staging must be performed in cases considered for surgical treatment even when positive mediastinal lymph nodes are detected in PET-CT.

P1-101 Imaging and Staging Posters, Mon, Sept 3

Nodular lymphoid hyperplasia of the lung: the role of PET on diagnosis

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Background: Nodular lymphoid hyperplasia (NLH) is one of the rare pulmonary lymphoproliferative disorders which may appear as a solitary or multiple lesions.

Method: A 61-year-old immunocompetent patient was admitted to our hospital with cough and hemoptysis. He was a heavy smoker without a history of tuberculosis. Physical examination was unremarkable. Chest X-ray demonstrated a mass located in the right middle zone. Thorax CT revealed a cavitary pulmonary mass (3x6 cm) and a satellite nodule localized to the superior segment of right lower lobe. In further evaluation on the patient with bronchopneumonia, endobronchial lesion could not be detected. The histopathological assessment of bronchoalveolar lavage, brush and aspiration fluid were benign, and the smear was negative for tuberculosis. A later, he was referred from the local tuberculosis dispensary to our clinic with massive hemoptysis.

Results: Antituberculosis therapy was initiated although the smear was negative for tuberculosis and leucocytes without evidence of malignancy. Anti-tuberculosis therapy was uneventful and transthoracic needle aspiration revealed lymphocytes indicating malignancy. There was not any pathological FDG uptake in the other parts of the body. An open lung biopsy revealed the final diagnosis of NLH, of which the histologic examination was positive for CD3, CD20 and LCA and negative for keratin.

Conclusion: Nodular lymphoid hyperplasia should be kept in mind in the differential diagnosis of the cavitory mass lesions with positive FDG uptake.

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Correlation of [18F]FDG PET/CT imaging with Glut-1 and Glut-3 expression in non-small cell lung cancer


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Background: To correlate FDG uptake on PET/CT images with the expression of Glut-1 and Glut-3 glucose transporters in patients with non-small cell lung cancer (NSCLC).

Methods: Preoperative 18F-FDG PET/CT images were performed in 68 patients with non-small cell lung cancer. Final diagnoses were confirmed by operative histology (37 adenocarcinoma, 28 squamous cell carcinoma, 2 large cell carcinoma and 1 pleomorphic carcinoma). The peak standardized uptake value (pSUV) of the lung cancer FDG uptake was measured and correlated to immunohistochemistry results for Glut-1 and Glut-3. In the immunohistochemical studies, (1) the intensity of the immunoreactivity (grade 0 to 3) and (2) percentage of the area testing positive (<25%; 26~50%; 51~75%; <100%) for Glut-1 and Glut-3 were reviewed.

Results: The mean pSUV was 9.26±3.85 in squamous cell carcinoma, and 6.03±4.20 in adenocarcinoma. Intense FDG uptake of pSUV above 8.0 was seen in 2 large cell carcinoma and one pleomorphic carcinoma cases. Squamous cell carcinoma had significantly higher mean pSUV than adenocarcinoma (p=0.002). The expression of Glut-1 was also significantly higher in squamous cell carcinoma than adenocarcinoma for both the grade of intensity (p=0.000) and the percentage of positive area (p=0.000), whereas the expression of Glut-3 was not significantly different between adenocarcinoma and squamous cell carcinoma. The degree of pSUVM demonstrated significant correlation with the intensity (p=0.000) and percentage of positive area of Glut-1 (p=0.003), and with the intensity of Glut-3 (p=0.002). However, the percentage of Glut-3 positive area and pSUV had no significant correlation (p=0.064).

Conclusions: This study indicates that squamous cell carcinomas have higher FDG uptake and Glut-1 expression than adenocarcinomas. The FDG uptake in NSCLC correlates with the intensity and percentage of positive area of Glut-1, and intensity of Glut-3, but not with the percentage of Glut-3 positive area.

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Clinical value of computed tomography and fluorine-18 fluorodeoxyglucose positron remission tomography in diagnosis of mediastinal metastasis of non-small cell lung cancer

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Background: To compare the clinical value of computed tomography (CT) and fluorine-18 fluorodeoxyglucose positron emission tomography (FDG-PET) in diagnosis of mediastinal metastasis of non-small cell lung cancer (NSCLC).

Methods: From 2004 to 2006 75 patients with respectable NSCLC underwent CT and FDG-PET with an interval of 2 weeks and then underwent thoracotomy for clearance of mediastinal lymph nodes or biopsy of the mediastinal lymph nodes via mediastinoscopy. The specimens of mediastinal lymph nodes underwent HE staining and PCNA/Ki67 immunohistochemical staining. The sensitivity, specificity, accuracy, positive prediction value, and negative prediction value in diagnosis of metastasis of mediastinal lymph nodes of these 2 procedures were compared.

Results: The sensitivity, specificity, accuracy, positive prediction value, and negative prediction value in diagnosis of metastasis of mediastinal lymph nodes were 91.2%, 85.5%, 94.2%, 93.1%, 73.1% respectively.