CASE REPORT

Transfalciform greater omental herniation

Rowan Stephenson, Simon McQueen, John Vedelago, Ky McGrillen

Department of Diagnostic Radiology, Royal Prince Alfred Hospital, Sydney, Australia

Correspondence to
Dr Simon McQueen,
mcqueen.simon@gmail.com

Accepted 19 April 2017

SUMMARY

Internal herniae are rare, those involving the falciform ligament even rarer. To the best of our knowledge, there have been approximately 20 cases of herniae involving the falciform ligament previously reported. Of these cases, only one previously reported case involves herniation of the greater omentum through the falciform ligament. We present a second case of an adult man who presented with a 48-hour history of epigastric pain and was found on contrast multidetector CT to have a strangulated transfalciform greater omental hernia. The hernia was repaired laparoscopically and the patient recovered uneventfully.

BACKGROUND

Epigastric pain can result from numerous pathologies. Internal herniae are a rare but important and treatable cause of such pain.^{1–3} Modern CT provides sufficient resolution to diagnose falciform ligament hernias preoperatively although it remains a challenging task. Previously, only one case involving the herniation of the greater omentum through a defect in the falciform ligament has been reported.⁴ We report a second case.

CASE PRESENTATION

A 63-year-old male patient, presented to the emergency department with a 48-hour history of epigastric pain. Physical examination yielded a defended right upper quadrant very tender to palpation and percussion. The patient had a prior history of epigastric pain, thought to be peptic ulcer disease, and was on a long-term proton pump inhibitor. No prior abdominal surgery or obesity. His medical, social and family history were otherwise unremarkable.

INVESTIGATIONS

The patient's full blood count and electrolytes were within normal limits. C-reactive protein (CRP) was 12.1 mg/L.

Gastroscopy was performed and was unremarkable with no evidence of gastritis or ulcer.

Multidetector 64-slice CT of the abdomen and pelvis was performed following oral and intravenous contrast administration. In the region of the falciform ligament, anterior to the upper margin of the liver near the midline, an ovoid, well-circumscribed region of inflammatory fat stranding suggested a region of fat necrosis (figure 1). There was no evidence of visceral malrotation.

DIFFERENTIAL DIAGNOSIS

All other causes of epigastric pain, including, but not limited to:

- ▶ Gastric and duodenal pathology (perforated or non-perforated gastric or duodenal ulcer)
- ▶ Pancreatic pathology (pancreatitis)
- ▶ Hepatobiliary pathology (biliary colic, hepatitis)
- ▶ Referred lower oesophageal pain (hiatus hernia, oesophageal reflux)
- ▶ Herniae and torsions (epigastric hernia, gastric or proximal small bowel volvulus)
- ▶ Vascular pathology (aortic, aneurysms of the splenic and hepatic arteries)

TREATMENT

Diagnostic laparoscopy revealed greater omentum herniating left to right through a defect in the falciform ligament. The herniated omentum appeared infarcted and was resected laparoscopically, and the defect repaired. Microscopic analysis of the resected tissue showed strangulated omentum fat (figure 2) with surface fibrin, the fibrous septa within the omentum displayed vascular congestion and petechial haemorrhage, along with plump fibroblasts and oedema. The fibroblastic response correlated with the duration of the patient's acute pain history of 5–6 days.

OUTCOME AND FOLLOW-UP

Post resection, the patient experienced a resolution of symptoms and an uneventful recovery.

DISCUSSION

An internal hernia is defined as an abnormal protrusion of a viscus through a normal or abnormal opening within the confines of the peritoneal cavity.¹

The incidence of internal hernias has been reported in the range of 0.2%–2%.^{5 6} The distribution of internal hernias is paraduodenal (53%), pericaecal (13%), foramen of Winslow (8%), transmesenteric and transmesocolic (8%), intersigmoid (6%) and retroanastomotic (5%).³ Hernias involving the falciform ligament are very rare, and while their true incidence is unknown, one study estimated it at 0.2% of internal hernias.²

The most common variant of falciform ligament hernia involves the small bowel, with approximately 20 cases reported in the literature.^{7 8} Prior to our case, there has been only one previous report of greater omentum herniating through the falciform ligament.⁹

CrossMark

To cite: Stephenson R, McQueen S, Vedelago J, et al. *BMJ Case Rep* Published Online First: [please include Day Month Year]. doi:10.1136/bcr-2017-219563

Figure 1 Axial and sagittal CT series. Transfalciiform omental hernia delineated by the white arrows. Displaced omental vessels delineated by the red arrow.

