

Special Issue on

Cancer Screening with Computed Tomography (CT) Scan

Edited by:

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Clinical Image

^{18}F -Fdg PET/CT in Identification of Mixed Pulmonary Thymoma

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CLINICAL IMAGE

A 60-year-old man came to the emergency department for a trauma. Total body CT-scan showed a large solid mass in middle and lower field of left lung with extensive involvement of pleural space, adherent to pericardium and diaphragm. The lesion had irregular contours and coarse calcifications; it displaced the lower lobar bronchus being without any mediastinal or lymph nodal involvement.

Since CT guided needle aspiration did not provide an adequate cellularity, lesion nature was evaluated by a PET/CT scan that was performed according to standard procedure with 353 MBq of ^{18}F -FDG being injected in the presence of a serum glucose level of 5.5 mMol/L.

Pathologic tracer retention was observed only in the left pulmonary mass without any evidence of increased metabolism in mediastinum or remote areas. FDG uptake was only moderately increased (SUV max 3.5) suggesting a moderately aggressive

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Submitted: 27 January 2014

Accepted: 28 February 2014

Published: 11 March 2014

ISSN: 2333-7095

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nature of the lesion despite its sizeable extension. Moreover, tracer distribution was largely heterogeneous with hot spots immersed in a relatively of background, without any evidence of necrosis both at functional and morphological images. The disagreement between lesion morphology and tracer uptake and distribution suggested that the lesion was unlikely caused by a primary lung cancer, while the absence of remote lesions were not consistent with a lung metastasis. Relatively low SUV and its heterogeneous distribution suggested a possible diagnosis of thymoma, whose ectopic location in lung has not been described at PET, to the best of our knowledge. Histology of the surgically excised mass documented mixed foci of type A and type B thymoma; the diagnosis was confirmed by CK34 β E12 expression [1].

Ectopic thymomas have been found in skull base [2], pulmonary parenchyma [3,4] and pleura [5]. In this patient, the peculiar association of morphological features (involvement of both lung parenchyma and pleura) and functional pattern

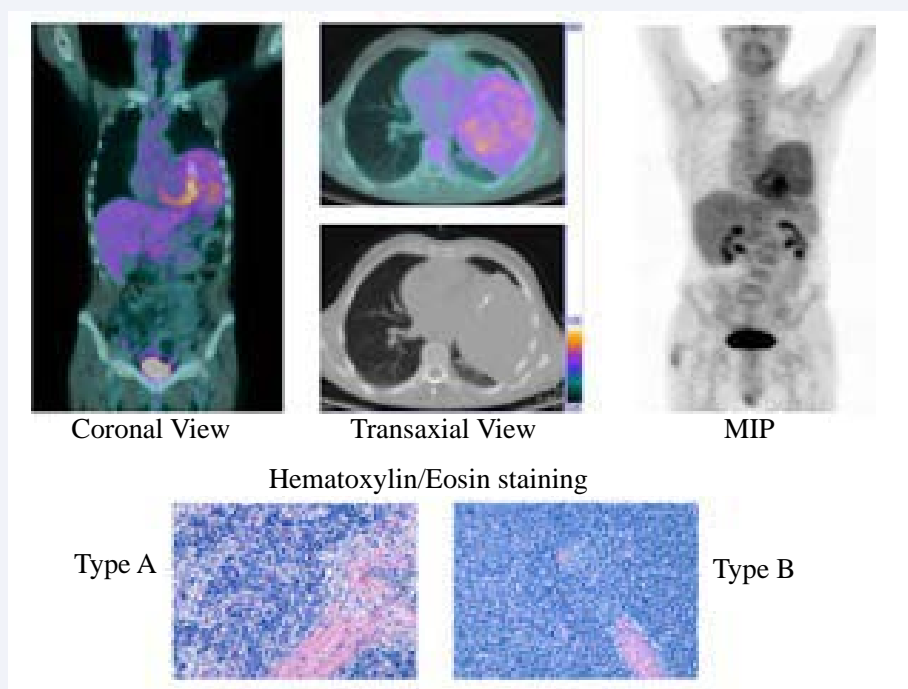


Figure 1 Figure shows, in its superior part, coronal and transaxial view as well as MIP of the PET/CT exam: it is visible the left pulmonary mass without evidence of increased metabolism in mediastinum or remote areas and an only moderately increased tracer uptake (SUV max 3.5). It is clear as the tracer distribution is largely heterogeneous with hot spots immersed in a relatively of background, without any evidence of necrosis.

In the lower part of the figure displays the histological examination of the tumor: it is composed by foci with the features of type A thymoma mixed with foci with the features of type B thymoma. Type a areas are composed by the proliferation of neoplastic thymic epithelial cells characterized by scant cytoplasm and spindle or oval-shaped nuclei with no atypia, accompanied by few or no non-neoplastic lymphocytes. Type B areas are composed by epithelial cells with the same features described above, strictly intermixed to numerous non-neoplastic small-sized lymphocytes, characterized by small nuclei lacking atypia.

In particular: left image shows a detail of a type A area. H&E, o.m. 20x, and right image shows a particular of a type B area. H&E, o.m. 20x.

(moderately increased and largely heterogeneous SUV) were indeed suggestive for the diagnosis of thymoma [6,7].

This diagnosis was not considered due to the fact that, to the best of our knowledge, FDG pattern in this ectopic location have never been described. This case highlights the significance of degree and distribution of FDG in facilitating the diagnosis of lesion nature even in barely observed lesions.

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Cite this article

Massollo M, Morbelli S, Leoncini G, Mora M, Marini C, et al. (2014) ¹⁸F-Fdg PET/CT in Identification of Mixed Pulmonary Thymoma. *J Radiol Radiat Ther* 2(2): 1035.