CDJ
Chronic Diseases Journal
Chron Dis J 2026;14(2):100-103. doi:10.34172/cdj.967
http://cdjournal.muk.ac.ir

Case Report

# Cellular Leiomyoma of the Urinary Bladder Presenting as Hematuria in a Young Female

**Manisha Atram[1*], Pooja Pete[1], Anupama Gupta[1]**

[1]Department of Pathology, Mahatma Gandhi Institute of Medical Sciences, Sevagram, Wardha, Maharashtra, India

**Article history:**
**Received:** January 27, 2025
**Revised:** March 17, 2025
**Accepted:** April 15, 2025
**ePublished:** May 20, 2026

***Corresponding author:**
Manisha Atram,
Email: drmanisha786@gmail.com

**Abstract**

**Introduction:** Urinary bladder leiomyomas (UBL) are rare benign mesenchymal neoplasms, accounting for approximately 0.43% of all bladder tumors.

**Case Report:** A 41-year-old female presented with left lower flank pain for two months and gross hematuria for the past eight days. Enhanced CT scan of the abdomen and pelvis revealed a heterogeneously enhancing soft-tissue density lesion arising from the left posterolateral bladder wall. The patient underwent segmental resection of the mass and partial cystectomy. Histopathological examination diagnosed a cellular leiomyoma of the urinary bladder. Immunohistochemically, the tumor cells were positive for smooth muscle actin (SMA) and negative for Ki-67.

**Conclusion:** Urinary bladder leiomyoma is a rare benign tumor that clinically mimics malignant conditions such as urothelial carcinoma, adenocarcinoma, or metastatic cancer. Clinicians should be aware of the rare possibility of UBL, particularly when patients present with gross hematuria. Histopathology remains the gold standard for definitive diagnosis.

**Keywords:** Cellular leiomyoma, Urinary bladder, Hematuria, Case report

**Please cite this article as follows:** Atram M, Pete P, Gupta A. Cellular leiomyoma of the urinary bladder presenting as hematuria in a young female. Chron Dis J 2026;14(2): 100-103. doi:10.34172/cdj.967

## Introduction

Urinary bladder leiomyomas (UBL) are uncommon benign mesenchymal neoplasms that account for 0.43% of all bladder tumors with approximately 250 cases reported worldwide. [1] While, in India specific prevalence of data on urinary bladder leiomyoma is limited due to rarity. It shows a female preponderance, with most of the affected patients in their fourth - fifth decade. [2] Though etiopathogenesis of UBL is uncertain; effects of hormones, localized infection, chronic inflammation, and chromosomal abnormalities may play an important role. [2,3]

UBL are classified into three types depending on their location, endovesical, intramural and extravesical. [1,2] Symptoms caused by UBL depend on its size and location. The majority of patients (49%) with UBL present with obstructive voiding symptoms (difficulty in starting urination, a weak or interrupted urine stream, the feeling of incomplete bladder emptying and pain during urination i.e dysuria.) followed by irritative urinary symptoms. [3,4] However, there are few cases of endo vesical-type UBL presenting with painless hematuria (11%), and such cases can mimic bladder malignancy clinically. [1,3,5] Here we report a case of urinary bladder leiomyoma in a young female presenting as painless hematuria. The purpose of this study is to emphasize the challenges in diagnosis and management, detailing the diagnostic process involving imaging, cystoscopy, and biopsy. Histopathology is the gold standard confirming smooth muscle cell presence is crucial for accurate diagnosis.

## Case Report

A 41-year-old housewife presented with urinary urgency and frequency for two months. She reported a history of three to four episodes of gross painless hematuria over the past two weeks. Her obstetric and gynecological history was unremarkable, and her physical examination was within normal limits. She had no significant past medical history, medications, or family history of relevant diseases. Laboratory findings were within normal ranges, except for urine analysis, which showed > 50 red blood cells (RBCs) per high-power field (HPF).

Ultrasound of the abdomen and pelvis revealed a heterogeneously hypoechoic polypoidal mass protruding into the bladder lumen. Enhanced computed tomography (CT) of the abdomen and pelvis showed a heterogeneously enhancing, lobulated soft-tissue lesion measuring 6.8 × 5.2 × 4.8 cm arising from the left posterolateral bladder wall (Figure 1a and Figure 1b).

