

CASE REPORTS

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# Paraurethral leiomyoma in a post-menopausal woman: a case report



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## Abstract

**Background** Paraurethral leiomyoma are rare, benign, hormone-dependent growths. They originate from smooth muscle cells and occur in the paraurethral space of the urethra. They make up approximately 5% of urethral tumours. They usually appear in the reproductive age group of women with variable clinical presentation depending on the size and location of occurrence. They can either be asymptomatic or can present with local pressure symptoms, dyspareunia, and lower urinary tract symptoms. The usual treatment is surgical excision with confirmation of diagnosis on histology.

**Case presentation** We report a case of a 58-year-old lady who initially presented to the gynaecology department with pelvic pain and lower urinary tract symptoms. After initial investigation with an ultrasound scan and MRI, a 5 × 5 × 4 cm mass was detected next to the bladder, with suspicions of it arising from the detrusor muscle. There was also a 3 cm Bartholin's cyst detected in the left vaginal wall. Her care was referred to the urology team who after further investigation and a transperineal biopsy of the mass diagnosed a paraurethral leiomyoma on histology. Given the patient was symptomatic, she opted for treatment. Embolisation was explored but was deemed not feasible due to a complex blood supply. Therefore, the patient underwent an open excision of leiomyoma as a combined abdominal and vaginal procedure.

**Conclusion** Paraurethral leiomyoma are rare benign lesions and therefore pose diagnostic challenges as they must be differentiated from malignant tumours. Radiological imaging aids with diagnosis but diagnosis is confirmed on histology. The mainstay of treatment is surgical excision. This case is unusual given the patient's age and post-menopausal status as the average age of presentation in the literature is 41 years old. The authors would recommend initial USS imaging for all patients presenting with overactive bladder symptoms and pelvic pain/discomfort.

**Keywords** Female urology, Paraurethral leiomyoma, Case report

## 1 Background

Leiomyoma is a benign fibromuscular neoplasm originating from smooth muscle cells [1, 2]. The most common sites for these are in the genitourinary and gastrointestinal systems [3]. Leiomyomas are frequently seen in the uterus, but they are rarely seen originating from the urethra or paraurethral space [1]. Paraurethral leiomyoma

are benign growths derived from mesenchymal cells in the paraurethral space of the urethra. They make up approximately 5% of urethral tumours and are present in 1:1000 women [2, 4]. A true paraurethral tumour is defined as a tumour growing in the paraurethral space without communication with the urethra, bladder, or vagina [3, 5]. They usually appear in the reproductive age group of women rather than young or older women (mean age of 40–44 years old), which has led some to consider the tumours to be oestrogen dependent [4]. The clinical presentation is variable and depends on the size and location of occurrence. The presentation can range from asymptomatic to symptoms of pelvic pressure,

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dyspareunia, lower urinary tract symptoms and the presence of a mass [1, 2, 4, 6]. The usual treatment is surgical excision with confirmation of diagnosis on histology [2, 7].

## 2 Case presentation

We report a case of a 58-year-old lady who initially presented to the Gynaecology department with pelvic pain and lower urinary tract symptoms including frequency, urgency and mixed urinary incontinence. She was using two pads in 24 h. Her past medical history included hypertension, hiatus hernia, endometriosis and anxiety. Her past surgical history included haemorrhoidectomy, ovarian cystectomy, breast reduction and tonsillectomy. To investigate her symptoms, and in view of her history of endometriosis, she initially underwent a diagnostic laparoscopy which did not show any evidence of endometriosis. She also underwent an ultrasound scan which showed a mass underneath the urethra pushing into the base of the bladder towards the left. She was discussed at the gynaecology MDT and proceeded to have an MRI scan (please see Fig. 1). This demonstrated two soft tissue masses measuring 5 × 5 × 4 cm extending above the pelvic floor and the second 1.5 × 1.5 cm, below the pelvic floor. There was also a 3 cm Bartholin’s cyst on the left vaginal wall. The masses appeared to be under the bladder neck mucosa, arising from the left side and pushing the urethra to the right. There was no obvious bladder infiltration and appeared to be separate from the vagina.

