AJPMHS GLOBAL RESEARCH NETWORK

AMERICAN Journal of Pediatric Medicine and Health Sciences
Volume 2, Issue 2, 2024 ISSN (E): 2993-2149

Features of Urethral Stricture According to the Medical Republican Institution of Uzbekistan

Khudaybergenov U. A
Tashkent Medical Academy, Uzbekistan, Tashkent

Kasimov S. S., Olloyorov A. A.
State Institution "Republican Specialized Scientific and Practical Medical Center of Urology", Uzbekistan, Tashkent

Abstract: Strictures of the urethra in men are a widespread pathology that adversely affects the health and, consequently, the quality of life of the patient. The purpose of the study was to assess the nature of the strictures of various departments of the urethra and the frequency of their occurrence in the territory of the Republic of Uzbekistan.

The survey data of 195 men (average age - 40.6 ± 13.1 years) who underwent urethroplasty at the Republican Specialized Urology Center JSC from February 2013 to March 2015 were studied. In 46.7% of patients, the strictures were located in the anterior part of the urethra, 53.3%- in the back. The most frequent possible causes of strictures were trauma (38.5%) and infection (22.6%), in 18% of cases the strictures were considered idiopathic, in 19%- iatrogenic. In 13.3% of observations, the strictures were located in the hanging urethra, in 42.7% - in the bulbar, in 32% - in the back. Strictures 28.7% of patients had a length of more than 6 cm, 25.6% - 2 cm or less.

Keywords: urethral strictures, epidemiology, Republic of Uzbekistan, urinary trauma, stricture male ureth.

Introduction. Being one of the most "ancient" and most complex urological diseases [1], stricture disease of the male urethra (Male urethral stricture disease - MUSD) negatively affects the quality of life of patients. Their treatment requires large material expenditures that are essential for the budget of the health care system in developed countries [2]. In the USA, the incidence rate of MUSD exceeds 0.6% and is the cause of more than 5,000 hospitalizations per year [3]. The annual costs of managing patients with MUSD, with the exception of expenses for medicines, in 2000 amounted to almost $200 million [3]. Among other expenses, the cost of follow-up of one patient during the first year after undergoing reconstructive intervention on the anterior or posterior urethra ranged from $205 to $1,784 USA[4]. According to the generally accepted classification, “front” and “rear” strictures are distinguished by the MUSD. The results of most studies in various countries around the world indicate the presence of significant differences in the etiology, pathogenesis of the disease, the technique of surgical approaches used in treatment, evaluation of its results and outcomes [5-9].

The main causes of urethral strictures in developing countries include post-traumatic damage to the urethra in pelvic fractures that cause the occurrence of a defect. [10-12]. In developed

countries, stricture of the urethra is most often (up to 45%) a consequence of iatrogenic and is localized mainly in the bulbar section [6, 7, 13-15]. The treatment tactics for strictures of the urethra is different in different countries and even in geographic areas and regions of the same country [16].

For a better understanding of the characteristics and causes, as well as the prevalence of the disease in the Republic of Uzbekistan, the assessment of various characteristics of urethral strictures was performed within one specialized clinic.

Material and methods.

A retrospective analysis of the results of examination and treatment of men who underwent surgery in the urethra at the Republican Specialized Urology Center (Tashkent, Uzbekistan) was carried out. The study was approved by the Expert Council of the institution. Were collected and summarized data about patients who underwent urethroplasty in the anterior and posterior parts of the urethra. Patients with a history of diseases caused by sclerosing lichen, urethral strictures, undergone surgery for hypospadias, and those who underwent palliative procedures, as well as with insufficient and / or unreliable data in clinical records were excluded from the study.

The demographic characteristics of the patients, the history, physical examinations, routine clinical studies and laboratory tests, data on previous surgical interventions, concomitant diseases and / or complicating factors such as diabetes mellitus, excessive body weight and bad habits. In addition, the results of combined mica and restorative urethrocystography, uroflowmetry, data on the volume of residual urine and the microbiological analysis of urine are taken into account.

