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Factors that Influence the Choice of Treatment for Patients with Urethral Stricture

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Abstract: The aim of our study was to determine the factors affecting to the choice of treatment of patients with urethral stricture.

We conducted a retrospective analysis of case histories of 109 patients with urethral stricture, which were carried out various kinds of operations on the urethra. 53 patients underwent endoscopic recanalization of the urethra under fluoroscopic guidance, followed by transurethral resection of the stricture zone, 23 - transurethral internal optical urethrotomy, 33 - different types of urethroplasty.

The results showed that the main factors influencing to the choice of treatment of patients with urethral stricture are the patient's age, presence of concomitant diseases, the degree of anesthetic risk surgery, localization and extent of the stricture.

Keywords: urethral stricture, endoscopic recanalization of the urethra, transurethral resection, transurethral internal optical urethrotomy, urethroplasty.

Introduction. The problem of treatment of urethral stricture remains one of the most difficult in urology, as evidenced by a high percentage of complications and relapses that require repeated repeated operations. Until recently, the main methods of treating patients with urethral stricture were complex reconstructive and plastic surgery, unsatisfactory results of which were observed in more than 25% of patients [1,2].

In connection with the development and introduction of new technologies, the arsenal of low-traumatic interventions in the treatment of such complex pathology has significantly expanded. It is known that the choice of the national treatment tactics for patients with urethral stricture depends on the quality and completeness of preoperative diagnostics [3,4,5].

One of the main factors influencing the choice of the method of treatment [6] and in many respects the forecast of urethral stricture, incl. recurrent, is a preoperative assessment of changes in the urethra and periurethral tissues [7,8], as well as the exact establishment of stricture characteristics [9].

If correctly selected patients for treatment, based on the results of the diagnostic method used, it is possible to achieve a reduction in the frequency of recurrences of the urethra, including. significant [10].

The purpose of the work-to determine the factors influencing the choice of the method of treatment of patients with urethral stricture.

Material and methods.

The basis of this study was the results of the examination and treatment of 303 patients with urethral stricture who turned to the "Republican Specialized Urology Center" in the period from 2011 to 2014. The age of patients ranged from 16 to 83 years (an average of 43.6 ± 18.7 years). When referring to a clinic of 303 patients, 195 (64.4%) had suprapubic cystostomy drainage, which was previously established due to the inability to self-urinate, in 108 (35.6%) patients the maximum volume flow rate of urine was reduced to an average 4.3 ml / s (range from 1.0 to 12.0).

Depending on the purpose of the study, the patients were divided into 3 treatment groups:

The first group - 53 patients who had endoscopic recanalization of the urethra under X-ray control;

The second group - 23 men who underwent transurethral internal optical urethrotomy;

The third group - 33 patients who underwent various types of urethroplasty.

To determine the factor that influenced the choice of the treatment method, the frequency of performed types of surgical interventions was compared in terms of the following parameters: the age of the patient, the presence of concomitant diseases, the degree of anesthesia risk of surgery, the localization of the stricture, and the extent of the urethral stricture.

The patients were divided into groups by age according to the report form No. 7 of the Health Ministry of the Ministry of Health of the Republic of Uzbekistan and the International Classification of Diseases - 10 (ICD-10).

The anesthetic risk of interventions was determined by the classification of the patient's objective status assessment, adopted by the American Society of Anesthesiologists (ASA).

The statistical processing of the material was carried out using the program MS Office Excel 2007, StatSoft Statistica 8.0 using the Student-Fisher criteria.

Results.

Analysis of the frequency of surgical interventions performed, depending on the age of the patients, showed that young people most often performed urethroplasty (in 75.7% of cases), whereas recanalization was performed in half of the group of patients (47.2%), and TU urethrotomy - in 39.1% of patients. In elderly people, recanalization of the urethra was most often performed (in 22.6% of cases), and urethroplasty was performed in only 6.1% of patients (Table 1).

Table-1. The frequency of surgical intervention, depending on the age of the patients (n = 109)

Age	Types of surgical intervention		
	Recanalization n (%)	TU Optical urethrotomy n (%)	Urethroplastic surgery n (%)
15-44 year	25 (47,2%)	9 (39,1%)	25 (75,7%)
45-64 year	16 (30,2%)	10 (43,5%)	6 (18,2%)
65 year and older	12 (22,6%)	4 (17,4%)	2 (6,1%)
All	53 (100%)	23 (100%)	33 (100%)

The results of the analysis of the frequency of performed surgical interventions, depending on the presence of concomitant diseases, revealed that concomitant diseases were much less frequent in the group of patients who underwent urethra plastic surgery than in the other two groups (Table 2).

