

Leiomyoma: a case of a rare benign mesenchymal neoplasm of the urinary bladder

Krzysztof Balawender^{1,2}, Agata Wawrzyniak², Jerzy Walocha³,
Małgorzata Mazur³, Andrzej Żytkowski^{4,5}, Grzegorz Wysocki⁶

¹ Clinical Department of Urology and Urological Oncology, Municipal Hospital in Rzeszów, Rzeszów, Poland

² Department of Normal and Clinical Anatomy, Institute of Medical Sciences, Medical College of Rzeszów University, Rzeszów, Poland

³ Department of Anatomy, Jagiellonian University Medical College, Kraków, Poland

⁴ N. Barlicki Memorial Teaching Hospital No. 1 of the Medical University of Łódź, Łódź, Poland

⁵ Faculty of Philology, Department of Polish Dialectology and Logopedics, University of Łódź, Łódź, Poland

⁶ Department of Normal and Clinical Anatomy, Division of Anatomy and Histology, Medical University of Łódź, Łódź, Poland

A 31-year-old non-smoker with no history of previous abdominal surgery and no family history of genitourinary malignancies underwent an ultrasound screening. The pelvic ultrasound examination unexpectedly revealed a 22 mm × 20 mm hypoechoic lesion closely adhering to the left side of the urinary bladder wall (FIGURE 1A). Due to the ambiguous ultrasound image, additional diagnostic tests were performed (the differential diagnosis included bladder diverticulum, ureterocele, and tumor). Diagnostic cystoscopy showed a normal bladder mucosa with a visible mass protruding into the bladder lumen (FIGURE 1B). Due to the unclear view of the lesion, a transvesical biopsy was abandoned. A urine cytological examination was negative for any pathologic findings. Subsequently, contrast-enhanced pelvic magnetic resonance imaging (MRI) was performed. It visualized an uncharacteristic solid tumor in the minor pelvis, which distorted the lateral wall of the

bladder (FIGURE 1C and 1D). Late contrast enhancement pointed to fibrous tissue within the lesion (an image atypical of bladder tumors and enlarged lymph nodes). Based on the results of MRI and cystoscopy and the absence of a definitive diagnosis, the patient underwent surgical removal of the lesion. Extraperitoneal laparoscopic resection of the tumor was performed (FIGURE 1E), using a double-J catheter placed in the left ureter prior to the surgery for identification purposes (the lesion was located about 15 mm distally to the end of the left ureter). Intraoperatively, the solid mass adjacent to the bladder wall was dissected and removed completely (FIGURE 1F). During gentle preparation, the muscular layer of the bladder wall was visualized. The bladder was tested for water tightness (integrity testing) by instilling 300 ml of saline through a Foley catheter, and as no leakage was found, the bladder repair was unnecessary. The histopathologic evaluation of frozen

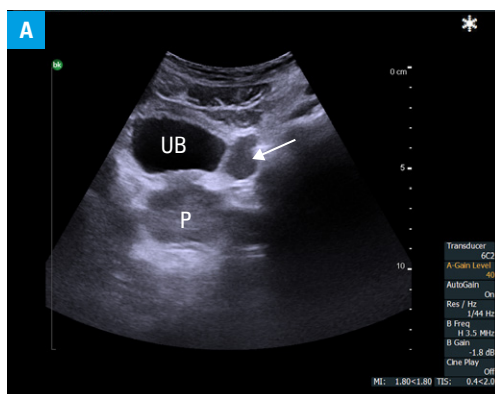


FIGURE 1 Bladder leiomyoma; **A** – an ultrasound image: a hypoechoic lesion directly adjacent to the bladder wall (arrow); **B** – cystoscopic image of the lesion: normal mucosa on the left bladder wall with visible tumor protruding externally into the bladder lumen