Depending on the location of the strictures, the patients were divided into two large groups: with the strictures of the anterior and posterior urethra. In the future, these groups were divided into 6 subgroups: the strictures of the external opening of the urethra, the hanging, bulbar, posterior parts of the urethra, the areas of the bladder neck and the panuretral (extended strictures with the capture of several sections).

The length of strictures was measured with urethrography and intraoperatively.

In accordance with the data on the estimated etiology of strictures obtained during the analysis of the history of the disease, congenital, idopathic, catheter-associated, associated with instrumental manipulations (for example, urethroscopy), post-traumatic, infectious, iatrogenic and chemical (associated with instillation of the urethra by any chemical agents (mi) strictures. Strictures were considered idiopathic in the absence of objective factors capable of causing a narrowing of the lumen of the urethra.

In describing the demographic characteristics of patients, routine descriptive statistics tools were used: mean (M), median Me), standard deviation (SD), percentiles, interquartile range and standard error of the mean. Frequencies are indicated in percent and absolute numbers. The non-parametric Mann – Whitney U-test was used to assess intergroup differences. The difference was considered statistically significant at $p<0,05$.

Results. In total, from February 2013 to March 2015, 14,454 urological interventions were performed in the surgical department of the RSCU [17], of which 485 (3.7%) were about MUSD. 290 (59.8%) patients were excluded from the study for the reasons stated above. Of the selected 195 (40.2%) patients, 55 (28.2%) were urban residents, 140 (71.8%) lived in rural areas of the Republic of Uzbekistan.

The patients' age ranged from 8 years to 81 years (average age - 40.6 + 13.1 years), of which 1 (0.5%) patient was younger than 11 years old, 3 (1.5%) - from the age 12 to 17 years old, 139 (71.2%) - from 18 to 49, 51 (26.2%) - from 50 to 69, and 1 (0.5%) - over 70 years old. The average value of UTI was 26.1 ± 5.1, with 6 (3.1%) patients who were underweight, 78 (40%) had normal body weight, 78 (40%) were overweight, 24 (12, 3%) - obesity grade I, 6 (3.1%) -

obesity grade II and 3 (1.5%) - obesity grade III. Eight (4.1%) patients suffered from diabetes, 93 (47.7%) were active smokers, 3 (1.5%) quit smoking and 99 (50.8%) never smoked. In 91 (46.7%) patients, the strictures were located in the anterior part of the urethra, in 104 (53.3%) - in the posterior urethra (Table 1).

The distribution of patients depending on the location of strictures of the urethra Table 1

Stricture localization	amount	
	n	%
Meatus	1	0,5
Hanging section	49	25,1
bulbar section	57	29.2
Rear section	44	22,6
Bladder neck	3	1,5
Panurethral (extended) strictures	41	21,0

The most frequent possible causes of strictures were trauma (38,%) and infection (22.6%) (tab. 2), with the posterior stricture more often as a consequence of the trauma suffered ($p<0.05$), and the anterior one - as a consequence of the infectious process (urethritis; $p<0.05$) (Table 2, figure). In relation to 18% of patients, it was not possible to establish the cause of strictures, therefore the disease was considered idiopathic.

Possible causes of strictures Table 2

Cause of strictures	amount	
	n	%
Injury	75	38,5
Infection	44	22,6
Idiopathic	35	17,9
Instrumental manipulation of the urethra	26	13,3
Catheterization	11	5,6
Congenital	2	1,0
Chemical exposure	2	1,0

The types of injuries were different (Table 3). Most often (48%) patient history showed injuries associated with the production, received in the workplace. Somewhat less (24%) injuries resulting from accidents.

