

This is a provisional PDF only. Copyedited and fully formatted version will be made available soon.



P O L I S H G Y N E C O L O G Y

# GINEKOLOGIA POLSKA

ORGAN POLSKIEGO TOWARZYSTWA GINEKOLOGICZNEGO  
THE OFFICIAL JOURNAL OF THE POLISH GYNECOLOGICAL SOCIETY

**ISSN:** 0017-0011

**e-ISSN:** 2543-6767

## **Diagnosis and management of vaginal leiomyoma: A case report and literature review**

**Authors:** Mingqian Chen, Yunfei Li, Yugang Chi, Enlan Xia

**DOI:** 10.5603/GP.a2022.0145

**Article type:** Review paper

**Submitted:** 2022-08-14

**Accepted:** 2022-12-01

**Published online:** 2022-12-15

This article has been peer reviewed and published immediately upon acceptance. It is an open access article, which means that it can be downloaded, printed, and distributed freely, provided the work is properly cited.

Articles in "Ginekologia Polska" are listed in PubMed.

**Diagnosis and management of vaginal leiomyoma: A case report and literature review**

[Short title: A case report of vaginal leiomyoma]

**Mingqian Chen<sup>1</sup>, Yunfei Li<sup>2</sup>, Yugang Chi<sup>1</sup>, Enlan Xia<sup>2</sup>**

*<sup>1</sup>Department of Obstetrics and Gynecology, Women and Children's Hospital of Chongqing Medical University, Chongqing, People's Republic of China*

*<sup>2</sup>Fuxing Hospital, Capital Medical University, Beijing, People's Republic of China*

**Corresponding author:** Yugang Chi, 120 Longshan Rd, Yubei District, 401120, Chongqing, PR China, tel: 13752969531, e-mail: [chiyugang@163.com](mailto:chiyugang@163.com)

**ABSTRACT**

**Objectives:** Leiomyomas are benign mesenchymal tumors that consist of smooth muscle cells and varying amounts of fibrous stroma. Uterine leiomyomas are the most common, affecting 20% to 30% of reproductive-age women, but vaginal leiomyomas are rare. Treatments gradually diversify with increased awareness of vaginal leiomyoma, but transvaginal fibroid resection remains the commonly used scheme.

**Case report:** Herein, we present the case of a 50-year-old asymptomatic woman who had a mass in the left anterior wall of the vagina discovered by gynecological examination and ultrasound. We used oxytocin diluent injection during surgery to create a water pad in the tissue space and then performed a transvaginal myomectomy. There was little or negligible intraoperative bleeding and no peripheral tissue injury, early or late postoperative

complications, incision dehiscence, and no surgical site infection.

**Conclusions:** Transvaginal ultrasonography is the preferred examination for vaginal leiomyomas, and transvaginal myomectomy is the classic treatment method. The formation of a water pad with oxytocin dilution can effectively reduce intraoperative bleeding and shorten surgery time.

**Key words:** case report; leiomyoma; vaginal mass; transvaginal myomectomy

## INTRODUCTION

Vaginal leiomyoma is a benign tumor of the female genital tract that is extremely rare. There have only been a few cases reported. Vaginal leiomyomas are thought to develop in the vagina from vascular smooth muscle or embryonic cells. Other possibilities include smooth muscle from the vagina, rectum, bladder, or urethra [1]. Vaginal leiomyomas are most common in women between the ages of 35 and 50, and the most frequently arise in the anterior wall of the midline, with less frequently occurring in the posterior and lateral walls. Vaginal leiomyomas are typically round, well-circumscribed, whorl-like, and can be intramural or pedunculated [2].

We report a case of transvaginal treatment for vaginal leiomyoma. In addition, to assist clinicians in better diagnosing and managing this rare case, we conducted a literature review on the diagnosis and treatment of vaginal leiomyoma.

## CASE REPORT

A 52-year-old gravid 8, parity 2 female was presented to the outpatient department with no complaint, but a routine transvaginal ultrasound showed a  $2.2 \times 1.8$  cm uneven

low-echogenic nodule on the left anterior wall of the vagina with a clear boundary and a few blood flow signals (Fig. 1).

