

# Bladder neck leiomyoma presenting with acute retention of urine in an elderly female

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## ABSTRACT

Acute painful retention of urine in a female is uncommon presentations. Bladder neck tumor presenting as acute painful retentions is rare clinical scenario. We present a case of the urinary bladder neck leiomyoma in a 45-year-old peri-menopausal female who presented with acute painful retention of urine without prior history of lower urinary tract symptoms. Patient was managed with cystoscopy and transurethral endoscopic resection of the tumor.

**Key Words:** Leiomyoma, neoplasm, urinary bladder

## INTRODUCTION

Leiomyoma is a benign soft-tissue neoplasm that arises from smooth muscle cell. Although the uterus is the most common site of origin for leiomyoma, they may develop at any site where smooth muscle cells are found. Unusual sites of origin include the vulva, ovaries, urinary bladder, sinonasal cavities, orbits, kidneys, skin, urethra, retroperitoneum and inferior venacava.<sup>[1]</sup> leiomyoma at these sites are rare and only few cases have been reported.<sup>[1]</sup> Leiomyoma of the urinary bladder is the most common mesenchymal tumor of the urinary bladder and only around 200 cases have been reported.<sup>[2]</sup> Urinary bladder leiomyoma usually presents with chronic obstructive or irritative lower urinary tract symptoms (LUTS). Acute presentation with retention of urine in a female is rare and only two more cases have been reported to present like this.<sup>[3,4]</sup> We present here the case of the bladder neck leiomyoma, its endoscopic management and review the literature of the urinary bladder leiomyoma.

## CASE REPORT

This was a case report of a 45-year-old female patient presented in the emergency department with painful acute retention of urine. She did not have any history of LUTS prior to this. She was peri-menopausal and had

a history of irregular and heavy menstrual period. On examination, urinary bladder was palpable and tender. Pelvic examination did not reveal any pelvic organ prolapse or mass. Ultrasonography was carried out prior to catheterization, which revealed a small growth at the bladder neck [Figure 1]. Growth was about 1.4 cm and had hyper echoic peripheral rim with sonolucent center with fine internal echoes. Results of laboratory investigations were within normal limit. On cystourethroscopy, small mass with smooth urothelial covering was present at the bladder neck extending onto proximal urethra [Figure 2]. Mass was extending from 10 o'clock to 2 o'clock position at the bladder neck. It was resected completely using 26 F continuous flow resectoscope and cutting loop electrode [Figure 3]. It was solid to cut and did not bleed much. Special care was taken to preserve the bladder neck. An 18 F two way Foley's catheter was kept for 2 days. Patient voided with good flow after catheter removal. At 6 months follow-up, patient was symptoms free and ultrasound of the bladder was normal.

The pathological findings revealed the proliferation of spindle-shaped cells with eosinophilic cytoplasm, muscular

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and fibrous tissue with fibrous stroma. The nuclei of the cells were cigar-shaped and centrally located. No evidence of mitotic figures, coagulative T-cell necrosis or atypia was seen. Hence, findings were consistent with a diagnosis of benign leiomyoma [Figure 4].

## DISCUSSION

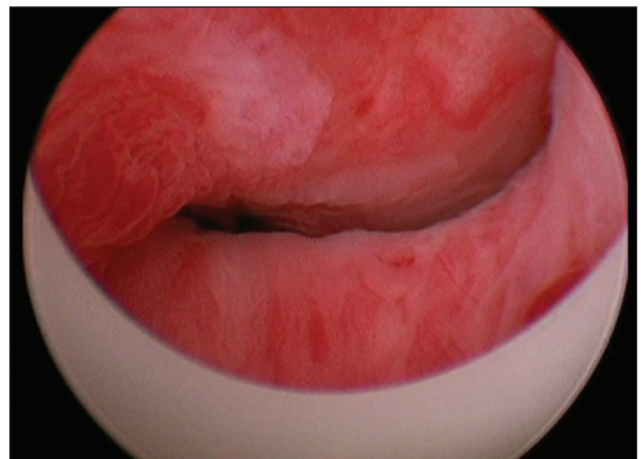
Retention of urine in female is usually insidious in onset and evolves over a period of time. Acute retention of urine with tender palpable bladder is rather uncommon in female and usually has anatomic/obstructive causes. Obstruction may be intraluminal or extraluminal. Extraluminal causes include retroverted uterus in early pregnancy, hematocolpos, cervical leiomyoma or any pelvic mass/ovarian mass pressing over bladder neck or urethra, urethral kinking in cases of grade 3 cystocele. Intraluminal causes include stone in urethra, urethral stricture and tumor at the bladder neck or urethra. Apart from these mechanical causes, urinary

retention may also occur rarely due to anticholinergic use, detrusor muscle hypotonia, myasthenia gravis and neuropathic bladder. Uterine leiomyoma can cause retention of urine and LUTS by various mechanisms. A large fibroid may weigh down the uterus, causing acute retroversion and compression of the cervix against the proximal urethra.<sup>[5]</sup> This causes anterior deflection of the cervix and subsequent urethral compression.<sup>[6]</sup> As the fibroid enlarges, it may become incarcerated in the pelvis and may stretch urinary bladder affecting its function and contractility. Other causes of urgency and frequency include urethral elongation causing intermittent voiding dysfunction.

