MAK HILL Publications International Journal of Tropical Medicine

Research Article
doi: 10.36478/makijtm.2024.4.35.38

OPEN ACCESS

Key Words
Pancreaticoduodenal, morbidity, injury, talikoti

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Received: 05 August 2024
Accepted: 15 September 2024
Published: 23 September 2024

Citation: Prasad N. Biradar, M.B. Patil, Dayanand S. Biradar, Vikram U. Sindagikar, 2024. Penetrating Trauma-Abdomen (Pancreaticoduodenal Injury). Int. J. Trop. Med., 18: 24-30, doi: 10.36478/makijtm.2024.4.35.38

Penetrating Trauma-Abdomen (Pancreaticoduodenal Injury)

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ABSTRACT
Pancreaticoduodenal injuries, although relatively rare, have a significant morbidity (36-60%) and mortality (18-23%)-(WORLDWIDE). Pancreaticoduodenal injuries occur in 1-12% of patients with penetrating trauma. The mortality and morbidity rates range from 30-60%. (INDIA). A Patient came to BLDE Hospital Casualty at 10.10 pm on 18/8/2022, referred from CHC, Talikoti Hospital, Talikoti, with a penetrating injury to the abdomen with evisceration of the stomach. Hemostasisis achieved by repairing the portal vein tear (proline 4-0) and ligating portal vein tributaries and Inferior pancreaticoduodenal artery.

INTRODUCTION

Triple Bypass:

- Roux en y Pancreaticojejunostomy (end to side).
- Choledochojejunostomy(end to side) over infant feeding tube-brought outside through the roux loop and Lateral abdominal wall.
- Gastrojejunostomy (end to side) with duodenal stump closure and transfixion sutures of the pancreatic head.
- End to Side Jejunojenuostomy.

Majority of early deaths after pancreaticoduodenal trauma are caused by haemorrhage, the main areas of concern being vascular injuries (75%), liver (46.8%) and spleen (28%). Late deaths are almost always related to septic complications mainly related to fistula formation and abscesses.

Pancreatic trauma may result in pancreatic duct fracture or severe pancreatic head damage in combination with duodenal and biliary duct damage. Digestive tract reconstruction is essential for pancreatic trauma. Digestive tract reconstruction for trauma of the pancreas often encompasses pancreaticojejunostomy, choledochojejunostomy and then gastrojejunostomy. Early diagnosis and classification of pancreaticoduodenal injury is crucial for decision-making. Early treatment of penetrating pancreaticoduodenal injury requires surgical approaches, aiming to improve patient outcomes and preserve the bodies and organs' potential for recovery on the basis of the identified risks. In this case report we present a concise review of the management of traumatic pancreaticoduodenal injury, including diagnostic approaches, options for surgical determination in pancreaticoduodenal injury and treatment with complications management[1]. The retro peritoneal location of the pancreas and duodenum provides protection from blunt and penetrating injuries. However, this characteristic can easily conceal the symptoms and signs of injury, resulting in delayed diagnosis and incorrect classification, thereby leading to higher rates of morbidity and mortality[2]. Pancreatic and duodenal injuries have been graded according to the Organ Injury Scaling (OIS) Committee of the American Association of the Surgery of Trauma. Grade 1-3 carries non surgical approach but Grade 4 and 5 needs a surgical approach

Clinical Details: The patient came to BLDE Hospital Casualty at 10.10 pm on 18/8/2022, referred from CHC, Talikoti Hospital, Talikoti, with a penetrating injury to the abdomen with evisceration of the stomach.

A 35-year-old male was under the influence of alcohol and was drowsy, disoriented state with an unrecordable pulse and blood pressure and hematuria.

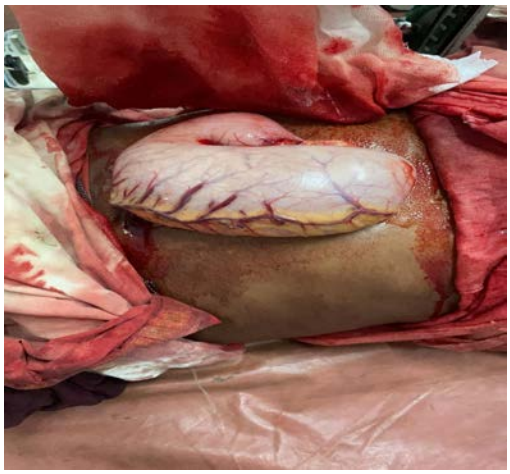

Fig 1: Evisceration of Stomach

On Examination:

- Vitals-Thready pulse and blood pressure not recordable.
- Evisceration of stomach with diffuse ooze of blood noted.
- Following resuscitation and preoperative work up patient was taken up for Emergency Laparotomy.
- Blood stained urine noted on catheterization.

