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Apocrine Carcinoma of Breast -Uncommon Variant of Breast Malignancy

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Case Report
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Abstract

Apocrine carcinoma of breast is an extremely uncommon, special variant of breast malignancy with an incidence of <1%. A case of 70 year female presented with large right breast mass with extensive skin ulcerations and right axillary lymphadenopathy of 4 months. On sonomamography of Breast Imaging Reporting and Data System showed irregular heterogeneous echotexture mass (BI-RADS) IV. On fine niddle aspiration cytology reported as positive for carcinoma cells. Patient underwent modified radical mastectomy. On histopathology diagnosed as invasive apocrine carcinoma type A, of right breast. The tumor grading by Modified Richardson- Bloom criteria- it was (2+3+2) grade II. Right axillary lymph nodes 18 were involved by the tumor. The immunohistochemistry study showed ER, PR, Her 2 neu negative. The neo-adjuvant therapy was given. On follow-up of 8 months satisfactory healing and no recurrence was noted. Conclusion: Apocrine carcinoma has better prognosis than invasive breast carcinoma (NOS). These are characteristic triple negative breast cancer. We are presenting this case for its rarity, clinical behavior, histomorphological, immunohistochemical features.

Keywords: Apocrine Carcinoma; Breast Cancer; Pathology

Abbreviations: ER: Estrogen Receptor-Alpha; PR: Progesterone Receptor; AR: Androgen Receptor; TNAC: Triple-Negative Apocrine Carcinoma

Introduction

Apocrine carcinoma of breast is a extremely uncommon, special variant of breast malignancy with an incidence of <1% of all invasive cancer in women [1]. To dignose pure primary apocrine can of breast requires > 90% of tumor cells have cytologic or immunohistochemical features of apocrine cells [2]. There is lack of uniform application of diagnostic criteria for definitions of apocrine carcinoma in the literature. The most recent WHO classification of breast tumors offers an imprecise definition of apocrine carcinoma of the breast [3].

Case Report

A case of 70 year female presented with large right breast mass with extensive skin ulcerations and right axillary lymphadenopathy of 6 months duration. There was no any significant history of hormonal use, trauma, any medication or previous surgical intervention. Other left side breast was normal. There were no any other significant findings on systemic examination. On sonomamography of Breast Imaging Reporting and Data System of right breast showed irregular heterogeneous echotexture mass (BI-RADS) IV. The mass measuring 4.5x3x2.5 cm. Patient's therapeutic intervention was right sided modified radical mastectomy. On gross examination of specimen (figures 1 & 2).

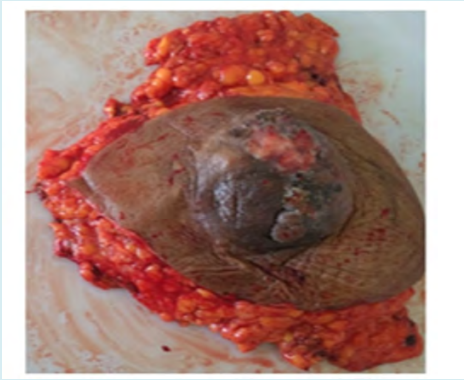

Figure 1: Modified Radical Mastectomy (MRM) specimen of breast showing tumor with skin, areola ulceration.

Figure 2: Specimen of breast tumor cut surface showing grey-white, firm solid, irregular.

Right breast showed mass measuring 4.8x3.5x2.5cm. On cut section showed grey, white, firm, solid, irregular tumor situated subarolar reagion. Overlying skin showed ulceration and nipple areola dystruction. On fine needle aspiration cytology reported as positive for carcinoma cells (figure 3).

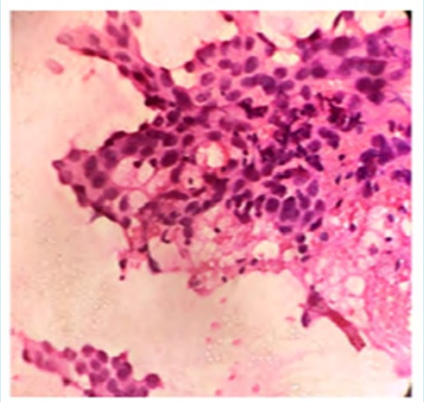

Figure 3: FNAC smears positive for carcinoma cells.

On microscopy showed the tumor of 90% microscopic fields showed features of large tumor cells with sharply defined cell borders .The cell with abundant eosinophilic cytoplasm of granular type, the nucleus to cytoplasm ratio of 1:2. The nuclei are round, large and vesicular and moderately pleomorphic. On histopathology diagnosed as invasive apocrine carcinoma type A- right breast (figures 4 & 5).

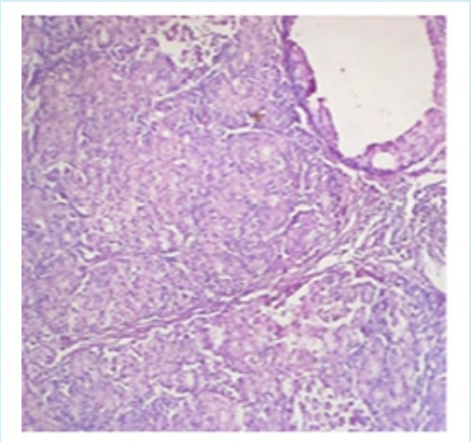

Figure 4: Photomicrograph showing apocrine carcinoma of breast (H & E stain, 40x).

