Interesting images

PET/CT scan with $^{18}$F-FDG in re-staging of an atypical case of ovarian cancer*

La PET/TAC con $^{18}$F-FDG en la re-estadificación de un caso atípico de cáncer de ovario

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We present the case of a 54-year-old patient with no known drug allergies or personal history of interest except smoking who was diagnosed with and underwent surgery in October 2005 for undifferentiated ovarian carcinoma of 16 cm with capsule integrity. Immunohistochemistry study of the surgical piece demonstrated intense positivity for carcinoembryonary antigen (CEA) and pan-cytokeratin (panCK) and moderate positivity for CK7 and CK20. Neoadjuvant chemotherapy was initiated according to the gold pattern in patients with advanced ovarian neoplasms with 3 cycles of carboplatin AUC5 + taxol 175 mg/m$^2$. Due to the persistence of parametrial infiltration radiotherapy was indicated (50 Gy) followed by subtotal hysterectomy and a similar chemotherapy regimen. The persistence of an image of 4 cm × 2 cm in the upper and posterior region of the surgical stump was observed in a magnetic resonance (MR) performed at 15 months. An $^{18}$F-FDG PET study was requested and performed following the protocol in our unit. Focal radiotracer uptake of 1 cm × 1.5 cm with SUVmax of 3.0 was observed in the medial side of the spleen (Fig. 1A) indicating a low probability of malignancy. Another focal uptake of infravesical localization (Fig. 1B) was present which did not correspond to the lesion described in the MR, being suggestive of urinary activity in the urethral canal. In the protocolized follow up control, an elevation in serum CEA (61.8 ng/mL) was observed, with no pathological findings in the chest and abdominal CT, thereby leading to a request for a new $^{18}$F-FDG PET-CT study. Performed 8 months after the previous study, this study showed 4 pathological foci of uptake of the radiotracer in the left axillary region and another in the left supraclavicular region (Fig. 2) corresponding to adenopathies of 0.9–2 cm in size and with a SUVmax of 1–3.5 in the axilla and of 1.3 cm and with a SUVmax of 4.5 in the supraclavicular adenopathy in the CT images. Fine needle aspiration puncture of an axillary adenopathy confirmed the diagnosis of metastasis of the ovarian cancer and

![Fig. 1. $^{18}$F-FDG PET study shows foci of uptake (arrows) in the medial side of the spleen with a SUVmax of 3 (A) as well as in the infravesical region (B), with a low probability of malignancy.](image-url)
Fig. 2. \(^{18}\)F-FDG PET-CT study with pathological foci of uptake in the left supraclavicular region with a SUV\text{max} of 4.5, and in the left axilla of 0.9–2 cm and with a SUV\text{max} from 1 to 3.5.

Palliative radiotherapy was administered. A bone scintigraphy ruled out skeletal involvement. Three years later, the patient presented a picture of dizziness and ambulatory instability accompanied by a marked elevation of tumor markers (CA125: 1533 U/mL), suggestive of disease progression at encephalic level. The incidence of cerebral metastasis in ovarian cancer is of 4% and is associated with a poor prognosis,\(^3\) and thus palliative therapy with low dose corticoids was initiated. The patient died in July 2010.

In conclusion, \(^{18}\)F-FDG PET/CT was effective to detect lymphatic metastasis of atypical localization in a patient with undifferentiated ovarian cancer in the context of an elevation of tumor markers and negative morphological studies, allowing an adequate therapeutic approach to be chosen thanks to its high sensitivity and clinical impact.\(^2\)

References