

SAGES Endorses CLE as Safe and Effective Diagnostic Tool

SURGICAL ENDOSCOPY

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BACKGROUND



Technology: Confocal Laser Endomicroscopy (CLE) is an **advanced imaging adjunct to endoscopy** that allows real-time in vivo histological examination of mucosal surfaces.

Objective and Method: To evaluate the **safety, value, and efficacy** of this technology in the gastrointestinal tract, through **reviewing relevant clinical studies on PubMed**.

Technique: CLE allows **targeted biopsies of suspected mucosal abnormalities**, which in turn increases the diagnostic yield of histologic analysis and limits the number of random biopsies. CLE can also **observe dynamic processes**, which are otherwise not detectable, by analyzing blood flow and diffusion through intercellular junctions in the evaluation of intestinal perfusion in the shock state.

RESULTS

CLE can increase diagnostic performance across gastrointestinal endoscopic indications compared to current standard of care, such as **improving diagnostic yield** for chronic GERD, Barrett's Esophagus, early gastric cancer, gastric intestinal neoplasia, pancreatic cystic lesions (PCLs), indeterminate biliary strictures, and IBD.

CLE's potential for **reducing inappropriate or unnecessary therapy for non-neoplastic conditions**, improves overall procedure-related complications, optimizes surveillance intervals, reduces unnecessary interventions, and limits histological analysis of insignificant lesions while detecting early dysplasia to improve patient outcomes.



Foregut

- In patients with BE, CLE has been shown to **increase the accuracy of identifying HGD-EAC** when compared to the Seattle protocol.
- CLE improves pre-EMR diagnosis by offering the potential to decrease the number of biopsy specimens, the number of false positives, and can also **direct biopsies to target highly suspicious areas**.
- CLE may help differentiate lesions that are not amenable to EMR and determine the margins of a lesion before endoscopic resection.
- CLE has been shown to have a higher accuracy for diagnosing Gastric Intestinal Neoplasia and Early Gastric Cancer compared to WLE.
- CLE can be used for real-time diagnosis of H. pylori and celiac disease.

Hindgut

- Allows identification of residual colonic inflammation (not detectable macroscopically) in patients with IBD which can help in determining the need for additional anti-inflammatory therapy and **allows prediction of clinical outcomes**.
- CLE can be utilized to classify colorectal polyps allowing the identification of adenomatous polyps therefore increasing the efficacy of colorectal cancer (CRC) screening.

Biliopancreatic tree

- Endoscopic ultrasound (EUS) combined with CLE has increased the accuracy in diagnosing PCLs, thus aiding in **differentiating cystic lesions**, which is essential because the clinical course and treatment depend on the cyst characterization.
- CLE can help in providing differentiation between benign and neoplastic structures within indeterminate biliary strictures.

CONCLUSION

CLE has an excellent safety profile and increases the diagnostic accuracy in a number of gastrointestinal pathologies.

“CLE has an excellent safety profile and clear clinical utility and efficacy as an adjunct to the standard of care across a range of gastrointestinal diseases and conditions. Early diagnosis and effective surveillance can have significant positive impacts on therapeutic management, and Cellvizio is an essential tool to improve diagnostic accuracy and reduce inappropriate interventions.” - Dr. S. Tsuda