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Department of Internal Medicine and Research Center for Pulmonary Disorders, Chonbuk National University Medical School, Jeonju, Korea

## Correspondence to

Professor Yong Chul Lee, Department of Internal Medicine and Research Center for Pulmonary Disorders, Chonbuk National University Medical School, Jeonju 54907, Korea; leeyc@jbnu.ac.kr

CHK, JSJ and SRK contributed equally.

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## IMAGES IN THORAX

## Endobronchial epithelial-myoepithelial carcinoma of the lung

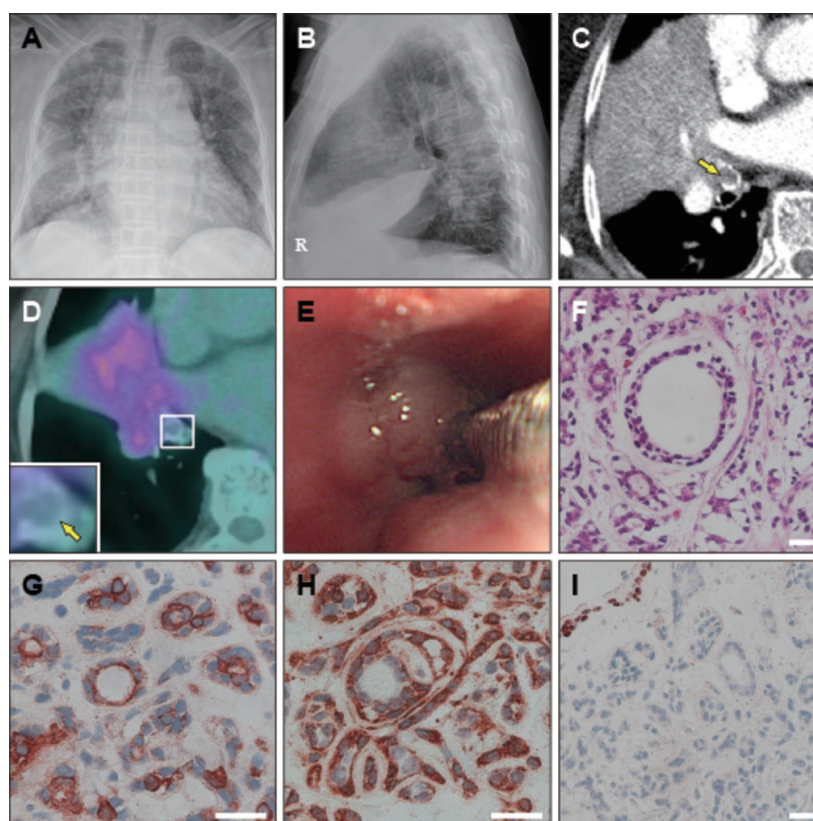
Chang Hoon Kim, Jae Seok Jeong, So Ri Kim, Yong Chul Lee

An 83-year-old woman presented to our emergency department with mild dyspnoea. The patient had been in her usual state of health until 3 days prior to admission. Her medical history revealed no specific illness, and she was a never-smoker.

The patient's vital signs were within normal range, and physical examination revealed decreased breath sounds in the right lower lung field. Arterial blood gas analysis showed an oxygen saturation of 97%, a partial oxygen pressure of 11.7 kPa and a partial carbon dioxide pressure of

4.9 kPa. Laboratory tests demonstrated a leucocyte count of  $1.5 \times 10^9/L$ , 76.8% of which were neutrophils, an erythrocyte sedimentation rate of 53 mm/hour and a high-sensitivity C-reactive protein level of 150.87 mg/L, suggesting the presence of an underlying inflammatory reaction. Laboratory examinations, including chemistry panels, were otherwise normal.

