

Fibroadenoma Arising in Accessory Breast Tissue of the Vulva: A Rare Case Report

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Abstract

Accessory breast tissue is an uncommon congenital anomaly resulting from incomplete regression of the embryonic mammary ridge during fetal development. Although ectopic breast tissue most frequently occurs in the axilla, involvement of the vulva is exceedingly rare. Similar to normally located breast tissue, accessory breast tissue remains hormonally responsive throughout life and is susceptible to both benign and malignant pathological changes. Fibroadenoma, the most common benign tumour of the breast, rarely develops in vulvar accessory breast tissue, often posing a diagnostic challenge because of its nonspecific clinical presentation and resemblance to more common vulvar lesions. We report the case of a 39-year-old multiparous woman who presented with a painless, progressively enlarging swelling over the right vulva of six months' duration. Clinical examination suggested either a Bartholin gland cyst or an epidermoid cyst. Complete surgical excision was performed, and histopathological examination revealed a well-circumscribed biphasic tumour composed of proliferating glandular and stromal elements arising within accessory mammary tissue, consistent with fibroadenoma. No evidence of cytological atypia, increased mitotic activity, necrosis, or malignant transformation was identified. The postoperative period was uneventful, and the patient remained asymptomatic on follow-up. This case highlights the importance of recognizing mammary-type lesions in the differential diagnosis of vulvar masses. Although extremely uncommon, fibroadenoma should be considered among the possible diagnoses of persistent vulvar swellings. Histopathological examination remains indispensable for establishing the definitive diagnosis, excluding malignant lesions, and guiding appropriate management.

Keywords: Accessory breast tissue; Vulva; Fibroadenoma; Ectopic breast tissue; Mammary-like glands; Histopathology.

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Introduction

Accessory breast tissue (polymastia) is a relatively uncommon congenital developmental anomaly that results from incomplete involution of the embryonic mammary ridge, commonly referred to as the milk line. During the sixth week of embryogenesis, paired ectodermal mammary ridges extend bilaterally from the axilla to the medial aspect of the groin. Under normal embryological development, these ridges regress almost completely except for the pectoral region,

where the definitive breasts subsequently develop. Failure of complete regression at any point along the milk line leads to the persistence of ectopic or accessory breast tissue. The reported prevalence of accessory breast tissue ranges from approximately 0.2% to 6% of the general population, with a higher incidence among women than men and considerable ethnic variation reported across different populations. Approximately 60–70% of accessory breast tissue occurs in the axillary region, whereas localization

within the vulva represents one of the rarest anatomical sites. In addition to embryonic milk-line remnants, some investigators propose that mammary-like glands normally present within the anogenital region may serve as the origin of breast-type lesions arising in the vulva. Regardless of their exact developmental origin, these mammary-type tissues exhibit morphological, immunohistochemical, and functional characteristics comparable to orthotopic breast tissue and are capable of undergoing similar physiological and pathological alterations throughout life.

Accessory breast tissue remains hormonally responsive and demonstrates cyclical changes during menstruation, pregnancy, and lactation. Consequently, virtually the entire spectrum of benign and malignant breast diseases can occur in ectopic breast tissue, including fibroadenoma, fibrocystic disease, lactating adenoma, phyllodes tumour, intraductal papilloma, ductal carcinoma in situ, invasive ductal carcinoma, invasive lobular carcinoma, and Paget disease. Among these lesions, fibroadenoma represents the most common benign neoplasm of normal breast tissue but is exceptionally uncommon in vulvar accessory breast tissue. Owing to its rarity, the true incidence remains unknown, with only isolated case reports and small case series documented in the literature.

Clinically, fibroadenoma of the vulva usually presents as a slowly enlarging, painless, well-circumscribed vulvar mass. The lesion frequently mimics more common conditions such as Bartholin gland cyst, epidermoid cyst, lipoma, hidradenoma papilliferum, vulvar abscess, or other benign mesenchymal tumours. Because clinical examination and imaging findings are generally nonspecific, accurate preoperative diagnosis is rarely achieved. Histopathological examination therefore remains the gold standard for establishing the diagnosis by demonstrating the characteristic biphasic proliferation of epithelial and stromal components together with adjacent mammary-type tissue.

