Urgent Workup and Treatment of Common Colorectal Issues

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Disclosures

The presenter has no relevant financial or nonfinancial relationships to disclose.

Off-label/Investigational Use

None

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SENSITIVE/GRAPHIC PHOTOS WILL BE SHOWN

Objectives

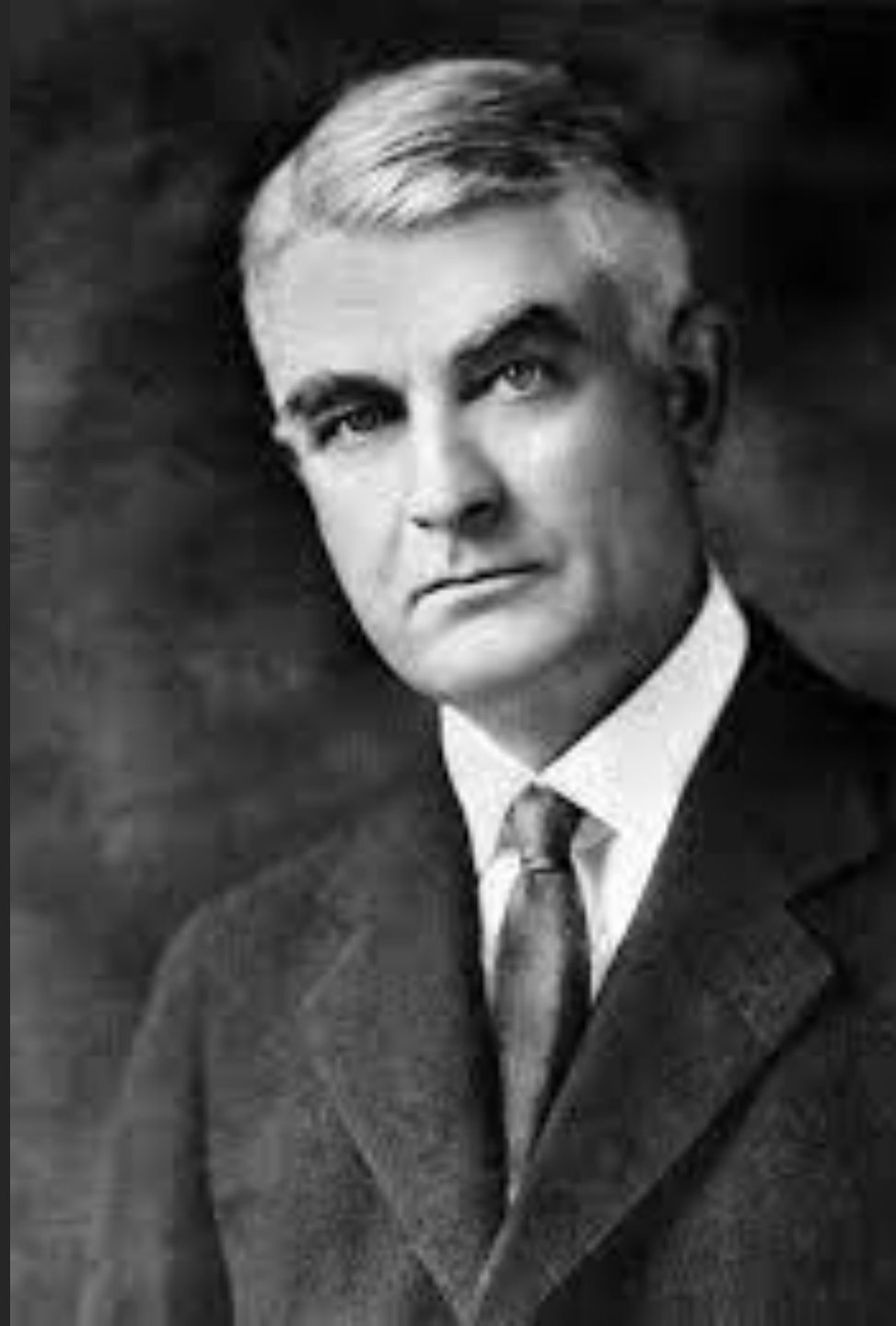
- Review the anatomy and physiology of the large colon, rectum and anus
- Identify the causes and treatment options for patients with structural disruption of the colon
- Identify the causes and treatment options for patients with functional disruption of the colon
- Review the symptoms and treatment for anorectal abscess and fistula
- Case presentations requiring emergent colorectal surgical interventions