A chest X-ray showed highly increased density in the right lung field (figure 1A, B). Chest CT displayed an  $8.3 \times 7.1$  mm endobronchial mass



**Figure 1** (A) and (B) Chest X-ray showing highly increased density in the right lung field. (C) Contrast-enhanced CT displaying an  $8.3 \times 7.1$ -mm endobronchial mass with low heterogeneous enhancement, completely obstructing the right middle lobar bronchus (arrow). There is a total consolidation of the right middle lobe without a decrease in volume, suggesting the presence of obstructive atelectasis. (D) 2-Deoxy-2- $(^{18}F)$ -fluoro-D-glucose (FDG) positron emission tomography/CT revealing a nodular lesion obstructing the right middle lobar bronchus without obvious FDG uptake (inset, arrow). There is also obstructive pneumonitis with diffuse FDG uptake extending distally to the mass. (E) Diagnostic bronchoscopy showing a smooth surfaced and hypervascular mass which is obstructing the entrance of the right middle lobe. (F) H&E staining of the endobronchial mass specimen demonstrating the biphasic morphology, comprising an inner layer of duct-like structures with epithelial cells and a surrounding layer of myoepithelial cells with spindle-shaped cells and clear cells ( $\times 200$ ). Bar indicates scale of 25  $\mu$ m. (G–I) Immunohistochemical staining of the endobronchial mass specimen. The inner layer composed of epithelial cells is positive for cytokeratin (G,  $\times 400$ ), whereas the surrounding layer with myoepithelial cells is positive for actin (H,  $\times 400$ ). The entire specimen is negative for thyroid transcription factor 1 (I,  $\times 200$ ). Bars indicate scale of 25  $\mu$ m.



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that completely obstructed the right middle lobar bronchus. In addition, there was concurrent obstructive pneumonitis extending distally to the endobronchial mass (figure 1C). No lymph node enlargement was detected in the mediastinum. 2-Deoxy-2-(<sup>18</sup>F)-fluoro-D-glucose (FDG) positron emission tomography (PET)/CT revealed a nodular lesion obstructing the right middle lobar bronchus without obvious FDG uptake (figure 1D). There was no abnormal glucose uptake in the other parts of the body.

Bronchoscopic examination showed a smooth surfaced and hypervascular mass, totally obstructing the entrance of the right middle lobe (figure 1E). A biopsy specimen from the mass displayed duct-like structures composed of an inner layer of cuboidal-shaped cells with eosinophilic cytoplasm and a surrounding spindle-shaped cell layer with clear cytoplasm (figure 1F). Immunohistochemical staining confirmed this biphasic differentiation, as the inner layer was positive for epithelial markers, such as cytokeratin (figure 1G), and the surrounding layer was positive for myoepithelial markers, including actin (figure 1H), vimentin and S-100. Both the epithelial and myoepithelial cells were negative for thyroid transcription factor 1 (figure 1I). Based on these results, the mass was diagnosed as an epithelial-myoepithelial carcinoma (EMC) of the lung. Further evaluation and treatment could not be performed due to patient refusal.

Interestingly, in our case, EMC of the lung showed insignificant glucose uptake in PET/CT. The utility of PET/CT in evaluating histological differentiation has been reported previously in the salivary gland malignancies, which seems to show a tendency that histological grade of malignancy is proportional to the level of glucose uptake in FDG PET/CT.<sup>1</sup> Through the review of current literature, EMC of the lung is likely to display insignificant glucose uptake in FDG PET/CT.<sup>2–5</sup> This characteristic feature might be correlated with the low-grade malignant potential, considering the histological homology with EMC of the salivary glands. However, caution should be taken to differentiate EMC of the lung from benign endobronchial tumours showing low FDG uptake, such as carcinoid tumours, hamartoma, schwannoma and neurofibroma.<sup>6</sup>

In summary, our experience highlights the importance of considering pulmonary EMC as one possible diagnosis in patients with an endobronchial mass showing low or no FDG uptake.

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**Competing interests** None declared.

**Patient consent** Obtained.

**Ethics approval** The Institutional Review Board of the Chonbuk National University Hospital stated that it was not necessary to achieve IRB approval for this case report, but that patient consent was required as the study dealt with retrospective use of patient medical records and related images.

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