

# Internal herniation of the right colon through the foramen of Winslow.

Vishwant Tatagari<sup>1</sup>, DO; Adam Devine, DO<sup>2</sup>; David Vaughn, MD<sup>3</sup>; Brian Cronin, DO<sup>3</sup>

Department of Anesthesia<sup>1</sup>, Department of Internal Medicine<sup>2</sup>, Surgical Specialists of Lancaster<sup>3</sup>, UPMC Lititz, Lititz, PA

## Background

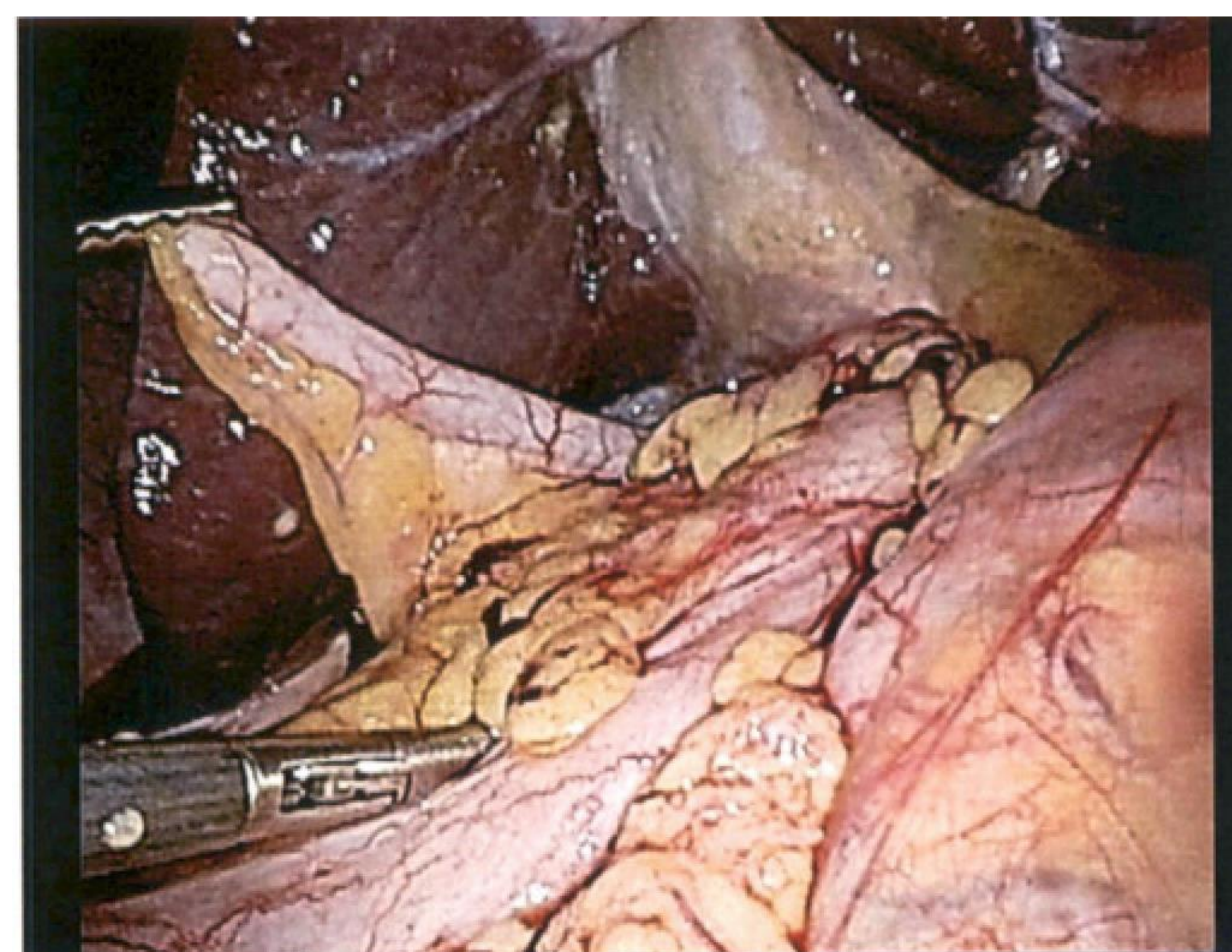
- Herniation through the Foramen of Winslow, also known as the epiploic foramen, is an extremely rare phenomenon with less than 200 cases reported in the medical literature<sup>6</sup>.
- Internal hernias account for less than 1% of all hernias and roughly 8% of all internal hernias occur through the foramen of Winslow<sup>4</sup>.
- The foramen of Winslow is a normal communicating orifice between the greater and lesser peritoneal cavities. The borders are the liver, the hepatoduodenal ligament, the duodenum, and the posterior peritoneal covering above the inferior vena cava<sup>6</sup>.
- Herniation through the foramen of Winslow is rare since it is usually closed because of intra-abdominal pressure<sup>6</sup>.
- Internal hernias may be identified on computed tomography (CT) scan.
- We present a case of a foramen of Winslow hernia that was not detected until direct visualization of the hernia during laparoscopy.

