Herniation of the caecum and ascending colon through the foramen of Winslow: a case report and review

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ABSTRACT

Approximately 5% of intestinal obstruction cases are caused by internal herniation. Caecal herniation through the foramen of Winslow is considered a rare event. The management of caecal herniation remains challenging due to the lack of literature highlighting this pathology. A 66-year-old woman was admitted with a 24-hour history of epigastric pain radiating to the back. The pain was associated with nausea and vomiting of gastric contents. On examination, the abdomen was soft with mild tenderness but no signs of peritonism or distension. The abdominal x-ray and a computed tomography were in keeping with caecal volvulus and confirmed that the caecum was not in the right iliac fossa. In a midline laparotomy procedure, the ileum, caecum and ascending colon were noted to be herniating into the foramen of Winslow. A right hemicolectomy with a handsewn anastomosis was performed. The foramen of Winslow was not closed. No postoperative complications occurred.

A literature review showed a lack of similar cases with no agreed management consensus. The laparotomy approach is comparable to the laparoscopic approach and no caecal herniation recurrence after open/laparoscopic surgical procedures were identified. Awareness of caecal herniation allows early diagnosis and timely surgical management is needed in prevent patient morbidity and mortality.

KEYWORDS

Caecum – Hernia – Foramen of Winslow

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Background

Internal hernias are a protrusion of a viscus or part of a viscus into a natural orifice of the abdominal cavity. Approximately 5% of all intestinal obstruction cases are caused by internal herniation. Caecal herniation through the foramen of Winslow resulting in intestinal obstruction is considered to be a rare event.¹ Diagnosis may be delayed owing to the non-specific signs and symptoms that patients with caecal herniation into the lesser sac present with.² The management of caecal herniation remains challenging due to the lack of literature highlighting this pathology. We present a case of caecal and ascending colon herniation through the foramen of Winslow to highlight the difficulty in diagnosing this condition and to increase the awareness of this diagnosis in order to decrease patients' morbidity and mortality should such a diagnosis is delayed. The CARE statement guidelines have been used for presenting this case report.³

Case history

A 66-year-old woman was referred to the accident and emergency department at Aintree University Hospital

(Liverpool) following a 24-hour history of severe colicky epigastric pain radiating to the back. The pain was associated with nausea and bilious vomiting. Her past medical history included chronic obstructive pulmonary disease (COPD), which was treated with regular inhalers. There was no surgical history of note. On initial examination she was haemodynamically stable. Her body mass index was 25.1 kg/m². Her abdomen was noted to be soft, with tenderness and guarding in the epigastric region. No abdominal distension was noted and the patient's bowel sounds were normal.

A chest radiograph showed no evidence of pneumoperitoneum and the abdominal radiograph showed a dilated large bowel loop in the left upper quadrant (Figure 1). Following this, computed tomography (CT) was performed (Figures 2 and 3). The caecal pole was reported to be in the right side of the abdomen. The stomach was noted to be stretched and the duodenal loop was difficult to track in the CT images. The differential diagnosis was that of a caecal volvulus.

The patient was consented for a laparotomy. Her COPD status and limited exercise tolerance were an anaesthetic concern in the anaesthetic preoperative assessment. The

predictive P-POSSUM morbidity risk was calculated to be 60.1% and the mortality risk was calculated to be 4.8%.

A midline laparotomy incision was performed. At laparotomy, the caecum and ascending colon were not in the right lateral abdomen. The stomach was noted to be pushed forward and the ileum was noted to be herniating into the foramen of Winslow. An attempt to reduce the right colon by manual traction was made but this was unsuccessful. The lesser sac was opened and the terminal ileum, caecum and part of the ascending colon were noted to be posterior to the stomach. The mesentery of this part of the bowel was noted to be elongated and redundant. The caecum was noted to be ischaemic, but no perforation was noted. An enterotomy was performed in the caecum to deflate the bowel. This manoeuvre allowed reduction of the caecum into the abdominal cavity. A routine right hemicolectomy with functional side-to-side handsewn anastomosis was performed. The foramen of Winslow was not closed.

The patient followed an enhanced recovery after surgery protocol and was discharged home four days after her surgery with no postoperative complications. The histology showed ischaemia with no evidence of dysplasia or malignancy.

Figure 1 Plain abdominal radiograph.

Figure 2 Computed tomography showing the caecum posterior to the stomach.

Figure 3 Computed tomography showing the caecum in left upper quadrant position.

