PROBE-BASED CONFOCAL LASER ENDOMICROSCOPY (pCLE) DEFINES THE EXTENSION OF AN AMPULLARY LESION, *IN VIVO*

Jayant Talreja MD, Michel Kahaleh MD
University of Virginia Medical Center, Charlottesville, VA

TECHNOLOGY REVIEW

Probe-based Confocal Laser Endomicroscopy (pCLE) is a new imaging technique that provides real time, microscopic views of the mucosa during ongoing endoscopy. Images are obtained by scanning the mucosal surface with 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 adapt patient management based on the nature of the tissue, in real-time, *in vivo*.

CASE REPORT

A 62 year old female with past medical history of familial adenomatous polyposis and duodenal and ampullary adenoma [Fig. 1] presented for potential ampullectomy.

The patient underwent ERCP, during which the surrounding peri-ampullary tissue appeared abnormal. The retrograde cholangiogram and pancreatogram were normal. A biliary and pancreatic sphincterotomy were then performed. The epithelium of the common bile duct under white light cholangioscopy appeared normal without any evidence of adenoma extension into the distal common bile duct.

The patient was then prepared for pCLE by administering 2.5ml of 10% fluorescein via intravenous injection. A CholangioFlex Confocal Miniprobe[1] (Cellvizio®, Mauna Kea Technologies) was inserted through the working channel of the cholangioscope and was positioned on the biliary tissue confirming a benign appearance with reticular features [Fig. 2]. Upon removal of the cholangioscope, the probe was then applied to the ampulla where dark cells and a dilated vessel [Fig. 3] were observed, correlating with a dysplastic pattern as described in the Miami Classification[2]. A plastic stent (5Fr and 7cm) was then placed in the pancreatic duct and piecemeal resection of the ampulla was performed. The surrounding residual tissue was then fulgarized via argon plasma coagulation.

SUMMARY

This patient underwent endoscopic ampullectomy after confirming, through confocal endomicroscopy, that the bile duct was not invaded by the adenoma. The pCLE images provided an *in vivo* evaluation of the bile duct and resulted in immediate endoscopic treatment for the patient.

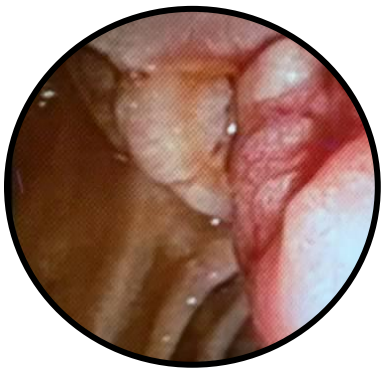

FIGURE 1
Ampullary Adenoma

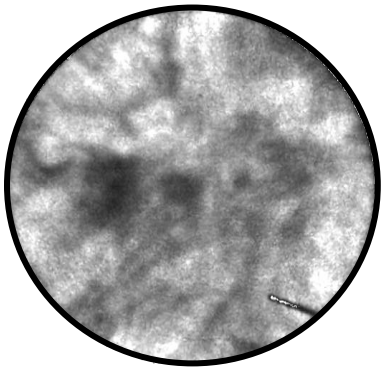

FIGURE 2
pCLE image of the distal bile duct revealed nothing to be concerned about

FIGURE 3
pCLE image of the ampulla. Appearance of dark cells and a dilated vessel >20 microns in diameter, associated with dysplasia

REFERENCES

1. CholangioFlex™ Confocal Miniprobe™ is a trademark of Mauna Kea Technologies.
2. Chen et al, Miami Classification (MC) of probe-based Confocal Laser Endomicroscopy (pCLE) findings in the pancreaticobiliary (PB) system for evaluation of indeterminate strictures: interim results from an international multicenter registry, DDW 2010 oral presentation.