## Hospital Course

- A 52yo female with no PMHx and PSHx of C-section presented to the ER with severe epigastric abdominal pain that radiated to her back. Physical exam was positive for abdominal tenderness and guarding. Murphy's sign and Rovsing's sign were negative.
- Labs and imaging studies including RUQ ultrasound, chest X-ray and CT of the chest and abdomen were found to be unremarkable.
- Ultrasound of the gallbladder did not show evidence of acute cholecystitis or cholelithiasis. CT of the abdomen was significant for a liver hemangioma, uterine fibroids, and nonspecific hypodensities of the spleen.
- Gastroenterology was consulted and the patient underwent an esophagogastroduodenoscopy (EGD). Prior to the EGD a repeat abdominal ultrasound demonstrated a contracted gallbladder, without evidence of cholelithiasis. During the EGD, it was noted that there appeared to be extrinsic compression pushing down on the lesser curvature of the stomach.
- The GI service ordered a HIDA Scan which demonstrated non-visualization of the gallbladder that suggested chronic cholecystitis and/or acute cholecystitis. Following the results of the HIDA scan the patient was made NPO and general surgery was consulted.
- The patient elected to undergo a laparoscopic exploration and possible cholecystectomy.

## Surgical Course

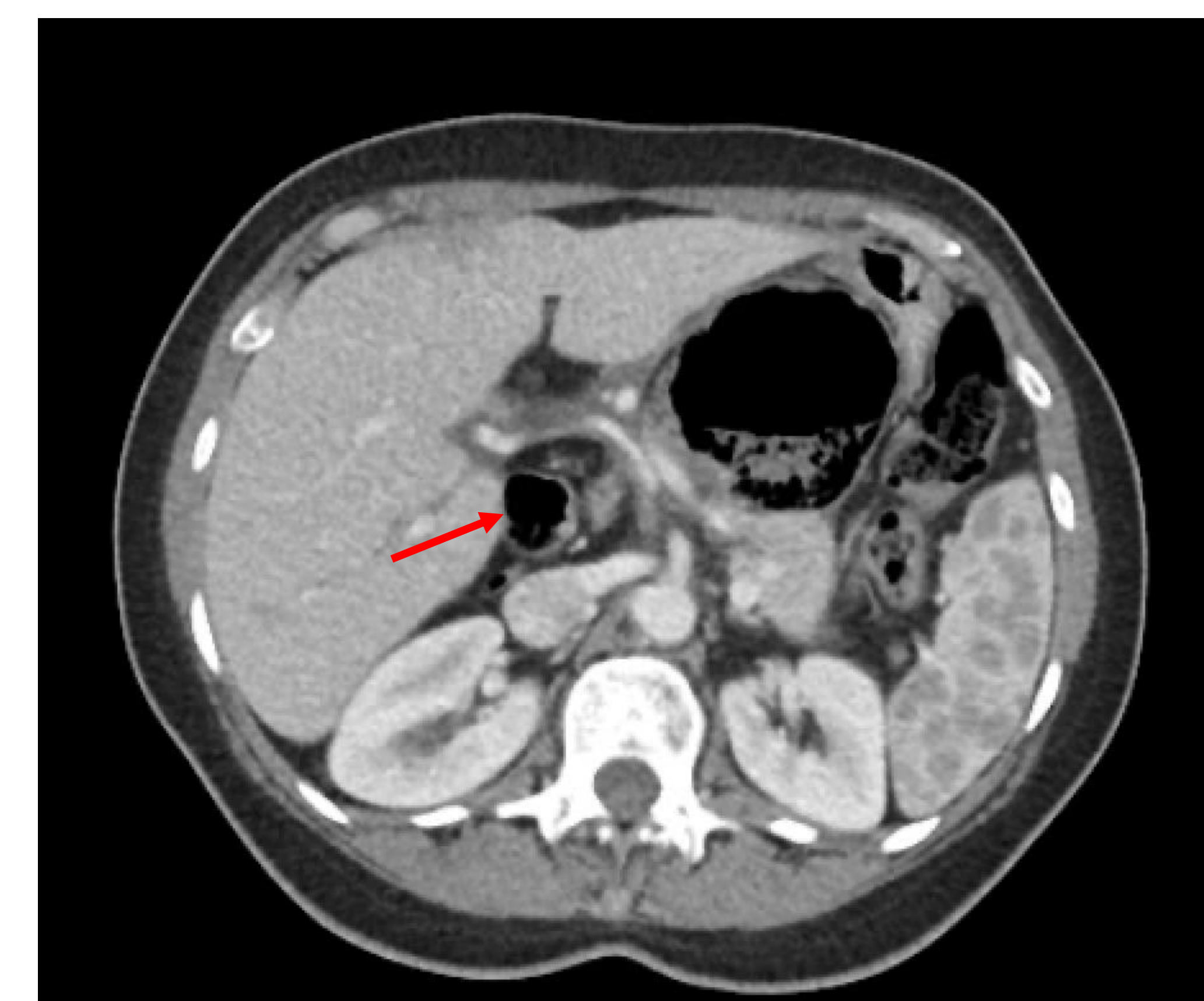
- After general anesthesia was found to be adequate the patient was prepped and draped in sterile fashion. Laparoscopic trocars and camera were placed, and the abdomen was insufflated. The gallbladder was found to be unremarkable.
- There was straw-colored ascites noted in the right para-colic gutter. Additionally, the porta hepatis was extremely edematous. The gallbladder was grasped and retracted cephalad. It was then noticed that the colon had herniated through the foramen of Winslow (*Figure 1*).
- The cecum was in the right upper quadrant with the appendix posterior to the gallbladder. The right colon was found to be compressing the stomach. Initial attempts at reducing the hernia internally were unsuccessful due to adhesions.
- After speaking with the patient's family, the procedure was converted to an exploratory laparotomy. The colon was reduced from the foramen of Winslow and the bowel was determined to be viable. At this point it was noted that the right colon was on a long mesentery and was quite redundant.
- A right hemicolectomy was performed to prevent recurrence of the internal hernia. The foramen of Winslow not closed surgically.
- Following the procedure the patient was extubated and taken to the recovery room in stable condition. The patient convalescence was uncomplicated, and the patient was discharged on post-op day five.
- The patient was seen in follow up and was doing well without lingering effects of the hernia or subsequent surgery.



