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CASE REPORT

# Novel oesophago-gastro-duodenal stenting for gastric leaks after laparoscopic sleeve gastrectomy



Shirley Yuk-Wah Liu, Simon Kin-Hung Wong,  
Enders Kwok-Wai Ng\*

*Department of Surgery, Prince of Wales Hospital, Faculty of Medicine,  
Chinese University of Hong Kong, Hong Kong SAR, China*

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## KEYWORDS

Bariatric surgery;  
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Gastric fistula;  
Stents

**Summary** The management of gastric leak after laparoscopic sleeve gastrectomy (LSG) can be complex and challenging. Whilst operative interventions are mostly complicated and reserved for unstable or refractory cases, endoscopic self-expandable metal stenting (SEMS) is increasingly preferred as a safer treatment option. Yet, SEMS carries the problems of frequent stent migration and inconsistent healing as ordinary SEMS is designed mainly for stenotic disease. We hereby present two cases of early and chronic post-LSG leakage that were respectively failed to be treated by surgery and ordinary SEMS but were successfully managed by a dedicated extra-long oesophago-gastro-duodenal stent. In oesophago-gastro-duodenal stenting, the characteristics of extra-long stent length allow total gastric exclusion between the mid-oesophagus and the first part of duodenum to prevent stent migration and to equalise high pressure gradient within the gastric sleeve to promote fistula healing.

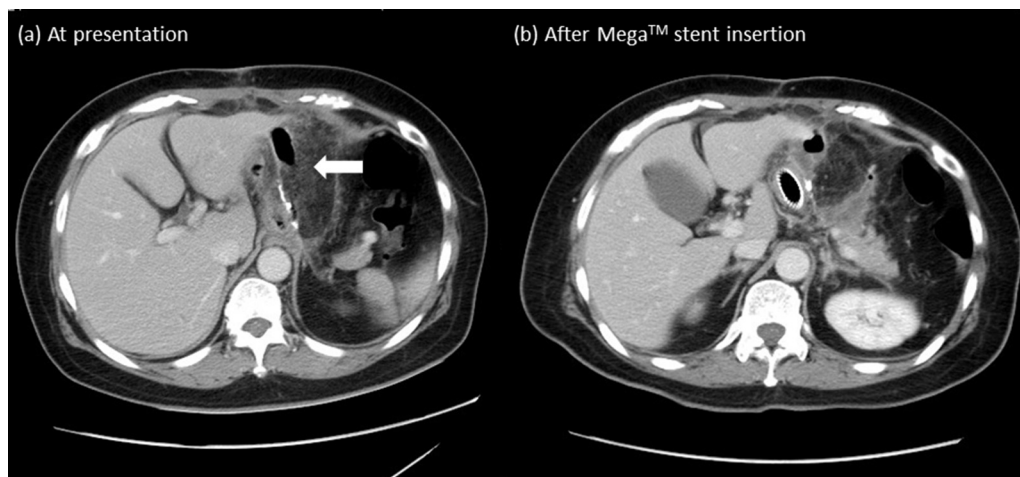
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## Introduction

Gastric leak is one of the most problematic complications after laparoscopic sleeve gastrectomy

(LSG). Although the estimated incidence is only 1.1–2.2%, its management can be complex and challenging [1,2]. Gastric leaks have been broadly classified into acute, early, late and chronic types according to the timing of presentation [3]. Acute leak is leak that occurs within the first 7 days of operation while early leak occurs from 1 week to 6 weeks of LSG. When leak occurs after

\* Corresponding author. Tel.: +852 26322627;  
fax: +852 26377974.  
E-mail address: [endersng@surgery.cuhk.edu.hk](mailto:endersng@surgery.cuhk.edu.hk) (E.K.-W. Ng).



**Figure 1** (a) CT image at presentation showing loculated abscess and gas collection adjacent to staple line; and (b) CT image showing resolved collection 6 weeks after Mega™ stent insertion.

6 weeks, it is called late leak. Chronic leak refers to leak that occurs after 12 weeks of LSG [3]. We hereby report two cases of early and chronic gastric leaks that were respectively failed to be resolved with surgical repair and ordinary self-expandable metal stent (SEMS) but were managed successfully with the novel oesophago-gastro-duodenal stenting.

## Case presentation

### Patient 1: early leak

A 51-year-old lady with body-mass-index of  $32 \text{ kg/m}^2$  underwent LSG in another hospital for the management of morbid obesity and metabolic syndrome. Her operation was complicated with early gastric leak at the proximal staple line on postoperative day 10. She was treated with emergency laparotomy, sutured repair of the leakage site plus omental patch reinforcement, placement of silicone drain, and feeding jejunostomy for enteral nutrition. Nine days after laparotomy, ongoing leakage was suspected as there was continuous turbid output from the drain. She was then transferred to our unit for further care. Immediate computed tomography (CT) scan confirmed contrast leakage next to the oesophago-gastric junction (EGJ) and adjacent abscess collection (Fig. 1). She was treated with broad spectrum parenteral antibiotics and image-guided percutaneous pigtail drainage of the abscess. After initial stabilisation, oesophagogastrroduodenoscopy (EGD) was performed and showed a 5 mm fistula opening at the proximal staple line immediately below EGJ (Fig. 2). There was neither gastric

tube stenosis nor pyloric obstruction. We decided to perform oesophago-gastro-duodenal stenting using an extra-long self-expandable metal stent (SEMS) – 23 cm-long 22 mm-wide Niti-S™ Mega™ oesophageal covered stent (TaeWoong Medical, South Korea).

During the procedure, she was put in supine position under conscious sedation. Using single-channel gastroscope and fluoroscopic guidance, the gastric leakage site was identified and the locations of EGJ and first part of duodenum (D1) were marked with submucosal lipiodol injection. A stiff guidewire was inserted down to distal duodenum and the endoscope was removed over the guidewire. Under fluoroscopic control, the Mega™ stent was inserted over the guidewire and deployed with its distal end kept in place at D1 and its proximal end kept well above EGJ at mid oesophagus (Fig. 3). After stent deployment, the gastroscope was re-inserted and contrast solution was injected into the stent lumen to confirm adequate sealing.

Oral diet was resumed after oesophago-gastro-duodenal stenting. The pigtail catheter was removed when the abscess resolved and the courses of antibiotics were completed. Six weeks after stenting, a repeat CT scan showed no residual leakage or intra-abdominal collection (Fig. 1). The stent was removed uneventfully by EGD. The gastric fistula was completely healed and no complication occurred.

### Patient 2: chronic leak

A 49-year-old lady with BMI of  $32 \text{ kg/m}^2$  received LSG six months ago in another hospital for the management of morbid obesity and metabolic

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