

Internal Herniation Through Foramen of Winslow: A Diagnosis Not to Be Missed

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ABSTRACT

INTRODUCTION: Hernias through the foramen of Winslow are extremely rare, accounting for 0.1% of all abdominal hernias. Delayed diagnosis is often observed, resulting in bowel strangulation and high mortality.

METHOD: We present a case of a patient with strangulated ileum herniated through the foramen of Winslow. Recent literature review was undertaken on “PubMed” as a search platform using the keywords “foramen of Winslow” and “hernia”.

CASE SUMMARY: A 66-year-old man presented acutely with severe epigastric pain and vomiting. An emergency computed tomography scan revealed a loop of ileum in the lesser sac. At emergency laparotomy, a herniated loop of ileum that had become strangulated at its entry to the lesser sac via the foramen of Winslow was confirmed. The loop of ileum was reduced but was nonviable, which had to be resected with a primary anastomosis. The patient’s postoperative recovery was uneventful.

CONCLUSION: Herniation through the foramen of Winslow is a difficult diagnosis and must not be missed. Early cross-sectional imaging and surgical intervention are advised in order to reduce morbidity.

KEYWORDS: internal herniation, foramen of Winslow, strangulation

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Background

Hernias through the foramen of Winslow are extremely rare, accounting for 0.1% of all abdominal hernias¹ and 8% of all internal hernias. Two-thirds of cases reported were herniation of ileum followed by a mobile cecum or ascending colon.^{2,3} Seldomly, the gallbladder or the omentum has herniated through. As the symptoms are so nonspecific, delayed clinical diagnosis is often observed, resulting in bowel strangulation and high mortality rate between 36% and 49%.⁴ Nonviable bowel is often identified only at laparotomy.

We present a case of a patient with strangulated ileum herniated through the foramen of Winslow. Consent for publication of material has been obtained from the patient.

Case Report

A 66-year-old man, with no known past medical or surgical history, presented acutely with a few hours history of severe colicky epigastric pain and vomiting. He had similar milder and short-lived episodes of pain in the past, but he had put these episodes down to muscular pain, for which he had never sought medical attention. There was no report of alleviation of pain on truncal flexion. On admission, the patient had a sinus tachycardia of 100 beats per minute. His blood pressure, oxygen saturation, and temperature were within the normal range. Examination was unremarkable except for mild

tenderness of the epigastrium, but the patient was in extreme pain. There was no obvious tympanic epigastric mass palpable. His blood profile showed a mild neutrophilia of $12.4 \times 10^9/L$ and a raised C-reactive protein of 130 mg/L. Serum amylase and liver function tests were within normal limits. Blood lactate and base excess of an arterial gas sample were also within normal limits. An emergency computed tomography scan of the abdomen revealed distended loops of small bowel showing reduced enhancement, which were located within the lesser sac. Both afferent and efferent limbs were visualized in the space between the liver hilum and inferior vena cava, which was widened. The appearance was in keeping with an internal hernia resulting in a closed-loop obstruction (Figs. 1 and 2). An emergency laparotomy was undertaken within a few hours of resuscitation following image reporting. This revealed a loop of mid-ileum herniating through the foramen of Winslow, and the herniated loop of ileum had become strangulated. The loop of ileum was reduced and nonviable. A small bowel resection was carried out with a primary stapled anastomosis. The mesenteric defect created by the bowel resection was closed. The patient’s postoperative recovery was uneventful.

Discussion

The reported demographic for bowel herniation through the foramen of Winslow is usually men with a manual occupation,



Figure 1. Selected axial image of the upper abdomen showing an afferent loop of bowel (anterior arrow) entering the lesser sac and an efferent limb (posterior arrow) exiting. Trace of fluid near the edge of the liver.

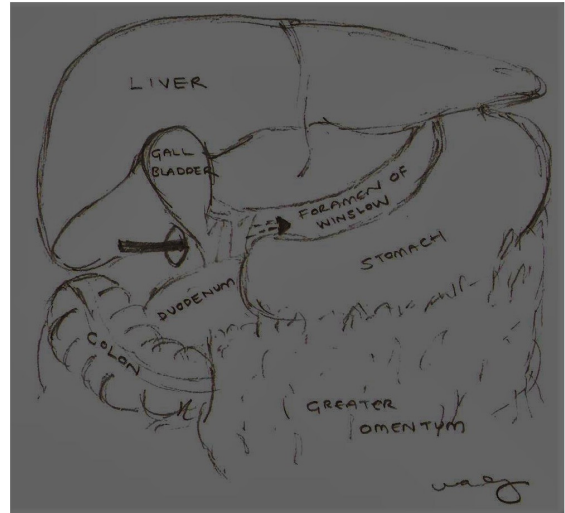


Figure 3. Basic anatomy of the foramen of Winslow.

aged between 61 and 69 years. Some have suggested that cholecystectomy might be a risk factor.⁵ Other postulated risk factors⁶ include abnormally long bowel mesentery, abnormally enlarged foramen of Winslow, and a defect in the gastrohepatic ligament. Herniation through the foramen of Winslow is rare because the normal peritoneal orifice is kept closed by normal intra-abdominal pressure (Fig. 3). Erskine⁷ has also postulated the failure of the right colon to retroperitonealize along with changes in the intra-abdominal pressure as a contributing factor.