A cystoscopic bladder biopsy was performed. Histopathological sections from the biopsy showed a

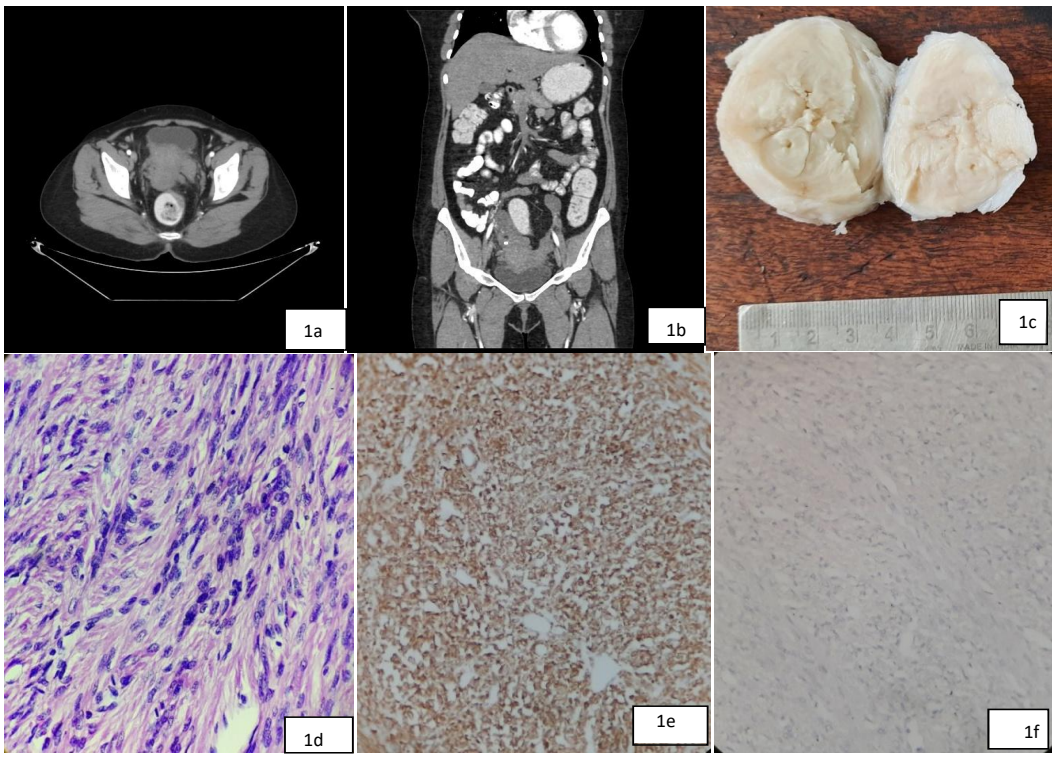


**Figure 1.** (a, b) Computed tomography of abdomen showed lobulated soft tissue density lesion arising from left postero-lateral bladder wall. Figure 1c) Gross specimen of bladder mass – grey white well circumscribed tumor with classical whorled pattern on cut surface. Figure 1d) H&E section from tumor shows spindle cells arranged in fascicles with cigar shaped nucleus. Figure 1e) Immunohistochemistry showing tumor cells positive for smooth muscle actin. Figure 1f) Immunohistochemistry showing tumor cells negative for Ki67 expression

cellular tumor consisting of spindle cells arranged in fascicles separated by scant hyaline stroma. The patient subsequently underwent open transvesical excision of the bladder mass. The postoperative period was uneventful, and the patient was discharged on the 12th postoperative day. Over a six-month follow-up, the patient remained asymptomatic, with no recurrence detected by pelvic ultrasonography or cystoscopy. A 12-month ultrasound follow-up also confirmed the absence of residual lesions. Written informed consent was obtained from the patient for the publication of this case report.

### *Histopathological Findings*

On gross examination, the tumor was a well-circumscribed, lobular, grey-white mass measuring 7 × 5.5 × 4.5 cm. The cut surface was firm and exhibited a whorled pattern (Figure 1c). Microscopic examination revealed a cellular tumor composed of spindle cells arranged in fascicles, separated by scant hyaline stroma. The tumor cells possessed eosinophilic cytoplasm and centrally located, cigar-shaped nuclei. There was no evidence of nuclear atypia, necrosis, or mitotic activity (Figure 1d).

