s onemocněním jícnu, kteří podstoupili horní endoskopické vyšetření s pCLE. Zařazena byla i zdravá kohorta osob. **Výsledky:** Od ledna roku 2019 do července roku 2019 bylo vyšetřeno celkem 14 pacientů v rámci této prospektivní pilotní studie: 3 pacienti s refluxní ezofagitidou, 4 s BE, 3 s EAC a 4 zdravé osoby. Byla provedena endoskopie s pCLE a získány charakteristické pCLE obrazy. Správná diagnóza byla endoskopistou stanovena pomocí pCLE (real-time) celkem u 11 ze 14 vyšetřených pacientů (78,6 %). **Závěr:** Bylo možné získat typické pCLE obrazy u onemocnění jícnu během standardní endoskopie s využitím capu. pCLE se zdá být novou slibnou metodou k surveillance BE a detekci časných neoplastických lézí. Na druhou stranu je zapotřebí více dalších studií a dat na větším souboru pacientů.

Klíčová slova: Barrettův jícen, ezofagitida, konfokální laserová endomikroskopie, nádory jícnu.

Introduction

Probe-based confocal laser endomicroscopy (pCLE) is a new diagnostic technique for endoscopic use. pCLE provides a microscopic view at a cellular resolution in real-time. Barrett's esophagus (BE) is considered as a premalignant condition for esophageal adenocarcinoma (EAC). Although the risk of cancer progression from nondysplastic BE is quite low (0.12–0.5 % per year) (1, 2), patients with BE are managed with endoscopic surveillance. According to the European society for gastrointestinal endoscopy (ESGE) guidelines, the patient should undergo high-definition white-light endoscopy (HD-WLE) with targeted biopsies from every visible lesion and random four-quadrant biopsies every 2 cm (3).

Unfortunately, endoscopic detection of early neoplasia is difficult and these lesions can often be missed (4). Moreover, EAC risk is significantly higher in dysplastic BE and the risk increases from 6 % up to 13 % annually (4–6).

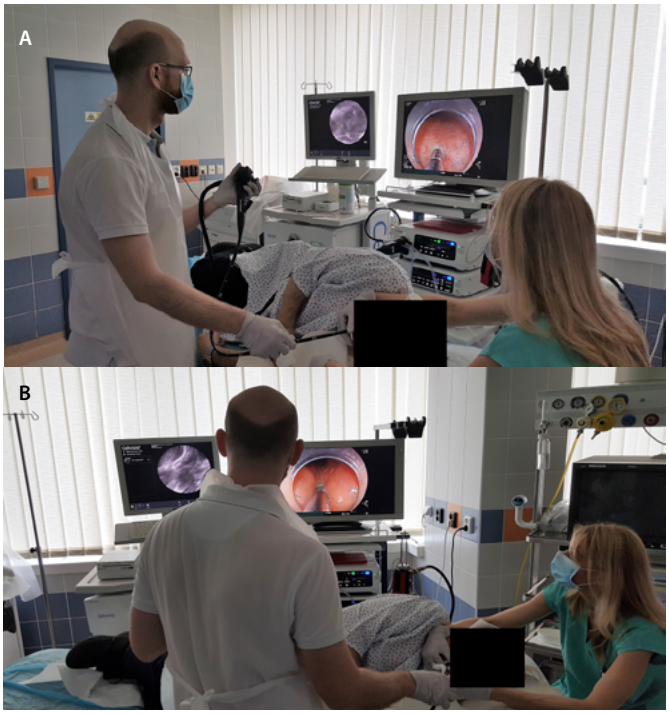
pCLE as a novel endoscopic technique enables real-time microscopic imaging of the mucosal tissue, and may play an important role in future diagnostics of dysplastic BE or early EAC.

Methods

A review of the current literature about pCLE in esophageal diseases was carried out first. Then the pCLE images from previously published articles, classifications and criteria for pCLE were studied (Miami classification for BE published by Wallace, with the addition of the description for low-grade dysplasia (LGD) by di Pietro and for high-grade dysplasia (HGD) by Gaddam (7–9).

From January 2019 to July 2019, a total of 14 patients were enrolled into this prospective pilot study. The study protocol was approved by the ethical committee of University Hospital Brno and all patients signed the informed consent. The healthy cohort consisted of volunteers from the medical students. Midazolam was used for sedation. A half dose of Fluorescite® (2.5 ml) with 8 ml of saline solution as a contrast agent was used. The cap was placed at the end of the endoscope before the examination. During the endoscopic procedure we used the GastroFlexTM UHD confocal probes connected to a Cellvisio® system (fig. 1a, 1 b). The patients underwent a standard upper endoscopy, the esophagus and gastroesophageal junction were also carefully examined using high definition Fujifilm® endoscopes with white light endoscopy, blue light imaging (BLI), linked color imaging (LCI) and then by pCLE (fig. 2a, 2 b). Biopsies were taken from every area investigated by pCLE, and pCLE videos were later

Fig. 1a, 1b. *Position of the endoscopic tower Fujifilm® and the Cellvisio endoscopy system® including the laser scanning unit and display (Mauna Kea Technologies, Paris, France) during the endoscopic procedure*



Tab. 1. *Baseline characteristics of patients (n = 14)*

Variable	Total (n = 14)	Healthy cohort (n = 4)	Reflux esophagitis (n = 3)	Barrett´s esophagus (n = 4)	Esophageal adenocarcinoma (n = 3)
Male/female	M: 10/F: 4	M: 3/F: 1	M: 2/F: 1	M: 2/F: 2	M: 2/F: 1
Age (average)	45.8	25.3	39.0	54.3	70.5
BMI (average)	26.2	24.8	27.9	25.9	26.8
Smoking	Y: 3/E: 3/N: 8	Y: 0/E: 0/N: 4	Y: 2/E: 0/N: 1	Y: 1/E: 1/N: 2	Y: 0/E: 2/N: 1
PPI users	Y: 7/N: 7	Y: 0/N: 4	Y: 2/N: 1	Y: 4/N: 0	Y: 1/N: 2
Hiatal hernia	Y: 4/N: 10	Y: 0/N: 4	Y: 2/N: 1	Y: 1/N: 3	Y: 1/N: 2

Y – yes, N – no, M – male, F – female, BMI – body mass index, PPI – proton pump inhibitor, E – ex-smoker