Plasmacytoid appearance of tumor cells in breast aspirates on fine needle aspiration cytology: Diagnostic predicament for the cytopathologist

Sir,
Plasmacytoid appearance of cells in breast aspirates on fine needle aspiration cytology (FNAC) can cause diagnostic difficulties. We describe a case of a 66-year-old woman with plasmacytoid morphology of breast tumor cells on FNAC, confirmed to have lobular carcinoma breast on histology. The aspirates showed high cellularity and consisted of dyscohesive population of cells with predominantly plasmacytoid morphology, causing confusion with a primary plasmacytoma of the breast.

A 66-year-old woman noticed a painless lump in the right breast of 2 months duration. Clinical examination revealed an ill-defined firm mass in the lower outer quadrant of the right breast measuring 2 cm. The overlying skin, nipple and areola were normal. Mammography revealed a right-sided,
ill-defined hypoechoic lesion measuring 1.5 cm × 0.98 cm at 6 to 7 o’clock position with few prominent subareolar ducts (BIRADS 4).

A FNAC of the lump revealed cellular smears with moderate to abundant cytoplasm and eccentrically placed nuclei with moderate anisonucleosis. The low-power appearance was reminiscent of a plasmacytoma as the cytoplasm was amphophilic and occasional binucleate cells were also seen. On higher magnification, intracytoplasmic vacuoles were seen [Figure 1a]. No single cell distribution or “Indian-file” pattern was seen. Nucleoli were inconspicuous and there was no increase in mitotic activity. A diagnosis of “suspicious for breast carcinoma, ductal versus lobular” was offered and trucut biopsy for histopathology confirmation was advised. Histology revealed dyscohesive proliferation of cells with dense eosinophilic cytoplasm and eccentrically placed nuclei, distending ductal lumina. Tumor cells showed expression of estrogen and progesterone receptors on immunohistochemistry and absence of HER2neu and membranous E-cadherin expression. A diagnosis of solid invasive lobular carcinoma (ILC) was established. The patient underwent modified radical mastectomy. On the resection specimen, multiple foci of lobular intraepithelial neoplasia were seen [Figure 1b].

ILC of the breast, commonly observed in post-menopausal women, may be tricky to diagnose on FNAC frequently due to paucicellularity of smears, small cell size and bland appearance of tumor cells in the aspirate samples.[1,2] This is the most common variant of breast carcinoma associated with an increased false-negative diagnosis on FNAC. Besides this, the distinction between invasive ductal and ILC may not always be possible on FNAC.

In this case, smears were cellular, unlike the classical ILC, where scanty cellularity is usually encountered. Majority of the cells had plasmacytoid appearance. Many cells showed perinuclear clearing, causing a diagnostic dilemma with hof of plasma cells. The points in favor of breast carcinoma were the absence of the cartwheel chromatin of the nucleus of plasma cell, lack of mitosis, inconspicuous nucleoli and presence of intracytoplasmic vacuoles in perinuclear distribution [Figure 1a].

Plasmacytoid appearance of tumor cells in breast FNAC have been reported in ILC, particularly in the pleomorphic variant,[3] invasive ductal carcinoma including secretory carcinoma breast,[4] the apocrine type, carcinoma with endocrine differentiation,[5] primary plasmacytoma of breast and the rare granular cell tumor.[2]

This case emphasizes the importance of recognizing cytomorphological features of ILC on FNAC when plasmacytoid cells are encountered.

**References**

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