINI

From the Department of Urology, University of Ferrara, Ferrara, Department of Urology, Hospital S. Raffaele, Milan and Center for Urethral and Genitalia Reconstructive Surgery, Arezzo, Italy

ABSTRACT

Purpose: A urethral stricture recurring after repeat urethrotomy challenges even a skilled urologist. To address the question of whether to repeat urethrotomy or perform open reconstructive surgery, we retrospectively review a series of 93 patients comparing those who underwent primary repair versus those who had undergone urethrotomy and underwent secondary treatment.

Materials and Methods: From 1975 to 1998, 93 males between age 13 and 78 years (mean 39) underwent surgical treatment for bulbar urethral stricture. In 46 (49%) of the patients urethroplasty was performed as primary repair, and in 47 (51%) after previously failed urethrotomy. The strictures were localized in the bulbous urethra without involvement of penile or membranous tracts. The etiology was ischemic in 37 patients, traumatic in 23, unknown in 17 and inflammatory in 16. To simplify evaluation of the results, the clinical outcome was considered either a success or a failure at the time any postoperative procedure was needed, including dilation.

Results: In our 93 patients primary urethroplasty had a final success rate of 85%, and after failed urethrotomy 87%. Previously failed urethrotomy did not influence the long-term outcome of urethroplasty. The long-term results of different urethroplasty techniques had a final success rate ranging from 77% to 96%.

Conclusions: We conclude that failed urethrotomy does not condition the long-term result of surgical repair. With extended followup, the success rate of urethroplasty decreases with time but it is in fact still higher than that of urethrotomy.

KEY WORDS: reconstructive surgical procedures, urethral stricture, reoperation

For many years urethrotomy has been considered the cure for a significant number of urethral stricture diseases.¹ However, we found that the longer the followup, the higher the failure rate, and even after repeat urethrotomy the recurrence rate remains high.² A urologist confronted with a urethral stricture recurring after repeat urethrotomy faces a somewhat difficult problem, that is to repeat urethrotomy with slim chances for success, or perform open reconstructive surgery? In either case what will be the success ratio?

When results of urethrotomy or urethroplasty for treatment of urethral stricture disease are compared, 2 problems occur. Followup is different and not always sufficient to allow for a decisive statement about long-term results since recurrence has been noted several years after repair,^{2,3} and with extended followup the success rate of open stricture surgery will decrease to some degree.^{1,4,5} Moreover, the classification of success versus failure is often not clearly defined.¹ We retrospectively review a series of 93 patients to establish the long-term results of 3 kinds of urethroplasty for bulbar urethral stricture, the long-term results in patients who underwent primary repair versus those who had undergone urethrotomy and the attrition rate of success with time.

PATIENTS AND METHODS

From 1975 to 1998, 93 males between age 13 and 78 years (mean 39) underwent surgical treatment for bulbar urethral

stricture. In 46 (49%) of the patients urethroplasty was performed as primary repair and in 47 (51%) after previously failed urethrotomy. The number of previous urethrotomies ranged from 1 to 14, with a mean of 3. In 40 patients periodic urethral dilation was done to stabilize the result of urethrotomy.

In all patients the strictures were localized in the bulbous urethra without involvement of penile or membranous tracts. The etiology was ischemic in 37 patients, traumatic in 23, unknown in 17 and inflammatory in 16. Patients with lichen sclerosus involving the anterior urethra were not included in our series. The stricture length ranged from 1.5 to 6 cm. We decided to use 3 different procedures to repair the stricture. End-to-end anastomotic repair was performed in 27 patients and consisted of anastomosis between the 2 spatulated edges with interrupted 3-zero polyglycolic acid sutures over the support of a 16Fr fenestrated silastic catheter. In all patients it was possible to achieve a tension-free apposition. We performed dorsal onlay skin graft urethroplasty in 40 patients. The bulbar urethra is opened along the dorsal surface, and a skin graft from the foreskin is applied on the corpora cavernosa. The urethral plate is sutured over the graft using interrupted 4-zero polyglycolic acid sutures over a 14Fr fenestrated polymeric silicone catheter. In 26 patients 2-stage repair was performed according to standard scrotal inlay surgical techniques.

Followup of the entire series ranged between 24 and 299 months (mean 63). All patients underwent voiding cystourethrography at discharge from hospital, and urethrography, uroflowmetry and urine culture after 4 months. Uroflowmetry and urine cultures were repeated every 4 months in the

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first year and annually thereafter. Radiological studies were repeated only when uroflowmetry was less than 14 ml. per second.

