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CASE REPORT

Angiosarcoma of the breast which was developed after radiotherapy: case presentation

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Abstract

***Objective*:** For the patients who underwent breast conserving surgery because of breast cancer; radiotherapy is given routinely to residual breast tissue as complementary treatment. In this article; breast sarcoma case, which was developed after radiotherapy, was discussed in a patient to whom breast conserving surgery was done.

***Method*:** Breast-conserving surgery and axillary lymph node dissection was performed to sixty-one years old female patient due to invasive ductal carcinoma of the right breast diagnosis for about 5 years ago. Adjuvant chemotherapy and radiotherapy was applied to the patient. At 5th year of follow-up; mastectomy was performed due to residual malignant mass in breast tissue and the patient's pathology result was reported as a high-grade spindle cell angiosarcoma. First-line chemotherapy was given and the patient died 16 months after diagnosis.

***Conclusion*:** Post radiation sarcoma is one of the rare occasions which should be kept mind and its clinical presentation may interfere with breast cancer recurrence in the patients who underwent breast-conserving surgery.

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Introduction

Primary sarcomas of the breast are rare. For the patients who underwent breast conserving surgery (BCS) because of breast cancer; radiotherapy (RT) is given routinely to residual breast tissue as complementary treatment. Sarcomas can be seen as a rare complication secondary to RT. In this article, breast sarcoma case, which was developed after RT, was discussed in a patient to whom BCS was done.

CASE: Breast-conserving surgery and axillary lymph node dissection was performed to 61 years old female patient due to invasive ductal carcinoma of the right breast diagnosis for 5 years ago. Pathological grade was evaluated as T1N1M0 and in immunohistochemical staining; estrogen receptor (ER) was detected as negative (-), progesterone receptor (PR) was detected as (+) and cerb-B2 was detected as (-). As adjuvant chemotherapy (CT); 4 cycles of cyclophosphamide at a dose of 600 mg / m^2 / day and doxorubicin at a dose of 60 mg / m^2 / day were given and this treatment was applied once a time per 21 days. After chemotherapy, 60 Gray / 30 fractions RT was applied and after RT 4 cycles of docetaxel was given at a dose of 100 mg/m^2/day to be administered in 21 days period. Exemestane 25 mg/day was started as hormonal therapy to postmenopausal patient. At the fifth year of her follow-up; 3 cm in diameter, hard fixed to skin lesion was palpated on her old operation scar which was discovered in the last two months. In her mammography imaging; 30x16 mm sized, irregularly contoured, heterogeneous, hypo dense mass was detected at the lower-inner quadrant of the right breast in craniocaudal (CC) (Figure 1a) and mediolateral oblique (MLO) (Figure 1b) projections. As malignant cells were seen in fine needle aspiration biopsy; patient was accepted as recurrent right breast cancer and right mastectomy was performed. Pathology result was reported as a high-grade spindle cell angiosarcoma. The patient was discharged on postoperative day 4. The patient was given 4 cycles of ifosfamide 2500 mg / m^2 / day (3 days), mesna 2500 mg / m^2 / day (3 days) and doxorubicin 20 mg / m^2 / day (3 days) treatment which will be applied once per 21 days. After that the patient was followed-up and after 12 months metastatic nodules in the chest wall, lung metastases and pleural effusion were detected. As performance status of the patient was 4, second-line chemotherapy could not be given. Thoracentesis was performed with palliative intent as the patient had pleural effusion and shortness of breath. Patient was followed-up in intensive-care unit and she had shortness of breath in her follow-up. Patient died 16 months after diagnosis.