Congenital defects in the falciiform ligament are the most probable aetiology of omental herniation and are a result of improper or incomplete development^{8 10} of the ventral mesentery. A range of defects has been identified, from simple windows to a complete absence of the falciiform ligament.⁵ It is estimated that the incidence of falciiform ligament defects is 0.3%.⁵

Additionally, a report of an iatrogenic hernia after laparoscopic surgery exists in the literature⁶; however, the mechanisms

Figure 2 Anatomical pathology sections. Low power (left) demonstrates greater omental fat, lobular in pattern, showing a constriction point, with secondary strangulation. Higher power (right) demonstrates surface fibrin, vascular congestion/petechiae, as well as plump fibroblast response, correlating with the duration of pain.

responsible for the development of a de novo hernia are difficult to identify.¹¹

Learning points

- ▶ Internal herniation, of which transfalciiform ligament herniation is a subtype, is a rare, potentially serious but treatable cause of epigastric pain.
- ▶ CT is the mainstay of diagnosis.
- ▶ Patients with internal herniation of intra-abdominal contents may present with epigastric pain and reveal normal blood workup and unremarkable gastroscopy prior to diagnosis.

Contributors RS was responsible for the conception of this case report, the bulk of the literature review and initial drafting of the submission as well as final review. SM was responsible for image acquisition including liaison with the Department of Pathology for the preparation of pathological specimen slides. He was also heavily involved in the final drafting of the submission and acts as corresponding author. JV was the overseeing consultant on the submission. JV was involved throughout the conception and drafting of the case report. He was also responsible for liaison with the patient for consent. KM was involved in the conceptualisation and image acquisition as well as drafting of the submission. He was also available for expert advice in its finalisation. Special thanks to Dr Harini Narayanappa and Dr Geoff Watson from Royal Prince Alfred Department of Anatomical Pathology.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

© BMJ Publishing Group Ltd (unless otherwise stated in the text of the article) 2017. All rights reserved. No commercial use is permitted unless otherwise expressly granted.

REFERENCES

- 1 Martin LC, Merkle EM, Thompson WM. Review of internal hernias: radiographic and clinical findings. *AJR Am J Roentgenol* 2006;186:703–17.
- 2 Hansmann GH, Morton SA. Intraabdominal hernia: report of a case and review of the literature. *Arch Surg* 1939;39:973–86.
- 3 Zissin R, Hertz M, Gayer G, et al. Congenital internal hernia as a cause of small bowel obstruction: CT findings in 11 adult patients. *Br J Radiol* 2005;78:796–802.
- 4 Charles A, Shaikh AA, Domingo S, et al. Falciiform ligament hernia after laparoscopic cholecystectomy: a rare case and review of the literature. *Am Surg* 2005;71:359–61.
- 5 Sato S, Watanabe M, Nagasawa S, et al. Laparoscopic observations of congenital anomalies of the liver. *Gastrointest Endosc* 1998;47:136–40.
- 6 Lakdawala M, Chaube SR, Kazi Y, et al. Internal hernia through an iatrogenic defect in the falciiform ligament: a case report. *Hernia* 2009;13:217–9.
- 7 Coulier B, Broze B, Mailleux P, et al. Small-bowel internal herniation through the falciiform ligament: 64-row MDCT diagnosis. *Emerg Radiol* 2010;17:73–8.
- 8 Gaster J. Internal hernia with strangulation of bowel due to a defect in the Falciiform Ligament. *Ann Surg* 1948;128:248–52.
- 9 Crawford R, Anderson JR. Strangulated omental hernia of the falciiform ligament. *Br J Surg* 1985;72:444.
- 10 Wiseman S. Internal herniation through a defect in the falciiform ligament: a case report and review of the world literature. *Hernia* 2000;4:117–20.
- 11 Amor IB, Debs T, Kassir R, et al. De novo hiatal hernia of the gastric tube after sleeve gastrectomy. *Int J Surg Case Rep* 2015;15:78–80.

Copyright 2017 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