World Journal of Biology Pharmacy and Health Sciences
eISSN: 2582-5542
Cross Ref DOI: 10.30574/wjbphs
Journal homepage: https://wjbphs.com/

(CASE REPORT)

Incidentally diagnosed invasive ductal carcinoma during routine breast screening: A case report

Lin Mazen Almadi, Manal Saad Mohamed Said, Ghada Imam Abdelkader and Mohamed Hussein Elsayed Okasha

Department of Radiology, primary health care, Dubai Academic Health Corporation, Dubai, UAE.

World Journal of Biology Pharmacy and Health Sciences, 2025, 21(03), 595-599

Publication history: Received on 14 February 2025; revised on 23 March 2025; accepted on 25 March 2025

Article DOI: https://doi.org/10.30574/wjbphs.2025.21.3.0322

Abstract

A 48-year-old female underwent routine mammographic screening, which revealed an irregular, high-density spiculated lesion in the right breast. Further imaging and core biopsy confirmed invasive ductal carcinoma (IDC), Grade 3, ER/PR-positive, HER2-negative, with axillary lymph node metastasis. The patient underwent surgical intervention, and subsequent PET/CT confirmed localized disease without distant metastasis. This case underscores the importance of routine screening in asymptomatic individuals.

Keywords: screening Mammography; invasive ductal carcinoma; Lymph node metastasis; breast ultrasound; biopsy.

1. Introduction

Breast cancer is the most frequently diagnosed malignancy among women, and invasive ductal carcinoma (IDC) constitutes the most common histological subtype. Despite screening mammography being widely implemented, many patients remain asymptomatic until an incidental diagnosis is made. This case report details the serendipitous identification of an aggressive breast carcinoma in a patient with no prior history of malignancy.

2. Case Presentation

- Patient Demographics and History
- Age: 48 years
- Medical History: No prior history of breast cancer, hormonal therapy, or significant risk factors.
- Family History: The maternal aunt was diagnosed with breast cancer in her sixties.
- Screening Mammography: No prior imaging is available for comparison.

2.1. Initial Mammographic Findings

- Right Breast (9 o'clock): High-density, irregular, spiculated mass with overlying microcalcifications (BI-RADS V). Figure 1.

* Corresponding author: Lin Mazen Almadi

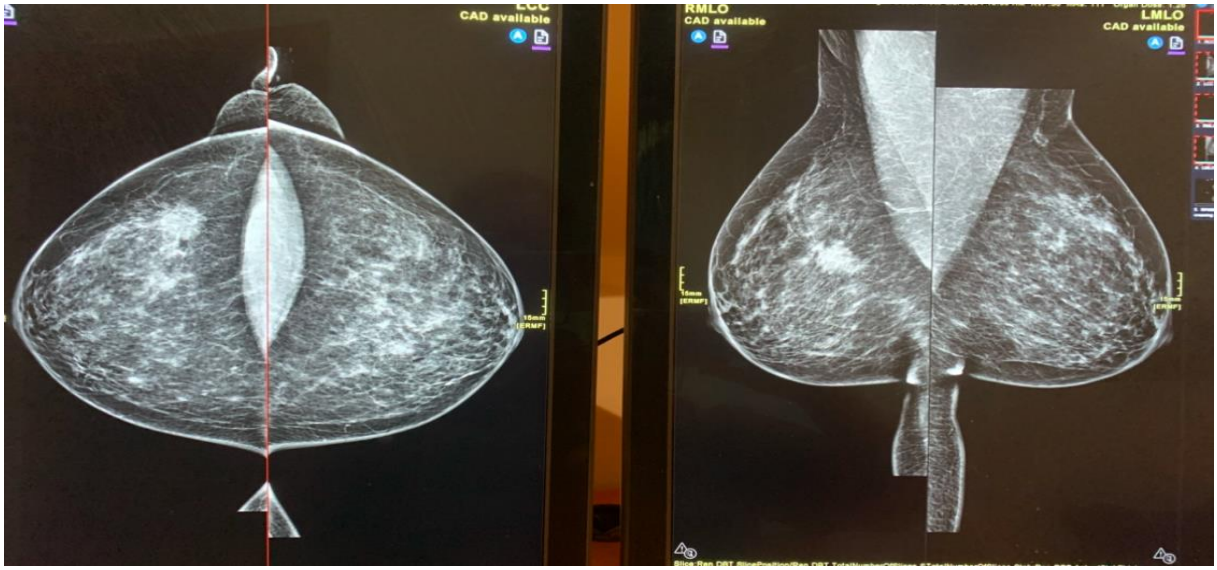

Figure 1 Bilateral screening breast ultrasound showing right outer central high-density, irregular, spiculated mass with overlying microcalcifications

