

Contralateral axillary involvement in breast cancer recurrence: locoregional disease or metastasis?

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Summary

We describe a case of right mammary homolateral recurrence with contralateral axillary invasion. The absence of occult involvement of the left breast was confirmed by MRI. A subsequent thoraco-abdomino-pelvic scan and bone scintigraphy did not reveal any metastases. Lymphoscintigraphy of the right breast, after periareolar injection, revealed lymphatic drainage from the right breast into the left contralateral axillary lymph node. Because of the changes in axillary drainage after mammary and axillary surgery observed by lymphoscintigraphy, contralateral axillary involvement could be considered as locoregional disease in the same way as homolateral lymph node involvement.

Key words: Breast cancer; Contralateral axillary recurrence; Lymphoscintigraphy; Metastasis.

Introduction

Contralateral axillary invasion is rare in patients who have been treated for cancer of the opposite breast [1]. According to the TNM classification, contralateral involvement is considered as metastasis, with the cancer crossing the midline. Systemic treatment only is usually indicated [1]. In the case of histologically-proven homolateral mammary recurrence, modification of lymphatic drainage after axillary dissection could change our interpretation of contralateral axillary involvement.

We describe a case of contralateral axillary involvement that was directly related to homolateral mammary recurrence proven by lymphoscintigraphy.

Case Report

Our patient was a 56-year-old woman with a previous history of cancer of the right breast in 1996. The cancer was diagnosed as invasive ductal carcinoma, SBR grade 2, infiltrating 2.5 cm of the upper outer quadrant, and was hormone-sensitive. Conservative treatment was carried out. Axillary dissection included three positive lymph nodes out of 13. Chemotherapy, and external radiography of the breast and subclavicular and internal mammary lymph node areas were also carried out. Hormone therapy with tamoxifen was contraindicated because of a history of pulmonary embolism.

During a follow-up consultation in 2009, a retroareolar nodule was palpable in the right breast, as well as suspected contralateral macroadenopathy. Mammography findings were classified as ACR BI-RADS™ 5. A mammary biopsy confirmed homolateral breast recurrence and a biopsy of the left lymph node confirmed contralateral axillary involvement.

A subsequent thoraco-abdomino-pelvic scan and bone scintigraphy did not reveal any metastases. Breast magnetic resonance imaging (MRI) confirmed the presence of homolateral right intramammary recurrence, with early and intense gadolinium enhancement on T1-weighted sequence. Moreover, there

was no uptake of contrast in the left breast (Figure 1). Thus the absence of occult involvement of the left breast was confirmed by MRI after mammography and echographic investigations.

Axillary transaxial SPECT-CT lymphoscintigraphy of the right breast, after periareolar injection of 1 mCi of technetium-labelled nanocolloids, revealed lymphatic drainage from the right breast into the left contralateral axilla, with labelling of several lymph nodes (Figure 2). Labelling of the macroadenopathy was weak compared to that of the other lymph nodes identified (Figure 2B).

Right mastectomy and left axillary dissection were subsequently carried out. A definitive anatomopathological examination confirmed right homolateral breast and bifocal recurrence, which was comparable to the histology of the original cancer. In the left axillary area, 7/15 lymph nodes were positive, including a 4 cm bulky lymph node.

Chemotherapy and radiotherapy of the left subclavicular lymph nodes were subsequently carried out.

Discussion

Lymphoscintigraphy, complemented by mammary MRI, enabled us to correlate left lymph node involvement with right mammary recurrence. In this way it was possible to eliminate an adenopathy originating from a second occult homolateral cancer.

According to the TNM classification, contralateral axillary invasion is considered to be a distant metastatic event (M1) [2]. The use of lymphoscintigraphy on sentinel lymph node identification has enabled several authors to observe direct drainage of the breast towards the contralateral axillary lymph nodes. Lymphoscintigraphy before sentinel lymph node removal enables the establishment of a precise lymph node cartography and visualization of atypical lymphatic drainage of the tumour in some cases [3]. The rate of detection of extra-axillary drainage is around 20% [4, 5]. Localisation of the internal mammary lymph node chain is the most frequently detected extra-axillary labelling, with a frequency between 1-13% [5]. The detection of subclavicular drainage remains rare (< 2%) [4].

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Figure 1. — Axial breast magnetic resonance imaging with gadolinium injection.

