Case Report

Metachronous presentation of breast sarcoma following carcinoma: A rare occurrence

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ABSTRACT

Occurrence of bilateral breast neoplasms with same or different histology is rare. It can occur as synchronous (diagnosed within 3 months) or metachronous (separate occurrences) lesions. Breast sarcomas are the most unusual of all breast malignancies. Here, we have reported a case of a 50-year-old postmenopausal lady with metachronous presentation of breast neoplasms of different histology. Right breast ductal carcinoma (stage 3c), followed by left breast sarcoma (size 45 × 34 cm) diagnosed at an interval of 6 years. Modified radical mastectomy was done for both breasts, followed by adjuvant therapy.

Key words: Breast, carcinoma, metachronous, sarcoma

INTRODUCTION

The risk of development of bilateral breast cancer is about 1% every year within a similar histological type.[1] Bilateral breast neoplasm of two different histological types: Epithelial and mesenchymal is rare. Primary breast sarcomas, a heterogeneous group of malignant mesenchymal neoplasm, are infrequent tumors and represent about 0.5% of all breast tumors.[1] This is a case of sarcoma that occurred in the left breast following the treatment of ductal breast carcinoma in the right breast.

CASE REPORT

A 50-year-old postmenopausal lady presented with huge mass in the left breast. It started with a small nodule that grew rapidly and became painful. She stated that she had an operation of the right breast followed by radiotherapy 6 years ago at our hospital and she had lost all documentation of the case. On examination, it was a firm multinodular mass with reddening and edema of overlying skin. There was no axillary involvement or any signs of distant metastasis. Fine needle aspiration cytology was done to reveal a malignant spindle cell tumor [Figure 1]. She underwent modified radical mastectomy along with pectoralis major muscle resection with primary wound closure.

On gross examination, it was a mass of size 65 × 54 mm with variegated appearance on cut section.

Histopathological examination of the specimen revealed a neoplasm composed of pleomorphic spindle cells arranged in short fascicles and bundles [Figure 2]. Focal area of necrosis was seen and mitotic count was high. Epithelial elements were absent. Immunohistochemistry was done with estrogen and progesterone receptor to rule out malignant phylloides. Immunohistochemistry done with pan-cytokeratin was negative, which ruled out metaplastic carcinoma. Tumor cells showed strong Vimentin positivity [Figure 3]. Therefore, the tumor was diagnosed as a high-grade undifferentiated sarcoma. Deep resection margin was free of tumor.

The information about previous operation was retrieved from the records section. As per records, it was found that her previous (right) breast lump was T4bN3MO, fungating growth in outer inferior quadrant of right breast with multiple large matted axillary lymph node and right supra-clavicular lymphadenopathy. Modified radical mastectomy for right breast lump was done on December 19, 2006. Histopathology report was infiltrating ductal carcinoma with axillary lymph node involvement. The nipple was free of tumor. She received postoperative radiotherapy-50 Gyrus in 25 fractions given from

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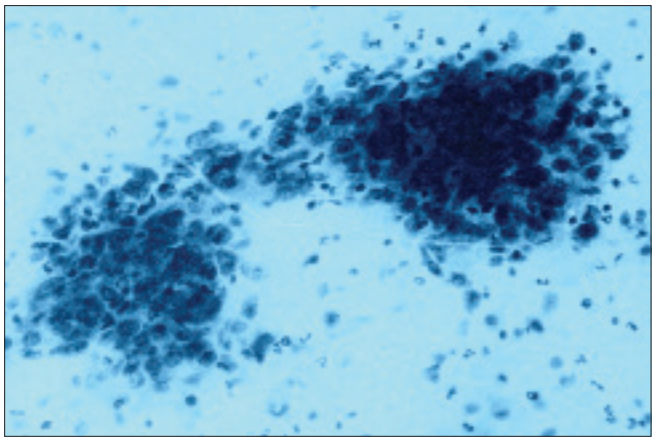

Figure 1: Fine needle aspiration cytology reveals pleomorphic malignant cells embedded in scanty stroma in an inflammatory background (PAP, ×400)

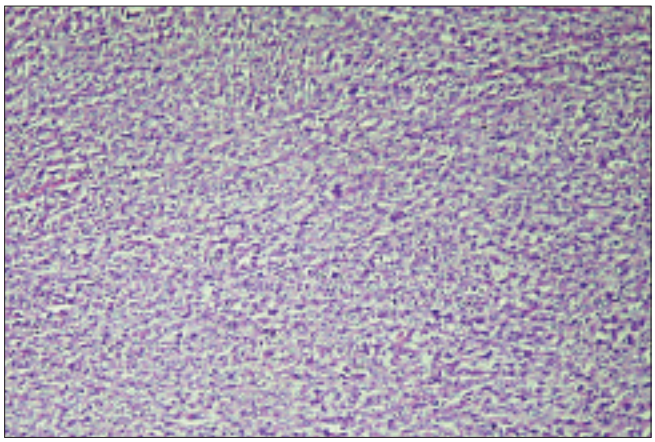

Figure 2: Histopathology showing pleomorphic spindle cells (H and E, ×40)

