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DECIPHERING TUMOR IDENTITY: DIFFERENTIATING PHYLLODES TUMOR FROM SPINDLE CELL METAPLASTIC BREAST CARCINOMA

Dr. Karthikeyan M, Dr. Paul M J, Dr. Anish C J, Dr. Shawn Thomas, Dr. Supriya Sen, Dr. Deepak Abraham
Christian Medical College Vellore

INTRODUCTION

Metaplastic squamous cell carcinoma of the breast is an exceedingly rare subtype of breast cancer, accounting for only 0.1% to 0.4% of all breast carcinomas. It is believed to originate from the squamous metaplasia of ductal epithelial cells. This subtype lacks specific clinical and radiological features, making early diagnosis challenging. The neoplasm is aggressive, rapidly evolving, hormone receptor-negative, and often refractory to standard treatments, resulting in a poor prognosis.

PATIENT INFORMATION

A 39-year-old woman with no familial history of neoplasia presented with a palpable mass in the upper inner quadrant (UIQ) of her right breast with very rapid progression of the mass

PHYLLODES LIKE CLINICAL PRESENTATION

The patient discovered a firm, tender mass during self-examination which was rapidly evolving in size. Ultrasound and Mammography performed revealed a 20*15 cms cystic formation with signs of inflammation. Cytological examination from outside hospital gave a preoperative diagnosis of phyllodes tumor with presence of neutrophilic granulocytes, numerous macrophages, stromal fragments, and anucleated scales and slides were reviewed at our hospital and surgical intervention

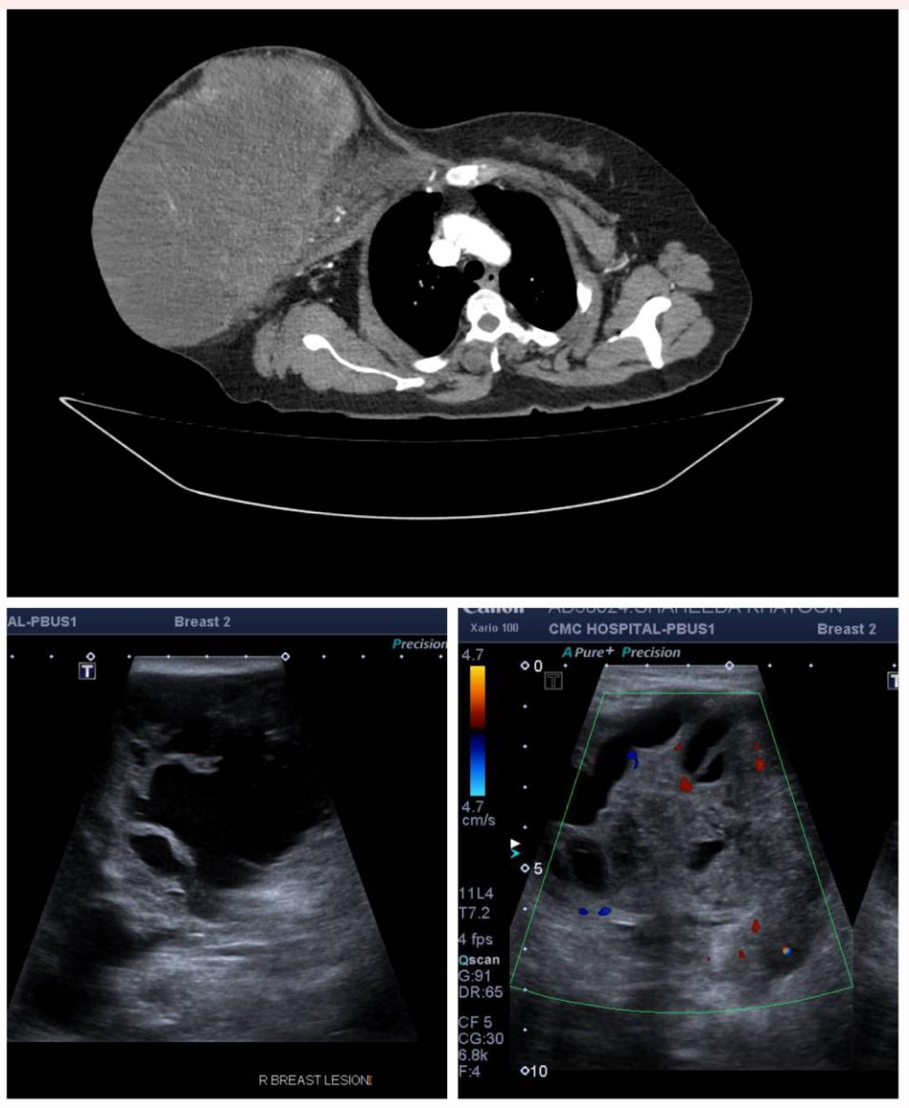
POST OPERATIVE PERIOD

Due to the initial histological findings, the patient underwent a wide local excision of the large mass almost involving the entire right breast, along with axillary lymphadenectomy. The definitive histological examination revealed inflammatory granulomatous foci along with a poorly differentiated infiltrating carcinoma of a non-special type, with immunophenotype positive for epithelial membrane antigen (EMA), GATA-3, p40, and p63, and negative for cytokeratin 7 and gross cystic disease fluid protein 15 (GCDFP-15). The carcinoma showed no immunoreactivity for estrogen and progesterone receptors, with a Ki-67 index of 50% and no HER2/neu overexpression.

