



Assessment of the frequency, severity and causes of urethral complications after transurethral resection surgery (Literature Review)

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ABSTRACT

Relevance. Lower urinary tract symptoms secondary to benign prostatic hyperplasia (prostate adenoma) are more common in older men and have a greater than 50% chance of developing the disease in men over 60 years of age[1]. Transurethral resection of the prostate (Turp), defined as the "gold standard" of surgical treatment of prostate adenoma recommended by the American Urological Association (AUA), is minimally invasive[2]. Insertion of a three-sided catheter after transurethral resection was standard practice to prevent bleeding caused by emptying the bladder. Urologists usually remove the catheter, allowing patients to attempt to urinate on their own. [5] the urethra is the second most important factor after traumatic urethral injury due to an increase in the number of transurethral interventions and catheterization and is a leading factor in the development of urethral structures. [3].

The purpose. To study the preventive measures used in the world literature to prevent complications after transurethral resection.

Research material. 18 sources of foreign literature were analyzed on this topic.

Conclusion. Thus, early removal of the catheter is not associated with an increased risk of repeated catheterization or secondary bleeding, but reduces the risk of complications and the length of hospital stay after surgery. However, surgeons performing early catheter removal should consider the specific situations when it is necessary to drain the catheter after surgery. Because it is necessary to develop better measures to prevent urinary tract infections and complications after surgery.

Keywords:

transurethral resection, prostate gland, infection, urethral stricture, hypospadias

Lower urinary tract symptoms secondary to benign prostatic hyperplasia (prostate adenoma) are more common in older men and have a greater than 50% chance of developing the disease in men over 60 years of age[1]. Transurethral resection of the prostate (Turp), defined as the "gold standard" of

surgical treatment for prostate adenoma recommended by the American Urological Association (AUA), is minimally invasive[2]. Insertion of a three-sided catheter after transurethral resection was standard practice to prevent bleeding caused by emptying the bladder. Urologists usually

remove the catheter, allowing patients to attempt to urinate on their own. [5] Urethral complications are the second most important factor after traumatic urethral injury due to an increase in the number of transurethral interventions and catheterization and are the leading factor in the development of urethral strictures. [3]. Long-term catheter placement has been associated with an increased incidence of urinary tract infections (UTIs), longer hospital stays, and increased treatment costs [8]. Early removal of the catheter and early release of patients home will benefit them. The time to remove a three-way catheter depends on the overall experience and varies significantly. The Foley hemostatic catheter was introduced in the 1940s, and the initial protocol for inserting the catheter was documented as "flushing the bladder fifteen minutes after surgery and leaving the catheter on for three days" [9]. Since then, many methods have emerged. In Australia and the United Kingdom, continuous washing of the bladder with saline solution for 24 hours and removal of the catheter on the second day and routine procedures after surgery [10].

Urethral complications are the second most important factor after traumatic urethral injury due to an increase in the number of transurethral interventions and catheterization and are the leading factor in the development of urethral strictures. [3]. Stein et al. he "analyzed the etiology and localization of urethral stricture by retrospective evaluation in patients, combining patients who underwent a study in Italy and the United States into a group I, and patients studied in India, in the group II" [4]. "In group I, compared to group II, patients with yatrogenic urethral lesions prevailed (35% and 16%, respectively). I urethral strictures predominated after previously treated hypospadias (49%), while in the second half of the study, the majority of patients were treated with hypospadias. II In this group, the proportion of posthypospadias strictures was only 16%. The Indian group was dominated by patients with sclerotic lichen (22%) and urethral damage (36% and 16%) as a result of external damage. As a result, posterior urethral

stenosis prevailed in group I (27 %) and group II (5%), while penile urethral strictures prevailed (34% and 9%). The leading etiological factor in the development of narrowing of the urinary tract in men over 45 years of age in developed countries is the lack of surgical approach and catheterization. S.Zhou et al. examined the etiology of urethral stricture in 172 patients and showed that transurethral interventions were the cause of the disease in 46.51% of cases. The average length of the structure was 3.3 cm. Palminteri et al. in their study: evaluated the etiology and characteristics of urethral stricture in men. otcongenital strictures accounted for 38.6%, including post - catheterical - 16.3% (average stricture length 4.4 cm), post - hypospadias-12.2% (average stricture length 4.43 cm), after transurethral interventions-9.1%. Instrumental interventions in the urethra, in particular transurethral resection, lead to narrowing of the membranous part of the urethra, "narrowing of the sphincter", since fibrosis affects the sphincter of the urethra. Membrane strictures of the urethra are very rare, but "the occurrence of urethral stenosis is rapidly increasing due to the development of new technologies used to treat prostate diseases, such as cryotherapy, brachytherapy, and laser treatment" [19]. C. Strictures V. It is systematized in accordance with the classification proposed by Kotov [19]: A. "endoscopic strictures-transurethral surgeries, traumatic catheterization. Due to the nature of changes in the urethra, this group can include stricture caused by intraurethral injection of foreign bodies by the patient for sexual satisfaction" [19]. "Catheter strictures are the result of a long stay of the urethral catheter, but by genesis they are post-inflammatory strictures and ischemic" [19]-in patients with cardiovascular diseases, mainly with coronary artery bypass grafting and a long stay in the intensive care unit with a urethral catheter. Posthypospadias strictures caused by unsuccessful correction of hypospadias " [19]. Postradiation strictures as complications of radiation therapy for prostate cancer " [19]. Chemical strictures resulting from the introduction of aggressive chemicals

