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SURGERY FOR OBESITY AND RELATED DISEASES

Case report

Refractory complex gastrobroncho-cutaneous fistula after laparoscopic sleeve gastrectomy: a novel technique for endoscopic management

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Laparoscopic sleeve gastrectomy (LSG) is a widely used, effective stand-alone procedure for treatment of morbid obesity [1]. However, it is a procedure not without complications [2,3]. Staple-line leakage is the most serious complication after primary LSG, with an incidence of 1.4% to 4% [4–6]. In rare cases, chronic proximal gastric leakage transforms into gastrobronchial fistula [7]. Factors associated with the occurrence and persistence of gastric fistula include distal stenosis, twisted gastric tube, intragastric hypertension, stapling and ischemia at lower esophagus, multiple comorbidities, and super obesity [8].

Various techniques have been described for treatment of gastric fistulae after LSG. Endoscopic approach is the primary line of treatment reported [9]. Endoscopic procedures include application of self-expanding metallic stents, balloon dilation of distal stricture, and stricturotomy [8]. Reoperation for treatment of gastric fistula after LSG is indicated for chronic and refractory fistulae and is associated with higher morbidity and mortality [10]. Surgical procedures include surgical drainage, total gastrectomy, Roux-en-Y esophagojejunostomy, Roux-en-Y gastrojejunostomy, and fistulojejunostomy [6,11]. A hybrid endoscopic and surgical technique is reported by many authors. In this article, we describe a novel endoscopic technique that was successful in management of a chronic gastrobronchial fistula and explain its merits and benefits.

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Case presentation and management

The patient described in the present case report was a 34-year-old male who underwent LSG in another facility when his body mass index was 44 kg/m^2 without comorbidities. Early leakage was diagnosed on the third postoperative day and managed by laparoscopic drainage and endoscopic insertion of self-expanding, fully covered stent. Two days later, intraperitoneal hemorrhage and hemothorax occurred; this was managed by cessation of anticoagulant, insertion of an intercostal tube, and laparotomy, which revealed no definite source of bleeding. Then the intercostal tube became obstructed, and the case was managed by thoracotomy, evacuation of hematoma, and insertion of 2 intercostal tubes.

One month later, the esophageal stent was removed. After removal of the stent, gastrobroncho-cutaneous fistula (GBCF) through the thoracotomy scar became evident (Fig. 1). Abdominal computed tomography revealed bilateral subphrenic collection. This was managed by ultrasound-guided tube drainage of the left and right subphrenic collections and endoscopic insertion of an esophageal stent (15 cm) that failed to stop leakage. The patient was referred to us 1.5 months after the primary surgery.

On examination, the patient showed signs of toxemia in the form of tachycardia (110–120 beats/min), dyspnea, generalized weakness, and fatigability. The thoracotomy scar was discharging pus through multiple orifices. Contrast study revealed a GBCF connected to the gastroesophageal

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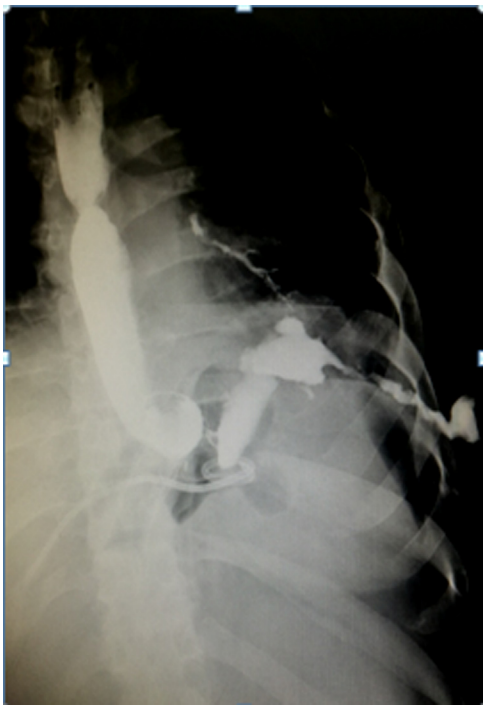

Fig. 1. Oral contrast study showing the gastrobroncho-cutaneous fistula.

junction. Upper endoscopy revealed a wide internal opening of the GBCF with the upper part of the stent twisted inside its opening. The migrated stent was removed, and a fully covered, self-expanding stent (Taewoong Niti-S Megastent, Taewoong Medical, Korea) was inserted. The fistulous output decreased, and oral intake was started 24 hours after stent insertion. One week later, fistulous output increased dramatically, and endoscopy revealed a downward-migrated stent. Repositioning was performed. Three days later, remigration occurred. Parenteral nutrition was not possible due to difficult access to peripheral and central veins, even with the efforts of 2 expert intensive care unit anesthesiologists.

