

Laparoscopically Repaired Posterior Benign Gastric Wall Perforation – A Rare Case Report

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Abstract:

Gastric perforation, most commonly caused by peptic ulcer disease (PUD), is a surgical emergency. While perforations are generally found in the anterior aspect of the duodenum, only 5–8% involve the posterior wall of the stomach. Posterior perforations represent a rare and distinct clinical entity, with an estimated annual incidence of 3.8–14 cases per 100,000 individuals. Pre-operative diagnosis can be challenging, as these perforations are often identified only during surgery. Posterior perforation of peptic ulcer is a distinct clinical entity not commonly encountered. We present a case of a 28-year-old male who presented to the emergency with complaints of severe epigastric pain radiating to the back for 12 hours with shock. Initially, a diagnosis of Acute Pancreatitis was assumed clinically but only after contrast-enhanced CT imaging, the diagnosis of Posterior gastric wall perforation was made. Following resuscitation, the patient underwent a Diagnostic Laparoscopy due to the diagnostic uncertainty. Intraoperative findings revealed a 1x1 cm perforation located on the posterior gastric wall, approximately 6 cm from the pylorus. The perforation was laparoscopically repaired using an omental Graham patch, accessed via the lesser sac through the supracolic compartment. The patient made an uneventful recovery and was discharged on postoperative day 7 with dietary advice and a follow-up plan

keywords: gastric perforations; graham's patch repair; laparoscopic surgery

Introduction

Gastric perforation is an uncommon but serious surgical emergency, frequently arising due to peptic ulcer disease (PUD). Globally, PUD affects approximately four million individuals annually [1]. Nearly 10-20% of these patients encounter complications and nearly 2–14% of the ulcers perforate [2,3]. The more common type of perforation associated with the PUD is an anterior perforation occurring at the pylorus-duodenal area [4]. A perforated peptic ulcer is relatively rare, and usually occurs in the anterior aspect of the duodenum [5] with only 5-8% of these ulcers lie along the posterior wall of the body of the stomach [6]. Helicobacter pylori, smoking and consumption of alcohol and other illicit drugs, use of NSAIDs, and advanced age (>60 years) are important factors contributing to the development of gastric ulcers [7]. Posterior perforation of peptic ulcer is a distinct clinical entity not commonly encountered. Annual incidence estimates of peptic ulcer perforation are 3.8–14 per 100,000 individuals [8]. In a series of 125 consecutive perforated peptic ulcer (PPU) patients operated upon by Hamilton Bailey, there was only one case of perforation on the posterior surface of the stomach and there are fewer than 30 cases reported in the literature [9]. In the case of posterior perforation of pyloric or duodenal ulcers, these ulcers penetrate the

retroperitoneal space, which results in either retroperitoneal abscess formation or the perforation gets sealed off by the local inflammatory reaction resulting in the fibrosis of the surrounding adherent retroperitoneal tissue [10]. A high degree of suspicion is required to make a pre-operative diagnosis of posterior gastric perforation, most times the diagnosis is made intra-operatively. We present a case of a 28-year-old male with a spontaneous posterior gastric perforation with benign histopathology. This case prompts discussion due to the rarity of its incidence in the general population.

Case Presentation

A young 28-year-old male presented to the emergency department, Graphic Era Institute of Medical Sciences, Dehradun with complaints of acute epigastric pain radiating to the back for 12 hours with vitals showing hypotension (100/60 mmHg, tachycardia (HR-110/min), and a normal Oxygen Saturation (SpO₂- 96%) at room air. The patient reported nausea, vomiting, and a history of occasional dyspepsia. He gave a history of taking Anti Tubercular Treatment two years back for Pulmonary Tuberculosis. On examination, the abdomen was soft, and non-tender, No

Guarding, No rigidity, and Sluggish Bowel sounds present. The digital rectal examination was normal. Laboratory Investigations showed Leukocytosis (WBC: 15,000/ μ L), and normal serum amylase and lipase levels. He was admitted and resuscitated at the emergency department and started on IV antibiotics, proton pump inhibitors, and analgesics. A nasogastric tube and urethral catheter were passed. Initially, a preliminary

diagnosis of Acute Pancreatitis was considered clinically however, contrast-enhanced CT imaging revealed a defect in the posterior gastric wall, retroperitoneal air, localized fluid collection, and contrast leakage and hence the diagnosis of Posterior gastric wall perforation was made. {Figure 1}



Figure 1: CECT showing a defect in the posterior gastric wall with evidence of retroperitoneal air and localized fluid collection with contrast Extravasation.

