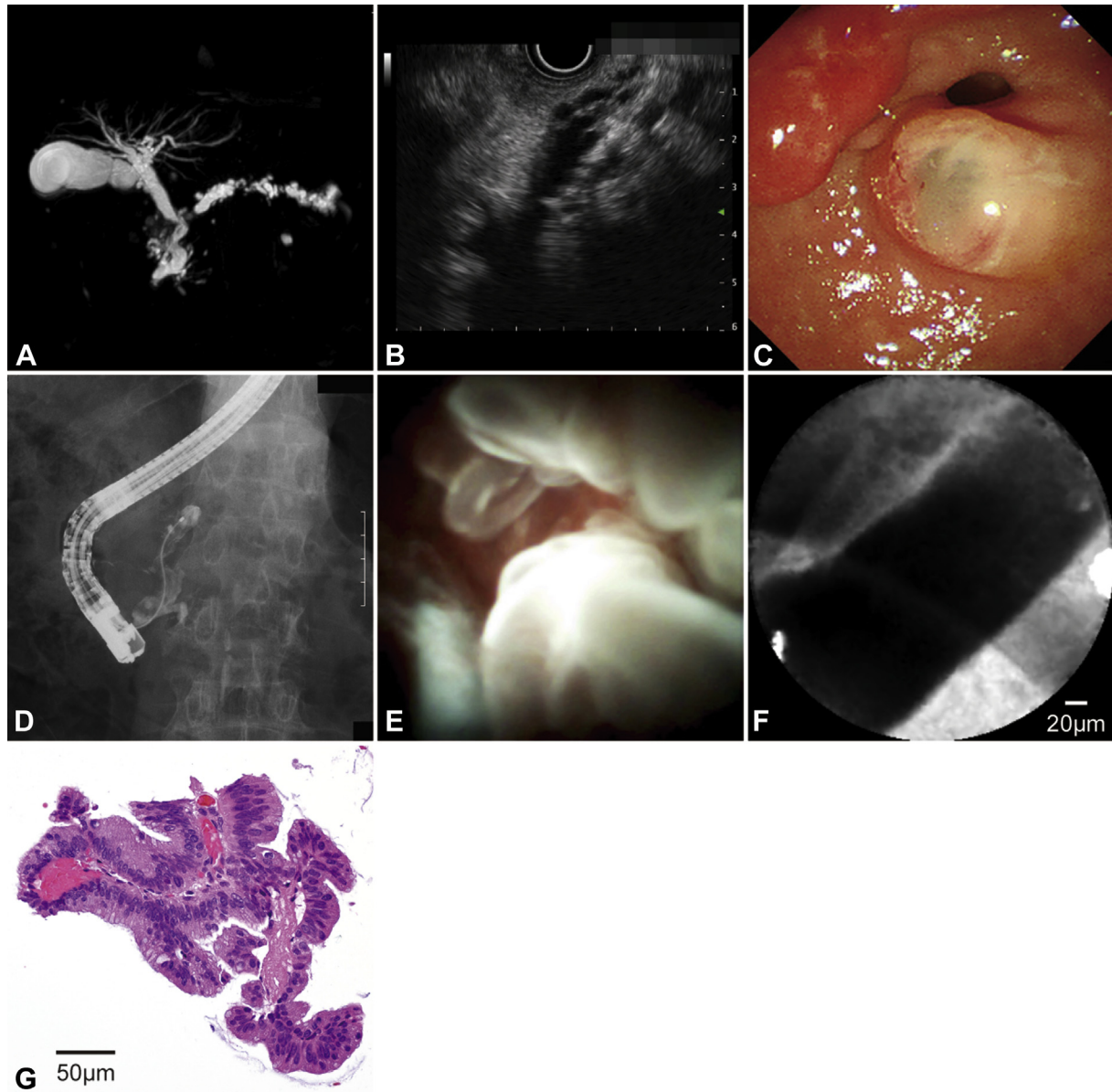




## In vivo diagnosis of intraductal papillary mucinous neoplasm with per-oral pancreatoscopy-guided confocal laser endomicroscopy