Discussion

The foramen of Winslow/epiploic foramen is the communication between the general peritoneal cavity and the omental bursa. It is bordered anteriorly by the free border of the lesser omentum (containing the common bile duct, hepatic artery and the portal vein), posteriorly by the peritoneal layer covering the inferior vena cava, superiorly by the peritoneum covering the caudate process of the liver and inferiorly by the peritoneum covering the duodenum.

Although internal hernias are rare, with an incidence rate reported to be less than 1%, 5.8% of cases with small-bowel obstructions are due to internal hernias.⁴ Bladin reported the first case of caecal herniation into the foramen of Winslow.^{1,5} A 2016 literature review highlighted that between 2011 and 2016 only 21 case reports were reported.² The exact cause of caecal herniation is unknown.

Patients can present with non-specific symptoms because of the anatomical position of the caecal herniation into the foramen of Winslow. Our patient was initially treated for a clinical impression of biliary colic. The differential diagnosis in patients with caecal herniation through the foramen of Winslow is varied and may present with symptoms similar to peptic ulcer disease, pancreatitis, appendicitis, diverticulitis and bowel ischaemia.² Adequate resuscitation, timely diagnosis and surgical management decreases rates of patient morbidity and mortality.

With the increasing use of CT, the specificity for diagnosing the condition has improved. However, the differential diagnosis of a caecal volvulus could still be seen. Similar case reports have reported that the radiological signs for caecal herniation include thin-walled retrogastric collections, absence of the right colon in the right side of the abdomen and bowel mesentery or bowel behind the portal triad herniating into the foramen of Winslow.^{1,2,6,7}

Although the principles of surgical operative management of caecal herniation through the foramen of Winslow are hernia reduction and prevention of recurrence, there are differences in approach. Experience with laparoscopic surgery remains sparse in the literature. In one literature review, only nine cases of caecal herniation were performed laparoscopically with the remainder being performed by laparotomy. The authors also noted that foramen closure was performed in six cases and bowel

fixation was performed in seven cases. Three patients had both bowel fixation and foramen of Winslow closure.² No cases of caecal herniation recurrence after open/laparoscopic surgical procedures were identified in our literature search.

It is our opinion that closure of the foramen is not necessary if a right hemicolectomy is performed, due to the potential complications if the anatomical structures at the foramen of Winslow are injured. Since this type of intestinal obstruction is rare, with literature being sparse, we consider that by performing a right hemicolectomy, histological diagnosis of potential underlying luminal pathology causing the herniation can be detected and the lengthened mesenteric and paracolic attachments to the lateral abdominal wall are removed thus reducing the risk of recurrence.

Conclusion

Owing to a lack of similar case reports in our literature search, there appears to be no agreed management consensus. Our aim is to highlight that caecal herniation through the foramen of Winslow can occur and timely resuscitation and surgical management is required. We consider that a right hemicolectomy excludes underlying intraluminal pathology and prevents herniation recurrence by removing the lengthened mesentery.

References

1. Osvaldt AB, Mossman DF, Bersch VP, Rohde L. Intestinal obstruction caused by a foramen of Winslow hernia. *Am J Surg* 2008; **196**(2): 242–244.
2. Duinhouwer LE, Deerenberg E, Rociu E, Kortekaas RTJ. Herniation of the colon through the foramen of Winslow: a case report. *Int J Surg Case Rep* 2016; **24**: 14–17.
3. Gagnier JJ, Kienle G, Altman DG *et al.* The CARE guidelines: consensus-based clinical case report guideline development. *J Clin Epidemiol* 2014; **67**(1): 46–51.
4. Martin LC, Merkle EM, Thompson WM. Review of internal hernias: Radiographic and clinical findings. *Am J Roentgenol* 2006; **186**(3): 703–717.
5. Ball CG, MacLean AR, Dixon E *et al.* Acute care surgery: the impact of an acute care surgery service on assessment, flow, and disposition in the emergency department. *Am J Surg* 2012; **203**(5): 578–582.
6. Puig CA, Lillegard JB, Fisher JE, Schiller HJ. Hernia of cecum and ascending colon through the foramen of Winslow. *Int J Surg Case Rep* 2013; **4**(10): 879–881.
7. Daher R, Montana L, Abdullah J *et al.* Laparoscopic management of foramen of Winslow incarcerated hernia. *Surg Case Reports* 2016; **2**(1): 9.