TABLE 1. Adverse events (including stent dysfunction) in patients with technical success

Adverse events	PCDBS, n = 128 No. (%)	UCDBS, n = 127 No. (%)	*p* value
Total	58 (45.3)	63 (49.6)	.575
Early	15 (11.7)	17 (13.4)	.832
Late	51 (40.2)	48 (37.8)	.797

incidence of a single adverse event (AE), which was not addressed in our study, we have data, summarized as Table 1. Total AEs after ERCP were noted in 58 patients (45.3%) in the PCDBS group and 63 patients (49.6%) in the UCDBS group, without significant differences ($p = .575$), and the AEs were minute in clinical situations.

We also agree with the opinion of Li and Liu[1] that an adjunctive procedure such as radiofrequency ablation, photodynamic therapy, or another local ntitumor therapy can have some influence on stent patency and overall survival.[7] However, to maintain the consistency of the study, we did not perform additional interventions to prolong stent patency. In detail, our strategy of revision for stent dysfunction included only stent exchange with or without removal of a previously inserted stent by endoscopic or percutaneous approaches, permanent percutaneous catheter placement, or palliative surgical revision. In addition, stent patency in our study was defined as the interval between the time of stent placement and the time of first reintervention caused by to stent dysfunction.[8] Thus, adjunctive local antitumor therapy during a first revisional procedure could not have affected the stent

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Se Woo Park, MD, PhD
Kyong Joo Lee, MD, PhD
Division of Gastroenterology
Department of Internal Medicine
Hallym University Dongtan Sacred Heart Hospital
Hallym University College of Medicine
Gyeonggi-do, Korea
Moon Jae Chung, MD, PhD
Jung Hyun Jo, MD
Hee Seung Lee, MD
Jeong Youp Park, MD, PhD
Seung Woo Park, MD, PhD
Si Young Song, MD, PhD
Division of Gastroenterology
Department of Internal Medicine
Severance Hospital
Yonsei University College of Medicine
Seoul, Korea

Huapyong Kang, MD
Eui Joo Kim, MD
Yeon Suk Kim, MD, PhD
Department of Internal Medicine
Gachon University College of Medicine
Gil Medical Center
Incheon, Korea
Jae Hee Cho, MD, PhD
Department of Internal Medicine
Gangnam Severance Hospital
Yonsei University College of Medicine
Seoul, Korea
Seungmin Bang, MD, PhD
Division of Gastroenterology
Department of Internal Medicine
Severance Hospital
Yonsei University College of Medicine
Seoul, Korea

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The clinical value of narrow-band imaging in biliary strictures

To the Editor:

Shin et al[1] reported the excellent performance of narrow-band imaging (NBI) during peroral cholangioscopy in differentiating biliary strictures, demonstrating 87.5% sensitivity, 91.4% specificity, and 91.3% accuracy, adjusted

with biopsy. The presented results are significantly better than those of other studies of white-light (WL) cholangioscopy, in which visual appearances, thought to be strongly associated with malignancy (eg, tortuous mucosal vessels), were seen in both benign and malignant disease.[2]

These results are particularly impressive because a definitive diagnosis was achieved in none of the 71 patients at prior ERCP with histologic assessment, but high diagnostic accuracy both cholangioscopically and on sampling was achieved at the next procedure. Moreover, the limited impact of previous stent placement (presumably performed at index ERCP) on cholangioscopic interpretation is notable. The retrospective design could affect these results, so further prospective studies may define the value of NBI in clinical practice and clarify whether the apparently improved diagnostic accuracy relates to enhanced definition of known characteristic features or to the identification of lesions not recognized with WL.

The central question, when investigating biliary stenoses, is the presence or absence of malignancy. Early diagnosis of an operable cholangiocarcinoma may be crucial for the opportunity of surgical cure, and misdiagnosis could result in inappropriate stricture management or immunosuppression.[3] Conversely, the misdiagnosis of a benign stricture as cancer may lead to unnecessary surgery, with associated morbidity.[4,5]

Despite these encouraging data, it is unlikely in clinical practice that a definitive diagnosis of malignancy (and subsequent management) will be based on cholangioscopic appearances in the specific absence of confirmation by pathologic examination. As in luminal endoscopy,[6,7] visual appearance of mucosal abnormality is largely used to target pathologic sampling. In the area of intrabiliary pathology, the marrying of visual appearance and pathologic sampling has unavoidably lagged decades behind luminal disease because of the only recent availability of high-quality cholangioscopy. It is to be hoped that advances in WL and NBI may allow a rapid advance in diagnostic capabilities.

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Apostolis Papaefthymiou, MD
Kirill Basiliya, MD, PhD
Simon Phillpotts, MD
George Webster, MD
Pancreaticobiliary Medicine Unit
University College London Hospitals
London, United Kingdom

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Response:

We sincerely appreciate the valuable comments of Papaefthymiou et al[1] on our recent article.[2] As they make clear in their commentary, the diagnostic accuracy of peroral cholangioscopy (POC) is less affected by an existing plastic stent than are the accuracies of other diagnostic modalities such as CT, MRI, and EUS because POC permits direct observation of the biliary tract after removal of the stent.

Given that the utility of narrow-band imaging (NBI) during bile duct evaluation has received less attention than NBI of the GI tract, we investigated the diagnostic utility of NBI (compared with white-light imaging) during POC in patients with indeterminate biliary strictures. NBI allowed detailed observations of the surface structures, microvessels, and lesional margins, and it usefully predicted malignancies of indeterminate biliary strictures.[2-4] These results are consistent with our previous reports: NBI effectively identified minute, intraductal superficial lesions of the bile duct that were not well detected by conventional imaging modalities.[5]

We entirely agree with Papaefthymiou et al[1] that any definitive final diagnosis of malignancy should be pathologic, not cholangioscopic, even if NBI is used. In this context, POC may be better than ERCP-guided transpapillary biopsy in that POC allows direct visualization of the bile duct and thus yields targeted biopsy samples.[6] In particular, direct POC by use of an ultraslim endoscope affords several advantages in terms of pathologic sampling, ie, high image quality, NBI capability, and adequate tissue sampling with the use of large (5F) biopsy forceps.[7]

Although the retrospective design of the work may have affected our results (as described in the limitations of the