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Intraoperative Image of Modified Radical Mastectomy with Axillary Lymph Node Dissection of Left Invasive Breast Carcinoma

TUSHAR NAGTODE[1], SHUBHAM BOBADE[2]

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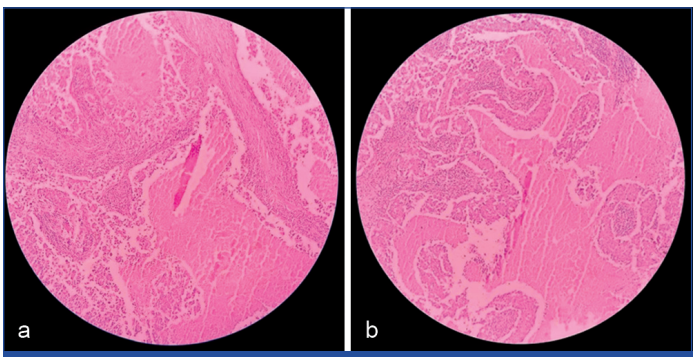
A 52-year-old female presented to the Department of General Surgery with a chief complaint of a lump in the left breast, not associated with pain, discharge, or redness, which had progressively increased in size over the past month. She had no history of systemic illnesses or prior surgeries, and there was no family history of similar complaints. On examination, a hard, non-tender, fixed lump measuring 3.5×3 cm was identified in the lower outer quadrant of the left breast. Fine Needle Aspiration Cytology (FNAC) was performed, and the findings were suggestive of ductal carcinoma.

The patient subsequently underwent a left Modified Radical Mastectomy (MRM) under general anaesthesia. Based on cytological investigation and clinical examination, the diagnosis of left invasive breast carcinoma was confirmed by histopathological analysis. Histopathology revealed invasive breast carcinoma of No Special Type (NST). Tumour grading was performed using the Modified Bloom-Richardson (MBR) classification, yielding a total score of 7 (3+2+2), corresponding to Grade 2 (moderately differentiated) [Table/Fig-1a,b]. A total of 28 axillary lymph nodes were dissected, all of which were reactive with no evidence of metastasis (0/28), indicating a Pathologically Node-Negative (pN0) nodal stage.

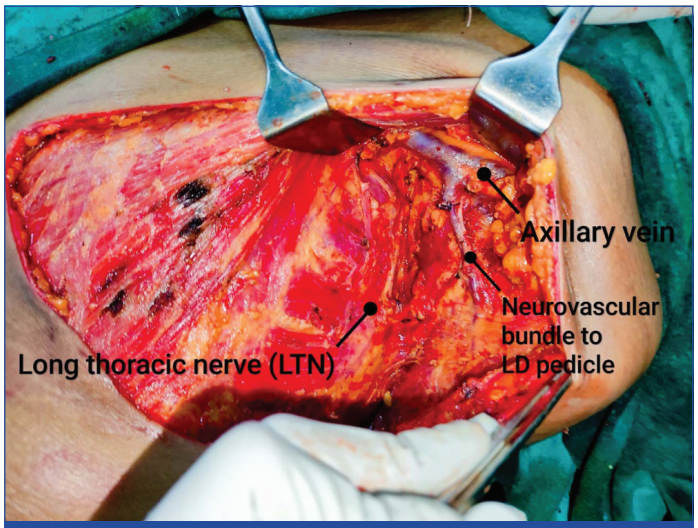


[Table/Fig-1a,b]: Photomicrographs of tissue specimens from left breast mass showing features of Invasive Breast Carcinoma of NST (moderately differentiated) (4x).

The tumour specimen exhibited an immunohistochemical profile of Oestrogen Receptor (ER) negativity, Progesterone Receptor (PR) negativity, and Human Epidermal Growth Factor Receptor 2 (HER2) positivity (score 3+).

All preoperative procedures were completed, and the patient was scheduled for a left breast MRM under general anaesthesia. A Stewart's elliptical incision was made on the left breast, including the nipple-areolar complex and tumour. Superior and inferior skin flaps were elevated. The breast tissue was dissected medially up to the lateral sternal border, laterally to the anterior border of the latissimus dorsi, superiorly to the clavicle, and inferiorly to the costal margin, extending 2 cm below the insertion of the rectus sheath.

