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Case Report

Transurethral Resection of a Bladder Leiomyoma: A Rare Case

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Abstract

Background: Various bladder tumors derived from the urothelium but benign mesenchymal tumors are rare accounting for not more than 0.43% of all bladder tumors. Genitourinary leiomyomata arise from any anatomic structure containing smooth muscle and may also mimic malignant lesions. Always should be considered in the differential diagnosis of any pelvic mass, even in asymptomatic case history. The significance of recognizing the characteristic features of this less umpteen tumors is a need of the hour for a precise fundamental treatment. Her we report a case of leiomyoma of the urinary bladder, with clinical presentation, imaging method, histopathological and immune-histochemical workup managed by transurethral resection of bladder tumour [TURBT]. TURBT allows surgeon to not only perform biopsy of tumor, but enable to remove an entire small tumor from the inside of bladder, while leaving the bladder intact. In symptomatic cases a complete surgical resection predict a very good outcome, with minimal to zero rate of recurrence.

Keywords: Differential Diagnosis; Leiyomyoma; Leiyomyosarcomas; Transurethral Resection of Bladder Tumor (TURBT)

Introduction

Bladder tumors that are mesenchymal in origin such as leiomyoma's are relatively rare. Though heterogeneous neoplasms arise from the mesenchymal tissues normally found in the bladder can be grouped together constituting 1-5% of all bladder neoplasms. Leiomyoma's incidence reported is less than 0.43% of all bladder tumors [1]. As per data, reported in literature the incidence of bladder leiomyoma is approximately three times more diagnosed in female. The age range affected by bladder leiomyoma is fourth to fifth decades. Among benign mesenchymal tumor affecting bladder like leiomyoma, granular cell myoblastoma, hemangioma, lymphangioma, giant cell tumor, paraganglioma, and neurofibroma; Leiomyoma is the most frequently reported [2,3]. The bladder leiomyoma occurs mainly in young and adult females with both asymptomatic and symptomatic clinical presentations. The non-specific urinary symptoms or pelvic pain in symptomatic cases most commonly gives history of urinary voiding symptoms such as obstruction and/or irritation as well [4].

In the present case report of bladder leiomyoma, typical clinical and pathological features are discussed with possible etiopathology. This rare case of urinary bladder leiomyoma in a young aged woman with non-specific urinary symptoms, which was not initially suspected; the diagnosis of urinary bladder leiomyoma was subsequently confirmed with both histopathological and immune-histochemical work up.

Case profile

A 27-year-old female reported in OPD of uro-oncology department who was married for 4 months back. She presented with chief complaint of pain while passing urine since one year with urge incontinence. No history of frequency, nocturia, hematuria, abdominal, fever, poor flow or other voiding cuts and altered bowel habit were elicited. But patient advocated the history of recurrent Urinary tract infection (UTI) with frequency of one episode one year. Beside this no other relevant medical or surgical history was present in the case.

For instance, she presented with addiction history related to alcohol intake [beer intake once every 10-15 days]. since 4-5 years and tobacco smoking [cigarette smoking since 4 years [2-3 cigarettes per day]. She had experienced irregular menstrual cycles with moderate flow restricted to usage of 3-4 pads per day.

The patient was referred to the urology service examination and during her ultrasonographical (USG) examination [(Figure 1): Bladder leiomyoma on pelvic US, showing a smooth endovesical bladder lesion]., incidentally, heterogeneous lesion measuring 6.3 x 7.4 cm in left pectoral wall with some vascularity within the lesion was revealed. However, there were none of the symptoms including dysuria, urgency, nocturia, incontinence, pollakiuria, macroscopic hematuria, and obstructive complaints. She also does not have any abnormality in the hematological or biochemical values and routine urine analysis (Table 1). Pheochromocytoma work up done and the values of 24 hours Urine Metanephrines Testing- 62.4/2000ml and Urine Metanephrine to creatinine ratio: 104 were with in normal range, excluding the diferential diagnosis clinically in lieu of Pheochromocytoma in urinary bladder, which are rare tumors as well [5].

Figure 1a: CT SCAN pelvis shows enhancing mass projecting into the bladder lumen.

Figure 1b: CT SCAN pelvis shows intraluminal polypoidal enhancing mass projecting into the bladder lumen.