On gynecological examination, a 2 cm round mass with a hard texture, good mobility, and no apparent sense of fluctuation could be touched in the middle and lower 1/3 of the left anterior wall of the vagina. The cervix was smooth; the uterus was anterior, the right lateral wall was prominent, and there was no tenderness and abnormal tactility in the bilateral adnexal area.

To protect the urethra, a 16 Foley catheter was inserted intraoperatively. Five IU oxytocin was diluted with 40 mL normal saline and injected into the tissue space between the vaginal mass and the vaginal wall to form a water pad. The vaginal tumor capsule was opened longitudinally with a cold knife, and the tumor was completely removed. The tumor fossa was intermittently closed with 2–0 absorbable sutures, and the vaginal wall at the tumor fossa was sutured with continuous hemlock (Fig. 2). Gross examination of the mass revealed a  $2.5 \times 2$  cm white, medium-quality solid mass, weighing approximately 5 g. The cut section showed a woven appearance, and subsequent histopathological examination revealed a vaginal leiomyoma (Fig. 3).

## **DISCUSSION**

Vaginal leiomyoma is a rare benign tumor of the female reproductive tract. The mass can appear anywhere on the vaginal wall, most commonly in the anterior and lateral walls, and is typically localized, mobile, and non-tender. Vaginal leiomyomas are usually asymptomatic, which may also cause pain or urinary tract symptoms depending on their anatomic location and size of the mass [3]. Dyspareunia occurs when a tumor blocks the

vagina [4]. Leiomyoma of the anterior wall of the vagina can cause symptoms such as dysuria, urinary tract infections, and obstructive voiding [5]. When combined with infection, it can result in abnormal vaginal secretion, odor, pelvic inflammatory disease, pelvic pain, fever, and even be misdiagnosed as a malignant vaginal tumor [6].

Ultrasonography and magnetic resonance imaging (MRI) are valuable in the preoperative diagnosis of vaginal leiomyomas because they assess the morphology, location, and relationship of the mass to adjacent structures. However, histopathological confirmation is the gold standard [7]. A vaginal leiomyoma can be solid or cystic inconsistency, and it can go through the same degenerative changes as uterine fibroids, such as hyalinization, calcification, liquefaction, necrosis, and cystic degeneration [3]. It is easy to be misdiagnosed, and the diagnosis must be thoroughly evaluated using ultrasound, MRI, and clinician experience. Previous research has found that vaginal leiomyoma is frequently misdiagnosed as a paraurethral cyst, bladder leiomyoma, cervical fibroid, vaginal malignancy, and so on. Especially the leiomyomas of the anterior vaginal wall are easily confused with urinary tumors and bladder prolapse, preoperative positive pressure urethrography can be used to determine the tumor site [8].

Treatment for vaginal leiomyomas varies depending on the location and size of the leiomyoma. The preferred treatment is vaginal excision. In our case, we used oxytocin diluent injection in the tissue space to form a water pad during the operation, which can distinguish the boundary of the leiomyomas, avoid damage to surrounding tissues or organs, and reduce bleeding while removing the leiomyomas, thus making the surgical field clear. Adjuvant therapy can aid in surgical resection of large and blood-rich vaginal leiomyomas. Yinxia Liu et al. [9] reported a case in which six months of preoperative gonadotrophin releasing hormone (GnRH) analogue treatment reduced the tumor size from  $5.7 \times 5.2 \times 6.6$  cm to  $4.2 \times$

2.3 × 3.2 cm, making surgical resection easier and safer. GnRH analogues affect the function of the hypothalamo-pituitary-gonadal axis by decreasing gonadotropin release and synthesis, particularly luteinizing hormone (LH) [10]. Menopausal symptoms are a common side effect of GnRH analogues, but hormone add-back therapy has been shown to attenuate hypoestrogenic effects [11]. Bapuraj et al. [12] reported a case in which an MRI revealed a large mass measuring 11.0 × 9.0 × 8.0 cm in the left lateral vaginal wall. Before myomectomy, a flush pelvic arteriogram was performed to locate the vascular supply branch of the mass and selectively embolize the vaginal branch of the left anterior division of the internal iliac artery. Pelvic arteriography after embolization revealed no blood supply to the tumor from the uterine or contralateral vaginal arteries. The mass was removed one week after embolization, and vaginal reconstruction was performed. Laparoscopic surgery has a clear vision to avoid damage to the bladder, ureter, rectum, and uterine artery when treating upper vaginal leiomyoma. Upper vaginal leiomyoma surgery with laparoscopy is both safe and feasible [13]. According to other studies, exposure to the surgical field is extremely difficult for tumors in the upper part of the anterior vaginal wall and obese patients with a deep vagina. Unlike traditional vaginal surgery, vaginal myomectomy via transvaginal natural orifice transluminal endoscopic surgery (vNOTES) can provide a clearer approach and a better outcome [14].

