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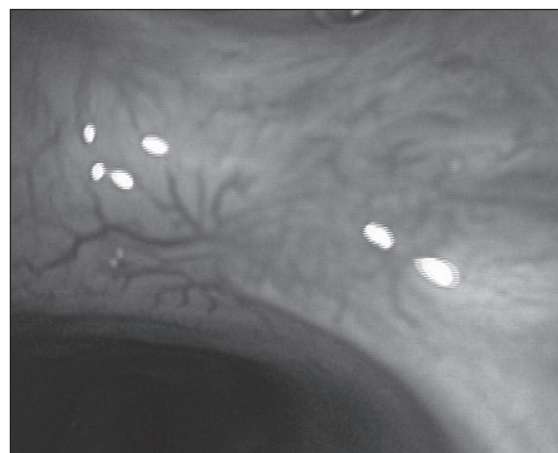
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NARROW BAND IMAGING[™] FROM OLYMPUS ENHANCES DIAGNOSIS AND EFFICIENCY FOR BRONCHOSCOPISTS

Olympus America Inc. (Center Valley, PA), recently launched four unique bronchovideoscopes as part of its new EVIS EXERA II[™] 180 Video Bronchoscopy System. Designed to provide physicians with enhanced diagnostic capabilities, unprecedented image clarity, improved scope flexibility, and procedural efficiency, the 180 scopes are helping to redefine bronchoscopy. The scopes feature Olympus's proprietary **Narrow Band Imaging[™] (NBI)**, a real-time, on-demand technology developed to enhance visibility of the capillary network and other miniscule structures on mucosal surfaces. Narrow-band light is absorbed and scattered differently in the mucosa, compared with white light. This emphasizes the contrast between small vessels and normal tissue as well as minute structures within the upper mucosa layers. Studies have indicated that NBI may be useful as a supporting technique for observation of the endoscopic findings of early cancer.^{1,2}

According to the American Cancer Society, cancer of the lung and bronchus accounts for the most cancer-related deaths among men and women in the United States and is expected to claim an estimated 160,390 lives in 2007.³ Although white-light bronchoscopy does not normally diagnose early lung cancer, it plays a key role in helping to identify pathological tissue. Felix Herth, MD, Chief Physician for the Department of Pulmonary and Critical Care Medicine, Thoraxklinik (Heidelberg, Germany), says



that a primary benefit of NBI is its improved way of visualizing subepithelial vascular patterns and observing changes in the vascular network. "We know that neovascularization happens in cases of lung cancer, but in non-malignant lesions there is no new building of vessels," he explains. "So when we find a lesion that is suspicious, we can use the narrow-band technique to see if there are changes, or if it is only the normal vascularization."

A recent study set out to characterize the appearance of normal, dysplastic, and malignant airway lesions when viewed under NBI. The study investigated whether NBI could improve detection of abnormal airway mucosa and increase biopsy yield of dysplasia and neoplasia. Bronchoscopy was performed on 22 patients with known or suspected bronchial dysplasia or lung malignancy using NBI and white-light mode. The study concluded that the NBI technique identified dysplasia or cancer that was not

detected by the white-light inspection in 23% of subjects.⁴ The authors further concluded that the addition of NBI to traditional bronchoscopy has the potential to aid in the detection of bronchial dysplasia.²

Brad D. Vincent, MD, a contributor to the study and a physician in the Division of Pulmonary and Critical Care Medicine, Medical University of South Carolina (Charleston, SC), says, "Traditional bronchoscopes have a light source that illuminates whatever you are looking at with white light, which includes all of the wavelengths of the visible spectrum. Using specially designed optical filters, the wavelengths that NBI emits correspond to the maximum absorption spectrum of oxyhemoglobin. So anything that contains oxyhemoglobin—arterioles, venules, blood vessels, etc.—is going to stand out against the background." Noting that NBI focuses on the increased vascular aspect of tumors and precancerous lesions, Dr. Vincent continues, "NBI brings out abnormal blood vessel formation such as large caliber and abrupt-ending vessels as well as increased submucosal capillary network formation. The significance of that is we know that precancerous or pre-invasive lesions of the trachea and large

airways, such as high grade dysplasia or carcinoma *in situ*, typically exhibit increased vascularity. Seeing these vascular networks more easily can help us to quantify or qualify what is abnormal versus normal vascular patterns."

Switching between white light and NBI on the 180 Series scopes is accomplished easily during a procedure with the simple press of a button. "If you see something in the airway that you want to study further, you can get a good comparison of the white light versus a narrow-band image on a real-time basis, which I think is very helpful," says Dr. Vincent. "Also, the image quality of the scopes is incredible."

The 180 Series scopes are setting a new standard of excellence in bronchoscopy. The Olympus **BF-Q180** delivers improved image quality and size compared with conventional bronchoscopes; yet the scope's insertion tube measures a thin 5.1-mm. The **BF-P180**, with a 4.9-mm diameter insertion tube, offers excellent image quality for routine examinations and treatment and has a working channel measuring a generous 2.0-mm in diameter. The **BF-1T180** features a 6.0-mm insertion tube and a wide 3.0-mm

diameter working channel that can accommodate a wide variety of EndoTherapy accessories while maintaining powerful suction. The unique **BF-Q180-AC** sets a new standard for flexible bronchoscopy with proprietary materials designed to withstand repeated exposure to the high temperatures and pressures of autoclaving. 

For more information, please visit www.olympusamerica.com/endo-scopy, or contact a company representative at www.olympusamerica.com/contact.

References:

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4. Vincent, BD, *et al*, Narrow Band Imaging Compared to White Light Bronchoscopy for Evaluation of Normal, Pre-Malignant and Malignant Airways Disease, *Chest*, 130 (4): 115S. (2006).