2.2. Ultrasound

- 20 × 34 mm irregular spiculated parallel hypoechoic vascular lesion. Figure 2
- Right axillary lymph node Cortical bulging and asymmetric thickening. Figure 3

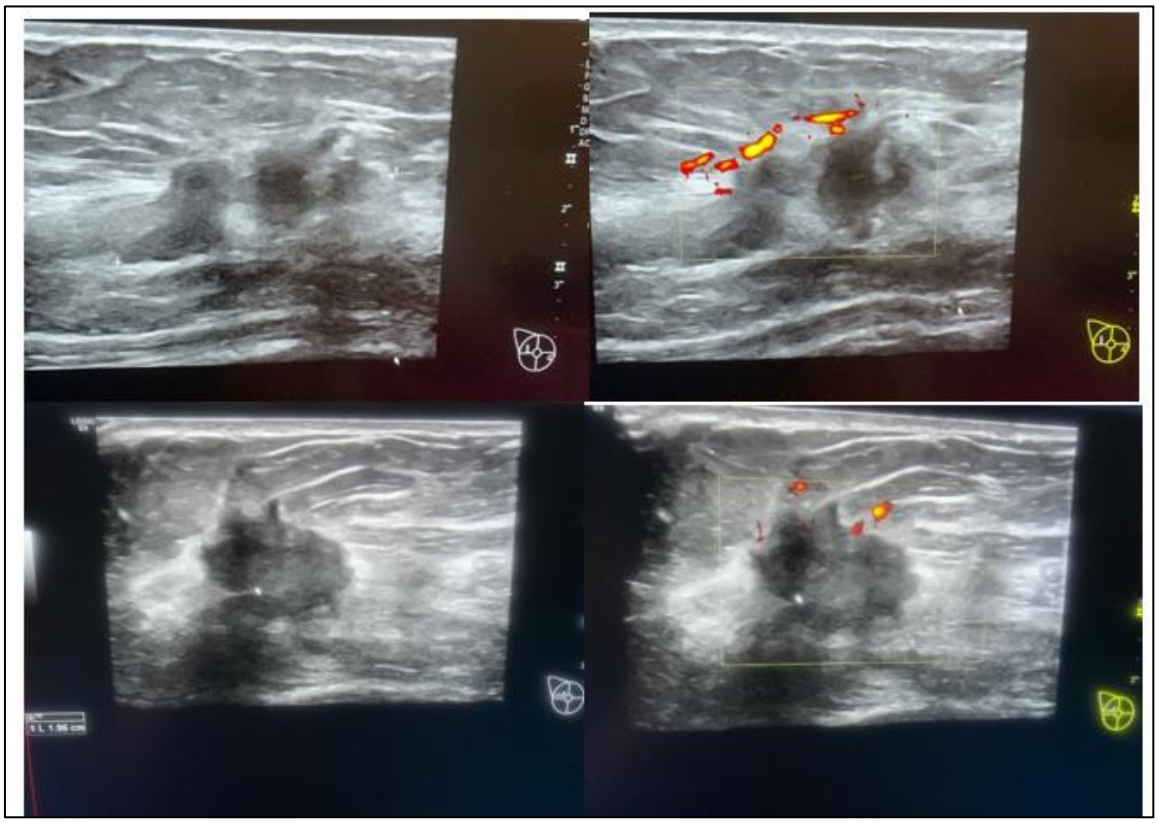

Figure 2 Irregular spiculated hypoechoic lesion with areas of posterior shadowing seen at 9 o'clock

