

## General Surgery and General Surgery Quick Shots

**Moderator:** David S. Shapiro, MD, MHCM, FACS, Chief Medical Officer, Saint Francis Hospital | Trinity Health Of New England, Associate Professor, University of Connecticut School of Medicine & Frank H. Netter MD School of Medicine Quinnipiac University

**Judge:** Shawna M. Kettyle, MD, FACS, Hartford HealthCare Medical Group, Clerkship Director and Affiliated Clinical Medical Faculty, Frank H. Netter MD School of Medicine Quinnipiac University

### General Surgery

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Maya Petashnick, MD	University of Connecticut School of Medicine	Female Cirrhotics with Emergency General Surgery Conditions: A Uniquely Vulnerable Population Studied Using a National Database
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# General Surgery

## Reduction in Time to Surgery for Adhesive SBO in the Gastrografin Era

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**Introduction:** Gastrografin is an essential tool that is both diagnostic and therapeutic in patients with adhesive small bowel obstruction (SBO). Despite the increased use of Gastrografin, few studies exist that evaluate its impact on clinical outcomes. Our study investigated the time from admission to the operating room (OR) and overall length of stay (LOS) before and after Gastrografin use became the standard of care. We hypothesized that the widespread implementation of Gastrografin leads to decreased time to the OR and decreased LOS.

**Methods:** Patients ages  $\geq 18$  with an ICD-9 or ICD-10 diagnosis of SBO were identified in the American College of Surgeons National Surgical Quality Improvement Program (NSQIP) database from 2012-2016 (pre-GG) and 2019-2022 (post-GG). Multivariate linear regression was used to assess the factors associated with time to the OR and total LOS with  $p \leq 0.05$  considered significant.

**Results:** 21,524 patients pre-GG and 9,913 patients post-GG with SBO were identified. In both populations, the median age of patients in years was similar (66 pre-GG vs. 67 post-GG) and a greater percentage were female (60.1% pre-GG vs. 56.4% post-GG). However, time to the OR and LOS were significantly shorter post-GG compared to pre-GG. Post-GG time to the OR was, on average, 2.01 days vs. 2.61 days pre-GG ( $p < 0.001$ ). Post-GG LOS was, on average, 6.04 days vs. 11.22 days pre-GG ( $p < 0.001$ ). This difference persisted when adjusted for relevant clinical and demographic factors. For time to the OR, the unadjusted model suggests a 0.6 day reduction post-GG, and in the adjusted model, it is 0.381,  $p < 0.001$ . The unadjusted model suggests a 5.18 day reduction in LOS post-GG, and in the adjusted model, it is 4.84,  $p < 0.001$ .

**Conclusions:** Patients who presented with adhesive SBO post-GG had reduced time to the OR and decreased hospital LOS compared to patients pre-GG. A prospective survey to better ascertain the degree of Gastrografin adoption is warranted.

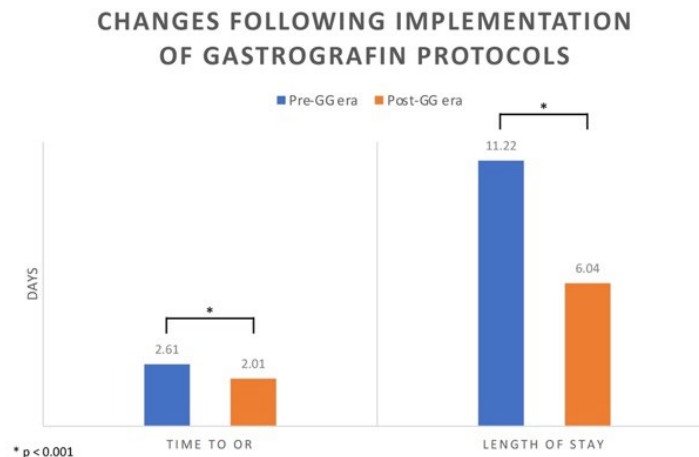


Figure 1: Time to OR and LOS are significantly shorter in the post-GG era compared to pre-GG.

## **Female Cirrhotics with Emergency General Surgery Conditions: A Uniquely Vulnerable Population Studied Using a National Database**

Maya Petashnick, MD, Ya-Huei Li, PhD and Oscar K. Serrano, MD, FACS

Hartford Hospital, Hartford, CT

**Introduction:** There is an increasing incidence of chronic liver disease. We assessed how cirrhosis affects the outcomes of patients presenting with emergency general surgery conditions. Using propensity score matching, we examined essential outcomes such as complication and cost. We then evaluated whether racial disparities and sex significantly impacted outcomes.

**Method(s):** Patients admitted with appendicitis, cholecystitis, diverticulitis, small bowel obstruction (SBO), upper GI perforation (UGIP) and bowel perforation (BP) were identified in the National Inpatient Sample from 2012-2014. Propensity score matching (PSM) was utilized to analyze the impact of cirrhosis on complications, length of stay (LOS), and healthcare costs. The impact of race and sex were evaluated.

**Results:** We identified 80,600 patients who had appendicitis, 24,847 cholecystitis, 97,433 diverticulitis, 106,436 SBO, 5,742 UGIP and 6,323 for BP; 0.8% had cirrhosis. Statistically significant differences were observed among cirrhotic and non-cirrhotic patients in terms of sex, elective surgery, and number of chronic conditions. After PSM across hospital characteristics, greater comorbidities were found among cirrhotic patients. Cirrhotic males with SBO were more likely to have alcohol use ( $p<0.001$ ), diabetes ( $p=0.007$ ), smoking ( $p=0.001$ ). A higher proportion of cirrhotic patients had Medicaid as the primary payer ( $p<0.05$ ). An extended LOS was noted among patients with cirrhosis ( $p<0.001$ ) with higher costs accrued in cirrhotic patients ( $p<0.05$ ). Female cirrhotics with SBO had longer LOS than males ( $p=0.016$ ) with higher cost of care ( $p=0.028$ ). Cirrhotic males with cholecystitis developed ileus more often than females ( $p=0.020$ ) and had higher costs ( $p=0.015$ ). Mortality was increased in cirrhotic patients ( $p<0.05$ ) with female cirrhotics with SBO having higher risks of cardiac arrest ( $p=0.033$ ) and respiratory failure ( $p=0.007$ ).

