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Common Complications after Surgical Treatment of Benign Prostatic Hyperplasia

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Abstract: The article provides a comparative analysis of the results of the used methods of surgical treatment of patients with prostate adenoma. An assessment is made of the standardization of surgical interventions TUR of the BPH for adenoma as the “gold standard” in comparison with transvesical extraurethral adenomectomy.

After TURP of the BPH, according to domestic and foreign authors, taking into account our own data, complications arise in total from 28.7 to 100% with non-radical removal of adenomotic (hyperplastic) tissues, and after extraurethral radical adenomectomy – 5.6% of cases.

Thus, open transvesical, or retropubic, extraurethral adenomectomy is many times superior to “closed” transurethral resection of the prostate in terms of immediate and long-term results.

Keywords: transurethral resection, extraurethral adenomectomy, prostate adenoma, retropubic adenomectomy.

Standardization is a set of normative documents regulating a set of norms, rules, requirements approved by the competent authorities [1]. For surgical urology, this is a sample of surgical intervention, in particular, on the prostate gland for adenoma. Standards are developed based on the results of clinical and pathological studies conducted according to a specific program.

The standard is necessary to establish uniform requirements for surgical intervention. Unification helps improve the quality of the operation and postoperative results.

Standard performance of transurethral resection of the prostate gland (TURP BPH) for pancreatic adenoma (PAA) with the following options: pseudo-TUR – only a small part of the hyperplastic tissue is removed mainly from the area of the bladder neck or part of the middle prostate lobes (creation of the so-called urinary tract); portional TUR – remove 30–80% hyperplastic tissue with the formation of a cone-shaped canal in the bladder and BPH.

Portional resection is divided into palliative and subtotal. With a total tour (transurethral adenomectomy) removes up to 100% of the volume of hyperplastic tissue, which, according to some authors [2, 3], corresponds to open surgery; radical (subradical) TUR involves the removal of all prostate tissue along with the capsule [4].

It is impossible to remove the BPH together with the fibrous capsule using a resectoscope loop, since the latter has an intracapsular venous network, damage to which is accompanied by heavy bleeding. In addition, when removing the entire prostate using a resectoscope loop, the paraprostatic venous plexus is inevitably damaged.

A common indication for TUR for BPH is relief of symptoms of the disease. and the probability of improvement in the condition of patients was determined to be up to 88% (ANSRK, 1994). In 1996, WHO

Indications for performing TURP of the BPH were developed and proposed for clinical testing:

- the volume of hyperplastic prostate tissue is less than 60 cm3;
- obesity, severe concomitant diseases of the cardiovascular system;

- previous operations on the bladder, prostate, anterior abdominal wall, intestines;
- unsatisfactory results of previous treatment: hyperthermia, thermotherapy using laser energy, laser treatment;
- true and false relapses of the disease;
- long-term unsuccessful conservative treatment, including medication;
- combination of Adnomectomy with chronic prostatitis and prostate stones.

Many urologists believe that the main indication for TUR is the skill and experience of the operating surgeon, while the operation itself is one of the most complex and precious operations in the entire spectrum of transurethral endosurgery [5]. The amount of resected material depends only on the surgeon's experience, but the main thing is not to exceed the one-hour maximum duration of the operation, as this is associated with an increased risk of bleeding and other complications [3, 5, 6].

A. Z. Vinarov et al. [5] believe that TUR BPH does not depend on the volume of the hyperplastic prostate with the planned duration of the operation no more than 90 minutes.

The reference point when performing TUR of the BPH is the seminal tubercle, which is the distal border of the resection, as well as the bladder neck and interureteric fold, which proximally limit the resection zone. Violation of proximal landmarks entails damage to the ureteric orifices and perforation of the bladder wall. Resection of prostate tissue distal to the seminal tubercle is unacceptable due to the risk of damage to the external urethral sphincter, located in close proximity to it; The seminal tubercle is an integral part of the voluntary sphincter of the urethra.

The choice of surgical method of treatment - adenomectomy - is determined by the degree of invasiveness of the procedure and the radicality of the treatment. In addition, the expected number of complications, accessibility, cost of surgery, quality of life of patients and many other factors are important.

