Management of jejunal pouch dysfunction following total gastrectomy and Roux-en-Y reconstruction for gastric cancer: a case report

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ABSTRACT

INTRODUCTION Total gastrectomy with oesophagojejunal pouch anastomosis and Roux-en-Y reconstruction is a well recognised procedure for patients undergoing curative resections for gastric malignancy. The formation of a jejunal pouch is thought by some to create a reservoir that, when compared with straight oesophagojejunal anastomosis, reduces the incidence of post-operative dumping.

CASE HISTORY A patient presented two years after a total gastrectomy with oesophagojejunal pouch anastomosis and Roux-en-Y reconstruction for a T3N2M0 adenocarcinoma of the stomach, with postprandial vomiting and dysphagia resulting in massive weight loss and malnutrition. Recurrent cancer and stricturing was ruled out by gastroscopy and computed tomography, and distal obstruction was ruled out by an oral contrast study. The diagnosis of a functional jejunal pouch disorder was made by exclusion.

Balloon dilatation of the pouch and the oesophagojejunal anastomosis found little symptomatic improvement. The patient's deteriorating nutritional status prompted us to urgently perform revisional surgery. A re-laparotomy and pouch-jejunal bypass procedure was performed. Post-operatively, the patient made a full symptomatic recovery and began gaining weight.

CONCLUSIONS A pouch-enteric bypass is a suitable treatment option for patients with functional jejunal pouch dysmotility following a total gastrectomy and jejunal pouch formation in the absence of distal obstruction and recurrent disease.

KEYWORDS

Gastric cancer – Gastrectomy – Roux-en-Y Gastric Bypass

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Case history

A 56-year-old woman with a poorly differentiated gastric adenocarcinoma of the lesser curve of the stomach, staged pre-operatively as T3N1M0, received neoadjuvant chemotherapy with the ECF (epirubicin, cisplatin and fluorouracil) regimen followed by surgery. At operation the patient's tumour was found to be infiltrating posteriorly into the pancreas with a splenic lymph node mass. A total gastrectomy with *en bloc* distal pancreatectomy and splenectomy was performed with a Roux-en Y reconstruction. A stapled jejunal pouch was constructed, with a stapled anastomosis between the pouch and oesophagus created using a 25mm CEEA™ (Covidien, Mansfield, MA, US) stapler. The alimentary limb was passed through the transverse mesocolon (a retrocolic route). A hand sewn two-layer jejunojejunal anastomosis was performed to drain the biliary limb (Fig 1).

Post-operatively, the patient made an uneventful recovery and was discharged at day 10. Histology studies confirmed an R0 resection of a moderate to poorly differentiated T3N2M0 adenocarcinoma, without invasion of the pancreas or spleen.

The patient was followed up every three months during the first year and every six months over the second year following surgery. During this time she developed postprandial vomiting and dysphagia resulting in massive weight

Figure 1 Total abdominal gastrectomy followed by Roux-en-Y formation with jejunal pouch

Figure 2 Axial computed tomography of upper abdomen demonstrating gross dilatation of jejunal pouch

Figure 3 Barium swallow showing distal flow through the jejunal pouch into the small bowel

Figure 4 Enteroenterostomy between jejunal neo-gastric pouch and efferent small bowel loop

loss and malnutrition. Computed tomography showed massive jejunal pouch dilatation without any evidence of disease recurrence or metastases (Fig 2). A barium swallow showed contrast passing normally through the oesophagus and oesophagojejunal anastomoses (Fig 3), and endoscopy did not show any evidence of malignant or benign stricturing. An endoscopic dilatation of the patent anastomosis was undertaken but this did not improve the patient's symptoms. The patient was admitted to hospital and placed on parenteral nutrition.

Revisional surgery in the form of a pouch-jejunal bypass was undertaken after a period of sustained parenteral feeding. At laparotomy the jejunal pouch was found to be adherent to the anterior left upper abdominal wall with no evidence of recurrent disease or kinking of the alimentary limb. A diagnosis of a functional jejunal pouch disorder was made. An efferent loop of small bowel 8 inches proximal to the biliary limb was anastomosed to the jejunal pouch using a 2-layer continuous 2/0 vicryl anastomosis (Fig 4). Despite epidural placement, the patient developed post-operative pneumonia and a pulmonary oedema, requiring a ten-day intensive care admission. Following this, the patient made a full recovery and on follow-up in the clinic several months later she reported a complete resolution of her symptoms with resumption of full oral intake and weight gain.

Discussion

Total gastrectomy followed by gastrointestinal reconstruction is a mainstay treatment for suitable gastric cancers. Loss of the gastric reservoir can be associated with significant weight loss due to poor appetite, nausea, vomiting and dumping syndrome (early and late). The Hunt-Lawrence jejunal pouch was first described in 1958 and aims to reduce these symptoms by creating a 'neo-reservoir' as part of the reconstructive process.¹ Comparisons of patients who have undergone a total gastrectomy and Roux-en-Y reconstruction with a jejunal pouch to a control group with normal stomach anatomy suggest that patients with a pouch not only retain a meal immediately after ingestion but retain a similar quantity as the control group one hour after ingestion.² Iivonen *et al* compared total gastrectomies with Roux-en-Y reconstruction with and without a jejunal pouch, finding a higher incidence of delayed emptying in the jejunal pouch group.⁵ There was also a higher incidence of dumping syndrome in the straight Roux-en-Y group.

Despite these proposed benefits, we present a case of functional jejunal pouch disorder that was resolved with a pouch-jejunal bypass. With anastomotic stricture and disease recurrence excluded, one possible explanation for this is dysmotility due to hormonal and paracrine mechanisms. Miholic *et al* have suggested enteroglucagon release in the alimentary jejunal limb as a cause for reduced mobility and increased transit time.⁴ Another factor that must be considered is reversible mechanical 'kinking' of the alimentary limb distal to the jejunal pouch, resulting in reversible obstruction. Also, in retrocolic anastomoses, the route that a food bolus takes includes passage through the transverse mesocolon defect created, which is a potential (although

unusual) site of narrowing. There was no evidence of this happening in our patient. In cases such as these, revisional surgery must be undertaken in the absence of recurrent disease to avert severe malnutrition and electrolyte disturbance, which can result in mortality.

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