

ORIGINAL ARTICLE

EXPERIENCE USING LASER IN THE TREATMENT OF POLYPS OF THE EXTERNAL URETHRAL ORIFICE

DOI: 10.36740/WLek202110219

Stepan S. Filip, Rudolf M. Slyvka, Andriy M. Bratasyuk, Anton I. Batchynsky

UZHGOROD NATIONAL UNIVERSITY, UZHGOROD, UKRAINE

ABSTRACT

The aim: To improve the results of treatment of patients with polyps of the external urethral orifice by using minimally invasive surgery.

Materials and methods: The materials of the work are based on clinical examination and treatment of 22 patients with polyps of the external urethral orifice in the treatment of which, along with classical treatment were used minimally invasive methods of removal of polyps of the external urethral orifice using high-intensity laser.

Results: We managed to reduce the duration of surgery and treatment twice less, to avoid typical complications, which accelerated the regeneration process and the rehabilitation period.

Conclusions: The use of minimally invasive surgical methods to remove urethral polyps can reduce the duration of treatment by reduction of the thermal and mechanical load on the surrounding tissues and reducing the time of surgery.

KEY WORDS: polyp, urethra, external urethral orifice, laser

Wiad Lek. 2021;74(10 p.11):2627-2629

INTRODUCTION

Benign tumors are a pressing problem today. Due to the fact that their preliminary detection and timely use are announced as direct preventive measures against the occurrence of criminal tumors. Urethral polyp is a neoplasm of benign nature, which occurs mainly in elderly and middle-aged women, and shows its hypertrophied fibrous tissue of dark red color. In addition, its head is also easily damaged due to mechanical and chemical exposure. It is located both proximally and distally on restoration of external urethral orifice. Sometimes the polyp comes from the external urethra, which even turn to the lower, closing its lumen causing these or other disorders of urination [1-3].

The urethra is lined with a cylindrical epithelium from the middle and its tumors form a separate group by morphological structure. They are divided into pre-benign and malignant, and benign occur more often, especially in women. In men, urethral tumors are relatively rare. The disease usually affects middle-aged people. Men are affected mainly at the age of 20-50 years, women – 40 years and older [4].

It is considered that the etiological factors in the formation of urethral polyps are chronic infectious and inflammatory diseases of the urethra (urethritis), chlamydia, trichomoniasis, gonorrhoea, mycoplasmosis, ureaplasmosis, herpes genius. In addition, the disease may be associated with human papilloma virus [4,5].

Urethral polyps in women are more likely to occur from the posterior labia of the external urethral orifice, are more often observed in the postmenopausal period and are associated with hormonal imbalance – estrogen deficiency,

mechanical trauma and chronic inflammatory diseases of the urinary tract of infectious origin. The development of an urethral polyp is initially asymptomatic, and later manifestations of the polyp may be difficulty urinating, discomfort in the urethra, splashing urine during urination, manifestations of chronic cystitis, micro- and macrohematuria. Infravesical obstruction resulting from urethral polyps is accompanied by persistent cystitis, often leading to complications: secondary diverticulum of the bladder, ureterohydronephrosis, chronic pyelonephritis [4,5].

Several different methods of treatment of benign urethral tumors are used: conventional surgical excision, transurethral and electroresection, cryodestruction [5,6], and in recent years – laser vaporization [7].

THE AIM

To improve the results of treatment of patients with polyps of the external urethral orifice by using minimally invasive surgery.

MATERIALS AND METHODS

During 2018 – 2021 on the basis of the clinic of the Department of General Surgery of Uzhgorod National University 22 patients with polyps of the urethra were treated, including 20 (90.9%) women and 2 men (10%). The age of patients ranged from 40 to 69 years.

The main complaints during hospitalization were disorders, difficulty urinating, itching, contact bleeding,

physiological and aesthetic discomfort. The duration of the disease ranged from 6 months to 4 years.

