

Isolated Gastric Rupture due to Blunt Trauma: An Interesting Case

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Abstract

Isolated gastric rupture due to blunt trauma is an extremely rare entity in traumatology where the diagnosis can be extremely uncertain. Patients may be lulled into a false sense of security and present late which can be detrimental. Expedient treatment is life saving in this condition which can associated with high morbidity and mortality. We wish to present an interesting case of isolated gastric rupture in an adolescent with a late presentation to the trauma service due to the innocuous nature of the initial injury implying the importance of early time to intervention in their management.

Keywords: Isolated gastric injury; Traumatic gastric rupture; Gastric perforation

Case Report

A 18 year male patient presented to the emergency department following fall from tree of height of about 3 meters after a recent meal. There was no history of loss of consciousness or vomiting but only mild abdominal pain and distension. Hence patient did not present earlier to the hospital. Patient was brought to hospital 12 hours later with fever, severe abdominal distension and abdominal pain. On examination the patient was conscious and coherent. Pulse was 120/min, bounding and blood pressure was 100/70 mm of Hg with raised temperature and tachypnea. There was now tenderness and guarding of upper abdomen. There were no other injuries. CECT abdomen show pneumoperitoneum with free fluid in abdomen and dilated stomach (Figure 1). Laboratory parameters were within normal limit. The patient was resuscitated and taken up for exploratory laparotomy. Exploratory laparotomy revealed a litre of hemorrhagic fluid and 7 cm long, full thickness oblique gastric rupture on the lesser curve of the body of the stomach, 2 cms below the gastro esophageal junction (Figure 2). There were no associated intra abdominal injuries (Figures 3 and 4). After peritoneal lavage, due to massive oblique gastric rupture and peritoneal contamination, total gastrectomy, oesophagojeunostomy and peritoneal drainage was done. Post operatively, patient developed severe lung consolidation and went in for septic shock and expired on POD 4.

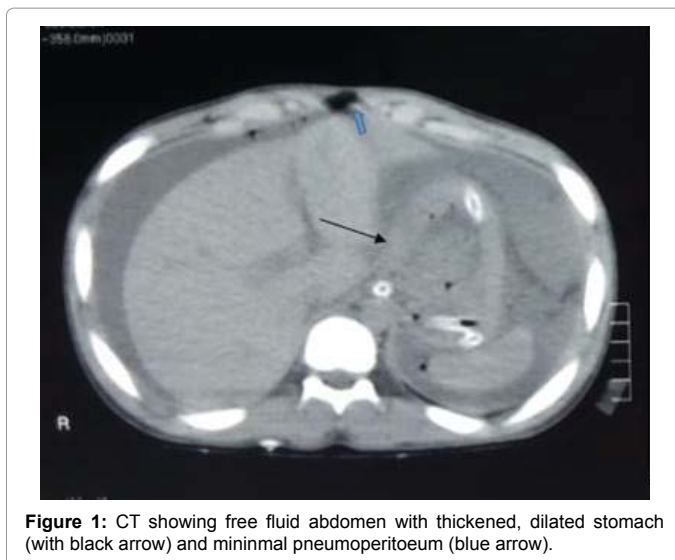


Figure 1: CT showing free fluid abdomen with thickened, dilated stomach (with black arrow) and minimal pneumoperitoneum (blue arrow).

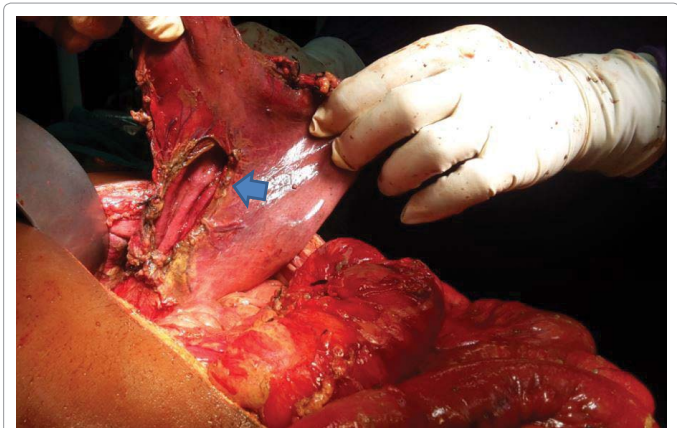


Figure 2: Intra operative picture showing the large rupture along the lesser curve of about 7 cm (arrow) with stomach being held along the greater curvature.

