Laparoendoscopic mediastinal vacuum therapy of a gastric perforation through the diaphragm

Endoscopically guided endoluminal vacuum therapy using polyurethane sponges has become an established method for treating rectal anastomotic leaks [1] and is now increasingly also used in the upper gastrointestinal tract [2–4]. We report on transhiatal placement of an Endo-Sponge (Braun Medical, Melsungen, Germany) into the mediastinum using the Gastrotrokar described in an earlier paper [5].

A 54-year-old man was referred by the emergency doctor after a 2-day history of thoracolumbar pain on violent coughing. Immediate intubation was necessary because the patient presented a complete picture of sepsis. A laparoscopic fundoplication had been performed 6 years earlier due to gastroesophageal reflux disease. Gastroscopy revealed a satisfactory fundoplication. However, a transhiatal perforation of the fundus was observed (Fig. 1). The necrosis cavity, which was located para-aortally in the mediastinum, was measured during computed tomography (CT) as 5.4 × 5 × 3.2 cm. Free intra-abdominal air and subcutaneous emphysema were found (Fig. 2). Transesophageal endoscopic placement of an Endo-Sponge was not possible, because of the need for a maximally retroflexed scope position.

A Gastrotrokar (Storz, Tuttlingen, Germany) was introduced through a 20-Fr percutaneous endoscopic gastrostomy (PEG) tube (Fresenius Kabi AG, Bad Homburg, Germany) into the body of the stomach. The Endo-Sponge introduced transesophageally into the stomach using an overtube was then introduced easily into the cavity using a laparoscopic forceps (Figs. 3 and 4). The Endo-Sponge tube was drained through the PEG tube and kept under continuous negative pressure of 125 mmHg using a negative pressure therapy system (KCI, USA Inc., San Antonio, Texas, USA). Broad-spectrum antibiotics (cefuroxime and metronidazol) were delivered.

After 48 h, the patient showed marked improvement both clinically and in laboratory test values. The patient was extubated. The Endo-Sponge was replaced on days 2 and 8, cleansing the wound and reducing the cavity by 50% (Fig. 5), so
treatment was withdrawn on day 14. Complete reduction of the necrosis cavity was found on removal of the PEG tube after 21 days (Fig. 6). Subsequently, the patient had no difficulty swallowing.

Competing interests: None

References

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