

Rare symptomatic bladder leiomyoma: case report and literature review

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Liang He^{1,*}, Shengxian Li^{1,*}, Chao Zheng^{2,*}
and Chunxi Wang¹

Abstract

Bladder leiomyoma is a rare, benign tumour of the bladder. We present a clinical case of a 47-year-old asymptomatic woman with symptomatic bladder leiomyoma. Computed tomography showed well-defined bladder leiomyoma in the right posterior bladder wall. After partial cystectomy, pathology findings confirmed leiomyoma of bladder, and the patient achieved clinical recovery in 8 months. We discuss the relevant recent literature of bladder leiomyoma.

Keywords

Bladder, leiomyoma, cystectomy, tumour, middle age, immunohistochemistry

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Introduction

Bladder leiomyoma is a rare, benign, mesenchymal tumour of the bladder, with an incidence rate lower than 0.5% among all types of bladder tumours. There have been fewer than 250 reports on bladder leiomyoma.¹ Occurrence of this tumour is attributed to abnormal endocrine alterations.² Although the clinical treatments are different for this type of disease, the prognosis is generally optimistic.

We report here a middle-aged woman with symptomatic bladder leiomyoma. Computed tomography (CT) and biopsy results confirmed bladder leiomyoma.

Case report

A 47-year-old woman with frequent pain while urinating after intestinal obstruction surgery was admitted to our urology

¹Department of Urology, First Hospital of Jilin University, Changchun, China

²Department of Neurology and Neuroscience Center, First Hospital of Jilin University, Changchun, China

*These authors contributed equally to this work.

Corresponding author:

Chunxi Wang, Department of Urology, First Hospital of Jilin University, Changchun 130021 China.
Email: chunxi_wang@126.com



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department. Pelvic CT results showed a soft tissue lesion in the right posterior bladder wall (Figure 1).

The patient then underwent open partial cystectomy. A biopsy after cystectomy showed a urinary bladder benign leiomyoma that was 4 cm in diameter. Histopathology using haematoxylin and eosin staining also showed bladder leiomyoma (Figure 2). An immunohistochemical examination showed abnormal hyperplasia with smooth muscle actin in the spindle cells that formed the tumour.

After partial cystectomy, no recurrence or adverse complications were found in

8 months. The patient achieved a clinical recovery and experienced relief of painful urination.

The patient provided verbal informed consent.

Discussion

We report a rare case of asymptomatic bladder leiomyoma. Bladder leiomyoma is a rare submucosal tumour with an occurrence rate of less than 0.5% among all bladder neoplasms.³ Fewer than 250 cases of bladder leiomyoma have been reported.⁴

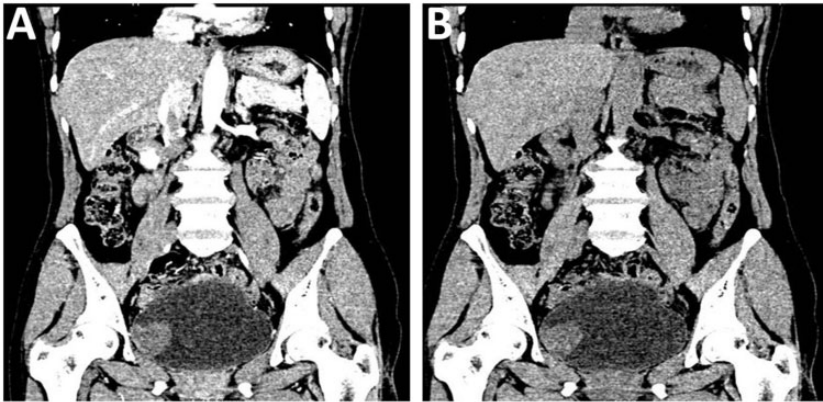


Figure 1. Enhanced coronal computed tomography results of bladder leiomyoma
A: Arterial phase. B: Venous phase

