

## URETHRA STRICTURE - MODERN WORLDVIEWS ON ETIOGENIC ATOGENESIS AND PREVENTION

Mustayev Shohjahon Rustam

Students at the Therapy Faculty Samarkand State Institute

Mirazayev Saidaxror Asqarovich

Students at the Therapy Faculty Samarkand State Institute

Mahmudov Havasbek Azizbek ugli

Students at the Therapy Faculty Samarkand State Institute

### ANNOTATION

Urethral stricture (US) is a common disease among men and is a complex urological pathology. In recent years, the number of patients with this disease is growing rapidly and varies from 0.6% to 0.9% of the total population, depending on the age of the patients. In 46.51% of men over the age of 45, the main cause of urethral stricture was the result of transurethral surgery, according to data from SV Zhou and co-authors.

**Keywords:** urethral stricture, anastomotic urethroplasty, substitution urethroplasty,

### INTRODUCTION

Scholars differ on the U.S.. The simplest and most common concept is scarring due to inflammation or traumatic injury of the urethral wall (6,3,9). But can we apply this "concept" to the entire urethra, or to only a specific part of the urethra? Which type of injury (button or acquired) can be called a stricture, depending on its origin?

If we look at the history of the stricture of the urethra, DJ Petrov (1862) was one of the first to define the term: . R.M. Fronstein (1934) explains that "the stricture of the urethra is the narrowing of its normal opening as a result of organic changes in the wall of the urethra" (11). According to A.B. Aga (1951), "the urethra and the surrounding spongyosis are narrowing of its opening (not a button anomaly) due to long or short-distance scarring of the body" (12).

The most widely used concept in Russia, including in our country - M.I. According to Kogan, "US is a disease of the urinary tract caused by polyetiological causes, accompanied by symptoms of the lower urinary tract" (28). Recently, due to the peculiarities of the pathogenesis and the tendency to recurrence, the term "stricture disease of the urethra" is used in the practice of urology, along with the US, as a diagnosis. The SIU, ISUD guidelines, published in 2014, further clarify the concepts and definitions associated with urethral narrowing. For example, the terms "stricture of the urethra" and "stricture of the urethra" refer only to the narrowing of the anterior part of the urethra surrounded by a hollow body. Narrowing of the posterior urethra, which is not associated with pelvic fracture, is called "stenosis". Artificial narrowing of the prostatectomy is also called "stenosis" of the vesicourethral anastomosis. Thus, currently the terms posterior urethral stricture or bladder stricture are not recommended for use in practice

Even due to the geographical, socio-economic status of people, the causes and localization of urethral strictures may be different. For example, in developed countries, the main cause of urethral stricture in men is iatrogenic, while in developing countries it is traumatization. An example of this is the results of retrospective analyzes conducted by D.M. Stein and co-authors in 2013 in a total of 2589 patients treated for urethral stricture in Italy (1646), USA (228) and India (715) (12). That is, in group 1 (Italy and the United States) iatrogenic injuries accounted for 35%, and in group 2 (India) 16%. By localization in the 1st group it was found that the narrowing of the urethra in the penile part was 27%, in the 2nd - 5%, the stricture of the posterior urethra was 34% and 9%, respectively. Meta-analyzes by S. Tritscher and co-authors found that iatrogenic factors developed in 45% of cases (due to transurethral treatments and prolonged walking with a urethral catheter). M.A. According to Kogan and co-authors, this figure is 17.7% (83.86.88). M. Lazzer and co-authors () identified urethral stricture (UUS) of iatrogenic etiology in 38.8% of 2303 patients (34).

