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(CASE REPORT)

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Invasive Breast Carcinoma of No Special Type Arising in Supernumerary (Accessory) Axillary Breast Tissue: A Rare Presentation and Diagnostic Challenge

Ngawa Edith Ngalande *, Zineb Tazi, Yassin Belhaj, Sofia Jayi, Fatima Zohra Fdili Alaoui, Hikmat Chaara and Moulay Abdelilah Melhouf

Hassan II university hospital Fez; Sidi Mohamed Ben Abdellah University of Fes, Morocco.

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Abstract

Supernumerary breast tissue is a rare congenital anomaly that typically arises along the "milk line," which extends from the armpit to the groin. Though often benign, supernumerary breasts can be a site for malignancy, including invasive breast carcinoma. This case report describes the diagnosis and management of a patient who developed invasive breast carcinoma in her supernumerary axillary breast tissue, highlighting the importance of early detection and thorough investigation of any breast-related abnormalities, even in accessory tissue.

Keywords: Supernumerary breast tissue; Ectopic breast carcinoma; Axillary breast cancer; Congenital breast anomalies; Early detection

1. Introduction

Supernumerary (accessory) breast tissue is a rare developmental anomaly that occurs in approximately 1-6% of the population, typically along the "milk line" that extends from the axilla (armpit) to the groin. While most supernumerary breast tissue remains asymptomatic and benign, it can occasionally give rise to malignancies, including invasive breast carcinoma. arising in supernumerary breast tissue, especially located in the axillary region which is exceedingly rare. Given that supernumerary breasts often go unnoticed, malignancies in these tissues are frequently diagnosed at later stages. This case report aims to highlight a rare occurrence of invasive breast carcinoma in supernumerary axillary breast tissue and emphasize the importance of clinical awareness, early detection, and management of such cases.

2. Case Presentation

A 58-year-old woman presented with a palpable mass in her right axillary region. She had a family history of breast cancer with her maternal aunt dying from breast cancer before the age of 40, but her medical history was unremarkable. On physical examination, a firm, mobile mass measuring approximately 3 cm was noted in the right axilla, located above the mid-axillary line with puckering of the skin around the accessory breast. The patient reported no pain or discomfort, and there was no skin or nipple involvement in the right breast. She had previously noticed this mass for several months but had not sought medical attention.

The patient had no prior history of breast surgery or trauma. Upon further inquiry, she mentioned that she had a small breast tissue lump near her axilla that had been present since adolescence but had never been evaluated.

* Corresponding author: Ngawa Edith Ngalande

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Figure 1 Accessory breast tissue in right axillary region

Breast imaging, including mammography and ultrasound, revealed a solid, well-circumscribed mass in the right axillary region, with features suggestive of a benign lesion. However, given the patient's history and the size of the mass, further investigation was recommended.

2.1. Diagnostic Work-Up

To investigate the mass further, a core needle biopsy was performed. Histopathological analysis revealed invasive ductal carcinoma (IDC) of the non-specific type (NST) in the supernumerary axillary breast tissue. The carcinoma was found to be oestrogen receptor-positive (ER+), progesterone receptor-positive (PR+), and HER2 score at 3. No lymph node involvement was observed upon initial examination.

Given the diagnosis of invasive breast carcinoma in supernumerary tissue, additional imaging studies were conducted to rule out malignancy in the primary breast. A bilateral mammogram and ultrasound of both breasts showed no abnormal findings, and there was no evidence of malignancy in the primary breast tissue. A n MRI was conducted to further investigate any small abnormalities not detected in earlier test revealing a supernumerary breast tissue with a suspicious axillary lesion classified ACR6 sperate from the axillary lymph node area with no significant lymphadenopathy detected.