Hematology and biochemical values:
Hb: 14.4
TLC: 11,700
APC: 2 93 000
UREA: 30
Creatinine: 0.7
Na: 137
K: 4.2
Pheochromocytoma work up.
24-hour Urine Metanephrines Testing: 62.4/2000ml
Urine Metanephrine to creatinine ratio: 104
Urine routine analysis:
Slightly turbid
1-2 pus cells / HPF

Table 1: Investigations showing results of Hematology and biochemical values.

The CT (computerized tomography) scan [Figure 2a: CT SCAN pelvis shows enhancing mass projecting into the bladder lumen, [Figure 2b: CT SCAN pelvis shows intraluminal polypoidal enhancing mass projecting into the bladder lumen]. confirmed the pres-

ence of a large well-defined polypoidal lesion measuring 7.8 x 7.4 x 6 cm arising from left postero-lateral wall, projecting into lumen extending up to left VUJ (vesico-ureteric junction) without bilateral hydro-uretero-nephrosis. The signs of hepatomegaly with fatty infiltration were also evident.

Figure 2: Microscopically, the tumor was composed of whorled interlacing fascicles of typical smooth muscle cellswithout pleomorphism or mitotic figures, and the lumen was covered with urotelial epithelial cells (H andE, ×200).

Therapies

Intramural tumors are managed according to size and location. Small and easily accessible tumors treated with transurethral resection of the bladder tumour (TURBT), allowed the resection of tumor mass in present case according to the size and anatomical location of the tumors [6].

Pathological examination

TURBT biopsy- bladder tumor/mass was sent to pathological laboratory for further investigations.

On macroscopic analysis of biopsy specimen [Figure 3: Gross biopsy specimen]. received the tissues all together revealed multiple white grey pieces of tissue. Pieces of biopsy specimen together measured 7.5. x 5 x 7.5cm, which were submitted for histological examination and Immunohistochemistry (IHC) panel.

Figure 3a: Immunohistochemically, the tumor cells were positive for Desmin (IHC stain, ×200).

Figure 3b: Immunohistochemically, the tumor cells were positive for smooth muscle actin (IHC stain, ×200).

On microscopic analysis [Figure 4: Microscopically, the tumor was composed of whorled interlacing fascicles of typical smooth muscle cellswithout pleomorphism or mitotic figures, and the lumen was covered with urotelial epithelial cells (H and E, × 200)]. under light microscope by hematoxylin and eosin stain the slides revealed fragments of tumor tissue composed of fascicles of spindle shaped cells in a focal myxoid background. Elongated spindle cells presented with minimal pleomorphic nuclei and moderate eosinophilic cytoplasm. No evidence of mitosis, necrosis or malignancy was observed. Immunohistochemistry (IHC) panel was done on biopsy specimen (TURBT biopsy- bladder tumor/mass): CD34:

negative, CD117: negative [Figure 5a: Immunohistochemically, the tumor cells were negative for CD117 (IHC stain, × 200)]., DESMIN: negative, DOG-1: negative, Mib 1(Ki 67): 1%, S100-protein: negative, Smooth muscle actin (SMA): positive [Figure 5b: Immunohistochemically, the tumor cells were positive for smooth muscle actin (IHC stain, ×200)]. Together after correlating the clinical findings with histopathological analysis and immunohistochemistry panel, impression for biopsy assigned the diagnosis of bladder tumor/mass Leiomyoma to present case.

ECG: normal sinus rhythm
USG: urinary bladder: normally distended, lumen- anechoic, wallthickness normal, heterogeneous lesion measuring 6.3x 7.4 cm in leftpectoral wall with some vascularity within the lesion.
Fatty liver grade III
CT SCAN:
Large well defined polypoidal lesion measuring 7.8 x 7.4x 6 cmarising from left postero-lateral wall projecting into lumen extending up toleft VUJ without bilateral hydroureteronephrosis.
Hepatomegaly with fatty infiltration.

Table 2: Imaging details.

