

URETHRAL INJURY IN MEN

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ABSTRACT

Surgical treatment of the consequences of injuries to the pelvic bones and lower urinary tract is one of the most complex and least developed problems of modern surgery, traumatology and urology. A large number of unsatisfactory results in the treatment of patients with this pathology is a consequence of the unjustified use of conservative treatment and unsuccessful surgical interventions.

INTRODUCTION

The number of patients with this type of injury is constantly increasing from year to year, which is primarily due to the growth of traffic injuries. The situation is aggravated by the lack of a clearly developed scheme of examination and provision of joint qualified medical care by urologists and traumatologists to this group of patients. At the same time, one of the main problems in surgical treatment in this case of this group of patients is the correct and scientifically substantiated choice by traumatologists and urologists of not only one or another surgical aid, but also the sequence of performing the urological and/or traumatological stages.

MATERIALS AND METHODS

The predominant cause of the formation of urethral stricture at present is the consequences of trauma to the urethra. Closed injuries of the urethra in peacetime, as a rule, are the result of transport and industrial injuries, less often - domestic, in wartime - the result of saturation of the modern army with equipment and the use of weapons that have a large destructive strength [2]. In case of traumatic injury of the urethra, its complete rupture is observed in 65% of cases, partial - in 35%.

RESULTS AND DISCUSSION

In 68-84%, the cause of damage to the posterior urethra is a car accident, in 25-60% - a fall on the perineum. According to Palmer J.K. et al. pelvic fractures are combined with damage to the urethra in 10% of cases [1]. In turn, almost all injuries of the membranous urethra caused by blunt trauma are combined with damage to the pelvic bones. In addition, according to Carlin

B.I. et al. urethral injury is combined with bladder injury in 10-20% [3]. Damage to the pelvic organs most often occurs in people under the age of 30 years. Perry M.O. and Husmann D.A. urethral injuries due to pelvic trauma in women occurs in 1-6% of cases, they are caused by the

impact of bone fragments and are often combined with injuries of the rectum (30%) and vagina (75%) [2].

Injuries to the anterior urethra in men are three times less common than injuries to the posterior urethra, which is associated with the anatomical features of the urethra, in particular, the high mobility of the hanging urethra [3]. Injuries to the anterior urethra account for only 10% of all injuries of the lower urinary tract. The main cause of anterior urethral injury is blunt or penetrating trauma. In blunt trauma of the perineum, the bulbous urethra is damaged in 85% of cases. The reason for this is the anatomical fixation of this section of the urethra to the pubic bones and its compression between them and the traumatic object.

In contrast to injuries of the posterior urethra, which are very often combined with injuries to other organs, trauma to the anterior urethra is more often isolated. Moreover, trauma to the anterior urethra often goes unnoticed by patients, and they seek medical help after a few months with complaints of difficulty urinating due to the development of stricture [1].

The mechanism and localization of trauma to the anterior urethra and the ways of spreading of urinary streaks in case of its damage are shown in Figure 1.

The anatomical and physiological feature of the pelvic ring is its rigidity, which makes it possible to keep the body upright. The bones of the pelvic ring are characterized by low mobility and high strength, they are able to withstand pressure weighing from 200 to 1115 kg. The rigidity of the pelvic ring is provided by the tendon and ligament apparatus. Less firmly pubic-sciatic articulation, constituting the anterior semicircle. The sacroiliac articulations (posterior half ring) have stronger characteristics.

The degree and nature of damage to the membranous urethra (from tear to rupture) depend on the strength, speed of contraction of the pelvic diaphragm and the degree of damage and displacement of the pelvic bones. The extent and localization of various injuries of the pelvic diaphragm depend on the mechanism and location of the injury. With various fractures of the pelvic bones, and especially the anterior semicircle, the membranous and/or bulbous part of the urethra is most often damaged.

Chronic fractures of the pelvic bones, combined with injuries of the urethra, are among the most difficult interventions in the operational sense. This is primarily due to the fact that performing various urethroplasty in order to restore independent urination in some cases is impossible due to various pronounced post-traumatic deformities of the pelvic bones.

Combined or combined polytrauma belongs to the category of the most severe and, as a rule, is accompanied not only by damage to the bones of the pelvis and urethra, but also by damage to vital organs - the brain, spine, abdominal organs, etc. e. Therefore, in the acute period, when patients are admitted to the hospital in a state of shock and life-threatening bleeding, medical care is aimed at saving the victim. At this stage, minimal attention is paid to the assessment of the severity of traumatological and urological injuries, if there are no injuries of the pelvic organs that require suturing and drainage. When patients with pelvic injuries and impaired self-urination or varying degrees of urethrorrhagia are admitted to the hospital, urologists limit themselves to installing an epicystostomy to drain the bladder. When such patients are admitted to traumatology departments, traumatologists are limited to conservative treatment - bed rest and forced position on the back for 1.5-3 months. At this stage, few specialists pay the necessary attention to the nature and extent of damage to the pelvic bones and organs of the genitourinary system.

This is what, in most cases, becomes the main reason for the failure of various types of urethroplasty and the complications that arise after it. Complications of urethroplasty in these situations include the formation of recurrent strictures and obliterations, the formation of fistulas

of various localizations. When restoring the patency of the urethra after urethroplasty, complications such as various forms of urinary incontinence associated with damage to the membranous part of the urethra, as well as the development of retrograde ejaculation when the bladder neck is damaged, may occur.

A feature of the ligamentous apparatus of the pelvic bones is that in case of an injury with a displacement of the bones along the plane of more than 2–3 mm, various irreversible damages to the ligamentous apparatus of the anterior and/or posterior semicircle occur. Therefore, with various fractures of the pelvic bones, the ligamentous apparatus of the anterior and / or posterior half-ring is always damaged.

Inside the pelvic ring, the membranous section of the urethra, consisting of muscular-fascial formations, is evenly and individually “stretched”, depending on the configuration of the pelvis. The pelvic section of the diaphragm is anatomically located inside the small pelvis, attached to the inner surfaces of the pubic-sciatic bones in front, and behind - to the sacrum. Due to this, the pelvic organs are kept from falling out. The urethral canal passes through the pelvic diaphragm, which is located in close proximity to the anterior half-ring of the pelvis.

The length of the membranous part of the urethra is 1-1.5 cm, the wall thickness of the urethra is 0.15 mm. This section is the external urethral sphincter responsible for urinary retention. It is the close anatomical and topographic location of the membranous part of the urethra inside the pelvic ring in case of pelvic injuries with damage to its anterior half ring that often leads to various injuries in the area of this part of the urethra. In men, cavernous bodies are located on both sides of the lower surfaces of the ischial bones, and therefore, as a rule, with injuries of the anterior half-ring of the pelvis, not only the urethral canal is damaged, but also the cavernous bodies, which leads to various forms of erectile dysfunction.

Thus, complications after a pelvic injury in men and women are clinically manifested not only by various disorders of the musculoskeletal system, but by various urinary disorders from its acute retention to total urinary incontinence. The inefficiency of repeated attempts of urethroplasty in the future may lead to the need for lifelong drainage of the bladder with a cystostomy. If urinary incontinence occurs, it can be eliminated by the installation of an artificial bladder sphincter or sling surgery, both in men and women.

CONCLUSION

Thus, serious complications from the lower urinary tract as a result of a pelvic injury necessitate the development and implementation in the practice of traumatologists and urologists of an algorithm for diagnosing and treating these severe complications, not only for their treatment, but and for the social adaptation of the victim.

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