Symptoms are often related to small bowel obstruction and occasionally to gastric outlet obstruction. The presence of jaundice has been described due to direct compression of the hepatic pedicle.⁵ The obstruction in our patient was very proximal, rendering minimal nasogastric drainage. Our patient had no previous abdominal surgery or trauma, and the cross-sectional imaging suggested small bowel ischemia, and therefore laparotomy was mandated. There are many more common causes of epigastric pain; however, these conditions can be excluded quickly. Unfortunately, many cases of this condition have been identified at autopsy.

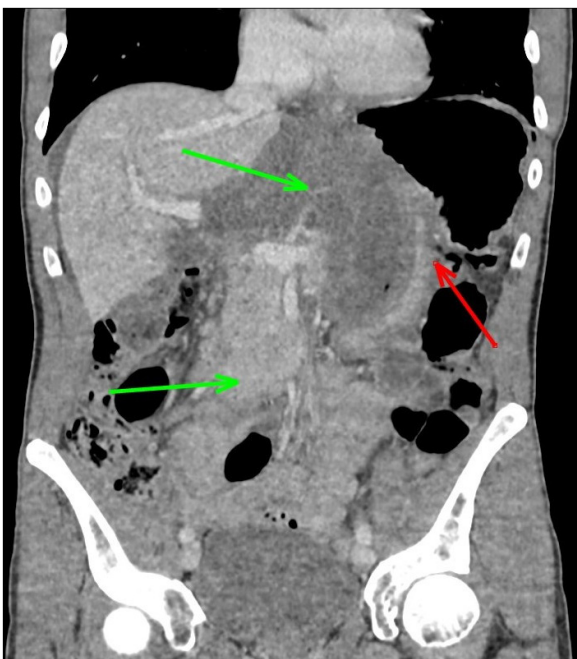


Figure 2. Coronal reformat with bowel loops in the lesser sac showing reduced enhancement (superior arrow) compared with normally located small bowel in the abdominal mesentery (inferior arrow). The stomach is displaced to the left (middle arrow).

Plain abdominal X-rays are rarely diagnostic. Some have reported that gas-containing intestinal loops are high in abdomen and medial-posterior to stomach associated with small bowel obstruction. Cross-sectional imaging is considered the diagnostic modality of choice,⁸ largely as a consequence of clinical diagnostic uncertainty.⁹ Classical signs include mesenteric vessels stretching anterior to the inferior vena cava and posterior to the portal vein associated with bowel obstruction in the lesser sac.

This patient's case presentation was not too dissimilar to other recently published cases. There were no obvious risk factors in this gentleman, except that he is an average manual worker. This condition is rare, difficult to diagnose, and does not always have the obvious risk factors. Management is ultimately surgical reduction, following immediate resuscitation. Reduction can be difficult especially if there is massive colonic dilatation. A wide Kocher's maneuver or opening the gastrohepatic ligaments may be required. Due to diagnostic uncertainty even with high-resolution computed tomography, open surgery is usually performed. However, this has led some experienced surgeons to investigate initially with laparoscopy. Successful laparoscopic management for the foramen of Winslow herniation has now been described.¹⁰ The debate continues as to whether the foramen of Winslow ought



to be closed in order to prevent recurrence. To date, there has not been a report of recurrence probably due to adhesions obliterating the foramen and tethering the remainder of the small bowel. Experts have also warned of the potential significant negative consequences of closing the defect: portal vein thrombosis or obstructive jaundice.

Conclusion

Internal herniation through the foramen of Winslow is a difficult clinical diagnosis and must not be missed. Early cross-sectional imaging and surgical intervention are advised.

Author Contributions

Conceived and designed the experiments: EL. Analyzed the data: SB. Wrote the first draft of the manuscript: EL and PK. Contributed to the writing of the manuscript: PK, MM and AA. Agree with manuscript results and conclusions: EL. Jointly developed the structure and arguments for the paper: EL and SB. Made critical revisions and approved final version: SB. All authors reviewed and approved of the final manuscript.

REFERENCES

1. Harnsberger CR, McLemore EC, Broderick RC, et al. Foramen of Winslow hernia: a minimally invasive approach. *Surg Endosc*. 2015;29(8):2385–2388.
2. Sikiminywa-Kambale P, Anaye A, Roulet D, Pezzetta E. Internal hernia through the foramen of Winslow: a diagnosis to consider in moderate epigastric pain. *J Surg Case Rep*. 2014;2014(6):1–3.
3. 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.
4. Osvaldt AB, Mossman DF, Bersch VP, Rohde L. Intestinal obstruction caused by a foramen of Winslow hernia. *Am J Surg*. 2008;196:242–244.
5. Valenziano CP, Howard WB, Criado FJ. Hernia through the foramen of Winslow: a complication of cholecystectomy. A case report. *American Surgeon*. 1987;53:254–257.
6. Moynihan. Moynihan on retroperitoneal hernia. *Ann Surg*. 1903;37(1):120–148.
7. Erskine J. Hernia through the foramen of Winslow. A case report of the cecum incarcerated in the lesser omental cavity. *Am J Surg*. 1967;114(6):941–947.
8. Takeyama N, Gokan T, Ohgiya Y. Computed tomography of internal hernias. *Radiographics*. 2005;25:997–1015.
9. Nazarian S, Clegg D, Chang S, Kuriakose J. Difficult diagnosis: internal herniation of the terminal ileum through the foramen of Winslow into the lesser sac. *BMJ Case Rep*. 2015: epub ahead of print.
10. Daher R, Montana L, Abdullah J, D'Alessandro A, Chouillard E. Laparoscopic management of foramen of Winslow incarcerated hernia. *Surg Case Rep*. 2016; 2(1):9.