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CASE REPORT

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ABSTRACT

Primary breast sarcomas, except for phyllodes tumour, are very rare entities, accounting for < 0.1% of all malignant neoplasms. Angiosarcoma of breast is infrequent malignancy and differential diagnosis from other sarcomatous and angiomatous breast tumours holds importance. Two cases of primary angiosarcoma of breast were encountered. One involved a 32 years lady who was treated by wide local excision and six cycles of chemotherapy. The other occurred in a 54 years old lady who was treated with mastectomy, did not receive any radiation or chemotherapy and was later lost to follow-up. Neither of the patient had history of previous breast surgery, chemotherapy or radiotherapy.

Key words: *Angiosarcoma. Breast. Malignant neoplasm. Excision. Radiotherapy. Spindle cell neoplasm.*

INTRODUCTION

Angiosarcoma (AS) of breast is a rare malignancy, accounting for only about 0.05% of all the primary malignancies. These are divided into two main categories depending on origin i.e. primarily in breast as primary angiosarcoma and after radiation therapy as cutaneous angiosarcomas.[1]

Angiosarcomas arising in association with radiotherapy are a well-established iatrogenic phenomena mainly involving the skin, while the primary angiosarcomas arise within breast parenchyma. Only 11 angiosarcomas were identified among more than 5000 malignant breast neoplasms (0.1 – 0.2% incidence) for the last 10 years. Eight cases (6 high grade, 1 intermediate grade, 1 low grade) were identified as post-radiation angiosarcoma (post-radiation time interval, 4 – 12 years), and 3 cases were identified as primary angiosarcomas (1 high grade, 2 low grade).[3,4] The mainstay of treatment is surgical resection followed by chemotherapy and radiotherapy if margins of excision are close.

CASE REPORT

Case 1: A 32 years old woman, presented to Breast OPD in September 2010, with complaints of right breast lump for past 2 weeks. On physical examination, the lump was at 9 O'clock position, soft to firm in consistency. On mammography, it was reported as solitary ill-defined mass, with size of 1 x 0.8 cms, BIRADS-IV, probably malignant and needle localization biopsy was recommended. On ultrasonography (USG), it was a hypoechoiec solid mass. Wide local excision was done. On gross examination, it was small lesion, black and histological examination with immunohistochemical staining (CD 31, CD 34 and Factor-VIII) revealed low-grade angiosarcoma. One of the excision margins was close. Patient received 6 cycles of radiotherapy. On one and half year follow-up, the patient was without any complications of treatment. No metastasis or recurrence was present.

Case 2: A 54 years old woman with a 5 months history of discoloured painless enlargement of left breast came to Breast OPD in April 2009. On her USG examination, it was of heterogeneous echogenecity with hyperechoeic foci without acoustic shadowing. On mammography, it was poorly defined, lobulated mass without spiculations or calcification, 8.5 x 6.2 cms in size and BIRADS-V. On physical examination, it was a non-tender firm mass. Trucut biopsy was reported as spindle cell neoplasm with the differential diagnosis of sarcoma and phyllodes tumour. The surgeon proceeded with simple mastectomy. On gross examination, it was firm, haemorrhagic, blackish lesion measuring 6.5 x 6 x 6 cms. Few areas of necrosis were visible to naked eye examination.

Microscopic examination showed anastomosing stag-horn vascular channels lined by malignant cells present in form of fascicles, sheets and papillary formation focally, portion of nucleus was bulging into the lumen giving it hobnail appearance (Figures 1 and 2).

Tumours were histologically graded using Rosen's 3-tier system into low (I), intermediate (II) and high (III) grades.

Patient did not receive post-surgery radio or chemotherapy. She gave follow-up visits for one year, during which she did not develop recurrence or metastasis. She was then lost to follow-up.

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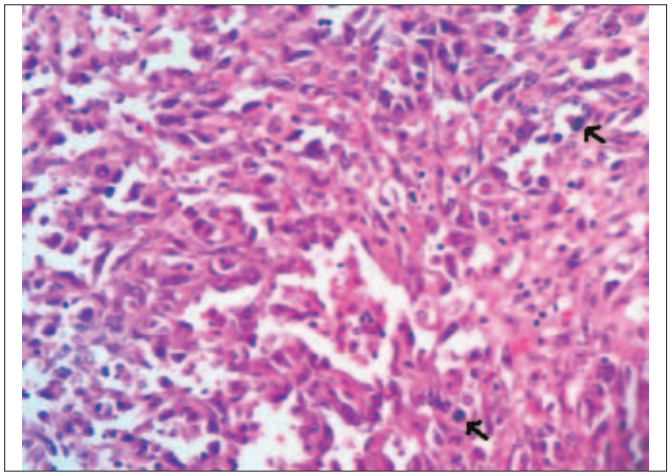

Figure 1: High grade primary angiosarcoma; Tumour cells with cytology of plump hyperchromatic, tufted endothelial cells having scant amphophilic cytoplasm. Arrows point at mitotic figures (Hematoxylin-eosin, original magnification x 40).