Immunohistochemically, the tumor cells were positive for smooth muscle actin (SMA) (Figure 1e) and negative for Ki-67 (Figure 1f). Based on these findings, a final histopathological diagnosis of cellular leiomyoma of the urinary bladder was established.

## Discussion

Urinary bladder leiomyoma was first described by Virchow in 1931 and only 256 cases have been reported in the literature.[1, 4] Alanya TS et al (2021) reviewed 22 UBL cases from the literature (2016-2021), they found female preponderance, with peak incidence in the fourth and fifth decades of life.[2] The primary objective of this study is to emphasize the difficulties in diagnosing and managing, describing how imaging, cystoscopy, and biopsy are utilized in the diagnosis of cellular leiomyoma at rare site.

The aetiopathogenesis of this epidemiologic observation though, remains a mystery; however, the hormone estrogen has been implicated, as estrogen receptors have been identified in UBL. [1, 2] Similar to uterine leiomyomas, estrogen also influences the growth of bladder leiomyoma. [4] The other proposed etiologic factors for UBL included chromosomal abnormalities, perivascular inflammation, bladder wall infection, and dysotogenesis (embryonic rests of tissue residing in the bladder that transform into leiomyomas). [5,6,7]

UBL are classified into three types depending on their location, endovesical, intramural and extravesical. [2, 6,8] Endovesical is the most common and it constitutes to 63–86% of cases, while extravesical leiomyomas are present in 11–30% and intramural in 3–7%. [6,9] Endovesical leiomyoma was first described by Campbell and Gislason, and are usually polypoid or pedunculated mass. [6] The most common presentation of patients with UBL is with obstructive urinary symptoms (49%), irritative symptoms (38%), flank pain (13%), or rarely hematuria (11%).[9,10] However, Knoll et al reviewed the literature and that found the most frequent clinical presentation was irritative voiding symptoms. [4].

Pirhadi JC et al had done a systematic review of case

reports and case series from the past 20 years of bladder leiomyoma. They observed that most of the reported cases were female, 79.0% of total cases. A total of 16.8% cases were found asymptomatic, while in symptomatic patients, most patients experienced lower urinary tract symptoms (LUTS) (59.7%), followed by hematuria (24.4%), acute urinary retention (11.8%), abdominal pain (9.2%), flank pain (5.9%), palpable mass (7.6%), pelvic pain or discomfort (5.9%), and abnormal uterine bleeding (3.4%). [11]

Cystoscopy was the best initial diagnostic tool, for endovesical leiomyomas, they appeared as homogenous smooth lesions with peripheral hyperechogenicity. [6] However, MRI has a higher specificity for the mesenchymal component, and will delineate the tumor from the bladder wall and detrusor muscles. But histopathology is the gold standard for diagnosis. UBL has similar histomorphogical changes between as uterine leiomyomas. Microscopically, it composed of interlacing fascicles and bundles of smooth muscle cells. The nuclei of tumor cells are oval to cigar-shaped with blunt-ended, centrally located without nuclear atypia or mitotic activity.UBL usually has fewer than 2 mitotic figures per hpf. [5, 6] In the present case, tumor showed increased cellularity without nuclear atypia and less than two mitotic figures per hpf. Also, there was no area of haemorrhage and necrosis. On immunohistochemistry tumor cells are positive for SMA and Ki67.So the diagnosis of cellular was given. UBL showed all the morphological variants of leiomyoma of which epithelioid variant is rare. [5, 8] Table 1: Clinicopathological features of urinary bladder leiomyoma cases reported in the literature

Superficial small cystoscopic biopsies taken from the mucosal surface for diagnosis can lead to erroneous results, especially when reactive or neoplastic surface urothelial lesions are present. [5] Therefore deep-incisional biopsies are required for proper histomorphological typing of leiomyoma's and to rule out a malignant change in leiomyoma. [8, 9, 10]

Treatment and prognosis are determined primarily according to the size and anatomical location of the tumors. Surgical excision is the treatment of choice. Moreover,