Dr. William Mayo

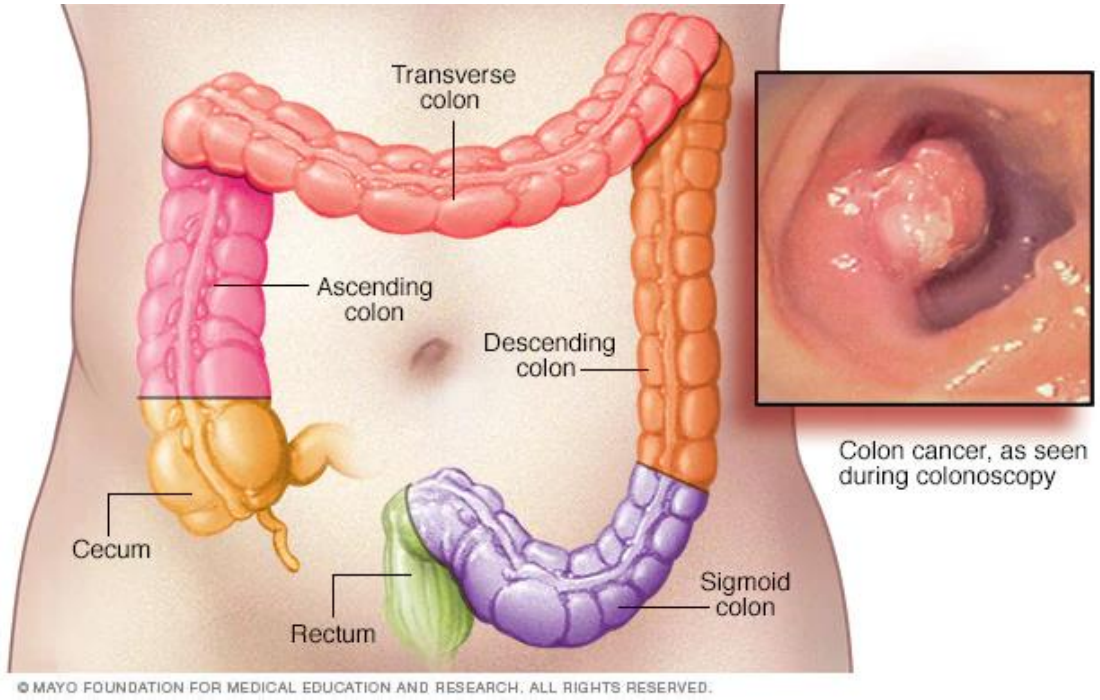
“The examining physician often hesitates to make the necessary examination because it involves soiling the finger.”

Said another way:

“There are only two reasons you don’t do a rectal exam; either the patient doesn’t have a rectum, or you don’t have a finger.”