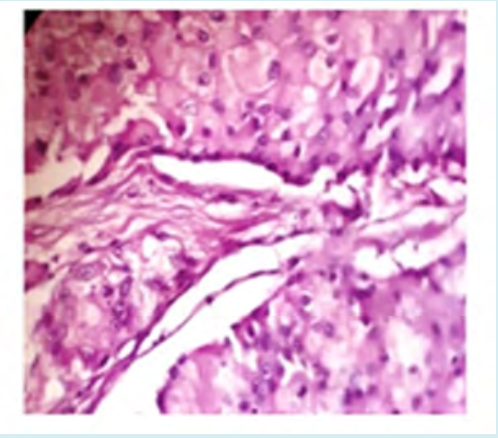

Figure 5: Showing apocrine carcinoma of breast Type A-Tumor cells with abundant acidophilic cytoplasm with eosinophilic granules, central to eccentric vesicular nuclei with prominent nucleoli – (Hand E stain, 100x).

The tumor grading by Modified Richardson- Bloom criteria- it was (2+3+2) grade II. Right axillary lymph nodes 18 were involved by the tumor. Adjacent breast tissue showed areas of apocrine adenosis, inflammation. The immunohistochemistry of breast was ER, PR, and Her2 neu negative (figures 6-8).

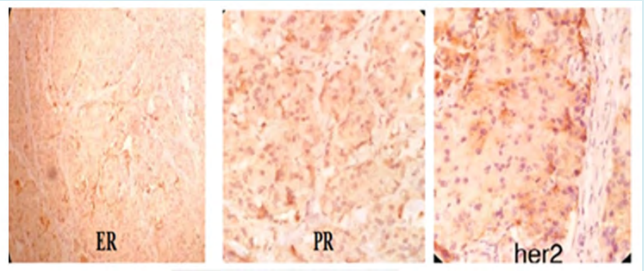

Figure 6,7 and **8:** IHC Study showing triple-negative breast cancer for ER, PR, and Her 2 neu.

The neo-adjuvant therapy was given. On follow-up of 8 months satisfactory healing and no recurrence was noted.

Discussion

The breast apocrine carcinoma is a rare, unique, and morphologically distinctive type of invasive ductal carcinoma. It constituting between 0.3 and 4% of all invasive cancer in women [4]. The average age of the patients with invasive apocrine carcinoma is 48-60 years [5]. Apocrine carcinomas clinically present with palpable lump in breast, rarely with nipple bloody discharge or as a cyst [3,6]. In our case patient was reported in advance disease course with large breast mass involving skin and ulceration. Apocrine carcinomas tend to be unilateral. It may be noted as multicentric lesions. Japaze has proposed the criteria to dignose apocine carcinoma are in the tumor at least 75% of microscopic fields must show features of large tumor cells with sharply defined cell borders. The cell with abundant eosinophilic cytoplasm of usually granular type, the nucleus to cytoplasm ratio of 1:2 or more, the nuclei are round, large and vesicular or may be pleomorphic [7].

In our case on morphology showed round neoplastic tumor cells having distinct cell margins with abundant eosinophilic and granular cytoplasm, centrally to eccentrically located nuclei with prominent nucleoli and distinctive cell borders. (Figure 4&5). There are two types of cell types of apocrine carcinoma of the breast has been described type A and type B. In type a cell are having abundant granular and intensely eosinophilic cytoplasm and in type B cell are having abundant vacuolated or foamy cytoplasm [8]. In our case it is of type a cells. The granules in type a are PAS+ diastase resistant. Apocrine differentiation can be seen in other breast carcinoma subtypes mainly medullary and pleomorphic lobular carcinoma [9]. The other conditions for differential diagnosis are secretory carcinoma, oncocytic carcinoma, lipid rich carcinoma. Some benign conditions like apocrine metaplasia, histiocytic proliferation should be properly look for.

Apocrine epithelium has the characteristic negative for estrogen receptor-alpha (ER), progesterone receptor (PR), Her-2 neu and is positive to steroid receptor- androgen receptor (AR) [10]. Many study showed that specific apocrine marker is GCDFP-15+, however, GCDFP-15 protein expression appears to be reduced in advanced apocrine carcinomas. Apocrine carcinomas has better prognosis than invasive breast carcinoma (NOS) as there seems to be a potential unique response to androgen (fluoxymesterone) administration as a part of treatment. In males very rarely apocrine carcinoma brest were noted, the most common histological types of male breast cancer are IBC of no specific type (90%), followed by invasive papillary and medullary carcinomas of the breast [11].

New approach to androgen receptor as a targeted therapy for breast cancer will be helpful for patients [12]. Triple-negative apocrine carcinoma (TNAC) of the breast is had a better prognosis than patients with TNBC, and chemotherapy was associated with survival advantages in TNAC patients [13]. Most of apocrine breast carcinomas were immunohistochemically-positive for androgen receptor (AR). Anti-androgenic therapies can potentially serve as a cancer-targeting therapy for apocrine breast carcinoma. In our case positive for androgen receptor (AR) and the neo-adjuvant therapy was given. On follow-up of 9 months satisfactory healing and no recurrence was noted.

Conclusion

Apocrine carcinoma is a rare and distinct morphological type of invasive breast cancer. It has better prognosis than invasive breast carcinoma. We are presenting this case for its rarity, clinical behaviour, histomorphological, immunohistochemical features.

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