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Case Report

Right breast cancer with contralateral left axillary sentinel lymph node detected through lymphoscintigraphy

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ABSTRACT

Altered contralateral axillary drainage is extremely rare after curative breast cancer treatment. We present a case of a 64 year-old women, with a past history of right breast invasive ductal carcinoma managed surgically by lumpectomy and right axillary lymph node dissection 20 years ago. She presented with recurrent right breast cancer and was scheduled to undergo right mastectomy along with sentinel lymph node biopsy. Technetium-99m nano colloid sentinel lymphoscintigraphy performed on the day of surgery showed sentinel lymph node on the contralateral left axilla. This case report aims to discuss the presentation of such uncommon contralateral sentinel axillary lymph nodes in patients with breast cancer and highlight the importance of considering the lymphatic obliteration after ipsilateral axillary lymph node clearance.

Keywords: Breast cancer, Sentinel lymph node, Axillary clearance

INTRODUCTION

In women, breast cancer is the most frequently diagnosed malignancy worldwide and is the second most common cause of death.[1,2] Invasive ductal carcinoma is the most common type of breast cancer, accounting for more than 90% cases.[2] The most important prognostic factor in patients with breast cancer is the axillary lymph node status.[3] Since the introduction of sentinel lymph node (SLN) biopsy, it has become the standard of care for axillary staging in breast cancer. Consequently, there has been a downward trend in the rate of un-indicated axillary lymph node dissection.[3,4] To stage the axilla in patients with breast cancer and clinically negative axillary node, SLN biopsy must be performed.[5] SLN mapping, evidenced by lymphoscintigraphy helps identify lymphatic drainage in the ipsilateral axilla in 75% cases. Extra-axillary SLN are detected in almost 25% cases. They are primarily located in the ipsilateral internal mammary chain, intra-mammary nodes, and, rarely in the contralateral axilla.[6] We report a case of a patient with breast cancer and a contralateral SLN. Such a case was encountered for the first time in our hospital.

CASE REPORT

A 64 year-old women, was diagnosed with right breast cancer 20 years ago and had undergone right breast conserving surgery and right axillary clearance. After surgery, she was administered chemotherapy, radiotherapy and tamoxifen for 3 years. During her annual follow up, a suspicious nodule at the 6 o'clock position of the right breast, graded as breast imaging reporting and data system-4 was detected. On examination of the right breast and axilla, a transverse scar was seen at 9 o'clock extending to the axilla, with no masses felt and no palpable axillary lymph nodes. The left breast had a normal shape, no palpable masses, nipple

or skin changes, and no palpable axillary lymph nodes. A Tru-cut biopsy of the right breast under ultrasound guidance showed a suspicious nodule and revealed invasive ductal carcinoma as the estrogen and progesterone receptors status was positive and the human epidermal growth factor receptor-2 status was negative.

Positron emission tomography or computerised tomography (CT), requested to complete the staging, revealed only right upper quadrant fibrotic changes with no significant fluorodeoxyglucose activity, corresponding to the pathologically proved small subcentimetric retro-areolar breast neoplasm. No hypermetabolic distant metastases were detected.

A multi-disciplinary meeting was held during, and a decision to proceed with right mastectomy and SLN biopsy was made.

On the day surgery, lymphoscintigraphy was performed with intradermal injection of single dose of 0.5 millicurie of Technetium-99m-nano-colloid (volume of 0.1 ml) at the periareolar region of the right breast. Anterior and lateral planar images acquired after 15 minutes of the injection showed initial tracer propagation through lymphatics with abnormal tracer retention at its upper outer quadrant of the right breast, corresponding to suggested area of lymphatic distortion or dilatation. More delayed planar images acquired 1 hour after tracer injection showed tracer localization at the contralateral (left) axillary node (level I), corresponding to sentinel node, which is better localized by complementary single-photon emission computed tomography (SPECT) or CT (Figures 1 and 2).

The SNL in the left axilla was excised intraoperatively; the SLN was found to be reactive with no evidence of malignancy.

