

CASE REPORT

Complete pancreatic duct disruption in an isolated pancreatic injury: successful endoscopic management

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Abstract

Isolated pancreatic injury is uncommon and the management is challenging. Presentation is mostly delayed in such cases. We report a case of 26-year-old male, who was referred to our centre due to blunt abdominal trauma of 48 h duration with pain abdomen and vomiting. He was haemodynamically stable and was subjected to endoscopy after few hours of admission, but failed to cannulate the main pancreatic duct. Successful stenting was performed after 3 days of admission in the second attempt. He made an uneventful recovery and remains well 2 months after the injury. Management of isolated pancreatic injuries with complete duct disruption is challenging. Endoscopic management is an attractive minimally invasive option which avoids the need for surgery. Further studies are required regarding the selection of patients, safety and long-term outcome.

INTRODUCTION

Pancreatic injuries can be caused by penetrating or blunt trauma to the abdomen. The incidence of pancreatic injuries is ~5% in all blunt abdominal traumas [1]. Isolated pancreatic rupture is quite rare [2]. Most of the pancreatic injuries are usually associated with injuries of other intra-abdominal organs. Management may vary from non-operative management, including endoscopic/image-guided drainage, to complex procedures like distal pancreatectomy and pancreatico-jejunostomy [3]. We report a rare case of blunt abdominal trauma with isolated pancreatic injury without injury to any other intra-abdominal organs, causing complete disruption of the main pancreatic duct (MPD), and was managed successfully by endoscopic stenting.

CASE REPORT

We present a case of 26-year-old male patient, who presented to emergency with upper abdominal pain, distension and vomiting. He had a history of blunt abdominal trauma with scaphoid fracture 48 h before. There were no abdominal symptoms, immediately after the trauma. He was initially admitted in a local hospital for right scaphoid fracture. Forty-eight hours later, he developed abdominal symptoms, for which he was investigated and referred as a case of pancreatic injury. Investigations showed total leukocyte count 21 200/mm³, serum amylase 1498 U/l and serum lipase 419 U/l (reference range: 20–104 U/l and 13–60 U/l, respectively). No pancreatic exocrine insufficiency seen, as suggested by faecal elastase 238 µm/g of stool (reference value >200µm/g of stool). Ultrasonography and computerized

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tomography (CT) scan of the abdomen (investigated outside our hospital) show pancreatic injury with peripancreatic fluid collection. Magnetic resonance imaging (MRI) scan (Fig. 1) of the abdomen showed pancreatic laceration at the distal body, with MPD injury, peripancreatic and perisplenic fluid collection, mild bilateral pleural effusion (left > right) and minimal fluid in the pelvis.

On examination patient was febrile, with tachycardia and diffusely distended and tender abdomen. He was managed conservatively for 24 h by nil orally, nasogastric tube aspiration, parenteral nutrition, antibiotics and analgesics. His clinical condition worsened in the next 24 h with increasing tachycardia, pain and distension of the abdomen. Decision was taken for intervention. He underwent endoscopic retrograde cholangiopancreatography (ERCP) and pancreatic duct stenting. ERCP showed a significant leak at the MPD transection site (Fig. 2). But the stent could not be negotiated through completely transected MPD and patient continued to be symptomatic. Second ERCP (Figs 3 and 4) was attempted 3 days later, where successful cannulation of the MPD was performed till the tail of pancreas, negotiating the transected MPD and a 5-Fr pancreatic stent deployed along the transected MPD. Patient gradually improved by the end of third week and was discharged in the fourth week.



Figure 1: MRI image showing the pancreatic duct transection at the distal body level and peripancreatic collection.

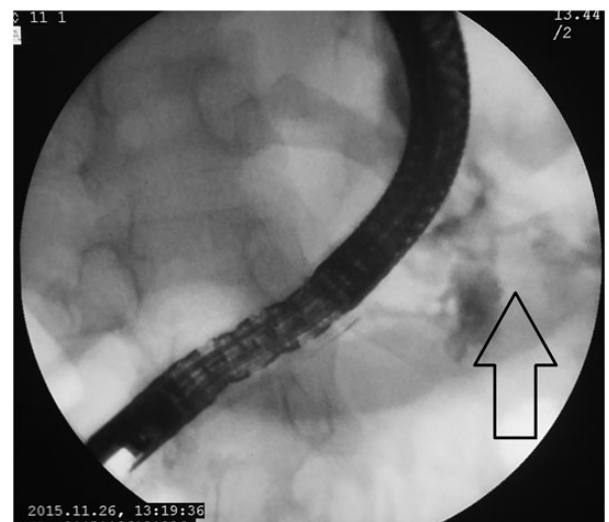


Figure 2: ERCP image showing contrast leak at the pancreatic duct injury site.

Patient is doing well after 2-month follow-up. We decided to stent the MPD for long time, at least 6 months to 1 year depending on the clinical and radiological improvement during follow-up.