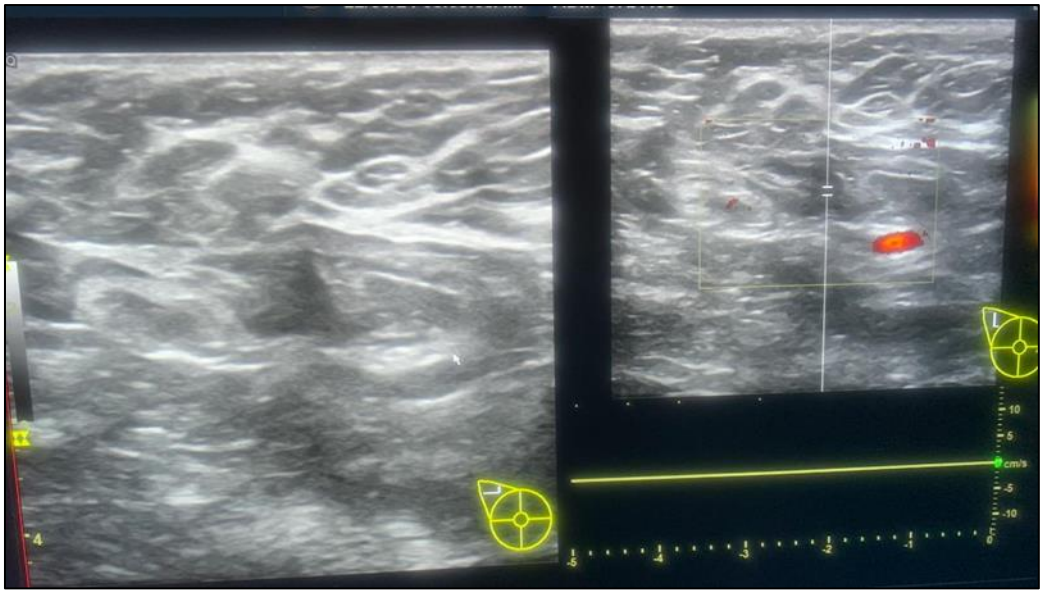

Figure 3 Right axillary lymph node with cortical bulging and asymmetric thickening

2.3. Histopathological Diagnosis

- Breast Biopsy (Right, 9 o'clock)
- Histology: Invasive ductal carcinoma (no specific type, NST).
- Grade Nottingham Histologic Score Grade 3 (Tubules 3; Nuclei 3, Mitosis 2).
- Lymph vascular invasion: Not identified.
- Microcalcifications: Not identified.
- Immunohistochemistry (IHC) Profile:
- ER: Positive (99% of tumor nuclei).
- PR: Positive (90% of tumor nuclei).
- HER2: Negative (Score 1+; HER2-Low).
- Ki-67 proliferation Index: 23%.
- Right Axillary Biopsy: Metastatic carcinoma confirmed.

2.4. Staging and Systemic Workup

- PET/CT Findings
- Primary Breast Lesion: Hypermetabolic tumor (SUV max 11.9).
- Axillary Lymph Node Metastasis: Persistent FDG uptake.
- No distant metastasis was detected.

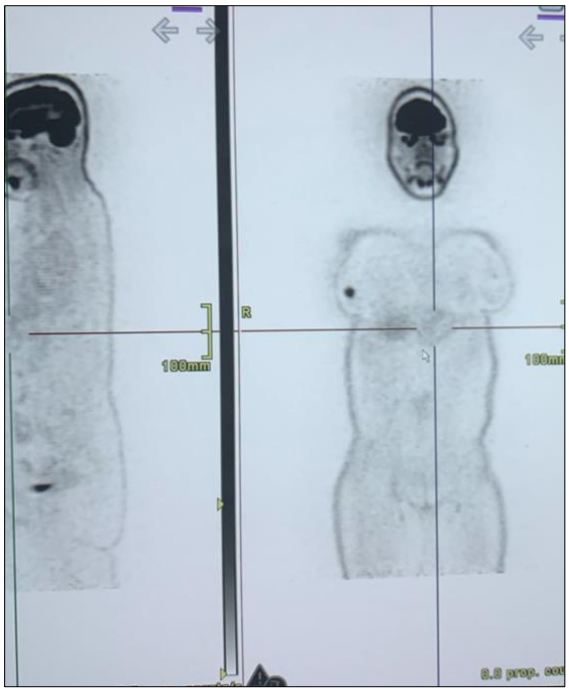

Figure 4 Primary Breast Lesion: Hypermetabolic tumor

2.5. Procedure Performed

- Right Breast Lumpectomy with Axillary Lymph Node Dissection

2.5.1. Intraoperative Findings

- Heterogeneous right breast mass (confirmed with intraoperative ultrasound).
- Multiple axillary lymph nodes, with one node clipped during the biopsy.

