

VAGINAL LEIOMYOMA: A CASE REPORT

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Vaginal leiomyomas are rare, benign mesenchymal tumors. Since Denys de Leyden identified the first case in 1733, there have been only around 300 reported cases. This case of a surgically treated vaginal leiomyoma highlights the importance of considering this rare diagnosis in reproductive-age women. We provide a review of the relevant literature on diagnosis and management.

Keywords: Vaginal leiomyoma.

I. INTRODUCTION

Vaginal tumors are infrequent occurrences including hemangioma, papilloma, mucosal polyp, and leiomyoma. Leiomyomas can affect 20 - 30% of women of reproductive age and are commonly observed in the uterus. They can also occur in a lesser range in the cervix, uterosacral ligament, round ligament, ovaries, and inguinal canal. However, affecting the vagina is exceedingly rare, representing the least common presentation among all locations. Common diseases in women aged 35 - 50 (mean age of 40 - 44 years old), has led to consider as estrogen-dependent uterine leiomyomas. Since the first case identified by Denys de Leyden in 1733, there have been only around 300 reported cases.^{1,6,11}

These tumors usually develop in the anterior vaginal wall and can cause various symptoms or even have an impact on nearby organs like the bladder, rectum, uterine cervix, or vulva.

They can either be asymptomatic or paired

with symptoms such as pelvic pressure, vaginal bleeding, dyspareunia, abdominal pain, dysuria, and urinary issues like voiding dysfunctions. The clinical diagnosis of vaginal leiomyomas requires careful assessment since they can be easily mistaken for other conditions such as cystocele, uterine prolapse, urethral bulge, urethral diverticulum, vaginal cysts, and vaginal or cervical cancer. This case of a surgically treated vaginal leiomyoma highlights the importance of considering this rare diagnosis in reproductive-age women. We provide a review of the relevant literature on diagnosis and management.^{4,5}

II. CASES REPORT

A 53-years-old female, weight 53kg, height 155cm, BMI: 22.1. was admitted at Ha Noi Medical University Hospital, June 2024 due to a palpable vaginal mass, mild urinary incontinence, and no constipation. She had a history of ovarian cyst surgery. Physical examination revealed no fever, stable vital signs, and a soft abdomen. Pelvic examination showed a smooth, round mass measuring 3x4cm on the anterior vaginal wall with a normal cervix (Figure 1). Laboratory tests were within normal limits.

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Figure 1. Preoperative Image

Pelvic MRI with gadolinium contrast demonstrated a midline mass in the lower third anterior vaginal wall and submucosa, measuring 46×32×44mm. The mass exhibited hyperintensity on T2W and T2 FS sequences, hypointensity on T1W, and no restricted diffusion on DWI/ADC. Post-contrast, the mass showed heterogeneous enhancement with a well-defined, smooth margin and a fibrous

capsule. No infiltration was observed. The mass was displacing the vestibule and urethra anteriorly without signs of invasion. The uterus was of normal size with a 15x20mm hypointense focus on T2W in the fundus. The endometrial lining appeared normal, with no intracavitary mass. The cervix was normal in size and signal intensity, without any mass (Figure 2).

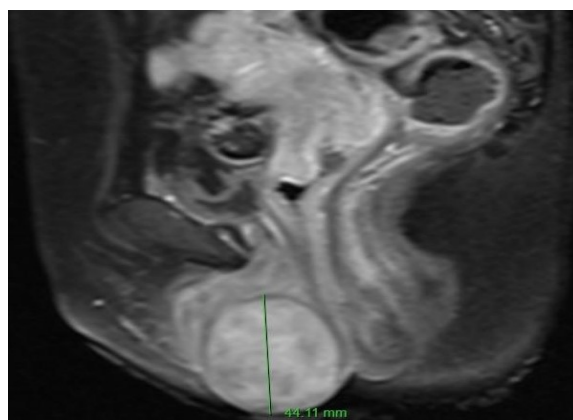
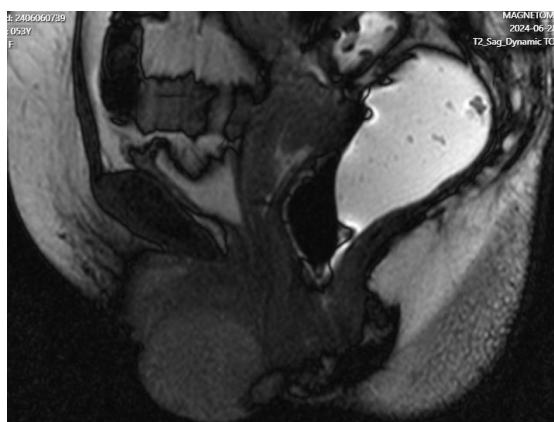


Figure 2. Pelvic MRI

The patient was diagnosed with a vaginal leiomyoma (Figure 1). Surgical intervention was indicated. Under general anesthesia, a 3x4cm, mobile, well-circumscribed, soft mass was identified in the anterior vaginal wall,

submucosally. Surgical management involved local anesthesia of the anterior vaginal wall. A longitudinal incision was made in the anterior vaginal mucosa, followed by enucleation of the mass (Figure 3). A specimen was sent for

histopathological examination (Figure 5). The anterior vaginal wall was then repaired (Figure 4).