Discussion

Sarcomas are malignant tumors which are consisted of soft tissues such as fat, muscles, nerves and blood vessels. On the other hand breast sarcomas develop from the connective tissue of breast. Breast sarcomas; constitute less than 1% of all breast cancers and less than 5% of all sarcomas. In recent years, an increase in the incidence of breast sarcoma is expected due to widespread use of BSC+RT treatment for patients with breast cancer (1). Post-radiation sarcomas (PRS), are seen at the site of RT in a few years after radiotherapy (2). In this case; sarcoma diagnosis was made 5 years after RT treatment. Because of regional edema and fibrosis after RT; it is very difficult to make PRS diagnosis and due to these difficulties; there can also be delays for diagnosis (3). In histopathological examination; observing atypical tumor cells around vessels with polygonal appearance which can mimic carcinoma, suggests angiosarcoma (Figure 2a). In immunohistochemical staining; positive immunoreactivity with CD34 and CD31 (Figure 2b, Figure 2c) and negative immunoreactivity with cytokeratin which is a epithelial marker (Figure 2d); supports angiosarcoma which develops after RT. (4,5)

Main treatment of breast angiosarcomas is surgery (1). In treatment, mastectomy is applied but axillary dissection is not recommended (4). RT and KT are used as additional therapy after surgery. Hormonotherapy is effective for the treatment of breast cancer patients with positive estrogen and progesterone receptors but it is not recommended for the treatment of breast sarcomas. For our patient; first-line KT was given in addition to mastectomy but second-line KT was not given because of poor general condition. In the prognosis of breast sarcomas; histological grade and subtypes are important (6). Despite all these surgical and medical treatments; angiosarcomas are more aggressive than other breast sarcomas (6) and the mean survival time after diagnosis is 15.5 months (4). Our patient died 16 months after diagnosis which was consistent with the literature.

Conclusion

Post radiation sarcoma (PRS) is one of the rare occasions which should be kept mind and its clinical presentation may interfere with breast cancer recurrence in the patients who underwent breast-conserving surgery and had radiotherapy treatment as complementary treatment.