TURBT biopsy- bladder tumor/mass:
Macroscopic description: multiple white, grey pieces of tissue, together measuring 7.5.x5x 7.5 cm were submitted for histological examination and Immunohistochemistry (IHC) panel.
Microscopic description: on hematoxylin and eosin stain (H/E) microscopy revealed fragments of tumor tissue composed of fascicles of spindle shaped cells in a focal myxoid background. Elongated spindle cells presented with minimal pleomorphic nuclei & moderate eosinophilic cytoplasm. No evidence of mitosis, necrosis or malignancy was observed.
Immunohistochemistry (IHC) done on biopsy specimen (TURBT biopsy- bladder tumor/mass):
CD34: negative
CD117: negative
DESMIN: negative
DOG-1: negative
Mib 1(Ki 67): 1%
S100-protein: negative
Smooth muscle actin (SMA): positive
Impression of biopsy with IHC correlation: bladder tumor/mass Leiomyoma

Table 3: Biopsy specimen analysis with hitopathology and immunohistochemistry reports.

Discussion

Benign neoplasm affecting bladders are rarely reported such as leiomyoma representing < 0.5% of all bladder tumors [7]. This case illustrates clinical and pathological features in particular immunohistochemistry, and differential diagnosis. Bladder leiomyomas present no predilection for female gender or age range in 4 to 5 decades [8]. Bladder leiomyomas can be extravesical, intramural or endovesical in location [9]. Among the types endovesical type is the most common. For instance, the rare intramural form causes symptoms depending on its size and location [10]. As this form increase gradually in size causing symptoms when it reaches size, reported as maximum of 25 cm [11]. In presented case, the patient

was asymptomatic, but diagnostic standpoint for leiomyomas can be suspected on US and CT scan findings. Still biopsy of the lesion is necessary for final diagnostic workup. The etiology of tumor still remains unknown and is proposed that leiomyomas might have associated chromosomal abnormalities, hormonal influences, bladder musculature infection, perivascular inflammation or dysontogenesis [12,13]. Asymptomatic Leiomyomas usually present with obstructive symptoms (49%), irritative symptoms (38%) and hematuria (11%).[14] Based on imuunohistochemistry analysis and correlation with histopath findings, an diagnosis for bladder leiomyoma can be diagnosed as endovesical tumor [15]. First described by Campbell and Gislason: the endovesical tumors refer to the submucosal growth of leiomyoma, and are usually pedunclated or polypoid while intramural myomas. They are generally well-encapsulated surrounded by bladder wall muscle. The obstructive symptoms with gross hematuria result in symptomatic case. Intramural form, especially small tumor, is usually asymptomatic [16].

The etiology of the urinary bladder leiomyoma is mystery needs to be unraveled. Although several hypothesis such as a hormonal-related lesion, embryonic rests' tumor, post inflammatory myomatous metaplasia, localized infection and wandering fibroid resembling a parasitic uterine leiomyoma are enrolled [17]. The female predilection at reproductive age suggests hormonal influences [18].

Differential diagnosis is essential prior to intervention in such cases between benign and malignant tumor. Specifically when the neoplasm is less determined or extends beyond the bladder wall. Histopathological sections of the entire lesion specimen submitted shall be analysed presenting with pushing and well-defined borders. The lack of atypia, nuclear pleomorphism, mitosis and necrosis rule-out the rare diagnosis of leiomyosarcoma or atypical cellular leiomyoma. The former is more frequent than leiomyoma in the wall or submucosa of the urinary bladder. Inflammatory pseudotumor and postoperative stromal tumor are difficult entity to be diagnosed preoperatively [19]. Most tumors are well encapsulated, total enucleation by transurethral resection is the treatment of choice as done in present case [20].

Summary

An uncommon neoplasm of the bladder is Leiomyoma. Despite that, a thorough history and careful physical examination when patients present with a prolonged or repeated/episodic history of urinary tract symptoms, especially female presenting with obstructive symptoms need to be suspected in differential diagnosis. In future perspective more innovations in research to clarify the reason behind the female predilection is to be identified. Indeed any possible genetic or chromosomal defect for screening to treat early, cases like is a future clinical presentation.

Urologists should include a complete assessment, including hematological and biochemical workup with urine analysis, pheochromocytoma workup on urine to rule out possibility of paraganglioma; followed by limaging sucg as ECG, US, CT scan or MRI, that will determine the location, local extension of lesion, whether endovesical, intramural or extravesical. As the endovesical is the most common location and TURBT is the mainstay of therapy in case of small endovesical bladder leiomyoma. In a case of a large and intramural or extravesical tumor, a segmental resection and partial cystectomy is recommended.

Conflict of Interest

None.

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