



## pCLE DEMONSTRATES IMMEDIATE CLINICAL FINDINGS WHICH CORRELATE WITH GROSS HISTOLOGY AT SURGICAL RESECTION IN A DIFFICULT DIAGNOSTIC CASE

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### TECHNOLOGY REVIEW

Probe-based endoscopic Confocal Laser Endomicroscopy (pCLE) is a new method, which provides en face, diagnostic, microscopic views of the mucosa. Images are obtained by scanning the mucosal surface with a low-power laser light that is passed through a fiber optic bundle. This technology makes it possible to image individual cells and tissue architecture, allowing the endoscopist to make a diagnostic assessment of the histology real-time, in vivo.

### CASE REPORT

A 60 year old female with reported abdominal pain and jaundice was referred from a community hospital. An initial ERC with brush cytology was performed, concluding in a negative diagnosis (figure 1). At that time, a plastic stent was placed in the CBD to relieve the patient's jaundice. At the time the stricture was thought to be potentially benign. A second ERC with brush cytology and fluoroscopically-guided biopsy was performed. The stent was changed. Both tests returned negative. A third diagnostic procedure, EUS with FNA, was then performed. EUS showed a thickening of tissue along the CBD, but FNA results were negative (figure 2).

A fourth diagnostic procedure was performed with two diagnostic tests. The Spyglass® Cholangioscopy System [1] and SpyBite® Biopsy Forceps [1] were utilized to obtain direct visualization of the suspect area and to acquire histological samples (figure 3). Cholangioscopy imaging favored benign disease. The patient was then prepared for pCLE by administering 2.5ml of 10% fluorescein via intravenous injection. A Cellvizio® CholangioFlex™ Confocal Miniprobe™ [2,3] was passed through the working channel of SpyGlass System and was directed under cholangioscopy to the suspicious areas of the CBD. pCLE imaging demonstrated criteria consistent with malignancy. Cellular patterns representing glandular features and loss of reticular pattern (figure 4) as well as dilated vessels >20 microns (figure 5) were imaged and noted. Biopsy results demonstrated atypical cells.

Based on a review of all findings, the patient made the decision for surgical intervention. Post resection, gross histology confirmed malignancy.

### SUMMARY

This patient underwent four separate diagnostic procedures and multiple diagnostic tests, including cytology brushings, biopsy via forceps, EUS, FNA, direct visualization via cholangioscopy and microscopic mucosal visualization under pCLE. The Cellvizio pCLE was utilized as one of many clinical tools to help assist with making this difficult diagnosis. The Cellvizio pCLE was utilized as one of many clinical tools to help assist with making this difficult diagnosis. In this particular patient, pCLE was the only diagnostic technology to accurately define malignant disease, which was later confirmed via gross histology at surgical resection.



**FIGURE 1**  
ERC 1: Mid CBD stricture. Brush Cytology negative. Plastic stent placed.

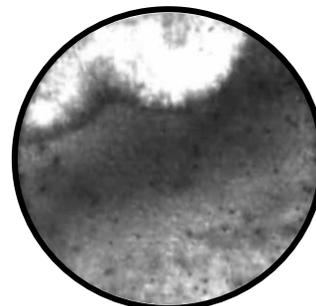


**ERC 2: Forceps biopsy negative. Stent changed.**

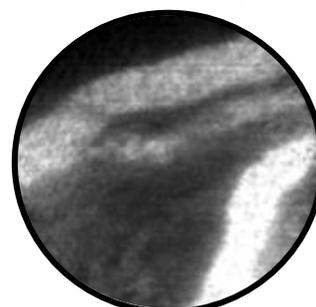
**FIGURE 2**  
EUS FNA showing thickness along CBD. FNA negative.



**FIGURE 3**  
ERC 3: Spyglass choledochoscopy favors benign appearance. SpyBite demonstrates atypical cells.



**FIGURE 4**  
pCLE image of glandular features and loss of reticular pattern.



**FIGURE 5**  
pCLE image demonstrating dilated white vessel >20 microns.

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