Diagnostic cyto-histological features of carcinoma of the breast with osteoclast-like giant cells and neuroendocrine differentiation.


Dipartimento di Scienze Biomediche Avanzate* e di Sanità Pubblica°
Università degli Studi di Napoli “Federico II”
A 72-years-old woman presenting at mammography a circumscribed radiopacity of 15 mm in the upper inner quadrant of the right breast was referred for US-guided FNC.

Diff Quik and Papanicolaou stained smears and cell-block (CB) were performed.
Cytological diagnosis:
On the basis of this morphological and phenotypical findings a cytological diagnosis of invasive dissociated breast carcinoma with osteoclast-like giant cells was performed.

surgical excision

The specimen excised on gross examination measured 10x6x2.5 cm and in section was occupied by a firm nodule of 15x13 mm with expansive margins, whitish with hemorrhagic areas.
At histological examination the tumour was composed of cellular nests, cords or islands separated by thin fibrovascular septa.
Neoplastic cells were monomorphomorphic, with round-oval nucleus, granular chromatin, moderately prominent nucleolus; the cytoplasm was finely granular eosinophilic, with an eosinophilic globule, contained in a clear vacuole.

Non-neoplastic multinucleated giant cells osteoclast-like were present wrapping around the tumour nests or in the interstitial septa.
A diagnosis of invasive ductal carcinoma with osteoclast-like giant cells with neuroendocrine differentiation was made.

The cytological evaluation of neuroendocrine markers was performed after the histological diagnosis.
The neuroendocrine carcinoma of the breast is extremely rare and accounts for 2% of breast cancers.

The first to describe a tumor of the breast with aspects of neuroendocrine carcinoma were Feyter and Hartmann (Feyter F, 1963) and subsequently Cubilla and Woodruff (Cubilla AL, 1977) that described a tumour with carcinoid aspects using silver precipitates staining and electron microscopy.

Primary NE carcinoma of the breast was recently recognized as a distinct entity and was added to the WHO classification of tumours 2003 under category of NE tumors.
Osteoclast-like giant cells have been identified in several histiotype of invasive breast carcinoma as ductal invasive and in situ carcinoma, lobular, mucinous, papillary tubular and metaplastic carcinoma. Furthermore osteoclast-like giant cells are been identified in very few cases of neuroendocrine (NE) carcinoma of the breast.


✓ Osteoclast-like giant cells are characterized by hystiocytic lineage, and are morphologically and immunophenotypically distinct from multinucleated stromal giant cells and neoplastic multinucleated cells;

✓ The neoplastic mononucleated cells and multinucleated cells show a dichotomous staining pattern suggesting that the giant cells are not tumour derived, but represent a second, presumably reactive, cell population;

✓ Osteoclast-like giant cells don’t show neuroendocrine differentiation when associated with neuroendocrine carcinoma.
The correct diagnosis of an unusual histological type of breast cancer, as well as in our case of neuroendocrine carcinoma with osteoclast-like giant cells, may allow appropriate management of the patients.