



Case Report

Unusual Location for Common Tumor–Vulvar Leiomyoma in a 40-Year-Old Woman: A Case Report and Review

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Received: 5 September 2025; Revised: 20 November 2025; Accepted: 23 November 2025

Abstract

Leiomyomas are common benign smooth muscle tumors of the uterus; their presentation in the vulva is rare and tends to impose diagnostic challenges, mistaken for other conditions. A forty-year-old, perimenopausal, unmarried patient attended our clinic complaining of a slowly growing vulvar mass for the last 6 months. General evaluation and past medical history were unremarkable. Upon local examination, a firm, non-tender vulvar mass measuring 3 × 4 cm was found, causing discomfort during walking. Preoperative lab investigation and ultrasonography suggested a benign tumor. The patient was advised to undergo surgical excision, which was done under general anesthesia. Histopathology confirms the case. Postoperative recovery was uneventful; she was followed every 6 months; no recurrence after 5 years of follow-up. Vulvar leiomyomas, although rare, should be included in a vulvar mass. Definite diagnosis requires histopathological confirmation. Surgical excision of the whole mass provides effective treatment and a better prognosis.

Keywords: Case report, Fibroid, Vulvar leiomyoma, Vulvar mass.

موقع غير اعتيادي لورم الشائع - الورم العضلي الفرجي لدى امرأة تبلغ من العمر 40 عامًا: تقرير حالة ومراجعة

الخلاصة

الأورام الليفيّة (Leiomyomas) هي أورام حميدة شائعة تنشأ من العضلات الملساء في الرحم، إلا أن ظهورها في الفرج يُعد نادرًا وقد يسبب تحديات تشخيصية نتيجة تشابهها مع حالات مرضية أخرى. حضرت إلى عيادتنا مريضة تبلغ من العمر أربعين عامًا، غير متزوجة، في مرحلة ما حول سن اليأس، تشكو من كتلة فرجية متنامية ببطء منذ ستة أشهر. كان الفحص العام والتاريخ الطبي للمريضة سليمين. أظهر الفحص الموضعي وجود كتلة فرجية صلبة غير مؤلمة، ذات حجم يقارب 3 × 4 سم، تسببت للمريضة بصعوبة أثناء المشي. أظهرت الفحوصات المخبرية السابقة للعملية وفحص التصوير بالأشعة فوق الصوتية دلائل على ورم حميد. نُصحت المريضة بالخضوع للاستئصال الجراحي، الذي أُجري تحت التخدير العام. وأكد الفحص النسيجي المرضي التشخيص. كانت فترة التعافي بعد العملية سلسة، وتمت متابعة المريضة كل ستة أشهر، ولم يُسجَل أي نكس بعد خمس سنوات من المتابعة. وعلى الرغم من ندرتها، يجب أخذ الأورام الليفيّة الفرجية بعين الاعتبار عند تقييم الكتل الفرجية. وبطل التشخيص المؤكد معتمدًا على الفحص النسيجي المرضي، بينما يُعد الاستئصال الجراحي الكامل للكتلة علاجًا فعالًا يُحقّق إنجازًا جيدًا.

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Article citation: Abdalqader MM, Salman DA, Nori W, Atia A. Unusual Location for Common Tumor–Vulvar Leiomyoma in a 40-Year-Old Woman: A Case Report and Review. *Al-Rafidain J Med Sci.* 2025;9(2):2454. doi: <https://doi.org/10.54133/ajms.v9i2.2454>
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INTRODUCTION

Leiomyomas are benign smooth muscle tumors that are common in the uterus but extremely rare in the vulva, representing less than 0.07% of all vulval tumors. Clinically, vulvar leiomyomas usually present as a slow-growing, painless, well-circumscribed mass, often seen in the labia majora, but may arise near the vaginal introitus, mimicking Bartholin cysts, lipomas, or abscesses [1]. It is unclear what triggers them, but some have suggested a hormonal effect. Vulvar leiomyoma was reported to arise from the smooth muscles of the vascular wall, erectile tissue, round ligament, and pisiform muscle [2]. Preoperative diagnosis poses diagnostic challenges, as clinical examination and imaging are often non-specific. Definitive diagnosis requires histopathology, sometimes supported by immunohistochemistry. Although benign, these tumors may cause local discomfort, dyspareunia, or cosmetic concerns, and rare cases of recurrence or atypical histology have been reported [2,3]. We report the

case of a woman presenting with a 3 × 4 cm mass on the left side of the vaginal introitus, managed successfully with complete surgical excision. No recurrence was seen after 6 months of follow-up.

