Radiation-Induced Breast Angiosarcoma: A Case Report

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Introduction

Angiosarcoma is a rare, aggressive sarcoma of endothelial derivation, which represents 1-2% of all soft tissue sarcomas.1 Angiosarcoma of the breast can be classified into separate entities; primary and secondary forms. A form of secondary angiosarcoma of the breast includes post radiation induced angiosarcoma, which prevalence has increased by the use of breast conservation therapy (partial mastectomy with adjuvant breast radiation therapy), although the incidence still remains low (0.3% to 20%) in patients treated.2 Women who received radiation therapy in treatment of breast cancer are at a 9-16 fold increase in the relative risk of developing angiosarcoma when compared to those treated with other modalities.3 Radiation induced angiosarcomas may carry a worse clinical outcome than sporadic primary breast sarcomas. These results are in line with what is expected for any malignancy.

Case Report

We report a case of an 81-year-old Caucasian female that presented to our outpatient clinic on November 2015 for an indurated erythematous rash on her left breast for approximately 2 months. The patient’s medical history included a T1b N0 M0 infiltrating ductal carcinoma, 8mm in diameter that was treated with lumpectomy and sentinel lymph node biopsy in July of 2008. Post operatively she underwent adjuvant radiation therapy (34 treatments) to the left breast (dosimetry records unavailable), as well as adjuvant Letrozole for five years, completing treatment regimen in 2013. The patient had undergone mammogram and ultrasound of bilateral breast in 2014, demonstrating BI-RADS 2 with no evidence of disease recurrences.

Prior to the consultation in our office, the patient was seen by her dermatologist in September of 2015 who performed a skin biopsy of the lesion demonstrating subtle interface alteration with superficial chronic inflammation, consistent with drug reaction. Upon evaluation in November 2015, patient presented with an erythematous, indurated, pruritic plaque on the lower medial aspect of the left breast measuring approximately 2cmx5cm (Fig.1a). Two punch biopsies were performed.

Clinical Photos

Figure 1a. Radiation-induced angiosarcoma in an 81 year old woman. Erythematous, indurated, ill-defined dermal plaque. Seven years post radiation therapy

Figure 1b. Marks demonstrate biopsy sites. 2 4mm skin punch performed

Pathology

Two punch biopsies showed atypical vascular proliferation with dilated vascular structures at the superficial dermis. Atypical cells intersecting collagen bundles and invading the reticular dermis and subcutaneous tissues.

Immunohistochemical studies showed a CD31, D2-40 (strong), and p53 (nuclear, faint) positive phenotype; CD34 staining was only focal.

Discussion

Over the past few decades’ breast conservation therapy, which refers to conserving surgery, followed by moderate dose-radiation therapy has become the preferred method of treating breast cancer over the conventional radical mastectomy. The equivalency in the survival between the two approaches has been demonstrated by prospective, randomized clinical trials revealing little difference in the 15-year breast cancer mortality.3

As more patients elect for breast conservation therapy, the incidence of angiosarcomas, although still rare, may increase. Angiosarcomas have been described in an array of clinical presentations including; bruise like patches of skin, blue painless nodules, erythematous patches, and at advance stages as a red, violaceous plaque with an ill-defined nodular appearance.4 Less common presenting findings include eczematoid changes, ulcerations, bloody nipple discharge and non-pigmented macules. Lesions should be differentiated from recurrent breast carcinoma, atypical hemangiomatosis, and radiation dermatitis.5

An accurate diagnosis of angiosarcomas may be made with simple skin tissue sampling, such as a punch biopsy.4 Thus, we recommend that multiple biopsies be taken at different areas of the lesion to prevent false negative reports.

The standard treatment for post-radiation angiosarcomas includes a total mastectomy. In regards to radiation induced angiosarcomas which have been treated with surgery alone, recurrent rates have been cited as high as 50-70%.6 Due to these high recurrence rates, patients may benefit from adjuvant treatments including chemotherapy and radiotherapy.5 Recently there has been success with the use of re irradiation with a hyperfractionated schedule of administration. In a study of 14 patients, the 5-year survival rate of those treated in this manner was was 86 percent.7 Other treatment options may include adjuvant chemotherapy, however results are limited and its use is not clearly defined. The use of sorafenib, brivanib, sirolimus, docetaxel has been administered in addition to combination therapy in case studies.8 However, for patients that cannot undergo surgery, chemotherapy as a palliative treatment option can extend survival rates. Taxanes and anthracyclines are usually the most used agents.8

References


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