

Case Report

Foramen of Winslow hernia: an open approach

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ABSTRACT

Foramen of Winslow hernia (FWH) are considered rare even among other internal hernias. It was first described in 1834 and historically had a mortality rate of close to 50%. With modern advancement and availability of cross-sectional imaging, this number has improved dramatically to 5%. Operative management is required for all patients which can be performed with either an open or laparoscopic approach. Preventative measures for recurrence remain controversial as no case of recurrence has been reported to date. We present a case study of a 62 years old woman who presented to the emergency department with severe epigastric pain and a CT scan confirming an FWH. She underwent urgent laparotomy and the hernia was easily reducible without need of intestinal resection. We opted to fixate the right colon and close the foramen of Winslow to prevent future recurrence. She recovered from her surgery well and was discharged home without any complications.

Keywords: Foramen of Winslow, FWH, General surgery

INTRODUCTION

Internal hernia is defined as a protrusion of intra-abdominal organs through a normal or abnormal orifice in the peritoneum or mesentery. It has an overall incidence of less than 1%.¹ The foramen of Winslow is a passage between the greater sac and the lesser sac allowing communication between these two spaces. It is bordered anteriorly by the hepatoduodenal ligament, posteriorly by the inferior vena cava, superiorly by the caudate lobe of the liver, and inferiorly by the duodenum as shown in the Figure 1. Foramen of Winslow hernia are considered rare entities. It was first described by Bladin in 1834 and is now estimated to account for 8% of all internal hernias and 0.08% of all hernias.^{2,3} Historically, mortality from Foramen of Winslow hernia approaches 50% due to delay in diagnosis.⁴ However, with widespread usage of cross-sectional imaging with computed tomography (CT), the rate has dramatically declined to 5%.⁵

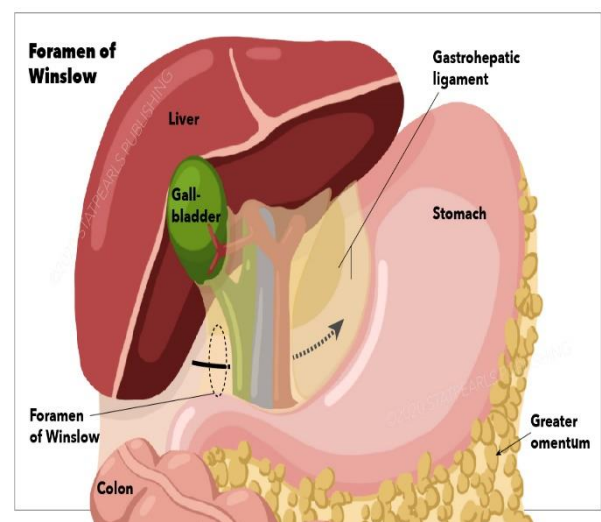


Figure 1: Foramen of Winslow. Source: StatPearls Publishing Illustration.

CASE REPORT

A 62 years old Caucasian lady presented to the emergency department with less than 24 hours history of sudden onset severe epigastric pain and distension which has progressively worsened. The pain was associated with nausea but did not have any vomiting. She was still passing regular bowel motions and flatus. She denies any fever, regular NSAIDs usage and radiation of pain. She did not have any past medical or surgical issues. On physical examination, an epigastric mass was visible (Figure 2) and tender on palpation with no signs of peritonism. Rest of her physical examination was unremarkable, and her vital signs were normal.



Figure 2: Photo of epigastric mass.

Her blood investigations were completed and unremarkable with normal WCC, lipase and lactate. A CT scan was performed which showed an internal hernia, with a loop of large bowel herniating through the foramen of Winslow with no signs of obstruction or strangulation (Figure 3 and 4). The appendix was visualized in the right upper quadrant adjacent to the liver.



Figure 3: Sagittal view of CT image. Arrow pointing to herniation of large bowel.

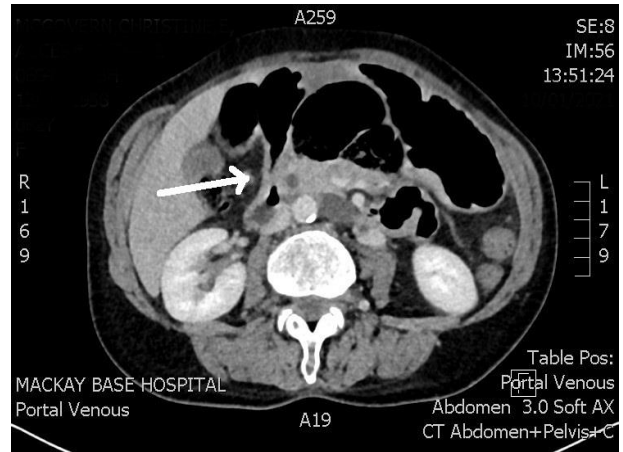


Figure 4: Axial view of CT imaging. Arrow pointing to herniation of large bowel.

The patient underwent urgent exploratory laparotomy with an upper midline incision. The terminal ileum, caecum, ascending colon and transverse colon was seen to have herniated into the lesser sac with the appendix adjacent to the liver (Figure 5). The lesser sac was opened by dividing the lesser omentum and the contents of the hernia was easily reducible with gentle traction. The right colon was noted to be very mobile and suspended in a mesentery. The contents of the hernia were inspected for signs of ischemia and none were found. Decision was made to pursue preventative measures. The caecum and ascending were fixated to the lateral abdominal wall with 2-0 vicryl sutures. Using the same sutures, the foramen of Winslow was covered by attaching the omentum to the lateral abdominal wall and the neck of the gallbladder.