Awareness of this uncommon entity is clinically important because appropriate recognition prevents diagnostic confusion, excludes malignant pathology, and facilitates adequate surgical management. We present a rare case of fibroadenoma arising in accessory breast tissue of the vulva in a 39-year-old woman, emphasizing its embryological basis, clinicopathological characteristics, histopathological features, and differential diagnosis, while highlighting the

importance of considering mammary-type lesions in patients presenting with vulvar masses.

Case Presentation

A 39-year-old multiparous woman presented to the Department of General Surgery with complaints of a painless swelling involving the right vulvar region that had been progressively increasing in size over the preceding six months. The swelling was initially noticed as a small nodular lesion and gradually enlarged over time without any sudden increase in size or associated discomfort. The patient denied any history of pain, tenderness, discharge, bleeding, ulceration, pruritus, trauma, fever, or constitutional symptoms such as weight loss or anorexia. She also reported no previous history of similar lesions, breast disease, vulvar surgery, or hormonal therapy.

Her menstrual cycles were regular, and there was no history of pregnancy-related enlargement of the lesion or cyclical changes associated with menstruation. There was no significant personal or family history of breast carcinoma, ovarian carcinoma, or hereditary cancer syndromes. The patient's medical history was otherwise unremarkable, and she had no known chronic systemic illnesses.

On general physical examination, the patient was afebrile with stable vital signs. Systemic examination did not reveal any abnormal findings. Bilateral breast examination demonstrated normally developed breasts without palpable masses, skin changes, nipple discharge, or axillary lymphadenopathy.

Local examination of the external genitalia revealed a solitary, well-circumscribed nodular swelling measuring approximately 2×1.5 cm involving the right labia majora. The lesion was soft to firm in consistency, non-tender, mobile, and not fixed to the overlying skin or underlying structures. The overlying skin appeared normal without erythema, ulceration, pigmentation, sinus formation, or evidence of inflammation. There was no associated inguinal lymphadenopathy.

Based on the clinical findings, a provisional diagnosis of **Bartholin gland cyst** was considered, with **epidermoid (sebaceous) cyst** included as a differential diagnosis. Because of the persistent nature of the lesion and diagnostic uncertainty, complete surgical excision was planned.

Following informed written consent, the lesion was completely excised under appropriate anaesthesia. The excised specimen was submitted for histopathological evaluation.

Gross examination revealed a well-circumscribed grey-white soft tissue specimen measuring $1.5 \times 1.2 \times 0.5$ cm. The external surface was smooth and intact. On serial sectioning, the cut surface was homogeneous, firm, grey-white, and lacked areas of haemorrhage, cystic degeneration, necrosis, or calcification.

Microscopic examination of haematoxylin and eosin-stained sections demonstrated vulvar skin lined by keratinized stratified squamous epithelium. The underlying dermis contained a sharply circumscribed biphasic neoplasm composed of numerous branching and compressed glandular ducts embedded within a moderately cellular fibromyxoid stroma. The ducts were lined by an inner luminal epithelial layer and an outer continuous myoepithelial cell layer, maintaining the characteristic architecture of fibroadenoma. Adjacent mammary-type glandular structures confirmed the presence of accessory breast tissue within the vulva. No epithelial hyperplasia, cytological atypia, stromal overgrowth, increased mitotic activity, necrosis, infiltrative borders, or malignant transformation was identified. The surrounding surgical margins were free of tumour.

Based on the characteristic gross and microscopic findings, a final histopathological diagnosis of **fibroadenoma arising in accessory breast tissue of the vulva** was established.

The postoperative period was uneventful. The surgical wound healed satisfactorily without complications, and the patient remained asymptomatic during follow-up, with no evidence of local recurrence or development of additional lesions.

Discussion Accessory breast tissue involving the vulva is an exceptionally rare developmental anomaly resulting from incomplete involution of the embryonic mammary ridge or, alternatively, from mammary-like glands native to the anogenital region. **Kazakov et al.** reviewed the spectrum of lesions arising in anogenital mammary-like glands and reported that these tissues undergo pathological changes identical to those occurring in normal breast tissue, including fibroadenoma, lactating adenoma, phyllodes tumour, ductal carcinoma, and Paget disease [1]. In the present case, histopathological examination similarly demonstrated benign mammary-type tissue adjacent to the lesion, confirming that vulvar accessory breast tissue is capable of developing fibroadenoma comparable to orthotopic breast tissue. Our findings therefore support the concept that breast-type lesions should be considered in the differential diagnosis

