

Traumatic complete transection of pancreas – a case report and review of literature contributors

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Abstract

Introduction: Blunt Abdominal trauma cases are increasing every day because of rising vehicular traffic accidents. Isolated Pancreatic trauma is not seen commonly. The most commonly affected organs are liver and spleen. Usually pancreatic injury is associated with injury to adjoining organ. Early detection of pancreatic injury is very important as if not treated properly it can lead to devastating complications. The management of pancreatic injuries ranges from non-operative to pancreatoduodenectomy. Grading of the injury as per the American Association for the Surgery of Trauma (AAST) helps in deciding about the management. Presenting herewith a case of Isolated Traumatic Total Transection of Pancreas treated surgically with good clinical result with review of available literature.

Keywords: Traumatic Pancreatic Transection, Total Transection of Pancreas, Pancreatic Transection, Pancreatic Transection surgery

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INTRODUCTION

Blunt abdominal trauma with visceral organ injuries are commonly seen in vehicular traffic accidents. With fast increasing vehicular number on Indian city roads, the incidence of blunt abdominal injuries is also increasing. The commonest organs injured are liver and spleen. Pancreas, due to its anatomical retroperitoneal location, gets damaged less frequently. The prevalence of pancreatic injury has been quoted to be about 2% of blunt abdominal injuries.¹ Usually pancreatic injury is associated with injury to surrounding structures like duodenum, colon or injury to splenic vein or portal vein. Mortality seen in first 48 hours is due to vascular injuries. Pancreatic ductal injuries if missed may lead to fistula

formation, abscess, sepsis leading to considerable morbidity and mortality. Treatment options for blunt pancreatic trauma ranges from only supportive treatment to supra major procedure like pancreatoduodenectomy. Presenting herewith a case report of a case of Isolated Total pancreatic transection secondary to blunt abdominal trauma managed successfully by surgical intervention.

CASE REPORT

11 years old boy suffered accidental injury due to fall of bullock cart on his abdomen. He was taken to the nearby hospital for abdominal pain within six hours of injury. He was given symptomatic treatment but the pain became intense within next twelve hours. On investigation with ultrasonography, possibility of Pancreatic injury was raised and then patient was referred to our hospital. On admission to our hospital the boy had pulse rate of 132/minute. Blood pressure was normal. There was no abdominal distention. He had guarding in the upper part of the abdomen. Bowel sounds were absent. His Serum Amylase and Lipase levels were 1338 and 940 respectively. His abdominal C. T. scan revealed total transection of the pancreas with a suspicion of mesenteric injury. [Fig 1] Since the C. T. scan revealed total transection of pancreas, he was offered surgical intervention. On exploration there was no free fluid in

peritoneal cavity. There was evidence of hemorrhage at the base of the transverse mesocolon. On opening the lesser sac, there was collection of blood with large clot covering the head and right side of the pancreas. [Fig 2] The clot was gradually separated from pancreas and the site of transection was located. There was total transection of the pancreas just on the right side of the portal vein. There was no evidence of injury to the portal vein or splenic vein. Rest of the surrounding structures appeared to be normal. The distal portion of the body of the pancreas was dissected and elevated from the splenic vein. [Fig 3] The decision of Pancreatico-jejunostomy was taken. Roux en Y loop of jejunum was taken and was brought to the supra colic compartment behind the

transverse colon. Pancreato-jejunostomy was done in single layer with 3-0 Monocryl intermittent sutures. [Fig 4] Side to side jejunostomy was done in double layer. Thorough wash was given. No attempt was done to take sutures over the transected portion of the head as the tissue appeared to be very fragile. A large drain was kept in lesser sac and incision was closed. Patient was put on broad spectrum antibiotics covering both gram positive as well as gram negative spectrum. Patient was given Octreotide for five days. Patient had chest infection and intermittent high grade fever. His abdominal ultrasonography did not reveal any significant collection. His hospital stay was seventeen days.