Discussion

Blunt traumatic induced gastric ruptures are uncommon with an incidence between 0.02 to 1.7% [1,2] and are usually associated with other solid visceral injuries where the most common organ of involvement is the spleen [3,4]. Associated injury have been reported in 83% to 93% of cases [5]. Such injuries to the stomach are associated with the highest mortality of all hollow viscus injuries [6]. Road traffic accident is the most common cause of gastric rupture accounting around 75% of cases [7]. Other causes are fall from a height, seat-belt injuries, and even vigorous resuscitation [2]. The relative infrequency of gastric perforation is due to protection by the thoracic cage, mobility and vascularity of the stomach [3].

Classically, gastric perforations due to BAT [Blunt Abdominal Trauma] have been attributed to 3 mechanisms:

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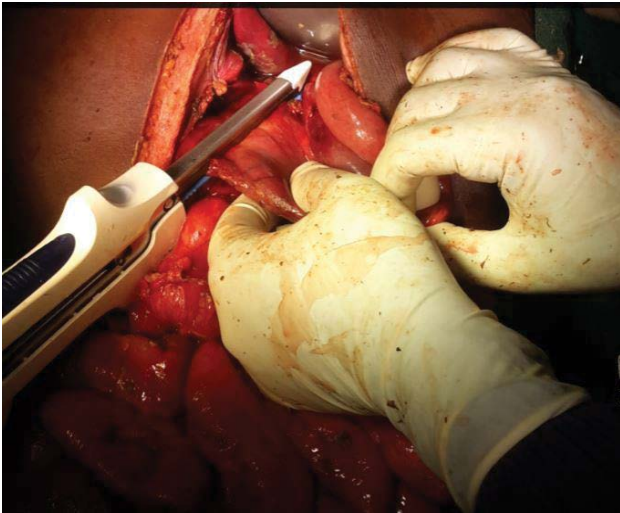


Figure 3: Transverse stapler being applied at the distal end to resect the stoma.

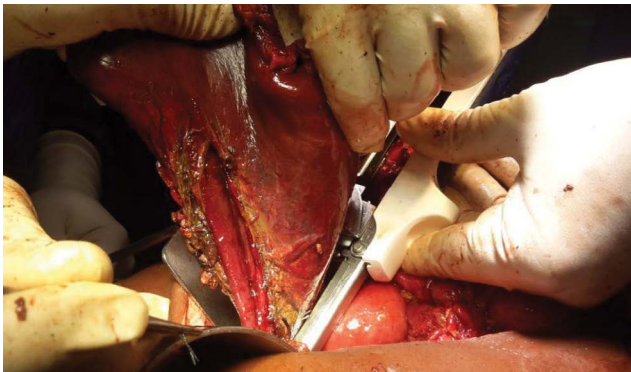


Figure 4: Linear Stapler applied proximally to resect the stomach and do oesophageojejunal anastomosis.

1) External compression to a distended fed stomach causes a sudden raise in intra gastric pressure leading to rupture at its weakest point.

2) Rapid deceleration cause tear of organs and vascular pedicles to tear at points of attachment.

3) Crush between the anterior abdominal wall and the vertebral column or posterior thoracic cage

Most of the perforations are solitary [5] and the common location for gastric perforations the anterior wall (40%) followed by the greater curvature (23%), lesser curvature (15%) and posterior wall (15%). However, the greater curvature is the site most often affected in the paediatric age group [8].

Morbidity and mortality correlate with increased time to operative intervention [6] and the overall reported mortality ranges from 0–66% [4,5]. The majority of complications due to rupture are septic in nature with in trabdrominal abscesses being most common [9]. It is to be noted that the fed patient with distended stomach has a higher gastric

pH that predisposes to a greater bacterial load with more infective complications. Free intra peritoneal air on plain abdomen and chest xray films is seen only in 16-66% of the cases [10,11].

Shock on presentation is seen in 20% of cases [12]. Patient must be taken for emergency surgery when suspicious features are seen on imaging or when there is shock, aspiration of dark coloured fluid on peritoneal lavage or paracentesis. This is diagnostic and must be followed by exploration [8]. The definite features of perforation on CT scan include, pneumoperitoneum, unexplained in traperitoneal fluid and other features like bowel wall thickening, and mesenteric fat stranding [9]. However, these finding are not 100% sensitive and may miss a perforation in about 13%.

Adequate peritoneal lavage, debridement and repair with a 2-layer closure followed by peritoneal drainage is the treatment of choice for blunt gastric rupture. The high morbidity and mortality associated with blunt trauma rupture of stomach are related to diagnostic delay, associated injuries, and complications [10]. Having a high index of suspicion, making an early diagnosis, performing adequate debridement and repair, and aggressive treatment of impending complications are keys to survival [7,10].

Conclusion

Although isolated gastric rupture in blunt trauma occurs rarely, surgeons should be aware of its possibility based on a plausible mechanism of injury. Preoperative CT study is effective for accurate diagnosis. Prompt treatment of the rupture is essential for patient's survival.

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