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CASE REPORT

A Giant Invasive Cribriform Carcinoma Presenting as a Breast Abscess: A Case of Massive Cystic Degeneration

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Abstract: Invasive cribriform carcinoma (ICC) is a rare, well-differentiated subtype of breast cancer that usually presents as a small, slow-growing solid mass. We report a 57-year-old woman with a giant, painful left breast mass clinically mimicking a breast abscess. Ultrasonography showed a large mixed cystic–solid lesion, and aspiration yielded approximately 900 mL of bloody fluid. Core needle biopsy confirmed ICC of the Luminal A subtype. Neoadjuvant chemotherapy showed limited efficacy, and the patient first underwent sentinel lymph node biopsy (1/8 positive), followed by modified radical mastectomy with axillary lymph node dissection, with postoperative pathology revealing sentinel lymph node metastasis in 1 of 8 nodes. This case highlights that ICC can rarely present as a massive cystic lesion with inflammatory features, and malignancy should be suspected when bloody fluid is aspirated from a presumed breast abscess.

Keywords: invasive cribriform carcinoma, giant breast tumor, cystic degeneration, breast abscess mimic, case report

Introduction

Invasive cribriform carcinoma (ICC) is a rare histological subtype of breast cancer, accounting for approximately 0.3–3.5% of all invasive breast carcinomas. It is characterized by tumor cells arranged in sieve-like or cribriform structures infiltrating the stroma, typically accounting for more than 90% of the tumor. ICC is generally regarded as a low-grade malignancy and is typically associated with favorable biological behavior, including high expression of estrogen and progesterone receptors, absence of HER2 amplification, low proliferative activity, and excellent long-term outcomes.

With the widespread use of mammographic screening, most breast cancers are detected at an early stage as small lesions. In daily clinical practice, ICC usually presents as a small, solid, and well-circumscribed mass detected on routine screening or physical examination. Large tumors, rapid enlargement, and cystic degeneration are distinctly uncommon. When a breast lesion is predominantly cystic and accompanied by pain, redness, and local warmth, clinicians are more likely to consider benign inflammatory conditions such as breast abscess, mastitis, or plasma cell mastitis.

Here, we report an exceptionally rare case of a giant ICC measuring approximately 20 cm in diameter, accompanied by massive cystic degeneration and inflammatory-like skin changes. The clinical presentation closely mimicked a breast abscess, leading to an initial diagnostic challenge. This case highlights the importance of maintaining suspicion for malignancy even in lesions that appear clinically inflammatory and emphasizes the limitations of neoadjuvant chemotherapy in Luminal A-type tumors.

Case Presentation

A 57-year-old woman presented with a rapidly enlarging and painful left breast mass. She had noticed a small lump four years earlier, which increased markedly in size with redness and tension over the past four months (Figure 1). The patient

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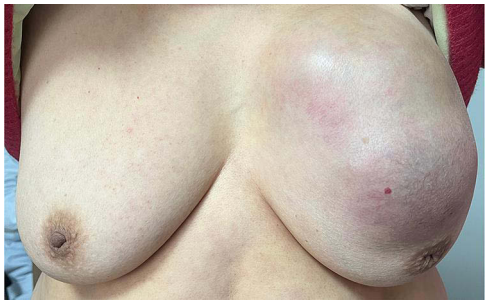

Figure 1 Clinical presentation of the left breast. The left breast is markedly enlarged with erythema, skin tension, and swelling, mimicking an inflammatory breast abscess.

received oral amoxicillin for 3 days for suspected mastitis; however, no significant clinical improvement was observed. Upon admission, the white blood cell count was 8.5×10^9/L.

Physical examination showed a markedly swollen, tense, and erythematous left breast, with a hard mass occupying almost the entire breast. Ultrasonography revealed a large mixed cystic solid lesion with moderate internal vascularity on Doppler imaging. Mammography classified the lesion as BI-RADS 4C. Ultrasound-guided aspiration drained about 900 mL of dark red fluid, which relieved tension but raised suspicion of malignancy, as a large residual solid mass remained.