Benign urethral tumors in women have long been asymptomatic. Such tumors were detected, as a rule, during preventive gynecological and urological examinations. Sometimes women were bothered by dysuric phenomena, contact bleeding, pain during intercourse, movements, exercise, urinary incontinence. In men, there were characteristic changes in the flow of urine (weakening, difficulty, spraying, feeling of obstruction), dysuric phenomena, initial hematuria.

The diagnosis was based on the data of general examination, palpation, urethrography, urethroscopy, cytological examination, biopsy. It was also important to distinguish the polyp from the outwardly similar prolapse of the female urethra, in which its wall was easily fixed.

The pathology is often associated with inflammation and prolapse of the pelvic organs. Differential diagnosis of urethral polyps is performed with urethral papillomas, which are also located in the area of the external urethral orifice, have a broad base, round shape, pink color and resemble warts with a large number of granular and villous processes. Prolapse and pinching of the mucous membrane of the urethra is an indication for urgent surgery – circular excision of the fallen mucosa and circular suturing of a healthy urethral mucosa with the vaginal mucosa using catgut sutures [8-10].

Classical electrocoagulation of polyps was performed in 12 patients (54.5%). In 10 patients (45.5%) during the last three years in order to remove polyps of the external urethral orifice, we used a high-intensity diode laser “Lika-surgeon” manufactured by Cherkasy MP “Photonics-plus” with a capacity of up to 8 W in the mode of continuous emission, wavelength 980 nm.

Laser emission was applied to the polyp using a monovolo-equine fiber with a diameter of 0.4–0.8 mm. For anesthesia, mainly local anesthesia with 2% lidocaine solution was used, in 4 cases (18%) intravenous anesthesia was used. The polyp was completely removed by removing the leg with additional treatment of the bed, in order to stop the bleeding and to prevent recurrence. After removal of the polyp, a two-channel Foley silicone boat was installed in the bladder cavity to prevent chemical irritation of the postoperative area with urine. Miramistin-based gels and solutions were used to rehabilitate the postoperative area, and gauze pads impregnated with sea buckthorn oil were used to accelerate regeneration.

Evaluated the duration of surgery, the dynamics of the wound process, the presence of complications and recurrences, the duration of treatment.

RESULTS

In all patients treated with laser vaporization of the polyp of the external urethral orifice, the first signs of improved urination were observed during the first day, with electrocoagulation – for 3-4 days. The duration of surgery was 5-7 minutes, with electrocoagulation – 13-18 minutes. The vaporization of the polyp in the vast majority was not accompanied by bleeding, in electrocoagulation – in most of cases, more or less pronounced

bleeding was observed, which sometimes required suturing. The peculiarity of laser polypectomy is also the absence of excessive thermal load of the surrounding and deeper tissues due to the point, dosed and controlled effect of high-intensity semiconductor laser on soft tissues, which warns as early (during and in the first days after surgery) and late (after scab rejection) bleeding. There were no complications in the form of cicatricial deformation (urethral stricture), with electrocoagulation – in 4 patients (18%). Foley’s urinary catheter was removed on the second day, with electrocoagulation – on day 4-6, in 3 patients catheterization of the bladder after laser vaporization was not performed. The number of bed-days in patients was 3.4 days, with electrocoagulation – 8.4 days, in the presence of complications – up to 16 days. Complete wound healing occurred within 6-7 days, with electrocoagulation – 14-16 days.

DISCUSSION

There are three groups of benign tumors of the urethra:

- a) from the mucous membrane of the urethra and its glands (papilloma, polyp, caruncle, condyloma);
- b) from the connective tissue and muscular membrane of the urethra (fibroma, fibroid, fibromyoma);
- c) from nervous and vascular tissue (neurofibroma, angioma) [1-3].

Benign tumors of this anatomical area are also divided into urethral (papillomas, polyps, condyloma) and paraurethral (fibroids, fibroids, fibromyomas, angiomas, neurofibromas) in men more often occur acute condyloma, polyps and papillomas, papillomas, – polyps, less often – papillomas [1-4].