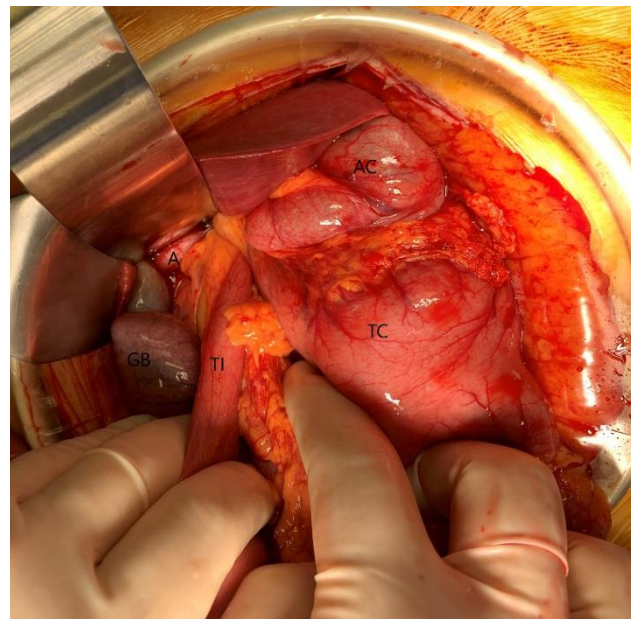


Figure 5: Intra operative photo. TC=Transverse colon, AC=Ascending colon, TI=Terminal ileum, A=Appendix and GB=Gallbladder.

She had an uneventful post-operative recovery. Her diet was gradually upgraded and was discharged day 3 post operation. She has since been seen in the outpatient department and has had no further issues.

DISCUSSION

FWH are more common in males compared to females (2.5:1 ratio) with a peak incidence of 20 and 60 years of age.² Although the actual cause of the herniation is uncertain, three separate mechanisms have been hypothesized (Table 1): (a) excessive viscera mobility, (b) abnormal enlargement of the foramen of Winslow, and (c) changes in the intra-abdominal pressure. The common organs involved in FWH are small intestine (~65%); terminal ileum, caecum, and ascending colon (~25%); and transverse colon (7%).^{7,8} In rarer cases, the gallbladder and greater omentum has also been reported.⁹

Table 1: Risk factors for the development of FWH.⁶

Mechanism	Comments
Excessive viscera mobility	Abnormally long bowel mesentery or the persistence of the ascending mesocolon Enlargement of the right liver lobe or cholecystectomy directs the mobile intestinal loops into the foramen Failure of fusion between the right colon and the parietal peritoneum ("wandering cecum") enhances the possibility of herniation, as do the defects in the gastro-hepatic ligament Greater omentum atrophy and a short transverse mesocolon confer to the reduced tension and increased mobility of those structures
Enlarged foramen of Winslow	Genetically predefined An orifice of about 3 cm is sufficient to permit viscera herniation
Changes in intra-abdominal pressure	This occurs during pregnancy or immediate postprandial periods Distal obstructive colonic lesions can also increase intra-abdominal pressure and provide a substrate for the formation of FWHs Overeating has also been described as a risk factor

In most cases, symptoms are related to intestinal obstruction with epigastric pain being the most common presenting complaint. This can be associated with nausea, vomiting and obstipation. Rarely, FWH can present with jaundice due to compression of the extrahepatic biliary tract. While our patient presented with a palpable mass in the epigastrium, this is generally considered an uncommon finding.¹⁰

Traditionally, diagnosis was established during exploratory laparotomy. This is mainly due to the limited availability of more advanced imaging modality. While

plain films of the abdomen can be used to diagnose intestinal obstruction, it is difficult to determine the exact location of the obstruction. Ohkuma et al found that only 11 out of 115 (9.6%) cases were correctly diagnosed preoperatively using either plain film or contrast study on a world literature review done up to 1977.¹¹ Nowadays CT imaging is considered the diagnostic modality of choice. This has completely altered the mortality rate for FWH. Typical findings are: (a) the presence of mesenteric adipose tissues and intestinal loops behind the hepatic pedicle, (b) abnormal localization of the cecum, (c) gas and/or fluid in the lesser sac with a "bird's beak" pointing towards the epiploic foramen, (d) evidence of bowel obstruction in the lesser sac, associated with mesenteric vessels stretching anteriorly to the inferior vena cava and posteriorly to the portal vein, and (e) displacement of the stomach anteriorly and laterally.¹²

Operative management is the treatment of choice. It is not advisable to wait for spontaneous reduction of the hernia as this may lead to intestinal ischemia. Surgical reduction can be done via open or laparoscopic approach. While open surgery has been the more common approach, laparoscopic treatment has been gaining popularity over the last 10 years. Most case reports describe reduction of the herniated organ with gentle traction.¹³ In cases where reduction is difficult, a wide Kocher's manoeuvre can be performed to widen the opening.¹⁴ Alternatively, a needle decompression can be done of the involved parts of the intestine. This method has been reported to be successful in laparoscopic approach as well.¹⁵ When signs of necrosis are present, it is imperative to perform bowel resection. To date, there has been no reported case of a recurrent FWH. Despite this, prophylactic measures to prevent recurrence has been suggested. This includes prophylactic intestinal resection (right hemicolectomy or ileocecal resection), right colon fixation or cacoepy and closure of the foramen (simple suture or with omentum). Effectiveness of these measures are undetermined and large cohort studies are required.

CONCLUSION

FWH are rare entities that needs to be managed surgically. CT imaging is an essential diagnostic tool and the wide spread usage of it has drastically reduced the mortality rate from FWH. Both open and laparoscopic approach are viable treatment options. Hernia reduction is the treatment goal. Preventative measures have been suggested by some but the overall efficacy of it is yet to be determined.

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