Rare Case of Intramural Urinary Bladder Leiomyoma

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Leiomyomas are the most common mesenchymal tumors of the urinary bladder. They account for 0.43% of all bladder tumors. Their incidence is 3 times higher in women than in men. There are approximately 250 cases described in the scientific literature, but none are of Caribbean males. The intramural location of the neoplasm described in this article was uncommon; only 7% of all the leiomyomas of the urinary bladder are found in this location. We present a case of a 65-year-old male with an intramural leiomyoma that was found incidentally during the evaluation of left lower-quadrant abdominal pain. The histopathological specimen that was taken at the time at the time of surgery showed a tumor with atypical smooth muscle cells indicative of a leiomyoma. The clinical presentation, radiographic imaging, and surgical management of this rare tumor are presented herein. [*P R Health Sci J 2022;41(4):247-249*]

Key words: Intramural, Bladder leiomyoma, Benign neoplasm, Male, Histopathology

Benign urinary bladder neoplasms are relatively rare and comprise 1 to 5% of all bladder neoplasms (1). Leiomyomas are the most common benign tumors of the bladder and account for 0.43% of all bladder tumors (2). The incidence of these tumors is 3 times higher in women than men (2). Around 250 cases have been reported in the English-language scientific literature, but none are of Caribbean males (3). Endovesical leiomyomas constitute 63% of all the reported cases of this kind of tumor, with the intramural and extravesical types accounting for 7% and 30%, respectively (4). The clinical presentation of this neoplasm can vary; some patients are asymptomatic, while others have irritative symptoms, obstructive urinary symptoms, and/or hematuria (5).

We describe the case of a benign urinary bladder leiomyoma in a male patient who presented with left lower-quadrant abdominal pain. The patient was diagnosed with an intramural leiomyoma, a rare finding.

Case presentation

A 65-year-old male patient went to the emergency room complaining of left lower-quadrant abdominal pain. A computed tomography scan showed acute diverticulitis and a large left pelvic mass. Subsequently, magnetic resonance imaging (MRI) was performed, and the patient was referred to the urologist. Upon our studying the MRI, he was diagnosed with an intraluminal mass in the bladder, with similar bladder wall thicknesses on the anterior and posterior aspects. This finding suggested an intramural leiomyoma of the bladder. The patient complained of occasional urge incontinence and urinary urgency. He denied any other urinary symptoms. The patient reported no history of smoking. A rectal examination was normal, as was a urinalysis.

A cystoscopy was performed and showed a large anterolateral submucosal mass effect. The mass originated close to the left side of the bladder neck, just reaching the left ureteral orifice but not compressing it. A limited transurethral resection of the bladder (TURB) was performed to obtain tissue for pathology. The biopsy showed a spindle-cell neoplasm, indicating a proliferation of benign smooth muscle cells (leiomyoma). The patient underwent an open surgical resection of the mass. Detrusor fibers were incised to gain access to the pseudocapsule of the tumor, and the mass was easily enucleated. A 70-gram mass measuring 7.3 cm x 4.5 cm x 4.0 cm was excised. The histopathology of the tumor showed an atypical smooth muscle tumor suggestive of a diagnosis of leiomyoma. The post-operative period was uneventful, and the urinary catheter was removed 1 week after the surgery.

