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

William Barnes, M.D., M.B.A, F.A.C.S Livingston Hospital, Salem, KY

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 42 year old female was referred by family members after consistent symptoms of acid reflux and developing frustration with her Primary Care Physician. She had been previously diagnosed with symptomatic reflux, esophagitis and Barrett's Esophagus. The Primary Care Physician subsequently increased her Proton-pump inhibitor (PPI) dosage to twice daily. The patient remained symptomatic even after her increased PPI dosage.

An EGD was performed with pCLE to detect Barrett's Esophagus on the irregular areas. Using published image criteria, normal squamous epithelium was seen with flat and scale-like cells and no signs of Barrett's Esophagus (presence of goblet cells) was detected. The physical biopsies that were taken at the time of the procedure also came back negative, confirming the pCLE findings. The patient subsequently underwent repair with a Trans-oral Incision-less Fundoplication (TIF) procedure. Since the TIF procedure, she has been completely asymptomatic.

Summary

Contrary to the previous Barrett's Esophagus diagnosis, pCLE enabled real-time surveillance of the absence of Goblet Cells and Intestinal Metaplasia. Following the new diagnosis, a TIF was performed immediately, significantly shortening the timeline of treatment.



Fig 1; pCLE Images showing squamous epithelium