After initial resuscitation, the patient was taken up for Diagnostic Laparoscopy. Intraoperatively, there was no collection, the bowel was looking healthy with no signs of peritonitis. On further dissection – lesser sac was accessed using a harmonic scalpel through the gastrocolic

ligament – few pus flakes were encountered. Only after mobilizing the whole distal stomach, the perforation of 1 x 1 cm was seen on the posterior aspect of the Gastric wall approximately 6 cm from the pyloric region near to the greater curvature. {Figure 2 & Figure 3}.



Figure 2: Accessing the Lesser Sac.

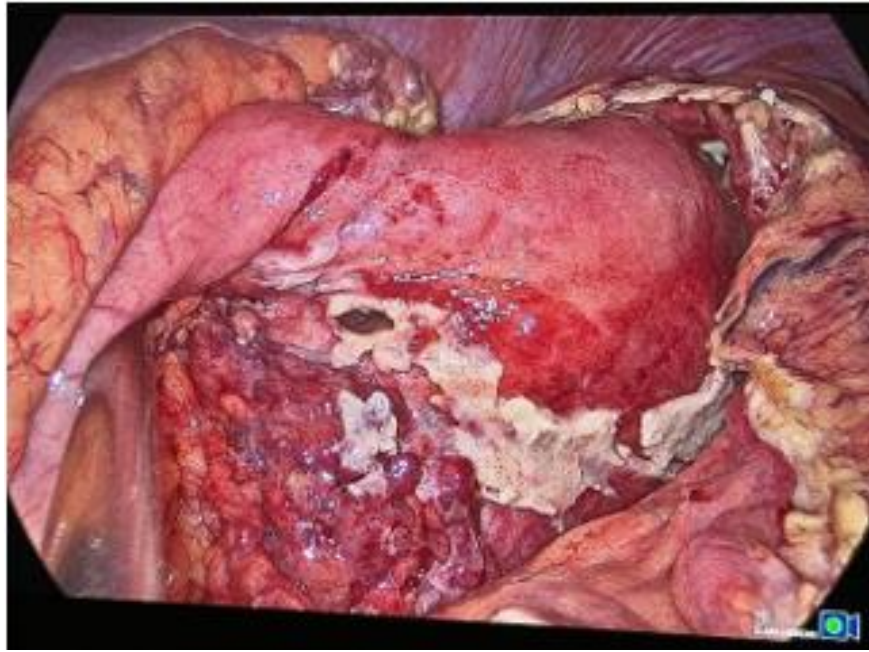


Figure 3: 1x1cm Perforation.

Approximately 500ml of necrotic pus was contained in the lesser sac which was drained. We took a biopsy from the ulcer margins, and then closed the perforation with an Omental Graham patch through the opening of the lesser sac through the supracolic compartment. Rest of the posterior

gastric wall as well as the lesser sac was found normal. Adequate retroperitoneal lavage was performed. The ulcer margin was sent for biopsy. Report showed an acute inflammation with ulcerated surface and adjacent hypertrophied viable mucosa with mucus (Figure 4).