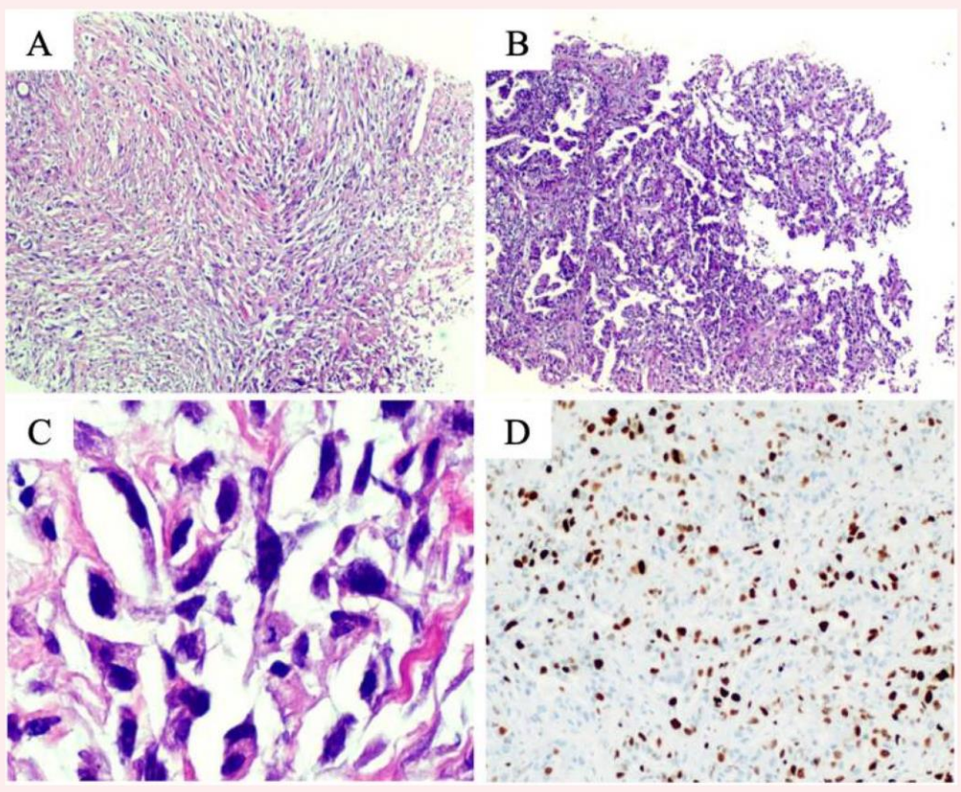
SURGICAL INTERVENTION

Wide local excision of the mass with Pediculated flap cover and split thickness skin grafting was performed, and histopathological analysis identified the lesion as a sebaceous carcinoma with squamous keratinizing aspects, infiltrating the chorion with clear margins.

IMAGING AND HISTOPATHOLOGY



Ultrasound Findings:
Transverse and sagittal scans displayed a large mixed echogenic,inhomogeneous nodular lesion corresponding to the palpable mass in the subareolar region of the right breast



Pathologic findings of breast biopsy. On hematoxylin and eosin staining (H&E, 40×), a malignant epithelial neoplasm composed of fascicular areas of fusiform cells was found (A). Some other areas assumed more of a tubular or glandular architecture of epithelioid cells with abundant eosinophilic cytoplasm (B). On higher power (H&E, 400×), cytologic atypia was striking, with marked cellular pleomorphism, anisokaryosis, and frequent atypical mitotic figures (C). Immunostaining showed evidence of a highly proliferative malignancy, with a Ki-67 proliferative index above 30% (D).

ADJUVANT TREATMENT

Given the high grade of the tumor and high likelihood of metastatic disease, the patient was assessed for first-line chemotherapy eligibility. Immunohistochemical analysis for the programmed death-ligand 1 (PD-L1) marker was negative. The patient subsequently commenced first-line chemotherapy with the Nab-Paclitaxel protocol.

INTRA OPERATIVE FINDINGS

Intra-operative picture of Wide local excision + Pediculated Latissimus Dorsi myocutaneous flap +Split thickness skin graft

DISCUSSION

Metaplastic squamous carcinoma is a rare and highly aggressive subtype of breast cancer with an uncertain etiopathogenesis. Some hypotheses suggest it originates from squamous metaplasia of cystic epithelium or chronic abscesses, while others propose a myoepithelial cell origin. Its diagnosis is challenging due to its cystic presentation, often leading to delayed treatment. Surgical resection remains the primary treatment modality. The efficacy of adjuvant therapies such as chemotherapy and radiotherapy is uncertain due to the tumor's resistance to conventional agents. This case emphasizes the necessity for early detection and comprehensive, multidisciplinary management to mitigate rapid progression and recurrence.

CONCLUSION

This case illustrates the aggressive nature of metaplastic squamous cell carcinoma of the breast and underscores the importance of timely diagnosis and a multidisciplinary treatment approach. Personalized treatment strategies are essential for effectively managing this rare and aggressive neoplasm.