

DIAGNOSIS OF ADENOID CYSTIC CARCINOMA OF THE BREAST USING FINE-NEEDLE ASPIRATION CYTOLOGY: A CASE REPORTSunita Singh¹, Nidhi Kaushik*¹, Shivani Malik¹ and Rajeev Sen¹¹Senior Professor, ¹PG Resident, ¹Senior Resident and ¹Senior Professor and Head
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Article Received on 12/07/2018

Article Revised on 01/08/2018

Article Accepted on 21/08/2018

ABSTRACT

Adenoid cystic carcinoma (ACC) of breast is a rare variant of breast carcinoma. It accounts for <1% of all breast malignancies. Despite its characteristic appearance on FNA, ACC may be misinterpreted, especially because of its low incidence in the breast. With the increasing use of FNA cytology in the preoperative evaluation of breast lesions, it is likely that increasing numbers of such cases will be identified in the future. The present study highlights cytology features in a case of mammary adenoid cystic carcinoma which is identical to its counterpart in the salivary glands.

KEYWORDS: Breast, Adenoid cystic carcinoma, FNAC.**INTRODUCTION**

Background: Adenoid cystic carcinoma is a rare variant of adenocarcinoma of minor and major salivary glands. This pattern has also been observed in other organs including the breast, tracheobronchial tree, uterine cervix, larynx, and Bartholin's.^[1]

In breast it is rare, accounts for <1% of all breast carcinomas and has excellent prognosis. Although the histological features of ACC have been well known, the cytological manifestations of ACC as a primary breast lesion have been described rarely and are identical to the cribriform type of ACC seen in the salivary glands.^[2]

CASE REPORT

A 65yr female presented to Surgery OPD with complain of a swelling in right breast for last 3 months. Initially, the swelling was painless but had become painful for last 1 month. She gave a history of trauma preceding the swelling. On examination, swelling was firm mobile and measured approximately 3x2.5 cm in upper outer quadrant. Skin overlying the swelling was unremarkable.

Blood investigations were under normal limits. Ultrasonography revealed a 3.3X2.8 cm hypoechoic lesion in right breast at 11'o clock position. There was no evidence of calcification. Colour doppler revealed no evidence of significant internal vasculature.

Fine needle aspiration was performed under all aseptic conditions. Air-dried smears were stained with Leishman stain for cytological examination.

Fine needle aspiration cytology smears of the breast swelling revealed cells arranged in groups, sheets and singly scattered embedded in chondromyxoid matrix. Hyaline globules of various sizes with adherent tumor cells were seen (Figure 1). The monotonous cell population comprising of uniform cells with high N:C ratio, mild nuclear pleomorphism, reticulogranular chromatin, inconspicuous nucleoli and scanty to moderate amount of pale basophilic cytoplasm were observed. (Figure 3) These cytological features were consistent with mammary adenoid cystic carcinoma.