Case Presentation

A 40-year-old unmarried woman, not sexually active, presented to the gynecology outpatient clinic with a progressively enlarging vulvar mass in the left labia majora over the past 6 months. The mass caused discomfort during walking and daily activities, but there was no history of pain, discharge, fever, urinary complaints, or difficulty in defecation. She denied any history of trauma, surgery, or systemic illness. Past medical, surgical, and family history were unremarkable. There was a negative history of gynecological malignancies in her family. The physical, local examination and investigation done were summarized in Table 1, Figures 1 and 2.

Table 1: Patient examination and investigation

Parameter	Results seen
General examination	The patient was of average build and hemodynamically stable.
Local examination	A well-circumscribed, firm, non-tender, and mobile mass measuring approximately 3 × 4 cm was noted in the left vulvar region. The overlying skin was intact, with no signs of ulceration, erythema, or infection. The mass was mobile, not fixed to underlying structures, and there was no regional lymphadenopathy. Per-vaginal examination was not done since she was a virgin.
Routine laboratory investigations	They were within normal limits.
Pelvic ultrasound	revealed a localized hypoechoic vulvar lesion with no involvement of pelvic organs.

The provisional differential diagnoses included Bartholin’s gland cyst, lipoma, fibroma, and vulvar leiomyoma. Surgical excision of the mass was performed under regional anesthesia. Intraoperatively, the lesion was encapsulated, firm, and well demarcated from surrounding tissues without infiltration. The excised specimen measured 3 × 4 cm in size (Figure 2).

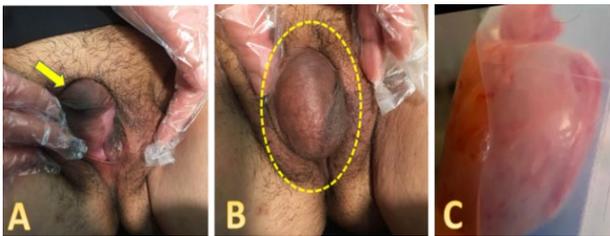


Figure 1: A) & B), local examination of the mass. C) Excised mass postoperatively, the mass was well demarcated and smooth with a gray tan.

Feature	Ultrasonography (US)	Magnetic Resonance Imaging (MRI)
Advantages	<ul style="list-style-type: none"> - Widely available, inexpensive, noninvasive - First-line for vulvar/pelvic soft tissue masses - Assesses size, echotexture, vascularity (Doppler) - Useful for biopsy/aspiration guidance 	<ul style="list-style-type: none"> - Superior soft tissue contrast & multiplanar imaging - Defines margins, location, relation to structures - Low T2 signal typical of leiomyoma - Valuable for surgical planning
Limitations	<ul style="list-style-type: none"> - Operator-dependent - Limited soft tissue contrast vs MRI - May not distinguish leiomyoma from other vulvar tumors 	<ul style="list-style-type: none"> - Higher cost, less accessible - Cannot reliably differentiate benign from malignant (histopathology needed)
Typical Appearance of Vulvar Leiomyoma	Well-circumscribed, hypoechoic solid mass, variable echogenicity; usually minimal-moderate vascularity on Doppler	Low signal on T1, low signal on T2 (mimics smooth muscle); may show heterogeneous enhancement post-contrast
Performance	Sensitive for mass detection; less specific for tissue characterization	Best for detailed characterization & preoperative mapping; limited in malignancy distinction

Figure 2: Summary of typical imaging features, advantages, and limitations of vulvar leiomyoma on US and MRI.

Table 2: Summary of recently published vulvar leiomyoma, with patients’ demographics, management and outcomes.

