

Case Report

Pancreaticoduodenostomy for treatment of giant duodenal ulcer

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Definitive acid-reducing peptic ulcer surgery currently plays a less prominent role than medical treatment in the management of peptic ulceration.^{1,2} The utilisation of proton pump inhibitors and *Helicobacter* eradication are proven effective therapies.

Giant duodenal ulcers, first described by Brdiczka in 1931,³ pose a unique challenge to this shift in therapy. There are various described surgical options to deal with these ulcers depending on the operative findings and we describe a simple new technique that we recently used successfully.

Case report

A 48-year-old man in full-time employment was noted to use alcohol and cigarettes excessively. He initially presented with a very strong dyspeptic history on 28 January 1999. He had severe epigastric pain radiating to the back and melaena. His haemoglobin concentration on 7 December 2000 was 3.9 g/dl. Endoscopic examination on 8 December showed a normal oesophagus and stomach and an oedematous fold of the mucosa in the duodenal bulb, with a superficial ulcer on it that was not bleeding. He had been on proton pump inhibitors and antimicrobial therapy since 18 May 2000.

The current admission on 28 March 2002 was similar, with pain, vomiting and melaena and epigastric tenderness. At endoscopy the stomach was found to be full of fresh blood and he suddenly collapsed. He was resuscitated and rushed to the operating theatre. At laparotomy a giant duodenal ulcer was found with destruction of the bulb and proximal second part of the duodenum. The gastroduodenal artery and its branches were bleeding profusely, and were suture-ligated.

The base of the ulcer was formed by the superior and anterior surface of the head of the pancreas. Duodenal destruction spared the papilla-bearing medial wall of the second part of the duodenum. The omentum, transverse colon, liver edge and small bowel concealed a large anterior perforation. Bilateral truncal vagotomy and antrectomy were performed (Fig. 1).

Gastro-intestinal continuity was completed with a pancreaticoduodenostomy (PD) with invagination of the medial surface of the pancreatic head into the freshly debrided distal second part of the duodenal end. A transduodenal T-tube biliary-enteric drain was left *in situ* (Fig. 2) and a retrocolic gastrojejunostomy was done. A Penrose drain was left in Morrison's pouch. A postoperative T-tube cholangiogram on day 10 showed a patent biliary system and an intact PD (Fig. 3). This was clamped and removed after a further 24 hours

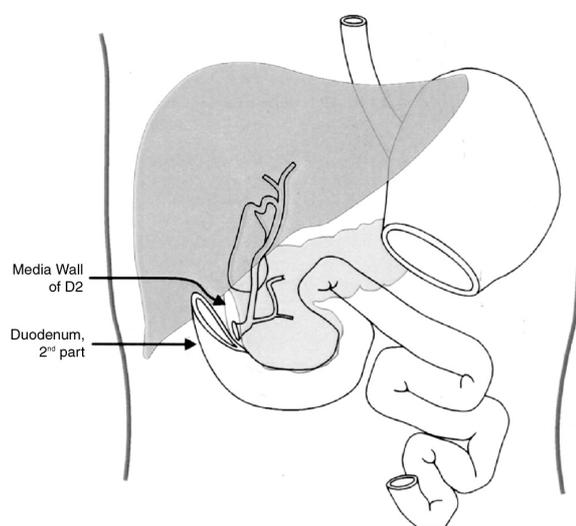


Fig. 1. Antrectomy and bilateral truncal vagotomy (not shown). Note the papilla-bearing medial wall of the second part of the duodenum (D2).

without any complications.

A barium meal examination showed an intact gastrojejunostomy and PD (Fig. 4).

The patient was discharged and has been asymptomatic during the 7 months of follow-up without ulcer medication.

