Bronchoscopic Diagnosis of PPLs – With a focus on Cadaver-Based Studies

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Educational background

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2008-2015 Assistant Professor, First Department of Medicine, Hokkaido University School of Medicine
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Bronchoscopy plays a pivotal role in the definitive diagnosis of peripheral pulmonary lesions (PPLs), including primary lung cancer. However, a well-known limitation is the reduced diagnostic yield for small-sized lesions. To address this challenge, we have actively employed radial endobronchial ultrasound (r-EBUS) and virtual bronchoscopic navigation systems, which have significantly improved diagnostic accuracy.

In recent years, further advancements have emerged, such as the use of ultrathin bronchoscopes and the 1.1 mm cryoprobe, which offer the potential to increase tissue yield without compromising safety. These tools are particularly useful in accessing distal airways and obtaining larger, higher-quality specimens from small lesions.

At Hokkaido University, we have collaborated with Olympus Corporation to develop and evaluate novel technologies aimed at overcoming current limitations. Specifically, we have focused on solving the problem of “adjacent to” findings on r-EBUS, where the lesion is near but not directly visualized within the ultrasound image. To this end, we developed a lateral forceps designed to facilitate lateral tissue acquisition. Furthermore, we assessed the performance of a next-generation EBUS-TBNA bronchoscope using cadaveric models to simulate clinical conditions.

These ongoing efforts aim to enhance the diagnostic yield and reliability of bronchoscopy for PPLs. We believe that these technological innovations will contribute to more accurate diagnoses, leading to improved clinical outcomes for patients with lung cancer.