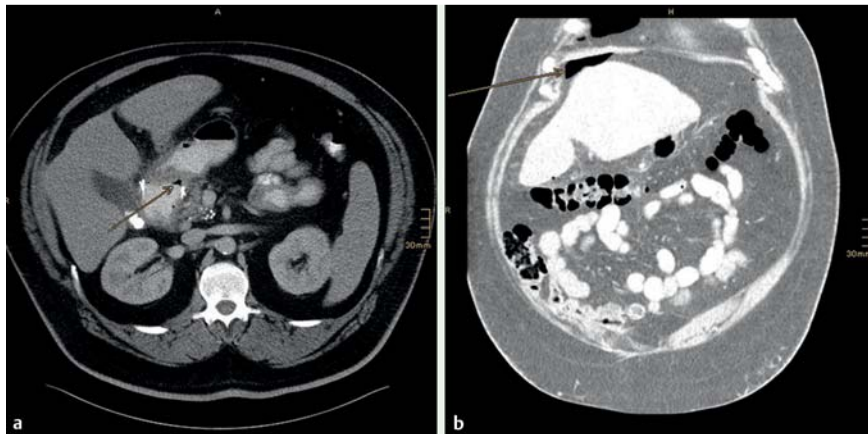
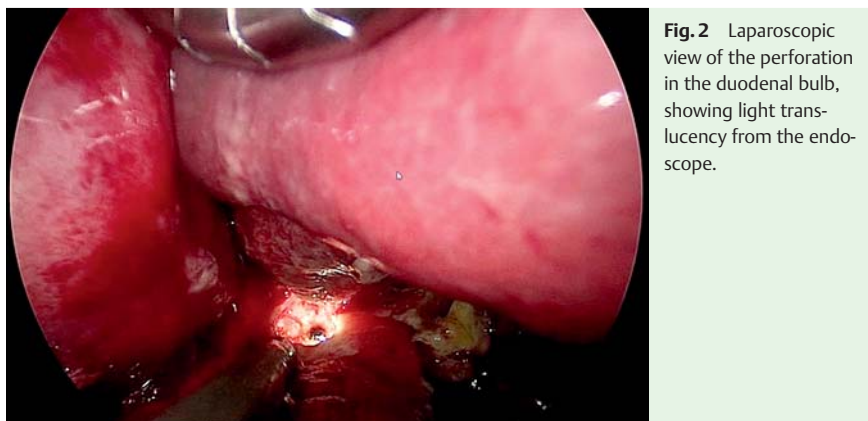


## Minimally invasive treatment of a duodenal perforation associated with the EndoBarrier duodenal–jejunal bypass liner



**Fig. 1** Abdominal computed tomography (CT) scan in a 49-year-old man who had received a duodenal–jejunal bypass liner (DJBL) 4 weeks

previously showing free air (arrow): **a** close to the nitinol anchor of the device; **b** under the right hemidiaphragm.



**Fig. 2** Laparoscopic view of the perforation in the duodenal bulb, showing light transluency from the endoscope.

In order to establish less invasive therapies for treatment of excess bodyweight and obesity, a device that is placed endoscopically has been developed that mimics some of the anatomical and enteroendocrine effects of bariatric surgery. The EndoBarrier system (GI Dynamics, Lexington, Massachusetts, USA) is a duodenal–jejunal bypass liner (DJBL) that consists of a 60-cm long, impermeable fluoropolymer sleeve, which is fixed in the duodenal bulb by a nitinol anchor with barbs [1]. Initial clinical studies have revealed consistent efficacy and safety, with adverse effects described as moderate or mild [1–5]. In this case report a duodenal perforation associated with DJBL and its minimally invasive treatment were described.

A 49-year-old man received a DJBL. After 4 weeks the patient presented to the emergency department with an acute abdomen. Radiologic imaging revealed free air in the abdomen suggestive of intestinal perforation (▶ **Fig. 1**). We decided to approach this complication by a combined endoscopic and laparoscopic procedure (▶ **Video 1**). The DJBL was removed endoscopically and this was followed by laparo-

### Video 1

Initially the perforation is seen in the duodenal bulb, along with light transluency from the endoscope. The perforation is closed laparoscopically with a running suture. Inspection and an air insufflation test are then used to check that the defect has been adequately closed.

scopic closure of the perforation in the duodenal bulb using a running suture with self-retraining suture material (V-Loc; Covidien, Dublin, Ireland; ▶ **Fig. 2**). The patient was discharged from hospital 9 days after the surgery.

This case demonstrates a serious complication of a DJBL, which was successfully treated by an interdisciplinary team of surgeons and endoscopists. Duodenal perforation is a life-threatening event with overall mortality of approximately 8%, higher in patients with accompanying risk factors [6]. The recently introduced over-the-scope clip (OTSC; Ovesco Endoscopy, Tübingen, Germany) is another option for endoscopic treatment of duodenal perforation [7].

Hereby we strongly recommend the use of minimally invasive treatment in such circumstances to preserve the options for subsequent minimally invasive metabolic surgery and reduce the perioperative risks for the patients [8]. However, if duodenal ulceration or perforation starts to be seen more frequently, the anchorage system of this device will need to be re-evaluated and revised to permit possible implantation proximal to the pylorus.

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