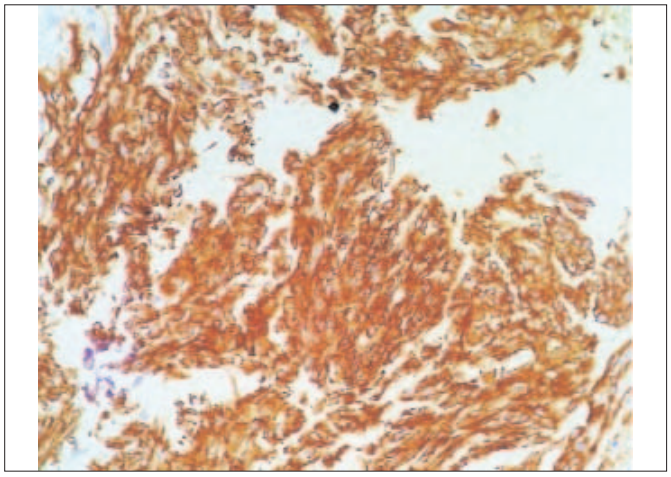

Figure 2: Breast angiosarcoma - anatomopathological diagnosis. Immunohistochemical positive stain for CD 31. (Original magnification x 40).

DISCUSSION

Angiosarcomas are aggressive tumours of endovascular origin. There are no distinct clinical or histologic differences between primary and post-radiation breast angiosarcomas.[3] Although angiosarcomas are relatively rare, they are being reported with increasing frequency in patients who have previously undergone breast conserving therapy and the histologic and cytological appearance can be highly suggestive of recurrent breast carcinoma.[5]

Primary angiosarcomas of the breast occur sporadically in young women and usually present as palpable masses. Three grades of angiosarcoma are described. Low-grade tumours consist of anastomosing vascular channels that invade the surrounding breast tissue. Intermediate-grade tumours have more solid neoplastic vascular growth and an increased mitotic rate. High-grade lesions have frankly sarcomatous areas, as well as areas of necrosis, haemorrhage, and infarction. Complete excision and careful histologic evaluation are needed to accurately determine the tumour grade. Bluish skin discolouration occurs in upto a third of patients and is thought to be attributable to the vascular nature of the tumour.[6]

Primary lesions arise in younger women, usually during the third and fourth decades of life; these lesions are unlike breast carcinomas, which typically arise later in life. Although angiosarcoma has been reported to present during pregnancy, no evidence supports the hypothesis that these tumours are hormone-dependent. Vascular proliferations of the breast are uncommon but potentially diagnostically challenging lesions as a range of benign entities which must be differentiated from angiosarcoma also exists.[6]

Primary angiosarcomas typically occurs in pre-menopausal women with mean age of 35 years i.e. a younger age, in general, than primary breast carcinoma. The imaging features on mammography are often non-specific and between 19% and 33% of lesions are un-detectable by mammography.

Macroscopically, primary AS in the breast ranges from 10 to 200 mm in diameter, with an average size of 40 – 55 mm. Low-grade lesions are characterized by proliferation of well-formed, anastomosing vascular channels that diffusely infiltrate both glandular parenchyma of the breast and fat. Mitotic figures are rare. The vascular spaces are usually closely packed with minimal intervening stroma, although occasional cases may have a collagenous stroma. Low-grade variants lesions composed predominantly of small vessels that can resemble a haemangioma, or PASH (Pseudoangiomatous Stromal Hyperplasia) like stromal infiltration, narrow vascular channels without an obvious anastomosing architecture or a primarily spindle cell infiltration within fat that may simulate an angiolipoma on limited sampling.

Intermediate-grade AS resembles low-grade lesions, but commonly, the cellular areas may suggest Kaposi's sarcoma. High-grade AS has overtly sarcomatous areas.[1] The main differential diagnoses of high-grade AS are metaplastic carcinoma with angiosarcomatous differentiation and other poorly differentiated sarcomas. Histologically, the presence of characteristic low-grade AS at the periphery of the lesion can be helpful in diagnosis. Similarly, metaplastic carcinomas may be associated with DCIS or areas of typical invasive carcinoma. In more difficult cases, immunohisto-chemistry for vascular markers and cytokeratin may be invaluable. More than 90% of cases of AS are immunopositive for CD31, CD34 and Factor-VIII. CD31 is the most specific marker for endothelial differentiation, whereas CD34 is more sensitive, but also stains other lesions, such as phyllodes tumour and PASH which is a mesenchymal lesion which may produce a mass

clinically. So it comes in close differential of well differentiated angiosarcoma both clinically and microscopically.

Primary AS is an aggressive neoplasm with a tendency to local recurrence and distant metastasis. The commonest sites of metastasis are bone, lung, liver, brain, ovary and skin. The contralateral breast is also a common site of metastasis, occurring in approximately 21% of cases. Lymph node involvement is present in only 6 – 8% of cases. Histological progression in recurrences from low to high-grade lesions is well described.[7] The prognosis of primary AS of the breast is thus generally poor, with 70% of patients dying. Rosen *et al*. have demonstrated that tumour grade is the most important predictor of recurrence. Complete local excision with histologically clear margins is the basis of management.[8] Wide local excision may be considered for the rare small lesions identified. Rosen *et al*. have demonstrated that tumour grade is the most important predictor of recurrence. The estimated probability of disease-free survival 5 years after initial treatment is 76% for patients with grade-1 tumours; for patients with grade-3 tumours, the probability is 15%.[6]

Spindle cell lesions of the breast represent an interesting diagnostic problem, as the differential diagnoses are wide.[9] Diagnosing this is particularly problematic but important as treatments of different entities are different.

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