**Conclusion(s):** Data is limited regarding the health and economic burden of general surgery conditions when comorbid with cirrhosis. Using a national database allowed for detailed assessment of a vulnerable population. Propensity Score Matching was used to assess the impact of sex. Female cirrhotics were found to have unique comorbidity with longer length of stay in SBO.

## **Intersphincteric fistulotomy: Two year follow-up of a novel, safe, and effective procedure for transsphincteric fistula-in-ano in comparison with ligation of intersphincteric fistula tract (LIFT)**

Rebecca Jugo MD, John Zhang MD/PhD  
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**Introduction:** For treating complex transsphincteric fistula, a two-stage approach is usually administered: an initial seton placement followed by a sphincter-sparing procedure, such as LIFT, endoanal advancement flap, fibrin glue, or fistula plug. However, success rates are not optimal. This study aimed to describe a novel, single-staged procedure for managing transsphincteric fistula with or without concurrent anorectal abscess, and to compare its efficacy with the LIFT procedure. We present two year follow up of 26 patients.

**Method(s):** 26 patients who presented with mid-high transsphincteric fistula with or without associated anorectal abscess and consented to the procedure from 2020 to 2024 were managed with intersphincteric fistulotomy. The primary outcome measures were recurrent fistulas and fecal continence. These results were compared with our previous study data of 24 patients who received LIFT procedure underwent operation from 2011 to 2013.

**Results:** 26 patients received intersphincteric fistulotomy; 7 (26.9 %) had an associated ischiorectal abscess. At the 8-month, 14-month, and 24-month follow-up, 0 patients experienced fistula recurrence or fecal incontinence. In comparison with our previous study, 24 patients with transsphincteric fistula with or without associated abscess were treated with initial seton placement, then LIFT procedure. With a follow up range of 14-36 months, 5 (20.8%) patients presented with recurrent fistulas; no patients experienced fecal incontinence. These results were statistically significant.

**Conclusion(s):** Our results reflect that intersphincteric fistulotomy is a safe, simple, and effective procedure for treating patients with transsphincteric fistula with or without associated abscess. Patients healed with no fistula recurrence or fecal incontinence, which is significant in comparison with previous patients treated with LIFT procedure. Intersphincteric fistulotomy does not require an initial seton placement for managing transsphincteric fistula with associated abscess.

## Regulation of HIF-1 $\alpha$ Transcription Factor by Prolyl Hydroxylase Inhibition in Mouse Myocardial Infarction

### Model

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**Introduction:** Hypoxia-induced signal responses depend on hypoxia-inducible factors (HIFs). HIF regulates many hypoxia/ischemia-responsive genes. Our previous study showed that blocking prolyl hydroxylase-1 (PHD1) and PHD3 *in vivo* attenuated ischemic limbs by activating the HIF-1 alpha transcription factor. Prolyl hydroxylases have emerged as a critical regulator of HIF-1 $\alpha$  transcription factor; however, its role in the repair and regeneration of ischemic myocardium remains to be elucidated.

**Method(s):** Left anterior descending coronary artery (LAD) ligation in 8-12 weeks was performed to induce MI in both wild-type (WT) and PHD-1 knockout (KO) mice. WT sham (S) and PHD1KOS groups had surgery without LAD ligation. An echocardiography was performed 30 days following MI surgery to determine heart functions. For tissue collection following MI, mice in all groups were euthanized at various intervals: 8h for gel shift and microarray analysis, 4 days for Western blot analysis, 7 days for blood vessel density, or 30 days for histological examination. To conduct microarray analysis, RNA was extracted from WTMI and PHD1KOMI heart tissues and hybridized to GeneChip™ Mouse Gene 1.0ST Array per manufacturer instructions. Microarray data analysis was performed using the Transcriptome Analysis Console (TAC) to identify differentially regulated genes. These genes were subsequently mapped using Ingenuity Pathway Analysis software to identify various signaling pathways.

**Results:** Our study revealed an increase in capillary density ( $3066 \pm 364$  vs.  $2415 \pm 92$  counts/mm<sup>2</sup>,  $p=0.0014$ ) and arteriolar density ( $29.41 \pm 3.45$  versus  $19.51 \pm 2.65$  counts/mm<sup>2</sup>,  $p=0.0023$ ) in mice with PHD1KOMI compared to those with WTMI. The echocardiographic assessment documented that the PHD1KOMI mice group had a higher ejection fraction (54% versus 43%), fractional shortening (27% versus 21%), stroke volume (49.90ml versus 30.33ml), and cardiac output (49.90 ml/min vs. 30.33ml/min) compared to the WTMI. Gel shift analysis indicated that the HIF-1 $\alpha$  DNA binding activity was elevated in the PHD1KOMI mice relative to WTMI. Additionally, Western blot analysis demonstrated a 1.5-fold increase in HSPA12B expression in the PHD1KOMI group compared to the WTMI group. Bioinformatic analysis with TAC software (1.5-fold,  $P<0.05$ ) showed 89 upregulated and 85 downregulated genes. Insulin receptor substrate 2 (IRS2), a cytoplasmic signaling molecule ( $p=0.02$ ), was upregulated in TAC analysis and later validated by Western blot analysis. The differentially regulated 174 genes were subsequently imported into the IPA software, identifying the number of gene interaction networks. Among these networks, one of the most significant is linked to cardiovascular disease. Another network identified concerning cell death and survival included genes such as 26S proteasome, Adaptor protein 1, Histone h3, HSPA1A/HSPA1B, HSPA8, IFN gamma, IKK (complex), NF $\kappa$ B (family), P110, p85, PI3K p85, PKC(s). Some more important genes were also identified in network analysis such as Ubiquitin, VEGF. The IPA pathway analysis revealed a significant association between cardiac fibrosis with a set of 10 molecules (Airn, ARG1, ATF3, CCN2, CYP1B1, EGR1, HAND2, LCN2, PFKFB1, SCN5A) in the PHD1KOMI group ( $p = 0.0000382$ ).