The postoperative course was uneventful, with good wound healing and minimal pain. The patient was discharged 6 days post-operative.



Figure 3. Enucleation



Figure 4. Reconstruction of the anterior vaginal wall



Figure 5. Tumor

Histopathology confirmed a benign leiomyoma with typical features: hyperplastic

smooth muscle cells arranged in bundles, without atypia or necrosis (Figure 6).

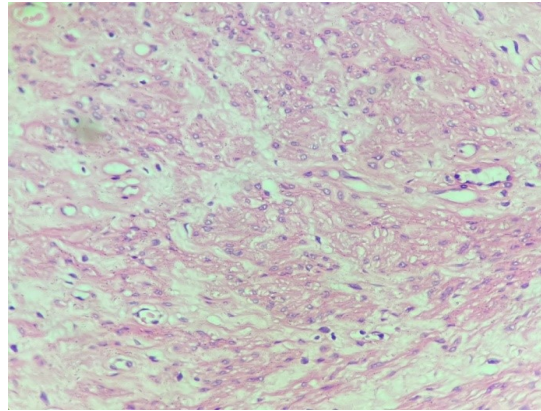


Figure 6. Histopathology Image

III. DISCUSSION

Vaginal leiomyoma is a rare, benign, ectopic tumor originating from smooth muscle tissues. In general, vaginal leiomyoma presents as a solitary, clearly defined mass that can develop anywhere within the vagina. However, it is more commonly observed on the anterior vaginal wall (69.5%) than on the posterior (17%) and lateral (13.5%) walls. Common diseases in women aged 35 - 50 (mean age of 40 - 44 years old), has led to consider estrogen-dependent tumors, like as uterine leiomyomas, which are more prevalent in caucasian female. Study by Bennett and Ehrlich demonstrated an exceptionally low occurrence of vaginal leiomyoma cases, in which, from a pool of 50,000 samples analyzed through histopathological examination, only nine cases were confirmed. Moreover, out of 15,000 autopsies performed at Johns Hopkins University, only one case of vaginal leiomyoma was detected. According to other scholars, there have been only 85 reported cases in the literature over the past 20 years.^{2,3,5}

Due to the tumor's slow growth and small size, it may remain asymptomatic initially and spontaneously regress after menopause. As

a result, a significant number of patients may be unaware of the disease's presence. On the other hand, based on the location of the development, the tumor can be associated with various symptoms like vaginal bleeding, dyspareunia, lower abdominal pain, low back pain, dysuria, pollakiuria, and other signs of urinary obstruction. The majority of vaginal leiomyomas typically range from 3 to 4cm in diameter. However, the largest documented case measured 20cm in diameter.¹³

Although these masses are typically solitary, benign, and slow-growing, it is important to note the potential for malignant transformation. Malignant transformation is rare, although it is more commonly observed in tumors located in the posterior vaginal wall. The reported incidence of malignancy is 9.1%.¹²

Our case report describes a 53-year-old postmenopausal woman who presented with a painless vaginal mass. She reported no bowel or bladder dysfunction. The mass was located on the anterior vaginal wall and measured 3×4cm.

The differential diagnosis of a vaginal

mass encompasses various conditions such as Bartholin gland cyst, urethral diverticulum, cystocele, epidermal inclusion cyst, urethrocele, Gartner duct cyst, vaginal cyst, Skene duct abscess, and a variety of both benign and malignant vaginal tumors. During a pelvic examination, a non-tender mass with various consistency (cystic, semicystic, or solid) may be observed.⁷

Our patient was initially diagnosed with cystocele. However, after undergoing pelvic MRI and dynamic defecation MRI, a well-circumscribed, fibrous-capsulated mass was identified on the anterior vaginal wall, distinct from the bladder.