of vulvar masses. Expanding on this concept, **Van der Putte** described mammary-like glands as normal constituents of the vulva and proposed that many breast-type vulvar tumours originate from these glands rather than persistent embryonic milk-line remnants [2]. Similar observations were made in our patient, where adjacent mammary-type glandular structures were identified microscopically surrounding the tumour. These findings provide histopathological evidence supporting the mammary origin of the lesion and are consistent with the developmental theory proposed by Van der Putte. Regarding clinical presentation, **Kim et al.** reported a **33-year-old woman** presenting with a painless vulvar swelling that was clinically diagnosed as a **Bartholin gland cyst** before histopathology revealed fibroadenoma arising in ectopic breast tissue [3]. Likewise, our patient was a **39-year-old multiparous woman** who presented with a painless, progressively enlarging **right vulvar swelling** of six months' duration. Similar to Kim et al., the provisional diagnosis in our case was **Bartholin gland cyst**, with sebaceous cyst considered as an alternative diagnosis. Both cases illustrate that clinical examination alone is insufficient for diagnosis because vulvar fibroadenomas closely mimic more common benign vulvar lesions. Similarly, **Hartung and Sahoo** described fibroadenoma occurring in vulvar ectopic breast tissue in a patient presenting with a painless vulvar nodule. Histologically, they demonstrated a **well-circumscribed biphasic lesion** composed of proliferating ducts lined by luminal and myoepithelial cells embedded within fibrous stroma, without cytological atypia or malignant transformation [4]. The histopathological findings in our case were almost identical, showing a sharply circumscribed benign biphasic proliferation within fibromyxoid stroma together with adjacent mammary-type glands. Neither study demonstrated stromal overgrowth, increased mitotic activity, necrosis, or malignant features, confirming the benign nature of vulvar fibroadenoma. **Kalyani et al.** reported **two patients aged 26 and 45 years**, both presenting with slowly enlarging painless vulvar masses. In both cases, complete local excision was performed, histopathological examination confirmed fibroadenoma arising in accessory breast tissue, and no recurrence was observed during follow-up [5]. Our patient belonged to a comparable age group (**39 years**) and presented with similar symptoms of painless progressive enlargement. Management was likewise by **complete surgical excision**, and

histopathological examination confirmed fibroadenoma. The postoperative course in our patient was uneventful, with no evidence of recurrence during follow-up, closely paralleling the favourable outcomes reported by Kalyani et al. In another report, **Korpela et al.** emphasized that vulvar fibroadenoma should always be considered in the differential diagnosis of persistent vulvar swellings because preoperative diagnosis is rarely possible. They concluded that **complete surgical excision is both diagnostic and curative**, with an excellent long-term prognosis [6]. Our management strategy was identical, as surgical excision not only established the diagnosis but also achieved definitive treatment without postoperative complications, reinforcing the recommendation proposed by Korpela et al. More recently, **Mansouri et al.** described accessory breast tissue of the vulva presenting as an unexpected vulvar mass and highlighted that radiological investigations are generally nonspecific, making **histopathological examination the cornerstone of diagnosis** [7]. Similarly, imaging was not required in our patient because the lesion was clinically considered benign. Definitive diagnosis depended entirely on microscopic examination, which demonstrated the characteristic biphasic architecture of fibroadenoma arising within mammary-type tissue. **Arora et al.** analysed breast-type lesions arising from anogenital mammary-like glands and demonstrated that these lesions exhibit histological and immunohistochemical features comparable to normal breast tissue. The authors emphasized that although fibroadenoma is benign, careful pathological evaluation is essential because malignant breast-type tumours can also arise in the vulva [8]. In agreement with these observations, our specimen underwent meticulous histopathological evaluation, which confirmed preservation of the dual epithelial cell layer and excluded atypia, necrosis, stromal overgrowth, and malignant transformation, thereby supporting conservative surgical management.

Conclusion Fibroadenoma arising in accessory breast tissue of the vulva is an exceptionally rare benign lesion that poses a significant diagnostic challenge because its clinical presentation closely resembles more common vulvar conditions, particularly Bartholin gland and epidermoid cysts. In the present case, a **39-year-old woman** presented with a painless, progressively enlarging vulvar mass that was clinically suspected to be a Bartholin gland cyst. However, histopathological examination demonstrated a characteristic benign

biphasic fibroepithelial tumour arising in accessory mammary tissue, confirming the diagnosis of vulvar fibroadenoma. The patient's clinicopathological findings, management by complete surgical excision, and favourable postoperative outcome were consistent with previously reported cases in the literature. This case highlights the importance of including mammary-type lesions in the differential diagnosis of persistent vulvar swellings and reinforces that **histopathological examination remains the gold standard for definitive diagnosis**. Increased awareness among clinicians, surgeons, and pathologists is essential to prevent misdiagnosis, facilitate timely surgical management, exclude malignant breast-type lesions of the vulva, and contribute to the limited literature on this uncommon entity.

