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Case Report

Benign but Deceptive: A Case of Bladder Leiomyoma Mimicking Malignancy

Sivashankar M.[1], **Kariawasam N. L.**[2]

[1]Consultant Urologist, District General Hospital, Hambantota, Sri Lanka.

[2]Consultant Histopathologist, District General Hospital, Hambantota, Sri Lanka.

Abstract

Bladder leiomyomas are exceptionally rare benign mesenchymal tumours, accounting for less than 1% of all bladder neoplasms. We report the case of a 35-year-old woman who presented with lower urinary tract symptoms, including urgency, frequency, dysuria, and intermittent visible haematuria. Initial imaging with ultrasound and CT IVU revealed a well-defined intravesical mass on the right lateral wall of the bladder. Cystoscopy evaluation confirmed the lesion, and transurethral resection of the bladder tumour (TURBT) was performed. Histopathological examination confirmed the diagnosis of leiomyoma, which was later managed with partial cystectomy. Immunohistochemistry showed positivity for smooth muscle markers, consistent with a benign smooth muscle tumour. The patient was followed for 12 months with no recurrence. To our knowledge, this is the second documented case of bladder leiomyoma reported from Sri Lankan literature. This case highlights the importance of considering leiomyoma in the differential diagnosis of bladder masses, even in young women with nonspecific urinary symptoms.

Keywords: Bladder leiomyoma, irritative bladder symptoms, benign bladder mass, partial cystectomy, immunohistochemistry

Introduction

Bladder leiomyomas are rare benign tumours arising from smooth muscle tissue, accounting for less than 1% of all bladder neoplasms (1,2). They may present with a range of urinary symptoms depending on their size and location, including frequency, urgency, dysuria, and haematuria (1,3). Although benign, they can mimic malignant tumours both clinically and radiologically, making diagnosis challenging (3). Imaging studies and cystoscopy evaluation are key to identifying the lesion, while histopathology confirms the diagnosis (2,4). Treatment is typically surgical, with options ranging from transurethral resection to partial cystectomy (1,2). We present a case of bladder leiomyoma in a young female with symptomatic presentation.

To the best of our knowledge, this is the second reported case of bladder leiomyoma from Sri Lanka, contributing valuable insight into the clinical experience with this rare tumour in the local setting.

Case presentation

A 35-year-old woman presented to the urology outpatient clinic with lower urinary tract symptoms, including urgency, increased frequency, painful urination, and intermittent haematuria. She had no systemic symptoms suggestive of a urinary tract infection. Urinalysis revealed 30-50 red blood cells per high power field, with no pus cells. Blood investigations showed normal renal function.

An ultrasound of the kidneys, ureters, and bladder (USS KUB) revealed a bladder mass (Figure 1a). Cystoscopy evaluation demonstrated a solid mass on the right anterolateral bladder wall (Figure 1b). CT IVU confirmed the presence of the mass without any extravesical involvement and showed a normal upper urinary tract.

The patient underwent transurethral resection of the bladder tumour (TURBT), and histology and immunohistochemistry were confirmed a diagnosis of bladder leiomyoma (Figure 2,3). Her case was discussed at the multidisciplinary team meeting, and partial cystectomy was planned. She subsequently underwent partial cystectomy via a Pfannenstiel incision (Figure 4). Histology confirmed the diagnosis with clear surgical margins.

She was followed up for 12 months, with no evidence of recurrence on serial ultrasound imaging and cystoscopy at 6 months and 12 months.



Figure 1a. *Ultrasound of the Kidney ureter and bladder (KUB) revealed a bladder mass located on the right anterolateral wall of the bladder.*



Figure 1b. *Flexible cystoscopy view showing the bladder leiomyoma.*



Figure 2a. *Low power view (×40) – Benign urothelium-lined bladder mucosa with an underlying smooth muscle tumour blending into the bladder muscular layer.*

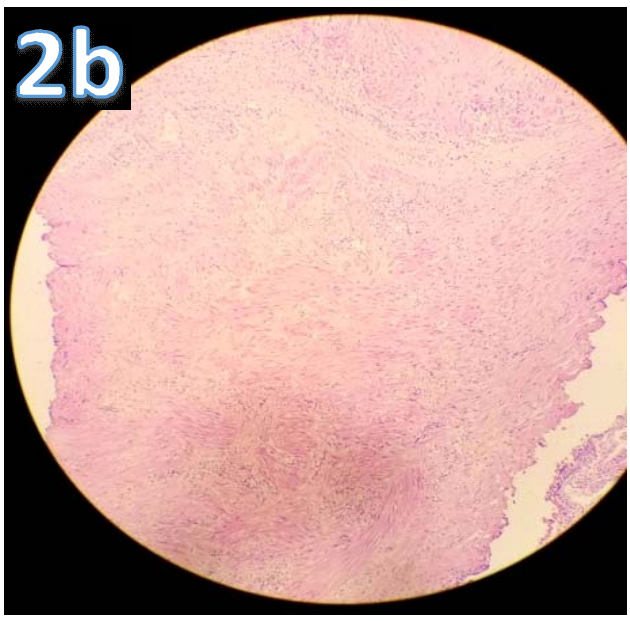


Figure 2b. *Higher power view (×100) – Viable area of the leiomyoma showing sweeping fascicles of bland spindle-shaped smooth muscle cells within a collagenous stroma.*