Core needle biopsy confirmed invasive carcinoma with a cribriform growth pattern. Immunohistochemistry showed ER 95%+, PR 50%+, HER2 negative, and Ki-67 about 5%, consistent with a Luminal A subtype (Figure 2). The clinical stage was cT4bN0M0 (stage IIIB), based on skin involvement without chest wall invasion.

Neoadjuvant chemotherapy with an AC-T regimen was administered for four cycles; however, no significant response was observed. The patient first underwent sentinel lymph node biopsy (1/8 positive), followed by modified radical

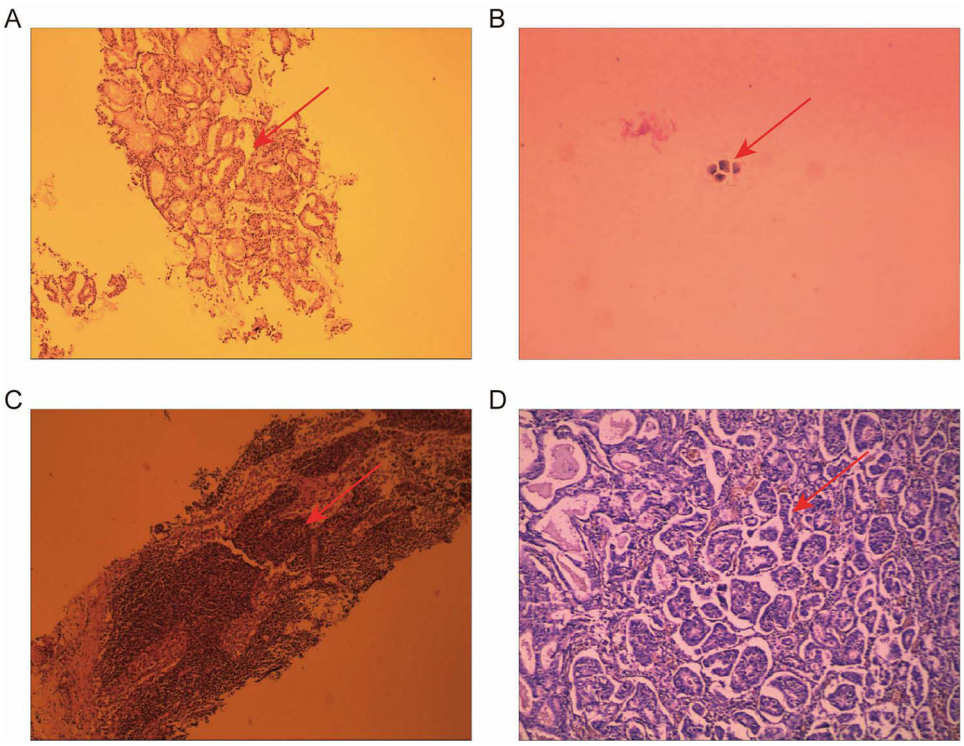

Figure 2 Cytological and histopathological findings. (**A**) Core needle biopsy of the breast mass showing invasive carcinoma with cribriform features (hematoxylin and eosin [H&E] staining, ×100). (**B**) Cytological examination of the aspirated fluid showing atypical epithelial cells (H&E staining, ×200). (**C**) Axillary lymph node biopsy demonstrating metastatic carcinoma (H&E staining, ×100). (**D**) Postoperative histopathology of the breast mass confirming invasive carcinoma with cribriform features and invasive growth pattern (H&E staining, ×100). Key histological features, including cribriform architecture and invasive components, are indicated by arrows.

mastectomy with axillary lymph node dissection. Postoperative pathology confirmed invasive carcinoma with cribriform features, with metastasis in 1 of 8 sentinel lymph nodes (pT4bN1aM0, stage IIIB). Adjuvant endocrine therapy was initiated.

Discussion

A review of previously reported cases indicates that breast malignancies mimicking abscesses are rare but clinically significant. Common features include rapid enlargement, cystic degeneration, and bloody aspirate. Compared with previously reported cases, our case is notable for the extremely large tumor size and Luminal A subtype with minimal response to NAC.

