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CASE REPORT

Infiltrating Ductal Carcinoma of the Breast, Metastatic to Axillary Lymph Nodes Harboring Primary Tuberculous Lymphadenitis

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A 46-year-old female presented with lump in the left breast. Fine-needle aspiration cytology (FNAC) from breast and axillary lymph node revealed infiltrating ductal carcinoma with metastasis in axillary node. The patient underwent radical mastectomy with axillary lymph node dissection. Histopathological examination showed concomitant presence of metastatic tumor deposits and tubercular lymphadenitis in 8/18 nodes. The case is presented for its rarity and illustrates that FNAC can fail to detect mixed lesions unless multiple punctures from many sites are performed. (Pathology Oncology Research Vol 12, No 3, 188–189)

Key words: breast cancer, infiltrating ductal carcinoma, tuberculous lymphadenitis, metastasis

Introduction

The association between breast cancer and tuberculosis has been reported before,[1-4] but the coexistence of metastatic breast cancer in primary tubercular lymph nodes is extremely rare with only two cases reported in the literature.[5,6] We report a case of infiltrating ductal carcinoma of the breast, metastatic to axillary lymph nodes harboring tuberculous lymphadenitis, wherein no evidence of tuberculosis was found elsewhere.

Case report

A 46-year-old female presented with a lump in her left breast first noticed 4 months back, which was now rapidly increasing in size. There was no family history of breast disease or any history of taking oral contraceptives or estrogen therapy. Examination of the breast lump revealed a large, irregular mass measuring 8x6 cm in size, movable, hard in consistency and occupying the central and upper outer quadrant. The overlying skin, areola and nipple were uninvolved. Two lymph nodes were palpable in her left axilla, the larger being 1.5x1 cm and smaller one about 1x0.5 cm, and both were slightly tender on palpation. Right breast and axilla were unremarkable. General examination did not show any clinical evidence of cutaneous tuberculosis. Supraclavicular, cervical or inguinal lymph nodes were not palpable. The patient was referred for FNAC with the clinical diagnosis of carcinoma of the left breast with axillary lymph node involvement and clinical stage III ($T_3N_2M_0$). FNAC from the breast mass showed tumor cells arranged in sheets, clusters and acinar form and displaying large nuclei with irregular nuclear membrane, anisonucleosis and prominent nucleoli. FNAC from the clinically significant axillary lymph node showed the presence of similar sheets and groups of malignant tumor cells against clean lymphoid background (*Figure 1*). The cytological diagnosis was carcinoma of the left breast with metastasis to the left axillary nodes.

The preoperative workup consisted of a hemogram, ESR, chest X-ray and ultrasound examination of the abdomen. ESR was 38 mm/h, while other investigations were within normal limits. The patient was subjected to left radical mastectomy.

Pathological examination

The radical mastectomy specimen consisting of overlying elliptical skin flap, areola and nipple measured 20x14x7 cm. On serial sectioning of the mastectomy specimen, a grayish-white, solid tumor measuring 6.5x4.5 cm in size was identified. The tumor was 0.5 cm away from the skin, nipple and areola. Excluding this tumor no other lesion was noticed. A total of 18 lymph nodes were identified, 2 from the axillary tail, 6 from level I and 10 from level II.

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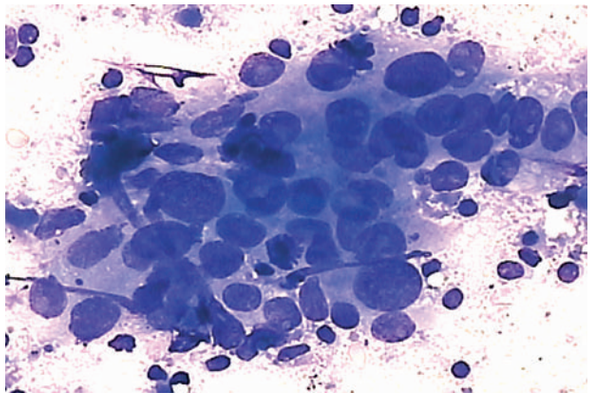