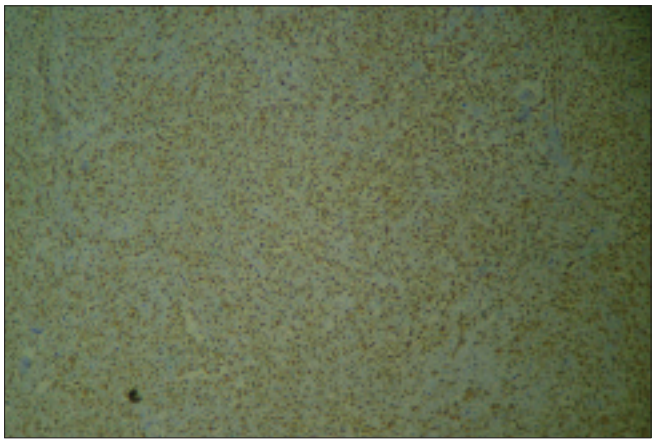

Figure 3: Immunohistochemistry with Vimentin showing strong cytoplasmic positivity (Vimentin, ×40)

August 2, 2007 to September 8, 2007 of supra-clavicular field only on each side. She was given chemotherapy CAF regimen: Cyclophosphamide (700 mg/m^2), Adriamycin (60 mg/m^2), and 5-Fluorouracil (750 mg/m^2).

Only one cycle of chemotherapy was received on March 20, 2007. She could not continue further due to financial problems. Since she was non-compliant with chemotherapy, she was prescribed Tamoxifen, 20 mg once daily, for 5 years.

There was no sign of recurrence or metastases at 1-year follow-up as per records. The patient was well and therefore did not visit for subsequent follow-ups.

DISCUSSION

The case draws attention for three reasons: First, being a sarcoma that comprises less than 1% of cases of breast cancers;[2] second, for its metachronous presentation, and, third, being two different histological entities.

The incidence rate of contralateral breast cancer varies from 4-8/1000 person-years. The more frequent histological type is the ductal carcinoma (70-80%), followed by lobular carcinoma.[3] The risk factors for breast carcinoma are age, early menarche, late menopause, nulliparity, late first pregnancy, medical history, family history, BRCA1 and BRCA2 mutation, previous thoracic external radiotherapy, use of high doses of estrogen, and progesterone hormones.[1] There may be shared risk factors between the first and second primaries (e.g., a family history of breast cancer) or risk factors can be unique to the second primary such as radiotherapy.[4] The important risk factor in the present case is possibly external radiotherapy.

Sarcomas are a heterogeneous group of solid tumors of mesenchymal origin, being more common in the extremities (in approximately 50% of the cases). Risk factors for sarcomas are X-ray, von Recklinghausen's disease, Gardener syndrome, Werner syndrome, or Li fraumeni syndrome.[1] The diagnosis of the sarcomas in the breast is reported in the same histogenetic terms as soft part sarcomas that occur elsewhere. But, the term stromal sarcoma is used for tumors that occur in the specialized stroma of the breast.[5]

Patients treated by radiation for breast cancer have a risk of subsequent sarcomas that is higher than in the general population. The cumulative incidence of sarcoma following irradiation of breast cancer is 0.2% at 10 years in the field of radiation.[6] But, it is said that the benefit from adjuvant radiation therapy exceeds the risk of second cancer.[7]

Tumor size varies from 1 to 20 cm. The most commonly described tumors include fibrosarcomas, liposarcomas, and undifferentiated high-grade sarcoma.[5] The present case was diagnosed as undifferentiated high-grade sarcoma. Spread of tumor occurs by direct invasion or hematogenous metastasis. The incidence of actual node metastasis appears to be very low.[8] Our patient did not have any metastasis.

In a study of 33 cases of primary breast sarcoma, the metastasis-free survival rate was significantly correlated only with the histological grade, which consisted of the tumor differentiation, presence of tumor necrosis, and mitotic activity. All the local recurrence, metastasis or death occurred within 30 months, although the follow-up was much longer. Performing immunohistochemistry has been reported as disappointing for identifying the specific histological sub-types.[9] The prognosis is usually based on the size of the tumor and the histological grade.[10]

High histological grade is an adverse prognostic factor. However, there is relatively favorable prognosis of mammary sarcoma when compared to soft tissue and retroperitoneal sarcomas which may be due to the small median size of these easily detected superficial lesions and the fact that wide local excision of breast tumors can be easily accomplished.[5]

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