

# Ileocecal Herniation into the Lesser Sac: A Foramen of Winslow Hernia

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<b>Background</b>	Foramen of Winslow hernias (FWH) are extremely rare and present similarly to many other acute abdominal conditions. Due to this rare number of total cases, sparse experience, and lack of consensus regarding diagnosis and management, most of these hernia types are managed based on prior case reports and limited case series. This situation presents a unique challenge for physicians to make a diagnosis in a timely manner that minimizes morbidity and mortality for the patient.
<b>Summary</b>	In what follows, we present the case of a 37-year-old female who presented with acute abdominal pain in the epigastrium. Physical exam was seemingly benign aside from her pain, and routine laboratory studies were unremarkable. Computed tomography (CT) of the abdomen and pelvis revealed ileocecal herniation through the foramen of Winslow and into the lesser sac. This finding lead to emergency exploratory laparotomy (which resulted in the reduction of this rare internal hernia), incidental appendectomy, and subsequent cecopexy.
<b>Conclusion</b>	This report highlights the importance of having a high index of clinical suspicion, obtaining the appropriate diagnostic imaging, and applying emergent surgical intervention to minimize morbidity and mortality in FWH patients.
<b>Keywords</b>	Hernia, exploratory laparotomy, cecopexy, foramen of Winslow

**DISCLOSURE:**

The authors have no conflicts of interest to disclose.

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## Case Description

We present the case of a 37-year-old Caucasian woman with past medical history of Birt-Hogg-Dubé syndrome (a hereditary condition associated with benign skin tumors, pulmonary cysts, and renal tumors), Alpha 1 anti-trypsin carrier, intercostal neuralgia, and fatty liver diagnosis and past surgical history of a partial pulmonary lobectomy, who was transferred to our center for urgent evaluation of sudden onset, severe epigastric and right upper quadrant abdominal pain. She experienced nausea and nonbloody emesis, and reported no flatus or bowel movements since the onset of the pain 24 hours prior. Physical exam revealed moderate tenderness to palpation in the epigastrium and right upper quadrant without signs of peritonitis.

Computed tomography (CT) with IV contrast revealed abnormal rotation of the small bowel with the cecum present at the midline of the epigastrium (Figure 1). This finding was suggestive of internal herniation of the cecum through the foramen of Winslow. The patient was counseled with regard to her condition and risks of ischemia and perforation without addressing the herniated bowel and existing obstruction. Informed consent for surgery was obtained and we proceeded with laparotomy.



**Figure 1.** CT imaging showing the cecum at the midline of epigastrium. Label A correlates to the cecum. Label B correlates to the appendix.

The abdomen was entered via a midline incision to facilitate a thorough exploration. No manifestations of bleeding, perforation, or sustained ischemia were apparent. Focusing on the known pathology to assess for ischemia, we identified a part of the ascending colon that was not in the lesser sac and traced it in the direction of the cecum until we noted rapid tapering of the bowel as it entered the lesser sac via the foramen of Winslow. The cecum and terminal ileum were incarcerated and would not reduce with gentle traction. The lesser sac was entered by hemostatically dividing the gastrohepatic ligament with an intent to apply an additional vector of force to facilitate reduction of the incarcerated bowel. The cecum, terminal ileum, and associated mesentery were dilated and congested, and the vermiform appendix was present; however, no manifestations of ischemia or necrosis were present.

Absent vascular compromise and perforation, we had no indication for resection. We then proceeded with reduction of the hernia, which was accomplished easily after gentle finger dilation of the foramen of Winslow and both careful traction and pressure. The bowel remained viable and mesenteric pulses remained present. While slightly elongated, the ascending colon and adjacent mesentery were not excessively redundant. Incidental appendectomy was performed due to potential difficulty with exposure should interval appendicitis develop. Cecopexy was then performed. We sutured the cecum at several points to the anterolateral peritoneal surface to reduce chances of recurrent internal hernia or volvulus. The remainder of the small and large bowel were evaluated and noted to be absent visible or palpable pathology. Following uneventful closure, she was extubated and transferred to the recovery room.

The patient tolerated the surgery well and was discharged on postoperative day one. She returned to clinic four weeks later and was doing well with minimal pain, ambulating without difficulty, and tolerating a regular diet.

