Leiomyosarcoma of the breast: A case report

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Abstract: Leiomyosarcoma is a rare cancer and the presence of this type of cancer in the breast is even rarer. Due to its rarity, the management options for leiomyosarcoma of the breast are not well documented. Literature review was done to establish the best treatment options for this type of breast cancer.

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Introduction

Leiomyosarcoma is a malignant smooth muscle tumour. It is a relatively rare form of cancer and accounts for 12% of soft tissue sarcomas.[1] They are most commonly found in the uterus, stomach, small intestine and retroperitoneum. A leiomyosarcoma of the breast is exceedingly rare. Fujita *et al.*[2] did a review in 2010 and at that time only 44 cases of genuine leiomyosarcoma of the breast have been documented in the literature. A review of literature was done to establish the best treatment management for this very rare type of breast cancer.

Case Report

The patient is a 56-year-old lady who has a sister with breast cancer diagnosed at the age of 60 years old. Otherwise there was no significant medical history. She presented with 2 months history of left breast lump which was occasionally painful. She had no constitutional symptoms. On examination there was a 6.5x5.0 cm lump in the left upper outer quadrant of the breast. Mammographic examination of the left breast revealed a large lobulated complex multi-septated mixed cystic solid mass with thickened wall. Aspiration of the lesion yielded a heavily blood-stained fluid which was sent for cytology but it only showed mainly acellular proteinacious material. A repeated cytological examination of the cystic fluid showed no evidence of malignancy. She was later counseled for wide local excision of the lump with axillary sampling. Intra-operatively the lump was vascular in nature but the cyst content was straw-coloured. Laterally the margin with the skin was very close. There were subcentimeter lymph nodes enlargements in the axilla. Histopathological examination revealed circumscribed tumour composed of spindle to oval-shaped cells arranged in short haphazard intersecting fascicles. There are numerous multinucleated giant cells. The stroma shows hyalinisation and areas of myxoid change. Mitotic figures are 18/10 high power field in cellular area. There are cleft-like spaces of ductal cells seen at the periphery. These features are in keeping with leiomyosarcoma. The lymph nodes only show reactive changes. A staging computed tomography scan revealed no evidence of distant metastases. This patient was later subjected to a left mastectomy in view of involvement of the tumour in the lateral margin. A level II axillary clearance was also done. She was also referred to the oncologist but no chemotherapy or radiotherapy was planned for her. She is being followed up closely but fortunately there was no sign of recurrence on her last follow up at 6 months.

Discussion

Sarcoma of breast accounts for only 1% of all breast cancers, and leiomyosarcoma is one of the rarest forms of sarcoma of the breast. It may present as a lump in the breast that is slow-growing and may mimic the presentation of fibroadenoma or Phyllodes tumor. It is difficult to make a diagnosis based on fine needle aspiration cytology alone. That is probably the reason our patient had two negative cytological examinations. A proper histopathological examination will confirm the diagnosis. Leiomyosarcoma is characterised by spindle-shaped cells; pleomorphic and elongated nuclei; large nucleoli; and significant mitoses. A positive staining is observed immunohistochemically with desmin, vimentin, and muscle-specific actin (SMA); whereas negative staining is seen with cytokeratin, myoglobin, and S-100[3]. The patient had positive stains for vimentin and SMA (Figures 1 and 2). The staining for desmin, however, was negative.

