



A RARE CASE OF TRAUMATIC PANCREATIC INJURY FOLLOWING BLUNT ABDOMINAL TRAUMA

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ABSTRACT

Traumatic injury to the pancreas is rare and difficult to diagnose. In contrast, traumatic injuries to the liver, spleen and kidney are common and are usually identified with ease by imaging modalities. Pancreatic injuries are usually subtle to identify by different diagnostic imaging modalities, and these injuries are often overlooked in cases with extensive multiorgan trauma. The most evident findings of pancreatic injury are post-traumatic pancreatitis with blood, edema, and soft tissue infiltration of the anterior pararenal space. The alterations of post-traumatic pancreatitis may not be visualized within several hours following trauma as they are time dependent. Delayed diagnoses of traumatic pancreatic injuries are associated with high morbidity and mortality. Imaging plays an important role in diagnosis of pancreatic injuries because early recognition of the disruption of the main pancreatic duct is important.

KEYWORDS : Trauma, Pancreas, Injury, Amylase

INTRODUCTION

The pancreas is a rare organ to be injured in trauma, occurring in less than 10% of major blunt trauma cases, and this injury is associated with considerably high morbidity and mortality in cases of delayed diagnosis, incorrect classification of the injury, or delays in treatment [1,2]. Physical examination is usually not reliable in the setting of acute pancreatic trauma [3]. Early and accurate diagnosis can decrease morbidity and mortality, and various imaging modalities play a key role in recognition of pancreatic injuries [4,5].

Knowledge about the mechanisms of pancreatic injury, the presence of coexisting injuries, the time to diagnosis, the presence or absence of major ductal injury, and the roles of various imaging modalities is essential for prompt, early and accurate diagnosis. Early detection of disruption of the main pancreatic duct is of paramount importance because such disruption is the main cause of delayed complications like pancreatic pseudocyst [6]. The most common site of traumatic pancreatic injury is at the junction of the body and tail. Significant pancreatic injury may occur in the absence of abnormality on various imaging modalities. Pancreatic trauma occurs commonly in connection with multiple injuries after motor vehicle accidents in adults and bicycle handlebar injuries in children [7]. Conservative management is mainly advocated for pancreatic trauma without ductal injuries. Computed tomography (CT) is routinely used as the first-line imaging modality in acute abdominal trauma cases and is helpful in recognizing injuries to the pancreas and other organs and their associated complications [8]. Ultrasonography (US) is useful in cases of pancreatic ascites and pseudocyst formation, which are more likely to occur in cases with traumatic pancreatitis [3]. Magnetic resonance cholangiopancreatography (MRCP) allows direct imaging of the pancreatic duct and its disruption. We report a case of 31 year old male with blunt trauma abdomen in whom Computed Tomography revealed non enhancing hypodense focus noted in body of pancreas with possibility of contusion with Grade 2 liver injury and he was treated conservatively with good outcome. This case is a reminder that pancreatic injury should be considered in the differential diagnosis in cases of blunt abdominal trauma. Also the clinician should be aware when pancreatic injuries are managed conservatively, the clinical, radiological and the laboratory parameters need to be monitored till resolution.

CASE REPORT

A 31 year old was brought to the casualty with alleged history

of assault and sustained multiple blows to the abdomen. Patient had complaints of abdominal pain, no history of vomiting. On admission he was stable with blood pressure: 120/70mmHg, pulse rate was 122/min. Epigastric tenderness present. Investigations revealed leucocytosis, increased amylase value of 1658 IU/L. Ultrasound revealed free fluid in abdomen. Contrast enhanced computed tomography of abdomen and pelvis revealed non enhancing hypodense focus measuring 1.4*2.2 cm noted in body of pancreas with possibility of contusion. Linear non enhancing defect noted measuring 1.5*1.2 cm left to portal confluence in liver. **Impression:** Grade two AAST liver injury with pancreatic injury-intra parenchymal contusion and possible transection. Hemoperitoneum present

As the patient was haemodynamically stable and there was no evidence of duct injury he was treated conservatively (bowel rest, nasogastric tube and analgesics). Patient was under close monitoring in ICU to watch for increase in abdominal girth and worsening of general condition. Serial monitoring of CBC, LFT, RFT with amylase were done. As the parameters and the general condition of the patient remained stable, oral diet was started subsequently on day 3 and then he was shifted to ward for further observation. Continuous careful monitoring was continued in ward and as his general condition improved he was mobilized and discharged after 10 days after explaining the possible complications which he could acquire later including pseudocyst of pancreas, pancreatic fistula, pancreatitis and hence for the need of regular follow up.

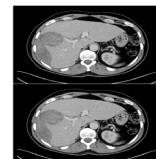


FIG.1 CT SCAN IMAGES SHOW (A) GRAD II SUB CAPSULAR HEMATOMA

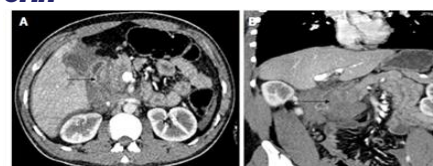


Fig.2 Cect Axial (a) And Coronal (b) Images Showing The Hypo Attenuating And Bulky Head Of Pancreas Suggestive Of Contusion With Fluid In Pancreatic Duodenal Groove (arrow).