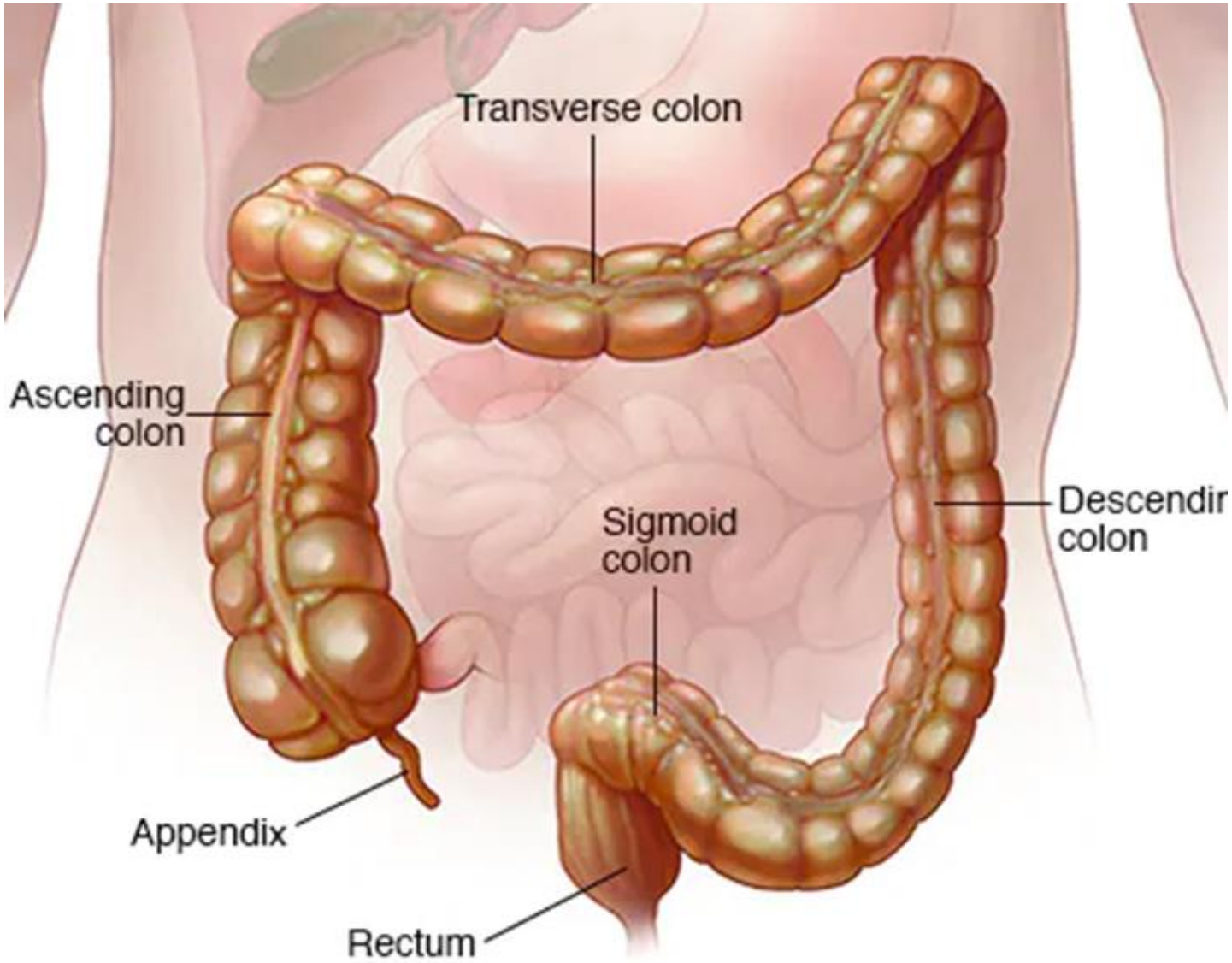
Anatomy



- Size:
  - 3 inches in diameter
  - 6 feet long
- Versus - Small intestine
  - One inch in diameter
  - 22 feet long
- Separate layers of circular muscles and longitudinal muscles allow the intestine to contract in different ways

Large Intestine

- Includes:
  - Colon
  - Rectum
  - Anus
- Colon:
  - Cecum
  - Ascending
  - Transverse
  - Descending
  - Sigmoid
- No true division



Peritoneal spaces

Retroperitoneal:

- Ascending and descending colon

Intraperitoneal:

- Transverse colon and sigmoid colon, anterior upper two-thirds of rectum (remainder extraperitoneal

Intraperitoneal	Retroperitoneal
Structures within the peritoneum	Structures outside the peritoneum
Organs are mobile	Organs are fixed into their location
Includes: esophagus, stomach, jejunum, ileum, cecum, appendix, transverse and sigmoid colon	Includes: duodenum, pancreas, kidneys, ascending and descending colon.