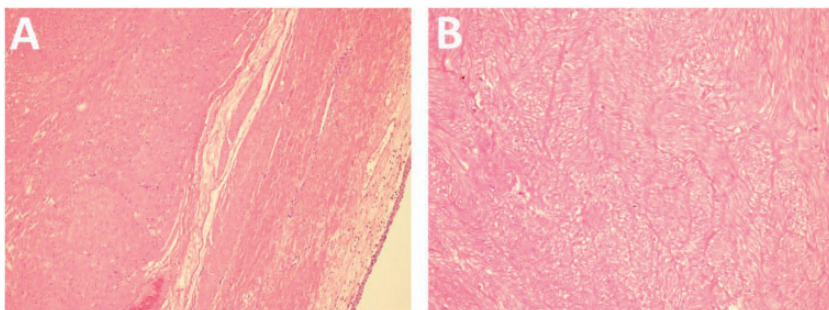


Figure 2. Haematoxylin and eosin staining results of bladder leiomyoma
A: 100× magnification. B: 200× magnification.

Table 1. Data from case reports of bladder leiomyomas in the most recent 5 years.

Author	Age, years	Sex	Tumour location	Tumour size	Treatment	Related antecedent diseases	Reference
Ortiz et al.	71	Female	Right anterolateral	~4.0 cm	Laparoscopic partial cystectomy	No	2
Goel et al.	76	Female	Bladder lumen	~4.3 cm	Partial cystectomy	No	3
Al-Othman et al.	35	Male	Bladder wall	NA	Robotic extramucosal excision	LUTs	7
Jain et al.	42	Female	Left. lateral bladder wall	6.0 × 4.0 cm	Open local excision	Suprapubic discomfort	8
Jain et al.	46	Female	Posterior bladder wall	4.0 × 3.0 cm	TUR	LUTs, haematuria, pyuria, uterine leiomyoma	8
Khater et al.	41	Female	Left posterolateral bladder wall	6.0 × 4.0 cm	TUR	Left flank pain, haematuria, pyuria, left hydronephrosis	9
Muoka et al.	68	Female	Bladder neck	~4.0 cm	TUR	LUTs, haematuria	10
Dodia et al.	35	Female	Right posterolateral bladder wall	4.0 × 3.0 cm	Open transvesical enucleation	Painless haematuria, dysuria, irritative symptoms	11
Haddad et al.	37	Male	Right bladder wall	5.5 × 4.3 cm	TURBT	Febrile, bacteria and white blood cells elevated in urinalysis	5
Kanno et al.	45	Female	NA	~4.0 cm	Laparoscopic cystostomy	Hypermenorrhoea, dysmenorrhoea, urinary frequency	11
Goktug et al.	27	Male	Bladder neck	7.0 × 8.0 cm	TUR	Dysuria, urinary tract infections	12
Almouhissen et al.	64	Male	NA	15.5 × 14.0 cm	Right radical nephrectomy and pelvic mass excision	Renal oncocytoma, dysuria	13
Kansal et al.	49	Female	Bladder neck	3.0 × 3.0 cm	Vaginal excision	No	14
Xin et al.	44	Female	Trigone of urinary bladder	6.6 × 5.8 cm	Open surgical excision	Dyspareunia	15

(continued)

Table 1. Continued.

Author	Age, years	Sex	Tumour location	Tumour size	Treatment	Related antecedent diseases	Reference
Agrawal et al.	45	Female	Bladder neck	~1.4 cm	Resected by standard resectoscope	Painful acute retention of urine	6
Wu	49	Male	Bladder neck	5.0 × 4.6 cm	TUR	Haematuria, dysuria, and pollakiuria	16
Kalathia et al.	55	Female	Posterior bladder wall	6.7 × 5.1 cm	TUR	Right lower quadrant abdominal pain	17
Musayev et al.	55	Male	Right anterolateral bladder wall	3.0 × 2.5 cm	Open partial cystectomy	No	18
Gok et al.	46	Female	Near bladder neck	9.0 × 6.0 cm	TURBT	Obstructive and irritative urinary complaints	4
Yin et al.	22	Female	Left posterior bladder wall	3.2 × 2.5 cm	Transvaginally resected	Lower left abdominal pain for 2 months	19
Itam et al.	56	Male	NA	NA	Laparoscopic cystotomy	Acute urinary retention and haematuria	20

Transurethral resection, TUR; transurethral resection of bladder tumour, TURBT; lower urinary tract symptoms, LUTs; NA, not available.