Discussion

By definition a giant duodenal ulcer is a transmural ulcer exceeding 2 cm in diameter, located primarily in the bulb posteriorly. They are very often complicated by massive bleeding, gastric outlet obstruction, and perforations which are often partially sealed by adjacent organs. Choledochoduodenal fistulation has been described.⁴⁻⁶

These lesions continue to pose huge technical challenges at operation, especially the large destructive ones. Endoscopy and upper gastro-intestinal series should alert one to the correct diagnosis, which can be difficult.⁴⁻⁶

Medical therapy seems to involve an element of risk, as demonstrated in our patient, e.g. failed treatment, and recurrence resulting in surgery which at times occurs in an emergen-

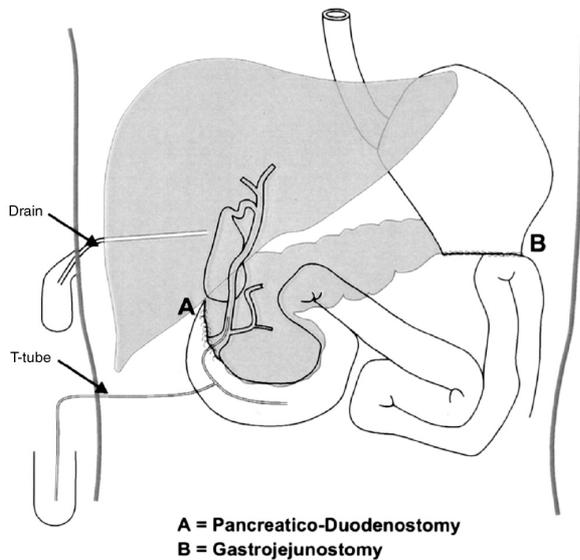


Fig. 2. Gastro-intestinal continuity completed using a pancreaticoduodenostomy (A), with a transduodenal T-tube and a gastrojejunostomy (B).

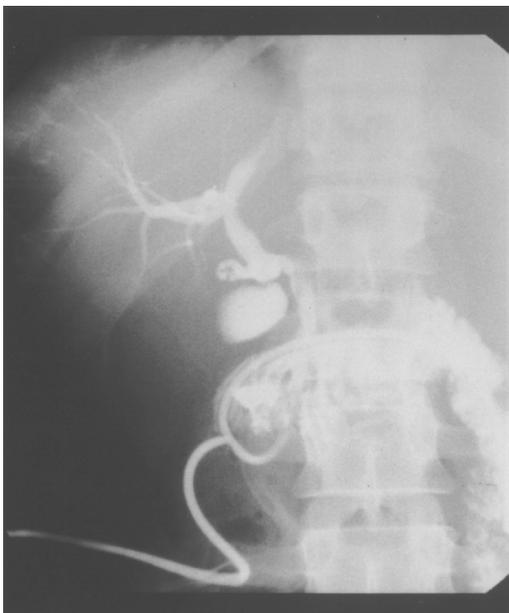


Fig. 3. T-tube cholangiogram on day 10 shows a patent biliary tree and intact pancreaticoduodenostomy.

cy setting with a poorer outcome than with elective operation.⁷

The several options described in the literature did not help our situation, especially duodenal stump closure, which was not possible because the duodenal stump consisted of the medial papilla-bearing second part of the duodenum.^{8,9} We would concur with Jordan⁸ (editorial comment) that duodenal stump closure is possible in some situations, but with significant duodenal damage and destruction this option is unfortunately denied.

In PD no attempt is made to use any portion of the ulcer crater, as used by Nissen *et al.*¹⁰ This patient's ulcer was more extensive than those described by Nissen. The duodenum was completely mobilised (kocherised) and the freshly mobilised distal second part of the duodenum was sutured to the pancreatic head that was invaginated into the distal second part of the duodenum. We were careful not to use thick pancreatic sutures



Fig. 4. Barium meal examination showing an intact gastrojejunostomy and pancreaticoduodenostomy.

in order to avoid incorporating the pancreatic or distal common bile ducts into the interrupted suture knots, and placement of a T-tube assured this precautionary measure.

Adequate kocherisation allowed an easy tension-free anastomosis of the distal second part of the duodenum to the medial duodenal remnant and pancreatic head (Fig. 2).

Duodenal stump complications are well known and are attributed *inter alia* to the tenuous blood supply after mobilising the bulb. The distal second part of the duodenum, away from the ulcer, was bleeding adequately at anastomosis, deriving its supply from the inferior pancreaticoduodenal artery.

We conclude that the PD procedure is an easy and useful addition to the surgical correction of larger giant duodenal ulcers.

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