Physiology

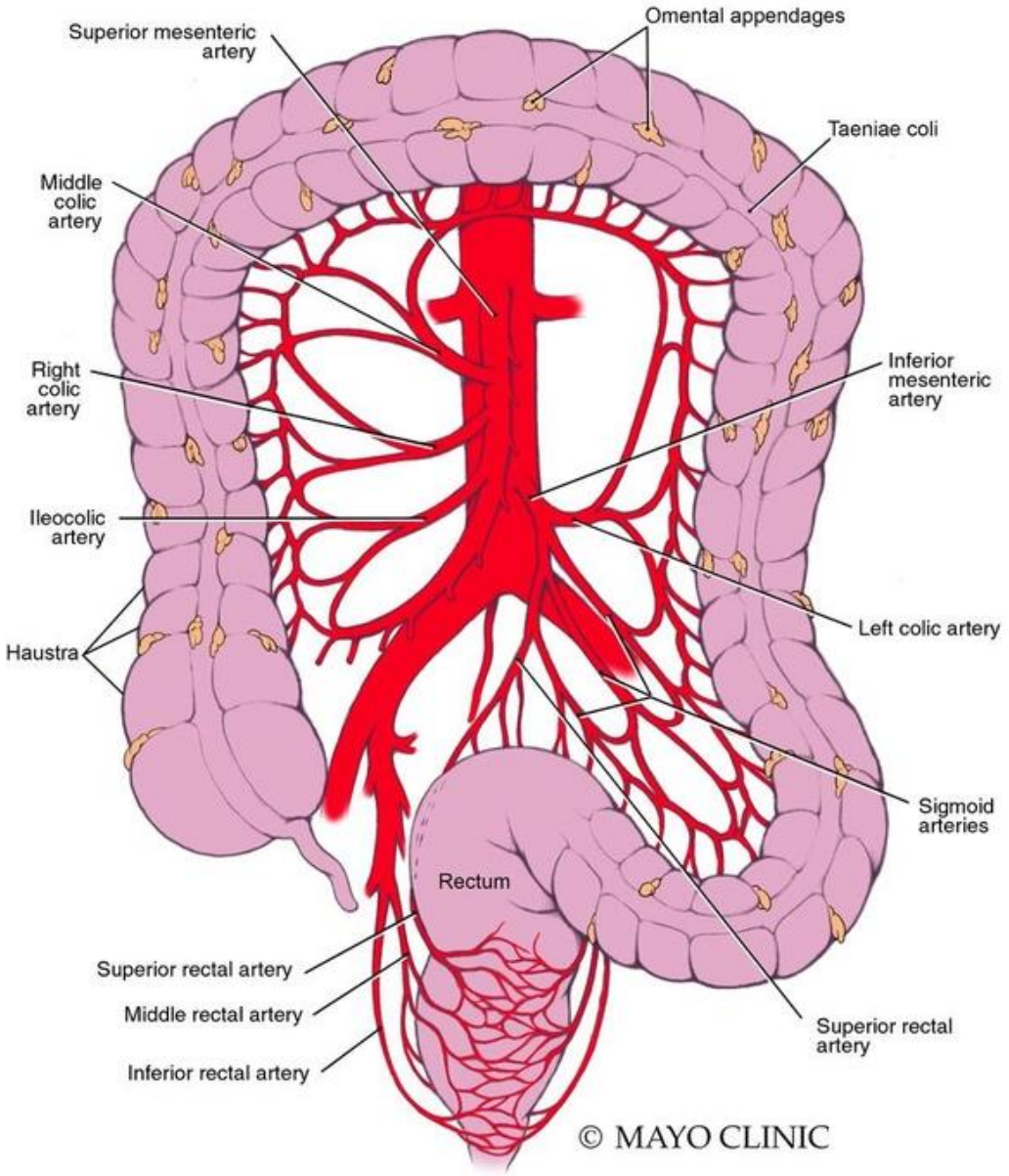
Colon:

- Dehydrate liquified food to form stool – absorbing water and electrolytes during peristalsis
- Starts in cecum (first 6 inches of the colon) – ileocecal valve – when full this triggers peristalsis to begin
- Mostly solid when it arrives to the descending colon.
- Secretes mucus to bind and lubricate the food and help it pass smoothly as it is dehydrated
- Peristalsis process is much slower in colon than small intestine.

Arterial Anatomy

Vascular anatomy of the ascending colon is more complex, and variable as compared to the left.

Variations range from the mode of origin, branching to territorial supply.



NIGAH S, PATRA A, CHUMBER S. ANALYSIS OF THE VARIATIONS IN THE COLIC BRANCHING PATTERN OF THE SUPERIOR MESENTERIC ARTERY: A CADAVERIC STUDY WITH PROPOSAL TO MODIFY ITS CURRENT ANATOMICAL CLASSIFICATION. CUREUS. 2022;14(5):E25025. PUBLISHED 2022 MAY 15. DOI:10.7759/CUREUS.25025