**Table 1.** Clinicopathological features of urinary bladder leiomyoma cases reported in the literature

| Sr. No | Author/year | Age/ Sex | Clinical presentation | Radiological features | Treatment | Gross | Histopathology | Associated disease | Follow up |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Al Solumany A et al [1] 2021 | 53Y/F | Haematuria | CT-large intraluminal bladder mass with cystic components | open partial cystectomy | 5 x 7 x 4.5 cm | Leiomyoma | | Asymptomatic 12 months |
| 2 | Alanya TS et al [2] 2021 | 23Y/F | Dysuria, chronic pelvic pain | MRI low intensity mass extra-vesical type bladder leiomyoma | open local excision | 15.5x14.5x14 cm | Leiomyoma with no special features | --- | 8-year postoperative follow-up |
| 3 | Pramod SV et al [3] 2020 | 42Y/F | Painless haematuria | CT-Soft tissue mass of bladder wall at trigone | open trans-vesical excision | 7 x 6.5 × 4 cm | leiomyoma with lymphocytic infiltration | -- | -- |
| 4 | Xin J et al [4] 2016 | 45 Y/F | Dyspareunia | CT- contrast-enhanced mass located at trigone | open local excision | well-encapsulated 3 × 6.1 × 5.8cm | | --- | Asymptomatic 25 months |
| 5 | Musayev JS [5] 2014 | 55Y/M | chronic prostatitis | CT- well circumscribed soft tissue mass | open partial cystectomy | 2x 2.5x 2cm, nodular | Leiomyoma with no special features | | Asymptomatic 25 months |
| 6 | Khater N et al[6] 2013 | 41Y/F | Haematuria and dysuria | CT-well-delineated Endo vesical left lateral wall bladder tumour | TURBT | 6 cm × 4.2 cm | Convential leiomyoma | Uterine leiomyoma | |
| 7 | Kaviani A et al [7] 2012 | 46 Y/F | Dysuria, UTI | MRI- T1-W intermediate signal intensity intramural bladder mass on posterior wall near ureteric orifices | exploratory laparotomy | well-defined 3×4 | Epithelioid leiomyoma | --- | Asymptomatic 2 years follow up |
| 8 | Siddappa S et al 2017[8] | 53 Y/F | Haematuria and dysuria | 5 x4 x 4cm well circumscribed hypodense lesion arising from Trigone | TURBT | 5 x 5 cm | Convential leiomyoma | -- | Asymptomatic 6 months follow up |
| 9 | Mitchell K et al [9] 2019 | 64Y/M | Haematuria | Soft tissue mass within the posterior aspect of the bladder, | TURBT, Radical Cysto-prostatectomy & ileal conduit urinary diversion | 6.cm | Leiomyoma without sarcomatoid differentiation special features | Testicular teratoma | Recurrence for 4 times after TURBT Radical Cysto-prostatectomy |
| 10 | Jamshaid et al.[10] 2017 | 38Y/F | UTI | CT soft tissue mass posterolateral wall | TURBT, open local excision | 4 × 4.5cm | Leiomyoma | -- | Retention of urine, she underwent open local excision |
| 11 | Present case 2024 | 41Y/F | UTI, haematuria | Lobulated soft tissue mass on posterior wall of bladder | open trans vesical excision | 6.8 × 5.2 x 4.8 cm | Cellular leiomyoma | --- | Asymptomatic 12 months |

Y- year, F- female, M- male; UTI- urinary tract infections, CT- computerised tomography, MRI- magnetic resonance imaging, TURBT- transurethral resection of bladder tumor.

transurethral resection is a safe and effective initial choice for patients with smaller tumors. Larger tumors and those with extravesical UBL usually require open surgery with segmental resection or partial cystectomy. [11] UBL are adequately and easily treated, with almost no recurrences. In the series of Kaviani et al and Parhadi C, among the 35 patients who had the UBL excised, only two had residual tumour and needed a re-excision. [7, 11]

A better understanding of UBL in the future might perhaps offer the patient a new intravesical agent that will specifically target tumor cells to avoid the sometimes unnecessary aggressive measures. [9]

The limitation of this study was the limited literature mostly consisting of small sample size. Larger studies and longer follow-up are needed to adequately evaluate these diagnostic and therapeutic techniques.