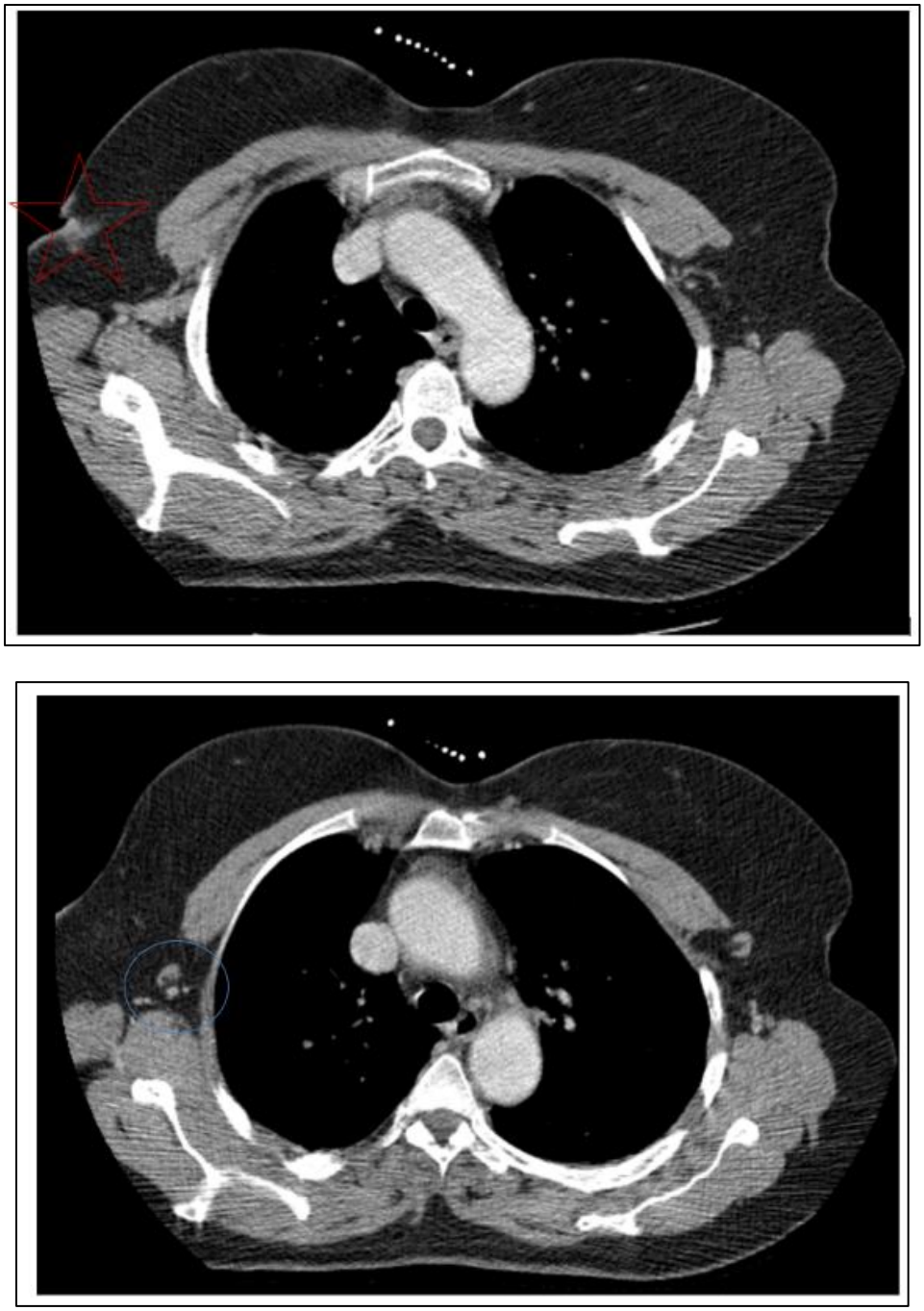

Figure 2,3 Axial slices through the thoracic level following contrast administration reveal a subcutaneous infiltrate in the area of the right axillary extension (marked with a red star). This infiltrate is in contact with the skin, which appears slightly thickened, suggesting a possible inflammatory or infiltrative process.

Importantly, this lesion is separate from the axillary lymph node area (circled in blue), which appears unremarkable with no significant lymphadenopathy detected in this region

2.2. Management

The patient was referred to a multidisciplinary team including an oncologist, surgeon, and radiologist. After discussion a surgical excision of the mass was decided. A wide local excision was performed, removing the entire mass along with a margin of healthy tissue to ensure clear surgical margins with excision of the sentinel's lymph-nodes. Postoperatively, the patient was referred for adjuvant therapy, including hormonal therapy trastuzumab (Herceptin) due to tumours HER2-positivity and radiotherapy as the tumour was invasive. The patient was also followed up with regular imaging to monitor for recurrence.

