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INTRAMURAL URINARY BLADDER LEIOMYOMA

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Benign neoplasms of the bladder are a rare pathology. Non-epithelial benign tumors of the bladder (fibromas, fibromyxomas, fibromyomas, hemangiomas, rhabdomyomas, leiomyomas, etc.) account for less than 0.5% of all that affect this organ. The analyzed literature describes about 250 cases of bladder leiomyoma. This article describes the clinical case of surgical treatment of bladder leiomyoma.

Keywords: bladder tumors; bladder leiomyoma; bladder resection.

ИНТРАМУРАЛЬНАЯ ЛЕЙОМИОМА МОЧЕВОГО ПУЗЫРЯ

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Доброкачественные новообразования мочевого пузыря — редко встречающаяся патология. Неэпителиальные доброкачественные опухоли мочевого пузыря (фибромы, фибромиксомы, фибромиомы, гемангиомы, рабдомиомы, лейомиомы и др.) составляют менее 0,5 % всех образований, поражающих данный орган. В проанализированной литературе описано около 300 наблюдений лейомиомы мочевого пузыря. В данной статье представлен клинический случай хирургического лечения интрамурально расположенной лейомиомы мочевого пузыря.

Ключевые слова: опухоли мочевого пузыря; лейомиома мочевого пузыря; резекция мочевого пузыря.

INTRODUCTION

Benign non-epithelial neoplasms of the bladder (fibromas, fibromyxomas, fibromyomas, hemangiomas, rhabdomyomas, leiomyomas, etc.) are reported in less than 0.5% of cases of bladder tumor lesions. It's the incidence is three times higher women than in men. Endovesical growth is noted in 63%–86% of cases, extravesical growth in 11%–30% of cases, and intramural location is seen in 3%–7% of cases [1, 2]. Bladder leiomyoma (BL) is a benign tumor of the mesenchymal structure, consisting of smooth muscle tissue. Although the etiology of the disease is still unknown, genetic, hormonal, and infectious theories of its origin are being discussed [3]. Analyses of the literature obtained by searching in the PubMed, Embase, and Google Scholar systems revealed that approximately 300 BL cases have been reported to date.

In 1929, A. De Berne-Lagarde [4] conducted a detailed review of the literature and described 36 cases of BL. In 1953, E.W. Campbell and G.J. Gislason [5]

reported 68 cases while in 1986, L.D. Knoll et al. [6] reported five cases of the disease that was registered at the Mayo Clinic. Over the past five years, L. He et al. [7] reviewed the literature and reported data on 20 BL patients.

Clinically, leiomyoma can be asymptomatic or have obstructive (49% of cases) or irritative symptoms (38%). It can also be accompanied by hematuria (11%). As a rule, the presence and severity of certain manifestations depend on the size and location of the tumor [8, 9].

There are no specific diagnostic methods for BL. The preliminary diagnosis of a bladder mass lesion is established based on ultrasound, computed tomography, and magnetic resonance imaging, as well as cystoscopy. Magnetic resonance imaging with intravenous contrast is the most effective method for visualizing neoplasms of the bladder, as it enables to assess their size, localization, and extent of generalization. The final diagnosis can only be established based on histopathological examination [10, 11].

BL is treated by surgical methods, depending on its location, size, and nature of growth. Transurethral bladder resection, open resection, and cystectomy can be used, as well as laparoscopic and robot-assisted technologies [12, 13]. This work describes a clinical case from our practice.

CLINICAL CASE

Patient R., 41 years old, underwent a routine medical examination in October 2019, which revealed microhematuria. In this regard, inpatient examination and treatment were performed at the urology clinic of the Kirov Military Medical Academy.