A group of Italian scientists, in a large group of 1439 patients, in retrospective studies on the localization of urethral narrowing, found that 92.2% of patients had stricture of the anterior urethra, of which 46.9% - to the bulbous part of the urethra, 30.5% - cpongio spongiosis and bulbosis - 19%, narrowing of the entire urinary tract - 4.9% (5). We know that in the last century, more than 90% of urethral narrowing was caused by untreated gonorrhoea. But nowadays, in the age of antibiotics, gonococcal infection is of no importance as a US cause due to effective treatment. Today, inflammatory narrowing is often associated with lichen sclerosis and non-gonococcal urethritis. YaUS is more common in countries with highly developed medicine. The reason for the increase in the disease is undoubtedly the widespread use of minimally invasive transurethral endoscopic operations in the practice of urology. Catheterization, cystoscopy, especially if the diameter of the instrument does not match the diameter of the urethra, in addition to damage to the mucous membrane, leads to the formation of compression zones and ischemia of the urinary tract, which in turn leads to narrowing of the face (7). The pathogenesis of urethral stricture is based on the occurrence of squamous cell metaplasia of the urethral epithelium and the hollow body tissues that touch it, changes in the extracellular matrix of urethral tissue and the development of spongiofibrosis. The normal connective tissue of the urethral wall is replaced by dense fibrous tissue. These changes cause a decrease in smooth muscle tissue and collagen fibers in the spongy body. As a result, nitric oxide synthesis is reduced, hypoxia of urethral tissue is increased, and the scarring process progresses.

The standard methods of examination today are the usual urological screening methods: retrograde urethrography, mycotic cystourethrography to determine the narrowed area (localization) of the urethra, its length, permeability. Despite the high sensitivity (75-100%) and specificity (72-97%) of these methods of examination, there are two drawbacks: may lead to the choice of method; second, retrograde urethrography does not allow to determine the length and depth of spongiofibrosis, which is a very important factor in the choice of treatment tactics.

It should also be noted that in the interpretation of the results of urethrography, there are different cases of interpretation by the human factor, ie by radiologists or urologists. For example, according to data obtained by Eswara and co-authors (2014), 60 urologists and radiologists at Stanford University in Washington and Northwestern University in the United States were asked to evaluate 10 urethrograms. At that time, retrograde urethrograms and

mycotic cystourethrograms were correctly interpreted by 18 (58%) of 31 radiologists and 19 (65%) of 29 urologists (15). In another study, the urethrograms of 397 patients who underwent urethroplasty by Canadian urologists were analyzed by radiologists, and in only 49% of cases did the radiographs reveal adequate, i.e., data relevant to the condition detected during surgery. In 13% of patients, even narrowing of the urethra was not reported at all.

Since the mid-1980s, the emergence of sonourethrography, proposed by J.W. Mc Anich, has aroused great interest among researchers (17). The sensitivity of this method to the detection of urethral narrowing is 66-100%, and its specificity is 97-98%. Unfortunately, when conducting this study, the accuracy of the stricture length determination is limited to 3-5 cm (36). Also, the shortcomings of this method are directly related to the fact that the doctor conducting the conditional examination is highly qualified in the methodology of its implementation, as well as in the interpretation of the information obtained (19). In particular, on the basis of scientific research conducted by urologists of Rostov DMU over the past 10 years, it was found that the data obtained using dynamic magnetic resonance retrograde and antegrade spongiourethrotomography in stricture of the urethra are almost identical to morphological examinations. Thus, the data show that the method of magnetic resonance urethrotomography is one of the most promising and effective methods for determining the US (length, localization, depth and degree of spongiofibrosis) and plays an important role in planning accurate and quality treatment. The problem is that the value of this verification method is limited in its application in practice today because it is not included in standard protocols. Assessing the degree of lower urinary tract obstruction is of particular importance in the diagnosis of urethral stricture. That is, each patient will have to undergo a uroflowmetry examination, which will be completed by IPSS, QoL and MIEF-5 questionnaires. Although these inspection methods are basic (although not included in the general standards), the monitor is important in conducting observations in the postoperative period. Treatment: It is well known that until recently, the principle of "surgical ladder" was used in the treatment of urethral strictures. That is, before any planned open complex surgery, of course, expansion of the narrowed area of the urethra by budding, followed by internal optical urethrotomy. If there were no results, open-ended operations would be performed. At present, such an approach is outdated. In general, US treatments can be divided into 2 major groups: endourethral and open surgeries. Although ineffective (10%), the method of dilatation, which is widely used in urology (to date), is inexpensive, can be easily performed in all patients in an outpatient setting, although it is a simple form of treatment, has a high recurrence rate and many complications. The instructions for using the method are limited (34).

## LITERATURE

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