

CASE REPORT

Leiomyoma of the Bladder Presenting with an Ovarian New Growth: A Case Report and Review of Literature

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Benign mesenchymal tumors of the urinary bladder are extremely rare. This is a case of a 56-year old female presenting with an enlarging abdomen initially managed as a case of an ovarian new growth. Aside from the ruptured ovarian mass, a urinary bladder mass was also noted intraoperatively and a surgical dilemma was resolved by imaging review. The patient underwent exploratory laparotomy, enterolysis, total hysterectomy, bilateral salpingo-oophorectomy, and partial cystectomy. Final histopathology identified the bladder tumor to be a leiomyoma. The patient had an uneventful postoperative course. Awareness of this clinical entity and presentation will aid in diagnosis and management.

Key words: Leiomyoma, bladder tumor, ovarian new growth

Introduction

Benign mesenchymal tumors of the urinary bladder are rare. Leiomyomas of the bladder constitute <0.5% of all bladder tumors with only about 250 cases reported.¹ The etiology of these benign tumors is still unknown.² Reported here is a case of a large intramural leiomyoma in a 56-year old, diabetic female presenting with a 1-month history of a gradually-enlarging abdomen with associated hypogastric pain and no lower urinary tract symptoms who was diagnosed preoperatively as a case of ovarian new growth and myoma uteri. Treatment options for leiomyoma vary and generally carry good outcomes.

The Case

The patient is a 56-year old female, known diabetic, who presented with a 1-month

history of gradually-enlarging abdomen with associated hypogastric pain. There were no reported lower urinary tract symptoms or bowel movement changes, but the patient reported of mild weight loss. Aside from the distended abdomen, the rest of the physical exam was unremarkable. The initial impression was of an ovarian new growth.

There was note of an elevated CA 125 at 72.26 kU/L. On transvaginal ultrasound, a large multicystic structure measuring 16.68cm x 13.59cm x 11.29cm at pelvoabdominal area and a solid unilocular mass in the left adnexa measuring 9.64cm x 9.12cm x 8.08cm were seen.

On contrast enhanced computed tomography (CT) imaging, a well-defined solid mass measuring 16.6cm x 11.0cm x 14.1cm abdominopelvic mass occupying the mid to right hemiabdomen was appreciated (Figure 1). Another significant finding on computed tomography imaging was a 9.2cm x 9.0cm x 8.3cm mass extending from the anterior

uterus compressing the posterior wall of the urinary bladder (Figure 2).

Given the imaging findings, the assessment at that time was an abdominopelvic mass probably of ovarian origin and a myoma uteri. The preoperative plan was to do an exploratory laparotomy, peritoneal fluid cytology, extrafascial hysterectomy with bilateral salpingo-oophorectomy, infracolic omentectomy, bilateral lymph node dissection, paraaortic lymph node sampling, and possible appendectomy.



Figure 1. CT scan - Well-defined solid mass with few punctate central calcifications in the mid to right pelvo-abdominal region (Level of L2-S1); UP-PGH, 2019.



Figure 2. CT scan – Large heterogeneously enhancing mass with speckled internal calcifications seen anterior to the uterus. UP-PGH, 2019.

Intraoperatively, brownish mucinous fluid was noted within the peritoneal cavity and a ruptured ovarian mass with torsion of the right fallopian tube was found. The uterus was small and measured 9cm x 5cm x 3cm and the myometrium measured 1cm anteriorly and posteriorly. The patient was then referred to Urology service for an intra-operative finding of a palpable bladder mass. Within the bladder, there was a well-circumscribed firm mass measuring 11cm x 9cm x 7.5cm attached to the posteromedial wall (Figure 3).

