



Background

Sentinel lymph node biopsy (SLNB) after mastectomy has historically been considered impractical because surgical disruption of lymphatic pathways can alter drainage patterns and increase the risk of false-negative results. Under normal conditions, lymphatic flow in the breast follows a predictable route; however, prior procedures—including lumpectomy or mastectomy—can permanently redirect or obliterate these channels. As a result, SLNB in this setting has long been viewed as unreliable and potentially misleading, limiting its clinical acceptance and raising concerns about oncologic safety.

Objective

This case report evaluates the feasibility and utility of sentinel lymph node biopsy in the setting of recurrent breast cancer after prophylactic mastectomy. Secondary aims include examining the incidence and contributing factors to triple-negative breast cancer recurrence following prior estrogen receptor-positive (ER+) disease treated with prophylactic mastectomy and tamoxifen therapy, the incidence of recurrence of contralateral new breast cancer in BRCA 1/2 positive patients, and the role of tamoxifen in recurrence risk reduction.

Case Report

BC is a 65-year-old woman with a history of locally advanced ER+ right breast cancer status post prophylactic bilateral mastectomy and reconstruction 10 years earlier. She presented with a palpable mass in the left breast.

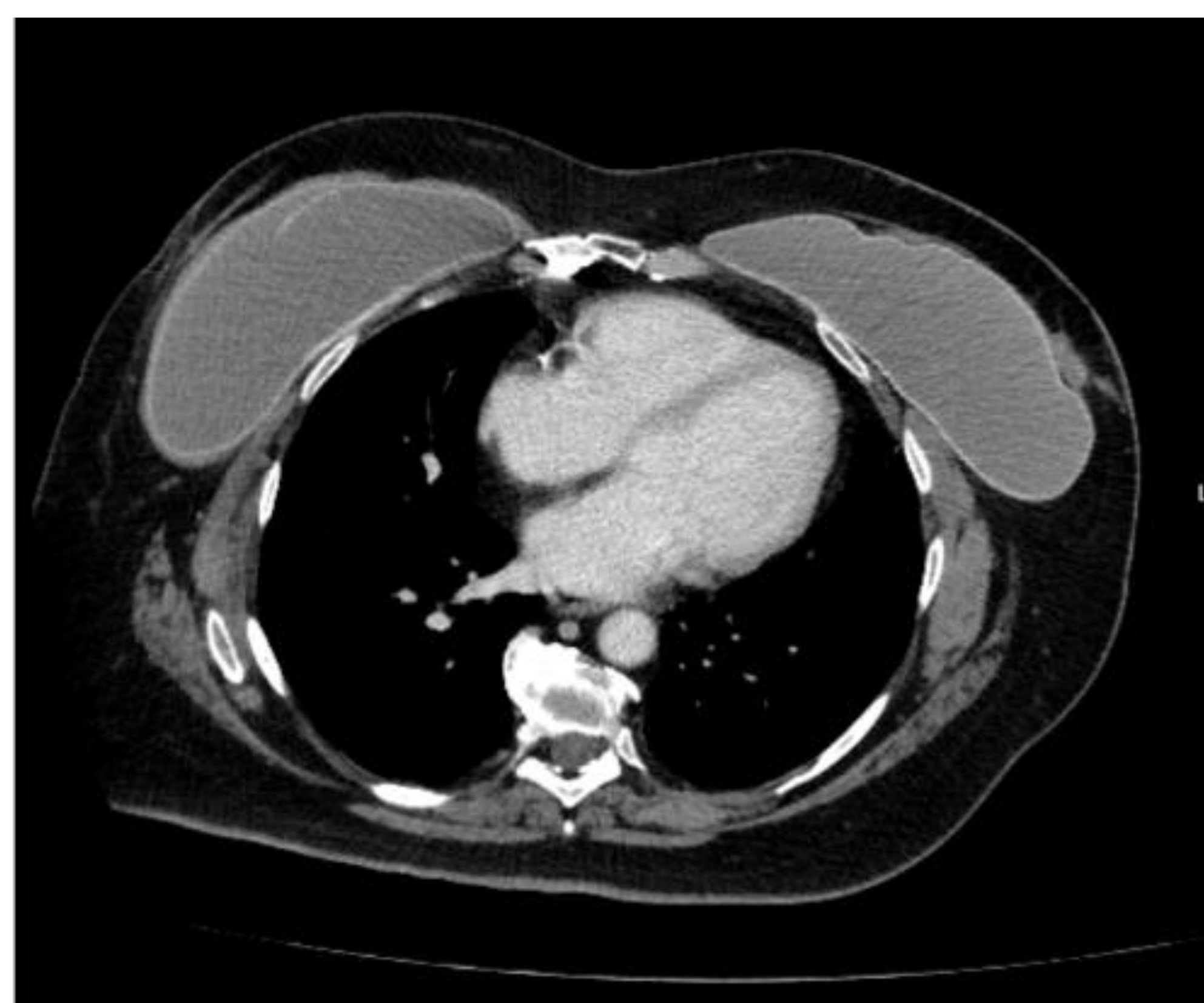


Fig. 1: CT abdomen and pelvis demonstrating 2.4 x 1.0 x 1.4cm irregular-shaped hyperechoic mass located along the anterior margin of the left breast implant

Ultrasound revealed a 2.4 x 1.0 x 1.4 cm irregular-shaped hyperechoic mass located along the anterior margin of the left implant, concerning for malignancy. Core needle biopsy pathology results demonstrated triple-negative infiltrating ductal carcinoma (IDC).