Legends

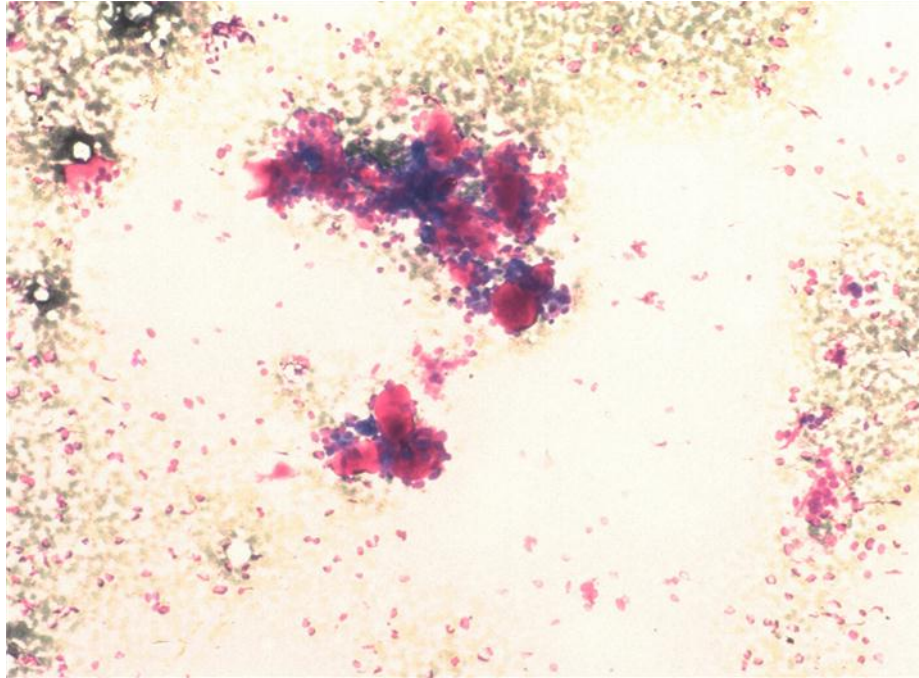


Figure 1: Large cohesive aggregates of cells associated with stromal material (x100).

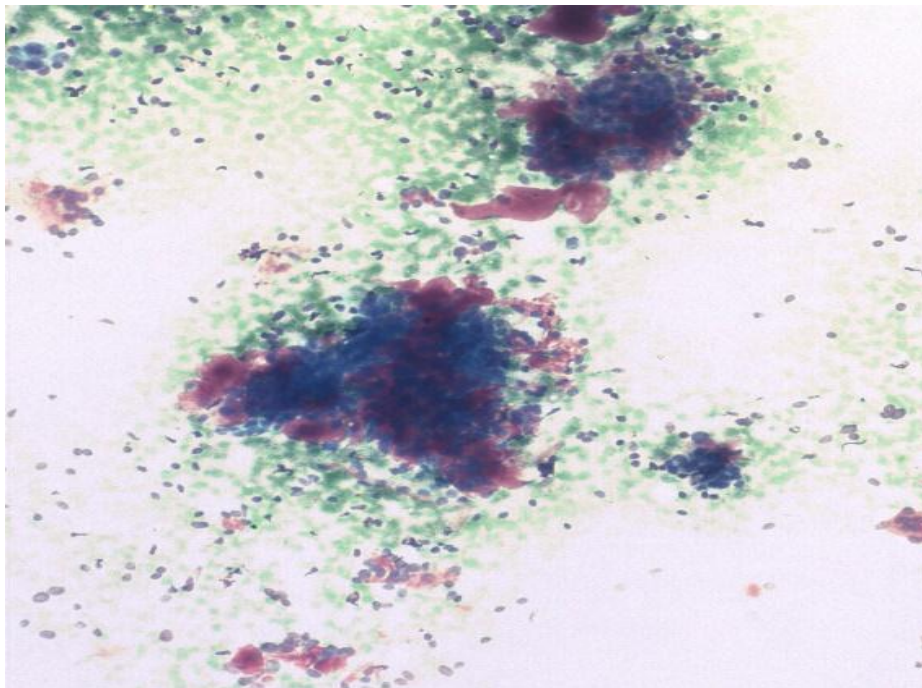


Figure 2: Numerous bare nuclei are present in the background (x100).