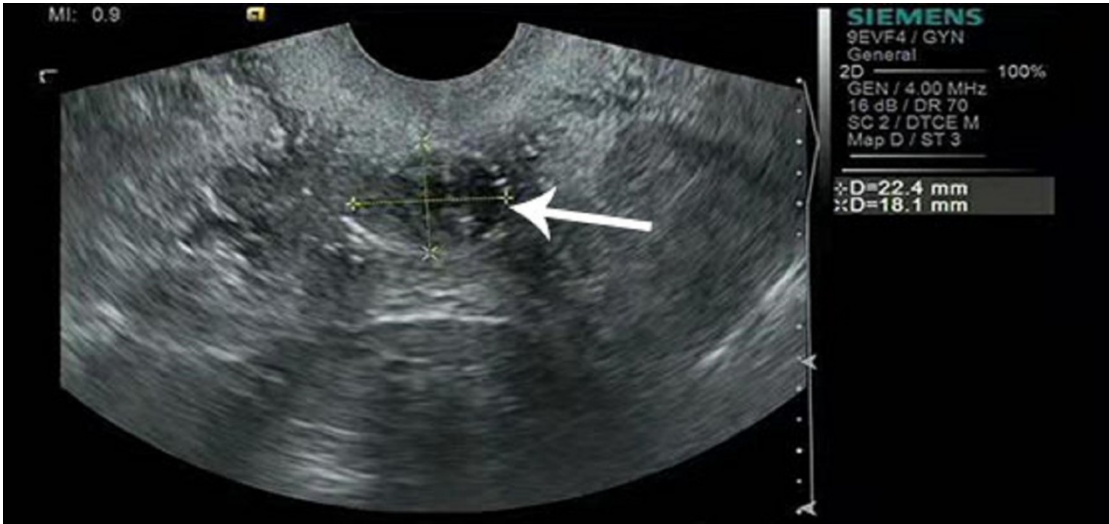
Transvaginal ultrasonography is the preferred examination for vaginal leiomyomas, and transvaginal myomectomy is the classic treatment method. The formation of a water pad with oxytocin dilution can effectively reduce intraoperative bleeding and shorten surgery time.

### ***Ethical approval***

All the procedures performed in this study were in accordance with the ethical standards of Ethics Committee of Fuxing Hospital, Capital Medical University and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The publication of this case report got permission of the patient.

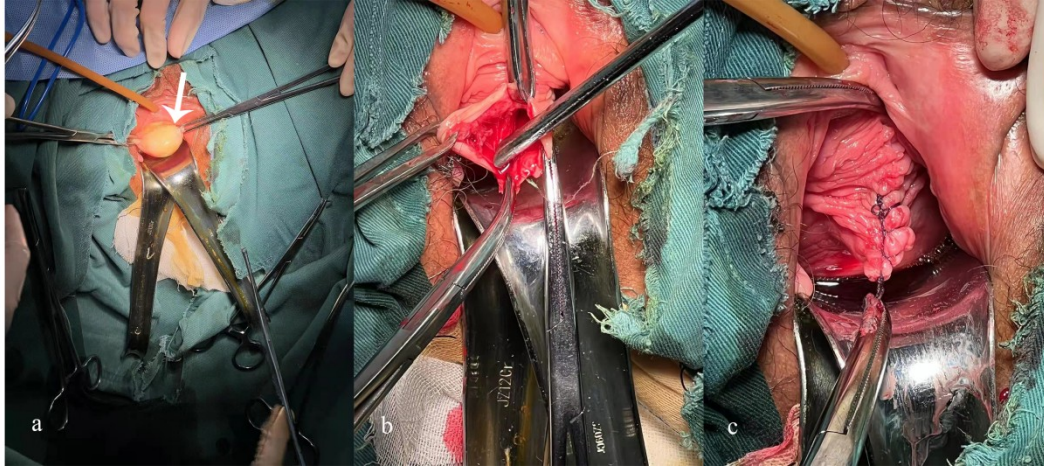
**Conflict of interest**

All authors declare no conflict of interest.

