

## Case Report

# Oesophageal stent migration following Billroth I gastrectomy: an unusual cause of small bowel obstruction

Morgan Quinn\* and David Luke

Department of General Surgery, Heartlands Hospital, Birmingham, UK

\*Correspondence address. Department of General Surgery, Heartlands Hospital, Bordesley Green East, Birmingham, West Midlands B9 5SS, UK; Tel: +44-12-14-24-20-00; E-mail: morgan.quinn@heartofengland.nhs.uk

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We report the case of an elderly female patient with a history of a previous Billroth I gastrectomy who presented with small bowel obstruction secondary to a migrated oesophageal stent. This patient had an iatrogenic oesophageal perforation following therapeutic endoscopy for a benign stricture 4 months prior to presentation. This was treated endoscopically with a covered stent that was not removed as planned. The stent migrated distally lodging in the terminal ileum, causing small bowel obstruction. Oesophageal stent migration is a rare but well-recognized complication of stent placement. Endoscopic stenting is an effective treatment for oesophageal perforation with lower morbidity and mortality than operative repair. Clinicians should be aware that although patients with a history of previous gastric surgery are at no greater risk of stent migration than others, the altered anatomy can affect the final resting place of the migrated stent and hence the clinical effects and sequelae.

## INTRODUCTION

Oesophageal stents are used widely to treat benign strictures, oesophageal perforations and fistula and for palliative therapy of oesophageal cancer. Oesophageal migration has been reported to occur in 3.6% of cases, and the majority are removed or repositioned endoscopically without complication.

This case presentation illustrates a rare and potentially lethal complication of stent migration resulting in mechanical small bowel obstruction.

## CASE REPORT

An 81-year-old female with a 24 h history of acute, worsening abdominal pain with associated abdominal distension and bilious vomiting was referred by her GP to the general surgical admissions unit. The patient reported no other gastrointestinal symptoms and there was no prelude to the presentation.

The patient had an extensive surgical history. She had undergone a Billroth I gastrectomy in 1977 for peptic ulcer disease, a splenectomy following blunt trauma in 1989 and

further gastric surgery for a cancer in 1999. During a therapeutic endoscopy for a benign stricture 4 months previously, the patient had suffered an iatrogenic perforation. This was treated endoscopically with the deployment of a Hanaro-antireflux covered stent, covering the defect that was identified at 35 cm. The stent was deployed at 32–41 cm. These margins were chosen in order to give a  $\pm 3$  cm cover of the perforation. The extra 2 cm distal cover was because the stent was the only suitable stent available that would be both wide enough to remain *in situ* and long enough to give adequate cover of the perforation. There were no concerns regarding the apposition of the stent, and the stent was not sutured in place. Routine follow-up was arranged for 4–6 weeks; however, for an unconfirmed reason, this follow-up never took place.

On presentation, her physiological observations were stable and she was afebrile. The abdomen was very distended, tympanic and tender on palpation. Bowel sounds were not present.

Blood results on admission, including liver function, urea and electrolytes, CRP, amylase, lactate and full blood count, were within normal limits.



**Figure 1:** Abdominal X ray taken shortly after presentation. Abdominal films show multiple dilated loops of small bowel with a visible stent in the abdomen.

Abdominal X ray showed multiple distended loops of small bowel with a migrated stent inside small bowel Fig. 1.

Following the diagnosis of mechanical small bowel obstruction due to oesophageal stent migration, the patient was booked and consented for a laparotomy. At laparotomy, distended small bowel was found, with the cause of the obstruction being found in the distal ileum. The bowel was viable, and there was no associated perforation. A small enterotomy was made and the stent was extracted. The enterotomy was closed primarily, and the abdomen was washed out and closed.

Post-operative recovery was unremarkable, and the patient was discharged home with regular follow-up in 6–8 weeks.

## DISCUSSION

In cases of iatrogenic oesophageal perforation, stent placement has been shown to be an effective treatment, and has less associated morbidity and mortality than operative repair. However, the main complication of stent placement is migration, requiring repositioning or replacement. If stent migration is a risk due to large defects, or minimal anatomic barriers to migration, some authors advocate suturing stent into oesophagus, which may avoid this complication [1].

In this case, the patient had unusual anatomy due to her previous surgeries. Intraoperatively, it was noted that she had a previous Bilroth I gastrectomy. The stent migration may have been aided by the fact that the patient did not have a pylorus, allowing easy passage into the small bowel. Clinicians should consider the risks of stent migration, and make the patient aware of these risks.

Oesophageal stent migration is a known complication of stent placement, occurring in 3.6% of cases of benign oesophageal conditions requiring stent placement [2]. In a case series of 70 patients where migration has occurred, the authors found that the majority of stents migrate no further than the stomach, exit via the rectum or remain in the body with minimal complications [3]. Migration occurred in 11 of the 43 patients (25%) with benign cause of strictures and in 591 of the 845 patients (7.0%) with malignant cause [3]. In the 70 patients, only in 3 was it surgically removed due to intestinal obstruction [3].

In a prospective study of 18 iatrogenic oesophageal perforations treated with stents, four migrations occurred: two requiring repositioning and two requiring removal endoscopically [4]. All the stents were removed at a mean of  $50 \pm 20$  days [4]. In this case, the stent was placed as a temporary measure to allow closure of the perforation. Routine follow-up for removal was arranged, but the patient was lost in follow-up.

Although complications due to stent migration are rare, perforation, obstruction and haemorrhage all carry significant risks, with high mortality and morbidity. This case illustrates the importance of prompt patient follow-up in order for the stent to be removed. This case also illustrates the importance of making patients aware of the small risk of bowel obstruction and seeking urgent medical attention if the symptoms of bowel obstruction are present.

## REFERENCES

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