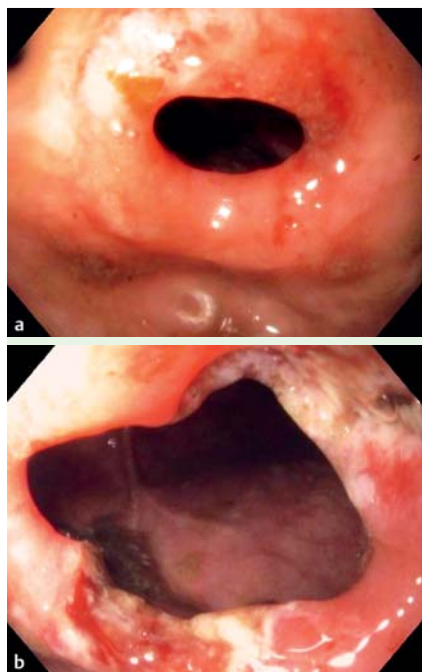
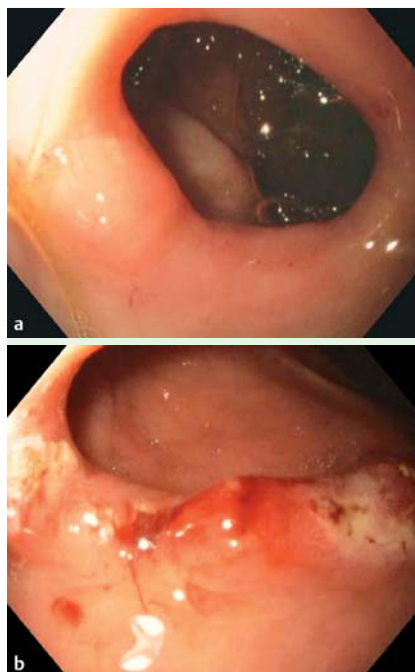


## Doppler ultrasound-guided endoscopic needle-knife treatment of an anastomotic stricture following subtotal colectomy



**Fig. 1** Ileorectal anastomotic stricture: **a** before and **b** after Doppler ultrasound-guided needle-knife therapy.

A 28-year-old woman presented to our clinic with a 2-month history of dyschezia after subtotal colectomy and ileorectal anastomosis (IRA). Sigmoidoscopy showed a 5-mm long, nonulcerated IRA stricture (▶ **Fig. 1 a**), which was not traversable with a GIF-H180 gastroscope (Olympus, Tokyo, Japan). The patient did not have sustained symptom improvement after endoscopic balloon dilation, and it was decided to treat the refractory anastomotic stricture with endoscopic needle-knife therapy, carried out by an experienced endoscopist (BS). A disposable single-use Doppler ultrasound probe (VTI Vascular Technology, Nashua, New Hampshire, USA) was introduced through the working channel of a GIF-H180 gastroscope to map the stric-



**Fig. 2** Small recurrent anastomotic stricture 3 months after treatment: **a** before and **b** after further Doppler ultrasound-guided needle-knife treatment.

ture areas with no large-volume blood flow (▶ **Video 1**).

Then electroincision was carried out with an Olympus triple-lumen needle-knife catheter (Olympus Medical Systems, Tokyo, Japan) (▶ **Fig. 1 b**, ▶ **Video 1**). The procedure took 10 minutes and was uneventful, and 24 hours later the patient had significant symptom improvement. A follow-up sigmoidoscopy was accomplished without difficulty in intubating the anastomosis 3 months later. A small recurrent stricture at the IRA was further treated using the same method (▶ **Fig. 2 a, b**).

Anastomotic strictures complicate colorectal surgery in 3–30% of all cases [1]. Endoscopic balloon dilation remains the preferred first-line treatment for benign anastomotic strictures due to its safety and feasibility [2], but long-term results appeared to be poor [3]. While there have been a few case reports of endoscopic needle-knife electroincision of upper gastrointestinal anastomotic strictures [4]

and anastomotic leaks/sinuses [5], use of the technique has not been reported for stricture treatment in the lower gastrointestinal tract. In addition, electroincision as reported was carried out in a “blind” fashion and not with Doppler ultrasound guidance. To our knowledge, this is the first case report of the use of Doppler ultrasound in endoscopic needle-knife treatment of anastomotic strictures. The procedure appears to be simple, safe, and feasible for treating benign anastomotic strictures.

Endoscopy\_UCTN\_Code\_TTT\_1AQ\_2AF

**Competing interests:** None

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DOI 10.1055/s-0030-1256840

Endoscopy 2011; 43: E343

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### Video 1

Use of a Doppler ultrasound probe to guide endoscopic needle-knife therapy.