Volume 11, Issue 8, August– 2026 International Journal of Innovative Science and Research Technology
ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26aug175

Inflammatory Breast Cancer: A Case Report

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Publication Date: 2026/08/19

Abstract: Inflammatory breast cancer is a rare and aggressive form of malignant inflammatory mastitis, accounting for less than 10% of non-puerperal mastitis cases. In North Africa, its prevalence is estimated to range between 5% and 7%. The diagnosis is primarily based on the clinical assessment of inflammatory signs, including breast pain, erythema, local warmth, swelling, and the characteristic peau d'orange appearance. This evaluation should be complemented by locoregional staging to determine the extent of disease spread. Histopathological and immunohistochemical analyses are essential to differentiate triple-negative tumors from those characterized by HER2 overexpression. Despite its aggressive nature, the current 5-year overall survival rate exceeds 40%.

Keywords: *Inflammatory Breast; Mastitis; Inflammatory Breast Cancer; Carcinomatous Mastitis.*

How to Cite: Maha Lhaloui; Mustapha Benhessou; Simohamed Ennachit; Mohammed Elkerroumi (2026) Inflammatory Breast Cancer: A Case Report. *International Journal of Innovative Science and Research Technology*, 11(8), 931-933. https://doi.org/10.38124/ijisrt/26aug175

I. INTRODUCTION

Inflammatory breast cancer is a distinct clinicopathological entity defined by clinical diagnostic criteria and should be differentiated from mastitis, which encompasses infectious (60%), non-infectious (34%), and carcinomatous (6%) etiologies [1]. In North Africa, particularly in Morocco, its reported prevalence ranges from 5% to 7% [2–3].

This subtype is characterized by its aggressive behavior and rapid progression and is classified as T4d. The diagnosis should be suspected during clinical examination in the presence of inflammatory skin changes. Given its high metastatic potential, a comprehensive staging workup is mandatory and relies on conventional breast imaging, magnetic resonance imaging, and computed tomography. Histopathological and immunohistochemical examinations frequently reveal either triple-negative breast cancer or HER2-overexpressing tumors (3+ score) [4].

Management requires a multidisciplinary approach combining neoadjuvant chemotherapy with anti-HER2 targeted therapy when indicated, followed by total mastectomy with axillary lymph node dissection. Treatment is completed with locoregional radiotherapy and continuation of targeted therapy. Endocrine therapy is indicated in patients with hormone receptor-positive disease [5–6].

➢ *Patient Observation*

A 34-year-old woman, with a family history notable for a maternal aunt treated for breast cancer, presented with an inflammatory left breast that had progressed over an 8-month period and was associated with an ipsilateral breast mass.

➢ *Clinical Examination:*

- Left breast: was enlarged, diffusely inflamed, and markedly swollen.
- Right breast: no palpable nodule
- Lymph node areas: matted left axillary lymph nodes

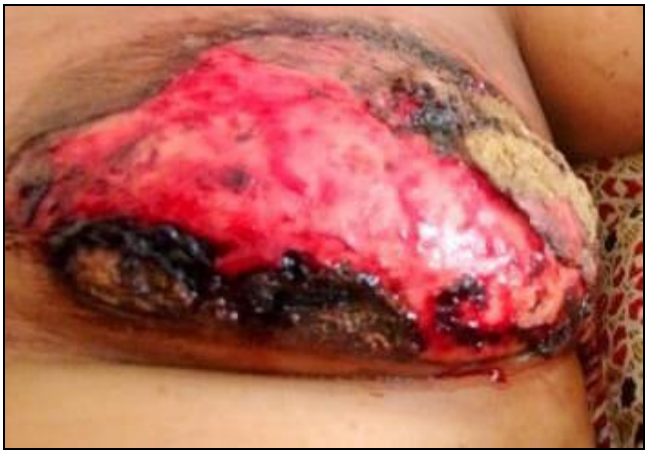

Fig 1 Clinical Examination

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➢ *Mammography and Ultrasound Findings:*

- Left Breast: Imaging findings were consistent with inflammatory (carcinomatous) mastitis, with two highly suspicious masses located in the upper outer quadrant, measuring 23 × 15 mm and 11 × 10 mm, respectively, both classified as BI-RADS 5. Multiple left axillary lymphadenopathies were identified, the largest measuring 19 mm.
- Right Breast: No significant abnormality was detected.