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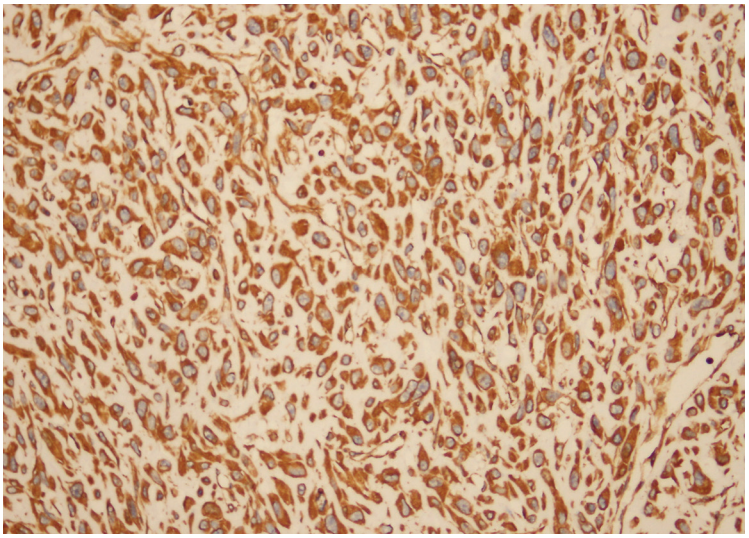

Figure 1: Histological slide of patient's breast showing positive staining with vimentin. Spindle-shaped cells and large nucleoli are also seen (400X magnification).

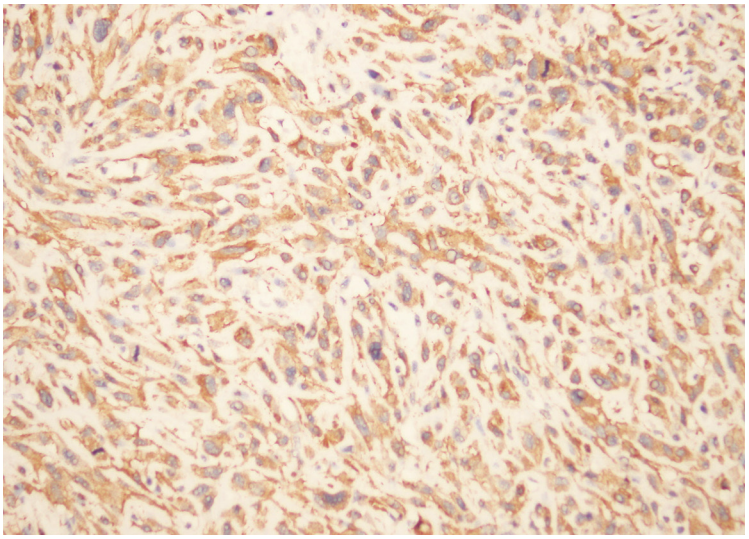

Figure 2: Histopathological slide of patient's breast tissue showing positive staining with SMA (400X magnification)

Barnes and Pietruzska in 1977[4] had suggested that several criteria are associated with poor prognosis; namely infiltrating margin, 2-3 + stromal atypia, and 8 or more mitoses per 10 high power field. The size of the tumour plays no role in prognostication factor. In our present case study, the patient has an involved surgical margin and the mitoses count was 18 per 10 high power field. Therefore she is in the high risk group and needs to be followed up closely.

There is not much difference between wide local excision and mastectomy; as long as the margin is clear, the outcome of the patient is good and risk of recurrence is reduced. Fujita *et al.*[2] recommended a 3 cm margin as an adequate margin.

As for axillary lymph node dissection, Fujita *et al.*[2] reviewed 45 case reports and no lymph nodes metastases were reported in the 15 cases where lymph node dissections were done. The patient in this study was subjected to a level II axillary lymph node dissection because initially we were unsure about the best surgical management for her. Just like previous reports, this patient also had negative lymph nodes involvement. We advocate that for leoimyosarcoma of the breast, no lymph node dissection should be done as sarcoma generally metastasizes via blood stream and rarely via lymphatic. This can save the patient from having complications of axillary surgery for example lymphoedema.

This disease is generally not very responsive to chemotherapy or radiotherapy. There is not much data which could be obtained about post operative chemotherapy or radiotherapy.

In conclusion, the mainstay of the treatment of primary breast leiomyosarcoma is still surgery. The type of surgery does not matter as long as the surgical margins are clear. Axillary node dissection is unnecessary due to no reported cases of metastases in the lymph nodes.

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