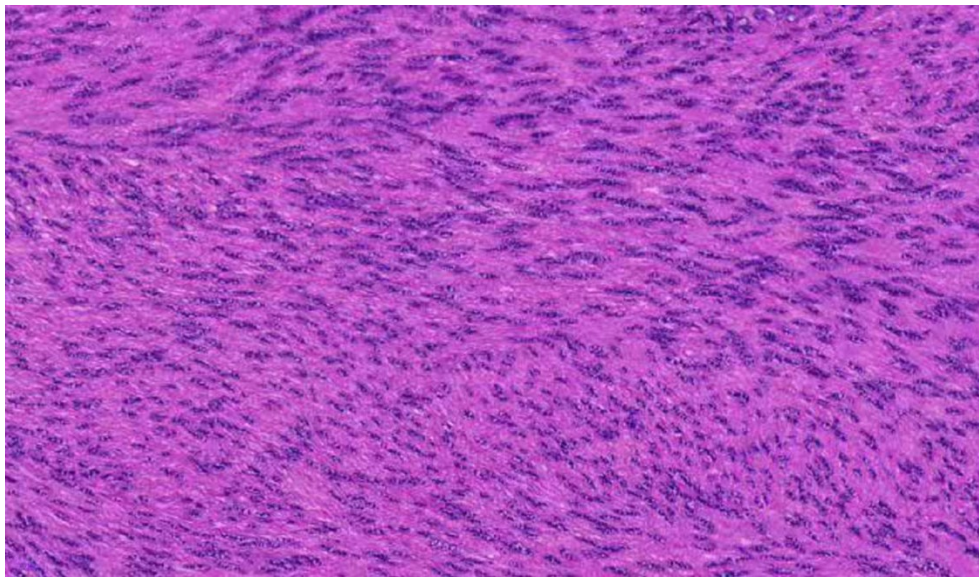


**Figure 1.** Ultrasound image of a vaginal leiomyoma





**Figure 2.** Surgical procedure. (A) The arrow indicates the vaginal leiomyoma; (B) Tumor fossa after myomectomy; (C) Postoperative image of the vaginal wall