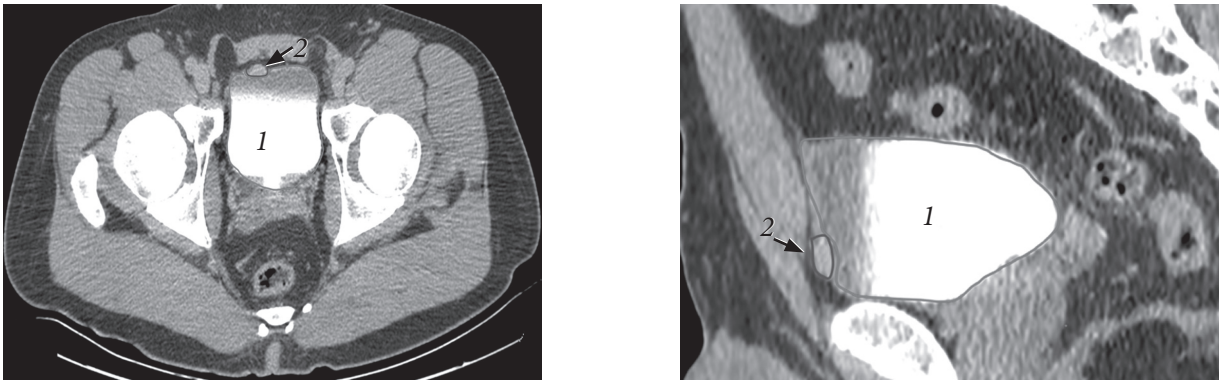
Physical examination was unremarkable, with clean and pale pink skin and visible mucous membranes. Superficial lymph nodes were not palpable. Tapping in the lumbar region was painless. The bladder above the pubis was not defined. The external genitals were normal and the testicles and their appendages had no abnormalities. Digital rectal examination revealed a painless prostate gland of normal size, dense elastic consistency, with a marked interlobar groove.

Clinical and biochemical blood tests were unremarkable. General urine analysis showed 15–20 erythrocytes in the field of view, while the rest of the indicators were normal. According to the bladder ultrasound examination, a thickening of up to 29 mm was visualized along the anterior wall. Computed tomography of the pelvis with contrast detected a round tumor having a density of +43 HU and dimensions of 10 × 6 × 11 mm on the anterior wall of the bladder, which accumulated the contrast agent at +20 HU. No upper urinary tract pathology was detected (Fig. 1).

Considering that one of the criteria for the differential diagnosis of malignant and benign neoplasms is the accumulation of a contrast agent at +17–20 HU, and in order to confirm the pathological lesion in the bladder, rule out the invasive nature of the tumor growth, and assess the degree of involvement of the surrounding tissues in the process, magnetic resonance imaging of the pelvic organs with contrast enhancement was performed. It detected an irregularly rounded intramural space-occupying lesion of up to 12 × 8 × 15 mm in size in the anterior wall of the urinary bladder, accumulating contrast agent at +12–15 HU (Fig. 2).

A three-fold cytological examination of urine revealed no atypical cells.

In the cystoscopy examination, no pathological lesions were detected in the bladder cavity and external compression at different fillings.



a *b*

Fig. 1. Computed tomography of the pelvis with contrast: *a* – axial projection; *b* – sagittal projection; *1* – bladder; *2* – neoplasm of the bladder
Рис. 1. Компьютерная томограмма малого таза с контрастированием: *a* — аксиальная проекция; *b* — сагиттальная проекция; *1* — мочевой пузырь; *2* — новообразование мочевого пузыря

The diagnosis of the bladder neoplasm was confirmed. There was an indication for surgery because of the lesion itself, which accumulated the contrast agent, and the need to obtain specimen for the histological examination. The open method was chosen due to the lack of clear boundaries and the inability to endoscopically visualize an intramural tumor localized on the anterior wall. An open resection of the bladder was performed under general anesthesia (Fig. 3). In the suprapubic region, a 15-cm long Pfannenstiel transverse incision was made. The anterior wall of the bladder was exposed, where a dense rounded lesion with a diameter of approximately 1 cm was revealed by palpation and visualization (Fig. 4, *a*). Resection of the bladder neoplasm was performed and the bladder was closed with a two-row suture. In addition, layered suture of the wound was performed. Drainage of the pre-vesical space was conducted with volvinyl chloride tube, and a urethral catheter was installed.

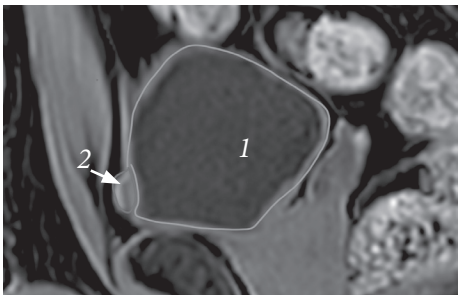
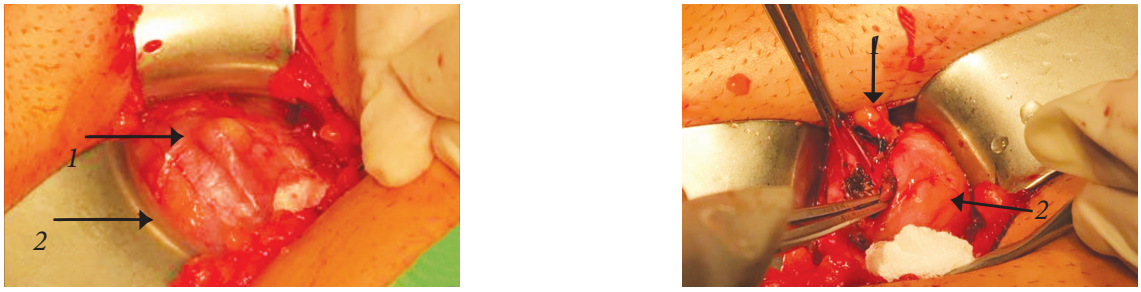


