Axillary masses in a woman with a history of breast cancer: Dermatopathic lymphadenopathy

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1. Introduction

The presence of axillary enlarged lymph nodes in the follow-up of a woman with a history of breast cancer should always be thoroughly investigated. Axillary nodes larger than 1.5 cm that do not contain a fatty hilum may be considered abnormal [1]. In a series evaluating axillary abnormalities, the most frequent cause of axillary adenopathy was nonspecific benign lymphadenopathy (29% of cases), followed by metastatic breast cancer (26%) and chronic lymphocytic leukemia or well differentiated lymphocytic lymphoma (17%). Other causes included collagen vascular disease, lymphomas other than well-differentiated lymphocytic lymphoma, metastatic disease for primary site other than breast, sarcoidosis, human immunodeficiency virus-related lymphadenopathy, psoriasis and reactive lymphadenopathy associated with a breast abscess [2].

Reactive axillary nodal enlargement is common after breast biopsy [3]. It is also frequently seen after infection or inflammation of the upper extremity or breast. When nodal enlargement without an obvious cause is seen and the node maintains a benign appearance, no further intervention is usually needed other than correlation with clinical findings to exclude worrisome palpable axillary adenopathy [2].

Follow-up mammography is a reasonable alternative to biopsy if the patient has no history of malignancy, the amount of increase in nodal size is small and the node maintains a benign appearance.

In a study by Lee et al. [4] considering patients who had unilaterally enlarging axillary or intramammary lymph nodes or otherwise normal mammograms, the majority of those who...
underwent unilateral follow-up mammography 6 months later showed a decrease in the size of the enlarged nodes.

If a mammographically benign-appearing mass is identified in the outer breast in association with infection or dermatitis, dermatopathic lymphadenitis should be considered [5]. A size increase of 100% or more over baseline size and morphologic features such as change in shape, spiculation of the margins, loss of a radiolucent center or hilar notch and increase in density should increase the degree of suspicion for malignancy [4].

Homogenously dense axillary lymph nodes were strongly associated with malignancy when they were longer than 33 mm, had ill-defined or spiculated margins or contained intranodal microcalcification and the patient had no history of gold therapy for rheumatoid arthritis [2].

In a study conducted to evaluate mammographic findings in breast infection and biased to include those patients with more severe inflammation, abnormally dense and enlarged lymph nodes were not observed in any case, although not all axillary lymph nodes were visualized at mammography [6].

The primary tumor within the breast is usually depicted mammographically when lymph nodes enlarge because of metastatic breast cancer [7]. However the tumor may be occult [7,8].

Normal US appearance of a lymph node is that of a hypoechoic mass with well-circumscribed margins and a fatty echogenic hilum. With malignancy, the fatty hilum may be lost, the shape may become irregular and calcifications can be seen [9]. The presence of nodal spiculation suggests an aggressive tumor [10].

2. Case report

We report a case of a 65 years old woman who underwent left upper-outter quadrant quadrantectomy and axillary dissection for breast cancer in 2005. At a follow-up mammography performed in September 2013, she presented some enlarged lymph nodes at the level of the contralateral axilla.

Axillary masses appeared as mobile, nontender, firm subcutaneous nodules at physical examination. No masses were present at both breasts examination.

No skin lesions were present at the level of both upper limbs and breasts. No alterations were present at blood laboratory examinations.

Mammographic appearance of the lymph nodes did not show any change in shape, spiculation of the margins, intranodal microcalcification, but they appeared as homogenously dense, without a radiolucent center and one of them measured more than 35 mm (Fig. 1).

No suspect densities or masses were described at the level of both breasts at mammography.

Ultrasonography showed right axilla enlarged hypoechoic masses with well-circumscribed margins and fatty echogenic hilum, one lymph node measuring 34.1 mm (Fig. 2).

In relation to the breast cancer history of the patient lymph node cytology was performed.

Cytology revealed reactive paracortical hyperplasia with vascular proliferation and eosinophil granulocytes infiltration, with an increased number of interdigitating dendritic cells and Langerhans cells and negative immunocytochemistry staining for CK-Pan.

Cytology diagnosed a dermatopathic lymphadenopathy, in the absence of clear cutaneous involvement. The patient had a history of psoriasis, without any skin lesion at the moment of the lymphadenopathy diagnosis.

Only clinical, mammographic and ultrasonographic follow-up was requested for the patient, who shows a stability of the clinical and imaging findings at one year from diagnosis.

3. Discussion

Dermatopathic lymphadenopathy (DL) was originally described by Pautrier and Woringer in French in 1937 but the name dermatopathic lymphadenitis was coined and published in English by Hurwitt in 1942 [11].

