METAPLASTIC CARCINOMA BREAST WITH OSTEOSARCOMATOUS DIFFERENTIATION - A CASE REPORT

DEVIT J JAWAHAR
Department of Pathology,
STANLEY MEDICAL COLLEGE AND HOSPITAL

Abstract:
Introduction- Metaplastic carcinoma of the breast is a rare form of breast cancer. Osseous differentiation is much more a rare variant that is encountered. Materials and methods - A 60 year old female presented with a lump in the upper and inner quadrant of the left breast. Patient noticed the lump 3 months back with pain for the past 1 month. On examination the lump was 8x3cm, firm to hard in consistency with restricted mobility. Modified Radical Mastectomy was done. Observations and results - Fine needle aspiration cytology revealed Ductal carcinoma left breast. Modified Radical Mastectomy was done and reported as Metaplastic carcinoma left breast with extensive areas of osteosarcomatous differentiation.

Keyword:
Metaplastic carcinoma breast, osteosarcomatous differentiation.

Metaplastic carcinoma of the breast is a rare form of breast cancer accounting for less than 5% of all the breast carcinomas. It comprises a heterogeneous group of neoplasms characterized by an intimate admixture of adenocarcinoma with areas of spindle, squamous, chondroid and osseous differentiation. Osseous metaplasia as well as osteosarcomatous differentiation are exceptionally rare components in metaplastic breast carcinoma.

Gross:
Modified radical mastectomy specimen measured 13x12x6cm with an elliptical piece of skin, nipple and areola. Nipple was retracted. Cut sections showed a grey-white well defined growth that measured 6x4cm which was firm in consistency. Grossly all resected margins were free of tumour. Cut section of the axillary pad of fat revealed 7 lymph nodes, largest measuring 1.25x1 cm and smallest measuring 0.5 cm in diameter.
Microscopic findings:
Sections show breast parenchyma and an adjacent infiltrating neoplasm composed of pleomorphic spindle shaped cells with irregular nuclei with interspersed areas of osteoid and focal areas showing multinucleated tumour giant cells. Adjacent breast parenchyma shows enlarged ducts filled with solid proliferation of epithelial cells and fibrocystic change. All resected margins were free of tumour infiltration. Sections from all 7 nodes show features of reactive hyperplasia.

Impression: METAPLASTIC CARCINOMA LEFT BREAST WITH EXTENSIVE AREAS OF OSTEOSARCOMATOUS DIFFERENTIATION.

Immunohistochemistry: ER, PR and Her2neu-Negative

Discussion:
Metaplastic carcinoma of the mammary gland accounts for less than 5% of all breast carcinomas and is a very heterogeneous disease. It is characterised by tumours containing both epithelial and mesenchymal cell components(1). The epithelial changes include epithelial (squamous) and sarcomatous elements (osseous, chondroid, loose spindle and fibromyxoid stroma, dense spindle and fibrosarcomatoid stroma). Metaplastic breast carcinomas are usually circumscribed, hard and rubbery. Size ranges from 0.5-21 cm, with an average size of 3-5 cm. Heterologous elements especially bone and cartilage may be evident on gross examination. Tumours which are predominantly squamous may have cystic degeneration(1). Metaplastic carcinomas can be classified into two main...
categories: 1. Monophasic (sarcomatoid or spindle cell carcinomas) and 2. Biphasic “sarcomatoid” carcinomas (carcinosarcomas or malignant mixed tumours) (1). Chondroid and osseous differentiation occur focally in 0.2% of breast carcinomas (5), and osseous metaplasia is the rarest component (2).

Breast carcinoma with osseous metaplasia is classified as mixed epithelial/mesenchymal metaplastic carcinoma according to the World Health Organization Classification of Tumors (3). There may be a gradual transition from carcinomatous to sarcoma like elements, or the separation between them can be sharp. When the latter is the case, the term “carcinosarcoma” tends to be used (4).

Metaplastic breast carcinoma with sarcomatous metaplasia: These tumours are composed of infiltrating carcinoma mixed with spindle cells and heterologous elements ranging from bland chondroid and osseous differentiation to high grade sarcomas including fibrosarcoma, malignant fibrous histiocytoma, osteosarcoma, chondrosarcoma, liposarcoma, rhabdomyosarcoma and leiomyosarcoma. The epithelial component is most commonly of ductal nonspecial type of grade 2 or 3 (1). Histologically, the osseous foci in metaplastic carcinoma may appear benign or malignant. Carcinomas with osseous differentiation have generally been put together with those displaying chondroid differentiation, and it is not clear what proportion of these has malignant (osteosarcoma) or benign osseous differentiation (6, 7).

Majority of biphasic sarcomatous carcinomas are negative for ER, PR and HER2/neu in both adenocarcinomatous and mesenchymal elements (1). Metaplastic breast carcinoma may present as a density on mammography and a microlobulated mass on ultrasonography. Large calcifications can be identified in metaplastic tumours with osteosarcomatous elements (1). Poor prognostic factors in metaplastic breast carcinoma is associated with high predominance of intervening spindle cells, high cellularity, high mitotic activity and high nuclear pleomorphism similar to sarcoma. The presence of sarcomatoid metaplastic elements in carcinoma of the breast, either chondroid, osteoid, or unspecified in nature, is a poor prognostic factor, especially when it predominates the histological findings (8, 9). Though the rate of lymph nodal metastases is low, metaplastic carcinoma displays poor prognostic features relative to invasive breast carcinomas.

Conclusion:
Metaplastic breast carcinoma with ossification is a rare breast carcinoma due to its pathological heterogeneity and difference in clinical behaviour compared to ductal carcinoma. Metaplastic carcinoma is an aggressive cancer, presents at a more advanced stage and has a high propensity for local recurrence.

References:
(1) Rosen’s Breast Pathology; section 4; chapter 13; pages 211-213.
(4) Rosai and Ackerman’s Surgical Pathology by Juan Rosai; 9th edition; volume 2; chapter 20; pages 1811-1812.