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Additional Notes

- **Patient Consent:** Informed consent was obtained from the patient for publication of this case report.

- **Conflict of Interest:** The authors declare no conflict of interest

Images: Gross Image:



Figure 1. Gross specimen

Figure 1. Gross photograph of the excised vulvar lesion showing two well-circumscribed, grey-white nodular tissue fragments with a firm external surface, consistent with a benign fibroepithelial lesion.

Microscopic

Image:

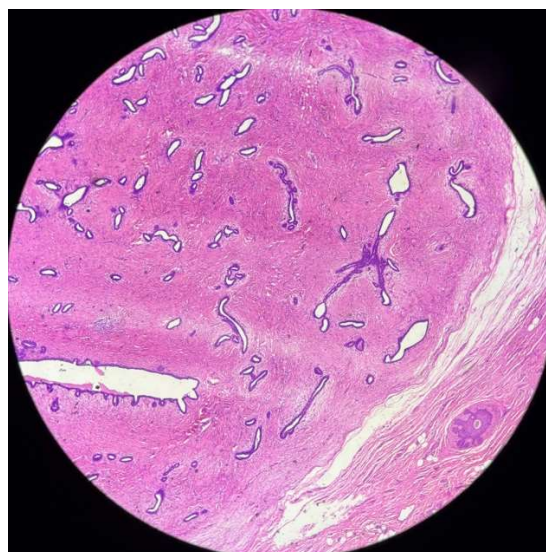
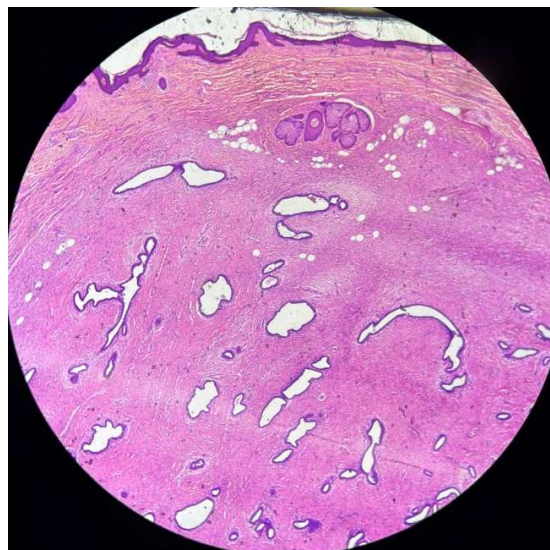
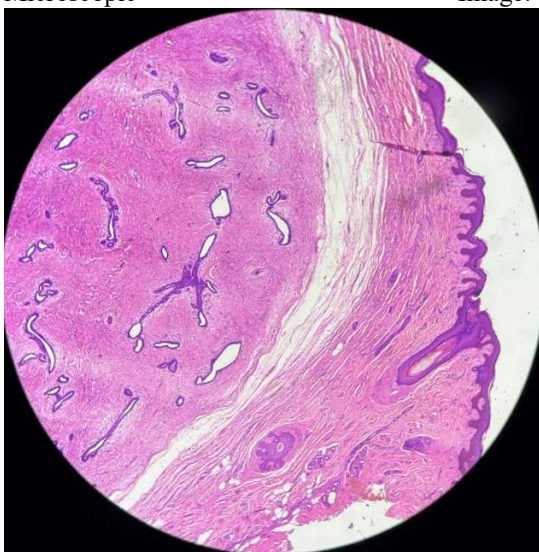


Figure 2. Histopathology (Low power)

Figure 2. Photomicrograph (Hematoxylin and Eosin stain, $\times 40$) showing vulvar skin lined by stratified squamous epithelium with an underlying well-circumscribed biphasic fibroepithelial lesion composed of proliferating glandular ducts embedded within a fibromyxoid stroma, consistent with fibroadenoma arising in accessory breast tissue.