In the management of urinary bladder tumors, a transurethral approach for resection and biopsy (TURBT: Transurethral resection of bladder tumor) is the mainstay in management with possible intravesical immunotherapy or chemotherapy or subsequent radical cystectomy for malignant urothelial tumors. The dilemma in management of this case was whether or not to do an open excision (transvesical approach) of the bladder mass or do a transurethral approach of resection. On review of imaging, the authors noted that the bladder mass that was most likely intramural had smooth mucosal borders in contrast to a pedunculated intraluminal cauliflower-like lesion in urothelial carcinoma. The imaging scan and intraoperative characteristics pointed toward a benign bladder mass hence a transvesical approach for excision was planned. The patient eventually underwent exploratory laparotomy, enterolysis, total hysterectomy, bilateral salpingo-oophorectomy, and partial cystectomy.

Cut section of the endovesical mass revealed whorl-like pattern with some areas of calcification (Figure 4). No areas of hemorrhage or necrosis within the mass were noted.

The patient tolerated the procedure well. Post operatively, the patient was maintained on a Foley catheter for 7 days. The patient was discharged well and stable, voiding freely without urinary complaints. The final surgical pathology report and slide review of the urinary bladder mass showed a leiomyoma (Figures 5 & 6). The ruptured ovarian mass histopathology report showed a mucinous cystic teratoma.

On latest follow up, the patient is well with no lower urinary tract symptoms. In review, a leiomyoma of the urinary bladder with a

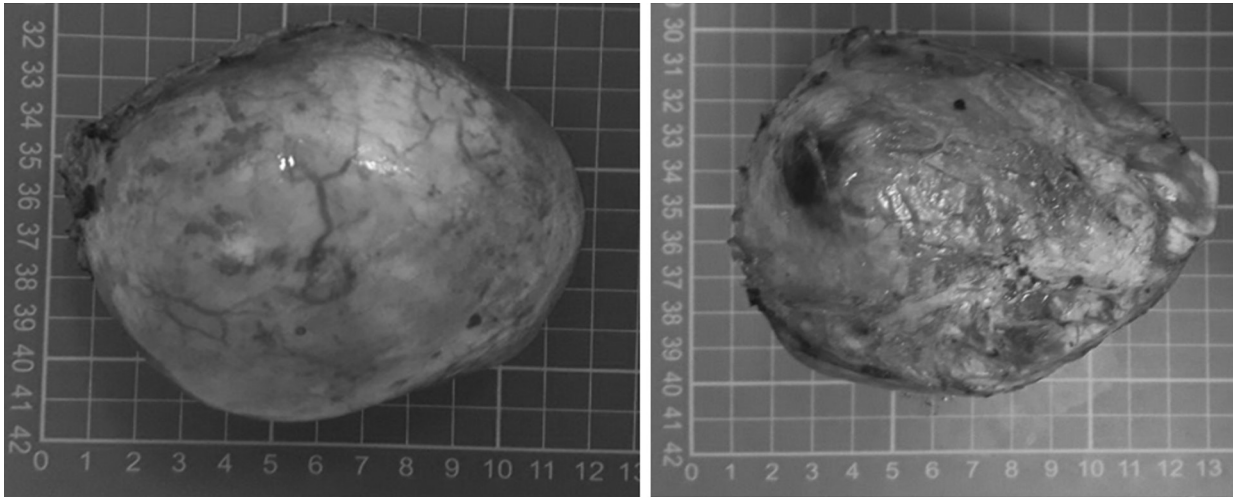


Figure 3. Left- AP view of the intravesical mass. Right- PA view of the intravesical mass, segment attached to the posteromedial wall of the bladder. UP-PGH, 2019.

