

The thickened pericardium was removed phrenic-to-phrenic laterally and from the diaphragm to the aorta. Epicardiectomy was performed by subtotal decortication of the anterior and lateral faces of the heart. This is the crucial step of the surgery when sometimes the separation of the epicardium from the myocardium is almost impossible. In cases like this, a Waffle procedure can be performed to avoid the risk of accidents.<sup>10</sup> In these series, CP was related to worst outcome with death or palliation in three patients with a mortality rate of almost 20%. The effective treatment with an aggressive surgery as the pericardiectomy on the other hand was responsible for a good response with long survival rate.

This is the first case of CP after a single lung transplantation. Since there was no cardiopulmonary assistance and minimal pericardial manipulation, idiopathic or multifactorial causes should be involved. The most important is the prompt diagnosis to assure ideal surgical treatment to avoid fatal outcome.

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## Thoracic CT Scan vs PET-TC Imaging in the Diagnosis of Patients Suffering Exudative Pleural Effusions with Suspicion of Malignancy



### TC de tórax vs. PET/TC en el diagnóstico de pacientes que sufren derrame pleural exudativo con sospecha de neoplasia maligna

Dear Editor,

In the evaluation of a patient with pleural effusion (PE), clinical, radiological and pleural fluid data leads to the suspicion of malignancy.<sup>1–4</sup> Following cytological analysis of the pleural fluid, chest computed tomography (CT) and other tests according to clinical criteria, a videothoracoscopy is indicated. This is the most efficient diagnostic method in malignant PE.<sup>5</sup>

Recent meta-analysis precludes routine recommendation of a positron emission Tomography (PET)-CT for discriminating malign from benign PE. PET-CT has proved useful in the study and staging of multiple neoplasms yet its role in patients with PE suspicious of malignancy has not been analysed.<sup>6</sup>

This is a prospective study to analyse the PET-CT in relation to thoracic CT of a consecutive series of patients with unclassified PE from October 2013 to June 2016. We included patients with unclassified effusions after clinical history, biochemical, microbiological and cytological analysis, without pleuropulmonary lesions in the chest-X-ray other than the PE, but in whom clinical suspicion of malignancy (defined by constitutional syndrome, high intensity asbestos-exposure, PE greater than 1/3 of the hemothorax or increasing at follow-up and bloody pleural fluid) was established and for whom thoracoscopy and pleural biopsy were indicated. Previously all patients underwent a thoracic CT and a PET-CT. All patients without diagnosis of malignancy (when malignant cells were detected in biopsy specimens.) were followed up until defi-

nite diagnosis was established or by means of clinical examination and imaging at 1, 3, 6 and every 6 months. The institutional ethics committee (CEIC PR(AG)149/2012) approved the study protocol, and the participants signed written informed consent.

Interpretation of chest CT imaging was done by a thoracic radiologist while interpretation of PET-CT imaging was carried out by a Nuclear Medicine Radiologist. They were blinded to the final diagnosis and both evaluated and registered a series of radiological findings and established a qualitative diagnosis of malignancy, benign or inconclusive.

The chi-square test (Fisher's exact test, when necessary) was employed to compare the clinical and radiological characteristics and the findings of the videothoracoscopy. To evaluate the association between the radiological findings from CT and PET-CT images and confirmed malignancy, a logistic regression was performed. Logistic regression was used to identify the best combination of CT and PET-CT findings to establish a better prediction of malignancy.

We included 42 patients with PE under study, 30 men and 12 women with a median age of 68 years old, for whom a diagnosis of malignancy had been established in 18, including 8 mesotheliomas (7 epithelioids and 1 sarcomatoid) and 10 metastatic (1 non-Hodgkin lymphoma, 1 adenocarcinoma of unknown origin and 8 NSCLC). Regarding the 24 benign effusions, 1 tuberculosis, 2 haemothorax and 1 LES were diagnosed.

Regarding CT scan data, the univariate analysis is shown in Table 1. Logistic regression permits to establish a diagnosis in 85.4% of patients due to the combination of nodular pleural thickening below or above 5 mm, the involvement of the mediastinal pleural node and adenopathy in the cardiophrenic angle, permitting correct diagnosis of 15 of the 18 malignant and 21 of the 24 benign effusions, with a sensitivity of 83%, specificity of 88%, VPP of 83% and VPN of 88% in the diagnosis of malignancy.