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CASE REPORT

A Case Report of Accessory Breast Cancer in the Anterior Chest Wall

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ABSTRACT

We present and discuss a case report of a 70-year-old patient with a primary carcinoma in accessory breast tissue in the anterior chest wall.

Accessory breast tissue has a reported incidence of 0.3% to 6% in the general population, resulting from an incomplete involution of the mammary milk line. It usually presents as a palpable mass. The most frequent localization of accessory breast tissue and its possible pathologies is the armpit, although it can occur in the inframammary region and rarely on thighs, perineum, groin, or vulva.

The diagnosis is mainly clinical, but imaging findings may be helpful to confirm the suspicion because they are similar to breast cancer within the breast. Ultrasound is the most useful radiological method to evaluate these lesions and guide the suspected diagnosis together with the clinical presentation.

Treatment should be performed under the same principles as breast cancer, both surgical and systemic therapies. The prognosis of accessory breast carcinoma may be poor in cases with delayed diagnosis compared to native breast cancer.

Keywords: Accessory breast tissue, Breast carcinoma, Ectopic breast tissue

Introduction

Accessory breast tissue has an incidence of 0.3%-6%. It is a normal condition consisting of persistent residual tissue from normal embryologic development, resulting from an incomplete involution of the embryological mammary crest, the mammary line. During the fifth week of embryological development, and ectodermal primitive milk line forms along the ventral surface of the body extending from the axilla to the inguinal region. Incomplete involution anywhere along the primitive milk line may result in the accessory or ectopic breast tissue.

Therefore, accessory breast tissue can appear along this ridge, which runs from the armpit to the groin, and can range from a focus of parenchyma to complete structures with a nipple and areola. The most frequent location is the armpit in 60%-70% of all cases, followed by the vulva and thoracic region. Also, it can occur in other sites, including the cheek, neck, shoulder, midline of chest or abdomen, flank, hip, and thigh [1-3].

Usually, patients are unaware of its presence, but accessory breast tissue may be more apparent during menarche, pregnancy, or lactation due to its response to hormonal stimulation. The symptoms can be pain, milky discharge, and local skin irritation [1-3].

The incidence of cancer is rare but is between 0.2% and 0.6% [3-5].
We report a case of accessory breast carcinoma in the extra-axillary site originating in the anterior chest wall in a postmenopausal woman.

Case Report

We present a 70-year-old woman with a recently discovered palpable mass in the anterior chest wall.

She had no relevant medical history and had previous normal breast examinations. However, the patient had a family history of two sisters with breast cancer, a brother with brain cancer, and a father with liver cancer.

The physical examination revealed a visible supernumerary nipple in the anterior chest wall, with an underlying palpable mass. The clinical examination of the breasts and the axillary regions were normal.

A new mammogram and ultrasound were requested. Mammography showed scattered fibroglandular tissue, ACR B, with no suspicious images. The breast ultrasound was normal. The US of the chest wall demonstrated a hypoechoic mass with an irregular margin of 1.5 cm without significant color Doppler signal. These findings were suspicious of malignancy, and a core needle biopsy was suggested.

The core needle biopsy was performed with a 14-gauge needle.

The attending physician considered it worthwhile to perform an MRI of the breast to rule out another associated lesion. MRI showed a mass with an irregular margin with early and intense uptake of contrast located in the submammary region of the right breast. It was hypointense in pre-contrast T1 and T2 sequences. No other contrast uptake was seen in both breaths [Figure 1].

