

CASE REPORT

Posterior Perforation of Gastric Ulcer

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Patients with an anteriorly perforated peptic ulcer present with an acute onset of severe abdominal pain and exhibit signs of peritonism at presentation. Diagnosis of an acute abdomen can often be made on clinical grounds and an emergency operation performed. Posterior perforation of gastric ulcer is a unique category of peptic ulcer perforations with a distinct clinical presentation (1). While it is rare, awareness of this surgical emergency is important, as this condition is associated with a high morbidity and mortality. The diagnosis is commonly missed because of the indolent nature of the initial symptoms with catastrophic outcome. We report a case of posterior perforation of gastric ulcer and review the literature to highlight the key features of this condition.

CASE REPORT

A 72-year-old man was admitted complaining of a constant gnawing pain in the epigastrium. He had no associated comorbidities or history of peptic ulcer disease. He was not on any nonsteroidal anti-inflammatory drugs (NSAIDs). The pain got progressively worse and he started to vomit on the day of admission. There was no radiation of the epigastric pain.

The patient was febrile on admission and his vital signs were stable. His abdominal examination was equivocal for an acute abdomen. The abdomen was tender over the epigastrium but was soft and there was no rebound tenderness. Chest roentgenogram demonstrated pneumoperitoneum and a diagnosis of a perforated viscus was made. An emergency laparotomy was therefore performed. At laparotomy, moderate peritoneal contamination with lesser sac abscess was noted. No perforation was seen in the anterior surface of the stomach or the duodenum. Examination of the rest of the gastrointestinal tract was unremarkable. A Kocher's maneuver was performed and following this the lesser sac was entered via the gastrocolic omentum. A 1-cm posterior gastric ulcer perforation of the body of the stomach along the lesser curve was noted and a Billroth II partial gastrectomy was performed. Histology showed chronic gastritis with no evidence of

malignancy. *Helicobacter pylori* infection was also noted on histology. Recovery was uneventful and the patient was discharged after 19 days in the hospital.

DISCUSSION

Spontaneous nontraumatic posterior perforation of gastric ulcer is a rare entity. Understanding the anatomical relations of the stomach is important in understanding these perforations. Posterior gastric ulcers may erode into the lesser sac behind the stomach (for gastric ulcers in the fundus or body of the stomach) or the retroperitoneal space (pyloric ulcers). The local inflammatory reaction and fibrosis of the surrounding adherent retroperitoneal tissue contribute to sealing off the perforation. This explains the rarity of this entity and the vague and insidious symptoms that characterize such perforations when they occur. The lesser sac behind the stomach is a potential space and is less effective in sealing off a posteriorly situated gastric ulcer eroding through the wall of the stomach. In contrast, the pyloroduodenal channel is firmly adherent to the retroperitoneal space and therefore may be less prone to posterior perforations (1).

The clinical presentation of posterior gastric perforations is much less dramatic than that of the more common anterior perforations. Delayed presentation is a characteristic of posterior perforations. Patients typically report gnawing epigastric or hypochondrium pain of a variable duration. These perforations are commonly missed on initial examination. As in our patient, the abdominal examination is often equivocal for an acute abdomen, with minimal or no guarding, rebound tenderness, and peritonism.

Routine chest and abdominal roentgenograms are invaluable for evaluation of patients with posterior perforations. Pneumoperitoneum when present is a definite sign of a perforated viscus from intraabdominal surgical pathologies. It is in itself an indication for immediate surgical exploration. In many cases reported in the literature, while the clinical signs were equivocal for an acute abdomen, the detection of a pneumoperitoneum on chest

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roentgenogram prompted emergent surgical exploration with posterior perforations noted at laparotomy. Specific radiographic signs associated with retroperitoneal perforations are pneumomediastinum and retroperitoneal air on the chest and abdominal roentgenogram, respectively (1, 6). Computed tomography scan is of value in suspicious cases, as it is more sensitive for detecting pneumoperitoneum and can delineate retroperitoneal and intraperitoneal structures (7).

The clinical presentation of posterior perforations of gastric ulcers depends on the location of these ulcers within the stomach. Ulcers situated in the fundus or body of the stomach perforate into the lesser sac, with consequent lesser sac abscess and generalized peritonitis with contamination of the peritoneal cavity through the foramen of Winslow. Ulcers in the pylorus of the stomach perforate into the retroperitoneal space. These ulcers behave like posteriorly perforated duodenal ulcers, with retroperitoneal extravasation and retroperitoneal abscess formation. It is important for the surgeon to be aware that the extravasated gastric or duodenal juices can track in the retroperitoneal space and form abscesses around any retroperitoneal organs, such as the pancreas, cecum, or kidneys (1). The resultant abscesses often divert the attention of the surgeon from the true site of perforation. For this reason these ulcers are commonly missed, with catastrophic consequences (2, 3). The most common misdiagnosis was appendicular diseases. Other misdiagnosis included perinephric abscess, retrocolic abscess, pancreatic abscess, colonic abscess, and even an incarcerated inguinal hernia (2, 3). In a review by Weston-Davis *et al.* (2), of 16 patients with retroperitoneal extravasation from a perforated duodenal ulcer, an accurate diagnosis was made intraoperatively in only 9. The diagnosis was made on repeat explorations in two patients and only at autopsy in five patients. Hashmonai *et al.* (3) reported four patients with retroperitoneal perforation of duodenal ulcers; of these, three were missed at laparotomy and the diagnosis was made only at autopsy. Therefore, when a retroperitoneal abscess is noted at laparotomy, a thorough examination, including entering the lesser sac and mobilizing the duodenum (Kocher's maneuver), is mandatory in

order not to miss a posteriorly perforated gastric or duodenal ulcer.

Posterior perforations of gastric ulcers have a high mortality. Delayed presentation due to insidious and nonspecific initial symptoms and missed diagnosis at laparotomy are major contributory factors (1, 2). Also, the lesser sac is a potential space, and when perforations into this space occur, spillage into the peritoneal cavity via the foramen of Winslow can readily occur, which results in peritonitis, sepsis, and multiorgan failure.

CONCLUSION

Posterior gastric ulcer perforation is a rare disease. A high index of suspicion is crucial. Operative findings depend on the location of these ulcers within the stomach. They can present with lesser sac abscess associated with generalized peritonitis or retroperitoneal abscess. Of note, an unexplained retroperitoneal abscess should always prompt exploration of the lesser sac for posterior perforation of a gastric ulcer, regardless of the site of the abscess within the peritoneal cavity.

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