Correspondence to:
Grzegorz Wysocki, PhD,
Department of Normal and Clinical
Anatomy, Division of Anatomy and
Histology, Medical University of Łódź,
ul. Żeligowskiego 7/9,
90-752 Łódź, Poland,
phone: +48 42 272 53 60, email:
grzegorz.wysocki@umed.lodz.pl
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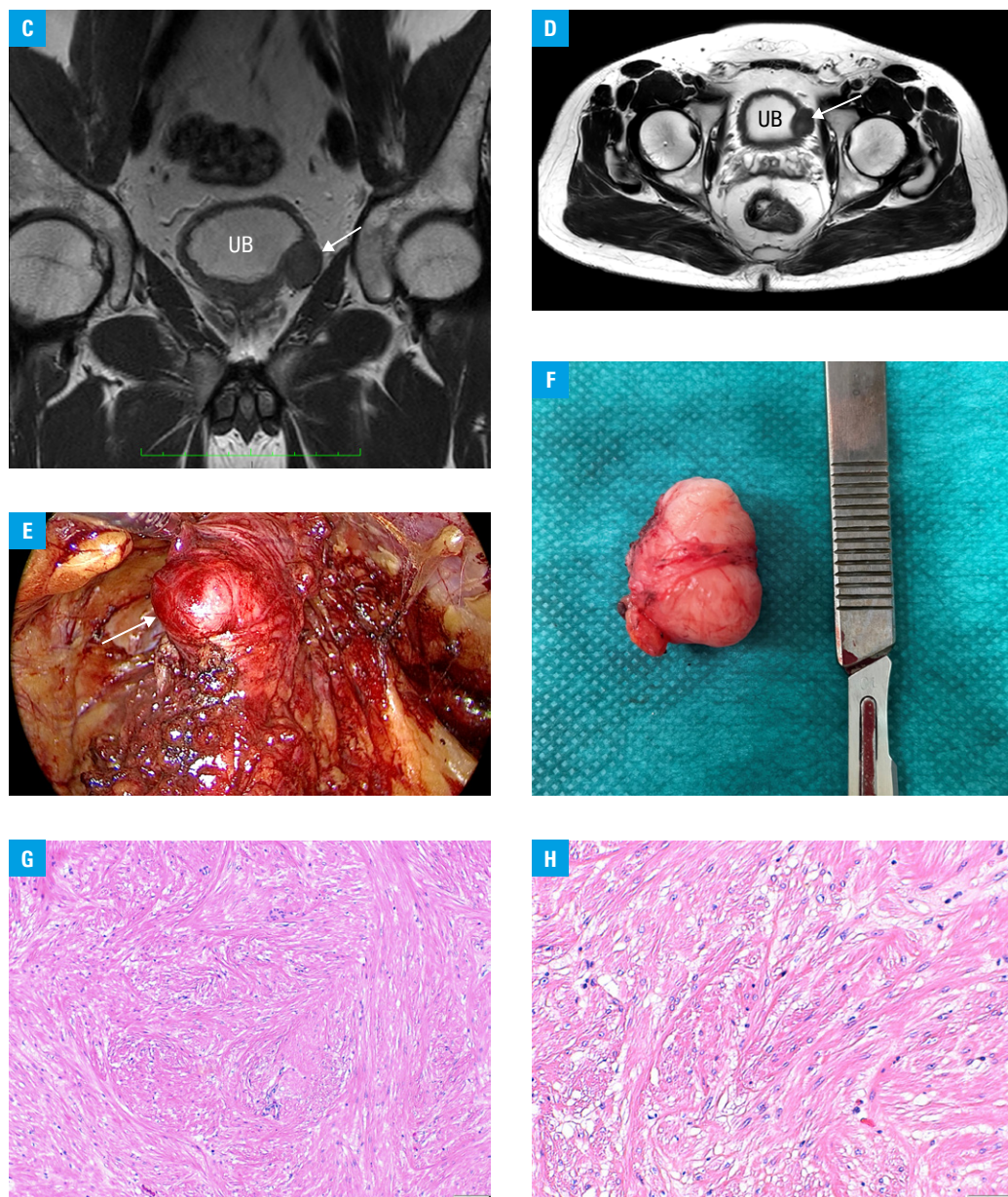


FIGURE 1 Bladder leiomyoma; **C, D** – magnetic resonance images of the pelvis using coronal views. The pelvic floor region located slightly above the left bladder venous plexus harbors a solid lesion measuring 22 mm × 22 mm × 16 mm restricting diffusion (arrow), with slow contrast enhancement during successive examination phases. The lesion distorts the lateral wall of the bladder wall and is closely adherent without obvious infiltration. Imaging of the bladder wall at the site of the tumor, as well as in the other sections revealed detectable pathology. **E** – intraoperative image of the tumor; **F** – macroscopic image of the tumor; **G, H** – micrograph of the bladder leiomyoma, hematoxylin and eosin staining: spindle-shaped smooth muscle cells with atypical nuclei and eosinophilic cytoplasm proliferating in an anastomosing fascicular pattern. Leiomyomas are noninfiltrative, benign smooth muscle tumors with no mitotic activity, cellular atypia, or necrosis. The scale bar: **G** – 100 μm (magnification × 4) and **H** – 50 μm (magnification × 10). The samples were morphologically assessed and photographed using the Olympus BX43 light microscope equipped with the Olympus SC50 digital camera.

Abbreviations: P, prostate gland; UB, urinary bladder

sections was consistent with bladder leiomyoma (**FIGURE 1G** and **1H**).

Urinary bladder leiomyoma is a rare mesenchymal neoplasm representing less than 0.5% of all bladder tumors.¹ The average age of presentation has been reported to be over 40 years, with a higher frequency in women. Leiomyomas can present in 3 locations: endovesical, which is the most common one and accounts for 63% to 66% of cases, extravesical found in 11% to 30%

of cases, and intramural diagnosed in 3% to 6% of cases.² MRI evaluations are highly specific for detecting the mesenchymal component of these tumors. Leiomyomas on MRI show low intensity in both T1- and T2-weighted sequences with a smooth periphery, mimicking a uterine leiomyoma. The endovesical form can cause irritative or obstructive symptoms and gross hematuria, resulting in a relatively early diagnosis.³ Extravesical tumors are usually asymptomatic, similarly

to the case presented in this report. Treatment is determined primarily based on the size and anatomical location of the tumors. There are no reports of bladder leiomyomas undergoing malignant transformation. Nevertheless, bladder leiomyomas often mimic malignant tumors and surgical resection with a diagnostic histopathologic examination of the removed tumor is preferred.⁴ Small endovesical tumors can be treated with transurethral resection of the bladder tumor. However, unfavorable location and difficulty in identifying the tumor may require laparoscopic or robotic resection or even partial cystectomy.⁵

ARTICLE INFORMATION

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