Background
Hernias through the foramen of Winslow are extremely rare, accounting for 0.1% of all abdominal hernias and 8% of all internal hernias. Two-thirds of cases reported were herniation of ileum followed by a mobile cecum or ascending colon. Seldomly, the gallbladder or the omentum has 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 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 × 10^9/L and a raised C-reactive protein of 150 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 but was nonviable, which had to be resected with a primary anastomosis. 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,
aged between 61 and 69 years. Some have suggested that cholecystectomy might be a risk factor. Other postulated risk factors 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). Erskine 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. 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.

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, largely as a consequence of clinical diagnostic uncertainty. 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. 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.

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