**Conclusion(s):** Our results shed light on the efficacy of PHD-1 inhibition in activating several important molecules and signaling pathways, resulting in cardioprotection against myocardial infarction.

## **Distal Pancreatectomy: Is there a cost-benefit for adopting a robotic over laparoscopic approach?**

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Nuvance Health Danbury Hospital

**Introduction:** With the implementation and widespread use of more robotic assisted surgeries the question has always been posed, if robotic surgeries are more beneficial from a cost perspective when compared to their laparoscopic counterparts. Previous research has shown that while the initial upfront cost of robotic distal pancreatectomy (RDP) tends to be higher, it shows promise with reduction in conversion rates as well as lower complication rates, potentially leading to reduced hospital stays. (Gavriliadis et al., 2019; , Rodriguez et al., 2018). It has been shown that when comparing laparoscopic to open distal pancreatectomies, there is a lower 90-day cost secondary to shorter initial hospitalizations postoperatively and lower readmission rates. (Fisher et al., 2019). These findings all suggest that the long-term cost benefit of proceeding with a minimally invasive approach can offset the initial costs associated with robotic distal pancreatectomies. There are many other benefits from a surgical perspective that make robotic distal pancreatectomies appealing such as better spleen preservation rates and more precise dissections. (Yang et al., 2020). (Ryan et al., 2015; , Kwon et al., 2021)

**Method(s):** We acquired the National Surgical Quality Improvement Program between the years of 2016-2021 for patients who had undergone distal pancreatectomies either open, laparoscopic, or robotic, with the primary outcome comparing the total hospital stay post-operatively between these groups.

**Results:** In our query 5,651 (48%) of patients underwent an open, 4,068 (35%) underwent laparoscopic and 1931 (17%) underwent robotic distal pancreatectomies. Minimally invasive approaches were associated with a decreased median hospital stay when compared to open, specifically comparison between robotic and laparoscopic. The mean hospital days till discharge were found to be significant when comparing robotic vs laparoscopic ( $p < 0.0001$ ), robotic vs open ( $p < 0.0001$ ) and open vs laparoscopic ( $p < 0.0001$ ).

**Conclusion(s):** Minimally invasive approaches to distal pancreatectomies have been proven in the past to provide added benefits of increased spleen preservation, reduced hospital stays and lower readmission rates, however, our analysis provides new evidence that when specifically comparing robotic to laparoscopic distal pancreatectomies there is a significant comparison in the mean days till discharge following these surgeries.

## General Surgery Quick Shots

### Robotic Resection of Solitary Fibrous Tumor of the Abdominal Wall, Initially Visualized as Incidental Perihepatic Mass

Cynthia Lin M.D., Victoria Liang M.D., Shirley Ge M.D., Antonio I. Picon M.D.

Stamford Hospital/ Columbia University Vagelos College of Physicians and Surgeons

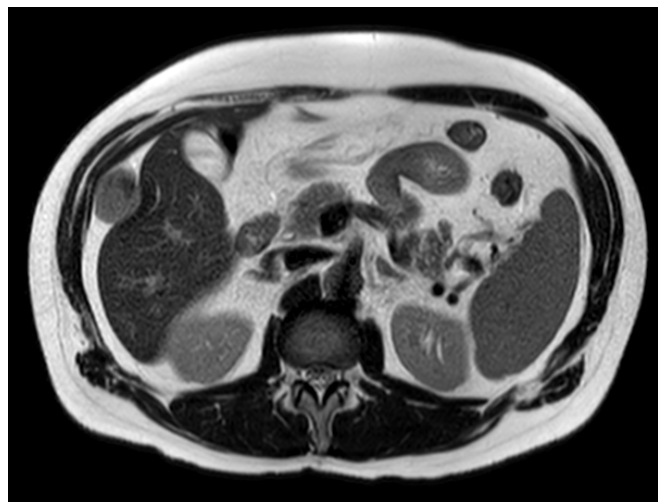
**Introduction:** The availability of advanced imaging modalities has led to an increase in the detection of incidental abdominal masses. The differential diagnosis of these lesions is broad, including both benign and malignant tumors. Characterization of abdominal masses is paramount to guide clinical management—whether they can be safely observed, or whether surgical resection is indicated. We present an unusual case of a patient with an incidentally discovered perihepatic mass, found to be a solitary fibrous tumor (SFT) of the anterior abdominal wall intraoperatively.

**Method(s):** A 64-year-old male with a past medical history of benign prostatic hypertrophy (BPH) underwent pre-procedural abdominal imaging for transurethral prostate resection (TURP) in the setting of urinary retention and was found to have a 3 cm perihepatic mass, with mass effect on the right hepatic lobe. A subsequent MRI abdomen was indeterminate for malignancy. He underwent an ultrasound-guided percutaneous biopsy with interventional radiology, and final pathology was consistent with a benign fibrous tumor. The patient was scheduled for a robotic-assisted mass resection, possible partial hepatectomy, and intraoperative ultrasound.



**Figure 1. CT Imaging of Perihepatic Mass.**

CT Abdomen/Pelvis showing a 3 cm exophytic perihepatic heterogeneous mass, compressing the anterior right hepatic lobe.