**Figure 3.** 40 × magnification of the hematoxylin and eosin staining picture of the vaginal leiomyoma

**XReferences**



1. Meniru GI, Wasdahl D, Onuora CO, et al. Vaginal leiomyoma co-existing with broad ligament and multiple uterine leiomyomas. *Arch Gynecol Obstet*. 2001; 265(2): 105–107, doi: [10.1007/s004040000143](https://doi.org/10.1007/s004040000143), indexed in Pubmed: [11409472](https://pubmed.ncbi.nlm.nih.gov/11409472/).
2. Elsayes KM, Narra VR, Dillman JR, et al. Vaginal masses: magnetic resonance imaging features with pathologic correlation. *Acta Radiol*. 2007; 48(8): 921–933, doi: [10.1080/02841850701552926](https://doi.org/10.1080/02841850701552926), indexed in Pubmed: [17924224](https://pubmed.ncbi.nlm.nih.gov/17924224/).
3. Young SB, Rose PG, Reuter KL. Vaginal fibromyomata: two cases with preoperative assessment, resection, and reconstruction. *Obstet Gynecol*. 1991; 78(5 Pt 2): 972–974, indexed in Pubmed: [1923243](https://pubmed.ncbi.nlm.nih.gov/1923243/).
4. Thapa N, Basnyat S, Roka D. A paraurethral vaginal mass in rural setting: a case report. *JNMA J Nepal Med Assoc*. 2021; 59(238): 601–603, doi: [10.31729/jnma.6511](https://doi.org/10.31729/jnma.6511), indexed in Pubmed: [34508403](https://pubmed.ncbi.nlm.nih.gov/34508403/).
5. Egbe TO, Kobenge FM, Metogo JA, et al. Vaginal leiomyoma: medical imaging and diagnosis in a resource low tertiary hospital: case report. *BMC Womens Health*. 2020; 20(1): 12, doi: [10.1186/s12905-020-0883-2](https://doi.org/10.1186/s12905-020-0883-2), indexed in Pubmed: [31964370](https://pubmed.ncbi.nlm.nih.gov/31964370/).
6. Sim CH, Lee JH, Kwak JS, et al. Necrotizing ruptured vaginal leiomyoma mimicking a malignant neoplasm. *Obstet Gynecol Sci*. 2014; 57(6): 560–563, doi: [10.5468/ogs.2014.57.6.560](https://doi.org/10.5468/ogs.2014.57.6.560), indexed in Pubmed: [25469351](https://pubmed.ncbi.nlm.nih.gov/25469351/).
7. Braga A, Soave I, Caccia G, et al. What is this vaginal bulge? An atypical case of vaginal paraurethral leiomyoma. A case report and literature systematic review. *J Gynecol Obstet Hum Reprod*. 2021; 50(6): 101822, doi: [10.1016/j.jogoh.2020.101822](https://doi.org/10.1016/j.jogoh.2020.101822), indexed in Pubmed: [32492525](https://pubmed.ncbi.nlm.nih.gov/32492525/).
8. Leron E, Stanton SL. Vaginal leiomyoma--an imitator of prolapse. *Int Urogynecol J Pelvic Floor Dysfunct*. 2000; 11(3): 196–198, doi: [10.1007/s001920070048](https://doi.org/10.1007/s001920070048), indexed in Pubmed: [11484748](https://pubmed.ncbi.nlm.nih.gov/11484748/).
9. Liu Y, Wang X, He Y. GnRH analogue followed by surgery in treatment of vaginal leiomyoma-a case report. *Medicine (Baltimore)*. 2021; 100(8): e24911, doi: [10.1097/MD.00000000000024911](https://doi.org/10.1097/MD.00000000000024911), indexed in Pubmed: [33663124](https://pubmed.ncbi.nlm.nih.gov/33663124/).

10. Broekmans FJ. GnRH agonists and uterine leiomyomas. *Hum Reprod.* 1996; 11(Suppl 3): 3–23, doi: [10.1093/humrep/11.suppl\\_3.3](https://doi.org/10.1093/humrep/11.suppl_3.3), indexed in Pubmed: [9147098](https://pubmed.ncbi.nlm.nih.gov/9147098/).
11. Murillo EO, Cano A. [GnRH analogues for the treatment of fibroids]. *Med Clin (Barc)*. 2013; 141 Suppl 1: 35–39, doi: [10.1016/S0025-7753\(13\)70051-4](https://doi.org/10.1016/S0025-7753(13)70051-4), indexed in Pubmed: [24314566](https://pubmed.ncbi.nlm.nih.gov/24314566/).
12. Bapuraj JR, Ojili V, Singh SK, et al. Preoperative embolization of a large vaginal leiomyoma: report of a case and review of the literature. *Australas Radiol.* 2006; 50(2): 179–182, doi: [10.1111/j.1440-1673.2006.01550.x](https://doi.org/10.1111/j.1440-1673.2006.01550.x), indexed in Pubmed: [16635039](https://pubmed.ncbi.nlm.nih.gov/16635039/).
13. Zhang NN, Li Da, Chen SL, et al. An effective method using laparoscopy in treatment of upper vaginal leiomyoma. *Fertil Steril.* 2020; 114(1): 185–186, doi: [10.1016/j.fertnstert.2020.03.026](https://doi.org/10.1016/j.fertnstert.2020.03.026), indexed in Pubmed: [32622409](https://pubmed.ncbi.nlm.nih.gov/32622409/).
14. Liu JH, Zheng Y, Wang YW. Transvaginal natural orifice transluminal endoscopic surgery (vNOTES) as treatment for upper vaginal leiomyoma: A case report. *Medicine (Baltimore)*. 2021; 100(20): e25969, doi: [10.1097/MD.00000000000025969](https://doi.org/10.1097/MD.00000000000025969), indexed in Pubmed: [34011080](https://pubmed.ncbi.nlm.nih.gov/34011080/).