
Delayed Presentation of Isolated Complete Pancreatic Transection as a Result of Sport-Related Blunt Trauma to the Abdomen

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Key Words

Pancreatectomy · Pancreatic transection · Mesenteric hematoma

Abstract

Introduction: Blunt abdominal trauma is a rare but well-recognized cause of pancreatic transection. A delayed presentation of pancreatic fracture following sport-related blunt trauma with the coexisting diagnostic pitfalls is presented.

Case Report: A 17-year-old rugby player was referred to our specialist unit after having been diagnosed with traumatic pancreatic transection, having presented 24 h after a sporting injury. Despite haemodynamic stability, at laparotomy he was found to have a diffuse mesenteric hematoma involving the large and small bowel mesentery, extending down to the sigmoid colon from the splenic flexure, and a large retroperitoneal hematoma arising from the pancreas. The pancreas was completely severed with the superior border of the distal segment remaining attached to the splenic vein that was intact. A distal pancreatectomy with spleen preservation and evacuation of the retroperitoneal hematoma was performed.

Discussion/Conclusion: Blunt pancreatic trauma is a serious condition. Diagnosis and treatment may often be delayed, which in turn may drastically increase morbidity and mortality. Diagnostic difficulties apply to both paraclinical and radiological diagnostic methods. A high index of suspicion should be maintained in such cases, with a multi-modality diagnostic approach and prompt surgical intervention as required.

Introduction

Blunt abdominal trauma is a rare but well-recognized cause of pancreatic transection. This pattern of abdominal trauma may be associated with other intra-abdominal pathology, most importantly splenic injury due to the close anatomical relationship of these two organs. Here, a delayed presentation of pancreatic fracture following sport-related blunt trauma with the coexisting diagnostic pitfalls is presented.

Case Report

A 17-year-old rugby player was referred to our specialist unit after having been diagnosed with traumatic pancreatic transection. Whilst in the scrum the previous day, despite a severe direct blow to his abdomen (delivered by an opponent's knee), he had carried on playing for another hour. On the same evening he attended his local accident and emergency department due to developing abdominal pain only to leave without being examined when realizing the long waiting time entailed to be seen. With increasing pain and nausea he did return the following day and was subsequently referred to the general surgical team.

He appeared unwell but remained haemodynamically stable on arrival with a regular heart rate of 77 beats per minute and an arterial blood pressure of 130/67 mm Hg on cuff manometry. Abdominal examination revealed marked tenderness over the left upper quadrant extending to the ipsilateral flank. Routine laboratory work-up documented solely the presence of mildly elevated levels of serum amylase. Contrast enhanced computed tomography (CT) illustrated a completely transected pancreatic body just lateral to the superior mesenteric vessels with local hematoma formation and surrounding oedema ([fig. 1](#)).

On arrival to our center the patient was pale with evident tachycardia and hypotension. He was immediately scheduled for the operating theatre. On entering the peritoneal cavity free blood with a diffuse mesenteric hematoma involving the large and small bowel mesentery, extending down to the sigmoid colon from the splenic flexure was seen. In addition, there was a large retroperitoneal hematoma arising from the pancreas. The pancreas was completely severed with the superior border of the distal segment remaining attached to the splenic vein that was intact. A distal pancreatectomy with spleen preservation and evacuation of the retroperitoneal hematoma was performed. A silicone tube drain was left in the abdomen and a mass closure of the abdomen was performed. The patient made an uncomplicated postoperative recovery and remains well at 6 months follow-up ([fig. 2](#)).

Discussion

Pancreatic injury is a rare entity representing a mere 0.4% of trauma admissions as reported by Ahkhrass et al. Extracted from the same data, blunt abdominal trauma was reported as the responsible mechanism of pancreatic injury in 37% of patients admitted to two Level I trauma hospitals over a 10-year period [1]. The majority of these patients had concomitant abdominal injuries and pancreatic injury was identified intraoperatively. This reflects the even lower incidence of isolated blunt pancreatic trauma.

