CASE REPORT

Pancreatic herniation: a rare cause of acute pancreatitis?

Prashant Kumar,¹ Matthew Turp,¹ Sarah Fellows,¹ Jonathan Ellis²

¹Department of Surgery, Milton Keynes General Hospital, Milton Keynes, Bucks, UK
²Department of Radiology, Milton Keynes General Hospital, Milton Keynes, Bucks, UK

Correspondence to

Dr Prashant Kumar,
 prashant.kumar916@gmail.com

SUMMARY

Acute pancreatitis is a common and potentially fatal condition, with several well-known causes including gallstones, excessive alcohol consumption and specific medications. We report a case of an 89-year-old man presenting with acute pancreatitis, which we believe to be secondary to a diaphragmatic herniation of the pancreas. This extremely rare anatomical abnormality can be found incidentally in the asymptomatic patient or may present with a variety of acute symptoms. However, there have been only isolated reports of these cases presenting as acute pancreatitis. While the majority of acute pancreatitis cases can be explained by common causes, it is important that clinicians be aware of and should consider investigating for other more unusual possibilities, such as pancreatic herniation, before labelling an episode as 'idiopathic'.

BACKGROUND

Acute pancreatitis is a common condition encountered worldwide, with a potentially fatal outcome. There is a well-known list of differential causes, of which gallstones and excess alcohol consumption are the most common in the UK.¹ In the majority of patients, a cause can be identified following simple investigations. However, in a significant number of cases, no aetiology is identified, and these are subsequently labelled as being idiopathic. Current guidelines suggest that this proportion of cases being classified as idiopathic should number no more than 20%.¹

We present an extremely rare case of acute pancreatitis likely to have been caused by pancreatic herniation, as opposed to other better-known aetiologies.

CASE PRESENTATION

An 89-year-old man presented to the accident and emergency department following a 1-day history of epigastric pain associated with nausea and vomiting. His medical history included hypertension and ischaemic heart disease. There were no recent changes to medications, no recent trauma and no known history of alcohol abuse or gallstones. On admission, he was tachycardic and hypotensive.

Initial blood work-up showed white cell count (WCC) of $22.2 \times 10^9/L$, C reactive protein 2.7 mg/L, aspartate aminotransferase 242 iu/L, γ -glutamyl transpeptidase 207 iu/L, alkaline phosphatase 165 iu/L, bilirubin 29 $\mu\text{mol/L}$, albumin 39 g/L, lactate dehydrogenase (LDH) 694 iu/L and amylase 5256 iu/L. The patient scored 3 on the Modified Glasgow Scoring System (WCC, age & LDH), and

9 on the Acute Physiology and Chronic Health Evaluation II score, and was therefore aggressively resuscitated with intravenous fluids and antibiotics. As per hospital protocol, the intensive care team was made aware of the patient. However, following their review, no further intensive care input was deemed necessary at that point of time. The aetiology of his pancreatitis was, at this stage, unknown.

FURTHER INVESTIGATIONS

A thorough review of the patient's background and medications along with initial tests found no discernable cause for pancreatitis.

The patient was shown to have a hiatus hernia on chest X-ray from 8 years previously. The contents of the hernia were not identifiable and no other comparative imaging was available.

An abdominal ultrasound scan was requested to investigate the possibility of gallstones, but was reported as normal with no evidence of gallstones or duct dilation.

Subsequently, a CT scan was performed 4 days post-admission, which not only confirmed the presence of acute pancreatitis with inflammation of the peripancreatic fat but also revealed a rare case of a pancreatic herniation into the thoracic cavity (figures 1–4). Owing to a lack of previous imaging, we cannot be certain as to when the herniation first appeared.

Figure 1 shows the pancreatic tail correctly fixed in its conventional anatomical position at the level

Figure 1 Axial CT image demonstrating the pancreatic tail fixed in its conventional anatomical position with inflammation of the peripancreatic fat.

CrossMark

To cite: Kumar P, Turp M, Fellows S, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2013-201979

Figure 2 Axial CT image demonstrating the pancreatic head fixed in its conventional anatomical position and dilation of the common bile duct.

of T12. Similarly, the head of the pancreas is seen to be in its conventional anatomical position, at the level of T12 (figure 2). The distal section of the common bile duct is dilated but is found to be in a normal position. Unfortunately, the personnel required to perform an additional endoscopic ultrasound to further evaluate this finding were unavailable at Milton Keynes Hospital.

Meanwhile, the body of the pancreas can clearly be seen, on both axial and sagittal views (figures 3–4), to herniate above the diaphragm, through into the thoracic cavity.

Figure 3 shows the pancreatic head at the level of T12, with the pancreatic neck pulled superiorly into the hiatus hernia. The apex of the pancreatic body lies at the level of the T9/T10 disc space. The pancreatic body then takes a hair-pin turn, with the

distal aspect of the pancreatic body moving inferiorly towards the pancreatic tail.

OUTCOME AND FOLLOW-UP

The patient was treated successfully with fluid resuscitation and antibiotics and recovered well over the course of a 10-day inpatient admission. He was subsequently reviewed in an outpatient appointment. The patient was not keen for any further investigations or invasive treatment and is therefore being managed conservatively with omeprazole for symptomatic relief. Surgical intervention was deemed inappropriate given his complex comorbidities and personal wishes.