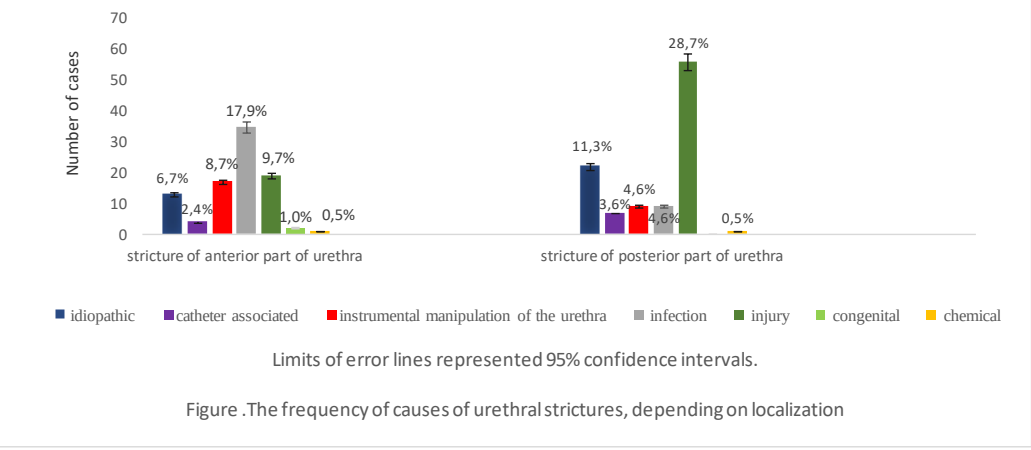

Figure .The frequency of causes of urethral strictures, depending on localization

Of the 75 post-traumatic strictures, 10 (13.3%) were located in the hanging section of the urethra, 32 (42.7%) - in the bulbar, and 24 (32%) - in the posterior.

As for the length of strictures, the strictures of more than 6 cm (panuretral), most often found in 56 (28.7%) patients, were most often encountered. The second (25.6%) place in frequency was occupied by short strictures up to 2 cm long (Table 4).

Table 3. Types of injuries that caused the occurrence of strictures of the urethra						
Type of injury	Hanging section	Bulbar section	Rear section	Bladder neck	Panuretral	Total (%)
Accident	2	14	-	1	1	18 (24,0)
Bicycle riding	1	2	-	-	-	3 (4,0)
Work injury	4	10	16	1	5	36 (48.0
Agricultural	-	-	1	-	-	1 (1,3)
A fall	-	4	5	-	-	9 (12,0)
Fight	3	2	2	-	1	8 (10.7)
Total ...	10	32	24	2	7	75 (100,0)

Table 4. The distribution of strictures, depending on their length		
Stricture Length	amount	
	n	%
<2 см	50	25.6
2-3 см	30	15.4
3-4 см	15	7.7
4-5 см	25	12.8
5-6 см	19	9.7
Panuretral (> 6 cm)	56	28.7

Table 5. Interventions for strictures of the urethra, transferred by patients before contacting the "RSCU"		
Interventions	amount	
	n	%
Ureterodilatation	64	32,8
Urethrotomy	14	7,2
Urethroplastic	29	14,9
Combined	12	6,2
Metatomy	3	1,5
Cystostomy	46	23,6
TUR stricture of urethra	2	1,0
TURP	3	1,5
Was not	22	11,3
Total	195	100,0

173 (88.7%) patients were subjected to various interventions for strictures of the urethra prior to contacting the RSCU (Table 5).

The conclusion. In this study, the frequency of occurrence of MUSD in Uzbekistan was analyzed for the first time. Our analysis of 195 observations of the MUSD revealed some peculiarities of its etiology in our region, which confirms the opinion of many authors that the character of the MUSD is not the same in all countries. There is also an opinion that the epidemiology of the BSU is reflecting the development of the region. From the results of a study conducted by Italian specialists, it is concluded that there is a relationship between the prevalence of damage to the urethra and the economic condition and, consequently, the lifestyle of the respondents, i.e. with the improvement of living conditions, the risk of injuries and the development of post-traumatic urethral strictures is reduced [18].

The results of our study demonstrated the similarity of characteristics of the MUSD in Uzbekistan with those typical of both developed and developing countries, which may reflect the economic and social status of our country. Uzbekistan is one of the 26 rapidly developing countries, and it may be advisable to conduct a large-scale epidemiological study of the

incidence and morbidity rates of MUSD, taking into account the economic development of the country as a whole and its regions in particular.

In developing countries, children and adolescents are often susceptible to injuries of the pelvic organs, resulting in the formation of defects that require complex surgical correction with subsequent long-term negative urological, andrological and psychological consequences [19-21]. In Uzbekistan, on the contrary, these groups are rarely exposed to such injuries, which is apparently due to the fact that cycling and motorcycles are not so popular among young people, which may partially protect young people from road accidents and their consequences [18].