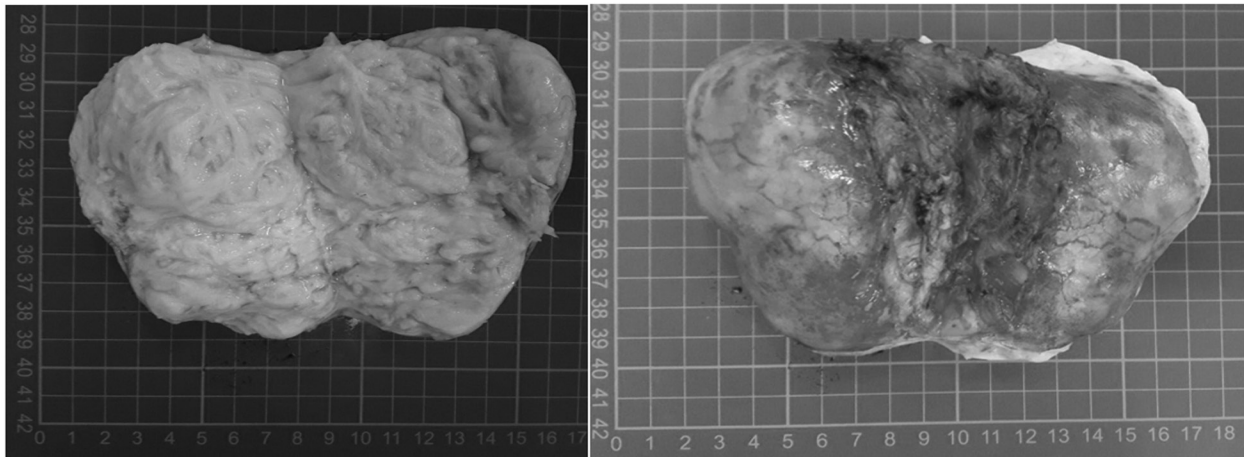


Figure 4. Cut section of intravesical mass showing whorled like pattern.

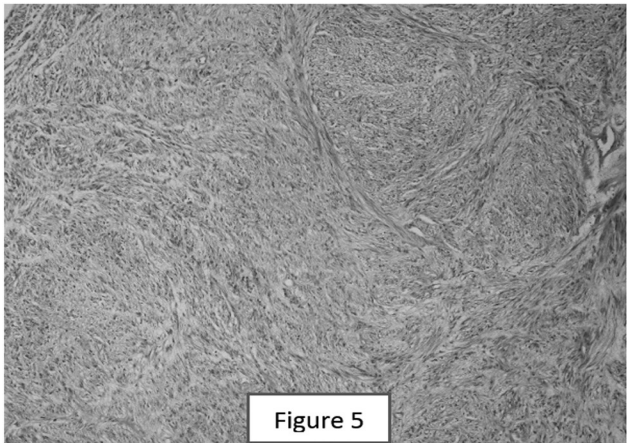


Figure 5

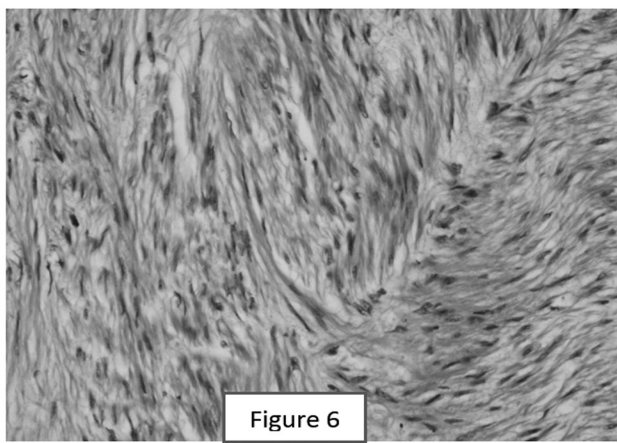


Figure 6

Figure 5. 100x: Microscopic examination of the mass show a neoplastic process with moderate cellularity and arranged in fascicles. This was diffusely seen on all tissue sections taken. UP-PGH, 2019

Figure 6. 400x: On higher magnification the tumor is predominantly composed of spindle cells in intersecting fascicles with indistinct borders and eosinophilic and fibrillary cytoplasm. The nuclei appear cigar-shaped and relatively monomorphic. No atypia, mitosis or necrosis were noted in this tumor. UP-PGH, 2019

concomitant ovarian new growth has not yet been described in literature.