Table 1: AAST classification of pancreatic trauma

Sr. No.	Grade	Injury description
1	Haematoma Laceration	Minor contusion without ductal injury Superficial laceration without ductal injury
2	Haematoma Laceration	Major contusion without ductal injury or tissue loss Major laceration without ductal injury or tissue loss
3	Laceration	Distal transection or pancreatic parenchymal injury with ductal injury
4	Laceration	Proximal transection or pancreatic parenchymal injury involving the ampulla
5	Laceration	Massive disruption of the pancreatic head



Figure 1: C. T. image showing Total pancreatic transection



Figure 2: Blood clot at the site of transection



Figure 3: Transected pancreas



Figure 4: Pancreatico-jejunostomy

DISCUSSION

Pancreatic injury in blunt abdominal trauma is rare. The incidence is about 0.2% of all blunt abdominal trauma cases.¹ The overall morbidity secondary to associated injuries ranges from 30-40%. Mortality has been found to be from 9% to 34% in various series.¹ The early mortality is due to associated vascular injuries while delayed mortality has been found to be due to sepsis and multi organ failure. Due to the absence of distinct physical signs and limitations of the current modalities of

investigations used routinely, isolated pancreatic injury detection is a great challenge.⁴ The increasing trend of non-operative management of pancreatic trauma makes the identification of ductal injury a prime concern. Helical multislice C. T. scan has very good sensitivity and specificity of 80% for detection of pancreatic injuries. However C. T. done very early may miss the pancreatic injury and repeat C. T. at later stage may improve the sensitivity.² Grading scheme depending on C. T. findings for pancreatic trauma has been devised.¹

- **Grade A:** pancreatitis or superficial laceration (<50% pancreatic thickness)
- **Grade B1:** deep laceration (>50% pancreatic thickness) of the pancreatic tail
- **Grade B2:** transection of the pancreatic tail
- **Grade C1:** deep laceration of the pancreatic head
- **Grade C2:** transection of the pancreatic head

In 1990 the American Association for the Surgery of Trauma (AAST) expanded organ injury scale to include pancreatic, duodenal and bowel injuries. (Table 1)³ As the prognostic value of ductal injury has now been proved beyond doubt, the Endoscopic Retrograde Cholangio Pancreatography (E. R. C. P.) has become a gold standard for investigation. Many of these patients are often poor candidates because of limited resources and lack of surgical expertise, hemodynamic instability, associated injuries and the risks of prolonged surgery. (4) So E. R. C. P. has been advocated for stable patients. Takishima *et al* have classified the ductal injuries on E. R. C. P. (3)

- **Class 1:** radiographically normal duct
- **Class 2a:** contrast from branch injuries does not leak outside the pancreatic parenchyma
- **Class 2b:** contrast from branch injuries leaks into the retroperitoneal space
- **Class 3:** main duct injuries

Depending on the class of ductal injury Takishima has concluded that class 1 and 2a can be managed conservatively while the other injuries needs surgical intervention with at least a drainage procedure.³ The various surgical procedures described in pancreatic ductal injuries includes distal pancreatectomy when the transection is on left side of the portal vein. When transection is on right side of the portal vein, procedure like pancreaticojejunostomy is advocated. When the pancreatic head has been devitalized or there is associated disruption of bile duct then pancreatico-duodenectomy has been done although with high risk. Our patient had abdominal pain with tenderness and guarding. His C. T. abdomen showed haematoma around the pancreas with

complete transection. (Grade C2) As he was stable haemodynamically, but had abdominal guarding, we decided to offer him definitive surgery. On exploration the AAST grading was found to be Grade III. Even though various reports in literature has shown increased risk of pancreatic fistula formation after pancreaticojejunostomy, as distal pancreatic stump could be mobilized very well, we decided to go ahead with the procedure. The patient had good recovery and the anastomosis healed well.

CONCLUSION

Traumatic Isolated Pancreatic transection is a rare condition. Proper evaluation of the patient with C. T. scan abdomen reduces the chances of missing pancreatic injury. The grading of the injury can help in deciding about further management of patient. When pancreatic ductal injury is diagnosed on C. T. scan and patient is not fit to undergo E. R. C. P. then surgical intervention done at early stage increases the chances of good results.

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