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Title: In vivo visualization of endobronchial tumor cells using an endocytoscopy system

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Body: Background: Endocytoscopy system (prototype, BF-Y0005, Olympus Medical Systems Co., Tokyo, Japan) is a bronchovideoscope visualizing at a high magnification of 450 times on a 14-inch video monitor. Cellular structures can be visualized in real-time during bronchoscopy. Objectives: To evaluate the diagnostic utility of endocytoscopy on endobronchial tumors. Methods: Between July 2009 and April 2011, 19 cases with endobronchial tumor lesions were selected from all cases of bronchoscopy. Twelve cases with no abnormality on bronchoscopy were selected as control. After conventional bronchoscopy, abnormal areas of interest were stained with 0.25% methylene blue and examined with endobronchoscopy system. The endoscopy images of abnormal areas and normal bronchial mucosa were analyzed and compared with the corresponding pathologic pattern. Results: We could visualize endobronchial epithelial cells with methylene blue staining. In tumor cells, especially, squamous cell carcinoma, large and polymorphic tumor cells were observed with increased cellular density. In normal bronchial mucosa, columnar epithelial cells were visualized. Conclusion: Endocytoscopy has the potential to provide pathologic diagnosis during bronchoscopy.