To review the epidemiology, preventive measures, and therapy of bladder leiomyoma, we collected the latest (most recent 5 years) related literature from 2012 to 2017. We searched PubMed, Embase, and Google Scholar with the following search terms: bladder (all fields) or bladder (mesh term), and leiomyoma (all fields) or leiomyoma (mesh term). After careful filtration of duplicates and non-related results, data from 21 patients in 20 reports were collected and analysed (Table 1).

In our literature search, bladder leiomyoma showed obvious sex and age differences (Table 2). The incidence of bladder leiomyoma in women was twice as high as that in men. Additionally, middle-aged patients of approximately 50 years old showed the greatest adverse symptoms among all age groups.

Detection of bladder leiomyoma is mainly divided into two types of symptomatic and asymptomatic. Symptomatic bladder leiomyoma results in lower urinary tract symptoms (LUTs), haematuria, and pyuria.

Other individual and specific symptoms, such as abdominal or back pain and urinary retention, mainly depend on the size and position of the leiomyoma. Additionally, bladder leiomyoma can result in special symptoms, such as radiating pain of the left leg³ or bacterial infection.⁵

Generally, larger leiomyomas have more symptoms. However, as Agrawal et al. described, bladder leiomyoma smaller than 1.4 cm in diameter can cause pain and urinary retention.⁶ This phenomenon is mainly attributed to the location of the leiomyoma. A leiomyoma that is located in the bladder neck may cause more severe symptoms compared with a leiomyoma that is located in the bladder wall.

Differential diagnosis of bladder leiomyoma with other diseases is especially important. Traditional detection methods of bladder leiomyoma include ultrasound, CT, and magnetic resonance imaging. The detection methods that are applied for bladder leiomyoma are the same as those for other types of leiomyoma. Ultrasound can primarily show a homogenous mass. Abdominal CT demonstrates the location of leiomyoma in the bladder lumen, and enhanced CT can further show the variable degrees of the tumour. Magnetic resonance imaging is better than CT for detecting the origin and distinguishing the boundary of the tumour. However, although imaging detection can provide diagnostic evidence for bladder leiomyoma, the most effective diagnosis is based on immunohistochemistry and haematoxylin and eosin staining results.

At present, the most common treatments for bladder leiomyoma are transurethral resection and open surgical excision. Furthermore, other feasible minimally invasive surgeries, such as laparoscopic cystotomy and robotic extramucosal excision, are suitable for patients with bladder leiomyoma. In some special cases, specific operations were developed, such as vaginal resection for bladder leiomyoma. With regard to

Table 2. Characteristics of reports on bladder leiomyoma from 2012 to 2017.

	Results
Mean age, years	48
Sex, n (%)	Men: 7 (35%) Women: 13 (65%)
Size	1.4 to 15.5 × 14.0 cm
Treatment, n (%)	TUR or TURBT (including a standard resectoscope): 9 (45%) Open surgical excision: 5 (25%) Laparoscopic cystotomy: 3 (15%) Vaginal resection: 2 (10%) Robotic extramucosal excision: 1 (5%)
Outcome	All of the patients achieved clinical recovery

Transurethral resection, TUR; transurethral resection of bladder tumour, TURBT.

patients with symptomatic bladder leiomyoma, minimally invasive surgeries, transurethral resection, or open cystotomy can result in a satisfying outcome with almost non-recurrence. In our case, the patient experienced frequent and painful urination. Therefore, open partial cystectomy was suitable and achieved a great outcome.

In the future, development of surgical techniques should lead to more methods to identify bladder leiomyoma, and to more advanced choices for treating bladder leiomyoma. Feasible, safe, and minimally invasive treatment with an excellent prognosis could gradually become the main trend in bladder leiomyoma treatment.