Figure 1. *Lymph node aspirate showing a group of malignant ductal epithelial cells. (Giemsa, x400)*

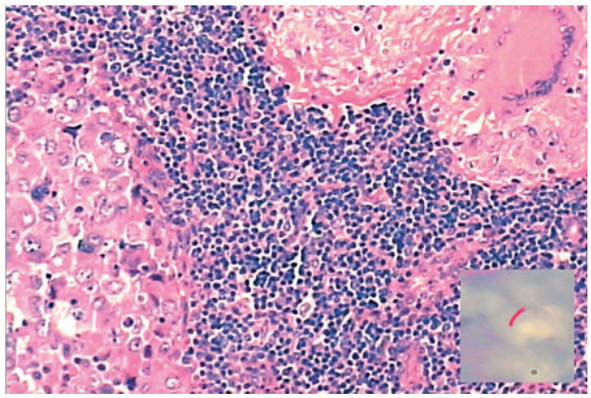

Figure 2. *Photomicrograph of lymph node showing metastatic deposit, tuberculous granulomas (H&E, x400) and acid-fast bacillus (insert)*

Microscopic examination of the tumor showed sheets, clusters and duct-like arrangement of malignant tumor cells with large vesicular nuclei containing prominent nucleoli and suggestive of infiltrating ductal carcinoma. Of the eighteen lymph nodes, metastasis was seen in five, tuberculous lymphadenitis in four and reactive hyperplasia in one. The remaining eight lymph nodes showed coexistent breast tumor deposits and tuberculous lymphadenitis in the form of epithelioid cell granulomas with Langhans' giant cells (*Figure 2*). Caseous necrosis was seen in three nodes one of which showed occasional acid-fast bacilli on Ziehl-Neelsen stain.

Since preoperatively tuberculosis was not suspected, Mantoux test, culture, serology or polymerase chain reaction were not performed. As a few acid-fast bacilli were demonstrated in the caseating tuberculous lymph nodes, the patient was started on antituberculosis therapy along with 3 cycles of chemotherapy consisting of cyclophosphamide, methotrexate and 5-flurouracil (CMF). The patient was lost to follow-up after 3 cycles of chemotherapy, thereby preventing any further analysis.

Discussion

Tuberculous lymphadenitis is the commonest form of extrapulmonary tuberculosis with involvement of cervical, axillary and inguinal lymph nodes. Although axillary tuberculous lymphadenitis secondary to BCG vaccination or pulmonary and cutaneous tuberculosis is not uncommon in children, primary or isolated axillary lymph node involvement in adults without clinical evidence of any other organ or systemic involvement is extremely rare. When it is impossible to pinpoint any source of infection, the only possible explanation of tuberculosis limited to lymph nodes could be either a retrograde spread from the mediastinal nodes, or hematogenous spread from a subclinical focus which was not picked up by routine investigations.

The unique pathological combination of tuberculosis and breast cancer existing in the same patient was first described in 1899 by Warthin[2] and later by other authors.[3,4] An even rarer presentation is when breast cancer metastasizes to tuberculous lymph nodes. Das et al[5] reported a case of colloid carcinoma of the breast, while Pandey et al[6] reported infiltrating ductal carcinoma metastatic to axillary nodes containing tuberculous foci. No evidence of tuberculosis was detected elsewhere in these patients. In the present case, of the eighteen lymph nodes isolated, a plethora of pathological findings ranging from reactive hyperplasia, tuberculosis, metastasis and a combination of tuberculosis and metastasis were noticed. With occurrence of such varied pathology in lymph nodes, there is a possibility that mixed lesions can be missed causing grievous diagnostic pitfalls or complications in the staging of the neoplastic disease.

Conclusion

The present case is a coincidental but noteworthy example illustrating that such a possibility of coexistent disease should always be kept in mind, especially in endemic regions. The case also highlights the usefulness of making multiple needle punctures at all the palpable lymph nodes while taking smears for FNAC.

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