DISCUSSION

A hiatal hernia can be classified into one of the four types. Type I, otherwise known as a sliding hernia, consists of a simple herniation of the gastro-oesophageal junction into the chest,² accounting for up to 95% of all cases.³ The remaining 5% of cases are classified as types II–IV or paraesophageal hernias.³ While types II and III involve gastric herniation only, a type IV hernia is more advanced, characterised by herniation of additional abdominal organs alongside the stomach.²

A type IV herniation is extremely rare, accounting for only between 5% and 7% of all paraesophageal hernias,⁴ with the colon being the most common viscera to herniate in addition to the stomach.⁵ A pancreatic herniation, however, has only been reported a handful of times.^{5–13} Of these cases, there are even fewer reported cases of this anatomical phenomenon leading to acute pancreatitis.^{11–13} In most cases, the body and tail of the pancreas have herniated above the diaphragm. To our knowledge, there is only one other documented case where the head and tail of the pancreas remain in their normal anatomical planes, with only the body of the pancreas herniating into the thoracic cavity.⁵

Our findings have important implications for patients with acute pancreatitis for which no aetiology has been identified. Our patient demonstrates a rare anatomical abnormality that may have been the cause of his pancreatitis. We believe that our case contributes to the growing repertoire of similar cases in the

Figure 3 Sagittal CT image showing the folding of the pancreatic body within the hiatus hernia.

Figure 4 Axial CT image demonstrating the apex of the body of the pancreas within the hiatal hernia sac.

literature which report pancreatic herniation as a potential cause for pancreatitis. We suggest that prior to such cases being labelled as 'idiopathic', clinicians should at least consider further imaging to assess for any anatomical abnormalities. In cases where pancreatic herniation may be the cause, surgical repair of the hernia may help to prevent repeated episodes of acute pancreatitis. However, the benefit of such an intervention remains unknown.

Learning points

- ▶ Patients with pancreatic herniation may present with acute pancreatitis.
- ▶ It is imperative that the clinicians perform a thorough diagnostic work up to elicit the cause of acute pancreatitis. If the common causes are ruled out, then one should consider exploration of rarer possibilities, such as anatomical abnormalities, before labelling the cause as 'idiopathic'.
- ▶ Those patients fit for surgery may benefit from repair of the hernia, so as to help prevent repeat episodes of acute pancreatitis. However, the benefit of such an intervention remains unknown.

Contributors All the authors were involved with patient care in this case. All the authors have made valuable contributions to the initiation, research and writing up of this case report.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 UK Working Party on Acute Pancreatitis. UK guidelines for the management of acute pancreatitis. *Gut* 2005;54:1–9.
- 2 Norton JA, Bollinger RR, Chang AE, *et al.* *Essential practice of surgery: basic science and clinical evidence*. New York: Springer-Verlag, 2003.
- 3 Shieman C, Grondin SC. Paraesophageal hernia: clinical presentation, evaluation, and management controversies. *Thorac Surg Clin* 2009;19:473–84.
- 4 Grushka JR, Grenon SM, Ferri LE. A type IV paraesophageal hernia containing a volvulized sigmoid colon. *Dis Esophagus* 2008;21:94–6.
- 5 Coughlin M, Fanous M, Velanovich V. Herniated pancreatic body within a paraesophageal hernia. *World J Gastrointest Surg* 2011;3:29–30.
- 6 Katz M, Atar E, Herskovitz P. Asymptomatic diaphragmatic hiatal herniation of the pancreas. *J Comput Assist Tomogr* 2002;26:524–5.
- 7 Saxena P, Konstantinov IE, Koniuszko MD, *et al.* Hiatal herniation of the pancreas: diagnosis and surgical management. *J Thorac Cardiovasc Surg* 2006;131:1204–5.
- 8 Coral A, Jones SN, Lees WR. Dorsal pancreas presenting as a mass in the chest. *AJR Am J Roentgenol* 1987;149:718–20.
- 9 Shah N, Fernandes R, Thakrar A, *et al.* Diaphragmatic hernia: an unusual presentation. *BMJ Case Rep* 2013;2013:pii: bcr2013008699.
- 10 Ahmed S, Fontaine JP, Ng T. Pancreatic herniation after transhiatal esophagectomy. *Ann Thorac Surg* 2010;89:308–9.
- 11 Chevallier P, Peten E, Pellegrino C, *et al.* Hiatal hernia with pancreatic volvulus: a rare cause of acute pancreatitis. *AJR Am J Roentgenol* 2001;177:373–4.
- 12 Maksoud C, Shah AM, DePasquale J, *et al.* Transient pancreatic hiatal herniation causing acute pancreatitis—a literature review. *Hepatogastroenterology* 2010;57:165–6.
- 13 Kafka NJ, Leitman IM, Tromba J. Acute pancreatitis secondary to incarcerated paraesophageal hernia. *Surgery* 1994;115:653–5.

Copyright 2013 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit

<http://group.bmj.com/group/rights-licensing/permissions>.

BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow