

## DEN Video Article

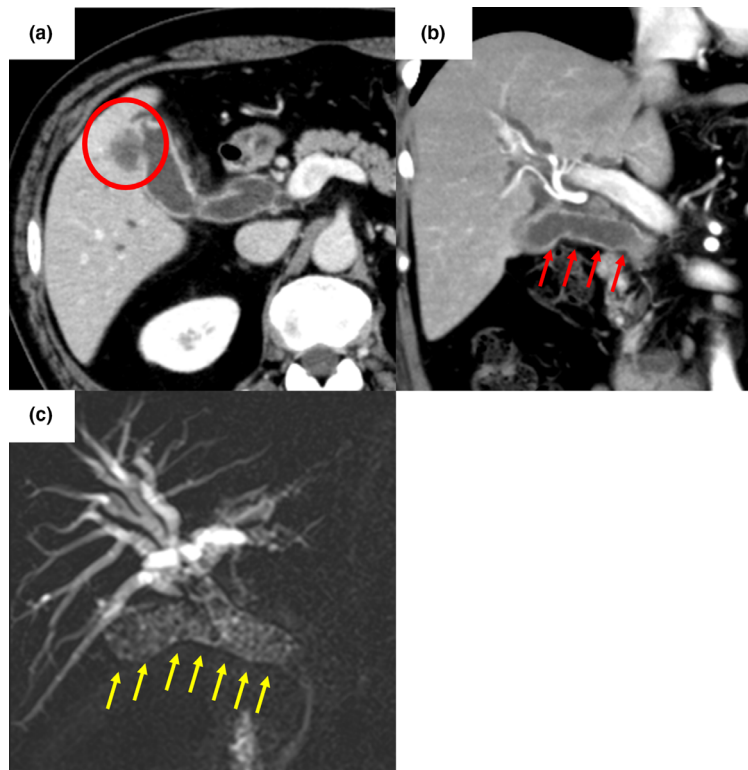
## Novel cholangioscopy-guided targeted biopsy for diagnosing gallbladder carcinoma

Kiyoyuki Kobayashi,<sup>1,2</sup>  Hideki Kobara<sup>2</sup>  and Tsutomu Masaki<sup>2</sup><sup>1</sup>Department of Internal Medicine, Kagawa Rosai Hospital and <sup>2</sup>Department of Gastroenterology and Neurology, Faculty of Medicine, Kagawa University, Kagawa, Japan

## BRIEF EXPLANATION

**G**ALLBLADDER (GB) LESIONS can be diagnosed using several imaging modalities; however, their definitive diagnosis remains challenging. Bile cytology

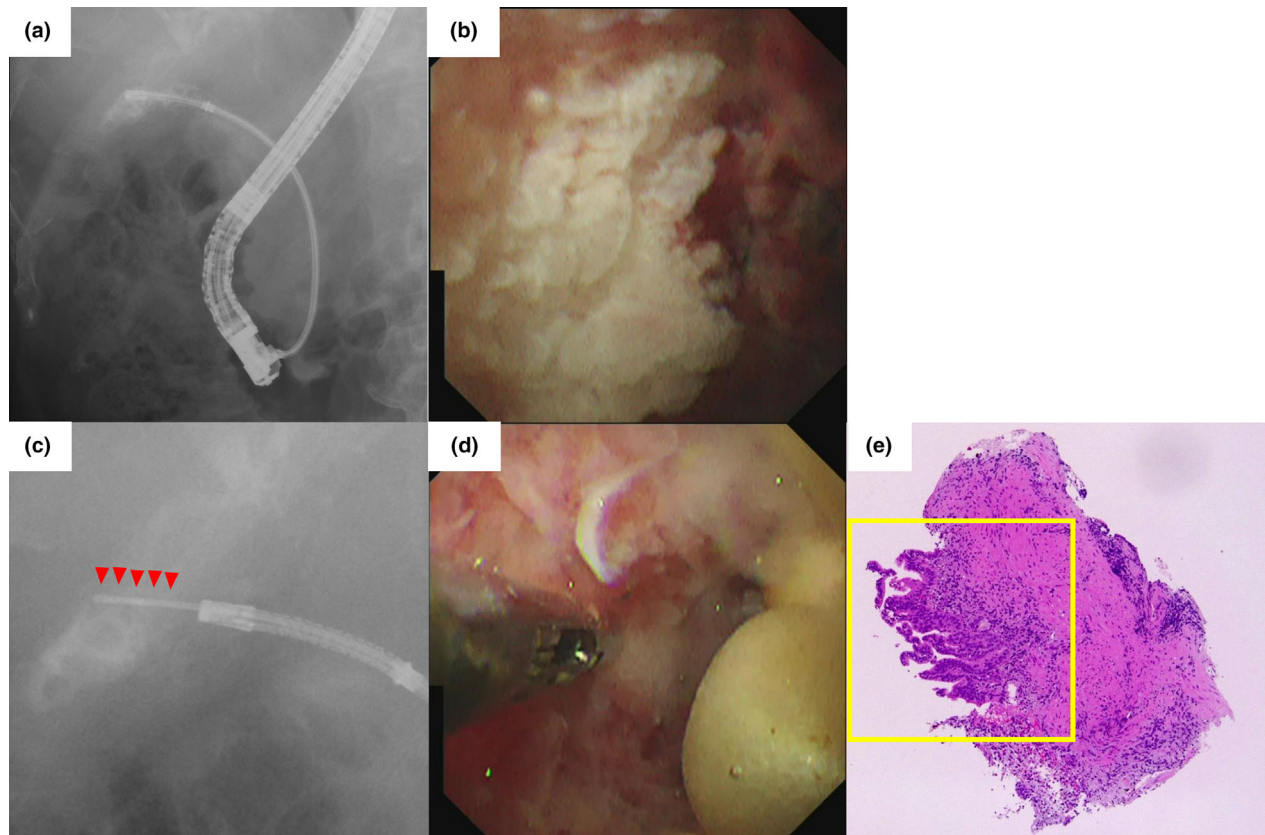
demonstrates unsatisfactory accuracy for GB lesions.<sup>1,2</sup> To improve diagnostic ability, targeted biopsy under direct vision is desirable. Conversely, with the advancement of cholangioscopy, targeted biopsy under direct vision has become possible, and the diagnosis of bile duct lesions has



