



## Female paraurethral leiomyoma in non-sexually active woman: A case report

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### ABSTRACT

Leiomyomas are benign fibromuscular tumors that arise from smooth muscle cells. Paraurethral leiomyoma accounts for 5% of all paraurethral masses and occurs in 1 in 1000 women. We reported a case of a 43-year-old female presented with a palpable mass at the vaginal introitus with lower urinary tract symptoms. Patient had no pregnancy and sexual history before. A pelvic MRI demonstrated a 1.6 x 1.7 x 2.0 cm mass within the anterior part of the paraurethra. The excision of the mass was done via transvaginal approach and was successful. The final post-operative pathology report was confirmed as leiomyoma.

### 1. Introduction

Paraurethral leiomyoma accounts for 5% of all paraurethral masses and occurs in 1 in 1000 women. A true paraurethral tumour is a mesenchymal neoplasm that grows in the paraurethral area and has no connection to the urethra, bladder, or vagina. The suggested therapy is excision of the mass, with the diagnosis confirmed by pathologic findings to rule out other diagnosis.<sup>1</sup> This article reports a case of a paraurethral leiomyoma in a middle-aged female, confirmed by histopathology.

### 2. Case presentation

A 43-year-old woman was referred by her gynecologist with the chief complaint a lump in her urethra in the last five months. The patient accidentally felt the lump while wiping and cleaning her genital. The patient did not feel any pain and mentioned that the lump had enlarged in the last two months. She had symptoms of hesitancy and incomplete emptying of urine without dysuria. She denied other LUTS complaints, hematuria, cloudy urine, or passing stone. She is single, with no pregnancy and sexual history. The patient had known multiple leiomyomas uteri, and past medical and surgical history was insignificant. General

physical examination, blood tests, urinalysis and urine cytology are within normal ranges.

Vaginal and local examination showed a 1.5 x 2.5 cm, covering the external urethral orifice, firm and smooth (Fig. 1a). The mass originated from the anterior part of the urethra. On uroflowmetry, maximal flow rate (Qmax) was 49 mL/second, with a PVR of 20 mL. Voiding cystourethrogram and urethroscopy showed normal results. Mass biopsy revealed non-specific chronic urethritis with squamous metaplasia. During abdominopelvic magnetic resonance imaging (MRI) the result, shows a focal, smooth, regular mass on the anterior of urethral orifice with isointense intensity to muscle on T1W, mild high intensity to muscle on T2W, homogenous contrast enhancement, mild hyperintense on DWI, no loss signal intensity on ADC map with ADC value range 1,3–1,7 x 10<sup>-3</sup> mm<sup>2</sup>/s. These findings were similar to the characteristics of uterine fibroid in this patient (Fig. 1b–d). The mass pushes the urethra posteriorly without intraluminal urethral infiltration, with no pelvic or inguinal lymphadenopathy seen. Multiple uterine leiomyomas were also observed in the intramural and subserosa bodies of the corpus-fundal uterine. There was no urethral invasion. The diagnosis of paraurethral leiomyoma was established.

After consultation and comprehensive discussion, surgery was performed (Fig. 2). Transvaginal paraurethral mass excision was

