A 61-year-old man underwent distal gastrectomy with gastro-duodenal anastomosis (Billroth I operation) because of perforated peptic ulcer and septic peritonitis. In addition, ischemic right colon was resected and ileostomy was performed. Anastomotic insufficiency was detected 2 days after the operation by duodenal secretions in the operative drainage tube. In two repeat laparotomies, operative closure of the leak could not be achieved. On postoperative Day 12, endoscopy showed a semicircular anastomotic leak (Fig. 1). The drain could be seen through the defect from the inside. Endoscopic negative pressure therapy (ENPT) was initiated immediately.

We used two new types of drainage devices: open-pore polyurethane foam drainage (OPD) and open-pore film drainage (OFD) (Fig. 2) [1–4]. For construction, the distal ends of two drainage tubes were connected using a suture. The connecting segment was wrapped with open-pore polyurethane foam or coated with a strip of thin double-layered open-pore drainage film (Suprasorb CNP Drainagefolie; Lohmann & Rauscher, Neuwied, Germany) (Video 1). This open-pore element was placed using a

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Video 1 Demonstration of the pull-through technique, construction of the open-pore polyurethane foam drain (OPD) and removal of an open-pore film drain (OFD).
pull-through technique (▶ Video 1) along the preformed fistula channel in the anastomotic defect, with one half lying inside the cavity and the other half inside the intestinal lumen (▶ Fig. 3). The correct position was controlled endoscopically. The cutaneous end of the tube was blocked with a knot, and the proximal end was led out through the nose and connected to an electronic vacuum pump (ActiV.A.C, setting: –125 mmHg, continuous negative pressure, high intensity; KCI, San Antonio, Texas, USA). We started ENPT with OPD and progressed to small-bore OFD. The changing interval was 3 – 5 days, and the diameter of the OPD and OFD drains was reduced in a stepwise fashion (from 15 mm to 5 mm). The biliary secretion stopped immediately from the cutaneous end, and was drained intraluminally with negative pressure. Simultaneously, the defect and the fistula channel collapsed around the open-pore element of the drain (▶ Fig. 4). The last period of ENPT was performed using OPD, which was placed intraluminally, completely covering the defect zone. Drains were changed six times. The duration of ENPT was 24 days. The defect healed without further operation (▶ Fig. 5).

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Competing interests

Dr. Loske is a consultant for Lohmann & Rauscher GmbH & Co.KG.

The authors

Frank Rucktaeschel¹, Marc Liedtke², Erik Schlöricke³, Thomas Herrmann⁴, Gunnar Loske³

¹ Department for Internal Medicine, Gastroenterology, Hemato-Oncology, Nephrology and Endocrinology, Westküstenklinikum Heide, Heide, Germany
² Department for Abdominal, Thoracic and Vascular Surgery, Westküstenklinikum Heide, Heide, Germany
³ Department for General, Abdominal, Thoracic and Vascular Surgery, Katholisches Marienkrankenhaus Hamburg gGmbH, Hamburg, Germany

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Corresponding author

Gunnar Loske, MD
Department for General, Abdominal, Thoracic and Vascular Surgery, Katholisches Marienkrankenhaus Hamburg gGmbH, Alfredstrasse 9, 22087 Hamburg, Germany
Fax: +49-40-25461400
loske.chir@marienkrankenhaus.org

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