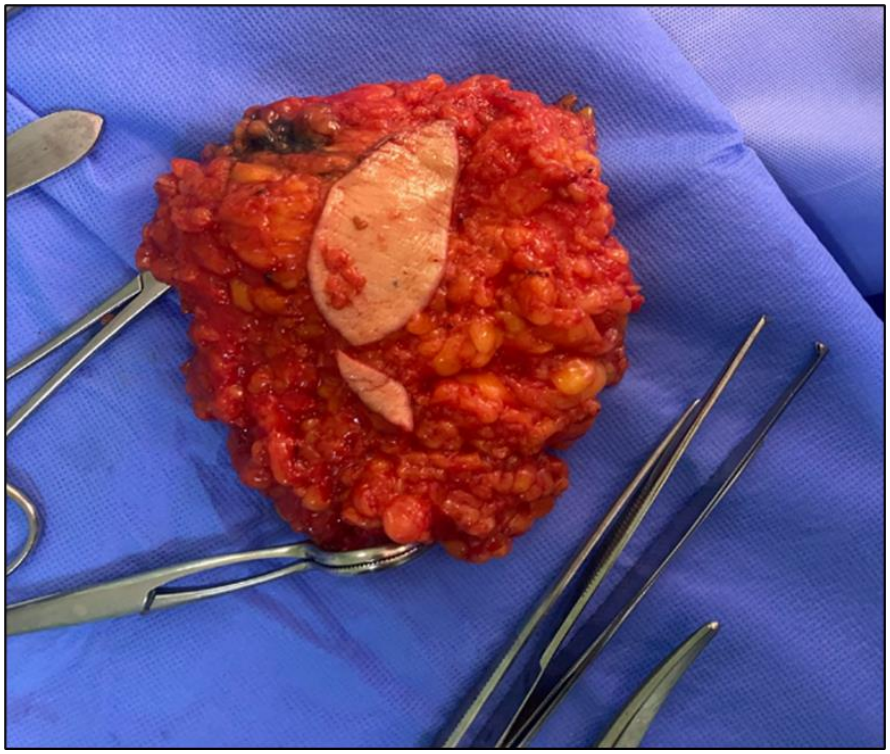

Figure 4 Gross photo of excision of accessory breast

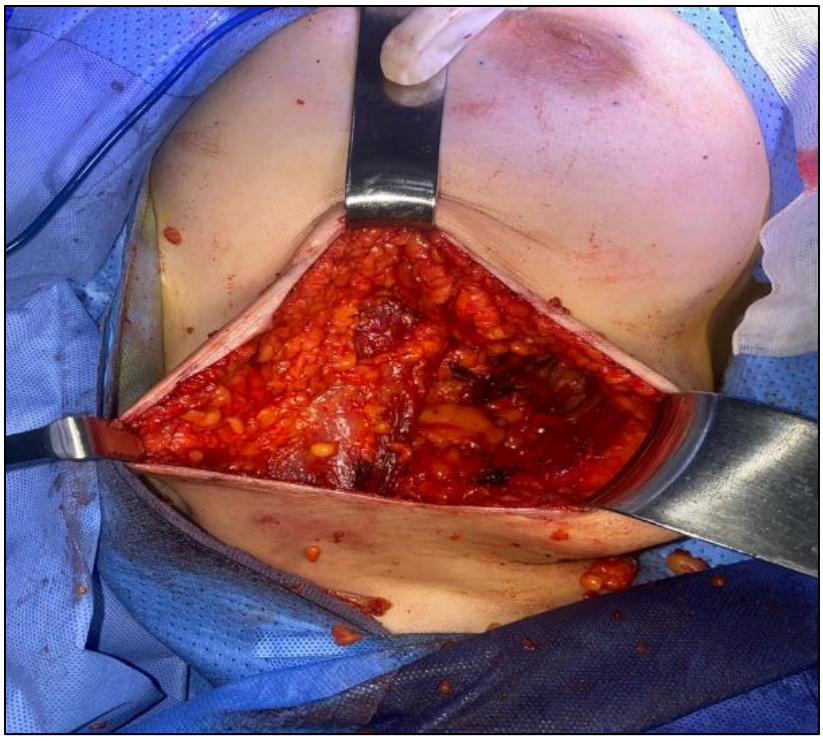

Figure 5 Large margins of resection and axillary extension after sentinel lymph node dissection