One of the criteria for the disability of an intervention is the volume and specificity of damaged tissues during the treatment procedure. The surgical approach must be adequate to the main radical stage of the operation [7, 8]. Open operations occupy a leading position both in terms of disability and in the radicality of the intervention [8]. With TUR of BPH, the degree and true extent of damage to the tissues of the prostate, prostate urethra and bladder are "hidden", i.e. the extent of the invasiveness of the operation. During TUR, the prostatic urethra, the neck and the adjacent part of the bladder, and the BPH tissue located between the adenomatous formations are removed (in stages).

Excision of the parenchyma of the BPH along with adenomatous tissue causes a disruption of the anatomical structure and functional activity of the organ. During TUR of the BPH, the excretory ducts of the main glands are excised. As a result of these interventions, the cut excretory ducts lose their anatomical integrity, and the anatomical and functional activity of the acini is disrupted. In the remaining part of the prostate parenchyma, the inflammatory process worsens (in 100% of cases) [9].

After TUR, an internal wound cavity is formed, occupying the bed of the adenoma, surrounded by a surgical capsule on one side and a defect in the lower part of the bladder on the other.

The wound cavity after electrical resection remains covered with a thermally damaged layer of tissue.

During the healing process of the wound surface, damaged tissue in the form of a scab is rejected, which In some cases, it is accompanied by intravesical bleeding on the 7th–8th, 13th–14th and 21st days [10]. Over time, damaged tissues become covered with granulations, and then with urothelium, growing from the mucous membrane of the bladder and urethra. Cleansing of the wound surface and covering it with urothelium occurs within 6–18 months. The wound cavity turns into the so-called pre-bladder, located between the bladder cavity and the resected proximal end of the urethra. Urinary stones form in the prebladder, the inflammatory process is maintained and constant dysuria persists. Instead of an incision in the anterior abdominal wall, a wound cavity is formed for the patient - a

prebladder, which remains with the patient forever. And all this is called the gold standard of TUR BPH for adenoma.

The postoperative wound of the anterior abdominal wall and the incision in the wall of the bladder after radical removal of adenomatous tissue heal within 2–3 weeks, which is accompanied by the restoration of free urination. Thus, the results of open adenomectomy compare favorably with those after TUR of the BPH. To date, transvesical extraurethral adenomectomy has not been mastered in detail by many urologists and surgeons, and many clinics around the world are learning about it for the first time. Therefore, TURP for adenoma is considered a “prestigious” operation. Before mastering the “prestigious” operation, the urologist is obliged to learn how to perform open adenomectomy, since often during TURP he is forced to switch to transvesical adenomectomy and perform full hemostasis.

TUR BPH can be performed only if the urethra is patent for the tube a resectoscope, the diameter of which should be less than the caliber of the urethral lumen. The clinic is forced to use cystoresectoscopes No. 24 and 27, which can only be used after bougienage of the urethra, since the caliber of the urethra in most patients is smaller than the diameter of the resectoscope.

Forcible insertion of a resectoscope that does not correspond to the caliber of the urethra is accompanied by desquamation of the mucosa and sometimes perforation of the wall, which subsequently leads to the development of a cicatricial stricture of the urethra [9].

TUR BPH is feasible only when the bladder capacity is at least 100 ml and is contraindicated in the presence of vesicoureteral reflexes, ureteropyeloectasia on both sides and on one side. TUR BPH is performed in the absence of tumors, diverticula in the bladder and when the ureteric orifices are located outside the resection zone. TUR BPH is contraindicated in the presence of varicose veins of the bladder neck and urethra.

With transurethral vaporization of BPH, the current intensity is 25–50% higher than with standard TUR. At the same time, the depth of coagulation necrosis is approximately 10 times higher than that with TUR, which significantly reduces tissue bleeding during surgery. However, coagulative necrosis prostate tissue, according to the laws of reparative processes, affected tissue is rejected significantly longer than after a regular TOUR.

In the postoperative period, vaporization is also accompanied by intravesical bleeding. Despite this, specialists who perform endourethral surgeries note the advantageous difference between vaporization and conventional TUR, which is accompanied by bleeding of varying intensity during surgery for the BPH [6]. And this is also called the gold standard in the treatment of a patient with BPH.

