

Case Series

Clinicopathological mimics of accessory breast tissue: a case series with cytological and histological correlation

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ABSTRACT

Axillary swellings in young women present a broad differential diagnosis, from benign developmental anomalies such as accessory breast tissue (ABT) to neoplastic lesions including fibroadenoma and phyllodes tumor. This case series reports eight patients with varied clinical and pathological findings. Six women aged 19–28 years presented with unilateral or bilateral axillary swellings, with initial clinical impressions ranging from lipoma and lymphadenopathy to soft tissue tumors. Fine needle aspiration cytology (FNAC) was performed in all cases, followed by surgical excision and histopathological confirmation in most. Diagnoses included ABT in four patients, lactating adenoma in one, bilateral lipomas in one, benign phyllodes tumor in one and fibroadenoma in one. FNAC aided in narrowing the differential diagnosis, but definitive identification relied on excision and histopathology. Recognition of ABT and its mimickers is important, as these lesions can undergo physiological and pathological changes similar to normal breast tissue and misdiagnosis may lead to unnecessary anxiety or inappropriate management. This series highlights the value of correlating clinical, cytological and histopathological findings to ensure accurate diagnosis and optimal treatment of axillary swellings in young women.

Keywords: Axillary swelling, Accessory breast, Cytology, Fibroadenoma, Histopathology, Lipoma, Lactating adenoma, Phyllodes tumor

INTRODUCTION

Axillary lumps are common in young women, with one developmental cause being ABT, present in 0.22–6% of the population. ABT arises from incomplete regression of the embryonic milk line, often becoming evident after hormonal stimulation during puberty, pregnancy or lactation. It may present as a bilateral or unilateral axillary mass, with symptoms like pain, swelling, cosmetic concerns or anxiety. Clinically, ABT can mimic conditions such as lymphadenopathy, lipoma or malignancy. Importantly, ABT can undergo similar pathological changes as normal breast tissue, including fibroadenoma or carcinoma, making accurate diagnosis crucial for appropriate management.¹⁻³ Due to the broad range of possible etiologies in axillary swellings from

developmental anomalies like accessory breast tissue to benign tumors such as fibroadenoma, lipoma and phyllodes tumor, they often pose a diagnostic dilemma. We present a case series of six patients, with four confirmed as accessory breast tissue based on cytological and histological correlation (Kajava Classification Type IV). The remaining four cases included lactating adenoma, bilateral lipoma, benign phyllodes tumor and fibroadenoma, highlighting the histological diversity in this anatomical region and the importance of cytopathological evaluation.

CASE SERIES

We evaluated six female patients presenting with axillary swellings. Of these, four were diagnosed as accessory

breast tissue on both fine needle aspiration cytology (FNAC) and histology and were classified as Kajava Type IV extramammary breast tissue, lacking nipple or areola but containing glandular tissue.

Case 1-2: Accessory breast tissue

Four cases of accessory breast tissue presented as axillary swellings. May-Grunwald Giemsa stained (MGG) smears revealed pauci-cellular smears with a few tightly cohesive clusters of benign ductal epithelial cells. A cytological diagnosis of accessory breast tissue was rendered, which was subsequently confirmed on histopathological examination, showing only normal terminal duct lobular units (TDLUs).

Case 3: Lactating adenoma

A 23 years old lactating female presented with a right axillary swelling (Figure 1a) of 4 years' duration. The patient had not ceased lactating even 2 years postpartum and was still actively breastfeeding. Clinically, a 1.5×1.0 cm firm, mobile, non-tender mass was noted. FNAC yielded yellowish, milk-like fluid. Smears were moderately cellular, showing monolayered sheets and tightly cohesive clusters of benign ductal epithelial cells with admixed myoepithelial cells in a thick, proteinaceous, milky background (Figure 1b-d). Occasional cystic macrophages were also observed. Histological confirmation could not be obtained; however, follow-up revealed that the lesion was excised at another center. The findings were consistent with a lactating adenoma arising in accessory breast tissue, an uncommon but plausible entity in persistently lactating women.

Case 4: Bilateral lipomas

A 25 years old female presented with bilateral axillary swellings persisting for two years (Figure 2a, b). The swellings were soft, slightly mobile and non-tender. FNAC yielded fatty aspirate. Smears showed mature adipocytes in fibrofatty fragments with abundant cytoplasm and intervening fibrous septae (Figure 2c). Figure 2d shows Haematoxylin & Eosin stained (H & E) smears of the same. Gross examination revealed encapsulated, yellowish tumors. Histology confirmed a diagnosis of bilateral encapsulated lipomas, composed of mature adipose tissue with a thin fibrous capsule.