Dermatopathic lymphadenopathy is a benign process with a specific pathologic pattern found within the lymph nodes and is usually associated with cutaneous rashes.

Patients with various skin conditions can develop regional lymphadenopathy, which can result in the asymptomatic enlargement of the lymph nodes, especially in the inguinal, axillary and cervical regions. The lymph nodes are generally mobile, nontender, firm subcutaneous nodules.

![Fig. 1. Ultrasonography showing an enlarged (34.1 mm) hypoechoic mass with well-circumscribed margins and fatty echogenic hilum at the level of the right axilla.](image1)

![Fig. 2. Mammographic oblique view of the right breast showing homogenously dense enlarged axillary masses.](image2)
Dermatopathic lymphadenopathy can be seen in patients with extensive dermatitis, particularly in those with exfoliative dermatitis [12]. It is also found in patients with erythroderma, psoriasis, atopic dermatitis and infectious rashes such as those of fungal origin [13]. Peripheral blood eosinophilia can be present; sometimes with a percentage as high as 35% [2].

Rarely DL can be seen in patients with minimal cutaneous findings [14], such as in our patient, who only presented a light form of psoriasis years before and who did not present any skin lesion at the moment of lymphadenopathy diagnosis. Histopathologic findings in dermatopathic lymphadenopathy are characteristic [14]. In almost all cases, the follicular pattern is retained. The germinal centers are usually slightly enlarged and surrounded by a rim of lymphocytes. The most conspicuous feature is the enlarged paracortical area, appearing as pale patches because the majority of cells are macrophages and pale-staining cells of three types: lymphocytes, Langerhans cells and interdigitating reticulum cells [12,14]. Pigment is usually seen in the cytoplasm and in extracellular deposits [14].

In a large series of consecutive lymph node biopsy specimens, Cooper and colleagues diagnosed DL in 4.8% of specimens [15]. DL occurred twice as often in males as in females and most patients had associated skin disease. However 12% of patients in their study had no clinical evidence of skin disease and similar experience is reported by others [15,16]. The benign skin diseases commonly associated with DL are often exfoliative or eczematoid: toxic-shock syndrome, pemphigus, psoriasis, neurodermatitis, eczema and atrophia senilis [11–17]. Skin disease is often present month to years before lymph node is performed [11]. Gould and colleagues studied over 1000 axillary lymph nodes from 50 consecutive radical mastectomy specimens performed in women with breast cancer [16]. They identified mild to moderate dermatopathic changes in approximately 15% of lymph nodes, but only one patient had active skin disease (contact dermatitis) [17]. Thus, mild dermatopathic changes do not correlate as well with skin disease as full-blown DL. In addition, DL does not always correlate with contemporary skin irritation and sometimes may reflect a history of dermatitis that has healed [17].

Dermatopathic lymphadenopathy is also a common reaction pattern in patients with mycosis fungoides (MF) and Sezary syndrome (SS). Approximately 75% of patients with MF/SS have palpable lymphadenopathy at time of diagnosis [17], explained by the presence of DL, MF/SS or a combination of both. The presence of dermatopathic lymphadenopathy in MF/SS patients correlates with a poorer prognosis, regardless of histologic findings (i.e. DL vs. MF/SS) [17]. Possibly, this may be true because it is difficult to distinguish DL from early or minimal involvement by MF/SS. Several studies have attempted to make this distinction in lymph nodes. In cases in which involvement by MF/SS is extensive, or MF/SS focally replaces lymph node architecture, DL and MF/SS can be distinguished reliably [17]. However most authors have concluded that minimal histologic evidence of MF/SS in draining regional lymph nodes is not characteristic and that confident distinction between DL and minimal involvement by MF/SS cannot be made using histologic criteria [16–17]. Molecular studies allowing detection of a monoclonal T-cell population can be helpful in identifying minimal MF/SS in lymph nodes; however, the clinical significance of a small monoclonal T-cell population in the absence of obvious histologic involvement is not well established [28].

In the follow-up of a breast cancer patient the possibility of a dermatopathic lymphadenopathy should always be considered in the differential diagnosis with a metastatic involvement of axillary lymph nodes, even when clear dermatologic lesions are not present.

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Nicola Rocco: Participated substantially in conception, design, and execution of the study and in the analysis and interpretation of data; also participated substantially in the drafting and editing of the manuscript.
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List of abbreviations
DL dermatopathic lymphadenopathy
MF mycosis fungoides
SS Sezary syndrome
CK cytokeratin

References