According to the microscopic structure, a polyp of the urethra is a benign tumor (papilloma, adenoma), but can turn into malignant (malignancy). In the context of modern oncology, early diagnosis and radical, minimally invasive removal of urethral polyps are an example of timely prevention of malignant tumors of the urinary system.

Urethral polyp can be suspected and subsequently diagnosed on the basis of anamnestic data, complaints and physical examination. The vast majority can be absorbed: difficult and painful urination, the appearance of a soft formation in the urethra, which the patient can detect on their own, the appearance of blood in the urine, burning in the urethra provoked by urination or without a cause, splashing urine, foreign body sensation in the urethral lumen, feeling of incomplete emptying of the bladder, pain during intercourse, urinary retention [5,6,10].

The advantage of high-intensity semiconductor laser is the absence or minimal bleeding during surgery and minimal thermal load of the surrounding tissues, which allows for manipulations with minimal tissue damage, to avoid most of the complications characteristic of traditional methods of treatment of this pathology. prevent recurrence [7].

CONCLUSIONS

The use of a high-intensity semiconductor laser with a wavelength of 980 nm and a continuous emission power of

up to 8 W allows to reduce the time of surgery and reduce the psycho-emotional load of patients.

After using a high-intensity laser, rapid regeneration of the structural elements of the urethra is observed, without loss of elasticity, which allows to significantly reduce the duration of treatment (up to 3.4 days), increase the “comfort” of treatment.

Supply of high-intensity laser emission to the pathological formation with the help of a monofiber fiber allows to limit the area of intervention, is technically accessible and easy to use.

REFERENCES

1. Kavoussi L. R. et al. Campbell-Walsh Urology. Elsevier Saunders; 2012. 2289 p.
2. Vasavada S. P et al. Female urology, urogynecology, and voiding dysfunction New York: Marcel. 2005, 840 p.
3. Goldman H. B., Vasavada S. P. Female urology. A practical clinical guide. Humana Press Inc., 2007; 1:327-350.
4. Tayib A. M., Al-Maghrabi J.A., Mosli H.A. Urethral polyp verumontanum. Saudi Med. J. 2004; 25(8):1115–1116.
5. Nitti V.W et al. Vaginal surgery for the urologist. Elsevier Saunders. 2012;1:115-135.
6. Zimmern P. E. et al. Vaginal surgery for incontinence and prolapse. Springer – Verlag London Limited. 2006; 2:259-275.
7. Kirsch A.J., Chang D.T., Kayton M.L. et al. Effects of diod laser welding with dye-enhanced glue on tensile strength of sutures commonly used in urology. Lasers Surg. Med. 1996;18:167-170.
8. Ozkurkcugil N., Ozkan L., Tarcan O. The effect of asymptomatic urethral caruncle on micturition in women with urinary incontinence. Korean J. Urol. 2010;51(4):257–259.
9. Singh I., Ansari M.S. Bulbar urethral polyp mimicking a urethral stricture – report of case with review of literature. Int. Urol. Nephrol. 2004;36:375–377.
10. Nitti V.W et al. Vaginal surgery for the urologist Elsevier Saunders. 2012, 135 p.

The work was carried out in the framework of research work 0119U102046 «Complex treatment of patients with polytrauma on the background of endocrine disorders».

ORCID and contributionship:

Stepan S. Filip: 0000-0002-6549-3892 ^{A,B,C}

Rudolf M. Slyvka: 0000-0002-0187-2711 ^{C,D}

Andriy M. Bratasyuk: 0000-0003-4390-2357 ^{E,F}

Anton I. Batchinsky: 0000-0001-7642-1889 ^C

Conflict of interest:

The Authors declare no conflict of interest.

CORRESPONDING AUTHOR

Andriy M. Bratasyuk

Uzhgorod National University

148 Sobranetska st., 88015 Uzhgorod, Ukraine

tel: +380677439445

e-mail: docbrat@gmail.com

Received: 19.06.2021

Accepted: 18.09.2021

A – Work concept and design, **B** – Data collection and analysis, **C** – Responsibility for statistical analysis,

D – Writing the article, **E** – Critical review, **F** – Final approval of the article