As in any developing country, in Uzbekistan, the most common cause of the development of strictures of the anterior and posterior urethra was trauma, and only 4% of them were caused by trauma due to cycling and 10.7% were obtained as a result of street fights. In the majority (48%) of cases, the post-traumatic strictures were the result of industrial injuries, which was significantly higher than in developed countries [6].

In developed countries, almost all cases of MUSD were acquired and the largest (45%), their part was iatrogenic and arose as a result of urological manipulations (traumatic catheterization, transurethral interventions, correction of hypospadias, prostatectomy, brachytherapy, etc.) [7].

As a rule, iatrogenic urethral injuries result from improper or prolonged catheterization of the urethra. their share can reach 32%, and the bulbar part of the urethra is predominantly affected [6, 13]. There is evidence of the development of urethral strictures after prostate resection (TURP) (up to 3.8%) and trans-urethral incision of the prostate (4.1%) [14, 15].

Another interesting result of our observations is the following: as a result of urological interventions, among men over 50 years of age in Uzbekistan were less common than in developed countries, where this group of the population undergoes endosurgical urological procedures (TURP or similar) more often, than in Uzbekistan, in urological clinics of which the use of this methodology in the treatment of benign prostatic hyperplasia is only gaining popularity [7, 9].

As for the procedures transferred by the patients included in this study, it turned out that most often it was a periodic bougienage of the urethra. At the same time, in 23.6% of cases, patients were hospitalized and subjected to emergency suprapubic cystostomy due to the development of acute urinary retention.

It can be assumed that the importance of diagnostics and treatment of MUSD in Uzbekistan was often underestimated not only by patients but also by doctors, which means that the examination and treatment were not carried out carefully enough. Perhaps that is why in most patients the disease has progressed until the obliteration of the lumen of the urethra. In 22.6% of the patients, postinfectious urethral strictures, resulting from acute acute urethritis, were revealed, which may also suggest that the initial disease of this category of patients was also underestimated and not completely eliminated, which ultimately led to protracted course and chronicity. The findings point to the need to disseminate recommendations for the diagnosis and treatment of urological diseases and the importance of the educational role of the Scientific Society of the Republic of Uzbekistan. The results of our study can serve as an incentive for the further implementation of international standards in the practice of routine management of patients with MUSD.

Limitations of the study. Despite the fact that the study included groups of patients who received treatment in a specialized center of the republican scale, according to its results, it is still impossible to judge the actual spread of the MUSD in Uzbekistan, since it did not cover the republic as a whole. In addition, patients with sclerosing lichen and hypospadias were not included in the study, as they usually receive treatment in oncological or pediatric clinics, respectively.

In order to avoid possible errors related to the different level of experience of the surgeons, we evaluated the data of the results of the interventions of one surgeon, who is highly qualified in

conducting “open” surgical interventions on the urethra. Also in this publication, we did not refer to the results of urethroplasty performed for patients included in the study, since the long-term results of open plastic interventions on the urethra are recommended to be evaluated in terms of 36 months. up to 5 years [22, 23].

Conclusion. The MUSD in Uzbekistan has specific characteristics similar to both developing and developed countries. In our country there are all conditions for activities to improve the diagnosis, treatment and observation of patients with strictures of the urethra of various origins, adequate to the modern capabilities of the urological service.

References.

