

Laparoscopic Enucleation of Leiomyoma of the Urinary Bladder

A Case Report and Review of the Literature

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INTRODUCTION

Leiomyoma is a rare benign mesenchymal tumor that accounts only for 0.04% to 0.5% of all the urinary bladder tumors.⁽¹⁾ Although it is the most common benign tumor of the urinary bladder, less than 200 cases have been reported in the English literature.⁽²⁻⁵⁾ The most common presentation of the bladder leiomyoma is obstructive or irritative urinary symptoms.^(6,7) Surgical excision is the treatment of choice, but laparoscopic excision or enucleation is also feasible with excellent results.⁽⁸⁾

CASE REPORT

A 35-year-old married woman presented with history of occasional painless hematuria for two months; three episodes in the past fifteen days. Physical examination was unremarkable.

Routine blood examination showed hemoglobin 10.4 g/dL, leucocytes 7800/mm³, and platelet count 150 000/mm³. Blood urea and serum level of creatinine were within normal range. Urine analysis showed 8 to 10

red blood cells per high-power field.

Ultrasonography of the pelvis revealed a large smooth mass with varying echogenicity present in the urinary bladder. Computed tomography scan of the pelvis showed a mass measuring 5 × 4.5 cm, arising from the left lateral wall of the urinary bladder and protruding into the lumen (Figure 1). Cystoscopy revealed a large nodular grey-white mass protruding into the bladder lumen from the left lateral wall. Rest of the bladder was normal.

Biopsy was taken from the mass and sent for histopathological examination, which clearly



Figure 1. Computed tomography scan of the pelvis showing a urinary bladder mass arising from the left lateral wall and protruding into the lumen of the urinary bladder.

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showed it to be a leiomyoma. The patient underwent laparoscopic enucleation of the tumor. Histopathology of the final specimen showed that it was composed of whorled interlacing fascicles of spindle-shaped cells (Figure 2), confirming the diagnosis of leiomyoma of the urinary bladder (Figure 3). Postoperative period was uneventful. She was followed up for one year with cystoscopy, and was free of symptoms and recurrence.

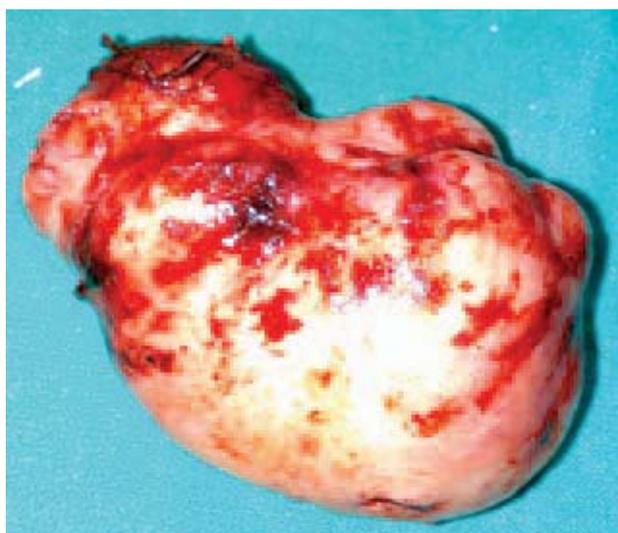


Figure 2. Laparoscopically enucleated specimen of the tumor that was confirmed on histopathological examination as leiomyoma of the urinary bladder.

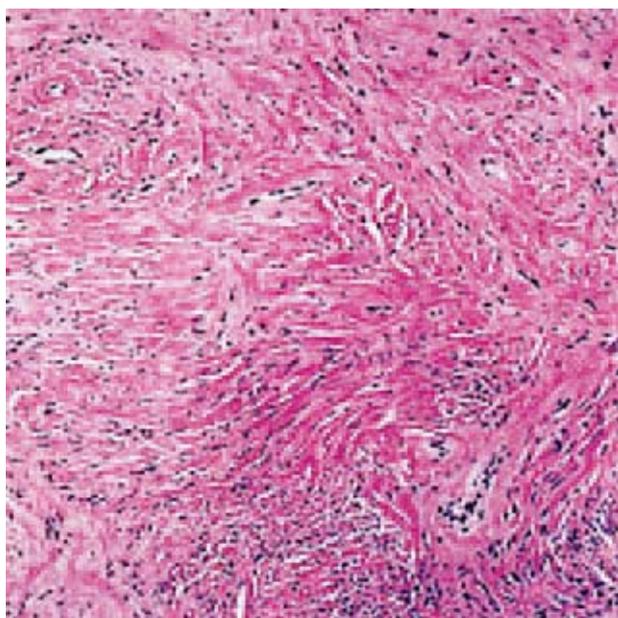


Figure 3. Histopathology of the removed tumor showing that it is composed of whorled interlacing fascicles of spindle-shaped cells consistent with the diagnosis of leiomyoma.