Imaging techniques such as Ultra-Sound and MRI can be utilized to localize the lesion within the vagina. On MRI, these lesions typically present as well-defined solid masses with low signal intensity on T1 and T2-weighted images, displaying homogeneous contrast enhancement. It is especially valuable in cases where fibroids exhibit rapid growth or have unclear boundaries on U/S, or a strong suspicion of malignancy exists. In this case, MRI demonstrated a mass arising from the anterior vaginal wall with mild restriction on DWI, suggestive of a benign process. Additional imaging modalities such as CT, cystoscopy, and proctoscopy were utilized to further delineate the tumor's location, margins, and aid in differential diagnosis and surgical planning.⁸⁻¹⁰

The preferred therapeutic approach for treating vaginal leiomyoma is surgical removal via the vaginal route. However, in the case of large tumors, the abdominoperineal route may be necessary. In situations where the excision of a large vaginal leiomyoma leads to the weakening or damage of urethral supports, vaginal reconstruction becomes necessary to maintain the continence mechanism. In our

case, given the tumor size of 46×32×44mm, located in the lower third of the vagina with well-defined margins, a simple vaginal excision was performed without compromising adjacent organs such as the bladder and urethra.

The diagnosis is seldom established preoperatively, and it is only through anatomopathological examination that the definitive diagnosis can be confirmed. Despite the benign nature of the lesion, local recurrence can be encountered due to incomplete resection. Histopathological examination remains the primary modality of diagnosis, and the tumor typically consists of spindle-shaped cells with oval and elongated nuclei and generally shows minimal or no mitotic activity. In our case, the histopathology report confirmed a benign leiomyoma, with no evidence of mitosis or necrosis. At the 3-month follow-up, there has been no recurrence, and the patient has reported no urinary disturbance.

IV. CONCLUSION

Vaginal leiomyoma is a rare condition with approximately 300 reported cases worldwide. The tumor may be asymptomatic or present as a palpable vaginal mass. Misdiagnosis is common. Ultrasound, MRI, CT, cystoscopy, and proctoscopy are used to determine the tumor's location, margins, and to differentiate it from other conditions, aiding in surgical planning. Definitive diagnosis is made by histopathology. The primary treatment is surgical excision. In addition to excision, reconstructive surgery may be performed. Long-term outcomes are generally good, with very few cases progressing to malignancy.

REFERENCES

1. Bladder Outlet Obstruction Caused by Vaginal Fibromyoma: The Female Prostate.

doi: 10.1016/S0022-5347(17)59399-4

2. Wethmar EI, D Mouton A, Dreyer G. Vaginal leiomyoma presenting as a lateral vaginal wall mass. *Southern African Journal of Gynaecological Oncology*. 2017;9(1):16-18. doi: 10.1080/20742835.2017.1314630

3. Muhammad HM, Rashid RJ, Othman S, et al. Vaginal leiomyoma: A case report. *International Journal of Surgery Open*. 2023;58:100663. doi: 10.1016/j.ijso.2023.100663

4. Gao Y, Qin Y, Li J, et al. Vaginal leiomyoma: A case report. *Experimental and Therapeutic Medicine*. 2022;24(5):1-6. doi: 10.3892/etm.2022.11597

5. Braga A, Soave I, Caccia G, et al. What is this vaginal bulge? An atypical case of vaginal paraurethral leiomyoma. A case report and systematic literature review. *Journal of Gynecology Obstetrics and Human Reproduction*. 2021;50(6):101822. doi: 10.1016/j.jogoh.2020.101822

6. Touimi Benjelloun A, Ziad I, Elkaroini D, et al. Vaginal leiomyoma mimicking a Cystocele (case report). *International Journal of Surgery Case Reports*. 2022;93:106955. doi: 10.1016/j.ijscr.2022.106955

7. 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

8. Hubert KC, Remer EM, Rackley RR, et al. Clinical and magnetic resonance imaging characteristics of vaginal and paraurethral leiomyomas: can they be diagnosed before surgery? *BJU International*. 2010;105(12):1686-1688. doi: 10.1111/j.1464-410X.2009.09046.x

9. Pavlica P, Bartolone A, Gaudiano C, et al. Female paraurethral leiomyoma: ultrasonographic and magnetic resonance imaging findings. *Acta Radiol*. 2004;45(7):796-798. doi: 10.1080/02841850410001376

10. Shadbolt CL, Coakley FV, Qayyum A, et al. MRI of Vaginal Leiomyomas. *Journal of Computer Assisted Tomography*. 2001;25(3):355.

11. Bennett HG, Ehrlich MM. Myoma of the Vagina. *American Journal of Obstetrics & Gynecology*. 1941;42(2):314-320. doi: 10.1016/S0002-9378(16)40639-3

12. Leron E, Stanton SL. Vaginal leiomyoma—an imitator of prolapse. *Int UrogynEcol J*. 2000;11:196 -198.

13. Bapuraj J, Ojili V, Singh S, et al. Preoperative embolization of a large vaginal leiomyoma: Report of a case and review of the literature. *Australasian Radiology*. 2006;50(2):179-182. doi: 10.1111/j.1440-1673.2006.01550.x