Case 5: Benign phyllodes tumor

A 22 years old female presented with a right axillary swelling of four months' duration (Figure 3a). The mass was firm, mobile and non-tender. FNAC revealed highly cellular smears with abundant benign stromal fragments forming leaf-like patterns (Figure 3b, c) admixed with clusters of benign epithelial cells (Figure 3d). Despite a clinical impression of fibroadenoma, a cytological diagnosis of benign phyllodes tumor was rendered, which was later confirmed histologically. Gross examination

showed a 5.5 × 5.0 cm tumor with slit-like spaces on cut section (Figure 3e). Microscopy revealed the characteristic leaf-like stromal overgrowth and cleft-like spaces lined by benign glandular epithelium (Figure 3f, g).

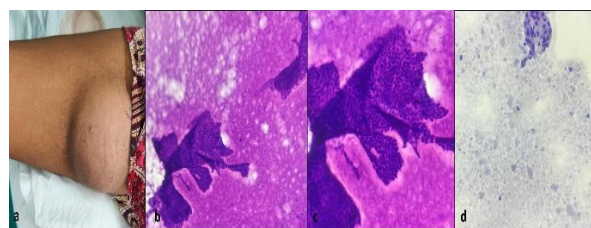


Figure 1: Lactating adenoma (a) right axillary swelling; (b) MGG stained smear showing cohesive clusters of benign ductal epithelial cells on a thick proteinaceous background (MGG,10X); (c) high power view shows cohesive clusters of benign ductal epithelial cells on a thick proteinaceous background (MGG,40X); (d) milk globules along with a cluster of ductal epithelial cells (MGG,10X).

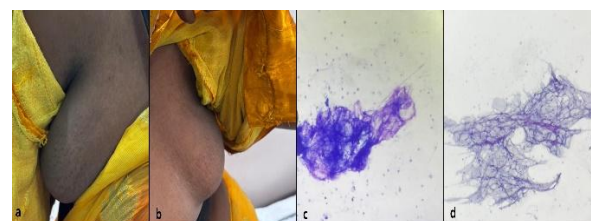


Figure 2: Bilateral lipomas. (a, b) Bilateral axillary swellings; (c) MGG stained smears show mature adipocytes in fibrofatty fragments with abundant cytoplasm and intervening fibrous septae (MGG,20X). (d) H & E-stained smears show mature adipocytes in fibrofatty fragments with abundant cytoplasm and intervening fibrous septae (H & E, 20X).

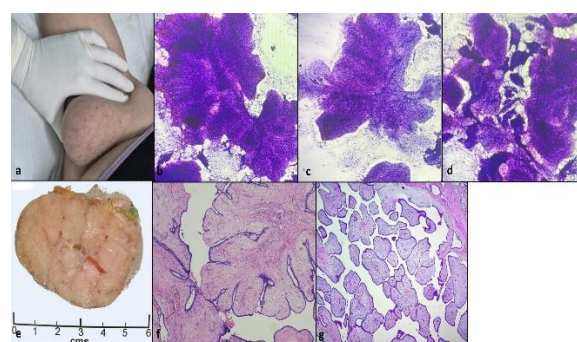


Figure 3: Benign Phyllodes tumor. (a) Right axillary swelling; (b, c) cellular smears with abundant benign stromal fragments forming leaf-like patterns (MGG,40x), (d) cellular stromal fragments admixed with clusters of benign epithelial cells (MGG,40X); (e) cut section of the tumor showed slit-like spaces on cut section; (f-g) microscopy revealed the characteristic leaf-like stromal overgrowth and cleft-like spaces lined by benign glandular epithelium (H & E section, 40X).

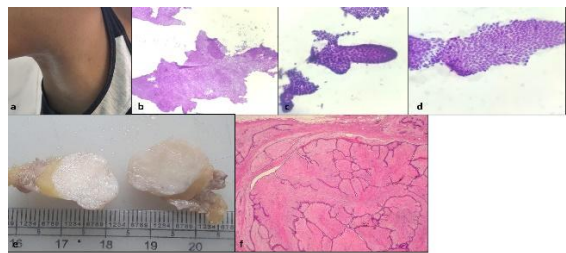


Figure 4: Fibroadenoma. (a) Right axillary swelling; (b-d) Monolayered sheets of benign ductal epithelial cells admixed with few myoepithelial cells (MGG, 40X); (e) Gross appearance of a well-circumscribed lesion with slit-like spaces on cut section; (f) Histology section shows well-circumscribed, biphasic lesion with glandular elements compressed by proliferative stroma (H & E section, 10X).

Case 6: Fibroadenoma

A 23 years old woman presented with a right axillary swelling for three years (Figure 4a). The mass was firm, freely mobile and non-tender. FNAC aspirate was blood-tinged. Smears showed moderate cellularity with cohesive clusters and monolayered sheets of benign ductal epithelial cells admixed with myoepithelial cells, stromal fragments and bare bipolar nuclei in a hemorrhagic background (Figure 4b-d).

Gross examination revealed a 2.5×2.0 cm well-circumscribed lesion with slit-like spaces on cut section (Figure 4e). Histology confirmed a fibroadenoma, revealing a well-circumscribed, biphasic lesion with glandular elements compressed by proliferative stroma (Figure 4f).