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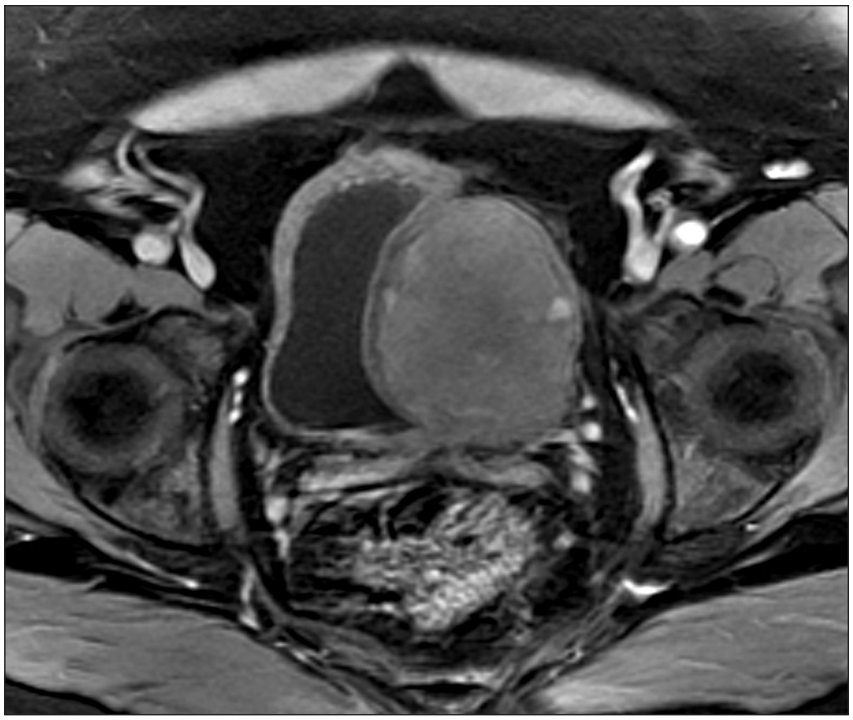

Figure 1. Magnetic resonance imaging shows a solid mass measuring 7.5 x 4.9 x 6.8 cm on the wall of the urinary bladder

Discussion

Urinary bladder leiomyomas are rare benign neoplasms accounting for only 0.43% of all bladder tumors. They can arise throughout the genitourinary system, but their most common location is the renal capsule (6). Most tumors are small, measuring 1 to 4 cm at their greatest dimension. The cut surface of a leiomyoma is circumscribed and bulging and has a whorled gray-white appearance (7,8).

The differential diagnosis of a mesenchymal neoplasm of the urinary bladder is broad and includes leiomyoma, leiomyosarcoma, and spindle-cell neoplasms (9). The most important differential diagnosis to exclude when confronted with a urinary bladder mesenchymal mass is leiomyosarcoma, which is an aggressive tumor. The gold standard for diagnosing a leiomyoma is a histopathological examination of a tissue sample (10). Generally, the morphologic features will be sufficient for distinguishing between the tumors named here, but if it is needed, immunohistochemistry can establish the final diagnosis (7,8).

Microscopically, leiomyomas consist of intersecting fascicles of smooth muscle cells with moderate-to-abundant eosinophilic cytoplasm. Cellularity is usually limited. The nuclei are oval to cigar-shaped, centrally located, and blunt-ended; they lack significant nuclear atypia, mitotic activity, and necrosis (7,8).

This neoplasm can present as an asymptomatic mass, as was the case with our patient, or with obstructive voiding symptoms and/or acute urinary retention. This is secondary to the ball valve–like effect caused by pedunculated tumors. Less often, this kind of neoplasm can produce irritative voiding symptoms, pelvic pain, hematuria, and/or hydronephrosis, with or without flank pain (7,8).

The etiology of this neoplasm is still unknown, in part because of the rarity of these tumors. However, it has been proposed that chromosomal abnormalities (2), hormonal influences (11), dysontogenesis, perivascular inflammation, and urinary bladder infections (5) contribute to the development of these neoplasms.

Urethrocystoscopy and different imaging modalities have been implemented to detect urinary bladder leiomyomas. Usually ultrasound is the first diagnostic tool used, especially in a woman with an asymptomatic incidental leiomyoma (10). On ultrasonography, these lesions—that is, leiomyomas—are usually seen as smooth wall homogeneous hypoechoic masses in the wall of the urinary bladder (3). Ultrasound usually provides accurate information of a mass and its surrounding structures (12). Intravenous urography might show filling defects in the bladder (2). Computed tomography and MRI scans can both be used to assess the site, dimension, and extension of the tumor. However, MRI has been shown to be superior to CT because it offers better contrast and resolution (13). A leiomyoma presents on MRI as a well-circumscribed, round mass with intermediate signal intensity in T1- and

