Photodynamic Diagnosis of Early Gastric Cancer Using 5-Aminolevulinic Acid; First Clinical Experiences
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Objectives: To study the feasibility of 5-aminolevulinic-acid (5-ALA)-induced photodynamic diagnosis (PDD) for the patients with early gastric cancer (EGC).

Methods: A total of 25 patients with EGC underwent Endoscopic Submucosal Dissection (ESD). All patients received 5-ALA (20 mg/kg) orally 2 hours before ESD. To study the protoporphyrin IX (PPIX) accumulation after application of 5-ALA, in vivo PDD was performed during ESD using a fluorescence endoscopy on the market. To increase the sensitivity of photodetection, the emission spectra of 5-ALA induced PPIX fluorescence was quantitatively measured the biopsy specimens obtained from cancer lesion and nonmalignant mucosa as a control are investigated by ex vivo spectroscopy respectively. All resected specimens by ESD were investigated by fluorescence microscopy. Finally, the resected specimens are histologically evaluated. Results: In all 25 patients, 20 patients demonstrated fluorescence-positive endoscopic images and could be confirmed negative margins during ESD. EGC lesions resected by ESD method showed PPIX fluorescence under the PDD examination. The intensity of the 635-nm emission peak of PpIX was quantified in 25 patients by spectroscopy. Conclusions: This is the first report of PDD for EGC using 5-ALA and a fluorescence endoscopy on the market. These initial results have demonstrated that PPIX is selectively enhanced in malignant tissue, an essential prerequisite of PDD. Additional studies are warranted to validate these preliminary data and the efficacy of PDD for EGD during ESD.

Precision of Confocal Miniprobe Localisation Assessed By High-Field Magnetic Resonance Imaging
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Purpose: The Cellvizio® (Mauna Kea Technologies, Paris, France) is a confocal fluorescence microscope for acquisitions of dynamic microscopic in vivo images of tissues with a miniprobe; it may be combined with a Magnetic Resonance (MR) scanner for localising the miniprobe tip in space. This combination would be interesting for MR-guided optical biopsy: The localisation method needs a precision of the same order as the microscopic image dimensions (about 500 μm × 500 μm). The aim of this study was to measure the precision with which the miniprobe can be monitored during MR imaging. Method: A confocal miniprobe with a diameter of 650 μm was inserted into an agarose-based jelly and scanned axially with a 9.4 tesla MR scanner using a Gradient Echo protocol (TE = 4.6 ms, TR = 184 ms, voxel resolution 0.150x0.150x1.0 mm). The centroids of the miniprobe were computed over 5 MR image slices (Fig. A). A linear regression was applied to these centroids in order to estimate the straight trajectory of the miniprobe along the trajectory. Results and Discussion: The miniprobe trajectory could be localised with an error of 51 μm and of 14 μm in respectively the x and y directions of the MR image. The miniprobe tip was between two slices at a distance of 2mm (Fig. D) along the trajectory. This localisation method assumed that there was no significant local intensity or geometric distortion in the MR image. Ideally, these distortions would be negligible if the computation was done with more than 5 centroids. Conclusion: The combination of the Cellvizio® with a high-field MR scanner may succeed in localising the miniprobe tip with a precision in the order of 10μm.

FEASIBILITY AND SAFETY OF PERORAL VIDEOCHOLANGIOSCOPY FOR THE OBSERVATION OF BILE DUCT LESIONS
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Background and Aim: Recently, a newly developed peroral videocholangioscopy (PVCS) can yield large good quality images. The aim of study is to evaluate the feasibility and safety of PVCS for the diagnosis of bile tract diseases. Patients and Methods: During a period of 4.5 years, 144 patients (80 bile duct cancers, 6 mucin-