00334 PROBE-BASED CONFOCAL LASER ENDOMICROSCOPY IN THE DIAGNOSIS OF DIFFUSE PARENCHYMAL LUNG DISEASE

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Area and Category(at submission):

[WCBIP] Magnifying endoscopy

Presentation Preference: Either

Case Report: YES

<B>Backgound:</B> The diagnosis of diffuse parenchymal lung disease (DPLD) can be challenging and many patients are poor candidates for surgical biopsy. The role of transbronchial biopsy (TBBx) in DPLD has been debated, with a diagnostic yield of 50-75%, due the heterogeneity associated with these disorders. Probe-based confocal laser endomicroscopy (pCLE) is a technology that may improve the diagnostic yield of TBBx for DPLD. pCLE uses a 488nm wavelength laser in a 1.4mm fiberoptic probe passed through the working channel of a bronchoscope. Elastin/collagen have natural autofluorescence and therefore can be seen using pCLE. Normal alveolar tissue has an organized appearance with smooth alveolar septae and microvessels whereas abnormal tissue has varying degrees of disorganization and friability. DPLD causes alterations in the elastin/collagen framework that can be detected using pCLE to guide TBBx's.
<B>Case Series:</B> Three patients with abnormal interstitial findings on CT were identified. The first patient, a 40-year-old male with history of acute lymphocytic leukemia status-post allogeneic bone marrow transplant with subsequent development of chronic graft-versus-host disease treated with methotrexate presented with progressive dyspnea and nonproductive cough. Chest CT showed thickening of the bronchovascular bundles with interstitial changes. A second patient, a 57-year-old female with history of pulmonary alveolar proteinosis (PAP) presented with progressive dyspnea and cough. Chest CT was consistent with PAP exacerbation and whole lung lavage was performed. Our final patient, a 58-year-old female with a history of rheumatoid arthritis and a lifetime non-smoker presented with a productive cough and dyspnea refractory to antibiotics. Chest CT showed a nodular sub-solid consolidation in the right upper lobe. All three patients underwent bronchoscopy with the use of pCLE to target abnormal lung parenchyma. In all patients, varying amounts of elastin disorganization and septal thickening was demonstrated with pCLE with the exception of PAP where large autofluorescent globules were seen representing lipoproteinaceous material. The abnormal areas identified by pCLE were sampled revealing changes consistent with methotrexate toxicity, PAP and pulmonary Langerhans' cell histiocytosis, respectively.
<B>Conclusion:</B> pCLE in our series of patients demonstrated usefulness in confirming parenchymal abnormalites at the site of TBBx. Being able to distinguish normal from abnormal tissue, based on changes in the tissues' microscopic appearance, allows confidence when selecting the site for TBBx. pCLE may be able to increase the diagnostic yield of TBBx in DPLD. Moving forward, future studies are undoubtedly needed to help determine the role of pCLE in DPLD.

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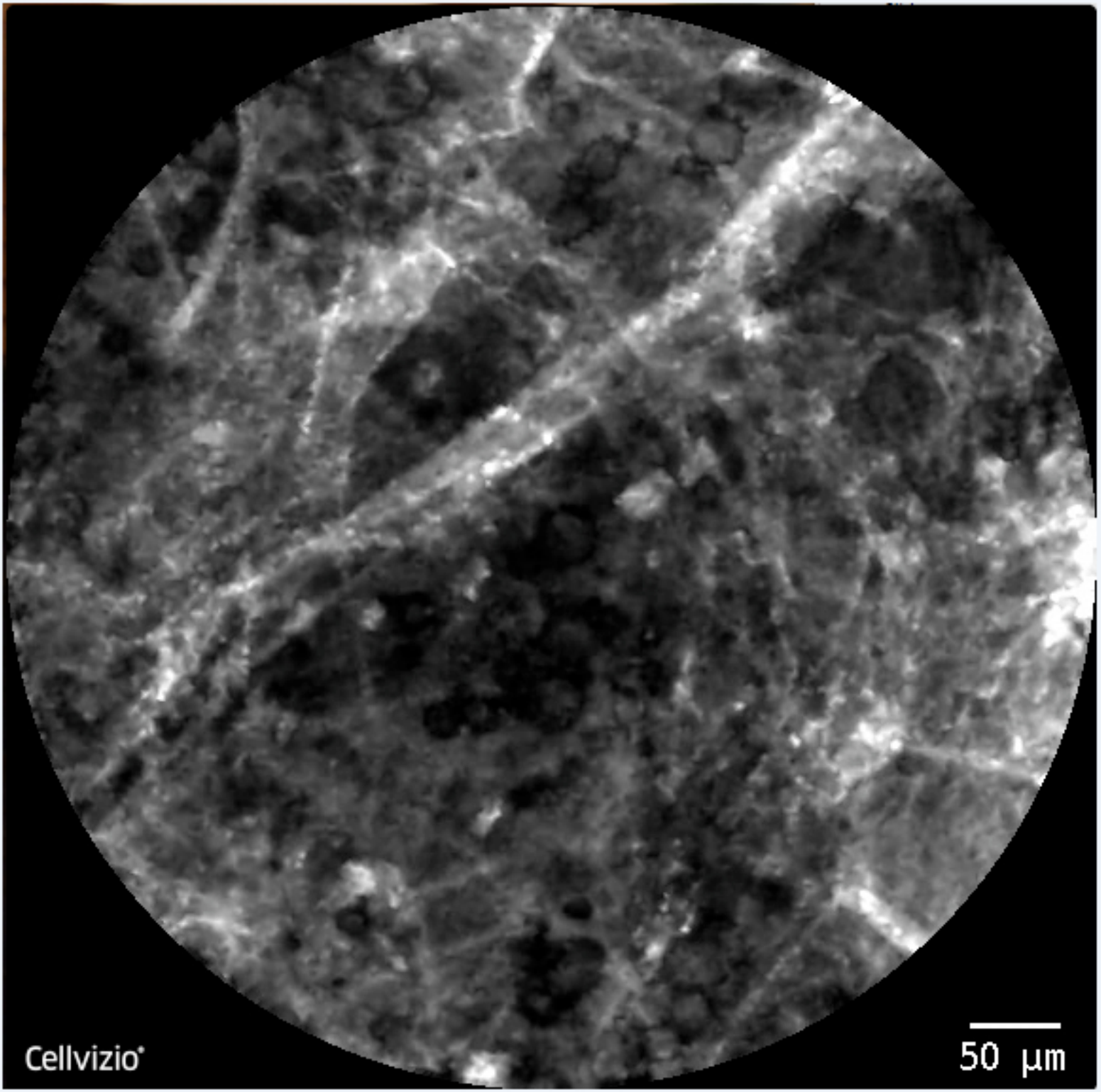
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