

Intestinal Obstruction Due to a Migrated Esophageal Stent and Endoscopic Removal

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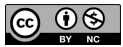
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Abstract

Endoscopic esophageal stents are used with various indications, such as the treatment of benign strictures, fistulas, perforations, and esophageal cancer palliation. Stent placement is a safe and effective method. Migration is one of the most common complications of stent placement. Our case is a 61-year-old woman who presented to our clinic with weight loss and difficulty swallowing for the past 3 months. An upper gastrointestinal endoscopy was performed. A stricture was observed at the gastroesophageal junction, and a mass was found in the stomach. Biopsies later revealed gastric adenocarcinoma. Stenting was performed in a separate session. The patient's complaints fully recovered after stenting. The patient presented to our clinic 3 months later with liquid and solid dysphagia, constipation, and abdominal pain, after receiving 3 sessions of chemotherapy. An upper gastrointestinal endoscopy was promptly performed, in which the esophageal stent was not observed in its place. Further imaging revealed that the stent had migrated to the mid ileum. The stent was removed endoscopically from the ileum, using double-balloon enteroscopy, instead of a surgical approach. We associated the displacement of the stent with tumor regression under chemotherapy, which was consistent with follow-up imaging. Follow-up visits at regular intervals, especially for patients receiving chemotherapy or radiotherapy, can prevent further complications due to migration. To prevent sliding, endoscopic clips may also be applied at the upper border of the stent. We propose double-balloon enteroscopy as an alternative method for the removal of stents from the small bowel.

Keywords: Enteroscopy, esophageal stents, stent migration

INTRODUCTION

Endoscopic esophageal stents can be used with various indications, such as treatment of benign strictures, fistulas, esophageal perforations, and for esophageal cancer palliation.¹⁻⁶ Stent placement is a safe and effective method; however, complications may lead to morbidity and mortality. Migration is one of the most common complications of stent placement.⁷

Migrated stents may remain in the body without complications or can be excreted via the rectum.⁸

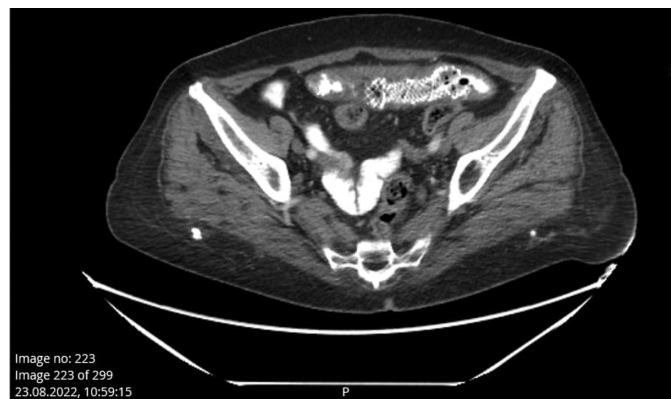


Figure 1. CT Scan Image.