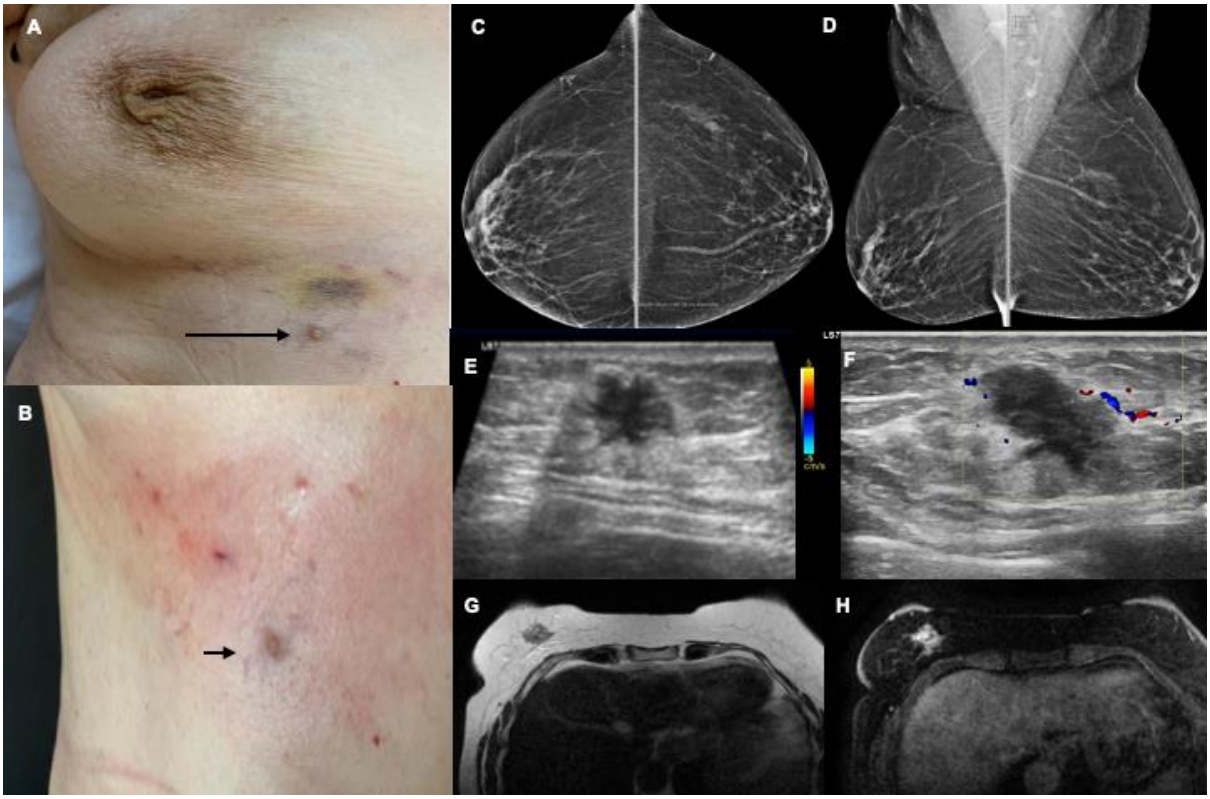

Figure 1

A-B: Photograph illustrating a palpable nodule at the level of the right sub mammary groove (arrow) and an extra nipple (short arrow).

C-D: Normal breast tissue on mammography (C: craniocaudal view and D: mediolateral oblique), ACR B, with no suspicious findings, categorized as Bi-rads 2.

E-F: non-circumscribed solid mass with irregular margins and increased vascularization at Doppler examination.

G-H: Mass with intense enhancement after IV contrast administration.

Histopathological examination revealed breast tissue with a ductal invasive carcinoma. Immunohistochemical staining demonstrated positivity for Estrogen receptor (98%), Progesterone receptor (98%), and GATA receptor, suggesting mammary origin.

Our patient received local surgical treatment of accessory breast tissue. This consisted of wide local excision of the entire accessory breast, the supernumerary nipple, and additional skin lodge. Sentinel node biopsy was negative.

Histopathology of the surgical specimen yielded a 21 mm invasive ductal carcinoma (histologic grade 2) and a 2 mm focus of Ductal Carcinoma in Situ (DCIS). Immunohistochemical staining showed positivity for hormonal estrogen and progesterone receptors (> 90%) and HER2 negative. The surgical margins were negative [Figure 2].

