Prevention of reflux after esophagectomy with endoscopic negative pressure therapy using a new double-lumen open-pore film drainage with an intestinal feeding tube

Reflex after Ivor Lewis esophagectomy has a deleterious effect on anastomotic wound healing and is a risk for pulmonary aspiration [1]. We report endoscopic negative pressure therapy, using a novel double-lumen open-pore film drainage method, for prevention of postoperative reflux.

A 70-year-old patient underwent Ivor Lewis esophagectomy because of carcinoma of the distal esophagus (pT2pN0), having undergone laryngectomy because of carcinoma of the larynx 5 years previously. On postoperative day 4, rising inflammatory parameters led to endoscopy in order to check the anastomosis, in accordance with our treatment algorithm [2]. We found biliary gastric reflux flooding the intrathoracic anastomosis (Fig. 1). The anastomotic tissue was seen to be green-colored and the staple line of the stomach showed signs of inflammation (Fig. 2).

We decided to evacuate the stomach with endoscopic negative pressure therapy, using an innovative double-lumen drainage system that incorporated open-pore film material. Our goal was to eliminate the postoperative reflux that was compromising the anastomotic healing.

We adapted a triluminal tube (Freka Trellumina, CH/Fr 16/9, 150 cm; Fresenius, Germany) using open-pore film (Suprasorb CNP Drainagefolie; Lohmann and Rauscher, Germany). All the openings of the gastric channel of the triluminal tube were wrapped around once with a length of the open-pore film. The film was fixed using suture thread. The ventilation lumen of the tube was blocked with a clamp (Fig. 3). The small-bore tube was inserted nasally and pushed, so that finally the intestinal feeding channel was positioned in the duodenum (Video 1) and the film-wrapped part of the tube was positioned in the stomach (Fig. 4).

Application of negative pressure with an electronic device (setting – 125 mmHg, continuous, intensity 10; KCI V.A.C. Freedome, KCI USA Inc., San Antonio, Texas, 2017; 49: E294–E295)
USA) resulted in permanent collapse of the stomach and complete drainage of the reflux. Simultaneously, intestinal nutrition was started along the feeding channel. The open-pore film drainage was changed once after 3 days of treatment (▶Fig. 5). Infection signs at the staple line and green colored imbibition at the anastomosis had disappeared. Endoscopic negative pressure therapy was ended after a period of 10 days. Follow-up endoscopy 7 days after the end of therapy showed complete healing (▶Video 1).

Double-lumen open-pore film drainage combined with the intestinal feeding tube enables full enteral nutrition and complete gastric drainage, simultaneously. The active prevention of reflux with double-lumen open-pore film drainage is an easy method of supporting anastomotic healing after esophageal resection.

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Competing interests

Gunnar Loske is a consultant to Lohmann & Rauscher GmbH. Tobias Schorsch and Christian Theodor Mueller declare no conflict of interest.

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