DISCUSSION

Mesenchymal tumors of the urinary bladder arise from the mesenchymal tissues present in the bladder and constitute 1% to 5% of all the bladder tumors.^(9,10) Leiomyoma accounts for approximately one-third of these and is the most common benign urinary bladder tumor.^(10,11) However, it is still very rare with a frequency of only about 0.04% to 0.5% of all the urinary bladder tumors.⁽¹⁾

The first case of leiomyoma of the urinary bladder was reported 78 years earlier,⁽¹²⁾ and since then not more than 200 cases have been reported in the English literature.⁽²⁻⁵⁾

Majority of patients have a tumor size of less than 10 cm; however, leiomyomas ranging from a few millimeters to 30 cm have been documented.^(6,7,13,14)

Previously, it was assumed that leiomyoma occurs in all age groups and affects both genders equally.^(7,15) But recent literature suggests a more common occurrence in women in their third to sixth decades of life.⁽⁶⁾

Goluboff and colleagues reviewed a total of 37 reported cases in English literature over a period of 24 years from 1970 to 1994. One-third of the leiomyomas occurred in women and the mean age of the patients was 44 years.⁽⁶⁾ Although the exact reason for this different occurrence is not yet known, role of estrogen in the growth of leiomyoma has been suggested.⁽¹⁶⁾ As a significant number of patients with leiomyoma of the urinary bladder (especially extravesical) may be asymptomatic,⁽⁶⁾ Cornella and associates attributed female predominance to the increased use of pelvic ultrasonography in women.⁽¹⁾

Broessner and coworkers suggested that leiomyoma of the urinary bladder may have a higher prevalence in Asian population, since most reported cases of urogenital leiomyoma are from Japan.⁽¹³⁾ However, the cause of this different geographical occurrence is unknown.

The exact etiology of leiomyomas remains unclear. It is proposed that leiomyomas may arise from chromosomal abnormalities,⁽¹⁾ hormonal influences, bladder musculature infection,

perivascular inflammation, or dysontogenesis.⁽⁶⁾

Leiomyoma may occur at any sites in the genitourinary tract.⁽⁹⁾ In the urinary bladder, it arises from submucosa, but can develop and grow in any layer.⁽⁷⁾ Thus, grossly it can be intravesical, intramural, or extravesical. Intravesical form has been reported most frequently in the literature (63% to 86%) followed by extravesical (11% to 30%), while intramural type is less common accounting for 3% to 7% of the cases.^(6,7)

Intravesical tumors, first named and described as endovesical tumors by Campbell and colleagues,⁽⁹⁾ is a result of submucosal growth of leiomyoma.⁽⁹⁾

Symptoms caused by leiomyoma of the urinary bladder depend on its size and location. Small intravesical tumors that are present away from the bladder neck or ureteral openings and those which are extravesical or intramural are asymptomatic. If the patient is symptomatic, the most common symptoms include obstructive urinary symptoms (49%), followed by irritative symptoms (38%), flank pain (13%), and hematuria (11%).⁽⁶⁾ However, Knoll and colleagues found the irritative symptoms as the most frequent presenting symptoms.⁽⁷⁾ Larger tumors are more likely to cause irritative symptoms while those arising near the bladder neck or ureteral openings tend to cause obstructive symptoms. Dyspareunia has also been described as an unusual presentation of leiomyoma of the urinary bladder.⁽¹⁴⁾ Goluboff and associates also reported a palpable pelvic lump in more than half of the women on bimanual examination.⁽⁶⁾

Various imaging techniques help to make the diagnosis of leiomyoma of the urinary bladder, but none is confirmatory. On ultrasonography, leiomyoma appears as a smooth hypoechoic solid mass, with varying degrees of internal echoes and a thin hyperechoic covering of the mucosa.⁽¹⁷⁾ Real-time imaging and transvaginal ultrasonography can give accurate information about localization of the mass and its relation to surrounding structures.^(18,19) Intravenous urography shows only a smooth filling defect in the urinary bladder.⁽¹⁾ Computed tomography scan and magnetic resonance imaging (MRI) both can be used to assess the site, dimensions, and any extension of the tumor. But MRI is considered

as the modality of choice, since it provides better contrast and resolution.⁽²⁰⁾

The definitive diagnosis of leiomyoma of the urinary bladder and differentiation from leiomyosarcoma requires histopathological examination through urethro-cystoscopy.⁽¹⁷⁾ Tissue can be taken by cystoscopic biopsy or otherwise. Relying on highly suggestive findings of MRI, a completely removed tumor can serve as specimen for histopathological examination. On histology, leiomyomas of the urinary bladder typically have no or less than two mitotic figures per high-power field, and lack infiltration and necrosis.^(6,7) Malignant transformation of leiomyoma has not been reported.⁽¹⁴⁾

Treatment of leiomyoma of the urinary bladder is mainly surgical. However, Goluboff and colleagues have successfully treated few asymptomatic patients with leiomyoma of the urinary bladder as an incidental finding.⁽⁶⁾ Surgical options depend on size and location of the tumor, and include transurethral resection of the tumor and open surgical excision. Surgical excision has excellent prognosis and should always be offered. Moreover, transurethral resection is a safe and effective initial choice for patients with relatively smaller tumors.⁽⁶⁾ Larger tumors and those with extravesical growth usually require open surgery with segmental resection or partial cystectomy.⁽⁷⁾ Successful laparoscopic resection of leiomyoma of the urinary bladder has also been reported.⁽⁸⁾

CONFLICT OF INTEREST

None declared.

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