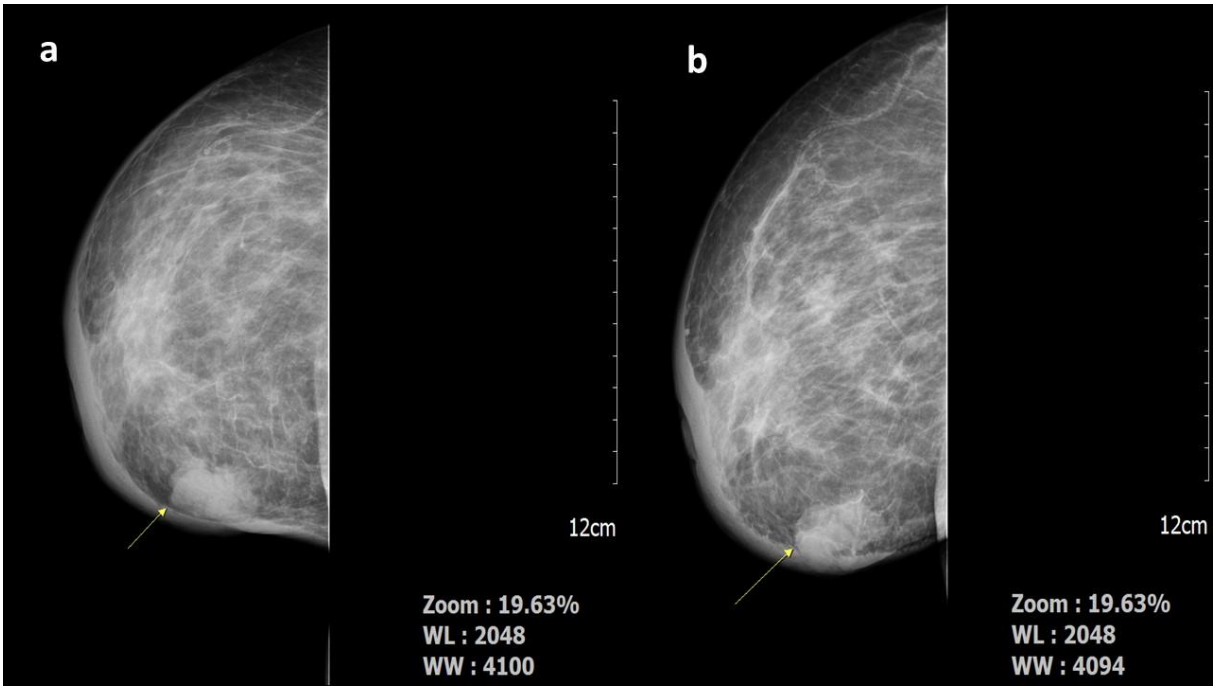

Figure 1a-b: Mammography imaging in which 30x16 mm sized, irregularly contoured, heterogeneous, hypodense mass was detected at the lower-inner quadrant of the right breast in craniocaudal (CC) (Figure 1a) and mediolateral oblique (MLO) (Figure 1b) projections.

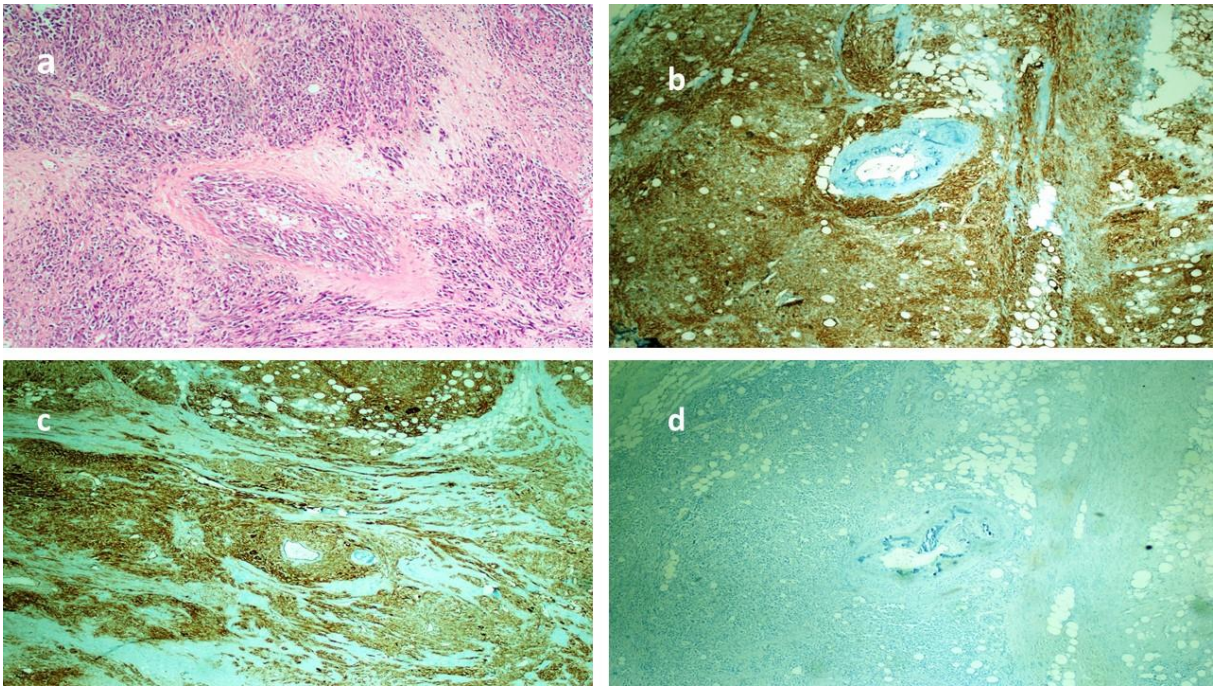

Figure 2a-b-c-d: Figure 2 a: atypical tumor cells around vessels with polygonal appearance which can mimic carcinoma (H&E 100X).

Figure 2b: Positive immunoreactivity with CD34 of atypical cells around vessel (immunostaining 100X)

Figure 2c: Positive immunoreactivity with CD31 of atypical cells around vessel (immunostaining 40X).

Figure 2d: Negative immunoreactivity of tumor with cytokeratin which is a epithelial marker (immunostaining 40X).

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