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Case Report

Gastric rupture following blunt abdominal trauma: a case report

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ABSTRACT

Gastric perforations following blunt abdominal trauma are rare, accounting for <2% of all blunt abdominal injuries. This is usually associated with other solid visceral injuries. Isolated blunt gastric ruptures are very rare. Severity of injury, timing of presentation and presentation following last meal as well as concomitant injuries are important prognostic factors. We present a patient with gastric perforation following road traffic accident.

Keywords: Gastric rupture, Blunt abdomen, Gastric perforation, Isolated gastric rupture, Road traffic accident, Hollow viscus injury

INTRODUCTION

Blunt mechanism of trauma to the abdomen commonly occurs due to motor vehicle accident; however other causes could be seat-belt injuries, vigorous resuscitation and fall from height.[1] Blunt injury to abdomen rarely causes isolated gastric rupture. It is commonly associated with other solid organs or hollow viscus injury. Isolated gastric perforation following blunt trauma to abdomen is mostly seen in paediatric patient. The incidence of hollow viscus injuries following blunt abdominal trauma varies from 4% to 15%.[2] Contrast enhanced CT scan is the recommended investigation to be done if patient is hemodynamically stable. Early diagnosis and timely intervention are essential to curb the high mortality and morbidity. Hollow viscus injuries after blunt trauma can have serious consequences if diagnosis is missed or delayed.

CASE REPORT

A 23 year old male patient presented in emergency department following road traffic accident while riding a 2-wheeler with abdomen pain. History of recent meal before trauma was present. There was no history of loss of consciousness or vomiting.

On examination patient was conscious, oriented. Pulse was 104 beats per min, regular and good volume. Blood pressure was 100/60 mmHg. Temperature was 98.6 degree F. Respiratory rate was 22/min. There was distention, tenderness and guarding of abdomen. On local examination laceration of size 3×3×2 cm was present in right axilla. Contrast enhanced CT scan was done for abdomen. This showed massive pneumoperitoneum, hemoperitoneum, gastric rupture, splenic laceration and renal parenchymal laceration and thrombosis of portal vein branches. CT chest shows extensive pneumomediastinum, subcutaneous emphysema, mild pneumothorax and pleural effusion both lungs. He was taken up for exploratory laparotomy as an emergency case. Laparotomy revealed rupture of stomach at distal end of lesser curvature extending upto pylorus. Anterior pyloric junction was completely disrupted. There was associated injury to spleen. Spleen showed laceration at lower pole but no active bleeding.

Infected fluid with food particles was removed. Freka triple lumen 16F passed into jejunum for early enteral nutrition. Primary closure of stomach done in 2 layers: inner with 2-0 vicryl and outer with 2-0 silk. A thorough peritoneal lavage was done. Abdominal drain kept. Post operatively, USG guided pleural tapping and pigtail insertion done in pleural cavity.

At POD-14, patient developed organised collection of 250cc in lower peritoneal cavity and pelvis and there was small wound dehiscence. Pigtail insertion done in pelvis and infected fluid was drained. There was right pleural effusion of 900-1000cc with collapse of right lower lobe of lung which was drained by pigtail insertion.

Patient was discharged on post-operative 21. On regular follow-up he was healthy and asymptomatic.

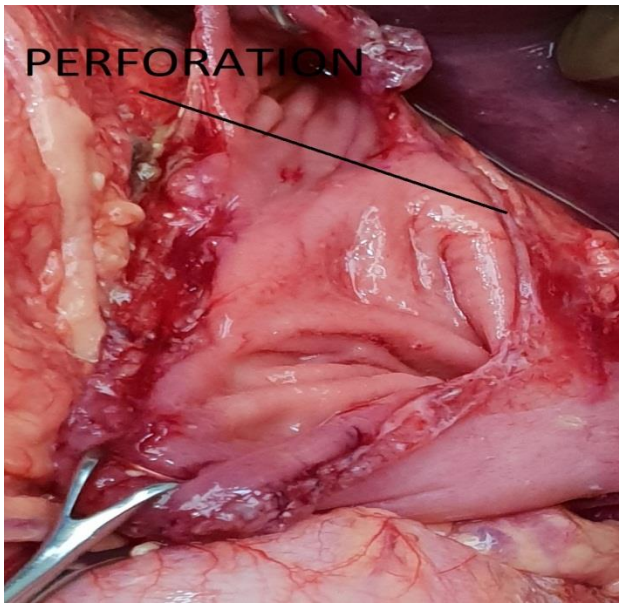

Figure 1: Rupture of anterior gastric wall.