Intra-Operative Findings:

- Complete transection of Stomach at Pyloroduodenal junction.
- Complete transection of the pancreas at the neck and body.
- Bleeding from the portal vein tear and torn tributaries.
- Grade 3 Right Renal Laceration.

Exit wound over Posterior subcoastal region.

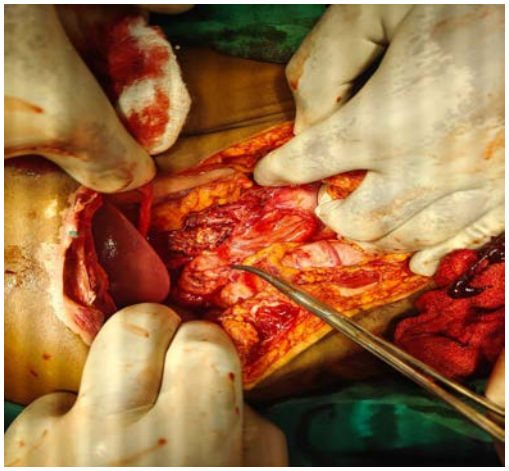

Fig 2: Transection of Stomach at Pyloroduodenal Junction

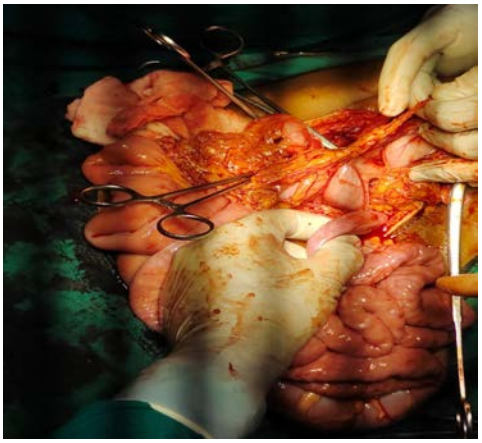

Fig 3: Transection of Pancreas Around Body

Intervention: Hemostasisis achieved by repairing the portal vein tear(proline 4-0) and ligating portal vein tributaries and Inferior pancreaticoduodenal artery.

Triple Bypass:

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Grade 3 Renal Injury was repaired by the urologist. Abdominal drains were placed in the lesser sac and the abdomen was closed in layers.

Post Operative Period: Supportive treatment was given with Fluids, Blood Transfusions, Antibiotics and Nutritional supplements. The initial post-operative period was uneventful till POD 12.

On POD 13, a Bile leak was noted in the drain, which was managed conservatively as the output was varying from 200-300ml and the patient had no signs of sepsis. Progressively, over the next few weeks, the drain started increasing to approximately 1 ltr/day.

In view of the high-output fistula and failure of conservative management, exploration was planned. On a post-op day, 35, re-exploration was performed., intraoperatively, it was noted that the drainage tube had eroded into the roux loop and thus was responsible for uncontrolled high output fistula. Repositioning of the drain with closure of the eroded site was performed. Patient was discharged 7 DAYS following the second exploration and is doing well.

RESULTS AND DISCUSSIONS

Pancreatic and duodenal injuries occur in approximately 2-3% of all traumatic abdominal injuries. Pancreatic trauma is classified according to the magnitude of the injury, ranging from a simple hematoma to rupture of the pancreatic duct and complete destruction of the organ. Isolated pancreatic injury is rare due to the proximity to other vital structures and the intensity of the trauma usually associated with the injury[3].

Although most pancreatic and duodenal injuries the mortality rate associated with cases of complex injury is high and such cases often require pancreatic or duodenal resection and reconstruction in patients clinically decompensated by the trauma a single time point or following damage control surgery.

There is enough evidence in the literature that penetrating trauma carries worse outcomes when compared with blunt trauma. In countries with a high incidence of RTA, the majority of pancreaticoduodenal injuries are due to penetrating trauma. Such injuries are rarely isolated and major vessels, stomach and liver are commonly associated.Deceleration may produce a tear at the junction of the mobile and fixed parts of the duodenum[4].

The majority of early deaths after pancreaticoduodenal trauma are caused by haemorrhage, the main areas of concern being vascular injuries (75%), liver (46.8%) and spleen (28%). Late deaths are almost always related to septic complications mainly related to fistula formation and abscesses.

In the cases where diagnosis and treatment are delayed >24 h, mortality increases to 40% as compared with 11% for those diagnosed <24 h. Two-thirds of the patients who survive more than 48 hours end up with complications and 37% of deaths are late and are related to complications such as fistula, abscess, anastomotic breakdown, pancreatitis, pseudocysts and pneumonia.

CONCLUSION

Managing a case of multiple organ injury in a hemodynamically unstable patient with penetrating trauma (pancreaticoduodenal grade 4 and renal injury grade 2) and undergoing triple bypass surgery is a challenging task. It requires a multidisciplinary approach. At our institute, the patient underwent surgery and recovered well, now performing daily activities.

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