Suggestions: More research is needed to clarify the reason behind leiomyoma being more common in women, and to identify any potential genetic or chromosome defects that could be treated before a future clinical presentation.

## Conclusion

Urinary bladder leiomyoma is a rare benign mesenchymal tumor. Female hormones estrogen and progesterone might be involved in the development of leiomyomas. Clinically, it may mimic malignant conditions, when present with irritative symptoms such as urothelial carcinoma, adenocarcinoma or metastatic cancer of the urinary tract. Clinicians should keep in mind the rare possibility of UBL when patients present with gross haematuria. Histopathological evaluation is the gold standard for diagnosis.

### Acknowledgments

We would like to thank the Department of Pathology, Mahatma Gandhi Institute of Medical Sciences, for their support.

### Authors' Contribution

Conceptualization: Manisha Atram
Data curation: Pooja Pete
Formal analysis: Manisha Atram, Anupama Gupta
Investigation: Pooja Pete
Methodology: Manisha Atram
Supervision: Anupama Gupta
Validation: Anupama Gupta
Writing – original draft: Manisha Atram
Writing – review & editing: Manisha Atram, Anupama Gupta

### Competing Interests

The authors declare that there are no competing interests.

### Ethical Approval

This study was conducted in accordance with the ethical standards of the institutional review board. Written informed consent was obtained from the patient for the publication of this case report and any accompanying images.

### Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

### References

1. Al Solumany A, Alobairi Y, Abuzenada M, Sulaiman OA, Fatani M Sr. Open partial cystectomy of intramural bladder leiomyoma with unfavorable position: a rare case report. Cureus 2021;13(1): e12965. doi:10.7759/cureus.12965
2. Alanya Tosun Ş, Sözen H, Tefik T, İyibozkurt A, Salihoğlu Y. Giant sized extravesical bladder leiomyoma mimicking uterine cervical leiomyoma: a case report with 8 years' postoperative follow-up and a review of the literature. Istanb Tip Fak Derg 2021;84(3):448-53. doi:10.26650/IUITFD.2021.804321
3. Pramod SV, Safriadi F, Hernowo BS, Dwiyana RF, Ksatriapraja RA. A large bladder leiomyoma. Urol Case Rep 2020;32:101211. doi:10.1016/j.eucr.2020.101211
4. Xin J, Lai HP, Lin SK, Zhang QQ, Shao CX, Jin L, et al. Bladder leiomyoma presenting as dyspareunia: case report and literature review. Medicine (Baltimore) 2016;95(28): e3971. doi:10.1097/md.0000000000003971
5. Musayev JS, Bagirov AM, Hasanov AB, Mammadov E. An asymptomatic intramural leiomyoma of bladder in male patient. Austin J Urol 2014;1(2):3.
6. Khater N, Sakr G. Bladder leiomyoma: presentation, evaluation and treatment. Arab J Urol 2013;11(1):54-61. doi:10.1016/j.aju.2012.11.007
7. Kaviani A, Razi A, Mokhtarpour H, Mazloomfard MM, Moeini A, Bahrami-Motlagh H. Epitheliod leiomyoma of the bladder: an unusual case of irritative and obstructive voiding symptoms. Case Rep Urol 2012;2012:759150. doi:10.1155/2012/759150
8. Vijay Ganapathy S, Siddappa S, Vinay Saini A, Keshavamurthy R. Bladder leiomyoma-an unusual cause of acute urinary retention. J Cancer Prev Curr Res 2017;8(4):319-21. doi:10.15406/jcpcr.2017.08.00287
9. Mitchell K, Barnard J, Luchey A. Locally recurrent leiomyoma of the bladder refractory to visually complete transurethral resection: an indication for cystoprostatectomy. Case Rep Urol 2019;2019:1086575. doi:10.1155/2019/1086575
10. Jamshaid A, Arshad Z, Zaidi SZ. Leiomyoma of the urinary bladder. J Pak Med Assoc 2017;67(9):1447-9.
11. Prihadi JC, Hengky A, Lionardi SK, Haruman SP. Characteristics and outcomes in bladder leiomyoma management: a systematic review of case reports and case series from the past 20 years. BMC Urol 2024;24(1):252. doi:10.1186/s12894-024-01624-3