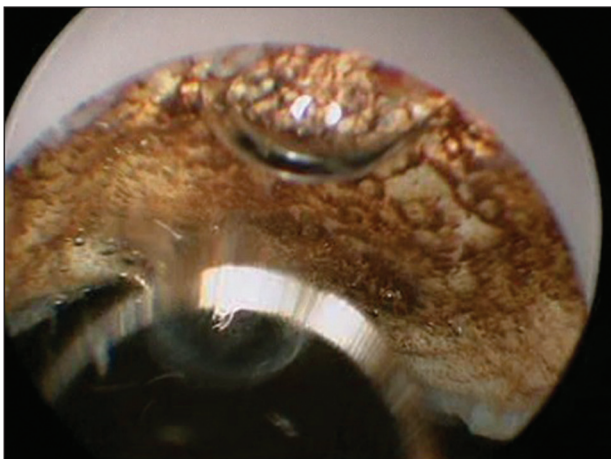
In our case, it was small tumor present at urinary bladder neck, which led to acute obstruction of urethral lumen leading to acute retention. We were lucky in diagnosing the small tumor at the bladder neck in the emergency department itself because sonography was done before putting the urethral catheter.



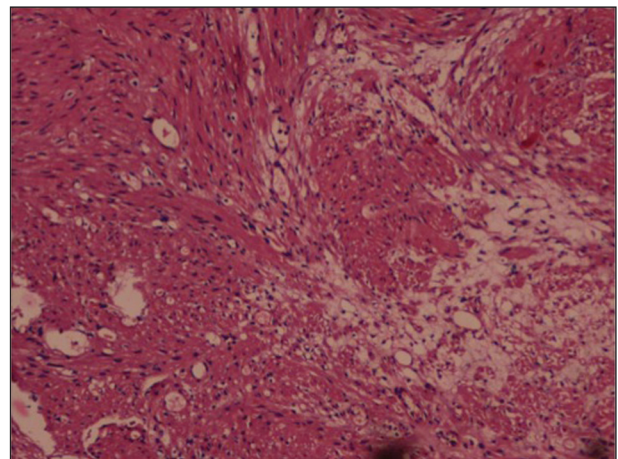
**Figure 1:** B-mode ultrasound (sagittal view) showing small lesion at urinary bladder neck with hyper echoic peripheral rim with central lucency



**Figure 2:** Endoscopic view of the bladder neck during cystoscopy showing tumor occluding the bladder neck



**Figure 3:** Tumor being resected with loop electrode and standard resectoscope



**Figure 4:** High power (x400) photomicrograph of resected tissue (description in the main text)

Urinary bladder leiomyoma is a type of benign mesenchymal tumor of the urinary bladder, which is a heterogeneous group of the urinary bladder tumor.<sup>[7]</sup> In this group, leiomyomas are the most common, comprising one-third of the group and accounts for 0.43% of bladder tumors.<sup>[8]</sup> Bladder leiomyoma is more common in female than male (female to male ratio is 3:1). In a recent series by park *et al.*, all nine cases were female.<sup>[9]</sup>

Urinary bladder leiomyoma may be asymptomatic or may present with obstructive and irritative LUTS or gross hematuria. In a review of 37 cases by Goluboff *et al.*, obstructive LUTS were the most frequent (49%). Irritative LUTS were present in 38% of cases while 11% had hematuria and 19% were asymptomatic.<sup>[10]</sup> In a more recent review by Silva-Ramos *et al.*, irritative LUTS was most common (50%), obstructive LUTS was present in 24% of cases.<sup>[11]</sup> However, this type of presentation with acute painful retention of urine without any prior voiding problems has been reported only few times.<sup>[3,4]</sup> In our patient, solid pedunculated tumor was located at the bladder neck and going into urethral lumen on cystoscopy. Probably sudden prolapsed (ball valve) of tumor into the urethra on the presentation resulted in acute retention.

Size as well as location of the tumor is important in deciding the clinical presentation. According to Park *et al.*,<sup>[9]</sup> Size of tumor is more important than location of tumor in deciding the symptoms. Tumor can be endovesical, intramural or extramural in location. Intravesical form has been reported most frequently in the literature (63-86%) followed by extravesical (11-30%), while intramural type is less common accounting for 3-7% of the cases.<sup>[12]</sup> Endovesical leiomyomas can be pedunculated as in our case and result in outlet obstruction of the bladder. Diagnosis is usually suspected on radiographic imaging, however it is difficult to predict preoperatively on imaging. Sonographically, they appear as a homogenous smooth mass with peripheral hyperechogenicity.<sup>[12]</sup> Our case had similar finding on sonography.

Both computed tomography (CT) and magnetic resonance imaging (MRI) can be used for cross sectional imaging to know about site, size and extension of tumor. However, MRI is considered superior to CT scan since it provides better soft-tissue contrast and resolution. MRI generally shows intermediate signal intensity on T<sub>1</sub>-weighted images and an intermediate to low signal intensity on T<sub>2</sub>-weighted images. After contrast administration, the tumors will show a variable pattern of enhancement, with some enhancing homogeneously and others showing little enhancement.<sup>[13]</sup>

Imaging can only be suggestive for leiomyoma; definitive diagnosis is obtained only after histo-pathological examination. Tissue can be obtained either by cystoscopy or by tru-cut biopsy. Surgical removal is the primary treatment for urinary bladder leiomyoma and includes transurethral resection of the tumor and open surgical excision. Mode of surgery depends upon the size and location of the tumor. Small tumor can be removed by transurethral endoscopic resection while large tumor requires open enucleation or resection/partial cystectomy. Surgical excision has an excellent prognosis and should always be offered. Malignant transformation of the urinary bladder leiomyoma has never been reported. Laparoscopic resection/enucleation of leiomyoma of the urinary bladder is feasible and has also been reported once.<sup>[2]</sup>

## CONCLUSION

Leiomyoma of the bladder neck presenting with acute retention of urine is a rare presentation. Small tumor like this can only be detected preoperatively only when sonography is done before putting Foley's catheter. Transurethral resection of endoluminal tumor is effective and safe. These tumors usually have benign outcome with low risk of recurrence therefore radical surgeries should be avoided in these cases.

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