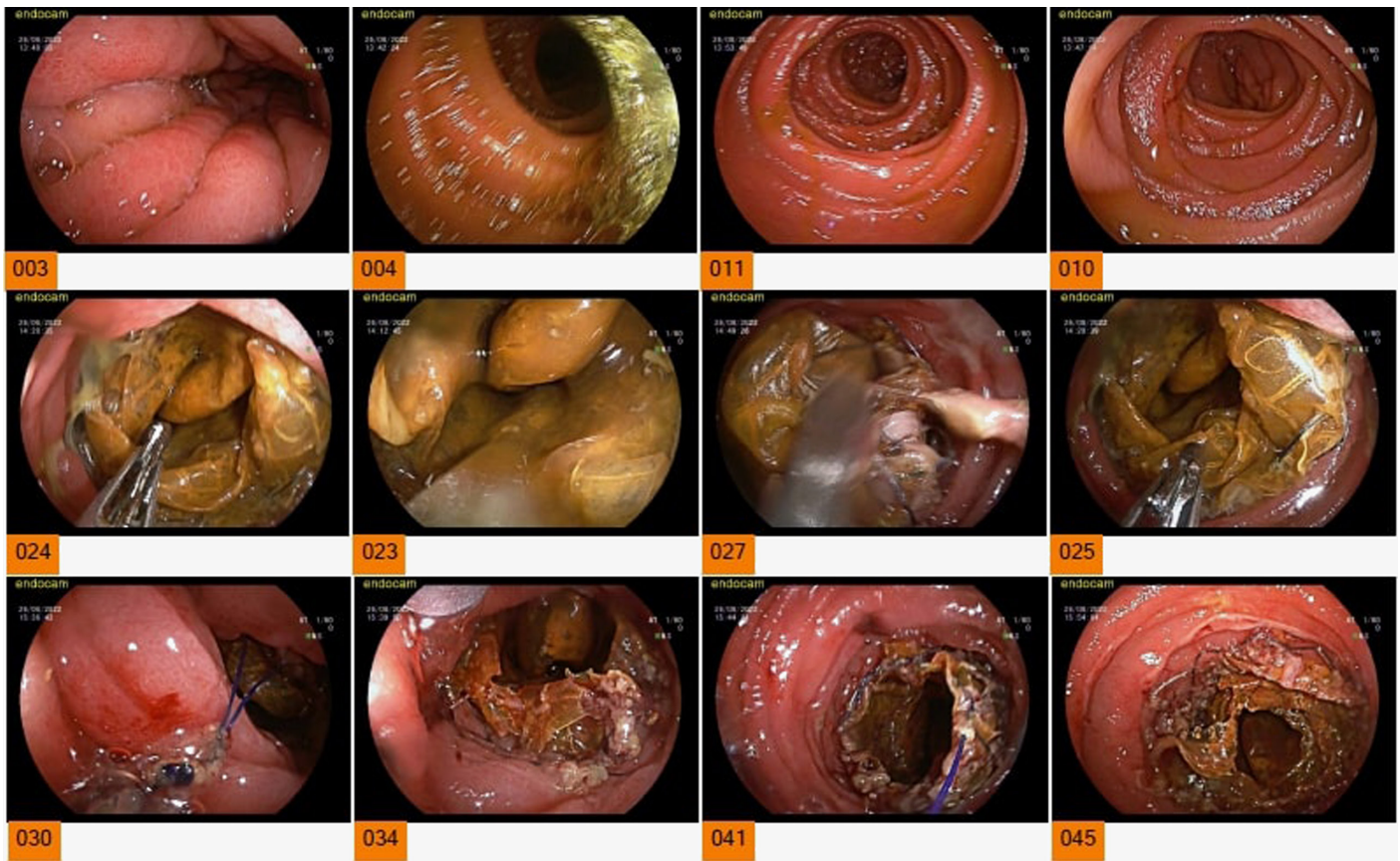


Figure 2. Double Balloon Enteroscopy Images.

Intestinal obstruction is a complication of stent migration. We presented a patient with ileal obstruction as a consequence of esophageal stent migration, and we removed a migrated esophageal stent with double-balloon enteroscopy from mid-levels of ileum.

CASE PRESENTATION

A 61-year-old woman presented to our outpatient gastroenterology clinic due to weight loss and difficulty swallowing for the past 3 months. Her past medical history is only relevant for hypertension, regulated with bisoprolol. An upper gastrointestinal endoscopy was performed. A stricture was observed at the gastroesophageal junction, which could be passed with difficulty. An obstructive mass was found in the stomach, overlying all surfaces of the stomach from cardia to proximal corpus. Multiple biopsies were obtained, which later revealed a gastric adenocarcinoma. Stenting was planned for a later session.

MAIN POINTS

- Stent migration is one of the most common complications of stent placement so patients should be followed up at regular intervals and their complaints should be questioned.
- Fixating the proximal end of the stent to the esophageal mucosa with clips may be useful to prevent stent sliding.
- Double-balloon enteroscopy can be used as an alternative method for endoscopic removal of stents from small bowel.

A computed tomography (CT) scan was performed and metastatic disease in the liver and peritoneum was seen, in addition to the primary lesion in the stomach. Neoadjuvant chemotherapy and palliative stenting were planned in conjunction with the oncology department.

Stenting was performed in a separate session and a 10-cm reflux-protected stent (Taewoong NITI-S™) was placed in the lower end of the esophagus. The patient's complaints fully recovered following the procedure.

A follow-up positron emission tomography (PET) CT scan at 3 months revealed a nearly complete response in both primary lesion and metastatic foci.

Although the follow-up PET-CT result was better than previous imaging, patient presented to our gastroenterology outpatient clinic with further complaints of difficulty swallowing, even with liquids, constipation, and abdominal pain.

