Leiomyoma of the urinary bladder presenting as urinary retention in the female

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A case of leiomyoma of the urinary bladder, a rare benign tumor, in a 56-year-old female first seen with bilateral flank pain radiating to both groins, is reported. Examination showed a well developed female with obesity (260 pounds) and elevated blood pressure (132/90 mmHg). Evaluation with ultrasound, cystoscopy, urodynamics, and cytology contributed to the diagnosis of urinary bladder leiomyoma. Ultrasound detected a mass in the urinary bladder, and it was confirmed by cystoscopy to be a 5 cm to 6 cm bladder mass on the anterior bladder wall. The mass was prolapsing as a ball valve into the urethra at the level of the bladder neck. Frozen section of the mass showed it to be leiomyoma.

Key Words: urinary retention, leiomyoma, bladder outlet obstruction

Introduction

A leiomyoma is a benign smooth muscle tumor most often located in the uterus or gastrointestinal tract. However, these tumors may arise anywhere within the genitourinary tract and are usually asymptomatic unless urinary tract function is affected.[1]

Discovery of a leiomyoma in the urinary bladder is an uncommon finding and has been reported to occur most frequently in women during the third through sixth decades of life. Most often, patients with urinary bladder leiomyoma are first seen with complications in voiding, such as obstruction or irritation.[2] Nevertheless, studies have shown cases of leiomyoma of the urinary bladder also occur in males and present with other symptoms.[1] A case of leiomyoma of the bladder in a female patient is described herein.

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Case report

A 56-year-old female was first seen with bilateral flank pain radiating to the groin. The pain was believed to have started after having a hysterectomy several years prior for uterine carcinoma. She also reported having prior episodes of hematuria and recurrent urinary tract infections, along with a history of hypertension and arthritis.

Her bladder scan showed a postvoid residual urinary volume of 383 ml, and her urinalysis was normal with a pH of 5.5. Urine cytology revealed no evidence of malignancy. Also, a previous ultrasound had detected a Bosniak I right renal cyst without evidence of hydronephrosis. Physical examination showed a slightly elevated blood pressure but no abnormalities.

The patient's history and physical examination led to initial assessment of neurogenic voiding dysfunction, likely due to her prior hysterectomy. However, through evaluation with cystoscopy, a 5 cm to 6 cm bladder mass located from the 7 o'clock to 4 o'clock positions on the anterior wall of the bladder was discovered. The mass was determined to be ball valving into the urethra at the level of the bladder neck.

Transurethral resection was performed and the tumor removed. Appearance of the bladder mass was not consistent with typical transitional cell carcinoma and a frozen section was sent for pathologic evaluation. The bladder urothelium, submucosa, and portion of muscularis propria are clearly seen. Below the muscularis propria is an expansive smooth muscle proliferation demarcated by a pseudocapsule, Figure 1. The tumor is composed of benign smooth muscle cells in fascicles with no cytologic atypia, mitoses, or necrosis, Figure 2. The final pathologic diagnosis was leiomyoma. Follow up cystoscopy at 3, 6 and 9 months showed no evidence of disease recurrence. Her voiding symptoms are significantly improved with postvoid residuals of less than 50 cc. She is now well at 18 month follow up.

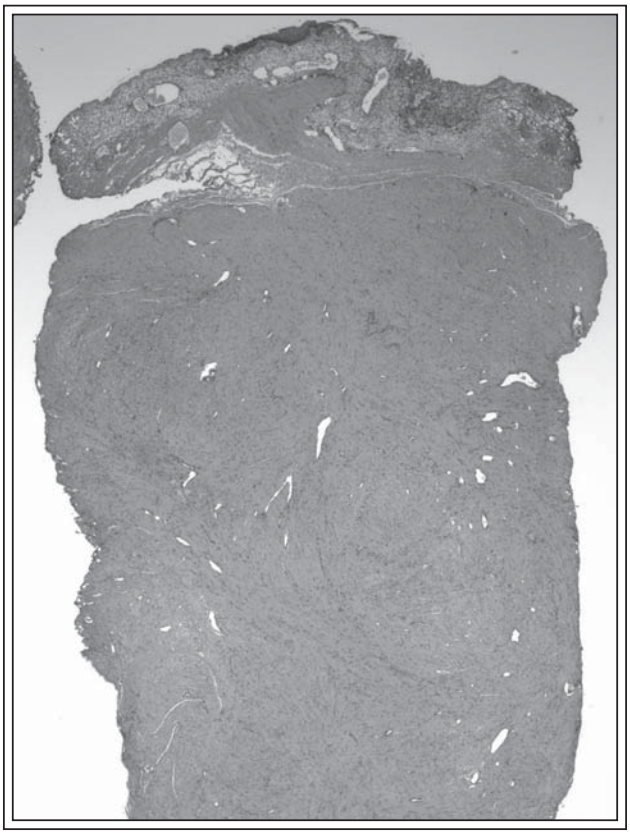

Figure 1. The bladder urothelium, submucosa, and portion of muscularis propria are shown. Deep to these structures is an expansive smooth muscle proliferation demarcated by a pseudocapsule are shown in the top of the microphotograph above. H&E 2x.

