



Laparoscopic management of a large urethral leiomyoma

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Abstract

Introduction and hypothesis A 42-year-old female presented with a 12-cm mass bulging the anterior vaginal wall and causing urgency urinary incontinence and bulk symptoms.

Methods Imaging showed a tumor originating from the dorsal and cranial part of the urethra and developing in the vesicouterine space and vesicovaginal septum, dislocating the bladder ventrally and the uterus cranial-dorsally.

Results Transvaginal biopsy showed a benign leiomyoma. A laparoscopic approach with development of the vesicouterine space permitted a safe partial morcellation of the myoma. After the bladder and vaginal wall had been completely freed, further caudal dissection was conducted with isolation of the distal cranio-dorsal portion of the urethra. The dissection plane with the vaginal wall was developed up to the caudal margin of the urethral myoma almost corresponding to the vulvar plane, and total excision of the lesion was performed.

Conclusion Laparoscopic management of urethral leiomyomas that develop into the vesicouterine space and vesicovaginal septum is feasible and safe also for very large lesions.

Keywords Urethra · Benign leiomyoma · Urethral leiomyoma · Laparoscopy

Introduction

Leiomyomas are benign tumors of the smooth muscle and occur most frequently in the uterus in females of reproductive age [1]. In fact, extrauterine leiomyomas are encountered occasionally, and they most commonly involve the genitourinary tract [2]. However, urethral localization is rare. Usually, urethral leiomyomas present as a mass protruding from the urethral meatus with typical clinical manifestations, such as urethral bleeding, dysuria, and dyspareunia, while obstructive voiding is rarely reported [3]. The mainstay of treatment is

transvaginal excision, and recurrence is rare [4]. However, in this case report a total laparoscopic approach was used to manage a large urethral leiomyoma that developed in the vesicouterine and vesicovaginal septum. In fact, a laparoscopic approach is widely used to treat the most common and even the most challenging pelvic pathologies [5]. To our knowledge, this is the largest urethral leiomyoma reported in the literature that was exclusively treated with a laparoscopic approach [6].

Methods and case study

A 42-year-old female presented with urgency urinary incontinence, dyspareunia and bulk symptoms in the pelvis with onset eight months before. The patient's medical history did not show previous problems; she had only had a vaginal birth 20 years before. All vital signs were normal, with no fever, and blood examinations were not suspicious for infection. The external genitalia showed a bulky lesion dorsal to the urethral meatus (see [Video](#) in supplementary material). At gynecological examination, the bulky lesion continued in a bulging anterior vaginal wall and obliterated the vaginal lumen. The cervix was unremarkable. Transvaginal and transabdominal

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ultrasound scans showed a normal uterus and ovaries, but demonstrated a large lesion developing in the vesicouterine space and into the vesicovaginal septum. Further imaging with MRI was taken and confirmed the presence of the bulk lesion. In fact, MRI showed a tumor originating from the dorsal and cranial part of the urethra and developing mainly in the vesicouterine space and partially in the vesicovaginal septum, dislocating the bladder ventrally and the uterus cranial-dorsally. Subsequently, a cystoscopy was performed, showing a normal urethral lumen and normal bladder. A biopsy of the lesion was taken transvaginally that revealed a benign lesion deriving from smooth muscle. Immunohistochemistry of the biopsy showed diffuse presence of estrogen (E) and progesterone (P) receptors. Because of the presence of E and P receptors, the patient accepted off-label sequential medical therapy with intermittent ulipristal acetate for 6 months and leuprorelin acetate for 6 months. After this period, a further MRI assessment showed a different, more elongated shape of the urethral lesion, and gynecological examination revealed a softer bulging of the lesion. Symptoms decreased, but their persistence was unacceptable for the patient's quality of life, and therefore she underwent laparoscopic surgery using high-definition technology. Four trocars were placed: one 10-mm umbilical trocar, two 5-mm trocars (one placed 2 cm medial to the left anterior superior iliac spine and another one in the midline 8 to 10 cm below the umbilicus); a fourth trocar was placed 2 cm medial to the right anterior superior iliac spine. The first surgeon stood to the patient's left and used a pair of ultrasonically activated shears from the midline trocar and a grasper from the left lateral one. The assistant surgeon used a grasper and a morcellator from the lateral right port while the third assistant manipulated the uterus.