During the procedure, key anatomical structures were preserved, including the nerve to the serratus anterior, the vessels and nerve to the latissimus dorsi, and the axillary vessels. The mastectomy was completed successfully. Operative findings revealed a 3.5×3 cm hard lump in the lower outer quadrant of the left breast, along with a few enlarged, firm lymph nodes in the left axilla. Level I and II axillary lymph node dissections were performed [Table/Fig-2].



[Table/Fig-2]: Intraoperative view of MRM with axillary lymph node dissection and preservation of vital structures.

Following completion of the MRM, the operative field was irrigated with a Betadine wash, and absolute haemostasis was achieved. Drains were placed, and primary closure was performed in layers. A sterile dressing was applied. The patient tolerated the procedure well, and the excised specimen was sent for histopathological examination. She was advised to seek further evaluation from both a medical oncologist and a radiation oncologist.

In India, breast cancer remains a leading cause of cancer-related morbidity and mortality among women. Despite increasing incidence, many patients delay seeking medical attention due to inadequate awareness regarding early signs, symptoms, and available screening programs. Breast cancer is the second most prevalent cancer among Indian women, contributing to 7% of the global breast cancer burden and accounting for one-fifth of all cancers in women in India. An estimated 90,000 new cases are diagnosed annually, with more than 50,000 deaths each year [1].

The main differential diagnoses considered were benign breast conditions such as fibroadenoma, breast cysts, and breast abscess, as well as malignant tumours such as phyllodes tumour. Benign conditions were excluded due to the absence of pain, tenderness, or significant changes in breast tissue consistency suggestive of

mastitis or fibrocystic changes [2]. Fibroadenoma was excluded as the lesion lacked the characteristic well-defined, firm, and mobile features [3]. Breast cysts were ruled out because the lump was neither fluctuant nor showed typical imaging characteristics [4]. A breast abscess was excluded due to the absence of redness, warmth, tenderness, or signs of infection [5]. Phyllodes tumour was ruled out as the mass, although sizeable, did not demonstrate rapid growth or the characteristic leaf-like architecture observed on histopathological examination [6].

Surgical treatment options for invasive breast carcinoma include lumpectomy or mastectomy, with or without axillary lymph node evaluation. A lumpectomy (breast-conserving surgery) involves removal of the tumour with a margin of healthy tissue and is usually indicated for small tumours in patients wishing to preserve the breast. Chemotherapy and radiation therapy are integral components in managing invasive breast carcinoma [7,8]. Chemotherapy targets cancer cells that may have spread beyond the breast and may be administered as neoadjuvant therapy (to shrink the tumour prior to surgery) or adjuvant therapy (post-surgery to reduce recurrence) [9]. Radiation therapy is typically recommended after lumpectomy to eradicate residual microscopic disease and may also be used after mastectomy in patients with large tumours, lymph node involvement, or other high-risk features [10].

Early detection through screening methods such as mammography and clinical breast examination is crucial for improving prognosis; however, many women still present at advanced stages. A study by Jagtap SV demonstrated that increased CD8+ expression is associated with favourable prognosis and improved overall survival, supporting the integration of immunotherapy with conventional treatment modalities to enhance survival outcomes [11].

In conclusion, the management of invasive breast carcinoma through surgical interventions such as MRM with axillary lymph node dissection and preservation of the pectoral muscles is essential for achieving optimal oncological control. This approach ensures complete removal of malignant tissue while maintaining chest wall integrity, improving postoperative recovery and quality of life [12]. Early diagnosis and personalised multimodal treatment strategies significantly influence long-term prognosis. Continued advancements in surgical techniques and integrated adjuvant therapies are crucial for improving outcomes, particularly in resource-limited settings such as India, where breast cancer incidence is steadily rising. Comprehensive care encompassing awareness, early detection, and timely intervention remains vital for reducing the overall burden of this disease [13].

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PARTICULARS OF CONTRIBUTORS:
1. Assistant Professor, Department of General Surgery, Jawaharlal Nehru Medical College, Wardha, Maharashtra, India.
2. Consultant Surgeon, Bobade Surgical Clinic, Mahinde Square, Yavatmal, Maharashtra, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Tushar Nagtode,
Assistant Professor, Department of General Surgery, Jawaharlal Nehru Medical College, Wardha, Maharashtra, India.
E-mail: dr.tusharnagtode@gmail.com

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