Fig. 2. Magnetic resonance imaging of the pelvis with contrast (e-THRIVE, sagittal plane): *1* — bladder; *2* — neoplasm of the bladder

Рис. 2. Магнитно-резонансная томограмма малого таза с контрастированием (e-THRIVE, сагиттальная плоскость): *1* — мочевой пузырь; *2* — новообразование мочевого пузыря

The early postoperative period was unremarkable. The urethral catheter was removed on day 7, and the patient was discharged in a satisfactory condition. The histological examination revealed a BL (Fig. 4, *b*).

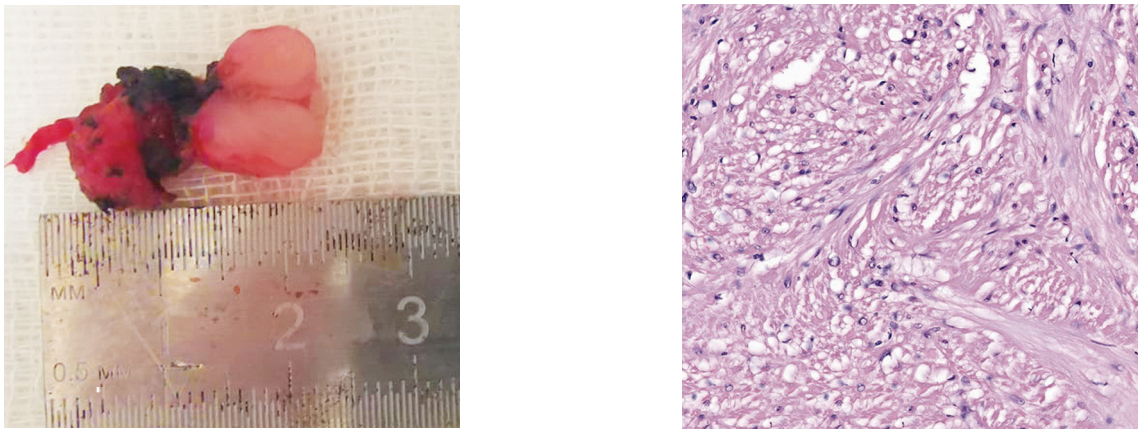
An ultrasound examination of the bladder, performed six months after the surgery, revealed no signs of recurrence of the disease.



a *b*

Fig. 3. Stages of resection of the bladder with neoplasm: *a* — allocation of the front wall of the bladder; *b* — a bladder resection with a neoplasm; *1* — neoplasm of the bladder; *2* — the front wall of the bladder

Рис. 3. Этапы резекции мочевого пузыря с новообразованием: *a* — выделение передней стенки мочевого пузыря; *b* — резекция мочевого пузыря с новообразованием; *1* — новообразование мочевого пузыря; *2* — передняя стенка мочевого пузыря



a *b*

Fig. 4. Resected bladder wall with a neoplasm 12 × 8 mm, dense-elastic consistency, pale pink (*a*). Micropreparation: multidirectional bundles of spindle-shaped cells with eosinophilic cytoplasm without signs of mitotic activity (stain hematoxylin-eosin, ×20) (*b*)

Рис. 4. Макропрепарат резецированной стенки мочевого пузыря с новообразованием 12 × 8 мм, плотноэластической консистенции, бледно-розового цвета (*a*). Микропрепарат: разнонаправленные пучки веретеновидных клеток с эозинофильной цитоплазмой без признаков митотической активности (окраска гематоксилином и эозином, увеличение ×20) (*b*)

CONCLUSION

BL is a rare benign tumor of the urinary bladder. It is more frequent in relatively young patients, and may insignificantly accumulate the contrast agent during radiation diagnostics, which is an indication for surgical intervention. The lesion does not have specific markers or methods of non-invasive diagnosis. The choice of a method for oncotomy depends on the location, size, and nature of its growth. The clinical case presented illustrates the successful detection and surgical treatment of a rare urological tumor.

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