Injury to the pancreatic gland following blunt abdominal trauma can be subtle with no signs on clinical examination. Cases have been reported where symptoms developed more than a fortnight after the triggering event [2, 3]. From the laboratory point of investigation, serum amylase levels have been shown to be non-diagnostic within ≤ 3 h after trauma [4, 5]. Serial measurements of amylase levels can prove far more useful than samples processed in the acute setting. Although technological developments in imaging techniques have allowed for preoperative diagnosis, the choice of imaging modality remains controversial. Contrast enhanced CT remains the initial diagnostic tool in the acute setting in most units despite previously reported data of very low injury-specific sensitivity [6]. Advances in CT technology have enabled excellent demonstration of

pancreatic parenchymal injuries and complications such as abscess, fistula, pancreatitis, and pseudocyst. CT findings may only suggest pancreatic duct injury depending on the degree of parenchymal damage [7]. If the CT findings are inconclusive or continued suspicion of pancreatic injury remains, magnetic resonance cholangiopancreatography (MRCP) may provide a clear demonstration of pancreatic duct disruption. Although MRCP has been used in the initial assessment of otherwise stable trauma patients [8], in other series it has been shown to be unreliable early after injury [9]. The difficulty in performing endoscopic retrograde pancreatography in the acute setting, along with the associated risk of inducing iatrogenic pancreatitis in a traumatized patient, does not make this option favorable to most centers. In children, ultrasonography may also prove to be of clinical importance in diagnosing pancreatic fractures even in the presence of normal CT appearances [10].

The degree of blunt pancreatic injury may be classified with the scheme developed by Moore et al. [11]. Guided by these classification guidelines, treatment may vary from simple drainage to performing Whipple's procedure. Independent of the procedure performed, drainage is mandatory. The grade of pancreatic injury consists of an independent predictor of both pancreatic complications and mortality [12]. Blunt trauma accounted for 46% of pancreatic-injury related cases requiring surgical management by means of distal pancreatectomy in a series reported by Cogbill et al. [13]. Laparoscopic spleen preserving distal pancreatectomy after blunt abdominal trauma has also been described [14]. Correlation exists between delayed diagnosis of main pancreatic duct injury with subsequent delayed surgical intervention and higher rates of pancreas-specific mortality and morbidity [9, 15, 16].

In conclusion, isolated blunt pancreatic trauma is a serious condition. Diagnosis and treatment may often be delayed, which in turn may drastically increase morbidity and mortality. Diagnostic difficulties apply to both paraclinical and radiological diagnostic methods. A high index of suspicion should be maintained in such cases with a multi-modality diagnostic approach and prompt surgical intervention as required.

Fig. 1. Complete transection of the pancreatic body just lateral to the superior mesenteric vessels clearly demonstrated with computed tomography.

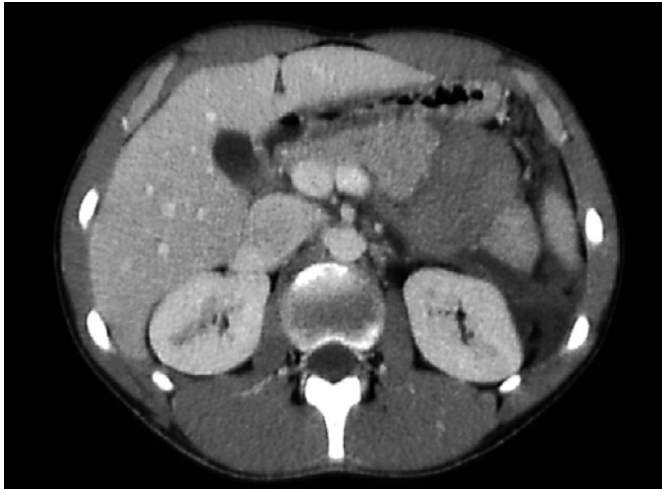


Fig. 2. Follow-up scan with no evidence of any postoperative complication.



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