The main cause of intraoperative bleeding should be considered damage to large arterial vessels supplying blood to the BPH tissue. In addition, bleeding may occur from large venous sinuses and varicose veins of the vesicourethral segment, with perforation of the surgical capsule of the BPH with damage to the sub- and intracapsular venous plexuses.

The base of the BPH is closely fused with the neck of the bladder. During resection of the vesicourethral segment, the fibrous capsule of the prostate is easily damaged. If a nearby venous sinus is injured, massive bleeding occurs, leading to tamponade bladder. The venous sinus has the appearance of a large vessel, the size of which in some cases may exceed the diameter of the instrument [9]. To prevent bladder tamponade and stop bleeding, transurethral resection is stopped, and the need arises open surgery, since in most cases electrocoagulation of large venous trunks does not stop bleeding. In case of bleeding that does not stop within 24 hours against the background of conservative treatment, it is indicated open surgery - removal of remaining adenomatous tissue and hemostasis. Correction of the vesicourethral segment after transurethral resection is much more difficult to perform than with extraurethral adenomectomy.

In total, complications after TURP develop in 28.7–100%, after extraurethral adenomectomy - in 5.6% of cases [4, 9, 11, 13]. One of the most formidable postoperative complications is the development of water intoxication of the body (TUR syndrome), which requires emergency conservative measures

aimed at normalizing water and electrolyte balance, stabilizing hemodynamics and carrying out extracorporeal hemodialysis. Acute inflammatory diseases after TURP of BPH occur in approximately 13% of cases. Often these complications are different and are accompanied by extremely severe development of purulent-destructive changes in the scrotal organs, BPH of the bladder, requiring emergency surgical interventions (orchiepididymectomy, puncture or open epicystostomy). In the late postoperative period after TUR, the structure of the urethra and cicatricial changes in the bladder neck develop (up to 18% of those operated on). Sclerosis of the bladder neck after TURP of BPH occurs in 15% of cases.

The incidence of retrograde ejaculation ranges from 75 to 93% [11].

With so many complications of TURP, including iatrogenic damage bladder, urethra, BPH, perforation of the fibrous capsule of the prostate, disruption of the integrity of the proximal urethral sphincter, excision of the remarkable apparatus of the bladder and creation of a wound cavity - the pre-bladder - with non-radical removal of adenomatous tissue in the prostate, one should talk about the “gold standard” at least.

The immediate and long-term results of endourethral adenomectomy according to Fedorov-Freyer are in many ways comparable to the results of TUR of the BPH. However, during the Fedorov-Freyer operation, radical removal of adenomatous tissue is performed while preserving the surgical capsule, and during TUR, fragments of adenoma always or almost always remain unremoved.

The results of more than 300 adenectomies performed prove that the best method of open surgery on the pancreas is extraurethral adenomectomy. It has a clear advantage over other methods, including TUR BPH, described in medical literature by both domestic and foreign authors.

Conclusion. Thus, open transvesical extraurethral adenomectomy in terms of the radical removal of adenomatous tissue, preservation of anatomical functional structures, the number of postoperative complications, the duration of the rehabilitation period and the nature of restoration of independent full urination is many times superior to closed TUR of the urinary tract. Therefore, the definition of TUR BPH as the “gold standard” does not meet the requirements of the standard, especially the “gold” one.

For a patient who has adenomatous formations only in the lateral lobes of the prostate, classical retropubic adenomectomy, performed with preservation of the prostatic urethra and the integrity of the urethral and dorsal vascular plexuses, usually proceeds without any particularities or complications. Urination is restored immediately after removal of the urethral catheter.

Incision of the soft tissues of the anterior abdominal wall and the anterior surgical capsule of the prostate the least traumatic and radical removal of the adenoma and an easily tolerated surgical intervention for a patient with BPH at any age.

One can only speculate and pose the question: for whom is TOUR BPH the “gold standard”?!

Probably only for the operator who visited, “toured” and the patient in the next 24 hours left the hospital or day hospital for outpatient treatment. Then the ordeal begins for the patient in search of treatment for constant dysuria, unsatisfactory urination or developed complications: gross hematuria, intravesical bleeding, postoperative prostatitis, cystitis, orchiepididymitis, acute or exacerbation of chronic pyelonephritis, urinary incontinence, urethral stricture, sclerosis of the bladder neck, etc.

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