Endoscopic stenting of high-output traumatic duodenal fistula

To the Editor: A 27-year-old man was admitted to the trauma unit after sustaining an epigastric gunshot wound. He was stable initially, but soon after arrival he had a major upper gastro-intestinal bleed and became shocked. Resuscitation continued and he underwent an urgent laparotomy. Multiple colonic bullet injuries were found, as well as a pancreaticoduodenal injury with a 2 cm penetrating injury in the head of pancreas and a 75% circumferential transection involving the second part of the duodenum with an intact ampulla. The injuries were treated by primary repair and drainage. He required 6 days of inotropic support in intensive care. He had two re-laparotomies for sepsis at which the repairs were intact and a feeding jejunostomy and pancreatic sump irrigation-drainage were added.

Thirteen days after the initial repair he developed a high-output duodenal fistula which drained 5 000 - 7 000 ml per day. A complete duodenal fistula was confirmed on contrast studies and visually by gastroscopy (Fig. 1). A further intra-abdominal drain was placed percutaneously after a computed tomography scan of the abdomen demonstrated an infected collection in the left flank. No decrease in the fistula output occurred despite total parenteral nutrition for 3 weeks. A fully covered removable self-expanding metal stent was placed endoscopically with the upper flange proximal to the pylorus. Fistula drainage ceased 5 days after stent deployment. A contrast study confirmed that the stent was patent with no leak (Fig. 2). Oral feeding was commenced and the patient was discharged 4 days later. A repeat contrast meal and follow-through after 6 weeks confirmed a completely healed duodenum. The stent had dislodged spontaneously and migrated into the colon (Fig. 3).

Penetrating trauma to the pancreaticoduodenal complex has a substantial morbidity and mortality owing to the high incidence of associated intra-abdominal and vascular injuries. Conservative management with primary duodenal repair and drainage of pancreatic injuries is now accepted practice. Damage control laparotomy in severe pancreaticoduodenal injuries is used in selected patients. Pancreatoduodenectomy is reserved for stable patients with non-reconstructable injuries and disruption of the ampullary-biliary-pancreatic union, or those who have major devitalisation injuries of the pancreatic head and duodenum.

Enterocutaneous fistulas are uncommon after laparotomy for trauma and occur in fewer than 1.5% of patients. One third of fistulas are duodenal in origin and result in significant morbidity and mortality with prolonged intensive care and hospital stay as well as increased cost. Surgical closure of the fistula was inappropriate in our patient, and while novel techniques with Lipiodol or Gelfoam have been used to close duodenal fistulas, the high output and size of the fistula in our case prevented use of these methods. Temporary endoscopic placement of removable, fully covered self-expanding metal stents has been used for upper gastro-intestinal fistulas following bariatric surgery. Acute leak and fistula closure occurred in 81 - 100% of the patients stented. While most stents have been placed for gastrocutaneous fistulas along sleeve gastrectomy staple lines or for anastomotic dehiscences elsewhere in the gastro-intestinal tract, success...
has been also reported with duodenocutaneous leaks.\textsuperscript{3} Most series report removal of the stents after approximately 6 weeks. Migration of fully covered removable stents is a significant problem, and occurs in up to 58\% of cases.\textsuperscript{6} Dissolvable synthetic sutures have been used to minimise stent migration.\textsuperscript{7} This first report expands the potential use of temporary stenting to include the management of complex high-output duodenal fistulas following trauma.

G. E. Chinnery  
M. Bernon  
J. E. J. Krige  
Department of Surgery  
University of Cape Town, and  
Surgical Gastroenterology Unit  
Groote Schuur Hospital  
Cape Town

### References


---

### To the Editor:

An 89-year-old woman was referred to Grey’s Hospital after a coughing spell at home during which she coughed out a tissue mass which appeared to be attached to her pharynx. She had previously been well, complaining only of occasional gastro-oesophageal reflux and episodes of dysphagia. Neither had been severe enough for her to seek medical attention. She had no other history of relevance.

She was relatively fit, with a left lower respiratory tract infection and a long protruding soft-tissue structure lined by mucosa and containing a distal soft-tissue mass attached to her left pharynx (Fig. 1). She had no pain, but did have acute dysphagia. A water-soluble contrast swallow showed only moderate narrowing of the proximal oesophagus.

Under anaesthetic, oesophagoscopy revealed the origin of the protruding tissue mass to be at the cricopharyngeus, establishing the diagnosis of a prolapsed Zenker’s diverticulum that was repaired via a left lateral cervical incision. An oesophagostomy allowed the prolapsed Zenker’s diverticulum to be returned to its original position. A standard diverticulectomy and myotomy were then performed.

She recovered well; a contrast swallow after 72 h confirmed restoration of the oesophageal lumen. She was discharged when she could eat a normal diet. The resected diverticulum was found to contain an atypical lipomatous tumour, the lead-point of the prolapse which followed a severe coughing episode.

Recognised complications relating directly to the diverticulum itself are rare and may include fistulation or mediastinitis secondary to iatrogenic perforation, the development of food bolus bezoars,\textsuperscript{1,2} haemorrhage from the pouch secondary to chronic mucosal irritation, and inflammation owing to retained food, NSAIDs or acid reflux. Peptic ulceration within the pouch has also been described.\textsuperscript{3,4}

We believe this to be the first report of a prolapsed Zenker’s diverticulum.

G. E. Chinnery  
Department of Surgery  
University of Cape Town

D. L. Clark  
F. Ghimenton  
S. R. Thomson  
Department of Surgery  
University of KwaZulu-Natal  
Durban

### References


---

### Prolapse: rare complication of a Zenker’s diverticulum

To the Editor: An 89-year-old woman was referred to Grey’s Hospital after a coughing spell at home during which she coughed out a tissue mass which appeared to be attached to her pharynx. She had previously been well, complaining only of occasional gastro-oesophageal reflux and episodes of dysphagia. Neither had been severe enough for her to seek medical attention. She had no other history of relevance.

She was relatively fit, with a left lower respiratory tract infection and a long protruding soft-tissue structure lined by mucosa and containing a distal soft-tissue mass attached to her left pharynx (Fig. 1). She had no pain, but did have acute dysphagia. A water-soluble contrast swallow showed only moderate narrowing of the proximal oesophagus.

Under anaesthetic, oesophagoscopy revealed the origin of the protruding tissue mass to be at the cricopharyngeus, establishing the diagnosis of a prolapsed Zenker’s diverticulum that was repaired via a left lateral cervical incision. An oesophagostomy allowed the prolapsed Zenker’s diverticulum to be returned to its original position. A standard diverticulectomy and myotomy were then performed.

She recovered well; a contrast swallow after 72 h confirmed restoration of the oesophageal lumen. She was discharged when she could eat a normal diet. The resected diverticulum was found to contain an atypical lipomatous tumour, the lead-point of the prolapse which followed a severe coughing episode.

Recognised complications relating directly to the diverticulum itself are rare and may include fistulation or mediastinitis secondary to iatrogenic perforation, the development of food bolus bezoars,\textsuperscript{1,2} haemorrhage from the pouch secondary to chronic mucosal irritation, and inflammation owing to retained food, NSAIDs or acid reflux. Peptic ulceration within the pouch has also been described.\textsuperscript{3,4}

We believe this to be the first report of a prolapsed Zenker’s diverticulum.

G. E. Chinnery  
Department of Surgery  
University of Cape Town

D. L. Clark  
F. Ghimenton  
S. R. Thomson  
Department of Surgery  
University of KwaZulu-Natal  
Durban

### References