**Figure 2. MRI Abdomen of Perihepatic Mass.**

MRI Abdomen showing a well-circumscribed mass.

**Results:** Intraoperatively, the mass was visualized as a subcostal anterior abdominal wall mass without involvement of the liver. The liver was inspected, and no additional lesions were visualized. Intraoperative ultrasound was used to identify borders of resection and obtain negative margins. The mass was completely excised using the DaVinci robotic system. Final pathology was consistent with an SFT.

**Conclusion(s):** SFTs are rare, benign mesenchymal tumors that are uncommonly found at extra-thoracic sites. There are no widely accepted guidelines for management of these lesions, and current treatment is guided by multi-disciplinary discussion. We describe the unusual case of an incidentally-discovered abdominal wall SFT, visualized as a perihepatic mass on initial imaging. We advocate that SFTs should be considered in the differential for perihepatic and abdominal wall tumors. Furthermore, since the discrepancy between imaging findings and intraoperative findings changed our operative course, eliminating any indication to perform a partial hepatectomy, we advocate that multiple surgical approaches should be considered for abdominal tumor resection if SFT is suspected.

## **A Unique Presentation of Autoimmune Pancreatitis: Severe Inflammatory Common Bile Duct Stricture with Superimposed Acute on Chronic Cholecystitis**

Jacob Sandor M.D., J. Roscoe Wasserburg M.D., Antonio Picon M.D. F.A.C.S.

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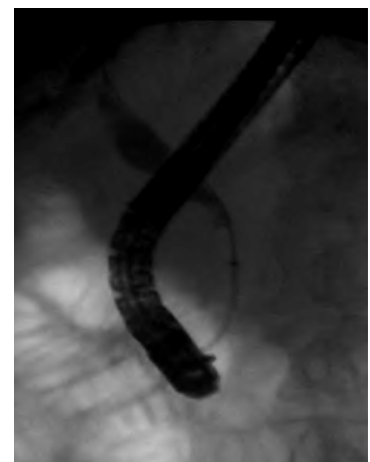
**Introduction:** Autoimmune pancreatitis (AIP) is a rare chronic inflammatory disease of the pancreas responsible for approximately 5% of all cases of chronic pancreatitis. Initially described in 1961 by Henri Sarles and formalized in 1995 by Kenji Yoshida, two subtypes were identified with similar symptomatology, including biliary obstruction and colic. Type 1 is hallmarked by elevated serum IgG4 and is associated with systemic IgG4 related disease. Histology reveals plasma cell infiltration with lymphoplasmacytic sclerosing pancreatitis. Type 2 is idiopathic, with localized granulocytic duct-centric epithelial lesions. Imaging often reveals fibrotic pancreatic changes with diffuse enlargement and inflammatory changes. Sequelae of this disorder varies significantly and often result in difficult or delayed diagnosis. Herein, we present a rare presentation of AIP manifesting as acute on chronic cholecystitis in the setting of a severe distal CBD inflammatory stricture.

**Method(s):** A 69-year-old female with past medical history of GERD, colonic polyps, osteoarthritis, osteoporosis, current smoker presented with recurrent epigastric and right upper quadrant pain two months after previous admission for obstructive jaundice secondary to a distal bile duct stricture. On prior admission, patient reported intermittent colicky abdominal pain with jaundice and hyperbilirubinemia. Imaging and labs at that time showed stricture and narrowing of the distal common bile duct with associated upstream biliary dilatation and obstruction, etiology was unclear. She underwent EUS/ERCP with CBD stent placement. Biopsies and spyglass interrogation showed erythema, granularity, and increased vascular pattern with ulceration of the mucosa of the pancreas, with no definitive malignancy, she was discharged with improvement. During this admission, MRCP was performed demonstrating chronic cholecystitis with several large, calcified stones in the gallbladder, and a stable severe distal CBD stricture with peri-ductal inflammation in the head and neck of the pancreas. Given her recurrent symptoms in the absence of biliary obstruction after stent placement, laparoscopic cholecystectomy was planned.

**Results:** This patient underwent an uncomplicated laparoscopic cholecystectomy with pathology revealing evidence of acute on chronic cholecystitis. She recovered well with resolution of her prior RUQ and epigastric abdominal pain. Further work-up of her inflammatory structure with IgG4 antibody measurement ultimately returned markedly elevated, suggested of underlying AIP. The patient was discharged with follow-up for initiation of immunosuppressive therapy with corticosteroids, repeat EUS with biopsy, CBD stent removal, and interrogation of co-morbid systemic IgG4 related disease.

**Conclusion(s):** Autoimmune pancreatitis is a rare entity and must be identified early as its treatment is greatly divergent from its mimicking diagnoses. Our patient presented with a rare manifestation of AIP 1, a severe distal CBD inflammatory stricture with superimposed acute on chronic cholecystitis. We emphasize the importance of prompt diagnosis and interdepartmental collaboration to help prevent unnecessary morbid procedures for mimicking diagnoses, and early initiation of immunosuppressive measures to expedite remission.

**1Figure 1. ERCP: Single moderate-severe stricture in the middle and distal third of common bile duct**





## Robotic Perineal Hernia Repair: A Video Presentation

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2. Midstate Medical Center, Meriden, CT

**Introduction:** Perineal hernias are rare pelvic floor hernias, often following an abdominoperineal resection (APR). Given the rarity of the hernia, there is no consensus on technique with variations in surgical approach and mesh types, and few case reports exist documenting robotic assisted repair. This case report aims to add to the literature a robotic perineal hernia repair with synthetic mesh post-APR.

An 88-year-old male presented in June 2022 with a T3N0 poorly differentiated adenocarcinoma of the anterior rectoanal sling. The patient was not a candidate for preoperative neoadjuvant therapy due to previous radiation for prostate cancer. The patient underwent a laparoscopic APR and recovered well without any evidence of a recurrent disease. Two years later, he returned with a history of perineal pressure, pain, and the feeling of “sitting on a lump”. Physical exam revealed a large reducible perineal hernia (Figure 1).