To simplify evaluation of the results, the clinical outcome was considered either a success or a failure at the time any postoperative procedure was needed, including dilation. Values represent the mean plus or minus standard deviation. Analysis was conducted with Student's *t* test, and $p < 0.05$ was significant.

RESULTS

Of the 93 cases 80 (86%) were considered a success and 13 (14%) were considered a failure. Urethroplasty had an 85% (39 patients) success rate when performed as primary repair in 46 patients and 87% (41) after failed urethrotomy in 47. Anastomotic repair was successful in 26 (96%) of the patients and failed in 1 (4%), with a mean followup of 34 months. Anastomotic repair had a 95% (18 patients) success rate when done as primary repair in 19 patients and 100% after failed urethrotomy in 8.

Dorsal onlay skin graft urethroplasty was successful in 34 (85%) of the patients and failed in 6 (15%), with a mean followup of 43 months. Dorsal urethroplasty had an 83% (10 patients) success rate when performed as primary repair in 12 patients and 86% (24) after failed urethrotomy in 28. The 2-stage procedure was successful in 20 (77%) of the patients and failed in 6 (23%), with a mean followup of 99 months. Two-stage urethroplasty had a 73% (11 patients) success rate when performed as primary repair in 15 patients and 82% (9) after failed urethrotomy in 11. No statistically significant difference was recorded when comparing the 2 groups.

DISCUSSION

The impact of urethrotomy and/or dilation on the success or failure of urethroplasty is controversial, and in our opinion the literature available does not provide definite data. Berger et al noted that the frequency of dilation before surgical repair was the single most important factor for determining success versus failure.⁶ de la Rosette et al, in a series of 50 patients, reported that the largest proportion of recurrence was noted among those who underwent more than 3 urethrotomies during a short interval.⁷ Roehrborn and McConnell found a doubling in the failure rate in a series of 110 patients from 14.3% for those without any prior manipulation to 27.6% for those with multiple dilations.¹ Martinez-Pineiro et al found that in 87 of the 95 (91.5%) patients who had not undergone manipulations or surgical attempts at repair a perfect result was achieved, while in only 39 of the 55 (70.9%) who had undergone surgical repair excellent results were obtained.⁸ After examining 65 patients with nontraumatic strictures Ziprin et al stated that urethroplasty is compromised by repeat urethrotomy.⁹ Our results seem to disagree with or at least not confirm the findings of other authors. Even if there is no significant statistical difference, we observe a better outcome after urethroplasty in patients who have undergone urethrotomy.

In our present series primary urethroplasty had a final success rate of 85% and urethroplasty performed after failed urethrotomy had 87%. Previously failed urethrotomy does not influence the long-term outcome of the 3 kinds of urethroplasty that manage bulbar urethral stricture disease. Unexpectedly, a greater success rate was achieved in those patients who had undergone urethrotomy (87%) than in those who had undergone primary repair (85%, statistically not significant). We argue that repeat urethrotomy or dilation of urethral stricture do indeed condition the choice of the

surgical procedure and will most likely make the surgery itself more difficult but will not alter the long-term results of urethroplasty. Some factors contributing to the success or failure of urethroplasty of urethral stricture have been clearly identified, including ischemia,^{4,5} age,¹⁰ site,¹⁰ length¹¹ and previous surgery,¹² but others still need to be established.

After reviewing these results we could draw another conclusion from our series. The long-term results of different urethroplasty techniques showed a final success rate ranging from 77% to 96%. In our previous report the long-term evaluation, with the actuarial success rate of a sizable and homogeneous series of urethroplasties, revealed an overall success rate of 84.7%, with a mean followup of 53 months.² The difference in recurrence rates with different urethroplasty techniques was not statistically significant and recurrences were uniformly distributed with time.² With extended followup, the success rate of open stricture surgery will decrease to some degree. Mundy reports that after 4 years there is a steady attrition rate of about 5% per year that requires revision.^{4,5}

In our present series anastomotic repair had the same success rate (96%, 27 patients) as we have previously reported (95%, 20), with the same mean followup of 55 months.² Two-stage urethroplasty had a decrease in success rate from 78.6% to 77% when mean followup was extended from 70.5 to 99 months. Dorsal onlay graft urethroplasty had a 90.3% success rate in 31 patients, with a mean followup of 23 months.¹³ However, in our present series, with mean followup extended to 43 months, the success rate in 40 patients considerably decreased to 85%. Therefore, failed urethrotomy does not condition the long-term result of surgical repair. With extended followup, the success rate of urethroplasty decreases with time but it is in fact still higher than that of urethrotomy.

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