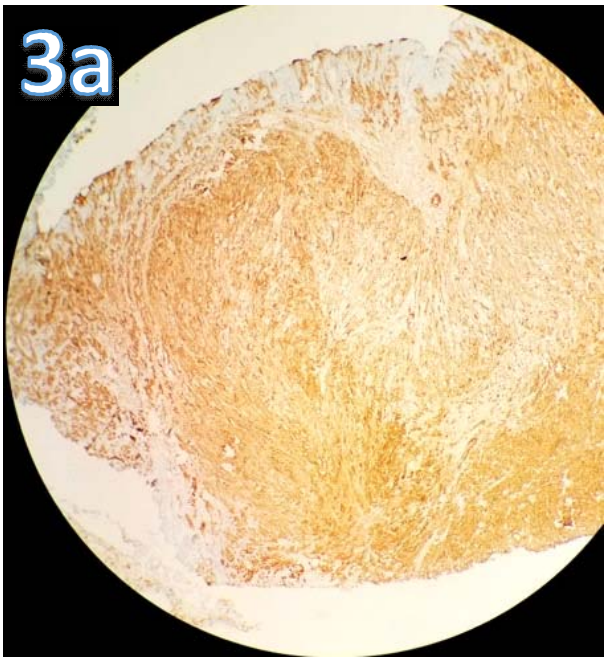


Figure 3a. *x100 – Immunohistochemistry of Smooth Muscle Actin (SMA) shows strong positivity in spindly smooth muscle cells.*

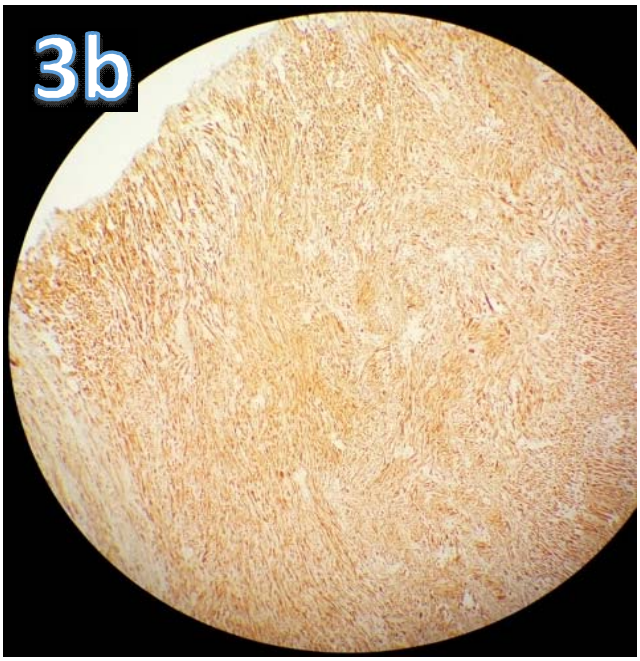


Figure 3b. *x100 – Immunohistochemistry of Desmin shows strong positivity in spindly smooth muscle cells.*



Figure 4a. *Intraoperative view of the tumour during open partial cystectomy following initial TURBT.*



Figure 4b. *Intraoperative view of the specimen showing full-thickness bladder wall.*

Discussion

Bladder leiomyoma is a rare benign mesenchymal tumour, accounting for less than 1% of all bladder neoplasms. It was first described by Kretschmer in 1931 in the English literature (5). To date, only a few hundred cases have been reported worldwide. To our knowledge, this is the first documented case of bladder leiomyoma from Sri Lanka.

Leiomyomas are more commonly found in middle-aged women, consistent with our patient's demographic profile. Although the exact aetiology remains unclear, proposed causes include

hormonal influences, embryonic remnants, or chronic inflammation.

Clinically, bladder leiomyomas often present with irritative lower urinary tract symptoms such as dysuria, increased frequency, and urgency. When located near the bladder neck or trigone, they may cause obstructive symptoms like urinary retention. Haematuria – microscopic or gross – is also reported. Our patient presented with intermittent visible haematuria. Some cases may be asymptomatic and discovered incidentally on imaging studies (6).

Initial evaluation should include urinalysis to rule out urinary tract infection, which these tumours can mimic. Most patients show normal results or microscopic haematuria. Imaging plays a vital role in diagnosis. Ultrasound is the most accessible modality, typically revealing a smooth-walled, homogenous hypoechoic mass with a thin echogenic capsule (7). CT imaging shows a well-defined, homogeneous, pedunculated lesion but lacks specific features to differentiate from other bladder tumours (8). MRI often demonstrates a uniformly T1- and T2-hypointense lesion resembling smooth muscle, with variable post-contrast enhancement (8).

Cystoscopy followed by biopsy is the gold standard for definitive diagnosis. Histologically, bladder leiomyomas consist of interlacing bundles of spindle-shaped smooth muscle cells, showing minimal atypia and low mitotic activity. Immunohistochemistry aids in confirmation, with tumours typically staining positive for smooth muscle actin (SMA), desmin, and h-caldesmon, and negative for markers of malignancy or urothelial origin (9).

Treatment depends on tumour size and location. Transurethral resection of bladder tumour (TURBT) is typically curative for small leiomyomas and simultaneously confirms the diagnosis. Larger tumours may require staged TURBT or partial cystectomy, which can be performed via open, laparoscopic, or robotic approaches.

Bladder leiomyomas generally have an excellent prognosis. Complete surgical excision is often curative, and recurrence is rare. A systematic review found recurrence or persistent symptoms in only 12.6% of cases, most following TURBT, with successful outcomes after re-intervention. Lifelong surveillance is advisable, especially for patients managed conservatively or via transurethral resection (6).

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Conflicts of interest statement

None declared.

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