DISCUSSION

Pancreatic injury is less common due to its location in a relatively protected retroperitoneal area of the abdominal cavity [4]. Isolated pancreatic injury can cause minimal symptoms early in the post-injury period and can be even silent in many cases [3]. In our case, the presentation is delayed by 48 h. The integrity of the MPD is the most important determinant of prognosis in these patients [3]. Pancreatic injuries are associated with a mortality rate

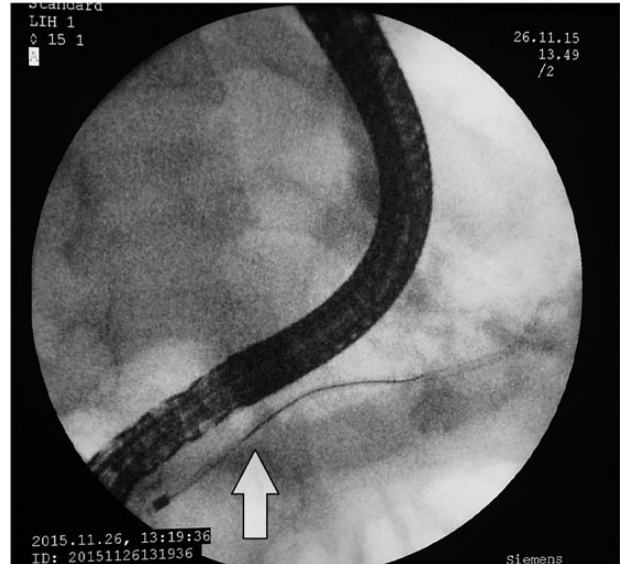


Figure 3: ERCP image (arrow) showing the cannulation of the pancreatic duct.

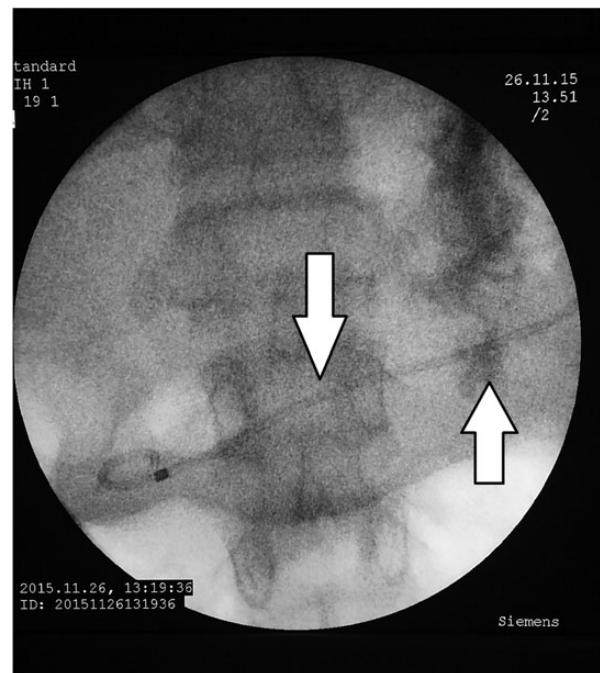


Figure 4: ERCP image showing the successful cannulation of the MPD across the transected segment of the MPD (arrows) showing the stent in the MPD.

of up to 30% and a morbidity rate of up to 45% [3]. Severity of pancreatic injuries can be assessed by the Modified Lucas classification of pancreatic injury [5]. Pancreatic injuries are classified into five grades according to the Pancreas Injury Scale published in 1990 by the American Association for the Surgery of Trauma (AAST) [6]. Our patient had grade 3 pancreatic injury as per the AAST. The common complications of pancreatic injuries are pancreatic fistula, intra-abdominal abscess, pancreatitis, pseudocyst and sepsis [5].

Abdominal CT provides the best overall method for diagnosis and recognition of a pancreatic injury [6]. In cases in which the CT findings are inconclusive, further investigation with magnetic resonance cholangio-pancreatography (MRCP) helps in clear delineation of the MPD and its integrity [7]. In our case, we used MRCP once we suspected pancreatic injury, which showed complete disruption of MPD (Fig. 1). The outcome depends on the age, type of pancreatic injury, duration of shock and delay in treatment [5]. Early diagnosis and aggressive approach like therapeutic endoscopy or laparotomy is required [7].

The first successful ERCP and stent placement were reported by Huckfeldt et al. [8] where the ERCP was performed a few hours after pancreatic trauma. Most of the published literature showed early stenting; however, the literature is limited in successful ERCP in delayed presentation. Stenting will block the leaked duct and convert a high-pressure pancreatic duct system to a low-pressure system to maintain the flow into duodenum [9]. In our case, we had a difficulty in cannulating in the first attempt after 48 h of injury, but we succeeded in stenting in the second attempt after 5 days of trauma. ERCP can downstage the severity of injury, initially diagnosed by CT or laparotomy. ERCP is a minimally invasive and effective procedure in experienced hands. It may assist in eliminating unnecessary surgery on one hand or anticipating surgery on the other [9].

Long-term possibility of stricture at the site of transection following stentings and its effect has not been well studied. In our case, the MPD stent is still in situ. He is under close follow-up. We have planned a quarterly follow-up by MRCP at least for a period of 2 years and observed for the development of stricture and exocrine insufficiency after removal of the stent. Further larger studies are required to see the long-term effect of stenting and its after effects in such injuries. In cases of failed endoscopic management, surgical options like distal pancreatectomy or pancreatico-jejunostomy may be carried out after adequate resuscitation and control of infection.

CONFLICT OF INTEREST STATEMENT

None declared.

FUNDING

There is no financial support from any source.

ETHICAL APPROVAL

Approved by the ethical committee.

CONSENT

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

GUARANTOR

D.C.K. is a guarantor of this study.

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