**Methods:** The patient underwent a robotic perineal hernia repair with synthetic mesh. The ureters were identified with Indocyanine green dye (ICG) injection prior to the robotic repair. He was discharged from the hospital 2 days later.

**Results:** The postoperative course was uneventful. He underwent CT imaging for his oncological follow-up that showed no evidence of recurrence of the perineal hernia (Figure 2).

**Conclusion:** Perineal hernias are rare and challenging in repair. Multiple repair techniques are reported in the literature with variations in approach and mesh. We present a video of a robotic repair technique with synthetic mesh for symptomatic perineal hernia.



Figure 1. Perineal hernia

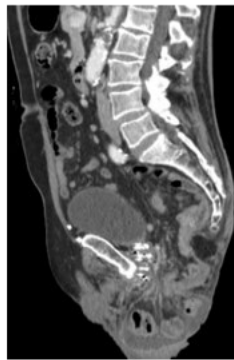


Figure 2. CT abdomen/pelvis with contrast pre- and post-perineal hernia repair with mesh

## Gallstone ileus causing perforation of multiple segments of small bowel

Tyler Glaspy MD, Karri Hester MD, Simon Eiref MD

Danbury Hospital

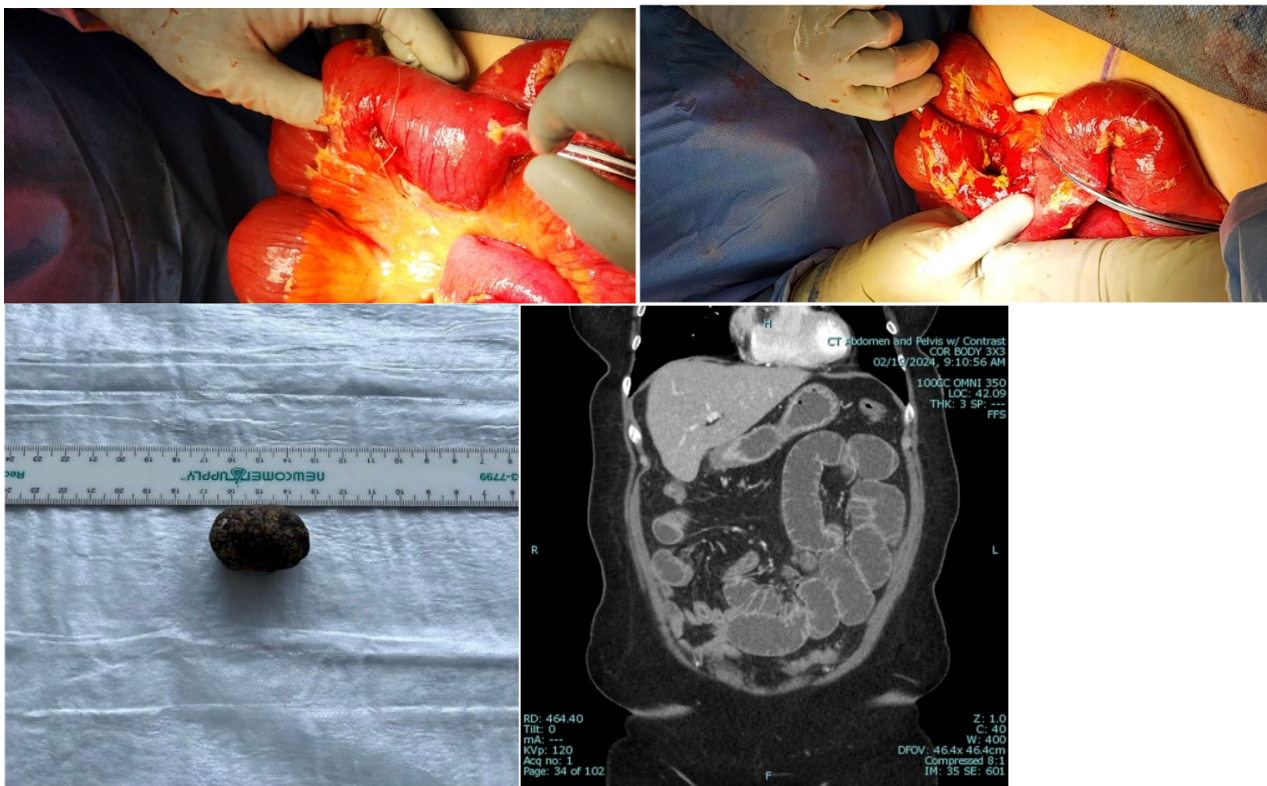
**Introduction:** Gallstone ileus results in a mechanical small bowel obstruction when an iterant gallstone tumbles downstream and obstructs the bowel lumen. Associated proximal intestinal injury with perforation is rare; and concomitant perforation of multiple segments of bowel in the setting of gallstone ileus, has never been reported in the literature. We are reporting a case of a 67-year-old female patient who had gallstone ileus causing perforation of multiple segments of small bowel.

**Case Report:** A 67-year-old female with a past medical history significant for only previous C-section presented with 1 week of intermittent abdominal pain, distention and nausea with vomiting. Vital signs and labs were in the normal range. Physical exam was notable for a soft and nondistended abdomen with right lower quadrant tenderness. Radiological imaging demonstrated a small bowel obstruction.

The patient was admitted for conservative management of suspected adhesive SBO. On hospital day 2-4, her symptoms were resolving, and she began to pass flatus. A Gastrografin revealed passage of contrast through the small intestine into the colon. On hospital day 5, she had cessation of bowel function, with worsening abdominal pain, tachycardia and leukocytosis. She was then taken to the operating room for exploration.