- Staging Investigations: demonstrated no evidence of secondary localization.

➢ *Histopathological Examination:*

Histopathological examination revealed an invasive breast carcinoma of no special type (NST), Nottingham histological grade III (SBR grade 3).

Immunohistochemical analysis demonstrated estrogen receptor (ER) expression in 5% of tumor cells, progesterone receptor (PR) negativity (0%), a Ki-67 proliferation index of 60%, and HER2 overexpression (IHC score 3+).

➢ *The Patient Received Six Cycles of Neoadjuvant Chemotherapy*.

➢ *Post Chemotherapy Result:*

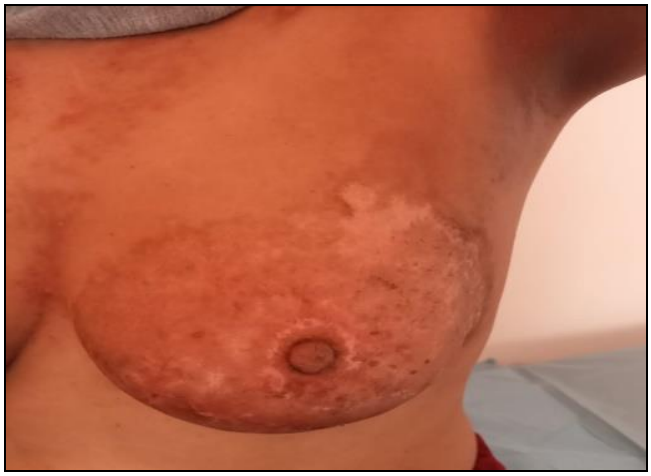

Fig 2 Clinical Examination Post Chemotherapy

II. DISCUSSION

Retrospective data and small prospective studies evaluating locally advanced breast cancer have shown that anthracycline-based chemotherapy regimens, widely used during the 1980s, achieved high response rates (71%) but were associated with limited overall survival, with 5- and 10-year overall survival rates of 40% and 33%, respectively. The addition of taxanes (paclitaxel or docetaxel) to anthracycline-based regimens significantly improved recurrence-free survival (27 vs. 18 months) and median overall survival (54 vs. 32 months), particularly in patients with hormone receptor-negative disease. Although high-dose chemotherapy followed by autologous hematopoietic stem cell transplantation initially yielded high pathological complete response rates (39%), no durable survival benefit has been demonstrated. Consequently, autologous peripheral blood stem cell transplantation has no established role in the management of inflammatory breast cancer (IBC) [7–9].

HER2 is overexpressed in approximately 30–50% of inflammatory breast cancers (IBCs) [10]. The NOAH trial demonstrated that the addition of trastuzumab to neoadjuvant chemotherapy significantly increased the pathological complete response (pCR) rate (55%) and improved event-free survival. In contrast, lapatinib combined with paclitaxel yielded more modest results, with a pCR rate of 18.2%. The NEOSPHERE trial subsequently confirmed the efficacy of dual HER2 blockade with trastuzumab and pertuzumab, which has become the current standard of care for patients with HER2-positive disease [11–12].

Adjuvant endocrine therapy is recommended for patients with hormone receptor (HR)-positive tumors, consisting of tamoxifen for premenopausal women and aromatase inhibitors for postmenopausal women. The recommended treatment duration is at least 5 years, consistent with the management of non-inflammatory breast cancer [13].

According to current international guidelines (ASCO, ESMO, and INCa), post-treatment surveillance should include clinical follow-up every 3 months during the first 2 years, combined with annual mammography. Follow-up should then be performed every 3–6 months until 5 years after treatment, and annually thereafter.

III. CONCLUSION

Management of inflammatory breast cancer in specialized referral centers, where patients have access to multicenter clinical trials, represents the best strategy to improve our understanding of this disease and ultimately enhance patient outcomes.

➢ *Ethics Commitee Authorization:*

Our institution does not find any conflict of ethics commitee.

➢ *Author Contribution:*

- Maha LHALOUI: paper writing and picture editing.
- Mustapha BENHESSOU, Simohamed ENNACHIT, Mohammed ELKERROUMI: Bibliography, written direction.

➢ *Guarantor*

- Maha Lhaloui.

➢ *Research Registration Number*

- No applicable data.

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/26aug175

➢ *Conflicts of Interest Statement:*

- No conflict of interest have been announced by the authors for to this research.

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