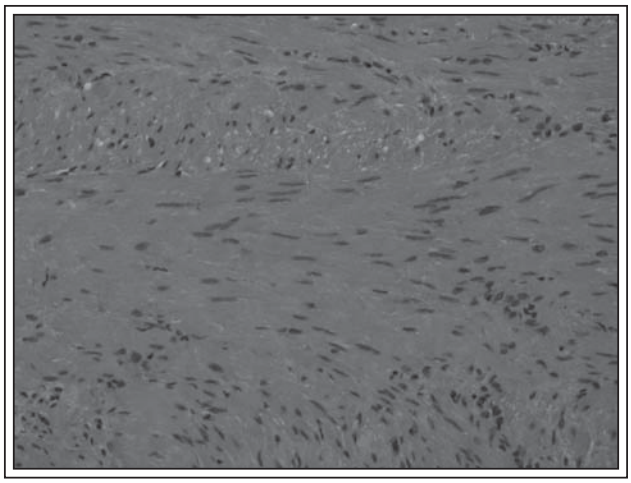

Figure 2. The tumor is composed of benign smooth muscle cells in fascicles with no cytologic atypia, mitoses, or necrosis. H&E 20x.

Discussion

Mesenchymal tumors account for approximately 1% to 5% of all bladder tumors and, of these, leiomyomas are the most common. Although leiomyomas are the most common mesenchymal bladder tumor, they only account for 0.04% to 0.05% of all urinary bladder tumors, which makes them extremely rare.[2,3]

Goluboff and colleagues[2] report the largest series of patients with leiomyoma of the bladder. In their study of 37 patients, 76% were women within the third to sixth decade of life with an average age of 44 years. Patients of both sexes were first seen most commonly with obstructive voiding symptoms (49%), irritative symptoms (38%), flank pain (13%), and hematuria (11%). In addition, some patients were asymptomatic (19%).

Symptoms of leiomyoma of the bladder depend on the location of the tumor within the vesical wall. Endovesical with protrusion into the bladder lumen (63%), intramural (7%), and extravesical (30%) forms

have all been described. Extravesical and intramural tumors may be asymptomatic, whereas the those tumors that protrude into the bladder lumen have the ability to produce symptoms of vesical irritation, urinary tract infection, hematuria, or urinary retention.[4] Furthermore, endovesical tumors have the potential to project into the proximal urethra and produce bladder neck obstruction and subsequent hydronephrosis.[5]

Our patient was initially suspected to have neurogenic voiding dysfunction due to her prior hysterectomy. She simply had obstructive voiding symptoms and an elevated postvoid residual volume. While she did have a history of recurrent urinary tract infections, her initial urinalysis was normal. In addition, her renal ultrasound did not reveal evidence of hydronephrosis. Had it not been for the diagnostic cystoscopy, we would not have found the etiology of disease in this patient.

The etiology of urinary bladder leiomyoma remains unknown; however, the following four unproven hypotheses exist: hormonal influences causing tumors to develop, embryonic rests of tissues present in the bladder develop into leiomyomas, perivascular inflammation leads to metaplastic transformation of bladder vasculature, and bladder musculature infection leads to inflammation and development of leiomyomas.[2] At a reproductive age, the female predominance of leiomyomas may help support the hormonal influence hypothesis.

Finally, this case suggests the importance of complete evaluation of the urinary tract in patients with unexplained obstructive and/or irritative bladder symptoms. Patients should have a urinalysis, urine cytology, upper tract imaging study and diagnostic cystoscopy with urodynamics. In the present case, the diagnosis of bladder leiomyoma was made by cystoscopy.

Conclusions

Whereas this patient had many of the symptoms listed above, none of these symptoms are specific for leiomyoma. Proper diagnosis requires careful physical examination and evaluation. Ultrasound is a useful diagnostic tool and pathologic evaluation is required to confirm the diagnosis. In most instances, if leiomyoma of the bladder is diagnosed it is treated readily and effectively. In general, smaller lesions can be treated by transurethral resection and larger lesions by open resection.[2] The prognosis and surgical management of this tumor are excellent and recurrence is rare.[1] □

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