At operation, she was found to have a 3.2 cm gallstone lodged at the terminal ileum, perforation of both the mid-ileum and mid-jejunum, and gross enteric spillage. She underwent removal of the gallstone and small bowel resection x2. She was initially left in discontinuity with an open abdomen. She returned to the operating room 2 days later for bowel anastomosis and abdominal closure. She recovered well after surgery and was discharged home.

**Discussion:** Gallstone ileus results in mechanical SBO and rarely intestinal perforation. This is the first reported case of gallstone ileus causing perforation of multiple segments of small bowel. Our case highlights the fact that gallstone ileus is a morbid disease that can be difficult to diagnose, and whose surgical management is evolving.



## **Cholecystitis in a Transgender Patient During Hormonal Transition: A Case Report**

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St. Francis Hospital and Medical Center

**Introduction:** Cholelithiasis, or gallstones, is a common radiologic finding occurring in nearly 15% of the United States population with various risk factors including hormonal influence. Estrogen has been implicated in gallstone formation due to its impact on cholesterol metabolism. Prevalence of gallstones in pregnant American women is estimated to be 6.8% (95% CI 4.2-10.8). In patients on hormone replacement therapy, relative risk of cholelithiasis is increased at 1.79 (95% CI: 1.61-2.00). In transgender individuals, transitioning from male to female, estrogen is a key component of hormone therapy. This case report underscores the relationship between estrogenic agents and cholelithiasis and highlights the potential for increased gallbladder pathology in transgender women.

**Case Presentation:** Our patient is a 36-year-old transgender female with a past medical history of bipolar disorder, gender dysphoria, and hypercholesterolemia. Home medication include estradiol 0.1 mg daily as feminizing hormone therapy. The patient presented to the Emergency Department (ED) with a 3-day history of intermittent right upper quadrant (RUQ) pain radiating to her back. The pain was associated with nausea and vomiting. She denied prior abdominal surgery, recent travel, or antibiotic use.

The patient's vitals were within normal limits. Labs were without leukocytosis, and hepatic panel was normal. Abdominal ultrasound revealed a large stone measuring 2cm in the gallbladder neck and wall thickening at 5mm, consistent with gallbladder inflammation. Risk and benefits of surgery was discussed, and the patient initially declined surgery, opting for non-operative management with strict return precautions. She re-presented the next day with continued pain, tenderness on examination; symptoms consistent with acute cholecystitis. She was admitted to the surgical service and started on ceftriaxone and metronidazole. The patient underwent an uncomplicated laparoscopic cholecystectomy. She recovered well postoperatively and was discharged home in stable condition on post-operative day 1. Pathology returned showing chronic cholecystitis.

**Conclusion:** Transgender women on hormone therapy, particularly estrogen, have an increased risk of developing cholelithiasis and thus increased risk of development of cholecystitis. Estrogen has been shown to increase cholesterol secretion into bile, causing supersaturation with cholesterol, leading to the formation of gallstones. Recognizing this link between hormone therapy and gallstone formation in transgender women is crucial for early diagnosis and management of gallbladder pathology and should be included when counseling patients on the risks and benefits of hormone therapy.

## Two Extraluminal Pelvic Mass Excisions With Distinctly Different Pathology: A Case Series

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**Introduction:** In surgery we often deal with pelvic masses. Usually they are intra luminal. In the past year we have seen 2 cases involving pelvic masses that have been extraluminal. This case series involves 2 separate cases of individuals with similar appearing pelvic masses. Although similar in appearance the pathology was found to be distinctly different.

**Methods:** 67 year old male with a history of abdominal hernia repair with mesh presented to the clinic with pelvic pain. Retroperitoneal ultrasound showed “a 7.3 cm round solid soft tissue mass to the left of midline in the pelvis”. Further imaging was done with CT revealing “In the left pelvis anteriorly, just deep to the anterior pelvic wall musculature anterior and lateral to the bladder, there is a rounded solid soft tissue mass measuring 6.6 x 7.0 x 7.3 cm. This lesion is adjacent to but separate from the bladder and adjacent to but separate from the sigmoid colon.” Decision was made to proceed with excision of the mass. Patient underwent a CO2 Colonoscopy, exploratory laparotomy, en bloc excision pelvic mass. Operative room findings were notable for “Normal colonoscopy without any signs of diverticulosis, polyps or masses; next colonoscopy in 5 years due to personal history of polyps. Large pelvic mass that appeared to abut the bladder in the pre-peritoneal space with some flimsy adhesions from the small bowel and sigmoid colon to the peritoneum on the mass. Pre-peritoneal mesh identified at the inferior edge of the mass with part of the mesh excised with the mass.” No signs of retained mass were left in the abdomen.. Mass was originally thought to be a GIST judging by imaging but final pathology showed “Dedifferentiated liposarcoma, 7.8 cm in greatest dimension, arising with a background of a well-differentiated liposarcoma” Mass was MDM2 FISH positive. Dimensions show for the mass were 7.8 x 6.9 x 6.7 cm.

46-year-old male with a PMH and PSH of current renal cell carcinoma, HTN, HLD, DM and pelvic mass of unknown origin presented to the outpatient clinic. The patient had been complaining of pelvic pressure. MRI was done revealing “large, heterogeneously enhancing pelvic mass centered slightly to the left of midline in the mid pelvis measuring 8.9 x 10.4 x 9.6 cm. This is separate from the sigmoid colon, rectum, prostate and urinary bladder.” Once seen a CT scan was ordered to further assist the decision making process. It showed “a heterogeneously enhancing 11 x 8.6 x 9.5 cm mass with peripheral calcifications in the pelvis.” Imaging was reviewed with multiple radiologists for which no clear diagnosis was made. Patient was discussed at a multidisciplinary tumor board and again no clear diagnosis was made. The decision was made to proceed with excision of the mass. Patient underwent an Exploratory laparotomy with large pelvic mass excision. Preoperative ureter stents were planned but was only able to pass a stent in the right side. The left side was anteriorly displaced by the mass making it difficult to insert the stent. During the surgery we found a Large hard and fixed pelvic mass posteriorly onto S1 and S2 in the sacrum. Using a combination of blunt and sharp dissection the mass was excised from the pelvis. A JP drain was placed in the pelvis and the mass was sent for pathology. The pelvic resection margins were marked with metal clips. The pathology report revealed a 12.2 cm (superior-inferior) x 9.5 cm (medial-lateral) x 7.8 cm (anterior-posterior) intact soft tissue mass Spindle cell neoplasm; consistent with schwannoma. The mass was SOX-10 and S100 positive.