The condition was managed by endoscopic repositioning of the stent with insertion of a Sengstaken-Blakemore (SB) tube (18 French) through the stent; the stent tip was placed in the duodenum, the gastric balloon below the stent, and the esophageal balloon inside the stent. The tube was inserted through the patient's nose and pulled through the mouth, and was grasped by rat-tooth forceps (Endo-Flex, Germany) through the channel of the gastroscope. The tube tip was navigated through the stent downward to the second part of the duodenum. Then a Savary guidewire

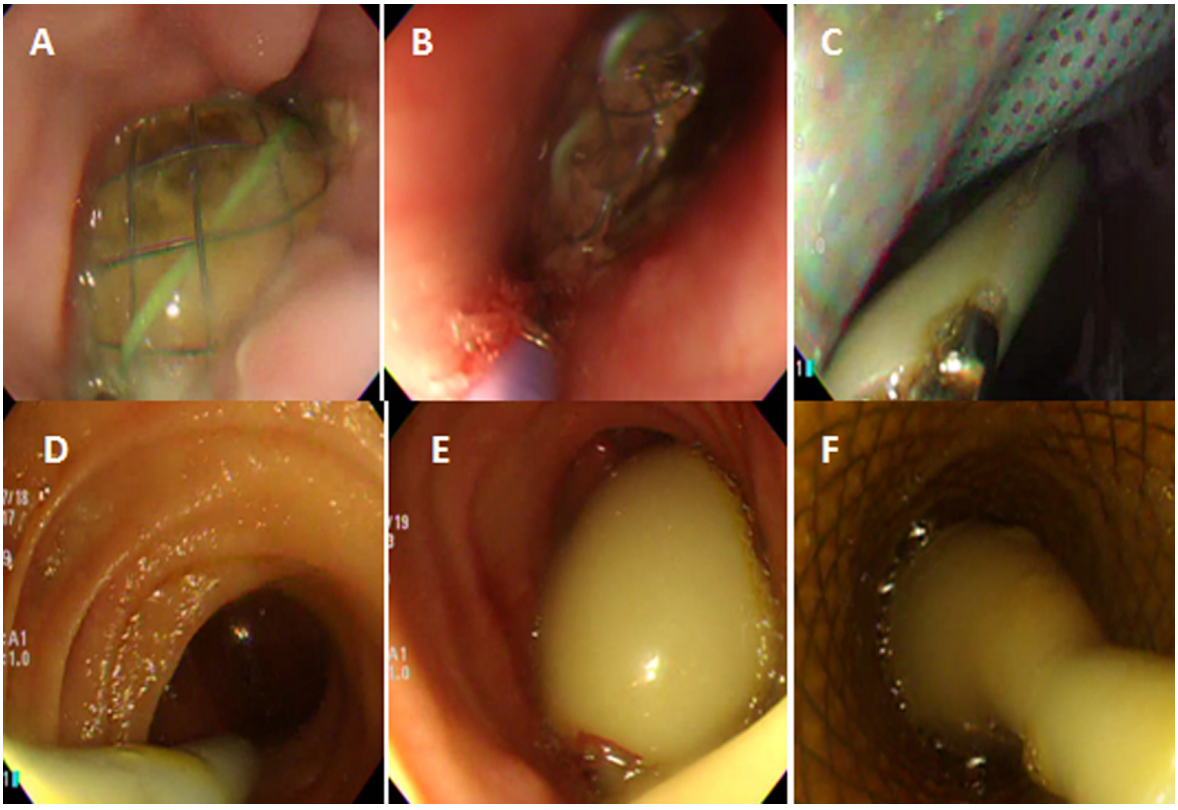

Fig. 2. Highlights of the technique of endoscopic insertion of Sengstaken-Blakemore (SB) tube after repositioning of the migrated stent: (A) Migrated stent; (B) Stent repositioning with rat-tooth forceps; (C) Holding the tip of SB tube after its retrieval from the mouth after nasal insertion to position it in the alimentary tract; (D) Securing the tip of SB tube in the duodenum; (E) Inflation of gastric balloon of SB tube in the antrum distal to the stent; (F) Inflation of the esophageal balloon of SB tube within the stent.