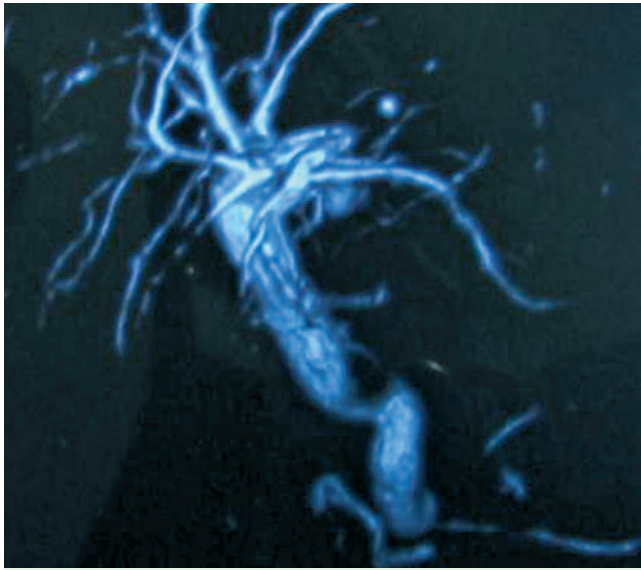
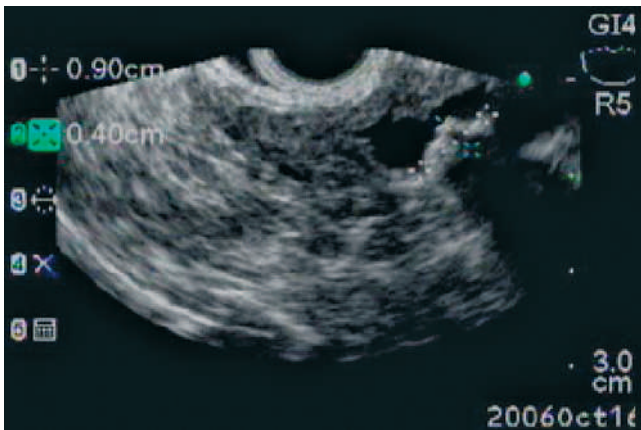


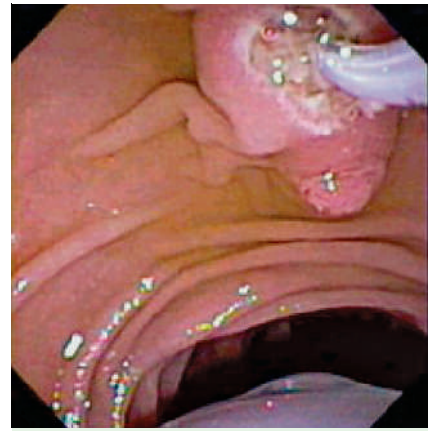
## Bile duct stone extraction under endoscopic ultrasound guidance without fluoroscopy or contrast injection



**Fig. 1** Magnetic resonance imaging view of a distal common bile duct stone.



**Fig. 2** Endoscopic ultrasound (EUS) demonstrated a stone in the distal common bile duct.



**Fig. 3** A fistulotomy was performed under EUS guidance.

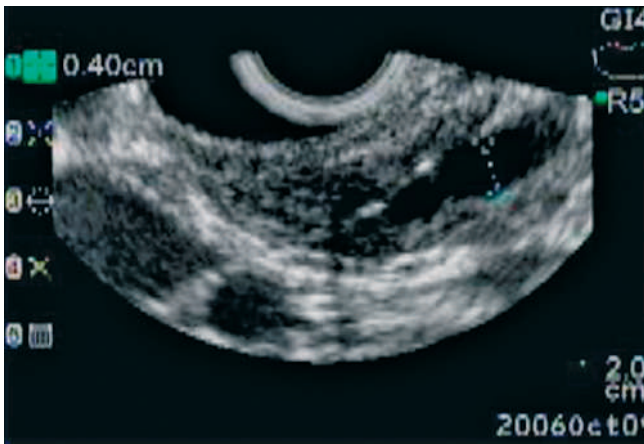
A 57-year-old woman with an allergy to iodinated contrast presented with intermittent right upper quadrant pain. Laboratory test results were as follows: total bilirubin 4 mg/dL, alkaline phosphatase 164 mg/dL, and normal amylase, aspartate transaminase, and alanine transaminase levels. A solitary 1-cm calculus was identified in the distal common bile duct on magnetic resonance imaging (Fig. 1); linear-array endosonography confirmed the presence of a 0.9-cm calculus (Fig. 2). Using a needle-knife, a 0.035-inch guide wire, and a 12-mm extraction balloon (all Boston Scientific, Natick, Massachusetts, USA), the bile duct was cannulated, the papilotomy exten-

ded, and the stone extracted, all under endoscopic ultrasound (EUS) guidance (Fig. 3, 4). Standard cannulation under EUS guidance was unsuccessful, probably due to the presence of stone in the distal common bile duct/ampulla. There were no complications resulting from the endoscopic intervention. The patient underwent an uneventful laparoscopic cholecystectomy and no residual stones were noted at intraoperative cholangiography. The injection of contrast during endoscopic retrograde cholangiopancreatography (ERCP) has been linked to post-ERCP pancreatitis. In addition, in patients with contrast allergy, ERCP might have to be delayed for up to 12 hours until ster-

oids have been administered, delaying emergency therapeutic interventions in patients with serious conditions such as severe cholangitis or gallstone pancreatitis [1–3]. Fluoroscopy is also expensive and is a limited resource, given that its availability is often controlled by radiology departments. At the same time, EUS is becoming widely available and its range of indications is expanding [4]. We have demonstrated the feasibility of performing therapeutic interventions in the bile duct under EUS guidance alone, without fluoroscopy and contrast injection. This strategy has potential applications in pregnant women requiring therapeutic interventions in the bile duct, in patients with contrast allergy who require emergency ERCP, and also in patients with bile duct abnormalities identified at EUS in whom an additional ERCP could be avoided using this technique [5].

Endoscopy\_UCTN\_Code\_TTT\_1AS\_2AD  
Endoscopy\_UCTN\_Code\_TTT\_1AR\_2AH

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**Fig. 4** EUS image of the needle-knife.

#### Bibliography

**DOI** 10.1055/s-2007-966551  
 Endoscopy 2008; 40: 13 – 14  
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 ISSN 0013-726X

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