

Leiomyoma of the Urinary Bladder: An Unusual Cause of Lower Urinary Tract Symptoms

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INTRODUCTION

Lower urinary tract symptoms (LUTS) include voiding, storage, and postmicturition symptoms. Although the most common cause of LUTS in men over 50 years is benign prostate hyperplasia, many other diseases are also possible [1]. A bladder tumor is one possible cause of LUTS. Most bladder tumors are derived from the urothelium. Microscopic or gross hematuria is usually the main symptom in addition to LUTS.

Mesenchymal tumors of the urinary bladder are a heterogeneous group of neoplasms arising from the mesenchymal tissues normally found in the bladder and constitute 1 to 5% of all bladder neoplasms [2]. Leiomyoma is the most common benign mesenchymal bladder tumor and accounts for 0.43% of all bladder tumors [3]. We present the clinical picture and image findings in a case of LUTS caused by leiomyoma of the bladder.

CASE PRESENTATION

This healthy 51-year-old man had a history of only urinary stones prior to this episode. He complained of dysuria and frequency for the past 3 months. He needed to urinate more than 10 times during the daytime, and more than 2 times at night. Urinary urgency was also noted. He had no significant voiding difficulty, or flank or abdominal pain. Plain abdominal radiography revealed no significant radiopaque lesion, and routine urine examination was normal. Physical examination showed a mildly enlarged prostate, but medication was ineffective in treating his LUTS.

Intravenous pyelography (IVP) showed a round, smooth intravesical filling defect with right hydronephrosis and atrophic changes in the right kidney (Fig. 1). Computed tomography (CT) illustrated a large well-demarcated 6.5 cm x 6.5 cm x 6.0 cm mass in the right superior lateral aspect of the urinary bladder (Fig. 2). Magnetic resonance imaging (MRI) of the tumors showed intermediate signal intensity on T1-weighted images and intermediate to low signal intensity on T2-weighted images. Only mild enhancement was noted after administration of contrast medium.

Cystoscopy showed a submucosal polypoid mass without surrounding erythema or mucosal involvement. A biopsy of the mass disclosed a submucosal neoplasm composed of fascicles of smooth muscle proliferation with focal hyaline and microscopic degeneration suggesting a leiomyoma. A transurethral resection was performed, and the final pathological report was leiomyoma. His symptoms and right

hydronephrosis resolved after the operation.

DISCUSSION

Leiomyomas are non-infiltrative smooth muscle tumors lacking mitotic activity, cellular atypia and necrosis histologically. The growth can be submucosal (7%), intravesical (63%), or extravesical (30%) [4]. The clinical presentation depends on the tumor size and location. Patients may be asymptomatic but usually present with obstructive symptoms (49%), irritative symptoms (38%), and hematuria (11%) [5]. LUTS occur more frequently in patients with submucosal types and large tumors [6]. The cause of LUTS in the present case could be explained by the mass effect of the tumor. However, it was difficult to diagnose



Fig. 1. Intravenous pyelography shows a round, smooth intravesical filling defect (white arrow) with right hydronephrosis (black arrow).

Clinical pearls — Genitourinary tract image

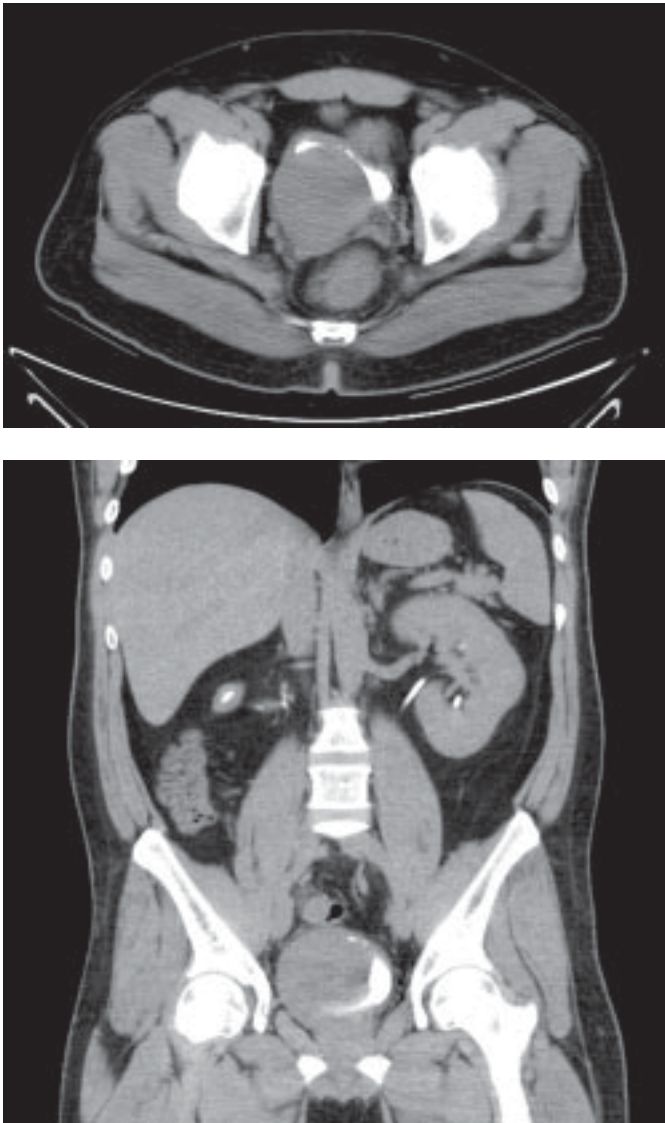


Fig. 2. Computed tomography illustrates a large well-demarcated mass in the right superior lateral aspect of the urinary bladder.

and prevent renal damage early without a definite history of right flank pain.

Imaging including IVP, ultrasonography, CT, and MRI can help to diagnose bladder leiomyomas preoperatively. Leiomyomas can be seen as intravesical filling defects on IVP. A smooth, homogeneous, solid mass is usually demonstrated on ultrasonography, although partially cystic-appearing leiomyomas have been reported [7]. MRI offers superior spatial and contrast resolution and is the best radiological modality for tissue characterization of leiomyomas. MRI typically shows intermediate signal intensity on T1-weighted images and intermediate

to low signal intensity on T2-weighted images. After contrast administration, the tumors show a variable pattern of enhancement, with some enhancing homogeneously and others showing little enhancement [8]. The present case showed characteristic features consistent with leiomyoma on imaging, such as a smooth filling defect on IVP, and a well circumscribed bladder mass with smooth outer margins on CT.

Although imaging studies are helpful in the diagnosis of leiomyoma, histopathologic examination is necessary to confirm the diagnosis and to rule out a malignancy, such as a leiomyosarcoma. Surgery is the treatment of choice and the technique depends on the tumor size and location. Generally, the treatment for leiomyoma of the bladder involves a simple excision of the tumor. Small submucosal tumors can be managed with transurethral resection, while larger submucosal, intravesical, or extravesical tumors are managed best with open surgery (tumor enucleation, partial cystectomy or total cystectomy) [4-6]. Because the prognosis of patients with this tumor is excellent after surgical treatment and no malignant transformation has been reported to date, follow-up is not needed unless urinary tract symptoms occur [9]. A few reports of recurrent bladder leiomyomas that were treated with repeat excision have been published.

In conclusion, a bladder leiomyoma is an unusual cause of LUTS, and imaging is important to diagnose and delineate the extent of this tumor. These tumors have a benign nature and good outcome.

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