The patient was referred to the Urology department. Flexible cystoscopy showed normal bladder mucosa

but there was intravesical protrusion of a mass at the base. No ostium was visualised in the urethra. She was discussed at the urology MDT and a decision made to biopsy the mass via a transperineal approach using the same set-up for a prostate biopsy. The histology confirmed paraurethral leiomyoma.

Further investigation of her lower urinary tract symptoms demonstrated incomplete bladder emptying and so the patient was taught to self-catheterise. The patient was then referred to a tertiary reconstructive urology centre. On examination, her abdomen was soft and non-tender. The mass was not palpable in the suprapubic region but on bimanual examination, there was abnormal tissue in the proximal urethra, extending beyond the bladder neck. She also had a left vaginal wall cyst measuring 3 cm.

The patient underwent video-urodynamics (please see Figs. 2 and 3). She had a stable bladder with no evidence of detrusor overactivity or loss of compliance. She did report sensory urgency but no urge incontinence or stress incontinence during the test. She voided 309 mL at a QMax of 20 ml/s and a detrusor pressure at Qmax of 52cmH2O. Using the Solomon-Greenwell nomogram for female bladder outlet obstruction, she had a >50% chance of bladder outlet obstruction. Her post-void residual was 86 mL. Fluoroscopy showed significant deviation of the urethra to the right with no evidence of any communication with the urethra during voiding.

Excision was advised from a symptomatic point of view. The patient was concerned about the subsequent risk of stress incontinence, and therefore, embolization was explored. Although uterine leiomyoma

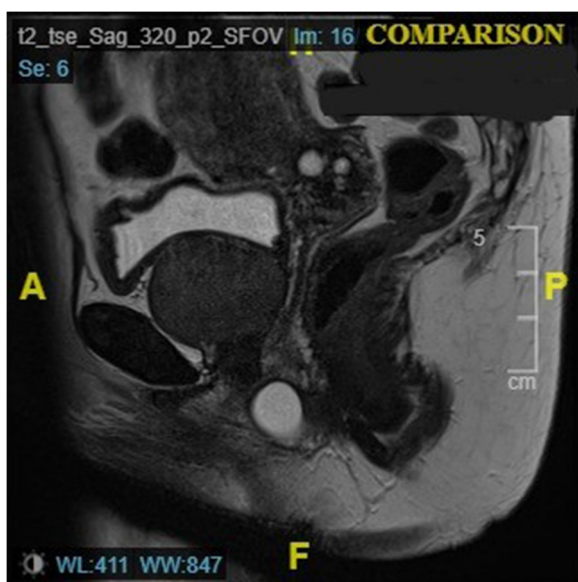


Fig. 1 Sagittal view of leiomyoma and vaginal cyst



Fig. 2 Filling phase pre-operative video-urodynamics



**Fig. 3** Voiding phase pre-operative video-urodynamics



**Fig. 4** Post-operative urethrogram – voiding phase

embolization is performed regularly locally, the blood supply of this lesion was deemed too complex and therefore not possible.

Surgical excision as a combined abdominal and vaginal procedure was performed. Following cystoscopy and catheterisation, a midline anterior vaginal incision was made. Some dissection around the mass was achieved but was insufficient to mobilise. A Pfannenstiel incision was made and the retropubic space dissected. The mass was arising from below the endopelvic fascia, separate from the bladder. With pressure from above and dissection from below, the mass was delivered, and the stalk disconnected from the proximal urethra. The urethral defect was closed with 3-0 Vicryl sutures. The Bartholin's cyst was excised. No Martius graft was used. Both urethral and suprapubic catheters were left. Post-operative urethrogram at 6 weeks showed no urine leak from the urethra and the urethral catheter was removed and the suprapubic catheter clamped for trial of void (please see Fig. 4). The patient was found to be emptying satisfactorily and so the suprapubic catheter was removed 2 weeks later.

Post-operative MRI revealed no residual leiomyoma. The patient did find worsening of her stress incontinence post-procedure and was now using four pads in 24 h. Her voiding and pelvic discomfort had completely resolved, and she was now emptying to completion. She has now been referred for supervised pelvic floor exercises and standard urodynamics, in order to consider further treatment for incontinence.

