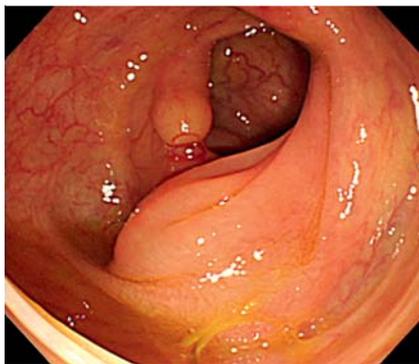


Endoscopic ultrasonography-guided fine-needle biopsy from ascending colon using a novel curved linear echoendoscope



► **Fig. 1** Computed tomography image showing cecal tumor, extracolonic lesions beside the ascending colon (arrow), and ascites in the surface of the liver.



► **Fig. 2** Endoscopic image showing extrinsic compression in the proximal ascending colon.



► **Video 1** Step-by-step process of endoscopic ultrasonography-guided fine-needle biopsy of a right-sided extracolonic lesion through the ascending colon using a novel type of echoendoscope.

Use of colonic endoscopic ultrasonography-guided fine-needle aspiration/biopsy (EUS-FNA/B) remains limited owing to the maneuverability of the conventional curved linear echoendoscope, particularly for right-sided colonic lesions [1]. A 52-year-old man with an abdominal tumor was admitted to our department. Computed tomography (CT) revealed colonic lesions of the cecum, extracolonic lesions adjacent to the ascending colon, and ascites in the surface of the liver (► **Fig. 1**). Colonoscopy showed extrinsic compression in the proximal ascending colon (► **Fig. 2**, ► **Video 1**); however, biopsy specimens showed no evidence of malignancy. The patient underwent transcolonic EUS-FNB. A conventional colonoscope was inserted into the cecum, followed by a 0.035-inch ultra-stiff guidewire (Wrangler SUS endoscopic guidewire; Piolax Medical Devices, Yokohama, Japan) placed in the ascending colon. A novel curved linear echoendoscope (EG-580UT; Fujifilm, Tokyo, Japan)

was then inserted in the cecum over the guidewire under fluoroscopic and endoscopic guidance (► **Fig. 3**, ► **Video 1**). Endoscopic ultrasonography (EUS) revealed a hypoechoic extracolonic mass. EUS-FNB for the mass (► **Fig. 4**, ► **Video 1**) and abdominal paracentesis, performed using a 22-gauge Franseen needle (Acquire; Boston Scientific Japan, Tokyo, Japan), showed adenocarcinoma consistent with cecal cancer.

Advancement of a conventional curved linear echoendoscope beyond the sigmoid colon requires previous placement of an overtube and a guidewire [1]. Although the use of forward-viewing echoendoscope for right-sided colon examination demonstrated the efficacy and safety of EUS-FNA/B [2], the larger scope diameter and narrower ultrasound scanning range (90°) of the forward-viewing echoendoscope may increase the difficulty of scanning and manipulation. The novel curved linear echoendoscope allowed for safe and reliable intu-



► **Fig. 3** Radiograph showing the guidewire-assisted intubation of a novel curved linear echoendoscope in the ascending colon following colonoscopy intubation (inset: endoscopic view).

bation into the right-sided colon owing to its frontal endoscopic view and flexible scope tip [3] (► **Fig. 5**, ► **Video 1**). Ultimately, the combination of colonoscopy-navigated ultra-stiff guidewire placement with intubation by the novel curved linear echoendoscope facilitates EUS-FNA/B from the right-sided colon.

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Competing interests

None

The authors

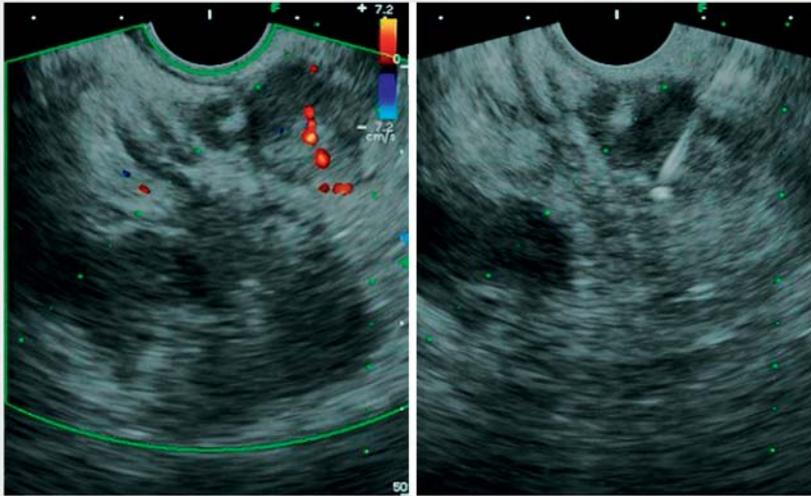
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► **Fig. 4** Echoendoscopic color Doppler image showing the hypoechoic mass (15 × 14.5 mm in diameter) punctured using a 22-gauge Franseen needle.

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► **Fig. 5** Comparison of scope tips of a forward-viewing echoendoscope (TGF-UC260; Olympus; top), a standard curved linear echoendoscope (GF-UCT260-AL5; Olympus, Tokyo, Japan; middle), and the novel curved linear echoendoscope (EG-580UT; Fujifilm, Tokyo, Japan; bottom); all of scopes are in the maximum up-angulation position.