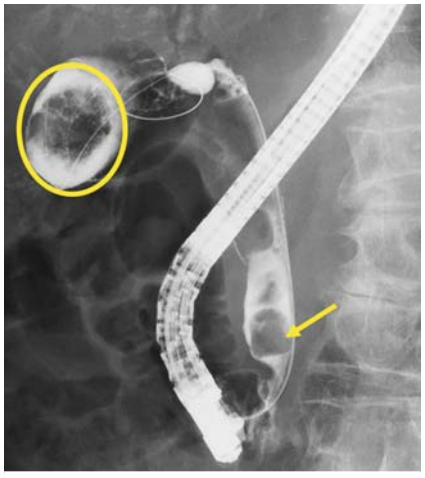
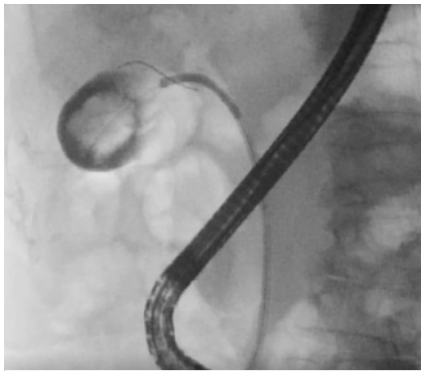
Endoscopic direct visualization of gallbladder polypoid lesion using peroral digital single-operator cholangioscopy

▶ **Fig. 1** Contrast-enhanced computed tomography showing a gallbladder tumor (yellow circle) with enhancement, measuring 20 mm.

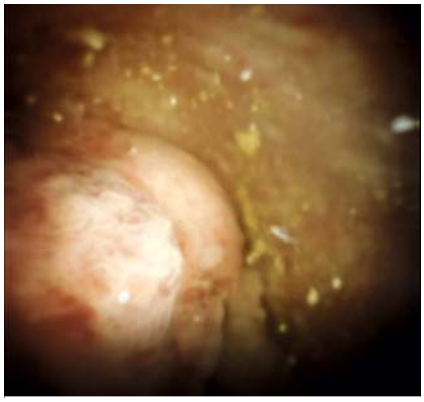


▶ **Fig. 2** Cholangiography showing stones in the common bile duct (arrow) and a gallbladder tumor (yellow circle).

▶ **Fig. 3** Fluoroscopic image showing the cystic duct straightened by the guidewire.



▶ **Fig. 4** Fluoroscopic image showing the SpyGlass cholangioscope advanced into the gallbladder.



▶ **Fig. 5** Cholangioscopy showing a nodular elevated lesion at the gallbladder fundus, which was suspected to be a malignant tumor.

Recently, the SpyGlass (Boston Scientific, Marlborough, Massachusetts, USA) has proven effective in the diagnosis of biliary tract lesions under direct vision [1–3]. However, no reports have evaluated its usefulness in the gallbladder. Gallbladder polypoid lesions include neoplasms and a variety of benign inflammatory, granular, and hyperplastic lesions. Distinguishing between these lesions is often difficult [4], and so a novel diagnostic tool is required. This report describes the first case to our knowledge of a gallbladder polypoid lesion being successfully visualized directly using the Spyglass.

An 85-year-old woman presented with acute cholangitis related to common bile duct (CBS) stones. Contrast-enhanced computed tomography (CT) showed a suspicious gallbladder tumor with enhancement, measuring 20 mm (▶ **Fig. 1**). Endoscopic retrograde cholangiopancreatography (ERCP) was performed to remove the CBD stones and to collect bile for cytological diagnosis of the gallbladder tumor. After achieving selective bile duct cannulation, a guidewire (Visiglide2; Olympus, Tokyo, Japan) was advanced into the cystic duct and gallbladder. Cholangiography showed stones in the CBD and a tumor in the gallbladder (▶ **Fig. 2**). With endoscopic papillary large-balloon dilation, the stones were successfully removed. Subsequently, we attempted the following approach for the gallbladder. First, bile was obtained for cytology via a catheter, and then the SpyGlass cholangioscope was inserted into the gallbladder. Because the cystic duct was straightened by the guidewire (▶ **Fig. 3**), the cholangioscope easily passed through the cystic duct and advanced into the gallbladder (▶ **Fig. 4**).

Cholangioscopy identified a nodular elevated lesion at the gallbladder fundus, suspected of being a malignant tumor (▶ **Fig. 5**; ▶ **Video 1**). However, targeted biopsy failed because the forceps could not pass through the curved cholangioscope. Although cytology was negative for malignancy, we recommended surgery based on CT and cholangioscopic findings, but the patient declined on the basis of advanced age.

In summary, although further instrumental improvement is required, SpyGlass cholangioscopy may be an alternative option for diagnosing gallbladder lesions.

Video 1 The SpyGlass cholangioscope inserted into the gallbladder of an 85-year-old woman identified a nodular elevated tumor under direct vision.

Endoscopy_UCTN_Code_CCL_1AZ_2AC

Acknowledgment

We thank Jane Charbonneau, DVM, from Edanz Group, for editing a draft of this manuscript.

Competing interests

The authors declare that they have no conflict of interest.

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Endoscopy 2021; 53: E263–E264
DOI 10.1055/a-1252-2704
ISSN 0013-726X
published online 1.10.2020

Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany

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CORRECTION
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Endoscopy 2020, 52: 10.1055/a-1252-2704

In the above-mentioned article, the title has been corrected. Correct is: Endoscopic direct visualization of gallbladder polypoid lesion using peroral digital single-operator cholangioscopy. This was corrected in the online version on May 6, 2021.