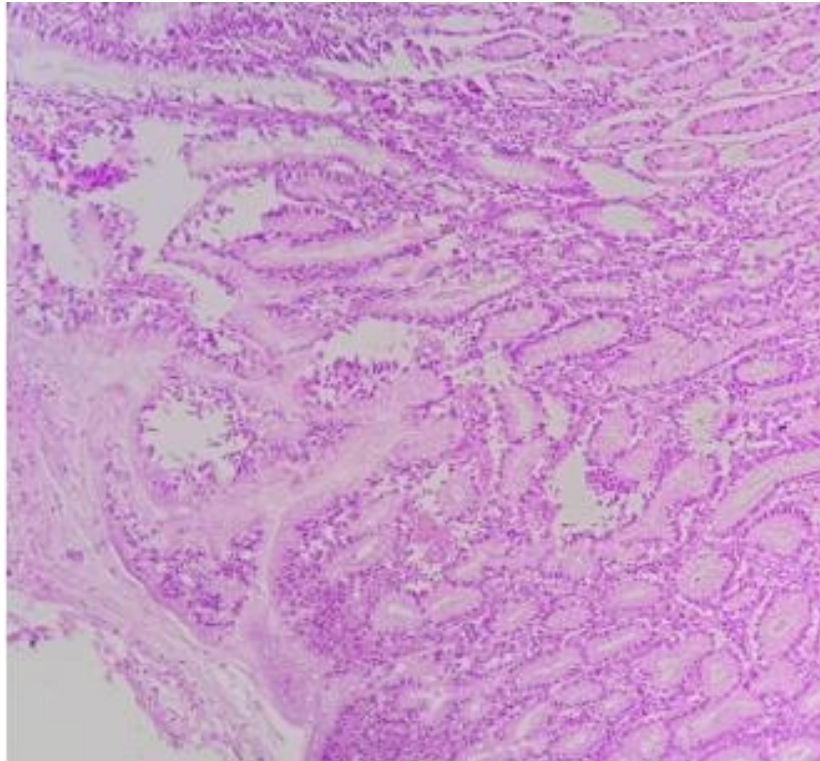


Figure 4: Hypertrophic Viable Mucosa with Mucus.

Postoperatively, the patient was managed in the intensive care unit for 48 hours. Broad-spectrum antibiotics and proton pump inhibitors were administered. Enteral feeding was initiated on postoperative day 2. The

patient was discharged on day 7 with dietary advice and follow-up guidance.

Discussion

Each year PUD affects 4 million people around the world. Perforated peptic ulcer is relatively rare, and usually occurs in the anterior aspect of the duodenum with only 5-8% of these ulcers lying along the posterior wall of the body of the stomach. Posterior perforation of peptic ulcer is a distinct clinical entity not commonly encountered. These perforations present unique challenges due to their retroperitoneal location, often mimicking conditions like pancreatitis or other abdominal emergencies. Unlike anterior perforations, posterior ones may present with localized abscesses or minimal symptoms, delaying diagnosis. Posterior perforations tend to present late due to the insidious onset of symptoms. However, some cases, like the one presented here, exhibit acute symptom onset. In a case series of 9 cases of posterior perforation, all the cases had an acute onset of symptoms [10], like ours. Out of the 2 cases previously recorded, one had features of peritonitis and in other cases like ours, generalized abdominal tenderness and board-like rigidity suggestive of peritonitis could not be elicited [11]. An erect chest X-ray can be used in patients when the diagnosis of perforation is suspected. The pneumoperitoneum is pathognomonic. In the absence of these radiographic signs, an urgent computed tomography (CT) scan should be considered. CT scan has its particular ability to diagnose perforated posterior wall gastric ulcers alongside its location, especially multidetector CT, in finding PPU. There are specific entities in CT studies that recommend gastric posterior wall perforation, for example, retro gastric air as well as liquid assortment [11]. CT imaging is thus essential for diagnosis. Surgical repair remains the definitive treatment for posterior gastric wall perforations, with early intervention improving outcomes. Prompt imaging and surgical management are essential in addressing this rare but significant condition.

Conclusion

Posterior gastric ulcer perforation is found to be a very infrequent yet significant condition. A high index of suspicion is crucial. They can present with lesser sac abscess associated with generalized peritonitis or retroperitoneal abscess. Of note, an unexplained retroperitoneal abscess should always prompt operative intervention and exploration of the lesser sac for posterior perforation of a gastric ulcer, regardless of the abscess site within the peritoneal cavity. This case underscores the importance of considering posterior gastric wall perforation in patients with atypical abdominal pain and retroperitoneal signs. Prompt and early surgical intervention is essential for optimal recovery as demonstrated in this case.

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Ethical Approval: Approved by the Ethical Committee Of our institution

Consent: Written Informed consent was obtained from the patient for publication of this case report
Competing Interest: The authors declare that they have no competing interests.

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