Pneumatosis Cystoides Intestinalis in a Patient presenting after Robotic Assisted Laparoscopic Paraesophageal Hernia Repair: A Case Report and Literature Review

Joshua Zane, MD PGY3[1]; Landon Riggs, DO PGY4[1]; Benjamin Foreman, DO[1]; Noelle Bertelson, MD MPH FACS FASCRS[1]
[1]Department of General Surgery, Intermountain Health – Saint Joseph Hospital, Denver, CO

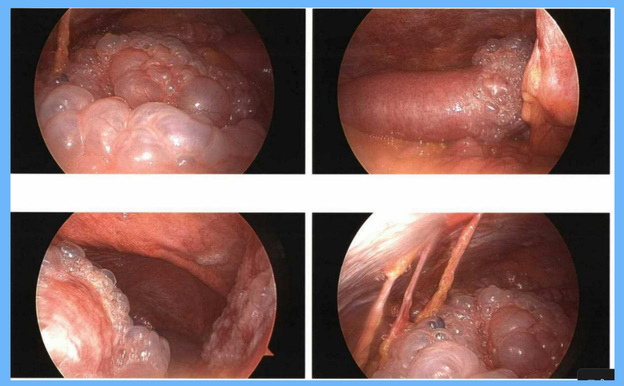

Figure 1: Intraoperative images from Diagnostic Laparoscopy

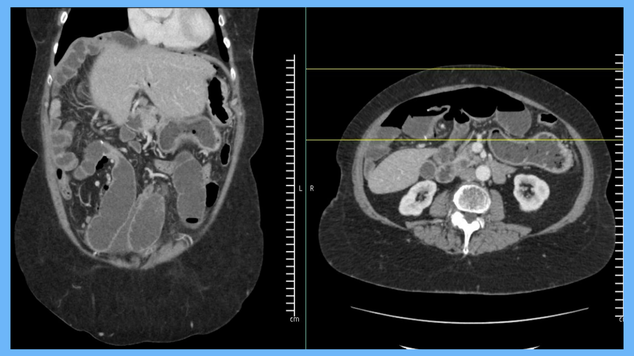

Figure 2: CT images demonstrating concerned area of volvulus with pneumoperitoneum

Background

- Pneumatosis Cystoides Intestinalis is a rare disease characterized by presence of gaseous cysts contained within the intestinal wall
- The etiology for cyst formation is still unknown; however current theories postulate the following:
  - Iatrogenic: procedures, whether endoscopic or surgical, can lead to pressure build up or direct trauma with later cyst development
  - Respiratory disease: certain respiratory disease such as asthma or chronic obstructive disease can lead to gas traveling within blood vessels that seed the bowel wall
  - Bacterial translocation which leads to gas production within the bowel wall
  - Certain conditions such as connective tissue disorders, inflammatory bowel disease, and other immunosuppresive conditions may increase the risk for development
- Management is widely dependent on clinical presentation and acumen of the surgeon. Often, these patients can be observed without need for operative intervention.

Case Report

- 76 year old female with history of total abdominal hysterectomy (2007) complicated by a small bowel obstruction status post small bowel resection with ileocecal anastomosis (2023) and recent laparoscopic hiatal hernia repair (April, 2025) presented with generalized abdominal pain without peritonitis, approximately 6 months after undergoing the hiatal hernia repair. Work up revealed pneumoperitoneum. Given the setting, patient was consented and taken for a diagnostic laparoscopic which revealed the cystoides intestinalis – no further pathology identified at this time and no further procedures performed. Her prior hiatal hernia surgery did not note this pathologic finding. She was discharged after routine postoperative care.
- The patient then presented 5 months later again with abdominal pain with imaging redemonstrating pneumoperitoneum and new evidence of mesenteric swirling concerning for small bowel volvulus. The patient was again consented and taken to surgery, this time for a small bowel resection of the suspicious portion of volvulized bowel with evidence of cystoides. The resection involved the prior anastomosis. She progressed appropriately after surgery, was discharged and seen in clinic with no further pain.
- In summary, this patient likely had an iatrogenic etiology of her disease from prior surgery. While conservative management was trialed, it was appropriate to proceed with operative intervention especially since the involved bowel appeared to involve her prior anastomosis. There is no clear gold standard management of cystoides intestinalis, thus recommendations aim to assess the clinical picture and proceed based on clinical course.

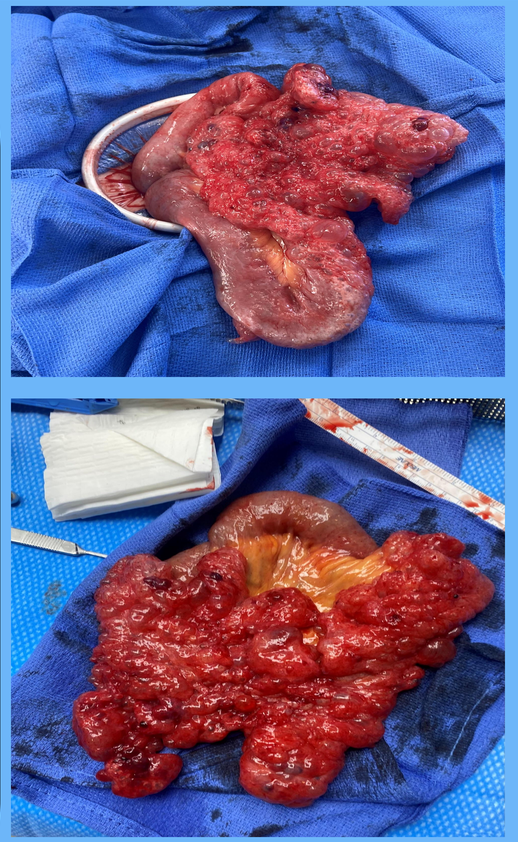

Figure 3: Intraoperative Images from Small Bowel Resection