Table 1: Clinicopathological features of cases mimicking/ involving ABT.

Case no.	Age (in years)	Clinical presentation	Laterality	Cytological diagnosis	Histopathological diagnosis
1–2	20–30	Axillary swelling	Unilateral	Accessory breast tissue	Accessory breast tissue
3	23	Axillary swelling with lactation	Right	Lactating adenoma	Not available (excised elsewhere)
4	25	Bilateral soft axillary swellings	Bilateral	Lipoma	Lipoma
5	22	Firm swelling (clinical: fibroadenoma)	Right	Phyllodes tumor	Benign phyllodes tumor
6	23	Firm, mobile axillary swelling	Right	Fibroadenoma	Fibroadenoma

Table 2: Kajava classification of extramammary breast tissue.

Class I	Polymastia	Complete breast(s) with nipple, areola and glandular tissue
Class II	Supernumerary breast without areola	Nipple and glandular tissue, no areola
Class III	Supernumerary breast without nipple	Areola and glandular tissue, no nipple
Class IV	Mamma aberrata	Only glandular tissue
Class V	Pseudomamma	Nipple and areola, no glandular tissue, replaced by fat
Class VI	Polythelia	Nipple only
Class VII	Polythelia areolaris	Areola only
Class VIII	Polythelia Pilosa	Patch of hair only

DISCUSSION

This case series underscores the diagnostic spectrum of axillary swellings in young females. Accessory breast tissue, though common along the embryonic milk line, may clinically mimic other benign pathologies. Cytology plays a pivotal role in preliminary diagnosis, especially in differentiating glandular tissue from mesenchymal lesions such as lipoma and phyllodes tumor. Awareness of these mimics, coupled with imaging and histopathological evaluation, ensures accurate diagnosis and appropriate surgical management. Table 1 summarises the findings of our cases. Ectopic breast tissue is a comprehensive term

encompassing both supernumerary breasts and aberrant breast tissue. Already in 1915, Professor Yrjo Kajava authored a descriptive case series of aberrant breast tissue and super numerary nipples in a Finnish cohort, thereby contributing to the systemic understanding of this phenomenon. The classification (Table 2) is based on the evaluation of anatomical components, the presence or absence of areola, glandular tissue and nipple.⁴ Two hypotheses have been proposed on the development of accessory breast. One attributes the condition to the failure of involution of the milk line, while the other believes it develops from the modified apocrine sweat glands.⁵ It is usually detected by mammography while screening.

Ultrasonography reveals breast tissue. Magnetic resonance imaging (MRI) shows normal glandular tissue.⁶ When tumors or nodules are found along the mammary line, the presence of breast tissue should be considered during the investigation. As a quick and cost-effective procedure, Fine needle aspiration cytology (FNAC) is recommended to rule out the other differential diagnosis mentioned, to suggest the definitive diagnosis and to guide the appropriate surgical intervention.⁵ Although several case studies describing treatment for the accessory breast tissue have been published, to the best of our knowledge, no guidelines have been published and no large studies have been performed on the axillary accessory breast tissues.⁷ Yefer et al described fibroadenoma in ABT as a rare but diagnostic dilemma, often confused with lymphadenopathy.⁵

Chandak et al highlighted how ABT may mimic lipoma and emphasized the role of FNAC and excision.⁸ Similarly, Husain et al reported lactational changes in ABT mimicking pedunculated lipoma.⁹ Arora et al showed that most women seek excision due to pain, cosmetic concerns or fear of malignancy. In their study of 60 women, ABT was often bilateral and presented postpartum.¹⁰ Tomey et al documented a 6% prevalence of ABT and emphasized the need to investigate for carcinoma in enlarging masses.⁶ Ishiguro et al observed a rapidly growing fibroadenoma in ABT within 40 days, underscoring the dynamic hormonal responsiveness of this tissue.¹¹ Singh et al reported ABT in a male, emphasizing that though rare, it must be part of the differential diagnosis.¹² Together, these studies reinforce that ABT can present variably and mimic many benign lesions. FNAC is helpful but histopathology is essential for definitive diagnosis. In the series, four cases were diagnosed as ABT with varying clinical impressions. FNAC proved helpful but had limitations, especially in distinguishing ABT from fibroadenoma.

Treatment in the series was primarily surgical excision of the lesions for both diagnostic and therapeutic purposes. In cases of accessory breast tissue, complete excision was performed to alleviate symptoms and prevent future pathological changes. Lipomas and fibroadenomas were excised for symptom relief and cosmetic reasons. The benign phyllodes tumor was completely resected with clear margins. The lactating adenoma case was excised at another center. All patients had uneventful postoperative recovery.

CONCLUSION

Axillary swellings in women, though often benign, require careful clinicopathological correlation. Accessory breast

tissue can masquerade as other neoplastic conditions and vice versa. A high index of suspicion and a multidisciplinary approach are essential for accurate diagnosis and treatment planning.

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