Contralateral axillary labelling is exceptional in cases of breast cancer without a history of mammary surgery. Several clinical cases report synchronous bilateral axillary labelling [6, 7]. Localisation in the internal quadrants of the breast favours this atypical lymph node drainage [8]. Barranger *et al.* described the first case of exclusive contralateral axillary labelling without homolateral axillary drainage in a patient with a history of breast reduction 35 years previously [9].

Mammary lymphatic drainage is noticeably modified after axillary dissection. In the case of homolateral breast cancer recurrence treated by tumourectomy and axillary dissection, preoperative lymphoscintigraphy reveals exclusive contralateral axillary drainage in up to 25% of cases [10-12]. The main hypothesis for this atypical lymphatic drainage is based on modification of the lymphatic circulation after surgery. Interruption of the axillary lymphatic channels after axillary dissection leads to the creation of an alternative lymphatic circulation or collateral pathways that are the origin of atypical mammary drainage [1]. The two main routes of dissemination are through the lymphatic plexus of the deep fascia of the thoracic wall and the dermal lymphatics crossing the midline [13].

Because of the contralateral collateral axillary lymphatic pathway demonstrated by lymphoscintigraphy in our patient, it was considered that this was locoregional disease. Consequently, treatment was implemented combining surgery, chemotherapy and radiotherapy. If the TNM classification of stage rT1N0M1 had been respected strictly, only systemic treatment would have been indicated.

In the case described, further examinations consisting of thoraco-abdomino-pelvic scans and bone scintigraphy

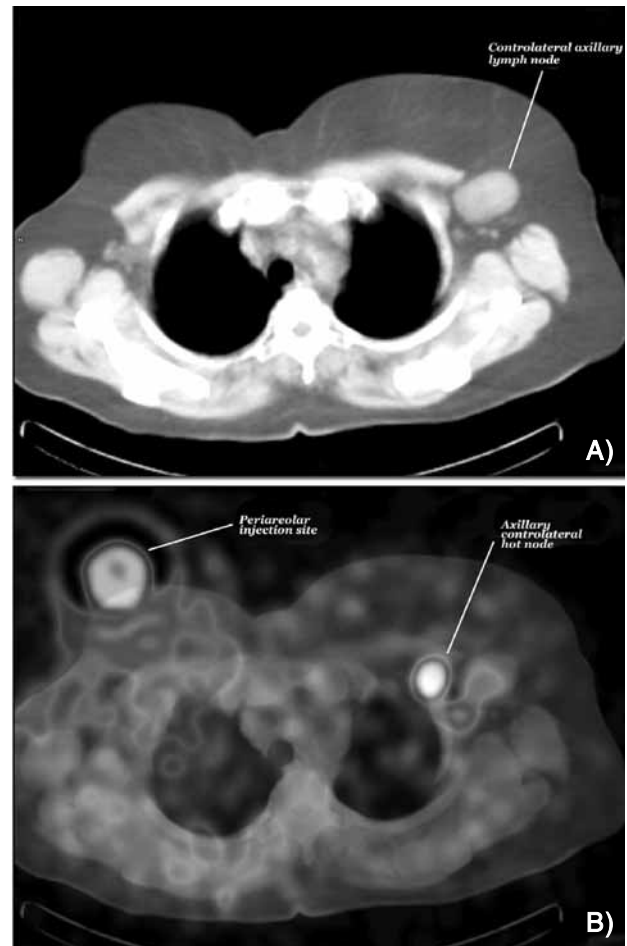


Figure 2. — Axillary transaxial SPECT-CT lymphoscintigraphy. Same slice of axillary node in CT (A) and SPECT fused with CT (B), 2 h after injection of 1 mCi ^{99m}Tc nanocolloids in the periareolar breast.

were negative. The failure to carry out a preoperative PET scan, the most sensitive examination for the detection of metastases [14], can be criticised, but does not alter the problem of interpretation of contralateral axillary involvement. Because of the changes in axillary drainage after mammary and axillary surgery observed by lymphoscintigraphy, contralateral axillary involvement could be considered as locoregional disease in the same way as homolateral lymph node involvement. Thus, a stage N4 in the TNM classification can be proposed, characterised by contralateral lymph node invasion that has a direct relationship with the tumour proven by lymphoscintigraphy.

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