In this patient, the most striking feature was the presentation of ICC as a giant, predominantly cystic breast mass with pain, erythema, and skin tension, which closely resembled a breast abscess. In routine clinical practice, such findings usually point toward an inflammatory or infectious process rather than malignancy. This explains why the patient initially received antibiotic treatment and why aspiration was performed before malignancy was strongly suspected.[1]

Cystic degeneration in breast cancer is generally uncommon and is more often seen in high-grade tumors with rapid growth and central necrosis, such as triple-negative or HER2-positive carcinomas. Malignancies with central cystic changes are atypical and have been described sporadically in the literature, underscoring their rarity.[2] In contrast, ICC is a low-grade tumor with slow proliferation, making massive cystic change highly unusual. ICC is typically a low-grade, hormone receptor–positive breast cancer subtype with low proliferative indices and generally favorable outcomes.[3–5] In our patient, the Ki-67 index was low both before and after treatment, arguing against rapid necrosis as the main mechanism. We speculate that the enormous tumor size and long disease course may have caused chronic obstruction of lymphatic or ductal drainage, leading to progressive fluid accumulation rather than true necrotic cavitation.

From a diagnostic perspective, this case underscores an important pitfall. When a breast lesion yields a large amount of bloody fluid on aspiration, malignancy should always be considered, even when clinical appearance strongly suggests infection.[1] In our patient, the lack of response to antibiotics and the bloody aspirate were the two most important clues that prompted further investigation. Mimickers of breast malignancy include inflammatory processes and complex cystic lesions that can overlap clinically and radiologically with cancer, supporting the need for early biopsy.[6] In daily practice, reliance on clinical appearance alone may delay diagnosis, particularly in rare entities such as ICC.

The treatment course also deserves attention. Neoadjuvant chemotherapy (NAC) is routinely recommended for locally advanced breast cancer to reduce tumor burden and improve surgical outcomes. However, hormonal receptor–positive, HER2-negative (Luminal A) breast cancers are known to have relatively poor responses to neoadjuvant cytotoxic chemotherapy, often related to low proliferation indices.[7] In our patient, despite the dramatic tumor size, the biological behavior remained indolent, and the response to NAC was minimal. Data from retrospective analyses suggest that ER+/HER2- tumors with low Ki-67 are less likely to achieve pathological complete response (pCR) after neoadjuvant therapy.[8] This experience suggests that for similar cases of giant Luminal A–type ICC, early surgical management might be more effective than prolonged chemotherapy. Endocrine therapy, rather than chemotherapy, remains the cornerstone of systemic treatment for such tumors.

Although ICC is generally associated with an excellent prognosis, our case also demonstrates that neglect and delayed diagnosis can lead to extreme tumor growth and regional lymph node involvement. Retrospective clinicopathological studies of ICC show generally low rates of nodal involvement and good long-term outcomes when identified early.[9] Therefore, even tumors with favorable histology can behave aggressively from a clinical standpoint when diagnosis and treatment are postponed.

Limitations

This study has several limitations. First, not all inflammatory markers such as CRP were available, and microbiological culture results were lacking. Second, complete ultrasonographic imaging data, including detailed Doppler images, were not preserved. These limitations may affect the comprehensiveness of clinical evaluation.

Conclusion

This case shows that invasive cribriform carcinoma, despite being a low-grade and typically indolent breast cancer subtype, can rarely present as a giant, cystic, inflammatory-appearing mass that closely mimics a breast abscess. Bloody aspirated fluid, poor response to antibiotics, and persistence of a solid component should prompt immediate pathological evaluation.

For patients with Luminal A-type ICC, the limited response to neoadjuvant chemotherapy should be recognized, and timely surgical intervention combined with endocrine therapy may represent a more practical treatment strategy. Early recognition of this unusual presentation is essential to avoid misdiagnosis and unnecessary treatment delays.

Patient Consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Ethics Statement

According to the policy of The Second People's Hospital of Lianyungang & The Oncology Hospital of Lianyungang, institutional ethical approval was not required for this case report. Written informed consent was obtained from the patient for publication of this case and accompanying images.

Disclosure

The authors report no conflicts of interest in this work.

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