DISCUSSION

Trauma to the pancreas is not common. The pancreas lies anterior to the vertebral column and may be compressed against it.[3-4] Injury to the pancreas is frequently combined with injuries to other organs, particularly the duodenum, and this may cause early death of the patient.[2,5,6] An isolated pancreatic injury may be missed or the diagnosis may be delayed because the initial symptoms and signs of pancreatic injury are subtle, and this may contribute to the morbidity and mortality associated with this injury.

Patients with pancreatic trauma present usually with features of acute pancreatitis. The typical clinical triad of pancreatic trauma is upper abdominal pain, leucocytosis, and elevated serum amylase level, that may, however, be absent in adults during the first 24 hrs and even for several days[12,]. Pancreatic trauma is difficult to recognize because of coexisting injuries to other intra-abdominal organs and its retroperitoneal location, which makes signs and symptoms less marked, and consequently this trauma ends up causing higher morbidity and mortality rates than observed in injuries to other intra-abdominal organs . Symptoms of injury to other intra-abdominal organs or structures commonly mask or supersede that of pancreatic injury, both early and late in the course of trauma. Therefore, a high degree of suspicion is required to ensure that pancreatic injuries are not overlooked or missed either early or late in their course.

Modified Lucas Classification Of Pancreatic Injury

- I Simple superficial contusion or peripheral laceration, with minimal parenchymal damage; any portion of the pancreas can be affected, but main pancreatic duct is intact
- II Deep laceration, perforation, or transection of the neck, body, or tail of the pancreas, with or without pancreatic duct injury
- III Severe crush, perforation, or transection of the head of the pancreas, with or without pancreatic duct injury
- IV Combined pancreatic duodenal injuries: (a) minor pancreatic injury, (b) severe pancreatic and also duct injury

Studies have demonstrated that the elevation of amylase in both serum and peritoneal lavage fluid is neither sensitive nor specific for the diagnosis of pancreatic injury.[7] Bradley, in a review of more than 400 cases reported in literature of blunt pancreatic injury, found that serum amylase levels were elevated in 82% of people with documented pancreatic injuries.[5] Because hyperamylasemia has been observed in more than 75% of patients with blunt abdominal trauma and proven pancreatic injury, it should at least be considered a sign of probable pancreatic injury in the setting of blunt abdominal trauma and should indicate the need for further testing.[5]

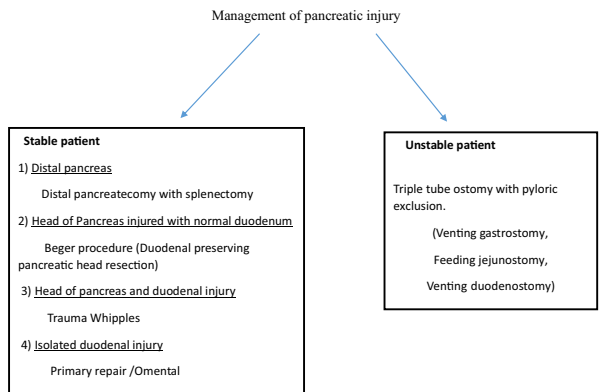
Helical multislice CT, which has both sensitivity and specificity as high as 80%, represents the best noninvasive diagnostic method for the detection of pancreatic injury. However, particularly in the initial phase, CT may miss or underestimate the severity of the damage; normal initial findings do not exclude pancreatic injury, and repeated CT in the light of continuing symptoms may improve its diagnostic efficiency.[8] Morbidity and mortality rates for pancreatic trauma are directly related to the presence of damage to the pancreatic duct. Preoperative endoscopic retrograde pancreatography is the only diagnostic test that has consistently shown a high specificity and sensitivity for pancreatic ductal injury. It is also valuable for planning the appropriate surgical correction (open surgery, internal transpancreatic duct stenting, or transductal drainage) for those patients who develop post-injury complications such as pseudocyst or distal chronic

pancreatitis.[8]

Magnetic retrograde cholangiopancreatography was recently added to the list of useful pancreatic duct delineation techniques and could, in the future, replace endoscopic retrograde pancreatography as a first-line investigation, particularly with the development of rapid MRI imaging techniques.[9]

A nonoperative conservative course of management is common in pancreatic trauma. It is necessary to determine if there are signs of Wirsung duct injury and duodenal injury. In the absence of injury to the duct, close monitoring is done in a surgical unit. Medical treatment includes diet; rehydration, with correction of any electrolyte imbalance; nasogastric tube drainage in cases of vomiting; and analgesia. Preventive antibiotic therapy and octreotide are advocated.

If an injury of the Wirsung duct is likely or certain, treatment depends on the location of the pancreatic lesion. Acute endoscopic stenting of the disrupted main pancreatic duct has yielded excellent results in the hands of trained teams. Surgical intervention is usually undertaken in order to evaluate the pancreatic duct injury, to establish the presence of a devitalized pancreas, and to find out whether concomitant duodenal, biliary, or vascular injuries are present.



CONCLUSION

Suspecting a possible pancreatic injury after blunt abdominal trauma is important. When laparotomy is not required immediately, one can observe the patient and repeat the estimation of serum amylase. The use of modern contrast-enhanced CT, with or without 3D reconstruction, can usually clinch the diagnosis; however, if the diagnosis is still uncertain, emergency endoscopic retrograde cholangiopancreatography is advocated.

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