Surgery started with development of the vesicouterine space and a progressive cranial-ventral dislocation of the bladder. The urethral leiomyoma was then safely partially morcellated. Dissection of the lesion was continued using the uterus as a useful landmark to open the vesicovaginal septum and to pull the leiomyoma cranially. Gentle cranial-ventral grasping of the bladder permitted dissection and full isolation from the leiomyoma. After the bladder and vaginal wall were completely freed, further caudal dissection was conducted with isolation of the cranial-dorsal part of the urethra using a latero-medial approach bilaterally. A further dissection plane was developed between the vaginal wall and lesion up to the caudal margin of the urethral leiomyoma, almost corresponding to the vulvar plane. A Foley vesical catheter was felt with the laparoscopic instruments as an important landmark for safe dissection of the urethra; hence, optical magnification permitted precise recognition of the urethral course. After isolation of the urethra, the complete transection of the pedicle of the leiomyoma was performed. Full morcellation of the

leiomyoma was performed. Surgery duration was 230 min and estimated blood loss (EBL) was 520 ml, without any requirement for blood transfusion. Considering the surgery type and duration, a reduction of the EBL could not be easily achieved since no big vessels feeding the leiomyoma could be identified and bleeding was mostly due to small vessels. A small injury of the bladder dome was revealed at the end of the surgery with instillation of saline solution with dye (methylene blue) in the vesical catheter. After identification of the bladder defect, prompt suturing was performed with a continuous suture of the mucosa and interrupted stitches in the muscular layer. A leak test was performed by filling with 300 ml saline solution. Bilateral ureteral patency was not assessed during surgery, but the bilateral course of the ureter was easily demarcated transperitoneally. Postoperatively, the patient recovered well. The indwelling catheter was kept for ten days, and the patient was able to void without difficulty upon catheter removal. Before discharge, a cystourethrography was performed without evidence of spillage from the bladder. Symptom relief was immediate. No recurrence and normal serum creatine levels were observed at the 12-month follow-up. The Institutional Review Board reviewed this case report and considered it exempt; furthermore, the patient signed an informed consent for academic purposes.

Conclusion

The laparoscopic approach to excision of urethral leiomyomas that develop into the vesicouterine space and vesicovaginal septum is feasible and safe also for very large lesions. Optical magnification and high-definition technology are important elements for successful surgery.

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Compliance with ethical standards

Conflict of interest Each author declares that there are no conflicts of interest and nothing to disclose.

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

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References

1. Donnez J, Dolmans M-M. Uterine fibroid management: from the present to the future. *Hum Reprod Update*. 2016;22(6):665–86.

2. Bai SW, Jung HJ, Jeon MJ, Jung DJ, Kim SK, Kim JW. Leiomyomas of the female urethra and bladder: a report of five cases and review of the literature. *Int Urogynecol J*. 2007;18(8):913–7.
3. Cicilet S, Joseph T, Furuqh F, Biswas A. Urethral leiomyoma: a rare case of voiding difficulty. *BMJ Case Rep*. 2016;2016:bcr2016216728.
4. Joshi HB, Beck RO. Leiomyoma of the female urethra with upper tract dilation and treatment with transurethral resection: a case report and literature review. *Tech Urol*. 2000;6(3):223–5.
5. Majd HS, Ferrari F, Gubbala K, Campanile RG, Tozzi R. Latest developments and techniques in gynaecological oncology surgery. *Curr Opin Obstet Gynecol*. 2015;27(4):291–6.
6. Fedelini P, Chiancone F, Fedelini M, et al. A very large leiomyoma of the urethra: a case report. *Urol J*. 2018;85(2):79–82.