### 3 Discussion

Paraurethral masses are uncommon but the most common cause is usually a urethral diverticulum [7, 10]. Other benign causes include Skene's gland cyst, urethral prolapse, urethral caruncle, urethral leiomyoma, Bartholin's duct cyst or Gartner's duct cyst [2, 11]. Malignant causes are very rare but include adenocarcinoma, squamous cell carcinoma or urothelial carcinoma [6, 10]. A study of 1950 women found 4% had paraurethral masses; of those, 84% had a urethral diverticulum, 7% had a vaginal cyst and 5% had a leiomyoma [10]. Paraurethral leiomyoma are usually asymptomatic, but larger tumours may cause symptoms such as urinary tract infection, mass effect, dyspareunia, urinary retention, and obstructive voiding symptoms [3, 6, 8]. A true paraurethral leiomyoma has no communication with the urethra, vagina or bladder as in the case for this patient [3].

Paraurethral leiomyoma can occur in both men and women but they are three times more prevalent in women [6]. They are also more common during the reproductive age with a median age of 40 to 44 years, which points to a hormonal involvement [5, 8]. It is therefore thought ovarian hormones (oestrogen and progesterone) stimulate the development of leiomyomas [8]. There are reports of enlargement of these tumours during pregnancy and regression after giving birth [6, 8]. Furthermore, one case report found a histopathologically confirmed paraurethral leiomyoma had oestrogen and progesterone receptors on immunohistochemistry [9]. However, contrary to this, the tumour also occurs in post-menopausal women as in the case of our patient. Our patient's age at 58 on

diagnosis is one of the oldest recorded cases of paraurethral leiomyoma in the literature [8].

Diagnosis can involve USS, MRI, cystoscopy and videourodynamics. Ultrasound scans show leiomyomas as solid tumours with a homogenous internal echo structure [3]. Ultrasound provides a quick and inexpensive imaging modality to locate the mass. In addition, internal vascularity can be seen on Doppler ultrasound [2]. MRI provides a more detailed picture and allows the precise location of the mass with respect to the urethra and surrounding structures [3]. MRI also differentiates between solid and cystic lesions. For solid lesions, the major consideration is the distinction of leiomyoma from leiomyosarcoma and other malignancies [8]. Leiomyomas are typically rounded and well circumscribed, whorl-appearing masses of low T1 and T2 signal intensity with homogenous enhancement after gadolinium administration [12].

Though the risk of malignancy in any paraurethral mass is low, biopsy may provide additional information to enable appropriate management [7, 13]. In our case, the patient underwent a biopsy to confirm the nature of the mass and the transperineal approach was ideal for this. Although there is no consensus on whether these masses can be safely managed conservatively (with or without surveillance), most cases in the literature have undergone complete surgical excision predominantly via a transvaginal approach [2, 14, 15]. For larger masses, a combined abdominal approach may be necessary as in the case for our patient [2]. Due to the proximity with the urethra, surgeons with expertise in urethral repair and Martius graft should undertake the procedure.

#### 4 Conclusion

Paraurethral leiomyomas are rare, benign tumours arising from smooth muscle. We present a case of a 58-year-old woman who is one of the oldest recorded cases of paraurethral leiomyoma on record. Given the rarity of these masses, they pose a diagnostic challenge and thorough investigation is required to rule out a malignant tumour. MRI scan plays a crucial role in diagnosis and identifying the mass in relation to the surrounding structures and transperineal approach for biopsy is a useful tool. The most commonly performed treatment is surgical excision via a transvaginal approach. However, this is dependent on the size and location of the mass. Our case is also unusual that the patient required both a vaginal and abdominal approach to excise the paraurethral leiomyoma and the vaginal cyst. The authors would recommend initial USS imaging for all patients presenting with overactive bladder symptoms and pelvic pain/discomfort.

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#### Author contributions

AB researched and wrote up the case report. JR operated on the patient and contributed to the critical revision of the article. AA performed the template biopsy and contributed to the critical revision of the article. PR operated on the patient and contributed to the critical revision of the article. All authors read and approved the final manuscript.

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#### Declarations

#### Ethics approval and consent to participate

Ethics approval was not required for this case report so was not gained.

#### Consent for publication

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

#### Competing interests

The authors declare that they have no competing interests.

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