**Results:** The 46 year old had a pelvic mass showing 12.2 cm (superior-inferior) x 9.5 cm (medial-lateral) x 7.8 cm (anterior-posterior) and the pathology showed a schwannoma and in the 67 year old has a pelvic mass showing 7.8 x 6.9 x 6.7 cm and the pathology showed liposarcoma.

**Conclusion:** While we were expecting both masses to be the same due to appearance both on radiography and on visual, we found completely different pathologies. Extra luminal pelvic masses bring complex pelvic dissections. Proper preoperative planning with radiology determines success in these cases. Going forward will we see a rise in these types of masses? What can we do preoperatively to help diagnose them?

## **Perforated rectal cancer complicated by a colovesicular fistula requiring a pelvic exenteration**

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**Introduction:** Rectal cancer is a relatively common malignancy that can present with various complications, including perforation and fistula formation. These fistulas can cause significant morbidity due to recurrent infections, incontinence, and fecal contamination of the urinary tract. Surgical management is often required for definitive treatment, particularly in cases where the disease is advanced or complicated by perforation. Here, we present a case of perforated rectal cancer complicated by a colovesicular fistula, treated with a pelvic exenteration.

**Case Presentation:** A 72 year old male with a medical history of hypertension had been diagnosed with rectal cancer three years prior to presentation which was treated with total neoadjuvant therapy including capecitabine, radiation, and 8 cycles of FOLFOX. He did not have a complete clinical response and was offered surgical resection at that time which he refused. He then underwent 8 cycles of XEROX and again refused surgical treatment. With chemotherapy held for an orthopedic procedure he then developed worsening rectal cancer growth. He presented with symptoms of a colovesicular fistula. Repeat staging demonstrated T3N0 rectal cancer with perforation and colovesicular fistula. He underwent two further cycles of FOLFOX and was then admitted for supplemental nutrition and surgical resection. He underwent an en bloc abdominoperineal resection with cystectomy and colonic conduit, end colostomy, and a vertical rectus abdominis myocutaneous flap for perineal closure. Findings were significant for rectal perforation with multiple abscess cavities extending into the levator muscles. His post op course was complicated by urologic issues but was eventually discharged to rehab three week post op. He is now scheduled to undergo further chemotherapy as part of his treatment.

**Conclusion:** This case illustrates a severe complication of rectal cancer involving a colovesicular fistula and perforation, requiring extensive surgical management. Pelvic exenteration provided effective symptom relief in this patient, demonstrating its utility in managing complex colorectal cancer cases with advanced disease and fistulous complications. Early recognition and a multidisciplinary approach are essential in optimizing outcomes for patients with similar presentations.

## OBSTRUCTIVE HYDRONEPHROSIS FROM A URETERAL INGUINAL HERNIA

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### Learning objectives

- Identify a rare variant of inguinal hernias
- Review overall incidence of the entity
- Discuss management strategies

**Case presentation:** This is a case of a 42-year-old male with no significant past medical history and a surgical history including an open right inguinal hernia repair as a child who presented to the Emergency Department for left groin pain. He reported a known left inguinoscrotal hernia that he noticed initially around 2 years ago, which has been progressively increasing in size and causing discomfort.

On physical examination, a large left inguinoscrotal hernia was identified. It was partially reducible due to pain limitation and tenderness however he did not have signs of incarceration/strangulation or skin changes (Figure 1). Laboratory tests were overall unremarkable with a borderline Creatinine level of 1.24 mg/dL. Imaging revealed a large left inguinal hernia with entrapment and obstruction of the left ureter, causing chronic severe left-sided hydronephrosis, with the sigmoid colon contained within it without bowel obstruction (Figure 2).

The patient underwent an open left inguinal hernia repair with mesh placement. During the procedure, the ureter was identified with a transition point from hydroureter to normal caliber ureter. The patient tolerated the procedure well, had an uneventful postoperative course.

**Discussion:** Inguinal hernias account for approximately 75% of all hernias. Over 800,000 inguinal hernia repairs are done in the US per year. The contents of an inguinal hernia may vary but typically includes small bowel or the omentum.

Ureteral involvement in inguinal hernias is a rare occurrence as it is a retroperitoneal structure. Intra-operative discovery was first described in 1892 and the first pre-operative discovery was reported in 1946. Since then, less than 200 cases have been reported in the published literature.

Majority of cases occur in the absence of ureteral obstruction, hence it may be near impossible to make the diagnosis preoperatively, and even in the presence of hydronephrosis, patients may or may not present with symptoms. Many cases occur in patients with a history of kidney transplantation given the anterior location of the transplanted ureter within the space of Retzius.

They are divided into 2 main categories. The paraperitoneal type, where the ureter slides beside a peritoneal sac and constitutes part of the hernia wall (80% of cases) Less commonly an extraperitoneal type occurs (20%), where the ureter is accompanied only by retroperitoneal fat and no peritoneal sac is present.



Figure 1: Picture of patient's hernia taken in Emergency Department on initial presentation.