Conclusion

In summary, we present a rare case of symptomatic bladder leiomyoma and reviewed the latest literature of cases of bladder leiomyoma. We compared treatment strategies for bladder leiomyoma. Our results could be meaningful and beneficial for future clinical treatment of patients with bladder leiomyoma.

Declaration of conflicting interest

The authors declare that there is no conflict of interest.

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References

1. Dodia B, Mahajan A, Amlani D, et al. Leiomyoma of Urinary Bladder in Middle-Aged Female. *J Obstet Gynaecol India* 2017; 67: 147–149.
2. Ortiz M, Henao DE, Maya WC, et al. Leiomyoma of the urinary bladder: a case report. *Int Braz J Urol* 2013; 39: 432–434.
3. Goel R and Thupili CR. Bladder leiomyoma. *J Urol* 2013; 189: 1536–1537.
4. Gok A. Transurethral resection of a large urinary bladder leiomyoma: a rare case report. *Urol J* 2017; 14: 4052–4054.
5. Haddad RG, Murshidi MM, Abu Shahin N, et al. Leiomyoma of urinary bladder presenting with febrile urinary tract infection: a case report. *Int J Surg Case Rep* 2016; 27: 180–182.
6. Agrawal SK, Agrawal P, Paliwal S, et al. Bladder neck leiomyoma presenting with acute retention of urine in an elderly female. *J Midlife Health* 2014; 5: 45–48.
7. Al-Othman KE, Rajih ES and Al-Otaibi MF. Robotic extramucosal excision of bladder wall leiomyoma. *Int Braz J Urol* 2014; 40: 127–128; discussion 128.
8. Jain SK, Tanwar R and Mitra A. Bladder leiomyoma presenting with LUTS and coexisting bladder and uterine leiomyomata: a review of two cases. *Rev Urol* 2014; 16: 50–54.
9. Khater N and Sakr G. Bladder leiomyoma: presentation, evaluation and treatment. *Arab J Urol* 2013; 11: 54–61.
10. Muoka OE, Muoka O and Daruwalla P. Leiomyoma of the bladder. *BMJ Case Rep* 2013; 2013.
11. Kanno K, Andou M, Yanai S, et al. Total Laparoscopic Treatment With Cystotomy for Intramural Bladder Leiomyoma. *J Minim Invasive Gynecol* 2017.
12. Goktug GH, Ozturk U, Sener NC, et al. Transurethral resection of a bladder leiomyoma: A case report. *Can Urol Assoc J* 2014; 8: E111–E113.
13. Almouhissen T, Badr H, Alessa N, et al. Bladder leiomyoma in male patient presenting with renal oncocytoma: Are the two conditions related? *Urol Ann* 2016; 8: 397–399.
14. Kansal JK, Mohamed M and Mahdy A. Vaginal Approach to Excise a Rare Paraurethral Leiomyoma. *Urology Case Rep* 2016; 9: 18–20.
15. Xin J, Lai HP, Lin SK, et al. Bladder leiomyoma presenting as dyspareunia: Case report and literature review. *Medicine* 2016; 95: e3971.
16. Wu S. Imaging findings of atypical leiomyoma of the urinary bladder simulating

- bladder cancer: a case report and literature review. *Med Ultrason* 2013; 15: 161–163.
17. Kalathia J, Agrawal S, Chipde SS, et al. Total endoscopic management of a large bladder leiomyoma. *Urol Ann* 2015; 7: 527–529.
 18. Musayev J, Bagirov A, Hasanov A, et al. An Asymptomatic Intramural Leiomyoma of Bladder in Male Patient. *Austin J Urol* 2014; 1: 3.
 19. Yin FF, Wang N, Wang YL, et al. Transvaginal Resection of a Bladder Leiomyoma Misdiagnosed with a Vaginal Mass: A Case Report and Literature Review. *Case Rep Obstet Gynecol* 2015; 2015: 981843.
 20. Itam S, Elhage O and Khan MS. Large leiomyoma of the bladder masquerading as an enlarged prostate gland. *BMJ Case Rep* 2016; 2016.