Author (year)	Age (year)	Size of the mass	Presentation	Key points: associations	Management	Outcome
Hamada <i>et al.</i> (2025) [3]	16	3 cm (30 mm)	Left labia majora, painless mobile mass, discomfort walking	ER-, PR+; juvenile onset	Surgical excision under GA	Uneventful, no recurrence
Baradwan <i>et al.</i> (2024) [4]	31	5 × 4 cm	Painful right vulvar nodule, 2-year history, initially misdiagnosed as a Bartholin cyst.	HIV-positive patient	Wide local Surgical excision	Recovered, no recurrence
Hassan <i>et al.</i> (2025) [5]	41	6–7 cm (multifocal, up to 12.6 cm specimen)	Left labia majora swelling × 4 mo, discomfort on sitting/walking, misdiagnosed as a Bartholin cyst	Multifocal leiomyoma with myxoid stroma	Surgical excision + MRI follow-up	Residual nodules noted; ongoing monitoring
Bacalam <i>et al.</i> (2025) [6]	62	3.8 × 2.5 cm	Progressive vulvar masses after hysterectomy & BSO; HRT use	Coexistent advanced breast cancer	Surgical excision	Stable, no recurrence during oncologic care
Suljić <i>et al.</i> (2025) [7]	58	Not precisely stated (deep vulvovaginal mass)	Asymptomatic, found incidentally on PET during breast cancer staging	Initially appeared vulvar, extended vaginal	Surgical excision via vulvo-vaginal approach	Recovered, no recurrence

ER: estrogen receptors; PR: progesterone receptors; GA: general anesthesia; HIV: Human Immunodeficiency Virus; MRI: Magnetic Resonance Imaging; HRT: Hormone Replacement therapy; BSO: Bilateral Salpingo-Oophorectomy; PET: Positron Emission Tomography scan.

An imaging study is usually done, including US and sometimes MRI. While the US offers a first-line cost-effective screening tool to define the lesion and its

A histopathological examination showed bundles of spindle-shaped smooth muscle cells that were intertwined and had long nuclei and eosinophilic cytoplasm, which is typical of a leiomyoma. There was no atypia or mitotic activity suggestive of malignancy. The postoperative period was uneventful, and the wound healed well. The case was discharged on day 3, and she was informed of follow-up appointments at 3 and 6 months post-surgery. She was well, showing no signs of recurrence 5 years after the surgery.

DISCUSSION

The current case was a vulvar leiomyoma that was presented in a 40-year-old female; the rarity of the tumor in the vulva and the non-specific clinical presentation and signs can make the diagnosis missed as a Bartholin cyst, lipoma, or fibroma. For that, the definitive diagnosis cannot be confirmed until after surgical excision and histopathological examination. We have conducted a review of recently published cases seen in Table 2. It seems that vulvar leiomyoma has a wide age range, ranging from adolescence to postmenopausal age in a woman with concurrent breast cancer [3,4,6]. Still, most of the reported cases were in their reproductive age with a mass size ranging from 2 to 6 cm [1]; still, there are reported cases of multifocal involvement [6]. These tumors are typically painless and have slow growth.

borders, the MRI has superior efficacy in diagnosis and in surgical planning, especially among cases with atypical features [1,6] (Figure 2). Histopathological examination

is the gold standard for confirming the case. Vulvar smooth muscle tumors are classified into three categories: Benign leiomyoma, atypical leiomyoma, and leiomyosarcoma. The main distinguishing features are shown in Figure 3. Our case had no atypia and neither necrosis nor mitotic activity, which is why it lies under benign leiomyoma [8,9]. Surgical excision of the tumor is both diagnostic and therapeutic and has an excellent prognosis. Recurrence is rare and was reported in cases where there was an incomplete excision [10]. The postoperative period for those cases is well tolerated, and if they occur, they are related to surgery rather than the tumor; there have been reports of hematoma formation. Many advise a long follow-up (clinical and imaging) as recurrence may occur, especially among multifocal lesions and those with incomplete excision [11].

Category	Diagnostic Criteria (assessed from the following four features)	Interpretation
Leiomyoma	Only one of the following features is present: <ul style="list-style-type: none"> • Tumor size > 5 cm • Infiltrative margins • ≥5 mitotic figures per 10 high-power fields (HPF) • Moderate to severe cytologic atypia 	Benign
Atypical leiomyoma	Two of the above features	Intermediate/uncertain malignant potential
Leiomyosarcoma	Three or four of the above features	Malignant

Figure 3: Vulva smooth muscle tumor -classification and diagnostic criteria.

Conclusion

Differential diagnosis of vulvar mass should include vulvar leiomyoma, although it is rare. It is commonly misinterpreted as Bartholin cysts and requires histopathological examination to confirm the case; for that, the surgical excision is both diagnostic and therapeutic. Follow-up is recommended, although the recurrence is uncommon, to improve patient outcomes.

Conflict of interests

The authors declared no conflict of interest.

Funding source

The authors did not receive any source of funds.

Data sharing statement

Supplementary data can be shared with the corresponding author upon reasonable request.

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