

Unexpected diagnosis of pulmonary tuberculosis during bronchoscopy using radial probe EBUS

부산대학교병원 내과¹, 부산대학교 의과대학 내과학교실², 울산대학교병원 내과³

정현성¹, 엄중섭^{1,2}, 배수현³

Background/Aims: Bronchoscopy using radial probe endobronchial ultrasound (EBUS) is performed when peripheral lung lesion (PLL) is suspected malignancy. However, pulmonary tuberculosis is unexpectedly diagnosed in some patients, therefore, healthcare workers could be expose to tuberculosis without precaution. In this study, incidence and associated factors of unexpected diagnosis of pulmonary tuberculosis during bronchoscopy using radial probe EBUS were examined.

Methods: From December 2015 to November 2018, 970 patients who received bronchoscopy using radial probe EBUS were included. Clinical, histological, radiologic and microbiologic data were reviewed.

Results: Pulmonary tuberculosis was unexpectedly diagnosed in 31 patients (3.2%) during bronchoscopy using radial probe EBUS. Patients with younger age had a significantly higher chance to diagnose tuberculosis than elderly patients [odds ratio (OR), 0.951; 95% confidence interval (CI), 0.924–0.978; $P = 0.001$]. Among various CT findings, less HU difference (OR, 0.976; 95% CI, 0.955–0.996; $P = 0.022$), the presence of concentric cavitation (OR, 5.211; 95% CI, 1.447–18.759; $P = 0.012$), and the presence of satellite centrilobular nodules (OR, 22.925; 95% CI, 10.556–49.785; $P < 0.001$) were independently associated with unexpected diagnosis of tuberculosis.

Conclusions: The risk of Mycobacterium tuberculosis exposure by healthcare workers has been underestimated during bronchoscopy using radial probe EBUS. Our results suggest that healthcare workers in bronchoscopy suite should consider higher grade respiratory precaution in patients with risk factors related with unexpected diagnosis of pulmonary tuberculosis.

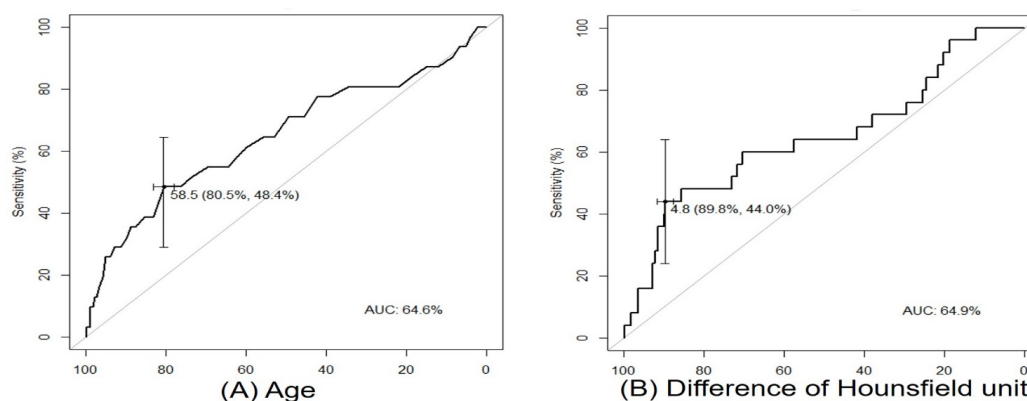


Table. Logistic regression analysis to identify factors associated with pulmonary tuberculosis

Variables	Odds ratio (95% confidence interval)	P-value
Age (per year)	0.951 (0.924–0.978)	0.001
Margin		
Smooth vs. Lobulated	0.412 (0.136–1.244)	0.116
Smooth vs. Spiculated	1.122 (0.407–3.093)	0.825
Smooth vs. Pneumonic consolidation	2.116 (0.689–6.479)	0.190
Difference of Hounsfield unit* (per digit)	0.976 (0.955–0.996)	0.022
Concentric cavitation†	5.211 (1.447–18.759)	0.012
Satellite centrilobular nodule	22.925 (10.556–49.785)	< 0.001
Bronchiectasis	0.836 (0.111–6.303)	0.862
Anthraxofibrosis	0.171 (0.023–1.265)	0.084
Fibrocalcific tuberculosis	2.183 (0.873–5.459)	0.095

* Hounsfield unit was measured in 817 patients (84.2%).

†In patients with and without tuberculosis, cavitory lesions were found in 114 and 31 patients, respectively.