

Confocal Laser Endomicroscopy Enables Real-Time Barrett's Esophagus Surveillance and Faster Patient Treatment

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Technology Review

Optical biopsy with probe-based Confocal Laser Endomicroscopy (pCLE) is an advanced technology that provides microscopic views of the mucosa. Images are obtained by scanning with a probe that is passed through the working channel of an endoscope. This technology makes it possible to image individual cells and tissue architecture, allowing endoscopists to make real-time diagnostic assessment of in vivo histology, thus, allowing them to examine much more mucosa at a microscopic level than what is possible with random biopsies.



Case Report

A 49 year old male presented with chronic heartburn and acid reflux. The patient was scheduled for an EGD with biopsy and pCLE for a possible radiofrequency ablation (RFA). During the surveillance procedure, Barrett's Esophagus was identified by pCLE and later confirmed by Pathology. The patient was then scheduled for an RFA the same day to treat the Barrett's Esophagus.

Two months later, the patient returned for a post RFA follow up. pCLE was used to detect residual non-dysplastic Barrett's tissue after the initial RFA treatment and then was used to define the margins during the second RFA. The same process was used during another follow-up endoscopic procedure, two months later, and pCLE was used again to tighten the margins of the third RFA. A final follow-up was held two months after, and no residual Barrett's Esophagus could be found. The patient could benefit from a Transoral Incisionless Fundoplication (TIF).

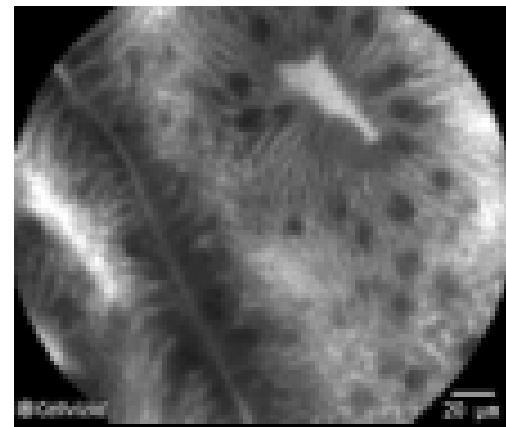


Fig 1: pCLE Image showing Intestinal Metaplasia with goblet cells

Summary

pCLE enabled real time visualization of recurrence of Barrett's after RFA and investigation of Barrett's tissue to help define margins of ablation. Additionally, pCLE significantly shortened the timeline of treatment for the patient as a TIF was performed immediately after pCLE confirmed that no Barrett's Esophagus was present after the three ablations.