Confocal laser endomicroscopy in the diagnostics of esophageal diseases: a pilot study

Lumír Kunovský[1,2], Zdeněk Kala[2], Radek Kroupa[1], Tomáš Grolich[2], Jiří Dolina[1], Milan Dastych[1], Jitka Vaculová[1], Jakub Vlažný[3], Petr Moravčík[2], Lydie Izakovičová Hollá[4,5], Petra Bořilová Linhartová[4,5], Petr Jabandžiev[6], Vladimir Procházka[2]

[1]Department of Gastroenterology and Internal Medicine, University Hospital Brno, Faculty of Medicine, Masaryk University, Brno, Czech Republic
[2]Department of Surgery, University Hospital Brno, Faculty of Medicine, Masaryk University, Brno, Czech Republic
[3]Department of Pathology, University Hospital Brno, Faculty of Medicine, Masaryk University, Brno, Czech Republic
[4]Department of Pathophysiology, Faculty of Medicine, Masaryk University, Brno, Czech Republic
[5]Clinic of Stomatology, St. Anne's Faculty Hospital, Faculty of Medicine, Masaryk University, Brno, Czech Republic
[6]Department of Pediatrics, University Hospital Brno, Faculty of Medicine, Masaryk University, Brno, Czech Republic

Background: Probe-based confocal laser endomicroscopy (pCLE) is a novel diagnostic technique for endoscopy which enables a microscopic view at a cellular resolution in real-time. Endoscopic detection of early neoplasia in the distal esophagus is difficult and often these lesions can be missed. The aim of the pilot study was to obtain characteristic pCLE figures in esophageal diseases for following studies, and to evaluate the possible future role of pCLE in the diagnostics of dysplastic Barrett's esophagus (BE) or early esophageal adenocarcinoma (EAC). **Methods:** A review of the current literature was performed and previously published pCLE images and classifications of esophageal diseases were searched and studied first. In phase two of the pilot study patients with esophageal diseases such as reflux esophagitis, BE and EAC were enrolled and scheduled for upper endoscopy with pCLE. A healthy cohort was also included. **Results:** From January 2019 to July 2019, a total of 14 patients were enrolled in this prospective pilot study: 3 patients with reflux esophagitis, 4 with BE, 3 with EAC and 4 persons were included in the healthy cohort. The endoscopy with pCLE was performed and characteristic pCLE figures were obtained. The correct diagnoses based on real-time pCLE were evaluated by an endoscopist in 11 of the 14 cases (78.6 %). **Conclusion:** It was possible to obtain typical pCLE images of esophageal diseases during a standard cap-assisted endoscopic procedure. pCLE seems to be a feasible new technique in BE surveillance and early neoplastic lesion detection. However, more studies and data on larger number of patients are needed.

Key words: Barrett's esophagus, confocal laser endomicroscopy, esophageal cancer, esophagitis.

Konfokální laserová endomikroskopie v diagnostice onemocnění jícnu: pilotní studie

Úvod: Konfokální laserová endomikroskopie využívající sondy (probe-based confocal laser endomicroscopy – pCLE) je nová diagnostická metoda určená pro endoskopii, která umožňuje mikroskopické vyšetření na buněčné úrovni v reálném čase. Endoskopická diagnostika časných neoplastických lézí distálního jícnu není snadná a často tyto léze mohou být přehlédnuty. Cílem pilotní studie bylo získat charakteristické pCLE obrazy u onemocnění jícnu pro další studie a vyhodnotit možnou roli pCLE v diagnostice dysplastického Barrettova jícnu (Barrett´s esophagus – BE) a časného adenokarcinomu jícnu (esophageal adenocarcinoma – EAC). **Metody:** Nejprve byl vyhledán přehled současné literatury s následným nastudováním předchozích publikací obsahující pCLE obrazy a jejich klasifikací u onemocnění jícnu. V druhé fázi byli do této pilotní studie zařazeni pacienti

CORRESPONDING AUTHOR: Lumír Kunovský, M.D., Ph.D., lumir.kunovsky@gmail.com
Department of Gastroenterology and Internal Medicine, University Hospital Brno, Faculty of Medicine, Masaryk University, Jihlavská 20, 625 00 Brno, Czech Republic

Citation: Vnitř Lék 2020; 66(2): e26–e32
Received: 6. 5. 2019
Accepted: 29. 10. 2019