Interesting image

A rare case of clear cell carcinoma of the breast evaluated by $^{18}$F-FDG PET/CT

Un caso poco frecuente de carcinoma de células claras de la mama evaluado con $^{18}$F-FDG PET/TC

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A 53-year-old woman with a palpable mass in the left breast with coexisting skin ulceration at physical examination underwent breast ultrasonography (US) for staging. US showed a large inhomogeneous and hypervascular mass in the left breast and enlarged lymph nodes in the left axilla. US-guided biopsy demonstrated the presence of a clear cell carcinoma (CCC) of the breast. The patient refused neoadjuvant chemotherapy and a $^{18}$F-FDG PET/CT scan was performed for staging before surgical planning. PET/CT images were acquired one hour after i.v. injection of 270 MBq of $^{18}$F-FDG. Glucose blood levels corresponded to 92 mg/dL before radiopharmaceutical injection. PET/CT showed an area of increased $^{18}$F-FDG uptake corresponding to a 8 cm mass in

Fig. 1. Maximum-intensity-projection $^{18}$F-FDG PET image (A), axial non-enhanced CT (B) and fused PET/CT image (C) showing increased tracer uptake corresponding to a 8 cm mass located in the left breast (arrows) with a SUV$_{max}$ of 22. At hematoxylin and eosin stain the breast mass was composed by large cells arranged into a solid pattern and characterized by abundant vacuolated clear cytoplasm, marked nuclear pleomorphism and high number of mitoses (D). The proliferative index (Ki67%) was 80% (E).

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the left breast (Fig. 1A–C) with a maximum standardized uptake value ($SU_{\text{max}}$) of 22. No other areas of abnormal $^{18}$F-FDG uptake were detected in the rest of the body. Negative results outside breast with $^{18}$F-FDG PET/CT enhanced the surgical decision to perform left mastectomy and ipsilateral axillary lymph node dissection.

At hematoxylin and eosin stain the breast mass was composed by large cells arranged into a solid pattern and characterized by abundant vacuolated clear cytoplasm, marked nuclear pleomorphism and high number of mitoses (Fig. 1D). This tumor did not express estrogen receptor alpha, progesterone receptor, or human epidermal growth factor receptor 2 (“triple-negative” feature). The proliferative index (Ki67%) was 80%. A final diagnosis of CCC of the left breast without metastatic spread was performed (final stage after surgery: T4N0M0) and the patient was addressed to adjuvant radiation therapy.

CCC is a rare malignant tumor of the breast, accounting for 0.9%–2.8% of all breast cancer cases. Most of these tumors are invasive carcinomas with a poor prognosis. The histology appearance of CCC is typical as these tumors are composed almost entirely of polygonal cells with clear cytoplasm. The immunophenotype of CCC is not uniform, but it is similar to that of conventional ductal carcinoma.1,2

To the best of our knowledge, no cases describing $^{18}$F-FDG PET/CT findings in this rare breast tumor are reported in the literature. Conversely, it was demonstrated that $^{18}$F-FDG PET/CT may provide useful information in patients with locally advanced breast carcinoma.3

We have described an increased uptake of $^{18}$F-FDG in this rare malignancy. Furthermore, in our case, $^{18}$F-FDG PET/CT has been useful in staging before surgical planning.

References