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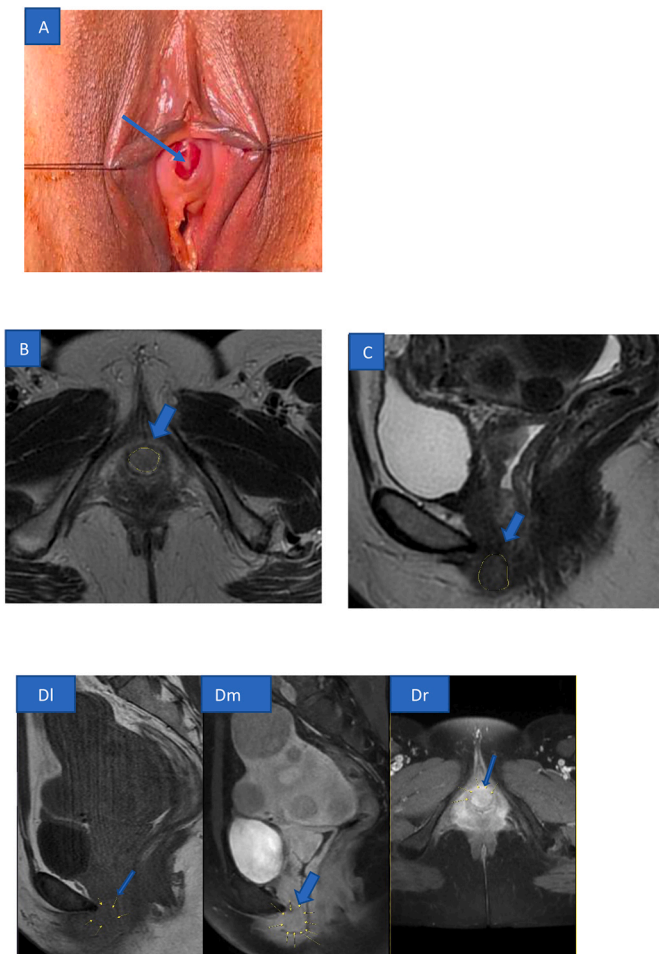
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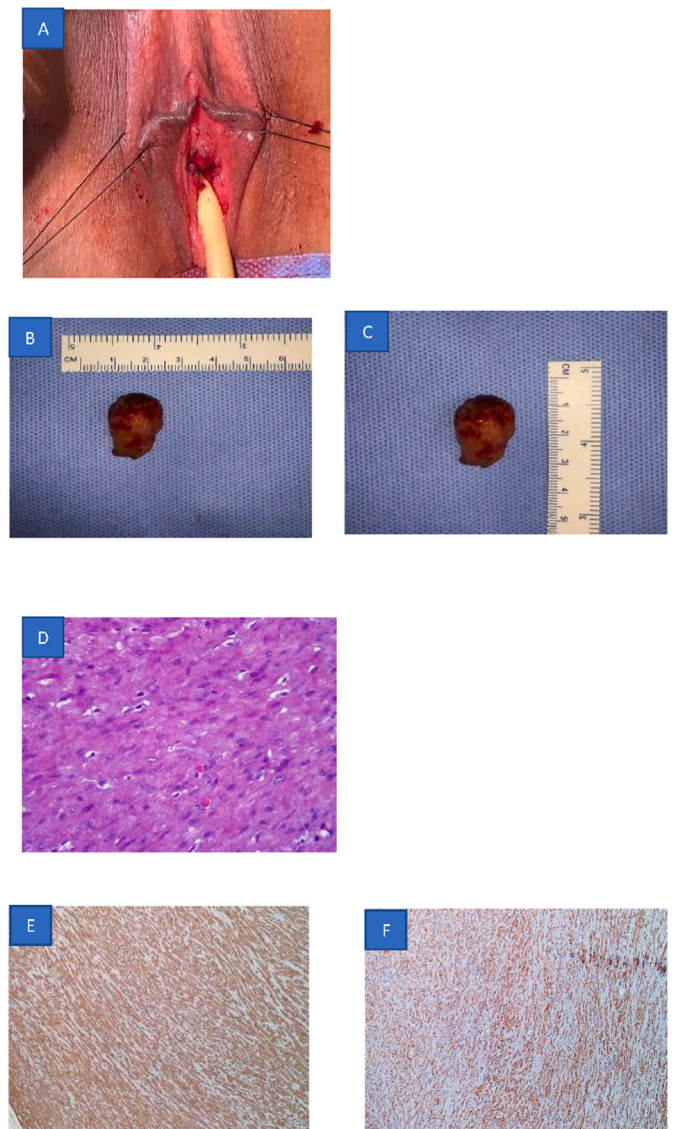
**Fig. 1.** (a) Pre-operative local examination. Shown by the blue arrow, we can see the mass on the surface of urethra orifice, without bleeding, smooth surface, with the diameter around 1.5 × 2.5 cm; (b-d) pre-operative pelvic MR with gadolinium contrast. (b) T2-weighted image (WI) axial, (c) T2WI sagittal, (d; left) T1WI sagittal, (d; middle) T1 fat saturation (FS) with contrast, (d; right) T1 FS with contrast. (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

undertaken, with the insertion of foley’s catheter size 24 Fr into the urethra during the operation (Fig. 2a). The mass was resected completely with the size of 2 × 1.7 cm x 1.6 cm (Fig. 2b and c). There was no intraoperative complication. The final post-operative pathology report was confirmed as leiomyoma, supported by the immunohistochemical result. It was comprised of spindle-shaped smooth muscle cells, with oval nuclei, and eosinophilic cytoplasm (Fig. 2d). There was no mitosis or nuclei atypia observed. Immunohistochemistry studies revealed that SMA and desmin was stained positively (Fig. 2e and f). Patient was then discharged. The 24 Fr catheter was taken out two weeks after surgery.