## Discussion

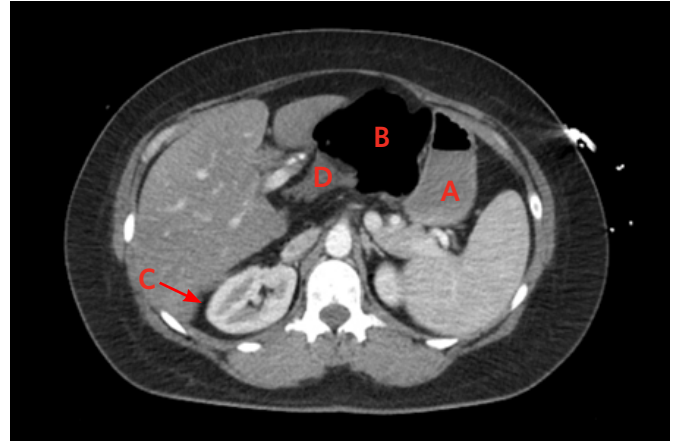
There have been only 200 total cases of foramen of Winslow hernia (FWH) since it was first described in 1834 by Bland.<sup>1</sup> They are exceedingly rare, representing just 8 percent of internal hernias and only 0.1 percent of all hernias.<sup>2</sup> This presents a relative unfamiliarity and challenging diagnosis for even the most experienced physicians where improper diagnosis can result in significant morbidity and mortality.

There are several predisposing pathophysiologic explanations for a FWH. This includes factors involving the foramen itself such as an abnormally enlarged foramen or a defect in the gastrohepatic ligament.<sup>3</sup> Others have also commented on factors related to the bowel such as a freely mobile caecum without proper adherence to the peritoneum or an abnormally elongated small bowel mesentery.<sup>3</sup>

The clinical presentation is often vague and can mimic other hernias or abdominal pathology. Due to the broad differential associated with these symptoms, clinical diagnosis of FWH can be extremely challenging. Due to the potential for incarceration, strangulation, volvulus, and ischemia, delay in surgical management is associated with significant morbidity and mortality. Review of case reports and series indicates delays in diagnosis and treatment has resulted in mortality rates approaching 50 percent.<sup>4</sup>

Abdominal pain with obstructive symptoms often prompts surgical consultation leading to axial imaging. Imaging findings include the presence of gas or bowel in the epigastric area that does not fit with the normal contour of the stomach, leftward displacement of the stomach and the duodenum, and failure to visualize the cecum.<sup>5,6,7</sup> CT findings include air-fluid levels between the liver hilum and inferior vena cava, anterolateral displacement of the stomach, absence of the ascending colon, and presence of bowel between the portal vein and the inferior vena cava (Figure 2). Treatment requires surgical reduction of herniated contents. Historically the most common surgical approach is a laparotomy, though recently, laparoscopic reduction in experienced hands, has been demonstrated with increasing frequency.<sup>5,8</sup> Closure of the hernia defect is not necessary for FWH as a recurrence in the same patient has never been reported.<sup>8</sup>

Although recurrence has never been reported, FWH are very rare and associated with extremely high morbidity and mortality.



**Figure 2.** CT imaging showing the presence of bowel between the portal vein (PV) and inferior vena cava (IVC). **Label A** corresponds to the anterolaterally displaced stomach. **Label B** corresponds to the ascending colon displacing the stomach. **Label C** corresponds to the absence of ascending colon in the right paracolic gutter. **Label D** corresponds to the presence of bowel between the PV and IVC.

## Conclusion

FWH is a rare finding associated with significant potential for morbidity and mortality. In this case, strong clinical suspicion based on a thorough history and physical exam and appropriate choice in imaging lead to a diagnosis in a timely manner to surgically manage the patient. This case highlights the importance of early imaging in the emergency department for patients presenting with this constellation of symptoms. We present a successful hernia reduction of viable bowel with subsequent cecopexy and appendectomy as prophylactic measures with a goal of decreasing future morbidity in the form of recurrent herniation.

## Lessons Learned

FWHs are extremely rare and therefore can be difficult to diagnose and manage. This case highlights the importance of having a high index of clinical suspicion in patients with an acute abdomen, obtaining the appropriate diagnostic imaging, and emergent surgical intervention to minimize morbidity and mortality.

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