

Posterior Gastric Perforation with an Opening in Transverse Mesocolon: A Rare Case Report

Abstract

Posterior gastric perforation is a very rare finding, difficult to diagnose due to the insidious onset of upper abdominal symptoms, and no air under the diaphragm on X-ray. Posterior gastric perforation which opens into transverse mesocolon is even rarer. This is a case report done to entail such a rare case, with only two cases reported in the past. We present the case of a 21-year-old female with pain in the epigastric region spreading to involve the whole abdomen, fever, vomiting, and anorexia. In our case, radiological findings revealed pneumoperitoneum. Intraoperatively, a tract was identified between the posterior wall of the stomach and transverse mesocolon. Tract was excised and primary repair was done using the Graham patch method.

Keywords: Gastric ulcer, peptic ulcer, posterior perforation

Introduction

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.^[1] 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.^[2] 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.^[3] Although rare, cases of posterior gastric perforation opening into the lesser sac have been reported, posterior gastric perforation making a tract through the transverse mesocolon plus opening into the peritoneal cavity is very rare. Only two cases have been reported to date with posterior gastric perforation opening into the transverse mesocolon.

The etiology of most gastric perforations is secondary to peptic ulcer disease (PUD) but can also be caused by trauma,

malignancy, interventional procedures, and intrinsic gastric pathology or can occur spontaneously in the newborn.^[4] Perforation of gastric ulcer or duodenal ulcer into the peritoneal cavity causes initially chemical peritonitis as opposed to bacterial peritonitis, unlike more distal bowel perforation. If posterior wall gastric ulcers perforate, they leak gastric contents into the lesser sac, which tends to confine the peritonitis. These patients may present with less marked symptoms.^[5] The main predisposing factors for peptic ulcer perforation are *Helicobacter pylori* infection, smoking, use of NSAIDs, chronic stress, and advanced age (>60 years).

Posterior gastric perforation is characterized by the insidious onset of upper abdominal pain, distension with no air under the dome of diaphragm on X-ray, thus making the diagnosis difficult/delayed. This case prompts discussion due to the rarity of its incidence in the general population.

Case Report

A 21-year-old female was admitted in the surgery ward with chief complaints of pain in the abdomen (epigastrium). Pain was sudden in onset spreading from epigastrium to involve whole abdomen. The patient was febrile from 7 days and also complained of vomiting and anorexia from 6 days.

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The history of pain abdomen was present for the past 2–3 months for which she intermittently took medication. She also had low-grade fever during this period. She had a history of chronic constipation. She was on medication for constipation and complained of black stools since the beginning of this medication. Bleeding per rectum occurred in 2 episodes.

Upon general physical examination, the abdomen was found to be tender. Radiological findings revealed pneumoperitoneum. Ultrasonography of the abdomen and pelvis revealed free fluid in the abdominal cavity and collection in the pelvis. Based on the clinical picture, radiological, and ultrasonographical findings, a diagnosis of intestinal perforation was made.

On an emergency exploratory laparotomy, purulent fluid was present (approximately 200 ml). On examination of the bowel, no perforation was found. On opening the lesser sac through the greater omentum, a fibrous tract was seen between the posterior wall of the stomach with transverse mesocolon [Figure 1]. A perforation 1.5 cm × 1 cm was identified on the posterior/inferior side of mesocolon [Figure 2] and its path was traced back through the posterior wall of stomach into the stomach. The tract was excised and primary repair of the perforation using the Graham patch was done through opening lesser sac through supracolic compartment. Rest of the posterior gastric wall as well as the lesser sac was found normal. The defect in the transverse mesocolon was also closed with 2-0 polyglactin. The ulcer margin was sent for histopathology. Report showed chronic inflammatory changes. Postoperatively, recovery was uneventful.

Discussion

Each year PUD affects 4 million people around the world.^[6] Two percent–14% of the ulcers perforate^[7] as in our case, where history was suggestive of PUD.

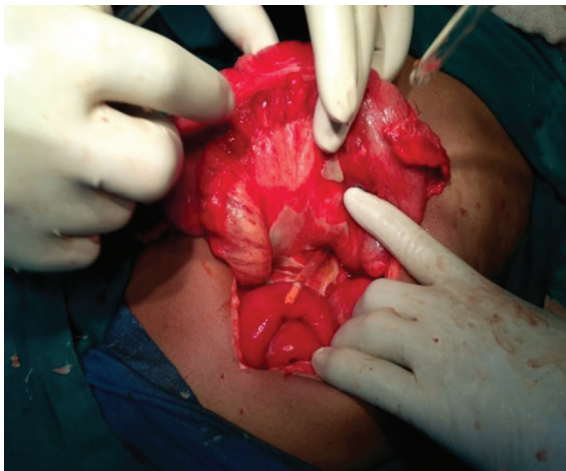


Figure 1: Ryle's tube passing from stomach through the tract into the transverse mesocolon

Females account for more than half the cases, they are older and have more comorbidity than their male counterparts,^[8] as was our patient, but she was younger.

In a case series of 9 cases of posterior perforation, all the cases had an acute onset of symptoms,^[3] like our case. History of nonsteroidal anti-inflammatory drug intake is a major risk factor, also evident in our case.^[1] PPU is a life-threatening disease and the mortality varies from 10% to 40%.^[7] Almost 5%–8% of ulcers lie in the posterior wall of the stomach.^[9]

Posterior perforations tend to present late due to the insidious onset of symptoms. Out of the 2 cases previously recorded, one had features of peritonitis like ours and unlike our case, they could not elicit generalized abdominal tenderness and board-like rigidity suggestive of peritonitis in the other one.^[10]

Like our case, these ulcers penetrate the retroperitoneal space or the lesser sac or through mesotransverse into the peritoneal space.^[10] Operative findings depend on the location of the perforation with either a lesser sac abscess associated with generalized peritonitis or a retroperitoneal abscess.

An erect abdominal X-ray can be used in patients when the diagnosis of perforation is suspected. The pneumoperitoneum is pathognomonic, as evident in our case. In the absence of these radiographic signs, an urgent computed tomography (CT) scan should be considered. CT scan has its particular ability in diagnosing 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, retrogastric air as well as liquid assortment.^[11]

The presence of retroperitoneal collection warrants prompt exclusion of posterior perforation of peptic ulcer.^[3] A high degree of suspicion and knowledge with experience to



Figure 2: Perforation opening into the transverse mesocolon

access the lesser sac through the gastrocolic ligament is expected to discover posterior gastric ulcers.

Conclusion

Peptic ulcer perforation should be suspected in patients with a history of peptic ulcer symptoms who develop a sudden onset of severe and diffuse abdominal pain. Posterior perforation of peptic ulcer is an uncommon surgical emergency and may be missed because of its rarity and anatomic location. Most times, the diagnosis is often difficult and is made intraoperatively. A high degree of suspicion is required to make an advanced preoperative diagnosis of posterior gastric perforation. In the absence of these radiographic signs, an urgent CT scan should be considered.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understand that name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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