Metaplastic carcinoma breast (carcinosarcoma variant)

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Introduction

Carcinosarcoma is defined by the World Health Organization (WHO), a tumor composed of intimately admixed malignant epithelial and stromal components [1]. Clinically, carcinosarcoma of the breast is an aggressive type of breast cancer. The prognosis for carcinosarcoma of the breast is less favorable when compared to the more common types of breast cancer.

Case report

A 60-year-old female presented with a painless lump in the right breast for 6 months. It was rapidly increasing in size for 2 months and was associated with pain. There was no significant past medical history and no family history of any breast malignancy. On examination: A large 8×6 cm mass was found occupying the lateral half of right breast. It had a bosselated surface. The consistency was variable and there were areas of pressure necrosis and 'peu d'orange' (Fig. 1). A 2×2 cm firm right anterior axillary lymph node was palpable. Rest of the breast was normal left. Breast and axilla were normal on examination. Systemic examination was found to be normal.

Fig. 1 Preoperative photograph of the patient

We made a clinical diagnosis of carcinoma breast with a TNM Stage of T4aN0M0 - stage IIIb. We also kept in mind a possible differential diagnosis of Phylloides tumor. We performed a core biopsy of the breast. The biopsy was reported as metaplastic carcinoma breast - carcinosarcoma variant. Immunohistochemistry for mesenchymal markers was done in which cytokeratin and vimentin were found to be positive. FNAC of the palpable axillary node was found to be positive for metastasis. Patient was subjected to CT scan of the thorax and abdomen along with a bone scan these tests did not reveal any evidence of distant metastasis. A simple mastectomy with axillary clearance was done. Intraoperatively, the tumor was found to be free from the chest wall. Multiple axillary lymph nodes were found, the largest measuring 2×2 cm. Axillary dissection was carried up to level 2 of lymph nodes only. The incision was closed primarily. The postoperative period was uneventful. There were no postoperative surgical complications. The patient was planned for adjuvant chemoradiation.

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Histopathology

The gross specimen weighed 1,080 gm. There was nipple retraction and peu d'orange appearance. On cut section a bosselated tumor measuring 13 × 11 cm was seen. It had a variegated appearance. There were areas of necrosis intermixed with areas of myxoid degeneration. Thirteen lymph nodes were identified. Representative sections were given for paraffin blocks.

Microscopy

Showed islands of tumor cells with features suggesting a metaplastic carcinoma – carcinosarcoma with interspersing areas of infiltrating ductal carcinoma, squamous metaplasia, chondrosarcoma and undifferentiated sarcoma (Fig. 2). The surgical margins of resection found to be free (R0 resection).

- 3/13 lymph nodes were found positive for metastasis.
- The tumor was negative, estrogen and progesterone receptor and negative her2-neu receptor.

Fig. 2 Microscopy showing Mesenchymal elements (H and E Staining)

Immunohistochemistry

- Tumor cells were found to be cytokeratin and vimentin positive.
 - ER, PR and her 2 neu negative (triple negative IHC).
- Final histopathology report was as follows:
Metaplastic carcinoma breast – carcinosarcoma, with areas of infiltrating ductal carcinoma, squamous metaplasia, chondrosarcoma and undifferentiated sarcoma.

Discussion

Carcinosarcoma of the breast (metaplastic, biphasic metaplastic, metaplastic sarcomatoid carcinoma, sarcomatoid carcinoma) is an aggressive but rare neoplasm that has been reported to account for 0.08–0.2% of all breast malignancies [1].

The true definition of metaplastic carcinoma of the breast is a tumor of malignant epithelial tissue (carcinoma) mixed with malignant cells of mesenchymal origin (sarcoma) with apparent histological and cytological features present on light microscopy and immunohistochemical testing [2].

Most metaplastic tumors of the breast are poorly differentiated, have a high grade, and are highly cellular, with mitotically active pleomorphic spindle cells. The majority are estrogen and progesterone receptor negative, and her2-neu negative by immunohistochemistry [3].

The cells of origin for this neoplasm have yet to be agreed upon, but most research leads us to believe the cells are of myoepithelial origin, because they can differentiate to both epithelial as well as mesenchymal components [4].

Differential diagnoses include infiltrating carcinoma with pseudosarcomatous stroma and cystosarcoma phylloides with malignant transformation. The 5-year overall survival ranges from 49–68% [5] new treatment opportunities include agents targeting the EGFR receptor - Gefitinib (ZD1839, Iressa) and Gefitinib (Erbiximab) [6].

Further research needs to be performed in order to fully evaluate the potential of such therapy in patients with metaplastic carcinoma breast.

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