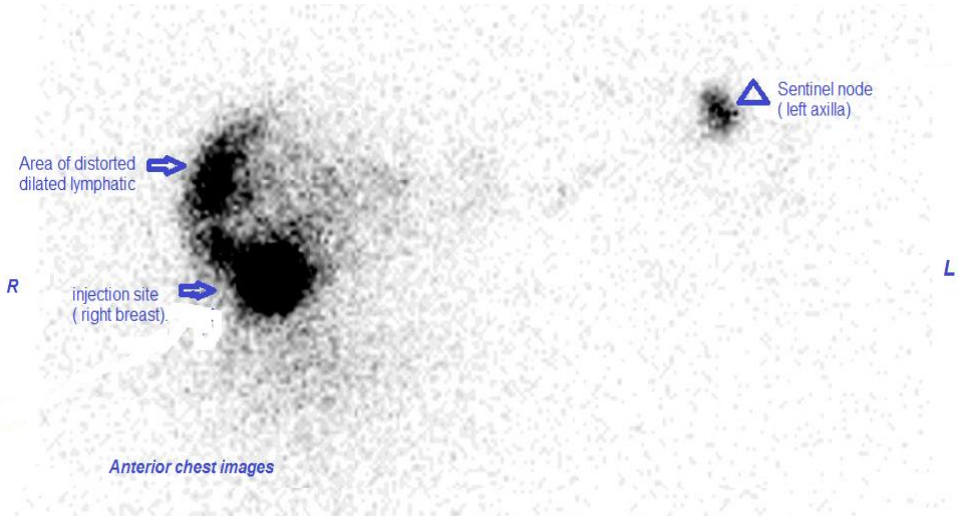

Figure 1: Anterior planar images acquired 1 hour after tracer injection showed retained activity at the likely distorted dilated lymphatic channel in the right breast (arrow) with left axillary sentinel node (arrowhead).

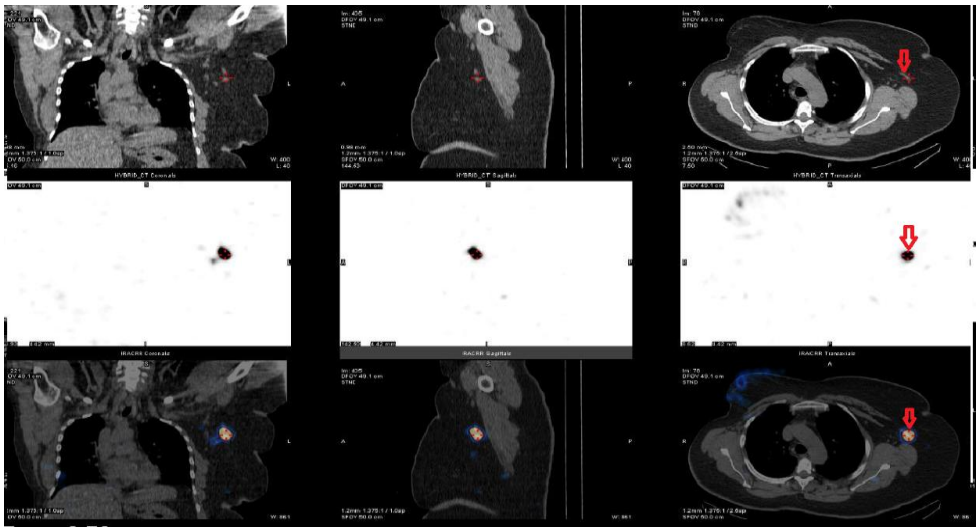

Figure 2: Upper, middle, and lower rows from right to left coronal, sagittal, and axial CT, SPECT, and fused SPECT/CT images, respectively, localizing the sentinel node at left axilla (level I).

DISCUSSION

In about 25% of breast cancer cases in which SLN mapping was performed, lymphatic drainage was found in the extra-axillary site rather than is the most common site, the ipsilateral axillary lymph node.[6]

Histopathological assessment and evaluation of the contralateral axillary SLN if detected in a patient with breast cancer is essential as it may be the primary site of lymphatic drainage and further treatment can be tailored based on the results. A positive contralateral axillary lymph node is considered distant metastasis (M1). However, if asymptomatic metastasis is discovered after examining the SLN microscopically then it is considered primary node staged as pN1.[6] Contralateral axillary lymph node metastases accounts for only 3.5-6% breast cancer.[7]

Alteration of the lymphatic drainage from ipsilateral axilla to extra-axillary sites is expected after breast or axillary surgery, as in our case, and most commonly to the internal mammary chain followed by intramammary, subclavicuar, interpectoral and supraclavicular lymph nodes, unlike our case, where the SLN found to be in the contra lateral axilla.[4,5]

SLN mapping through lymphoscintigraphy in patients who have previously undergone breast or axillary surgery can show altered lymphatic drainage to the contralateral nodal basins including the contralateral axilla, internal mammary chain, and supraclavicular regions.[8,9]

SLN biopsy will provide an accurate image of other axillary lymph nodes, sparing the patient from unnecessary axillary lymph node dissection, as SNL biopsy has an extremely low false negative rate.[3]

Compared to SNL biopsy, axillary lymph node dissection is associated with higher complication rate and can affect patients quality of life as the most common complication of axillary lymph node dissection is upper limb lymphedema, affecting up to 25% patients.[3]

CONCLUSION

Development of new lymphatic pathways after breast and axillary surgeries or radiotherapy is expected. However, the detection of SNL on the contralateral axilla is rare. Careful assessment and evaluation of patients with breast cancer who have undergone surgery and radiotherapy are essential to avoid missing the newly performed lymphatic draining channels which may affect the outcome of the treatment provided. Routine lymphoscintigraphy should be considered in such patients, as it can change the disease stage and management.

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