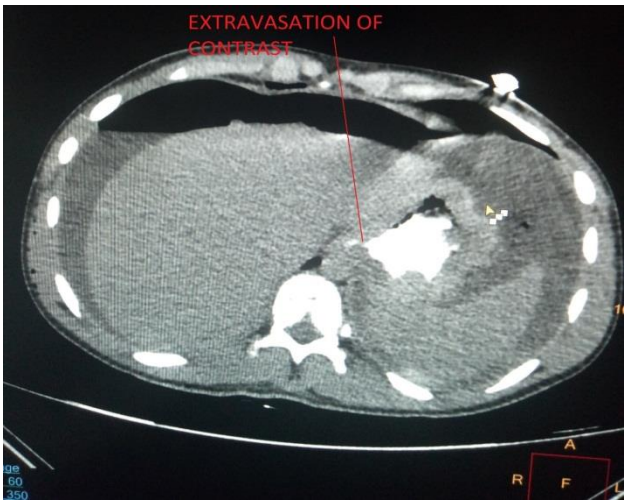

Figure 2: CT scan showing extravasation of contrast through stomach.

Figure 3: CT scan showing contrast in lesser sac.

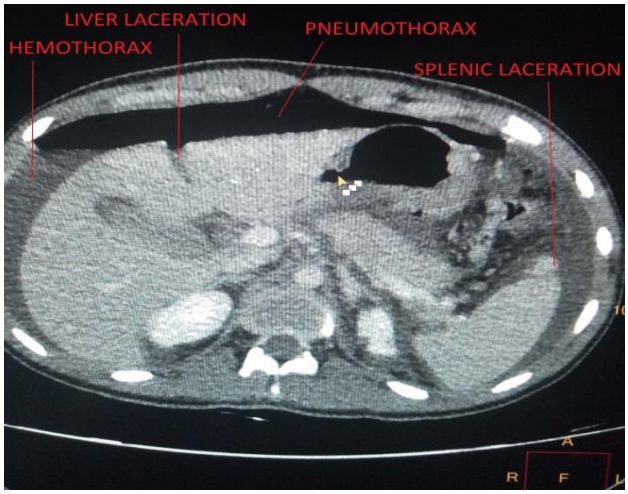

Figure 4: CT scan showing hemothorax, pneumothorax, liver laceration and splenic laceration.

DISCUSSION

Road traffic accident is most common cause of gastric rupture accounting upto 75%.[1-3] Other causes of gastric rupture are assault, falls and rarely cardiopulmonary resuscitation.[2]

Gastric rupture following blunt abdominal injury is commonly associated with recent meal causing gastric distention which increases susceptibility for injury. In this case also, history of meal consumption was present just before the accident.

Isolated gastric rupture following blunt abdominal trauma is rare.[3] Anatomical position of stomach and its high degree of mobility are protective mechanism for preventing injury following blunt abdomen.[3] In this case also patient had associated renal and splenic injury along with gastric rupture.

Children are more susceptible to abdominal organ injuries because abdominal wall is thin, diaphragm is more horizontal and ribs are very elastic.[2]

Anterior gastric wall is commonest site for rupture followed by greater curvature, lesser curvature and posterior wall.[4]

Patient presented with signs of acute abdomen as pain, distention, guarding and rigidity which indicates that injury is not contained within lesser sac.

Early diagnosis of gastric perforation following blunt abdominal trauma is suspected as free intraperitoneal air on plain X-ray abdomen and chest X-ray is seen in 16-60%.[3-6] Although hemodynamically stable patient require radiological investigations with contrast CT scan which is more informative than any other investigation as this also reveal any other associated solid organ injuries and bony injuries which are usually associated with gastric rupture.

CT abdomen will show hemoperitoneum, pneumoperitoneum and extravasation of contrast from gastric lumen. In this case, patient was hemodynamically stable so contrast CT scan was done which showed pneumoperitoneum, hemoperitoneum, gastric rupture, splenic laceration and renal parenchymal laceration and thrombosis of portal vein branches. CT chest shows extensive pneumomediastinum, subcutaneous emphysema, mild pneumothorax and pleural effusion both lungs.

Patient was immediately shifted to operation theatre and repair of stomach is done. 2 layered suturing is the treatment of choice for blunt injury associated gastric rupture.[4] Thorough and adequate peritoneal lavage and drainage are also necessary.[4]

Most common complication is intra-abdominal abscess formation post-surgery.[4] Post operatively this patient also developed pelvic collection on POD-14 which was drained with pigtail catheter.

Mortality following blunt gastric perforation is reported in range of 0-66%.[3,5]

CONCLUSION

Gastric rupture following blunt trauma is rare and even rarer is occurrence of isolated gastric rupture. Most common predisposing factor is meal just before the trauma because it causes gastric distention which increases susceptibility for injury. Gastric rupture following blunt abdominal trauma is usually associated with solid organ injury like lung injury with pneumothorax or hemothorax. Contrast enhanced CT-scan is informative and important in hemodynamically stable patient. Thorough wash to the peritoneum should be given due to spillage of gastric content and gastric rupture is repaired by primary 2 layer closure. Early detection and prompt intervention is the key in saving life and preventing septic complications.

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