3. Discussion

Supernumerary breast tissue, most frequently located in the axillary region, can also be found along the embryological milk line, including the chest wall, abdomen, or groin. Histologically, it typically consists of glandular and ductal structures resembling normal breast parenchyma. While usually asymptomatic, supernumerary breast tissue can develop a range of benign or malignant conditions, including fibrocystic changes, mastitis, and, more rarely, carcinoma [1,2].

Malignant transformation in supernumerary breast tissue is exceptionally rare, accounting for an estimated 0.3–0.6% of all breast cancers [3,4]. The majority of reported malignancies arise in accessory axillary breast tissue, likely due to its prevalence as the most common ectopic location. Recent case series and literature reviews reaffirm the rarity of such presentations while emphasizing their clinical significance, especially when the diagnosis is delayed due to misidentification as lymphadenopathy, lipomas, or sebaceous cysts [3,5].

Clinically, these carcinomas often present with features similar to primary breast cancer, including palpable masses, skin thickening, or localized pain. In some instances, as reported in recent literature, triple-negative subtypes or co-occurring ductal carcinoma in situ (DCIS) may be present, further complicating the diagnostic process [4,6]. However, because supernumerary breast tissue is frequently underrecognized, malignancy in these areas often eludes early detection. Imaging modalities such as ultrasound and mammography may yield inconclusive results due to the ectopic location and atypical tissue architecture. Therefore, histopathological confirmation via biopsy remains the gold standard for diagnosis [3,7].

3.1. Management and Treatment

The treatment of invasive carcinoma in supernumerary breast tissue is guided by the same oncological principles used for primary breast cancer. Surgical excision with negative margins remains the cornerstone of therapy, followed by appropriate staging and consideration of adjuvant treatments such as hormonal therapy, chemotherapy, and radiotherapy, depending on tumour biology and receptor status [2,4,8].

Recent publications emphasize the need for individualized treatment approaches, especially given the lack of large-scale studies or standardized protocols specific to ectopic breast cancers [6]. Nevertheless, outcomes are comparable to those of orthotopic breast cancer when timely diagnosis and complete excision are achieved. One study demonstrated favourable outcomes following modified radical mastectomy and adjuvant treatment in a patient with triple-negative accessory breast carcinoma [6]. Similarly, an international case review highlighted that delayed diagnosis often results in larger tumour size and higher nodal involvement, underscoring the importance of early suspicion and intervention [4,5].

3.2. Prognosis

The prognosis of invasive carcinoma in supernumerary tissue is generally favourable when detected early and treated promptly. As reported in both historical and recent literature, clear surgical margins and favourable tumour differentiation are associated with good outcomes [3,5]. In this case, the absence of nodal or distant metastases and the tumour's well-differentiated nature supported the decision for adjuvant hormonal therapy, further improving the patient's long-term outlook.

4. Conclusion

Invasive breast carcinoma arising in supernumerary axillary breast tissue represents a rare but clinically significant entity. Its similarity to primary breast cancer in presentation necessitates a high index of suspicion, particularly when evaluating axillary masses or aberrant breast-like tissue. Given its potential for malignant transformation, awareness and early biopsy of suspicious ectopic tissue can lead to timely diagnosis and improved outcomes. Recent literature from 2020–2024 strongly supports adopting standard breast cancer treatment protocols for these rare presentations, with adaptation based on tumour biology and anatomical considerations

Compliance with ethical standards

Disclosure of Conflict of Interest

The authors declare that they have no conflict of interest.

Statement of Ethical Approval

The present research work does not contain any studies performed on human or animal subjects by any of the authors.

Statement of Informed Consent

Informed consent was obtained from the patient for publication of this case report and any accompanying images.

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