**Figure 1.** **A**, MRCP indicating expansion of the entire pancreatic duct. **B**, EUS view showing expansion of the entire pancreatic duct but no detection of the villous protrusions. **C**, Endoscopic view showing dilation of the pancreatic duct orifice and mucus discharge. **D**, Pancreatographic view showing defect of the inside of the main pancreatic duct. **E**, Per-oral pancreatoscopic (POPS) view showing villous protrusions on the inside of the main pancreatic duct. **F**, POPS-guided, fluorescein-dripping, probe-based confocal laser endomicroscopic view depicting neoplastic tissue as a dark, regularly arranged papillary structure. This finding did not indicate invasive carcinoma. **G**, Histopathologic findings of biopsy tissue specimen, showing atypical tall columnar epithelia composed of pseudostratified oblong-to-fusiform hyperchromatic nuclei and eosinophilic-to-amphophilic cytoplasm, with villous growth, leading to a diagnosis of intraductal papillary mucinous neoplasm with intermediate-grade dysplasia (H&E, orig. mag.  $\times 400$ ).

Written transcript of the video audio is available online at [www.VideoGIE.org](http://www.VideoGIE.org).

Intraductal papillary mucinous neoplasm (IPMN) is well known and has a malignant potential. Per-oral pancreatoscopy (POPS) is useful for evaluating the pancreatic duct and diagnosing IPMN. Probe-based confocal laser endomicroscopy (pCLE) is an emerging technique used to obtain real-time in vivo histologic images from various types of mucosa. However, POPS-guided pCLE images of IPMN have not yet been reported in vivo. We present a case of IPMN for which the degree of malignancy was diagnosed by the use of POPS-guided pCLE ([Video 1](#), available online at [www.VideoGIE.org](http://www.VideoGIE.org)).

A 79-year-old man underwent CT, which indicated expansion of the main pancreatic duct. MRCP also indicated expansion of the entire pancreatic duct ([Fig. 1A](#)). EUS showed expansion of the entire pancreatic duct but could not detect the villous protrusions ([Fig. 1B](#)). ERCP was performed for a more detailed exploration of the suspected IPMN. Endoscopy revealed dilation of the pancreatic duct orifice and mucus discharge. Pancreatography revealed a defect of the inside of the main pancreatic duct ([Figs. 1C and D](#)). POPS (SPYGlass DS; Boston Scientific Corp, Natick, Mass) detected villous protrusions on the inside of the main pancreatic duct ([Fig. 1E](#)). POPS-guided fluorescein-dripping pCLE was performed with use of a probe-based device (pCLE; CholangioFlex, Cellvizio; Mauna Kea Technologies, Paris, France). Here, neoplastic tissue was visible as a dark, regularly arranged papillary structure. This finding did not indicate invasive carcinoma ([Fig. 1F](#)).

Finally, a biopsy of the area imaged by pCLE was performed through a pancreatoscope. Histopathologically, the biopsy tissue specimen contained atypical, tall, columnar epithelia composed of pseudostratified oblong-to-fusiform

hyperchromatic nuclei and eosinophilic-to-amphophilic cytoplasm, and it showed villous growth ([Fig. 1G](#)). The lesion was diagnosed as IPMN with intermediate-grade dysplasia. Positive immunostaining for both mucin 2 and mucin 5 AC led to a diagnosis of intestinal-type IPMN.

In this case, the pCLE image and histologic analysis yielded similar sizes of the neoplastic papillae (120-140  $\mu\text{m}$ ) and degrees of malignancy. In summary, although additional patient data must be accumulated, we think that the in vivo diagnosis of IPMN with POPS-guided pCLE may be useful for evaluating the degree of malignancy.

## DISCLOSURE

*All authors disclosed no financial relationships relevant to this publication.*

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<https://doi.org/10.1016/j.vgie.2018.03.005>