Case Report

Cytological diagnosis of adenoid cystic carcinoma of the breast: A rare case report

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ABSTRACT

Adenoid cystic carcinoma (ACC) of the breast is a rare neoplasm and is known to have an excellent prognosis. We are presenting a case of ACC of the breast in a 59-year-old female diagnosed preoperatively by fine-needle aspiration cytology.

Key words: Adenoid cystic carcinoma, breast, fine-needle aspiration cytology, treatment

INTRODUCTION

Adenoid cystic carcinoma (ACC) of the breast is a rare tumor that represents about 0.1% of breast malignancies.[1,2] It is morphologically and cytologically identical to its namesakes in the salivary glands and other sites. Unlike its nonmammary counterparts, ACC of the breast is associated with an excellent prognosis.[2] Most patients present in the perimenopausal age group with a painful lump in the subareolar or central region of the breast.[3] The tumor can be easily diagnosed using fine-needle aspiration cytology (FNAC) which also proves useful in determining the appropriate treatment.[4] It should be differentiated from benign conditions, such as collagenous spherulosis (CS) and other malignant conditions, like invasive cribriform carcinoma.[5]

CASE REPORT

A 59-year-old postmenopausal female patient presented with a history of awareness of a painful lump in the left breast for 1-year which gradually increased to present size. Clinical examination revealed a 3 cm × 3 cm firm subareolar lump in the left breast. Fine-needle aspiration (FNA) was performed from the lump. Smears were air dried and stained with Giemsa stain.

The smears were highly cellular with a clean background lacking inflammation or necrosis. Numerous variably sized cohesive clusters and the occasional cup-shaped fragments of small, slightly atypical cells having uniform round to oval hyperchromatic nuclei with coarsely granular chromatin, small nucleoli, and scant basophilic cytoplasm were seen. Numerous bright pink spherical hyaline globules were seen within and outside the cell clusters. At places, finger-like projections of pink hyaline material were seen between the cell clusters. [Figure 1]

Considering the cytological features, history and age of the patient, a diagnosis of ACC breast was made. The patient underwent breast-conserving surgery with left axillary clearance. Subsequent histopathology corroborated the FNA diagnosis. All resected lymph nodes were found to be free from any metastatic tumor deposits.

DISCUSSION

Adenoid cystic carcinoma occurs in several areas of the body: The tracheobronchial tree, nasopharynx, maxillary sinus, salivary glands, Bartholin's gland, and uterine cervix. In these locations, it is a highly lethal neoplasm with 5-year patient survival approximately 30%.[6] The term ACC was first used in reference to breast cancer by Creschikter in 1945.[7]

Adenoid cystic carcinoma of the breast is rare, slow growing neoplasm accounting for 0.1% of all breast neoplasms. In

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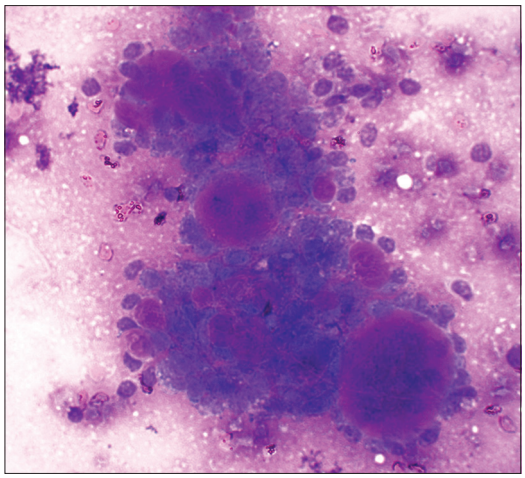

Figure 1: Cohesive clusters of mildly atypical tumor cells having uniform hyperchromatic nuclei, coarsely granular chromatin, and scant basophilic cytoplasm with numerous hyaline stromal globules both within and outside these clusters (Giemsa ×400)

sharp contrast to the extramammary counterpart, ACC of the breast has an excellent prognosis, as the incidence of lymph node metastasis is lower and distant metastases uncommon.[2] The tumor occurs predominantly in women with a mean age of 60–64 years. It is rarely bilateral, and the most frequent presents as a tender breast mass, which was seen in our patient. The diagnosis can be made on FNAC. The smears are highly cellular and contain extracellular spheres of the metachromatic material surrounded by uniform cells with scant cytoplasm.[8] Cytological diagnosis is important not only due to excellent prognosis, but also because it may play a role in determining treatment. In few case reports, ACC diagnosed preoperatively by FNAC was managed by breast-conserving surgeries with axillary dissection and adjuvant radiotherapy instead of primary chemotherapy or mastectomy,[4] Our patient also underwent breast-conserving surgery with left axillary dissection.

Adenoid cystic carcinoma should be differentiated from benign conditions, such as CS on cytology. CS is a benign entity and mostly an incidental microscopic finding, rarely it may present as a palpable mass in women aged 39–55 years. CS is usually associated with other benign lesions, such as ductal hyperplasia, proliferative breast lesions, such as intra-duct papilloma, papillary duct hyperplasia, atypical ductal hyperplasia and sclerosing adenosis. FNA smears show epithelial cells in clusters, scattered singly, with myoepithelial cells and spherules that appear magenta colored in May–Grunwald–Giemsa and light pink in hematoxylin and eosin stained slides with numerous bare bipolar nuclei in the background.[9,10]

Adenomyoepithelioma is another rare tumor composed of myoepithelial cells that must be distinguished from ACC. The cells of adenomyoepithelioma are arranged in tightly cohesive clusters with scant stromal material but lack the typical hyaline globules of ACC.[10]

CONCLUSION

ACC of the breast is a rare but distinctive neoplasm that can be accurately diagnosed by FNAC. FNAC also contributes in determining appropriate treatment.

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