

Needle-based Confocal Laser Endomicroscopy Enables Real-Time Microscopic Surveillance within Pancreatic Cysts

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Technology Review

Optical biopsy with Needle-based Confocal Laser Endomicroscopy (nCLE) is a new imaging technology that provides microscopic level views of the mucosa. nCLE allows for a real-time in vivo diagnostic assessment of pancreatic cysts during Endoscopic Ultrasound-guided Fine Needle Aspiration (EUS-FNA) procedures. By placing the AQ-Flex 19 miniprobe through the lumen of a 19g EUS needle and against the cyst wall, it allows the endoscopist to make a real-time histological diagnosis.



Case Report

A 53-year-old female was admitted to Silver Cross Hospital experiencing lower abdominal pain. During the diagnostic work up, a large cyst was incidentally found in the body of the pancreas in an abdominal CT (computed tomography) scan.

With the patient lying in a left lateral position an Olympus linear echoendoscope (figure 2) was advanced into the esophagus and onward into the stomach. A large 5.8 x 5 cm lesion was found in the body of the pancreas. Endoscopic ultrasound revealed the cyst to be unilocular without any septation.

The cyst was punctured with a Cook 19g needle. The AQ-Flex 19 miniprobe (.89mm) was passed through the lumen of the needle into the cyst. Upon direct contact with the inner lining of the cyst wall, confocal imaging revealed a predominant vascular network (figure 3). The presence of this superficial vascular network has been reported to be highly specific to serous cystadenomas. Although the EUS did not show specific features of a serous cystadenoma, the cyst became highly suspicious to be a benign cyst.

Approximately 70mL of blood-tinged fluid was aspirated, sent for CEA, amylase, and cytology. Cytology did not find any mucin, the CEA level was low (0.6) and the amylase level was low (40 U/L). These low levels were consistent with the diagnosis of serous cystadenoma.

Summary

nCLE now allows for a real-time assessment of cystic lesions through in vivo microscopic imaging. The ability to visualize the microarchitectures inside the cyst wall can help better characterize mucinous vs non-mucinous neoplasms particularly when cytology is inconclusive and endoscopic ultrasound is unclear.

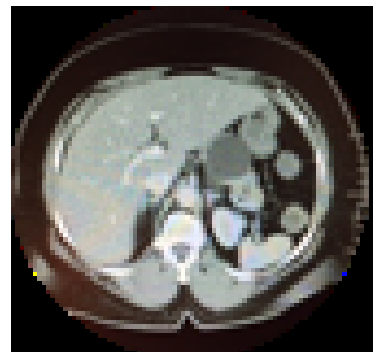


Fig 1: Computed Tomography



Fig 3: Endoscopic Ultrasound Image

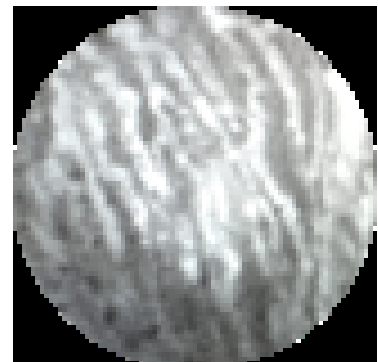


Fig 2: Superficial Vascular Network