Discussion

Leiomyomas of the urinary bladder are very rare neoplasms, with only 250 cases previously reported and account for <0.5% of all bladder tumors.¹ Majority of diagnosed bladder tumors are epithelial in origin. Of benign bladder tumors, only 1-5% are mesenchymal in origin, of which leiomyomas are the most common.² Most are small and asymptomatic and noted only as incidental findings on cystoscopic or radiologic examinations done for other reasons.³

In a recent review of cases of leiomyomas in 2018, it was reported that the incidence in women is twice as high as that in men, with ages ranging from the third to the seventh decade of life.⁴ Although extremely rare, leiomyomas have also been reported to occur in the pediatric age group.⁵ Due to their mesenchymal origin, leiomyomas are submucosal but their growth can be noted to be either intramural, endovesical or extravescical. Endovesical growth is reported to be the most common, occurring in 63-86% while intramural are least common and seen in only 3-7% of cases.² The presentation of these bladder masses depends on location, size, and aggressiveness of the tumor. Patients with bladder leiomyomas can be asymptomatic, but the majority present with obstructive symptoms (49%), irritative symptoms (38%), and hematuria (11%).² Frequency, urgency, and nocturia are categorized as irritative lower urinary tract symptoms while weak stream, intermittency, straining, and incomplete emptying are categorized as obstructive symptoms.⁶ The lack of irritative and obstructive symptoms in some patients can be explained by the location of the bladder mass. Masses that are intramural or situated more superiorly, away from the bladder neck, such as the one in this case may have no irritative or any ball-valve like mechanism that would cause symptoms.

Differential diagnosis for leiomyomas includes inflammatory myofibroblastic tumor of the bladder and leiomyosarcoma.³ Diagnostic methods for leiomyomas are primarily radiologic imaging with ultrasound, CT scan or MRI. Ultrasound usually

shows a homogenous, smooth-walled mass while an enhanced CT scan more accurately demonstrates the location of the mass within the bladder and on enhanced film may show variable degrees of the solid tumor. An MRI can clearly demonstrate the origin and boundaries of a leiomyoma and may be able to differentiate it from its malignant counterpart.^{4,7} However, its differentiation from leiomyosarcoma, still requires histopathologic examination.⁴ Cystoscopy with biopsy may yield the definitive diagnosis.

Management of leiomyomas of the bladder is determined primarily according to presentation, anatomic size, and location of the tumor. Cornerstone of management is to do transurethral resection and biopsy of the tumor for small endovesical tumors and partial cystectomy, for larger and intramural tumors.^{2,6} Partial cystectomy may be through open laparotomy or laparoscopically while transvaginal excision may be done for leiomyomas located at the urethra.^{4,8} Of the current literature, there were no recurrences of the bladder leiomyomas other than those that were most probably residual tumor after TURBT, nor any malignant degeneration, necrosis, or hemorrhage of these lesions.⁶ The prognosis for leiomyomas is good with no reports of malignant transformations.^{3,8}

The exact etiology of leiomyomas of the bladder is still unknown but theories on its origin and its predominance in women include chromosomal abnormalities, chronic inflammation and endocrine disorders. The relation to endocrine disorder may support its preponderance in women in the fertile period, and also reports of its concurrent occurrence with uterine leiomyomata.⁹ Significant to this case is the incidence of a concomitant ovarian new growth. Ovaries are the main organs that produce and release progesterone and estrogen in the body. In an individual with an ovarian new growth, production of these hormones may be elevated. In relation to this, the concentrations of both the estrogen receptors (ERs) (at 6q25.1 and 14q) and progesterone receptors (PRs) (at 11q22) were greater in leiomyomata than the myometrium.¹⁰ It can be surmised that the incidence of the ovarian new growth was a compounding factor in the development of the leiomyoma in this case. There is however, no reported occurrence of a leiomyoma

with an ovarian new growth as is reported in this case.

Conclusion

Leiomyomas are benign mesenchymal tumors of the bladder that are rare and we present the first known reported case with concomitant occurrence with an ovarian new growth. Although presenting with distinct characteristics on radiologic imaging, definitive diagnosis is made only through histopathologic examination. Approach to management may be minimally invasive (ie. through transurethral resection or laparoscopic excision) or open partial cystectomy. Prognosis is good with no reported malignant transformations or recurrences after complete resection.

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