Imaging Advances in Bronchoscopy Through the Combination of High-definition Bronchoscopes and New Image Processing Systems

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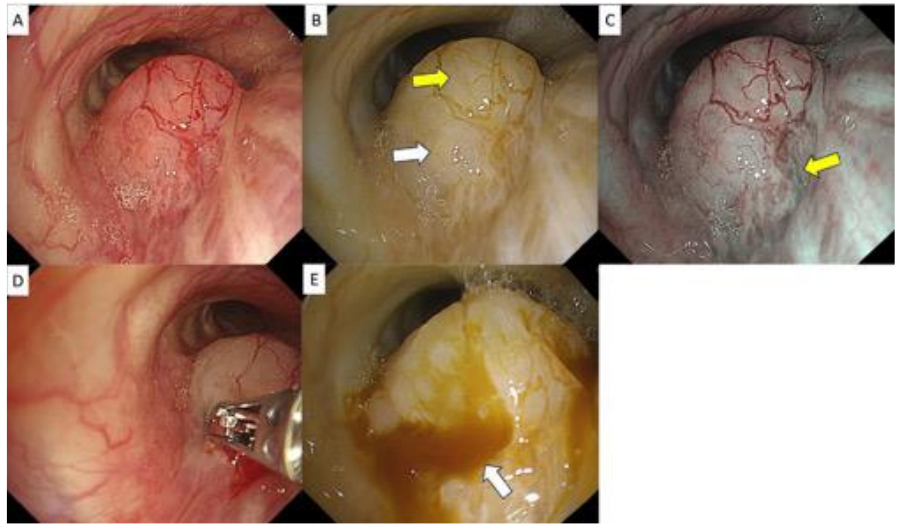
Red Dichromatic Imaging (RDI™) technology helped identify blood flow to guide safe puncture site selection and reduce bleeding risk. RDI-1 revealed superficial vessels (B; yellow arrow), while RDI-3 detected a deeper vessel (C). This guided selection of a low-perfusion site (B; white arrow), and RDI-1 was later used to locate bleeding points (E).



Objective

This case-based technical note aimed to compare the changes in lesion appearance across different imaging modes using case-based images, with white light observation serving as the standard.

Results

- Brightness Adjustment Imaging With Maintenance of Contrast (BAI-MAC™) technology enhanced distal brightness while preserving proximal brightness and thereby supported navigation throughout the lung.
- Texture and Color Enhancement Imaging (TXI™) technology offered enhanced image contrast, which allowed for the differentiation of epithelial redness, edema, and skip lesions with local necrosis.
- High-definition (HD) thin bronchoscopes enhanced direct visualization of lesions and enable precise evaluation of histological changes.
- Safety outcomes were not comprehensively assessed given the case series design.

Conclusion

High-definition bronchoscopes with advanced image processing (RDI™, TXI™ and BAI-MAC™ technologies) allow for a more thorough image evaluation that can enhance diagnostic accuracy, prevent complications, and reduce examination times.

This study was conducted using the Olympus CV-1500 Video System (EVIS X1) that integrates the TXI,™ RDI,™ NBI,™ and BAI-MAC™ technologies. In addition, several bronchoscopes were used – BF-1TQ290 and BF-H1200.

Link to Publication

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