Fig 2. US demonstrating needle localization of left breast mass prior to mastectomy

Given the prior mastectomy, the utility of SLNB was debated. The patient consented to lymphoscintigraphy with SLNB, with the understanding that failure to map lymphatics would necessitate axillary radiation or lymphadenectomy. Lymphoscintigraphy successfully identified sentinel nodes, which were negative on pathology following SLNB. Subsequent ultrasound following neoadjuvant chemotherapy showed a slight decrease in mass size, and the patient will proceed with partial mastectomy with needle localization.

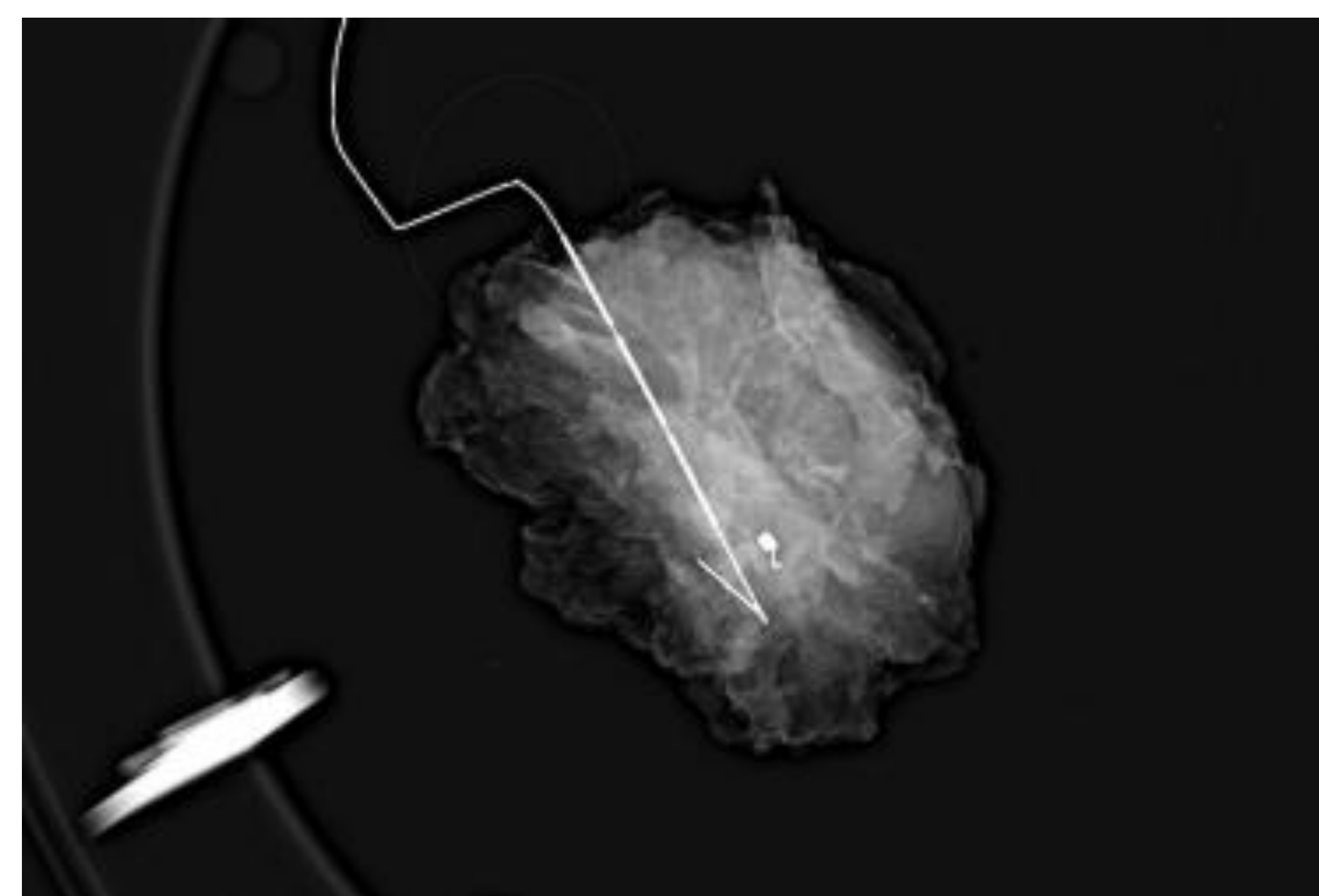


Fig 3. US post-mastectomy demonstrating mass removal

Results

This case demonstrates that SLNB was a feasible and valuable diagnostic tool, even after prophylactic mastectomy. It allows for targeted treatment planning while avoiding the morbidity associated with axillary dissection. Although BRCA-positive individuals have a higher risk of recurrence, especially with contralateral disease, recurrence with a different receptor profile (from ER+ to TNBC) is rare. However, prolonged tamoxifen use may induce estrogen resistance, potentially contributing to phenotypic transformation of recurrent disease.

Conclusions

Sentinel Lymph Node Biopsy should be considered a viable diagnostic modality even in patients with prior chest surgery, including prophylactic mastectomy, given emerging evidence that lymphatic flow does not universally preclude accurate mapping. Broader use of SLNB may be beneficial in other malignancies, such as cervical cancer. In addition, BRCA 1/2 positive patients' recurrence is more likely to present as contralateral rather than ipsilateral disease; however, prophylactic mastectomies are also more common within this patient population. Transformation from ER+ to TNBC is uncommon but may be influenced by long-term anti-estrogen therapy, such as tamoxifen. This case highlights the importance of individualized diagnostic strategies and the evolving understanding of breast cancer recurrence patterns.

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