We performed an upper gastrointestinal endoscopy to see if the stent is functional and stable, but the esophageal stent neither was observed in its place nor was seen in the stomach. This suggested that the stent had slid due to the reduction in size of the primary tumor. A re-evaluation of the PET CT scan showed that the stent had migrated to approximately mid-levels of the ileum (Figure 1). Following a consultation with general surgery, we decided to use double-balloon enteroscopy as a first line intervention to remove the stent, instead of surgery.



Figure 3. Removed Stent.

We used Fujinon EN-580T double-balloon enteroscopy for the procedure. The stent was observed at 360 cm (almost mid ileum). First, the stent was attempted to be removed by holding the end with alligator forceps, but it was unsuccessful at first attempts. Then the proximal end of the stent was cleaned, the rope of the stent was visualized, and the stent was removed by grasping the rope with alligator forceps (Figures 2 and 3).

DISCUSSION

Esophageal stents are the most common method for the treatment of esophageal strictures, regardless of the underlying etiology.⁵ In order to preserve oral nutrition, esophageal stenting is a safe and effective method.¹

One of the most common complications of stent placement is stent migration. In addition, common complications of stenting include gastroesophageal reflux, bleeding, fistula formation, perforation, and obstruction. There is no optimized technique or optimal stent form for prevention of these complications. In patient with a stricture due to malignancy, concurrent chemotherapy or radiotherapy is associated with an increased risk of stent migration.^{9,10}

Following the stenting procedure, our patient received 3 sessions of chemotherapy, which resulted in a nearly complete response. We associated the displacement of the stent to the regression of the tumor size, which most probably resulted in slipping of the stent into the stomach and migration all the way through to the mid-ileum. Follow-up evaluations might have prevented symptom progression through early diagnosis, but since our patient lived abroad, follow-up of the patient could not be performed after stent placement.

Some techniques are proposed to preserve the stent placement. Fixating the proximal end of the stent to the esophageal mucosa with clips may be useful to prevent stent sliding (Figures 4 and 5).⁹ Two separate studies showed advantages of clipping of the upper end of the stent. One of those studies showed a significant reduction in stent migration from 34% to 13% through clip placement.^{11,12}

In most of the published cases of stent migration, surgical approaches were preferred. Surgical removal of the migrated stent along with the affected bowel segment followed by end-to-end anastomosis is a frequently performed approach.¹³

This is the first case published in which a migrated stent was removed from the ileum using a double balloon enteroscopy, although there are a few cases in which a displaced stent was removed endoscopically from the stomach.^{14,15} This is a non-surgical method, possibly with a lower risk of complications. The crucial maneuver in removing the stent was grasping the rope and constricting the stent.

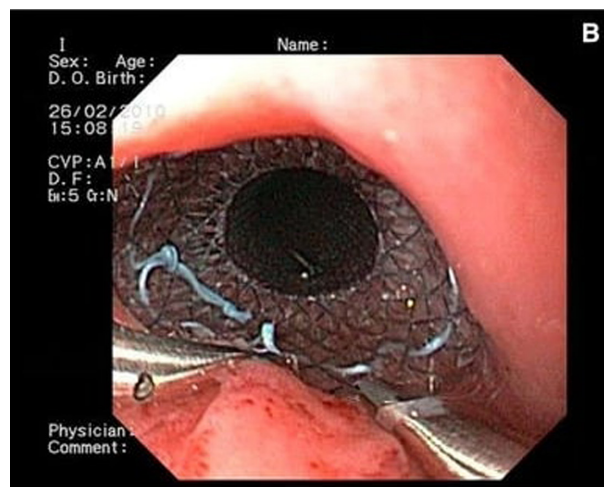


Figure 4. Endoscopic Clips.



Figure 5. Endoscopic Clips.

We recommend that patients should be followed up at regular intervals and their complaints should be questioned, especially for patients receiving chemotherapy or radiotherapy. In order to prevent sliding, endoscopic clips may also be applied at the upper border of the stent.

We propose double-balloon enteroscopy as an alternative method for endoscopic removal of stents from small bowel.

Informed Consent: Verbal consent was obtained from the patient through her translator.

Peer-review: Externally peer-reviewed.

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Declaration of Interests: The authors declare that they have no competing interest.

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