*Figure 1. Gallbladder retracted cephalad and the appendix retracted laterally with the right colon herniating through the foramen of Winslow.*

## Discussion

- While the exact mechanism of herniation through the foramen of Winslow is unknown recent reports list an enlarged foramen of Winslow, excessive viscera mobility (i.e., persistent ascending mesocolon or long small bowel mesentery), and an increase in intra-abdominal pressure as potential risk factors<sup>4</sup>.
- In our case, the patient was noted to have excessive mobility of the viscera with the presence of persistent ascending mesocolon, no lateral attachment, and an abnormally long right mesentery.
- CT of the abdomen is considered the gold standard of the diagnosis of an internal hernia through the foramen of Winslow<sup>8</sup>. Typical CT findings include intestinal loops between the portal vein and vena cava with a "bird's beak" pointing towards the foramen of Winslow and intestinal loops posterior to the stomach<sup>4</sup>.



*Figure 2. CT of our patient demonstrating loops of bowel between portal vein and vena cava.*

- In our case either oral contrast or a barium study may have led to recognition of the internal hernia on imaging.
- This rare radiographic phenomenon is difficult to diagnose radiographically and warrants further workup due to the potential risk of bowel strangulation despite negative ED findings.

## References

1. Azer M, Lira-Schuldes A, Volkens H. Internal herniation of the caecum and the ascending colon through the foramen of Winslow. *Journal of Surgical Case Reports*, Volume 2020, Issue 3, March 2020.
2. Harnsberger CR, McLemore EC, Broderick RC, Fuchs HF, Yu PT, Berducci M, et al. Foramen of Winslow hernia: a minimally invasive approach. *Surg Endosc* 2015;29:2385-8.
3. Honma S, Itohara T, Sha S, Onoyama H. Laparoscopic surgery in a patient with foramen of Winslow hernia due to large uterine fibroids: a case report and literature review. *Surg Case Rep*. 2021 Mar 25;7(1):77. doi: 10.1186/s40792-021-01162-2. PMID: 33768335; PMCID: PMC7994464.
4. Martin LC, Merkle EM, Thompson WM (2006) Review of internal hernias: radiographic and clinical findings. *AJR Am J Roentgenol* 186(3):703-717.
5. Tsuruta A, Kawai A, Oka Y, et al. Laparoscopic right hemicolectomy for ascending colon cancer with persistent mesocolon. *World J Gastroenterol*.
6. Moris D, Tsilimigras I, Yerokun B. Foramen of Winslow Hernia: a Review of the Literature Highlighting the Role of Laparoscopy. *J Gastrointest Surg* 23, 2093-2099 (2019).
7. Forbes SS, Stephen WJ. Herniation through the foramen of Winslow: radiographic and intraoperative findings. *Can J Surg*. 2006;49(5):362-363.