

Case Report

A CASE OF ISOLATED DUODENAL INJURY FOLLOWING BLUNT ABDOMINAL TRAUMA: A CASE REPORT

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ABSTRACT

Isolated duodenal perforation secondary to blunt abdominal trauma is rare. Duodenal injuries are usually associated with pancreatic, common bile duct and vertebral injuries. We present a case of a 32 year old gentleman who presented with blunt abdominal injury following fall from motorcycle and presented with features of peritonitis. Patient underwent emergency exploratory laparotomy and was found to have an isolated duodenal perforation with haemoperitoneum. An anterior gastrojejunostomy with jejunal serosal patch closure of the perforation was done. We present this case as isolated duodenal injury following blunt injury to the abdomen is rare and to highlight various techniques in the management of these injuries.

Keywords: *Duodenal Injury, Peritonitis, Blunt Abdomen Injury, Trauma*

INTRODUCTION

Isolated duodenal injury secondary to blunt abdominal trauma is rare (Asensio et al., 1993). Duodenal injuries are usually associated with pancreatic, CBD and vertebral injuries (Asensio et al., 1993). Duodenal injuries usually present late due to its retroperitoneal location (Allen et al., 1998; Fang et al., 1999; Boone and Peitzman, 1998). Early recognition of these injuries is very important as late intervention is often associated with high morbidity and mortality. Various techniques of managing duodenal injuries have been described in the literature. A knowledge of these techniques is necessary for general surgeons for optimal management of this complex problem. We present a case of blunt injury abdomen in a 32yrs old gentleman with injury to the first part of the duodenum which was managed with jejunal serosal patch and diverting gastrojejunostomy.

CASES

A 32 year old gentleman with history of blunt abdominal injury following fall from a motorcycle about 16 hours ago was referred to us after initial treatment elsewhere. He had severe pain abdomen, abdominal distension and mild breathing difficulty. On clinical examination, his GCS was 15/15, pulse rate was 120/min, low in volume, BP was 90/60mmHg, and SpO2 was 92%. On examination, abdomen was distended; there were abrasions around the epigastrium and right hypochondrium. Guarding and rigidity were present. Bowel sounds were absent. There was reduced air entry on the right hemithorax. Chest radiograph showed right sided minimal pleural effusion and no air under diaphragm. Erect abdomen radiograph showed dilated small bowel loops. USG abdomen showed free fluid in the abdomen.

In view of the features of peritonitis the patient was taken up for emergency exploratory laparotomy. Abdomen entered through midline incision. A 2x2cm perforation was noted in the anterior wall of the first part of duodenum. Blood and bile stained fluid of about 1 liter noted in the peritoneal cavity. After thorough peritoneal lavage the rent in the duodenum was closed with a serosal patch of jejunum and a diverting anterior gastrojejunostomy was done. A feeding jejunostomy was added. Thorough laparotomy was done, the lesser sac was opened and pancreas thoroughly examined -there was no pancreatic injury. Abdomen was closed with a tube drain in Morrisons pouch. Post-op serum amylase levels and drain tube amylase levels were within normal limits. Patient was started on jejunal feeds on the second post-op day. Oral feeds were introduced on the 6th post-op day and progressed to normal feeds. Drain was removed on the 8th post-op day. FJ tube was removed on post op day 12 and the patient was discharged on post op day 15.

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DISCUSSION

Injuries to the duodenum are uncommon occurring at a rate of 4% of all patients with blunt injury abdomen -usually road traffic accidents are the cause of these injuries contributing for 22% of all patients with duodenal injuries (Asensio *et al.*, 1993). Blunt injuries to the duodenum are associated with injuries to the pancreas, bile duct, mesenteric vessels and IVC for anatomical reasons (Asensio *et al.*, 1993). Of these, injuries to the pancreas are more common; combined pancreatic and duodenal injuries have increased morbidity and mortality. In our case the patient had an isolated injury to the duodenum; there were no associated injuries.

The most common mode of injury to the duodenum is RTA when the duodenum is crushed against the vertebral column or due to shearing forces or bursting energy (Boone and Peitzman, 1998; Cocke and Meyer, 1964). In our case the most likely crushing and shearing forces were involved.

Due to its retroperitoneal position duodenal injuries present late which increases the morbidity and mortality, making early diagnosis important (Allen *et al.*, 1998; Fang *et al.*, 1999). In our case the patient presented to us more than 16 hours after the injury. He had features of peritonitis probably due to the late presentation and anterior wall injury which opened into the peritoneal cavity. The presence of features of peritonitis helped us in reaching a decision to operate. Otherwise duodenal injuries present late with minimal signs immediately after injury. A detailed history including the mode and severity of the injury and careful examination may help in suspecting duodenal injury. In our case the patient had abrasions over the epigastrium.

