Interesting images

A rare case of adenoid cystic carcinoma of the breast detected by $^{18}$F-FDG PET/CT

Un caso poco frecuente de carcinoma adenoide quístico de mama detectado con $^{18}$F-FDG PET/CT

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A 51-year-old female patient underwent $^{18}$F-FDG PET/CT searching for the cause of a fever of unknown origin.

Before $^{18}$F-FDG injection, the patient had fasted for at least 6 h; at the time of the radiopharmaceutical injection the glucose blood levels corresponded to 96 mg/dL. Images were acquired 1 h after i.v. injection of $^{18}$F-FDG.

$^{18}$F-FDG PET/CT showed an area of increased radiopharmaceutical uptake corresponding to a 2.5 cm lesion in the left breast (Fig. 1A–C) with a maximum standardized uptake value (SUVmax) of 3.4. No other areas of abnormal $^{18}$F-FDG uptake were detected in the rest of the body. Based on this $^{18}$F-FDG PET/CT finding the patient underwent mammography and ultrasonography of the breast which showed a 2.5 cm irregular nodule in the left breast. Therefore an excisional biopsy of the breast nodule was performed. At hematoxylin and eosin stain the breast nodule was composed of basaloid cells arranged into a cribriform pattern with small, angulated, and hyperchromatic nuclei and scant cytoplasm (Fig. 1D). This tumor did not express estrogen receptor alpha, progesterone receptor, or human epidermal growth factor receptor 2 (“triple-negative” feature). A final diagnosis of adenoid cystic carcinoma (ACC) of the left breast was performed and the patient was addressed to breast-conserving treatment.

ACC is a rare tumor accounting for 0.1% of the breast carcinomas. This malignant tumor often presents a deceptively benign histologic appearance and it is frequently characterized by indolent, locally invasive growth with propensity for local recurrence and distant spread. The histological characteristics of ACC in the breast are similar to those of ACC of the salivary glands. However, the prognosis of ACC of the breast is better than that of other localizations with prolonged survival. Surgical treatment is the mainstay with little role for radiation therapy and chemotherapy according to the published literature.$^{1,2}$

A previous paper described the $^{18}$F-FDG PET findings in a case of ACC of the breast, reporting a not significant radiopharmaceutical uptake in this unusual breast tumor, maybe for the small size of the lesion (8 mm).$^3$ Conversely a recent manuscript reported a case of metastatic ACC of the breast with positive findings at $^{18}$F-FDG PET/CT.$^4$

We have described an increased uptake of $^{18}$F-FDG in this rare malignancy which should be therefore considered among the possible sources of incidental $^{18}$F-FDG uptake in the breast.$^5$

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Fig. 1. Maximum-intensity-projection $^{18}$F-FDG PET image (A), axial non-enhanced CT (B) and fused PET/CT image (C) showed increased radiopharmaceutical uptake corresponding to a 2.5 cm lesion located in the left breast (yellow arrow) with a SUVmax of 3.4. At hematoxylin and eosin stain the breast nodule was composed of basaloid cells arranged into a cribriform pattern with small, angulated, and hyperchromatic nuclei and scant cytoplasm (D).

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**Conflicts of interest**

The authors declare that they have no conflicts of interest.

**References**