2.5.2. Surgical Steps

- Triangle incision with skin flaps raised.
- The tumor excised with clear margins.
- Axillary dissection was performed with preservation of the long thoracic nerve.
- Lymph nodes excised; metastatic node confirmed intraoperatively.
- Drain placement in the axilla.
- Postoperative Course
- No complications.
- Awaiting further adjuvant therapy decisions (chemotherapy and endocrine therapy).

3. Discussion

This case highlights an incidentally diagnosed aggressive IDC with axillary metastasis in an otherwise asymptomatic patient. Routine mammographic screening remains crucial in the early detection of breast cancer, even in patients without genetic predisposition or palpable lumps.

Invasive ductal carcinoma (IDC) is the most common type of breast cancer, accounting for about 80% of cases (Shockney, L. 2024). It begins in the milk ducts and invades surrounding breast tissue (Parker, H. and Schwartz, A.A. (2024), with the potential to spread further through lymph nodes or the bloodstream if untreated.

Diagnosis typically involves imaging tests and a biopsy to confirm the presence of cancerous cells. Early detection significantly improves prognosis, with localized IDC having a nearly 99% 5-year survival rate (Shockney, L.2024). Treatment options depend on the stage and extent of the cancer and may include surgery (lumpectomy or mastectomy), radiation therapy, chemotherapy, hormone therapy, targeted therapy (Shockney, L. 2024).

Regular screenings are crucial for early detection and effective treatment

3.1. Key Considerations

3.1.1. IDC with HER2-Low Status

- HER2-Low breast cancers are emerging as a distinct subtype with the potential for targeted therapy in clinical trials.
- The current standard treatment remains hormonal therapy (ER/PR-positive) with chemotherapy.

3.1.2. Multimodal Imaging for Staging

- PET/CT helped rule out distant metastasis
- Ultrasound-guided biopsy confirmed nodal involvement, reinforcing the need for axillary dissection.

3.1.3. Future Management

- Patient will receive endocrine therapy and possible chemotherapy based on multidisciplinary evaluation.

4. Conclusion

This case underscores the importance of routine screening mammography in detecting early-stage breast cancer and demonstrates the clinical challenge of incidental findings. The multidisciplinary approach, including imaging, biopsy, surgery, and pathology, ensures accurate diagnosis and treatment planning.

Key Takeaways

- Routine screening remains the cornerstone of early breast cancer detection.
- IDC with HER2-Low status is a potential target for evolving therapies.
- Multimodal imaging and biopsy are critical for accurate diagnosis and management.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest is to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

References

[1] Parker, H. and Schwartz, A.A. (2024) Invasive ductal carcinoma (IDC): Overview, treatment & prognosis, National Breast Cancer Foundation. Edited by P. Sachdev. Available at: https://www.nationalbreastcancer.org/invasive-ductal-carcinoma/?utm_source=perplexity (Accessed: 26 March 2025)

[2] Shockney, L. (2024) Invasive ductal carcinoma (IDC): Overview, treatment & prognosis, National Breast Cancer Foundation,at: https://www.nationalbreastcancer.org/invasive-ductal-carcinoma/?utm_source=perplexity (Accessed: 26 March 2025).

[3] Invasive ductal carcinoma (IDC) (2024) Cleveland Clinic. Available at: https://my.clevelandclinic.org/health/diseases/22117-invasive-ductal-carcinoma-idc?utm_source=perplexity (Accessed: 26 March 2025).

[4] Devitt, J.E. (1989) 'False alarms of breast cancer', The Lancet, 334(8674), pp. 1257–1258. doi:10.1016/s0140-6736(89)91860-6 https://pubmed.ncbi.nlm.nih.gov/2573767/.