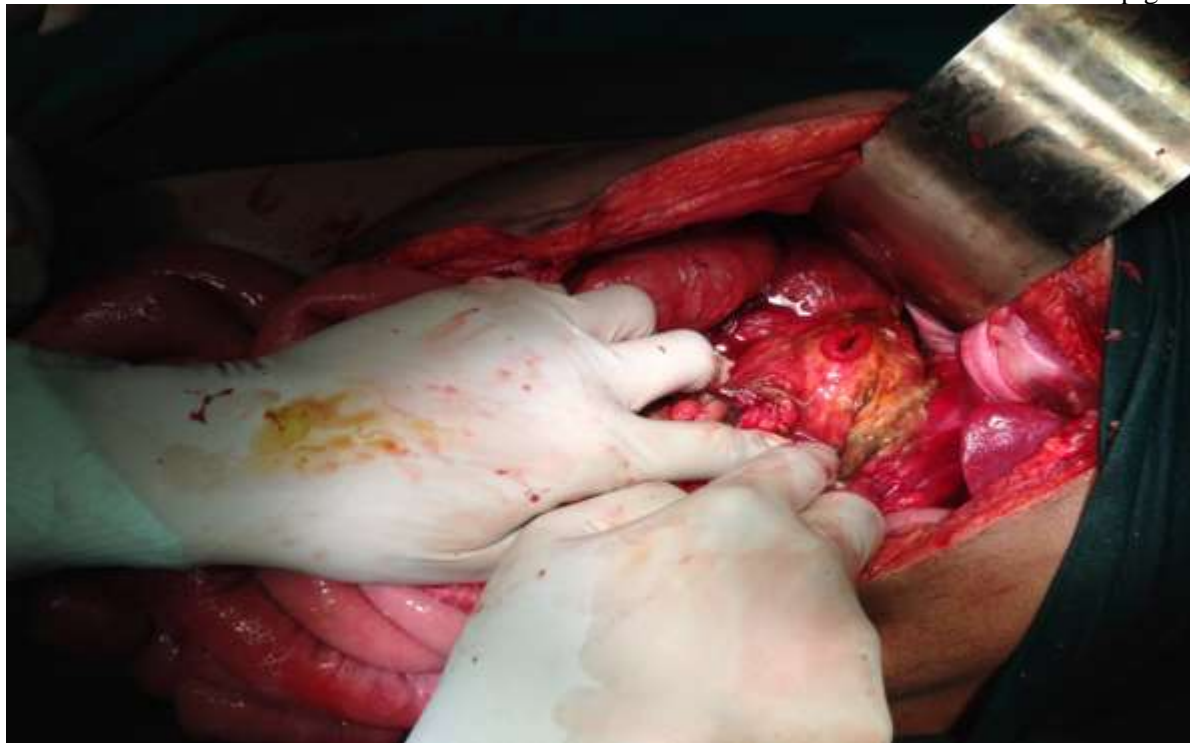


Figure 1: Photo showing duodenal injury

Early diagnosis of patients with duodenal injury is critical and the time elapsed between injury and intervention has a bearing on the morbidity and mortality of these patients. A mortality rate of 11% is reported in patients who undergo surgery within 24 hrs after the injury, whereas patients who undergo surgery after 24 hours have a mortality rate of over 40% (Lucas and Ledgerwood, 1975).

Once such an injury is suspected it is imperative to order for an early CECT of the abdomen thereby reaching an early diagnosis. A contrast enhanced CT abdomen offers excellent imaging of the retroperitoneum but even a CT may not always distinguish a duodenal haematoma from a perforation (

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Kunin et al., 1993; Timaran et al., 2001). In our case as the patient had features of peritonitis we decided to operate without CECT abdomen, the financial aspects also influencing our decision making.

Various techniques have been described for the management of duodenal injuries. The close anatomic relationship of the duodenum, pancreas and the CBD poses difficulties in the management of these injuries. The closely shared blood supply also makes it further difficult to manage duodenal injuries (Asensio and Buckman, 1996). The various techniques include primary closure, jejunal patch closure, pyloric exclusion with gastrojejunostomy, tube duodenostomy, pancreaticoduodenectomy, pedicled ileal loop interposition to mention a few. The method chosen depends on the severity of the injury and the involvement of adjacent organs and the familiarity of the surgeon in the various techniques. In our case we had used a jejunal patch to close the rent in the duodenum and constructed an anterior gastrojejunostomy. We added a feeding jejunostomy to initiate early enteral feeding. The patient was initiated on tube jejunal feeding on the 2nd post-op day and oral feeds were started on the 6th day and progressed to normal diet. Drain was removed on the 8th post-op day and patient was discharged on the 15th post-op day.

Conclusion

Duodenal injuries are uncommon and present late due to its retroperitoneal location. A careful history regarding the mode of injury and mechanisms involved helps in suspecting duodenal injury. Early imaging in such cases helps in early diagnosis and intervention, reducing the morbidity and mortality associated with late diagnosis. Patients with duodenal injuries often have associated injuries to adjacent organs including pancreas and common bile duct which is an important factor that determines the outcome in these patients. A knowledge of the circumstances surrounding the injury and the various techniques in the management of duodenal injury is necessary for the general surgeon for the optimal management of this uncommon and often complex injury.

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