Interesting images

Combined imaging approach to diagnose a meningioma in a patient with prostate and lung cancers

Uso combinado de técnicas de imagen para el diagnóstico de meningioma en un paciente con cáncer de próstata y de pulmón


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A 79-year-old man with prostate cancer (PCA) and lung adenocarcinoma stage IIA that were both surgically treated (in 1996 and 2012, respectively) underwent a 18F-fluorothilcholine (18F-FECH) positron emission tomography/computed tomography (PET/CT, Fig. 1). 18F-FECH PET/CT was performed to exclude PCA recurrence due to the rise from 2008 in prostate specific antigen serum level (2.9 ng/mL at the time of examination). The patient was asymptomatic. PET/CT showed only an area of abnormal 18F-FECH uptake located in the left parasellar region (see Fig. 1B). This finding was considered suspect for a brain metastasis from PCA or lung cancer. Subsequent radiological images (Fig. 2) confirmed the presence of a lesion which presented the typical characteristics of meningioma.1 Meningioma is the most common benign slow-growing tumor in adults that originate from the outer covering layers of the brain frequently supratentorial (85–90%) located along the falx or at the convexity (45%), and at the sphenoid ridge (15–20%). Radiology has proven to have powerful capabilities in evaluating meningioma. Magnetic resonance imaging (MRI) is particularly useful to diagnose meningioma since it has the ability to assess soft tissue characteristics and to demonstrate the dural tail or “dural flair” (see Fig 2B), a finding frequently not observed at CT, and cerebrospinal fluid “cleft sign”, which is not specific for meningioma, but helps establish the mass to be extracranial.

In conclusion, since radiolabeled choline brain uptake can occur in different conditions (including primary brain malignancy, tumor metastasis, pituitary adenoma, abscess, tuberculosis, benign gliocyte proliferation, inflammatory granuloma and demyelination)2–3 all causes should be carefully considered during image interpretation and 18F-FECH tumor deposits cannot be “a priori” excluded, thus correlative imaging with radiology is of the utmost importance.

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Fig. 1. The maximum intensity projection (MIP) image (A) shows an area of abnormal $^{18}$F-FECH brain uptake (red arrow). MIP not identifies other area of pathological $^{18}$F-FECH uptake. Axial PET/CT images (PET right panel, low dose CT middle panel, fused PET/CT image) confirm the intense $^{18}$F-FECH uptake in left parasellar region (B).

Fig. 2. Using brain MRI (A) the lesion appeared as a small solid extra-axial mass (size of 13 mm × 11 mm × 12 mm) of the left parasellar region, attached to the left sphenoid bone, isointense to the gray matter on long TR sequences. After contrast-infusion (Gadolinium), the lesion presents on T1 SE images intense and homogeneous enhancement characterized by the “dural tail” sign (red arrow) along the medial side of the lesion in axial image (B). The contrast enhanced CT image (C) confirmed the same finding showing a small solid extra-axial lesion, slightly hyperdense to normal brain with bright and homogeneous contrast-enhance, located in the left parasellar region.

Conflict of interest

All the authors declare that they have no conflict of interest.

References

