Interesting image

Pulmonary tumor embolus with high $^{18}$FDG uptake mimicking lung metastasis from renal-cell cancer

Embolia pulmonar tumoral con alta captación de $^{18}$FDG imitando metástasis pulmonar de cáncer de células renales

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A 60-year-old Caucasian man referred to our Department for chest pain and dry cough from 15 days. His medical history was unremarkable with the exception of renal-cell cancer (RCC) diagnosed and resected six months earlier by a right radical nephrectomy. Few days before the admission, a whole body $^{18}$FDG positron emission tomography (PET-CT) scan was performed; nuclear images evidenced a left hilar hyper-metabolism (SUV max 6.7) suggestive of intrapulmonary recurrence (Fig. 1A–C). After the admission, due to symptoms aggravation, a contrast-enhanced computed tomography (CT) scan was carried out disclosing a hyper-vascularized solid nodule (measuring 19 mm in the major axis) localized into the left inferior pulmonary artery and with extension through the lingular artery (Fig. 1D), consistent with tumor embolus. After a multidisciplinary meeting, the patient underwent surgery in order to obtain immediate arterial desobstruction. Intra-operatively, an infiltration of the vascular posterior wall was disclosed (Fig. 2) so the patient underwent a left lower lobectomy for radical intent without complication. Final pathology was consistent with RCC embolus. No evidence of recurrence was found at 1 year of follow-up.

In literature, thrombosis in cancer patients is usually reported, while tumor thrombosis is very uncommon. As a rule, such complication may develop in patients with tumors arising from liver, pancreas, kidney and colon as a result of direct infiltration of vena cava or other major vessels.

In this setting, discrimination between regular and tumor thrombus is a challenging clinical issue in RCC patients because of the different treatments proposed (antithrombotic therapy vs endovascular/surgical removal). PET-CT has been evaluated by others in the assessment of embolism, however, due to low sensitivity rate reported, its utility for metastases identification is still controversial in RCC.

According to these findings and to the case we presented, we believe that contrast-enhanced CT scan may be more sensitive in diagnosing lung tumor embolism. When this condition is suspected, radiological (CT-scan) and nuclear (PET-CT) imaging should be jointly employed in order to obtain a more accurate evaluation in RCC patients and to distinguish between benign or malignant thrombus and lung metastases. Furthermore, a thromboarteriectomy (and pulmonary resection
Fig. 1. (A–C) Whole body PET-CT performed 1 h after the administration of 296 MBq of $^{18}$FDG: the images evidenced an increased uptake of a round-shaped solid nodule localized in the left pulmonary hilum (SUV max 6.7). No sign of mediastinal or extra-thoracic disease was disclosed. (D) Contrast-enhanced CT scan performed after patient’s admission: CT slice showed a hyper-vascularized solid nodule (measuring 19 mm in the major axis) localized into the left inferior pulmonary artery and with extension through the lingular artery. Based on nuclear and radiological imaging, a diagnosis of tumor thrombus was achieved.

Fig. 2. Intraoperative findings: after arteriotomy of the lower pulmonary artery, an attempt to remove the thrombus was performed. Due to macroscopic infiltration of the arterial posterior wall, a left lower lobectomy was carried out in order to obtain a radical resection. Final pathology was consistent with tumor embolus from RCC.

if vascular infiltration is evidenced) is mandatory to perform onco-
logical and vascular treatment simultaneously.

Conflict of interest

None declared.

References

3. Snow D, Cohen D, Chapman WC, Grubb RL 3rd. Positron emission tomogra-