Table-2. The frequency of surgical intervention, depending on the presence of comorbidities (n = 109)

Comorbidities	Types of surgical intervention		
	Recanalization (n=53)	TU Optical urethrotomy (n =23)	Urethroplastic surgery (n=33)
IHD	20	4	3
DM	2	4	3
IHD+DM	3	1	-
IHD+Anemia	1	-	-
Anemia	-	1	-
CHRF	-	1	-
All	26 (49,1%)	11 (47,2%)	6 (18,2%)

The results of the analysis of the frequency of the performed surgical interventions, depending on the degree of anesthetic risk of the operative intervention, showed that in the group of patients who underwent urethra plastic surgery, the risk of surgical intervention on the classification of the patient's objective status assessment, accepted by the American Society of Anesthesiologists, was mainly I and II degrees, then as a recanalization of the urethra and TU optical urethrotomy was performed in patients with both III and IV degrees of risk surgery (Table 3).

Table-3. The frequency of surgical intervention, depending on the degree of anesthetic risk surgery (n = 109)

ASA grade	Types of surgical intervention		
	Recanalization n (%)	TU Optical urethrotomy n (%)	Urethroplastic surgery n (%)
I	13 (24,5%)	9 (39,1%)	10 (30,3%)
II	21 (39,6%)	6 (26,2%)	19 (57,6%)
III	18 (34,0%)	7 (30,4%)	4 (12,1%)
IV	1 (1,9%)	1 (4,3%)	-
All	53 (100%)	23 (100%)	33 (100%)

Analysis of the frequency of performed surgical interventions depending on the localization of urethral stricture revealed that the recanalization of the urethra was most often performed in patients with urethral stricture located in the neck of the bladder (in 50.9% of cases), and urethroplasty and TU optical urethrotomy to patients with stricture, located in the bulbar part of the urethra, respectively, in 75.8% and 91.3% of cases (Table 4).

Table-4. The frequency of performed surgical interventions depending on the localization of urethral stricture (n = 109)

Localization of urethral stricture	Types of surgical intervention		
	Recanalization (n=53)	TU Optical urethrotomy (n =23)	Urethroplastic surgery (n=33)
Membranous section	6 (11,4%)	-	3 (9,1%)
bulbar section	8 (15,1%)	21 (91,3%)	25 (75,8%)
Front suspension	8 (15,1%)	2 (8,7%)	4 (12,1%)
Bladder neck	27 (50,9%)	-	-
more than one location	4 (7,5%)	-	1 (3,0%)
All	53 (100%)	23 (100%)	33 (100%)

The length of stricture in patients of the 1 st group was 0.4-2.3 cm (average 1.0 ± 0.3), in the 2nd group 0.4-1.8 cm (mean 0.7 ± 0.2) and in the third - 0.5-3.5 cm (an average of 1.1 ± 0.3). A comparative analysis of the extent of stricture between the groups showed no statistically significant differences in the length of the stricture (p> 0.05).

Table-5. The frequency of surgical intervention, depending on the length of urethral stricture (n = 109)

length of stricture (cm)	Types of surgical intervention		
	Recanalization (n=53)	TU Optical urethrotomy (n =23)	Urethroplastic surgery (n=33)
till 0,5 см	8 (15,1%)	10 (43,5%)	2 (6,1%)
from 0,6 till 1,0 см	38 (71,7%)	11 (47,8%)	20 (60,6%)
over 1,0 см	7 (13,2%)	2 (8,7%)	11 (33,3%)
All	53 (100%)	23 (100%)	33 (100%)

The results of analysis of the frequency of performed surgical interventions, depending on the extent of stricture, showed that patients with more extensive urethral stricture performed urethroplasty most often, while patients with less extensive stricture performed TU optical urethrotomy. Recanalization of the urethra was most often performed in patients with a stricture length of 0.5-1.0 cm (Table5).

The conclusion.

The results of the study showed that the main factors influencing the choice of the method of treatment for patients with urethral stricture are the patient's age, the presence of concomitant diseases, the degree of anesthesia risk of surgical intervention, the localization and extent of stricture.

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