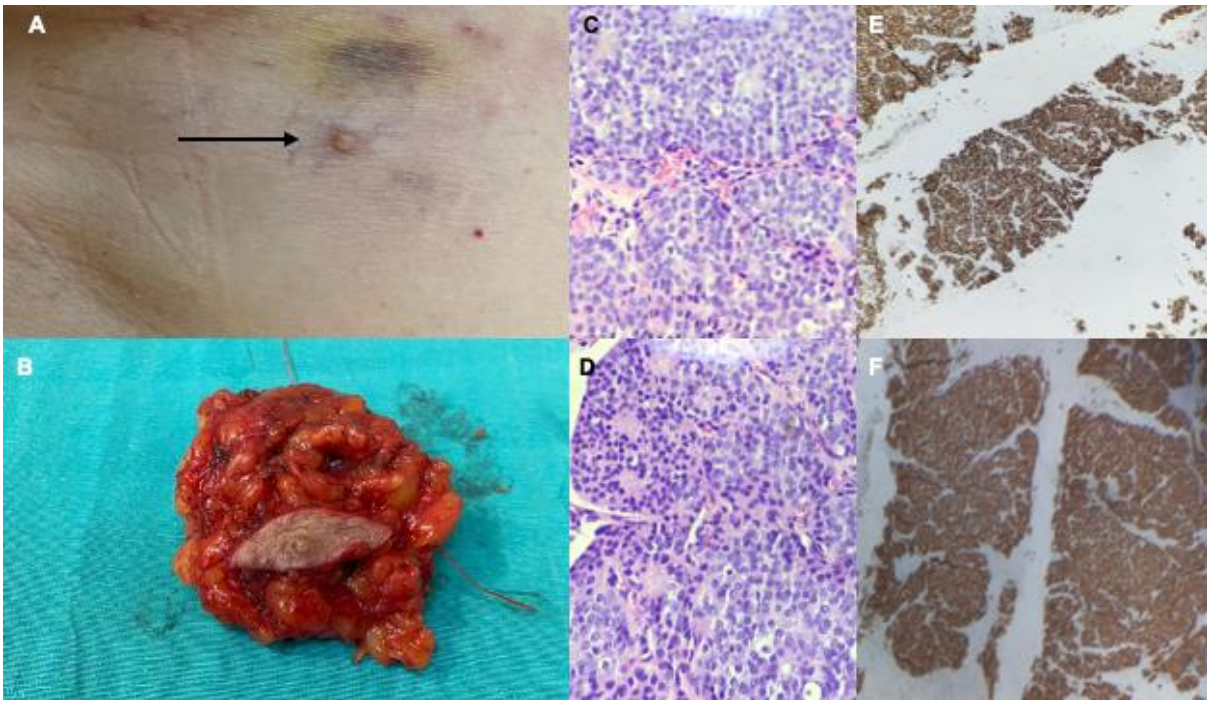

Figure 2:
A: Photograph illustrating an extra nipple (arrow).
B: Gross pathology showing the surgical specimen, including the skin and nipple.
C-D: Hematoxylin-eosin: fibrous-connective tissue infiltrated by monomorphic cuboidal cells that exhibit nuclear atypia.
E-F: Immunohistochemical analysis: Estrogen receptor (98%), Progesterone receptor (98%), and GATA receptor were positive, suggesting mammary origin.

Discussion

Our patient exhibited a recently discovered palpable mass in the anterior chest wall with a rapid growth pattern. At clinical examination, she had a visible supernumerary nipple in the anterior chest wall under the inframammary groove, which guided the diagnostic suspicion. The clinical presentation and the physical examination led to the initial diagnostic suspicion of a malignant lesion of the supernumerary breast tissue. However, the differential diagnoses include benign lesions such as lipoma, follicular cysts, and fibroadenomas. Possible malignant causes include metastasis of malignant melanoma or other primary neoplasia of the chest wall soft tissues.

Imaging findings are similar to primary breast cancer on mammography, ultrasound, and MRI. The main difficulty in its analysis is the localization of the lesion. Due to the location of these lesions, it is not usually detected in routine mammography Screening. However, our patient had a normal annual routine screening mammogram before this episode [2]. Ultrasound is the most useful radiological tool to evaluate these findings and guide the suspected diagnosis together with the clinical presentation. In addition, MRI can help assess the extent of the disease and the relationship with neighboring anatomical structures before surgery, aid in diagnosis and staging, and exclude primary breast cancer [2].

In most cases, the biopsy is the ultimate indication to confirm or discard the suspected diagnosis, and invasive carcinoma is the most common malignant histological type. In this case, the initial histopathological result was suggestive of breast origin due to estrogen receptor staining and GATA 3 expression.

Treatment should be the same as other breast cancer, wide local excision with negative margins and sentinel lymph node evaluation. Adjuvant chemotherapy and hormonal therapy will be offered depending on the immunohistochemistry of the tumor and the patient's performance status, and eventually, adjuvant radiation therapy should be considered.

The prognosis of accessory breast carcinoma may be poor in cases with delayed diagnosis compared to native breast cancer due to a higher stage at the initial diagnosis. Extramammary location may hinder clinical suspicion, especially in cases without a nipple-areola complex to identify the extra mammary tissue. [1-5].

Conclusion

This case report demonstrates the importance of knowing about the embryologic development of breast tissue and the possibility of breast pathology in these regions. An early recognition by the attending physicians is necessary to avoid delayed diagnosis and to detect these lesions at early stages, improving the patient's prognosis.

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Ethical standards: This study was approved by the IRB.

Informed consent: It was waived for this retrospective investigation by the IRB as this study was of minimal risk, and data were deidentified.

Consent for publication: All authors expressed explicit consent for the publication of this manuscript.

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