

Post-irradiation Atypical Vascular Proliferation Following Breast-conserving Therapy for Breast Carcinoma

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A 73-year-old South Indian lady underwent a lumpectomy and sentinel node biopsy for ductal carcinoma in situ with microinvasion but no lymph node involvement. She received external beam radiotherapy and remained disease free. Two years following surgery she developed dark firm nodules in the left axilla close to the surgical site. Surveillance mammograms were unremarkable. A clinical diagnosis of a keloid scar was made and no further treatment was given. Subsequently the lesions became larger and inflamed, worsening with heat and sun exposure. Four years later, during an inpatient admission for a knee injury, a dermatology opinion was sought. Examination revealed firm, well-defined vascular nodules and plaques in the left axilla, close to a well healed surgical scar.

Histology showed areas of thin walled vascular proliferation, mainly in the superficial dermis and to some extent the mid-dermis. Immunoperoxidase staining for CD31 was positive for endothelial cells lining the vascular channels, while D240 revealed light staining, suggesting minimal numbers of lymphatic channels in the specimen. Less than 1% of perivascular lymphoid cells and cells lining vascular and lymphatic channels stained positive for Ki-67, suggesting minimal cell proliferation. FISH analysis for MYC showed no nuclear staining within the endothelial cells, further reducing the possibility of angiosarcoma. Staining for HHV8 was negative ruling out Kaposi Sarcoma. The overall features were suggestive of post-irradiation atypical vascular proliferation (PIAVP).

Breast conserving therapy for early stage breast cancer is usually combined with adjuvant radiotherapy. An important complication is the development of malignant vascular tumours such as angiosarcomas which carry a poor prognosis. PIAVP tends to occur in younger individuals, a shorter interval after radiotherapy and typically present as small papules or nodules. However, our patient did not follow all these rules, highlighting the clinical overlap between benign, atypical and malignant vascular proliferations after radiotherapy.

The MYC oncogene is known for its role in cell proliferation and stimulation of angiogenesis. MYC identification may provide a useful technique for identifying malignant lesions as well as mapping lesions for complete excision. Some authors report progression of PIAVP to angiosarcoma, therefore consider PIAVP to represent a malignant precursor. Due to this risk of malignant transformation the patient underwent complete excision of the lesion. PIAVP is a rare complication following radiotherapy and is an important differential diagnosis to secondary malignant tumours. Its potential to malignant transformation requires additional evaluation to provide further evidence for management.

Word count: 394