1. Palminteri E., Berdondini E., Verze P., De Nunzio C., Vitarelli A., Carmignani L. Contemporary urethral stricture characteristics in the developed world. Urology. 2013;81 (1): 191—196.
2. Rourke K., Hickle J. The clinical spectrum of the presenting signs and symptoms of anterior urethral stricture: detailed analysis of a single institutional cohort. Urology. 2012;79(5): 1163—1 167.
3. Santucci R.A., Joyce G.F., Wise M. Male urethral stricture disease. Journal Urol. 2007; 177(5): 1667—1674.
4. Zaid U.B., Hawkins M., Wilson L., Ting J., Harris C., Alwaal A., Zhao L.C., Morey A.F., Breyer B.N. *The cost of surveillance after urethroplasty. Urology. 2015;85(5):1195—1199.*
5. Hampson L.A., McAninch J.W., Breyer B.N. Male urethral strictures and their management. Nature reviews Urology. 2014;11 (1):43—50.
6. Fenton A.S., Morey A.F., Aviles R., Garcia C.R. Anterior urethral strictures: etiology and characteristics. Urology. 2005;65(6): 1055-1058.
7. Lumen N., Hoebeke P., Willemsen P., De Troyer B., Pieters R., Oosterlinck W. Etiology of urethral stricture disease in the 21st century. J Urol. 2009; 182(3):983—987.
8. Heyns C.F., van der Merwe J., Basson J., van der Merwe A. Etiology of male urethral strictures-Evaluation of temporal changes at a single center, and review of the literature. African Journal of Urology. 2012**;** 18**(**1**):**4**—**9**.**
9. Komura K., Inamoto T., Takai T., Uchimoto T., Saito K, Tanda N., Minami K., Oide R., Uehara H., Takahara K., Hirano H., Nomi H., Kiyama S., Watsuji T., Azuma H. Incidence of urethral stricture after bipolar transurethral resection of the prostate using TURis: results from a randomised trial. BJU international. 2015; 115(4):644—652.
10. Barbagli G. History and evolution of transpubic urethroplasty: a lesson for young urologists in training. Eur. Urol. 2007;52(5):1290— 1292.
11. Kulkami S.B., Barbagli G., Kulkarni J.S., Romano G., Lazzeri M. Posterior urethral stricture after pelvic fracture urethral distraction defects in developing and developed countries, and choice of surgical technique. J Urol. 2010; 183(3): 1049—1054.
12. Stein D.M., Thum D.J., Barbagli G., Kulkarni S., Sansalone S., Pardeshi A., Gonzalez C.M. A geographic analysis of male urethral stricture aetiology and location. BJU international. 2013; 112(6):830—834.
13. Buddha S. Complication of urethral catheterisation. Lancet. 2005;365(9462):909.
14. Grechenkov A.S., Glybochko P.V., AlyaevYu.G., Bezrukov Ye.A., Vinarov A.Z., Butnaru D.V., Sukhanov RB Risk factors for the development of anterior urethral strictures after transurethral resection of the prostate gland. Urology. 2015; (1): 62-65.
15. Madersbacher S., Marberger M. Is transurethral resection of the prostate still justified? BJU

international. 1999;83(3):227—237.

16. Burks F.N., Salmon S.A., Smith A.C., Santucci R.A. Urethroplasty: a geographic disparity in care. J Urol. 2012; 187(6):2124—2127.
17. Akilov F.A. Annual report on the activities of the Republican Specialized Center for Urology (unpublished data). 2015.
18. Barbagli G., Sansalone S., Romano G., Lazzeri M. The spectrum of pelvic fracture urethral injuries and posterior urethroplasty in an Italian high-volume centre, from 1980 to 2013. Arab journal of urology. 2015; 13(1):32—36.
19. Koraitim M. M. Posttraumatic posterior urethral strictures in children: a 20-year experience. J Urol. 1997; 157(2):641—645.
20. Onen A, Subasi M., Arslan H., Ozen S., Basuguy E. Long-term urologic, orthopedic, and psychological outcome of posterior urethral rupture in children. Urology. 2005;66(1): 174—179.
21. Zhang J., Xu Y.M., Qiao Y., Jin S.B., Wu D.L., Gu B.J. An evaluation of surgical approaches for posterior urethral distraction defects in boys. J Urol. 2006; 176(1):292—95; discussion 5.
22. Barbagli G.) Kulkami S.B., Fossati N., Larcher A., Sansalone S., Guazzoni G., Romano G., Pankaj J.M., DellAcqua V., Lazzeri M. *Long-term followup and deterioration rate of anterior substitution urethroplasty. J Urol. 2014; 192(3):808—813.*
23. Jonas J.G., Stanton U., Lose G. Research methodology in incontinence. In: Abrams P, Khoury S, Wein A, editors. Incontinence. 1 ed. Plymouth, UK: Health Publication; 1999.