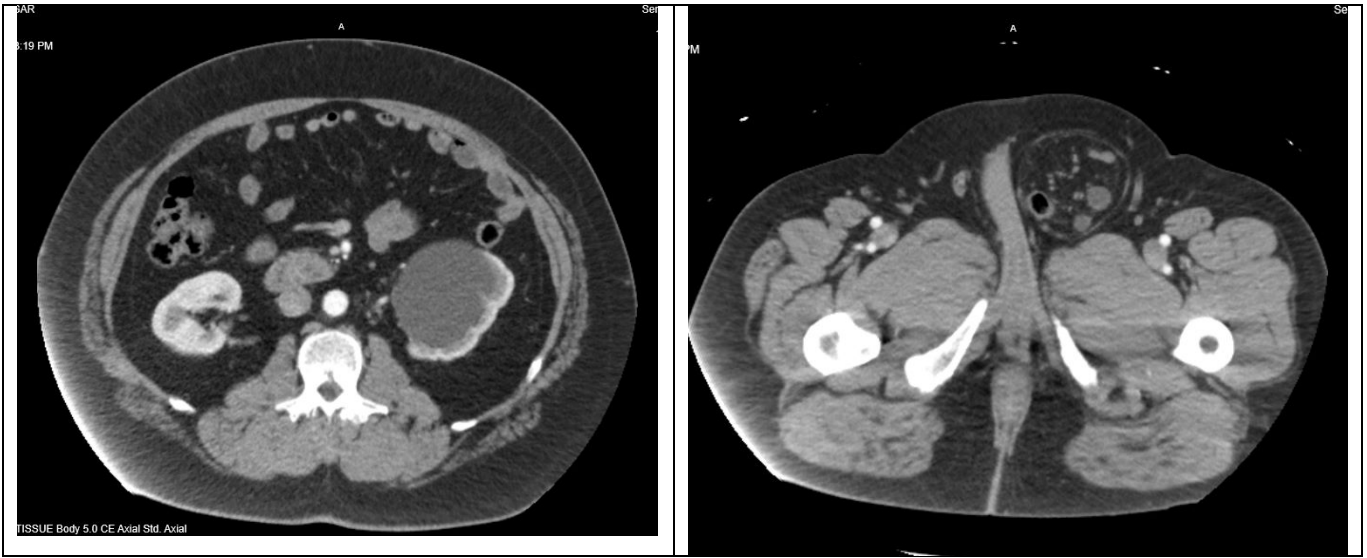


Figure 2: Cross sectional images of patient's CT scan on presentation. Left sided hydronephrosis was identified to be caused by ureteral herniation.

## **A Cut Above the Rest: Navigating the Passage of Ingested Razor Blades**

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**Introduction:** The ingestion of sharp foreign objects, such as razor blades, is a rare but potentially life-threatening emergency that requires prompt diagnosis and management. This case report discusses a 39-year-old female who presented with epigastric abdominal pain following the intentional ingestion of 13 razor blades, which she had broken in half. The patient had a significant past medical history, including type 2 diabetes, stroke, seizures, previous deep vein thrombosis with an inferior vena cava (IVC) filter, and multiple abdominal surgeries.

**Methods:** An initial abdominal X-ray revealed multiple radiopaque objects within the stomach. A subsequent CT scan showed linear metallic foreign bodies distributed throughout the proximal and distal small bowel and transverse colon without evidence of bowel wall thickening or dilatation. Follow-up imaging, including repeat CT scans and abdominal X-rays, monitored the passage of the razor blades through the gastrointestinal tract.

**Results:** The patient was observed and managed conservatively, given the absence of bowel obstruction or perforation. Repeat imaging showed the gradual migration of the razor blades through the small bowel and colon. Eventually, all foreign bodies were confirmed to have passed without the need for surgical intervention. The patient resumed normal bowel function and tolerated a diet well before discharge.

**Conclusions:** This case highlights the importance of careful assessment and individualized management of patients who ingest sharp objects. Conservative management with close radiological monitoring can be a safe and effective approach in select cases where there are no signs of bowel perforation or obstruction. This case also underscores the significance of multidisciplinary care in managing complex presentations of foreign body ingestion.



## **Robotic Splenectomy in a Case of Iatrogenic Splenic Rupture Following Colonoscopy**

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**Introduction:** Splenic injury following colonoscopy is a rare but devastating complication, usually with a delay in diagnosis. Lacerations to the spleen may occur from direct trauma or excessive traction from adhesions. Hemodynamically stable patients with Grade IV splenic injuries are often treated with medical management. Splenectomy is typically reserved for cases of severe blood loss or lack of symptom resolution following non-operative management. Here, we present a patient who underwent an elective robotic splenectomy one year after splenic injury during routine colonoscopy.

**Method(s):** Data from a single case report of a rare complication following colonoscopy is presented in this study. Medical and surgical history, interval hospital presentations, operative findings, and postoperative progress until date of discharge are included. Findings from a thorough literature review of nonoperative vs surgical management of splenic injury are included to discuss merits and limitations of current techniques.

**Results:** A 47-year-old male with history of Barrett's esophagus, polysubstance abuse, and multiple sclerosis presented to the emergency department one day after uncomplicated colonoscopy. Computed tomography (CT) demonstrated a Grade IV splenic injury with a large subcapsular hematoma, measuring 13 x 11 cm. The patient underwent coil embolization of the splenic artery with interventional radiology and was discharged on hospital day 5. He had persistent abdominal pain after discharge and presented 11 months later with an upper gastrointestinal bleed from splenic re-rupture. The patient required a 4-day admission to the intensive care unit (ICU) for hemodynamic monitoring and resuscitation with blood products and crystalloid fluids. He was offered elective robotic splenectomy and had an uncomplicated recovery from this procedure.

**Conclusions:** Management of a re-ruptured spleen is complicated and may include medical management, embolization, or splenectomy. We outline considerations for robotic splenectomy in cases of large volume hemoperitoneum, persistent symptoms, and multiple episodes of splenic disruption.