Perforated marginal ulcer following Whipple procedure: A case report

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Abstract

Marginal ulcers are rare complications of pancreatoduodenectomy. Patient can present with varying symptoms such as epigastric discomfort, pain, dysphagia, or can land in emergency with complications like bleeding and perforation.

Introduction

Whipple procedures are performed for variety of benign and malignant lesions affecting the pancreatic head, duodenum, and distal bile duct.[1] Marginal ulcer, one of the rare long term complications of pancreatoduodenectomy, are ulcerations that occur at or around the gastrointestinal anastomosis.[2] Their associated morbidity and mortality have been infrequently described in literature.[3] Here we present a case of a gentleman with a 6 year old history of Whipple procedure who presented in emergency department with acute onset abdominal pain and was later diagnosed with perforated marginal ulcer.

Case presentation

A 64-year-old retired soldier who underwent the Whipple procedure six years ago for carcinoma head of pancreas, adenocarcinoma (well-differentiated adenocarcinoma) presented to emergency department with complaints of severe abdominal pain for a one day on the day of presentation. The pain was acute in onset, continuous, non-radiating, and increasing in severity, which used to be aggravated after ingestion of food and movement. He had three episodes of vomiting since morning on the day of presentation. On his past history, he underwent the Whipple procedure six years ago and has received complete six cycles of chemotherapy after surgery. He was under irregular follow-ups for past two years. The patient had no other comorbid illnesses.

On his arrival to the emergency department, his pulse rate was 130beats per minute, regular; oxygen saturation 85 % on room air; blood pressure 110/70 mm Hg, body temperature 38.7 *C, and respiratory rate(RR) 22 breaths/min. On his physical examination, his abdomen was distended with diffuse tenderness. There was diffuse guarding and rigidity all over the abdomen. Bowel sounds were absent. Digital rectal examination revealed a normal sphincter tone with a collapsed rectum and absent fecal stain on the gloved finger. He was immediately administered crystalloids and supplemental oxygen at 4 L/min. Nasogastric tube decompression and Foley catheterization were done. His laboratory parameters showed leukocytosis with raised amylase. Liver function test revealed total bilirubin 1.80 mg/dL, conjugated bilirubin 0.8 mg/dL and alkaline phosphatase 712U/L. On radiological examination, supine abdominal X-ray showed prominent dilated small

bowel loops and free gas under right hemi diaphragm pointing towards hollow viscous perforation (Fig. 1). Ultrasonography of the abdomen and pelvis was unremarkable with minimal free fluid in the pelvis.

After an initial fluid resuscitation, an emergency laparotomy was done. Intraoperatively, The findings were 300 ml of bilious fluid in the peritoneal cavity and dense adhesion between the small bowel loops and previous surgical scar. Adhesions were meticulously released and gastrojejunostomy site perforation was there, which was around 1 cm Fig.1. A thorough peritoneal lavage was done and the gastrojejunostomy site perforation was closed with a well-vascularized omental patch after a biopsy from the ulcer edge. He received Meropenem IV 1 g and Vancomycin IV 500 mg twice daily along with low molecular weight Heparin 60 mg twice daily the following day. His condition gradually improved and was discharged on 10^{th} post operative day.

Figure 1. Intra operative picture showing marginal perforation in gastrojejunostomy site along with previous rooftop incision done for Whipple's procedure.

Discussion

Whipple procedures (Pancreatoduodenectomy) are complex surgical procedures performed for variety of benign and malignant lesions affecting the pancreatic head and periampullary region.[1,4,5] Despite advances in surgical techniques, postoperative complications still show up and this has been documented to be around 40 percent of all cases.[5]

Various complications of Whipple procedure have been described in literature. Although short term complications such as pancreatic fistula, hemorrhage, and abdominal sepsis are among the most dangerous complications after pancreatectomy, long term complications also need to be monitored; some of them include marginal ulcer, reflux esophagitis, diabetes mellitus, and biliary stricture.[1,4]

Marginal ulcers that occur at or within 3cm of the gastrojejunal or duodenojejunal anastomosis are well known long term complication of the surgery[3] and they tend to occur at a time varying from 1 month to 6 years after surgery.[6] The incidence of marginal ulcer ranges from 0% to 18% , and the median time to diagnosis is 15.5 months.[3] In our case , patient presented with the condition after 6 years of surgery.

Patients may present with varied symptoms. They can present with epigastric pain, gastrointestinal upset and dysphagia owing to stricture. They can also land up in emergency department with complications such as severe bleeding, perforation and peritonitis.[1,6,7] Our patient also presented with perforation with peritonitis which is considered to be fatal unless promptly treated.[6]

While several mechanisms have been proposed for the etiology of these ulcers, the commonly believed mechanisms include gastric acid ,inflammation, angulation, foreign bodies and ischemia on the gastrojejunal anastomosis.[1,2,6] Risk factors include smoking, use of alcohol, Non-steroidal anti-inflammatory drugs (NSAIDS), immunosuppressive medications and discontinuation of Proton pump inhibitors (PPI) among others. [3,8]

Treatment of marginal ulcer consists of elimination of risk factors, PPI , and regular endoscopic monitoring.[9] They are rarely refractory to medical management which brings up the necessity of revision surgery that includes resection and reconstruction of anastomosis.[9,10] Emergency laparotomy is necessary when patient presents with perforation of marginal ulcer; perforated ulcer can be managed with simple closure and omental patch closure.[1,9] In our case, the patient also presented with perforated ulcer and it was closed with omental patch.

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Conflict of interest

None declared.

Author contributions

SB involved in conceptualization. All authors, SR, SA, SB and KBS have contributed to writing, editing, and preparation of manuscript and have reviewed it before submission.

Ethical approval

Written informed consent was obtained from the patient for publication of case report and associated images. Since this report involves no experiments, the ethical approval is waived.

Consent

A copy of written consent is available for review by editors of this journal on request.

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