High grade angiosarcoma fifteen years after breast conservation therapy with radiation therapy: A case report

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A B S T R A C T
INTRODUCTION: Angiosarcoma is a rare tumor of the breast. Secondary angiosarcoma of the breast refers specifically to a tumor that arises after a latency period following radiation. With breast conservation therapy gaining significant popularity to that of mastectomy, more cases of secondary angiosarcoma continue to arise in the irradiated fields of these patients.

PRESENTATION OF CASE: The authors describe the case of an 80 year old female who presented fifteen years after her surgery and radiation treatment with two bleeding skin lesions in her breast. These lesions were found to be high grade angiosarcoma upon excision. Due to high cardiac co-morbidity she was treated with re-excision and surveillance.

DISCUSSION: This case is an example of a rare sequela to a common procedure. Breast conservation therapy with lumpectomy and radiation has become a popular technique in treating localized breast cancer. Radiation like all therapy has its known adverse effects. Further work is needed with the small amount of published cases of angiosarcoma after breast irradiation so that we may find optimal treatment plans for these patients. Like any rare entity, difficulty lies in accruing enough cases to compare prognosis and results.

CONCLUSION: Secondary breast angiosarcoma diagnosis requires frequent follow ups and a high index of suspicion. With mastectomy giving the best chance of treatment in these cases, early detection is crucial in this rare sequela.

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1. Introduction

Angiosarcomas are neoplasms of the endothelial cells of the vessel wall and because of this are very prone to malignancy. Most present as painless and multifocal areas of lobulated bleeding masses. They are a rare malignancy representing less than 1% of breast cancer and comprising only 5% of all soft tissue tumors. Secondary angiosarcoma of the breast arises following radiation therapy for breast cancer. Unlike primary angiosarcoma of the breast, which is a disease of the parenchyma, secondary disease tends to start in the skin and spread to parenchyma. There is a rising amount of cases over the last few decades as a result of breast conservation followed by radiation therapy. In one study 20,000 patients underwent breast conservation with radiation therapy at 11 centers. Nine (0.045%) returned with angiosarcoma, the median presentation was 74 months. Treatment was that of salvage mastectomy and median survival from time of presentation was 15.5 months. All but one (8/9) had died at 32 months of presentation. There was no consensus treatment agreed upon to treat angiosarcomas but early diagnosis and salvage mastectomy gave patients best chance at survival.

A review of Florida Cancer Data System found the mean latency period was 5.2 years after breast conservation therapy. The median overall survival and disease free survival was 2.96 and 2.26 years, with 5 year survival at 59%.

A large series of secondary angiosarcoma saw 31 of 35 patients undergo surgery. The four patients who did not were because of metastatic or locally advanced disease. Twenty-four patients had mastectomies while seven had local excision. A R0 resection was defined as a margin >2cm. 23/31 patients were determined to achieve this. Of these patients, 14/23 developed local recurrence within six months. The recommendations generated were for local excision or mastectomy with negative margins which may necessitate chest wall excision.

2. Case report

An 80 year old female presented to the emergency department with pain and bleeding of her right breast. She was fifteen years
removed from a right sided lumpectomy with post operative radiation therapy at another institution. Her yearly follow up imaging had been initially negative and she had been completely asymptomatic. She admits that she had not followed up with her surgeon nor had a mammogram for 10 years. She presented with two lesions in the right breast which demonstrated bleeding. She was unsure of how long they had been there but knew it was in the order of months. The bleeding was controlled with pressure dressings in the emergency department and follow up appointment was made in the breast center including, mammography. A mammogram was performed which demonstrated post surgical changes as well as scattered benign calcifications. Skin thickening was noted in right breast as well as the two superficial lesions. Targeted ultrasound of the right breast demonstrated two skin lesions, one at the one o’clock position, 3 cm from the nipple measuring 1.2 × 1.8 × 1.2 cm and a second lesion measuring 1.9 × 1.7 × 0.7 cm at three o’clock, both were shown to be hyper vascular. Post surgical changes were also seen in upper outer quadrant of breast at the ten o’clock position which represented the lumpectomy bed. No axillary lymphadenopathy was noted. Recommendation of axillary sampling for possible biopsy was given to the patient. Mammogram was determined to be BI-RADS 4. She was seen in the breast center where a biopsy of the lesion was planned, along with metastatic work up including CT chest, abdomen, pelvis and a bone scan.

The patient was brought to minor procedure room two weeks later. Under local anesthetic the lesion at one o’clock was excised circumferentially after it was determined that a biopsy into the lesion would result in bleeding that could be controlled better if the entire lesion was removed. Bleeding was controlled with Bovie electrocautery and wound was closed with 3-0 nylon using vertical mattress sutures. A sample 2.5 × 2.1 × 0.7 cm was sent to pathology where the dark red lobulated tumor was found to be 2.2 × 1.7 × 1.0 cm. Pathological examination came back as high grade sarcoma.

The patient underwent CT chest, abdomen, pelvis which showed neither lymphadenopathy nor evidence of metastatic disease. Her bone scan was also negative for suspicious lesions. At this point the patient was scheduled for cardiac and medical risk stratification before definitive treatment with simple mastectomy could be performed.

Two days after her CT and bone scan she presented to the ED with bleeding from her excision site. The oozing areas were controlled with two separate figure of eight sutures. Since cardiac risk stratification was still pending, the surgeon took the patient for re-excision of the area to control bleeding for which pathology again showed high grade sarcoma with all margins less than 1 cm. It was determined that the patient was at very high cardiac risk for general anesthesia or even sedation. A prior echocardiogram showed an ejection fraction of 15%. The surgeon and patient agreed on a wide local excision with local anesthetic. One month later the patient was brought to the operating room. With local anesthetic, the surgeon performed an excision which incorporated the second lesion, prior excision site and nipple. The pathology came back as high grade angiosarcoma with a 7 mm posterior margin, 4 mm medial margin and all other margins greater than 10 mm.

Due to the patient’s advanced age and cardiac co-morbidity, the patient and surgeon agreed that the best course of action was surveillance and no further surgery or adjuvant therapy. The last excision took place in May 2014, the patient was last seen in June of 2014 by both her surgeon and oncologist. The final incision site was clean and intact with no bleeding or new masses. She is scheduled for a mammography and follow up appointment in November of 2014. She will continue to be seen every 6 months with yearly mammography.

3. Discussion

Angiosarcoma of the breast after breast conservation therapy with radiation is a rare entity but seems to be somewhat increasing. With increased use of radiation in the conservative surgical strategies for breast cancer, a larger number of cases are sure to arise. The small amount of literature on the subject agrees that these lesions tend to present 5–6 years after completion of surgery and radiation. Our above described case was fifteen years after therapy, emphasizing the importance of surveillance after treatment. This means that a high suspicion must be maintained in all practitioners doing breast exams in the post radiation patient at any time after their treatment. Patient education is also crucial, with instructions to follow up with their surgeon for any skin changes they recognize themselves. Angiosarcomas have been described after lumpectomies as well as in the scar after mastectomies. Since mastectomy provides the best chance for cure, early detection is of the utmost importance in these patients. Unfortunately with this patient her advanced cardiac disease did not allow for standard of care which is that of mastectomy or wide local excision with various literature asking for margins of 2–3 cm. She will be closely followed.

Conflict of interest

None.

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None.

Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Author contributions

Dr. Boyan: study design, writing, literature search; Michael Farr: literature search, writing; Dr. Georges: writing, final editing.

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