(containing silver, alcohol). According to the world literature, the probability of formation of urethral strictures after transurethral resection ranges from 2.2% to 18% [1]. Hoffmann R. et al. identify two main reasons that cause narrowing of the urinary tract after Tur surgery [13]: 1) mismatch of the instrument size and urethral diameter; 2) insufficient isolation of the instrument with lubricants, which leads to leakage of monopolar current. The authors recommend applying a lubricating gel all over the tool. During prolonged resection, the gel should be applied repeatedly. You should also avoid high voltage applications. In theory, bipolar technology or a laser can reduce the risk of narrowing the urinary tract. Usually, narrowing of the urethra occurs within the first year after transurethral resection [14]. A. S. Grechenkov in his work "prevention and treatment of urethral stricture and sclerosis of the bladder neck" evaluated the results of postoperative treatment, and urethral stricture in the period from 2 to 12 months after surgery was detected in 8.6% of cases. These were mainly structures of the bulbous urinary tract (79.4%). There are also risk factors that have a greater impact on the development of urethral structures: the volume of the prostate gland is more than 70 cm³, so the duration of surgical care is more than 70 minutes, and the diameter of the instrument is 27 mm. Also, concomitant disease in patients with diabetes mellitus can provoke the development of Scar-sclerotic changes in the urethra in the postoperative period" [11]. Yatcongenital lesions during catheterization occur in 0.3-3% of men. The consequences of traumatic catheterization may include narrowing of the urinary tract, urinary incontinence, erectile dysfunction, and infertility [15]. The incidence of urethritis, prostatitis, cystitis, and sepsis within 2 weeks after injury is 12%, 72%, 3.45%, and 1.9%, respectively.

The study of the morphology of urethral structures shows that the urethral epithelium is the result of metaplasia, the alternation of normal columnar multi-row epithelium with flat multi-layered epithelium. This is a fragile epithelium that tends to scratch when urinating and leads to many complications. "Internal

optical urethrotomy is the most common minimally invasive treatment for narrowing of the urinary tract in men "[18]. Depending on the etiology of the stricture, the effectiveness can reach 52% [18]. However, " Martov A. G. and co-authors. The results of treatment of patients with an average length of 1.4 cm (from 0.5 cm to 8.0 cm) with narrowing of the bulbous part of the urethra are published. The initial efficacy results for internal optical urethromy were 80.4%. Repeated urethrotomy was performed from 1 to 6 times in 19.6% of cases, and the overall frequency of positive results was 95.1%" [16]. In 2010, Lumen et al. presented the results of a new method of urethroplasty, which consisted of a longitudinal incision of the narrowed part of the urethra along the ventral surface, followed by stitching the defect in the transverse direction, thereby implementing the Heine - Mikulich principle. The efficiency reached 90% [17]. Kulkarni et al. presented the results of treatment of patients with a panurethral structure in 2012. The method of increasing the dorsal urethroplasty is used with the mobilization of the urethra only on one side and from one perineal entrance. To enlarge the part of the penis, the penis penetrated the perineum and thus avoided a second incision. The overall efficiency was 83.7%." "The novelty of urethral surgery is the application of tissue engineering. For urethroplasty, two variants of cultured tissue can be used: from the cheek mucosa and from the urethra itself. A serious disadvantage of modern graft designs is the lack of a vascular network in them. Rapid restoration of blood circulation after transplantation is one of the key factors for successful recovery of urethral tissue after urethroplasty [7].

Thus, early removal of the catheter is not associated with an increased risk of repeated catheterization or secondary bleeding, but reduces the risk of complications and the length of hospital stay after surgery. However, surgeons performing early catheter removal should consider the specific situations

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