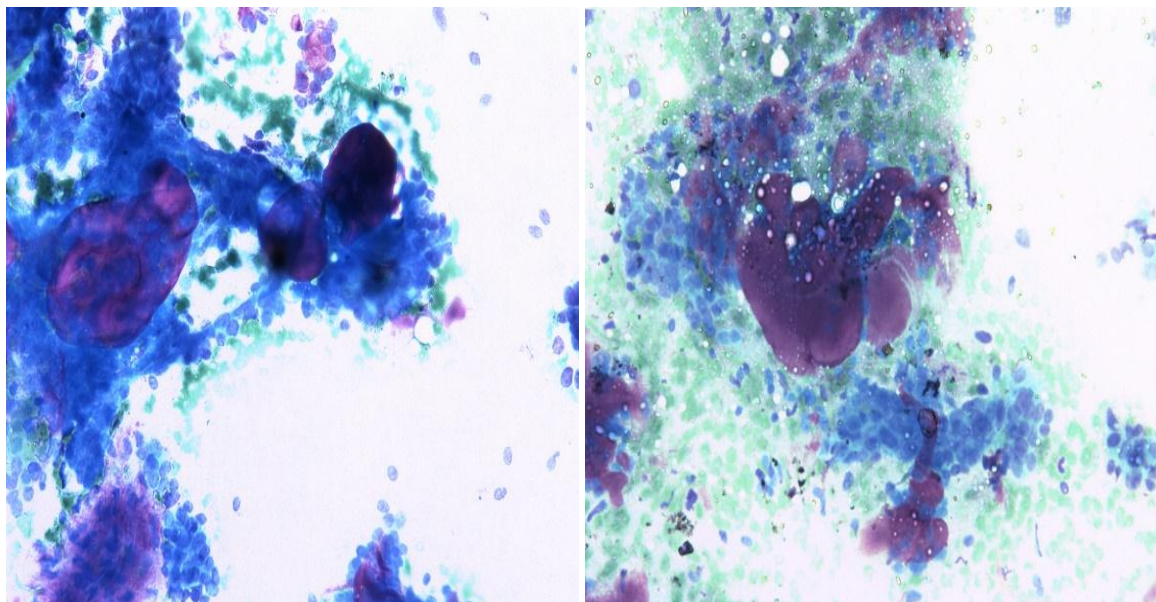


Figure 3: A highly cellular smear containing round and branching multilayered clusters of cohesive, small, uniform epithelial cells surrounding cylindromatous metachromatic magenta globules. (x200).

DISCUSSION

The term adenoid cystic carcinoma is attributed to Ewing and this term is preferred because it accurately depicts the malignant nature of the tumor.^[3] The age and symptoms of our patient correspond to those reported in the literature. Adenoid cystic carcinoma occurs predominantly in women with a mean age of 50 to 64 years and is rarely bilateral. Typical presentation is a mass that is occasionally tender TO palpate. The tumor is rarely fixed to the overlying skin, nipple, or pectoral muscles.^[4]

ACC of the breast has a good prognosis and early cytological diagnosis is very important. Despite its characteristic appearance on FNA, ACC may be misinterpreted, especially because of its low incidence in the breast. The cytological differential diagnoses of ACC in the breast include other biphasic lesions with metachromatic stroma such as collagenous spherulosis (CS), pleomorphic adenoma (PA), adenomyoepithelioma (AM) and metaplastic/infiltrating ductal carcinoma (MC).^[5]

CS very often mimics the features of ACC in the breast and demonstrates similar spherical globules admixed with benign ductal epithelial and myoepithelial cells; however, it usually does not form a mass and is limited in extent, involving only a few ducts. In contrast to the three-dimensional cell clusters with high nuclear to cytoplasmic ratios seen in ACC, CS yields cells arranged as two-dimensional sheets with lower nuclear to cytoplasmic ratios. The naked nuclei of ACC are round and resemble those present in the three dimensional clusters, whereas bipolar naked nuclei are present in CS.^[6] (Figure 2).

PA (mixed tumor) of the breast is a rare tumor, morphologically identical to its benign counterpart in

salivary glands. A well defined cytoplasm with few or no stripped nuclei and a bland granular nuclear chromatin favour pleomorphic adenoma whereas scanty cytoplasm, high N:C ratio, naked hyperchromatic nuclei favour adenoid cystic carcinoma.^[7]

AM is a benign biphasic tumor that has metachromatic stroma on aspirate smears but it has spindle-shaped cells which is characteristic feature observed in fibroepithelial breast lesions rather than in ACC.^[8] Primary infiltrating breast carcinomas can be biphasic (metaplastic carcinoma) and/or have metachromatic stroma (infiltrating ductal carcinoma). Smears of metaplastic carcinoma have significant cytologic atypia and lack the characteristic hyaline globules.^[7] Infiltrating breast carcinoma with extracellular metachromatic spheres has nuclear enlargement and single atypical cells with preserved cytoplasm which distinguish it from ACC.^[2]

CONCLUSION

ACC recognition is very desirable from FNAC samples, which are becoming more common as a first line of investigation for diagnosis of all types of breast abnormalities. Therefore, it is of paramount importance that the cytopathologist keep the features of this rare breast tumor in mind, especially if a clinical mass is present and the FNAC sample is highly cellular with abundant clusters of small cells with round, monotonous, hyperchromatic nuclei and scanty cytoplasm arranged around cores of acellular homogenous material.

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