Gastric Rupture Following Blunt Trauma Abdomen: A Case Report

ABSTRACT
Blunt trauma abdomen is a common sequel to road traffic accident. The variety of intra-abdominal injuries following blunt trauma abdomen is diverse. We report a stomach laceration following a trivial trauma to abdomen in a otherwise healthy young male.

Keywords: Blunt trauma abdomen, road traffic accident, intra-abdominal injuries

Globally, injury accounts for 10% of all deaths. It is estimated that by 2020, 8.4 million people will die per year from injury. Injuries from traffic collisions will be the third most common cause of disability worldwide and second most common cause in the developing world. Blunt trauma abdomen is a common sequel to road traffic accidents and may cause various types of injuries ranging from solid organs to hollow viscera. We report a case of gastric rupture, which occurred following trivial trauma to abdomen.

CASE REPORT
A 20-year-old male, laborer by occupation, presented with pain and progressive distention of abdomen, hematemesis (1 episode) following cycle handle bar injury on collision with scooter about six hours prior to presentation. Patient was conscious, well oriented to time, place and person. He had tachycardia with systolic blood pressure (BP) of 90 mmHg and Glasgow coma scale of 15. There were no apparent external injuries except a small bruise in epigastrium. Abdomen was tense and tender with obliteration of liver dullness and absent bowel sounds.

Patient was initially stabilized and chest X-ray revealed gas under diaphragm; sonography showed free fluid

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Hematoma Contusion/Hematoma without devascularization</td>
</tr>
<tr>
<td>II</td>
<td>Laceration Partial thickness</td>
</tr>
<tr>
<td>III</td>
<td>Laceration &lt;2 cm in GE junction/pylorus &lt;5 cm in proximal one-third ≤10 cm in distal two-third</td>
</tr>
<tr>
<td>IV</td>
<td>Vascular Tissue loss/Devascularization ≤two-third stomach</td>
</tr>
<tr>
<td>V</td>
<td>Vascular Tissue loss/Devascularization ≤two-third stomach</td>
</tr>
</tbody>
</table>

Figure 1. Full thickness stomach laceration seen on laparotomy.
with internal echoes. Patient was taken up for laparotomy and was found to have serosanguinous and bilious fluid with undigested food particles, full thickness stomach laceration approximately 4 cm proximal to pylorus involving nearly two-third of circumference and small hematoma of transverse mesocolon. Distal gastrectomy with double layer closure of duodenal stump with anastomosis of proximal stump to jejunum (end to side) was done. Hematoma of transverse mesocolon required no intervention. Postoperatively patient progressed well and was discharged on 10th postoperative day. Histopathologic study of the resected specimen revealed few neutrophilic infiltrates suggestive of acute inflammation.

DISCUSSION

Blunt abdominal trauma usually results from motor vehicle collisions, assaults, recreational accidents or falls. The most commonly injured organs are the spleen, liver, retroperitoneum, small bowel, kidneys, bladder, colorectum, diaphragm and pancreas. Physical examination findings are notoriously unreliable for several reasons; few examples are the presence of distracting injuries, an altered mental state and drug and alcohol intoxication in the patient. Men tend to be affected slightly more often than women.

Blunt force injuries to the abdomen can generally be explained by three mechanisms. The first is when rapid deceleration causes differential movement among adjacent structures. As a result, shear forces are created and cause hollow, solid, visceral organs and vascular pedicles to tear, especially at relatively fixed points of attachment. The second is when intra-abdominal contents are crushed between the anterior abdominal wall and the vertebral column or posterior thoracic cage. This produces a crushing effect, to which solid viscera (e.g., spleen, liver, kidneys) are especially vulnerable. The third is external compression forces that result in a sudden and dramatic rise in intra-abdominal pressure and culminate in rupture of a hollow viscous organ.

Isolated gastric injury in blunt trauma abdomen is rarest of rare injury. The rarity of gastric rupture from blunt abdominal trauma is thought to be related to the stomach’s relatively protected anatomical position, high-degree of mobility, thick muscular wall and usual state of relative emptiness. When the stomach is distended, as by a recent meal, blunt trauma to the upper abdomen can lead to an increase in intragastric pressure sufficient to cause rupture. A history of a recent meal prior to gastric rupture is a common theme related to this injury; this signifies the importance of gastric distension as a predisposing factor to rupture.

Blunt gastric rupture can occur in any portion of the stomach. It usually occurs as a single lesion, which is commonly debrided and repaired by primary closure. The site most commonly affected is the anterior wall (40%), followed by the greater curvature (23%), the lesser curvature (15%) and the posterior wall (15%).

In our review of the literature, only two other cases have been reported where a patient was found to have sustained two separate gastric perforations from blunt trauma. Furthermore, to our knowledge, there has been no reported case of a patient requiring a partial gastrectomy because of the extent of the gastric damage. Although patient had a full stomach prior to the injury, the patient was not found to have any predisposing weakness of the gastric wall that may be seen with ulcer disease, gastric cancer or previous gastric surgery.

Associated injuries are frequently seen in cases of gastric rupture. Splenic injury is generally the most common associated injury; thoracic injury is the second most common. The majority of complications related to gastric rupture are septic in nature.

The mortality associated with gastric rupture has been reported to range from 0 to 66%.

REFERENCES