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Self-Expandable Metal Stent for Closure of a Large Leak after Total Gastrectomy

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Key Words
Self-expandable metal stent · Leak closure · Gastrectomy

Abstract
In recent years, self-expandable metallic stents (SEMSs) have emerged as a promising treatment alternative for the bridging and sealing of esophageal perforations and extensive anastomotic leaks after esophageal resection or total gastrectomy. A 56-year-old woman underwent a total gastrectomy with Roux-en-Y end-to-side esophagojejunostomy for a gastric signet ring cell carcinoma. Ten days later, esophagogastroduodenoscopy showed a 2 cm fistula in the distal end of the Roux limb of the anastomosis. This was confirmed by gastrografin esophagography. The patient was started on total parenteral nutrition. Having deemed clipping treatment for this fistula unfeasible, we decided to insert a partially silicone-coated SEMS (Evolution Controlled Release Esophageal Stent System, Cook Medical, Winston-Salem, N.C., USA). The stent was removed after ten days. Gastrografin esophagography showed no further contrast extravasation, and esophagogastroduodenoscopy showed closure of the fistula. No clinical complications were observed, and the patient was able to start normal per os nutrition. In conclusion, the treatment of symptomatic leaks in patients who have undergone esophagojejunostomy is challenging, and leakage from the jejunal stump can be a potentially serious complication. In the treatment of leakage after total gastrectomy, plastic stents (which are either too light or exercise too little radial force) and totally covered metallic stents may not adhere sufficiently to the esophagojeujunal walls and, as a result, migrate beyond the anastomosis. The promising results of this report suggest that early stenting, using a partially silicone-coated SEMS, is a feasible alternative to surgical treatment in this category of patients.

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Introduction

Esophageal perforations and extensive anastomotic leaks after esophageal resection or total gastrectomy are surgical emergencies. Mortality of up to 60% has been reported and is the result of rapidly occurring mediastinitis and abscess formation, which often lead to sepsis and multiorgan failure [1, 2]. In the last few years, self-expandable metallic stents (SEMSs) have emerged as a promising treatment alternative for bridging and sealing this kind of damage [3]. For small esophageal leaks, application of fibrin glue and endoscopic clipping has been proposed, and satisfactory results have been achieved in some cases [4, 5]. However, extensive anastomotic dehiscenses or fistulas are extremely difficult to seal and require numerous interventions, often without success.

We report the case of a 56-year-old woman suffering from a large leak found in the distal end of the Roux limb of a stapled esophagojejunostomy after total gastrectomy, treated with a partially covered SEMS (Evolution Controlled Release Esophageal Stent System, Cook Medical, Winston-Salem, N.C., USA).

Case Report

A 56-year-old woman was admitted to our hospital for abdominal pain and weight loss. Esophagogastroduodenoscopy (EGD) showed a gastric lesion, which on histology was revealed to be a gastric signet ring cell carcinoma. As a result, the patient underwent total gastrectomy with Roux-en-Y end-to-side esophagojejunostomy. A stapling esophagojejunostomy was performed: the anvil was secured in the esophagus with a purse-string suture; subsequently an end anastomosis stapler was inserted through the distal end of the Roux limb. The anastomosis was made on the antimesenteric side of the bowel. Once the anastomosis was complete, the end of the Roux limb was amputated with a single firing of a gastrointestinal anastomosis stapler. The enteric staple line was reinforced with interrupted Lembert sutures of 3-0 silk.

Ten days later, EGD showed a 2 cm fistula in the distal end of the Roux limb of the anastomosis about 40 cm from the mouth. This was confirmed by gastrografin esophagography (**fig. 1**). The patient was started on total parenteral nutrition. Having deemed clipping treatment for this fistula unfeasible, we decided to insert a partially silicone-coated SEMS (Evolution Controlled Release Esophageal Stent System). The diameter of the Evolution stent was 25 mm and 20 mm at the flare and at the shaft, respectively; the length was 10 cm (**fig. 2**). We chose this type of partially covered metallic stent in order to avoid the kind of stent migration described in some reports [3, 6, 7]. The stent was removed after ten days. Gastrografin esophagography showed no further contrast extravasation, and EGD showed closure of the fistula (**fig. 3**). The patient was discharged home two weeks after stent removal. No clinical complications were observed, and the patient was able to start normal per os nutrition.

Conclusion

The treatment of symptomatic leaks in patients who have undergone esophagojejunostomy is challenging, and leakage from the jejunal stump can be a potentially serious complication. Therapeutic options are surgical repair or resection, or conservative management with cessation of oral intake and antibiotic therapy. Open surgical reintervention is associated with considerable risk, particularly in depleted patients [1]. Covered esophageal stenting appears to reduce the mortality and morbidity associated with symptomatic anastomotic leakage after surgery for gastroesophageal cancer [8]. In the treatment of leakage after total gastrectomy, plastic stents (which are either too light or exercise too little radial force) and totally covered metallic stents may not adhere sufficiently to the esophagojeujunal walls and, as a result, migrate beyond the anastomosis.