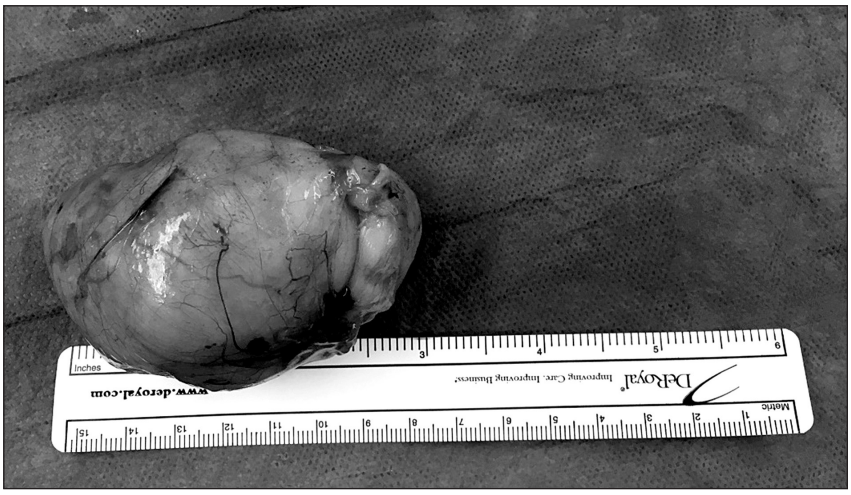

Figure 2. Gross specimen of the resected leiomyoma

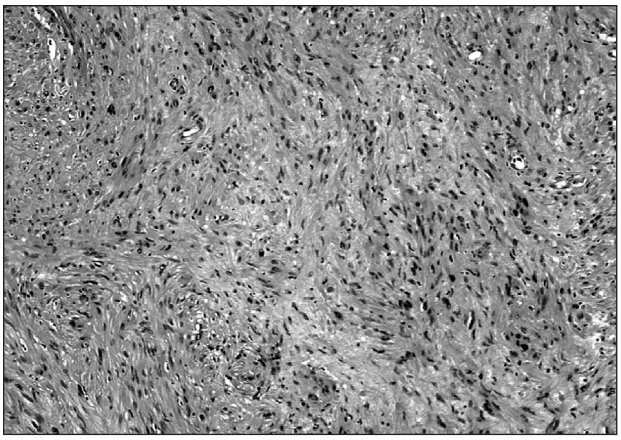

Figure 3. Leiomyoma of the urinary bladder showing intersecting fascicles at low magnification

intermediate to low intensity signaling in T2-weighted images. After contrast administration, variable tumor enhancement is usually detected; some tumors enhanced homogeneously, while others enhanced very little. Contrast enhancement is particularly useful to detect cystic degenerations (14). Urethrocystoscopy will typically show a bladder mass with a smooth, intact mucosa (5), similar to what was seen in the case being presented.

Currently the only treatment available for a urinary bladder leiomyoma is a surgical excision. The surgical approach depends mostly on the size and location of the tumor (13). Small tumors that are easily accessible can be treated with TURB. Tumors that are in difficult-to-reach places or that are large can be resected openly, laparoscopically, or robotically, depending on the preference of the surgeon. In tumors with atypical features, a resection with frozen sections to ensure negative margins may be appropriate. For a small, asymptomatic bladder leiomyoma, a conservative approach has been suggested since there is no reported and confirmed malignant transformation of this tumor in the literature. In most cases, treatment is curative, although a leiomyoma can recur if incompletely resected. The problem is that on many occasions, the only definite way to differentiate between a bladder leiomyoma and a leiomyosarcoma is with tissue collected during surgery.

Resumen

Los leiomiomas de la vejiga urinaria son los tumores benignos de origen mesenquimal más comunes de este órgano. La frecuencia de ellos en mujeres es tres veces más común que en hombres. Representan un 0.43% del total de tumores de vejiga. Actualmente se han reportado alrededor de 250 casos en la literatura, pero ninguno en pacientes masculinos del caribe. Estos tumores se encuentran mayormente en el lumen o la parte externa de la vejiga, pero en casos inusuales se pueden encontrar dentro de la pared (7% de los leiomiomas de vejiga son intramurales). En este reporte se presenta el caso de un hombre de 65 años de edad con un leiomioma intramural, el cual fue encontrado incidentalmente luego de una visita a la sala de emergencia por un dolor abdominal del cuadrante izquierdo inferior. En la patología se estableció que el tumor estaba compuesto de células de músculo liso que favorecen el diagnóstico de leiomioma.

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