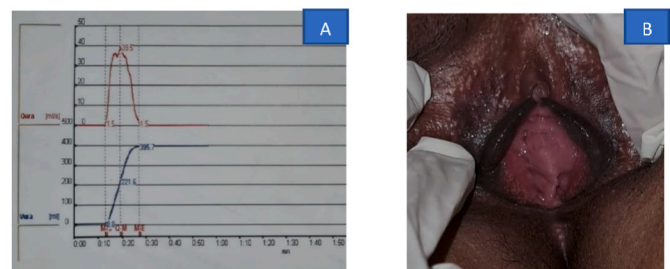
The patient was evaluated at follow-up session, the previous urinary complaints were relieved, and the operation site was clean and healing well. Uroflowmetry and local examination was done three months after the surgery during follow-up with normal result (Fig. 3). No surgical complication and new onset of LUTS or incontinence was observed after surgery.

### 3. Discussion

Paraurethral leiomyomas are exceptionally rare benign mesenchymal tumors. Leiomyoma is commonly found in the genital tract and scarcely in the urinary tract. The exact etiology is still debatable. Most



**Fig. 2.** Paraurethral Leiomyoma Excision. (a) Picture of urethra immediately after the excision; (b,c) The mass taken out completely during surgery with the size of 2,0x1,7x1,6 cm. Figure (d) Histopathology results showed tumour with spindle-shaped cells with bland oval nuclei and eosinophilic cytoplasm, without mitotic figure low grade with 400x magnificant, (e) Histopathology results confirmed the diagnosis of leiomyoma with SMA positive, (f) Desmin positive.



**Fig. 3.** (a) Uroflowmetry after three months (b) Local examination after three months after surgery showed no mass and nice healing of urethra.

cases were recorded in reproductive-age women, with median age from 40 to 44 years, which points to a hormonal involvement. Paraurethral leiomyomas can appear as an asymptomatic or symptomatic mass, as a

urological symptoms or dyspareunia.<sup>1</sup> Our patient was 43 years old at the time, which falls into the median age of leiomyomas. She had a vaginal mass accompanied with hesitancy and incomplete bladder emptying.

Ultrasound and MRI imaging offered valuable preoperative diagnostic information. Paraurethral leiomyomas typically appear as smooth, round, solid, with size spanning approximately 1–8 cm.<sup>2,3</sup> Multi-slice MRI is also useful, done before surgery to pinpoint the exact location of the tumor in relation to the urethra and nearby structure, and to rule out other problems. T1-weighted pictures show hypointense or isointense neoplasms, while T2-weighted images show hyperintense or isointense neoplasms.<sup>1</sup> Diffusion weighted imaging can help distinguish between benign and malignant process in genitourinary imaging. Paraurethral leiomyoma typically has no restriction diffusion on DWI dan ADC map sequences, that indicate benign lesion on preoperative evaluation.<sup>2,3</sup> Deep location, large size, and heterogeneous signal intensity (SI) on T2 weighted MR images (T2WI), are the most common criteria to diagnose malignant soft-tissue tumors. MRI is evident to be effective in separating cystic from solid lesions. In addition, we also found another leiomyoma in the uterus with the same characteristic in this patient. There are just few case reports that describe these diseases coexisting.<sup>2</sup>

Management strategy for paraurethral leiomyoma has yet to be devised due to the disease's rarity. In most prior studies, excision of the tumor via transvaginal route was the preferred and recommended treatment method, as done in this case. The surgery was chosen to overcome the symptoms and urethral catheter was inserted during the surgery to help identify and avoid urethral damage.<sup>4</sup> In situation where hysterectomy was also planned concomitantly, the procedure can be done with robotic-assisted laparoscopic hysterectomy and mass excision with anterior approach as it is less invasive and visualize better.<sup>5</sup> However, in Indonesia, resources for robotic surgery is still limited and we did not plan any hysterectomy for this patient. Histopathology is the gold standard for diagnosis. Under hematoxylin and eosin stain conventional leiomyoma exhibits interlacing fascicles of spindle-shaped smooth muscle cells along with eosinophilic cytoplasm, oval nuclei, and well-defined border. Immunohistochemistry is positive for desmin and smooth muscle cell antigen (SMA).<sup>1,2</sup> These were identical to our case.

#### 4. Conclusion

Paraurethral leiomyomas are rare benign mesenchymal tumors that can result in obstructive symptoms in the lower urinary system, especially in female. Radiological imaging modalities such as USG and MRI are valuable examinations, where histopathological analysis confirms the diagnosis. Surgical removal of the mass should be performed carefully.

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#### Previous presentation

Authors declare that the study has never been presented on scientific presentation before.

#### Declaration of competing interest

Authors declare that there is no conflict of interest in this study.

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