Case Report

A Rare Twist to Blunt Abdominal Trauma: Delayed Presentation of Isolated Gastric Perforation

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Abstract

Background: Gastric injuries after blunt abdominal trauma is uncommon. Patients usually present immediately with peritonitis, associated injuries to other organs are usually present. **Case Report:** 36-year-old male presented with peritonitis secondary to gastric rupture following blunt abdominal trauma 6 days earlier and underwent emergency laparotomy for the same with complete recovery. **Conclusion:** Isolated gastric injury is uncommon after blunt abdominal trauma. Delayed presentation may be possible.

Keywords: Blunt abdominal trauma, Gastric injury.

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Introduction

Gastric perforation following blunt abdominal trauma is uncommon, with an incidence between 0.02% to 1.7%.[1] Isolated blunt gastric ruptures are usually associated with other solid visceral injuries. In blunt abdominal trauma, the most frequently involved intra-abdominal organs are the spleen, liver, and kidneys. We present a patient with an isolated gastric perforation following blunt abdominal injury 7 days earlier.

Case Report

A 36-year-old male presented with a history of blunt abdominal injury 1 week before presentation following a road traffic accident. Patient was asymptomatic for the first 4 days, following which he developed worsening upper abdominal pain associated with constipation. There was no history of nausea/ vomiting /fever. He had not sustained injuries elsewhere. There was no history suggestive of peptic ulcer disease. He was not a smoker and denied alcohol intake. On physical examination, he was conscious and alert with Pulse Rate: 100 bpm, Blood Pressure: 120/70 mmHg, SpO2: 97% at Room Air, and GCS: 15/15. Abdominal examination revealed diffuse tenderness and guarding, maximum in the upper abdomen; bowel sounds were sluggish. No other injuries were noted.

Routine lab reports were within normal limits.

An erect X ray abdomen revealed features suggestive of pneumoperitoneum

Ultrasonography of abdomen revealed: Hyperechoic foci in right hypochondrium adjacent to liver - Free intraperitoneal air, Mild to moderate ascites, Minimal left sided pleural effusion

A preoperative diagnosis of peritonitis following blunt abdominal trauma was made, and an exploratory laparotomy was performed.

At laparotomy, 800 ml of seropurulent peritoneal fluid and a 2x2cm perforation of the anterior gastric wall about 6 cm proximal to the pylorus was noted. The rest of the small bowel, large Intestine, gall bladder, liver, spleen, and stomach were normal and viable.

The gastric perforation closed with interrupted sutures over an omental patch followed by a peritoneal wash and feeding

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jejunostomy

Postoperative recovery was uneventful, and the patient was followed up for 10 months.

Discussion

Blunt gastric rupture is an uncommon but serious consequence of abdominal trauma, with an incidence ranging from 0.02% to 1.7%.[1] Motor vehicle accidents are the most frequent cause, accounting for approximately 75% of such injuries.[2] Risk factors include a distended stomach (e.g., postprandial state), left-sided abdominal impact, and improper use of seat belts.[3]

The anterior wall is the most commonly affected site in blunt gastric injuries, followed by the greater curvature, lesser curvature, and posterior wall.[4] These injuries are typically solitary, although rare instances of multiple gastric perforations have been reported.[5]

Three primary mechanisms have been proposed for gastric rupture following blunt abdominal trauma:

1. **External Compression –** A sudden increase in intra-abdominal pressure, particularly in a distended stomach, can lead to rupture. This process also explains gastric injuries that are caused by maneuvers such as the Heimlich maneuver.
2. **Rapid Deceleration** -The differentiation of the movement of the neighboring structures results in shearing stress, especially at fixed anatomical sites, causing tears.[7]
3. **Crushing Injuries**- Compression of abdominal organs, which occurs behind the abdominal wall or above the back of the thoracic cage, may result in rupture of the stomach.[8]

Stomach is relatively resistant to blunt trauma because of the thick muscular wall of the stomach. Gastric rupture may be associated with injury to other organs situated the abdomen, particularly, to the spleen, kidney as well as the liver.[10]

Early detection and surgery play a major role in preventing morbidity and mortality. Late diagnosis can lead to intra-abdominal sepsis and mortality.[11]

Blunt trauma leading to gastric perforations is difficult to diagnose, particularly when a patient is intoxicated or in an altered sensorium. Along with the clinical picture, concomitant injuries may also obscure it. Common symptoms are abdominal pain, rigidity, peritonitis, and shock. Other symptoms are hematemesis or blood found in the nasogastric aspirate—late presentation.[13] To our knowledge, there has been no previous report of late presentation.

Imaging is necessary where physical findings are inconclusive. The classical signs of hollow viscus perforation on plain radiographs include pneumoperitoneum. Free peritoneal fluid can be detected by ultrasound, and currently, computed tomography (CT) is the gold standard for detecting gastric injury. Wall discontinuity, extraluminal air, focal thickening, abnormal enhancement, hematomas, fat stranding, and abscesses can be demonstrated by CT.[14]

The surgical management entails primary repair, which is feasible in most cases. In rare instances of gastric devascularization, partial gastrectomy may be required.[15] In severely traumatized patients, the initial aim of damage control surgery is the control and containment of bleeding and contamination, avoiding a definitive repair being performed until stabilization.[16]

The surgical method is chosen based on the size, location of perforation and patient factors. Omental patch laparoscopic repair is deemed safe and effective, with advantages including less postoperative pain and fewer postoperative infections.[17] Nonetheless, the technique demonstrated increased reoperation rates due to leakage, likely because of the complexity of the method and the Laparoscopic suturing learning curve.[18]

Conclusion

Isolated gastric trauma does not occur frequently following blunt trauma. They can be presented late. Close attention to the onset of deterioration/worsening in the patient with abdominal trauma should be paid. Delayed presentation is possible . Patients who sustain abdominal trauma should be monitored for early signs of deterioration/worsening.

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Conflicts of interest

There are no conflicts of interest.

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