**Figure 1** Contrast-enhanced computed tomography (CECT) and magnetic resonance cholangiopancreatography (MRCP). (a) CECT showed a 20-mm-diameter low-density area on the liver bed around the gallbladder (red circle). (b) The cystic duct was dilated in the coronal image on the CECT (red arrows). (c) MRCP showed numerous stones observed from the common bile duct to the cystic duct (yellow arrows).

**Corresponding:** Kiyoyuki Kobayashi, Department of Internal Medicine, Kagawa Rosai Hospital, 3-3-1 Jyoto, Marugame, Kagawa 763-8502, Japan. Email: koba0415@med.kagawa-u.ac.jp

Received 14 December 2020; accepted 28 December 2020.



**Figure 2** Cholangioscopy-guided targeted biopsy. (a) A cholangioscope was advanced into the gallbladder (GB). (b) A papillary lesion with an irregular surface pattern was noted at the GB fundus. (c) Targeted biopsy was performed using biopsy forceps under cholangioscopy guidance (red arrowhead). (d) Targeted biopsy was performed for papillary lesions under direct vision. (e) Biopsies facilitated the histological diagnosis of adenocarcinoma (yellow square).

improved.<sup>3–5</sup> We report the first case of GB carcinoma diagnosed using cholangioscopy-guided targeted biopsy. A 65-year-old man was referred to our hospital with obstructive jaundice due to common bile duct (CBD) stones, which appeared during cholecystitis treatment at the referring hospital. Contrast-enhanced computed tomography showed a 20-mm-diameter low-density area on the liver bed around the GB (Fig. 1a) and cystic duct dilation in the coronal image (Fig. 1b). Magnetic resonance cholangiopancreatography showed numerous stones observed from the CBD to the cystic duct (Fig. 1c). To distinguish benign pericholecystic abscesses from malignant carcinoma, transpapillary cholangioscopy-guided targeted biopsy was attempted after obtaining informed consent. Post-endoscopic sphincterotomy for CBD stones, a guidewire was placed in the GB. A cholangioscope with a caliber of 3.3 mm (CHF-B290; Olympus, Tokyo, Japan) was advanced into the GB with guidewire assistance (Fig. 2a). To maintain a clear view, intraluminal GB was cleaned using the saline injection

without air insufflation. A papillary lesion with an irregular surface pattern was noted at the GB fundus (Fig. 2b), suspected to be a malignant tumor. Targeted biopsies of the papillary lesions under direct vision were performed using biopsy forceps (FB-44U-1; Olympus) (Fig. 2c,d), resulting in the histological diagnosis of adenocarcinoma (Fig. 2e and Video S1). He then underwent surgical intervention, and the liver mass was diagnosed as an invasion of the GB carcinoma. This procedure may be feasible for diagnosing GB lesions in selective cases with the dilated and straight cystic duct.

Authors declare no conflicts of interests for this article.

## REFERENCES

- 1 Itoi T, Sofuni A, Itokawa F *et al.* Preoperative diagnosis and management of thick-walled gallbladder based on bile cytology obtained by endoscopic transpapillary gallbladder drainage tube. *Gastrointest Endosc* 2006; **64**: 512–9.

- 2 Itsuki H, Serikawa M, Sasaki T *et al*. Indication and usefulness of bile juice cytology for diagnosis of gallbladder cancer. *Gastroenterol Res Pract* 2018; **2018**: 1–6.
- 3 Navaneethan U, Moon JH, Itoi T. Biliary interventions using single-operator cholangioscopy. *Dig Endosc* 2019; **31**: 517–26.
- 4 Miyazawa M, Matsuda S, Fuchizaki U. Primary cystic duct carcinoma diagnosed by targeted biopsy with digital cholangioscopy. *Dig Endosc* 2018; **30**: 690–1.
- 5 Ogura T, Imanishi M, Kurisu Y *et al*. Prospective evaluation of digital single-operator cholangioscope for diagnostic and therapeutic procedures (with videos). *Dig Endosc* 2017; **29**: 782–9.

## SUPPORTING INFORMATION

**A**DDITIONAL SUPPORTING INFORMATION may be found in the online version of this article at the publisher's web site.

**Video S1** Cholangioscopy-guided targeted biopsy for diagnosing gallbladder carcinoma.