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The promising results of this report suggest that early stenting, using a partially silicone-coated SEMS, is a feasible alternative to surgical treatment in this category of patients.

Fig. 1. Endoscopic (left) and radiologic (right) view of the fistula.

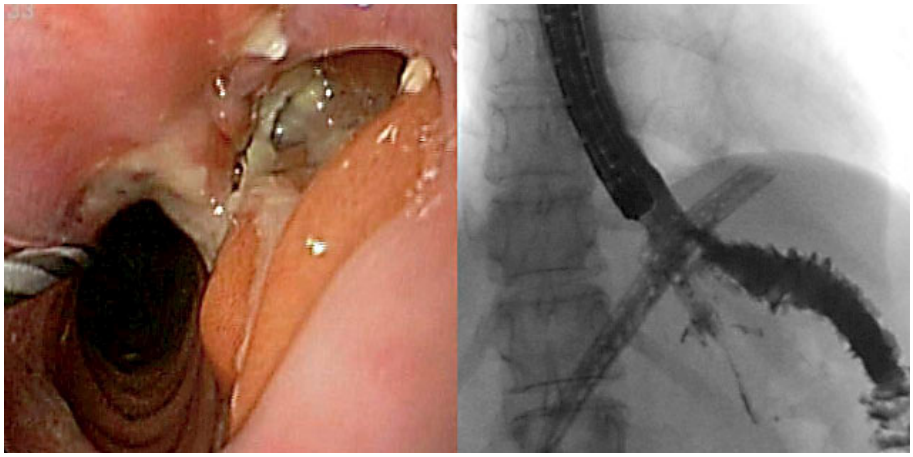

Fig. 2. Endoscopic (left) and radiologic (right) view of the Evolution stent.

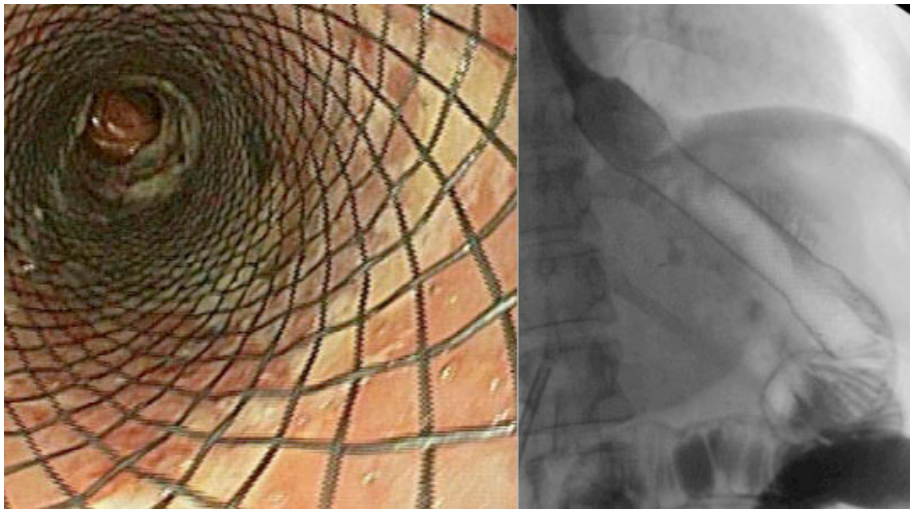

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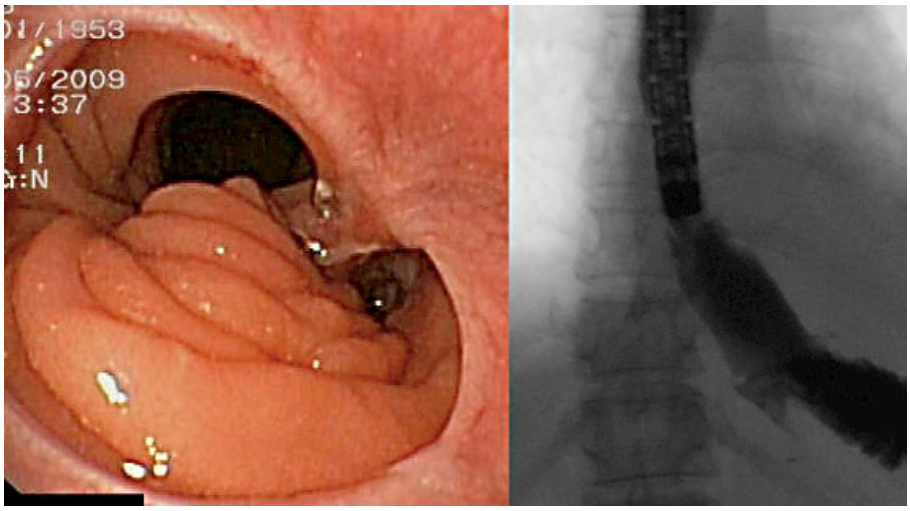
Fig. 3. Endoscopic (left) and radiologic (right) evidence of closure of the fistula.



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