Cellvizio Enables Real-Time Diagnosis of Intestinal Metaplasia

Philip Leggett, MD Houston Northwest Medical Center; Houston, TX

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 is possible with random biopsies.



Case Report

This is a 66-year old female with longstanding complaints of reflux. She has had symptoms over the past 6 years with only intermittent relief from her proton pump inhibitor (Prilosec) medication. Her last esophagogastroduodenoscopy (EGD), performed in 2013, was read as normal. However she presented to our clinic in July 2015 with ongoing heartburn and reflux symptoms that worsened at night.

For our workup, she underwent an EGD with pCLE and placement of Bravo pH probe monitor in August. Standard 4-quadrant biopsies at the gastroesophageal junction using Seattle protocol were taken. Using validated imaging criteria, pCLE demonstrated the presence of intestinal metaplasia with goblet cells consistent with Barrett's esophagus (BE) (Figures 1-2). In addition, areas with dysplasia were also detected (Figure 3). 48-hour pH monitoring demonstrated numerous episodes of mild to moderate reflux. Final pathology from the biopsies was negative for the presence of any Barrett's or dysplasia.

Given her clinical symptoms and history, as well as positive findings on pCLE, she underwent repeat esophagoscopy with radiofrequency ablation of the short segment (3 cm) Barrett's esophagus. She has been scheduled for Nissen fundoplication for treatment of her persistent reflux symptoms.

Summary

In this case report standard Seattle protocol biopsies were negative for BE, but pCLE was able to detect the presence of dysplastic and non-dysplastic Barrett's esophagus. This represents the potential for under-sampling and false-negative results using conventional endoscopic techniques. By providing diagnostic coverage over larger areas of mucosa, pCLE offers a distinct advantage of increased sensitivity for the detection and surveillance of BE.



Fig 1: pCLE image showing Intestinal metaplasia with Goblet Cells



Fig 2: pCLE image showing Intestinal metaplasia with Goblet Cells



Fig 3: pCLE image showing dysplasia