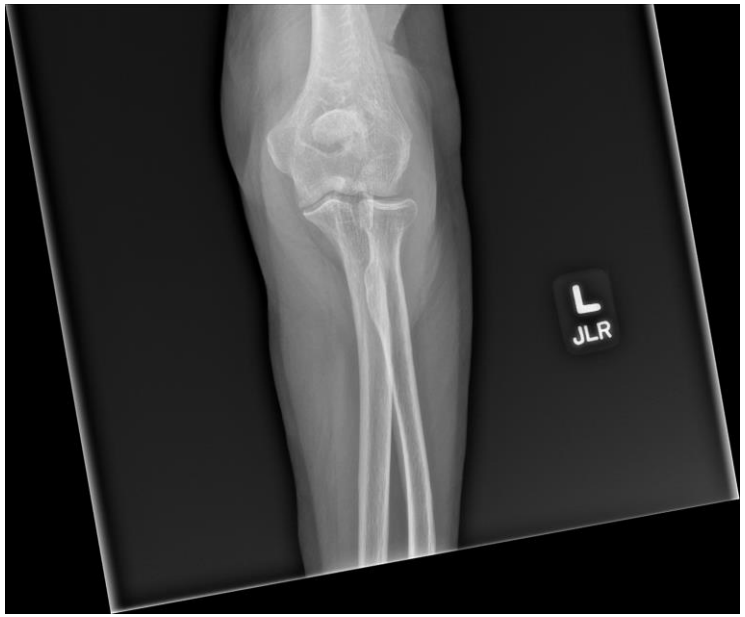

CHARTE POUR EXAMEN
DE LA VUE À DIX PIEDS
E K A
C Z H S
K S R N H
D V K H C R
N S D V C H O
D C N K O H R S
H U D K S C R O N V
O A H V Z C K L D B S R
N V G R B H O E A K C M P S
P K N V T N U H A R X M B J E D C I O

Case One

- 85-year-old female
- PMH: Amaurosis Fugax, Cataract Senile Cortical Bilateral, Chronic Kidney Disease (CKD), Stage 3a Glomerular, Fibrocystic Breast Bilateral, Hypertensive Chronic Kidney Disease (CKD) Stage 3a, Hypertension Essential NOS, Osteopenia, Polyp Colon Adenomatous, Primary Osteoarthritis Hip Right
- Presents to ED, two hours after a slip and fall onto her left elbow.
- Exam: visible swelling and bruising to LUE, decreased ROM of left elbow, normal motion and sensation in her left hand. No wrist pain, hand is warm and pink with a 2+ radial pulse. No skin disruption.

Case One

Imaging revealed a displaced left olecranon fracture without elbow dislocation.

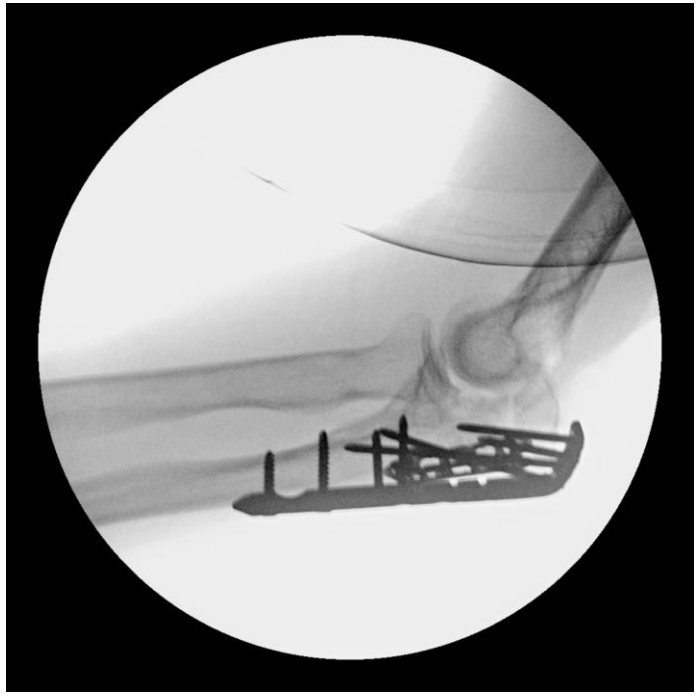


Case One

- Orthopedic Surgery consulted and obtained a CT scan of the elbow.
  - Comminuted fracture of the proximal ulna. Proximal retraction of the proximal olecranon fragment attached to the distal triceps. Mild posterior displacement of fracture fragments related to impaction with the trochlea. Mild subluxation of the radiocapitellar articulation. Large elbow joint effusion with hemarthrosis. Hematoma about the fracture site. Extensive subcutaneous edema throughout the elbow.

Case One

Patient taken to surgery for open reduction and internal fixation



Case One

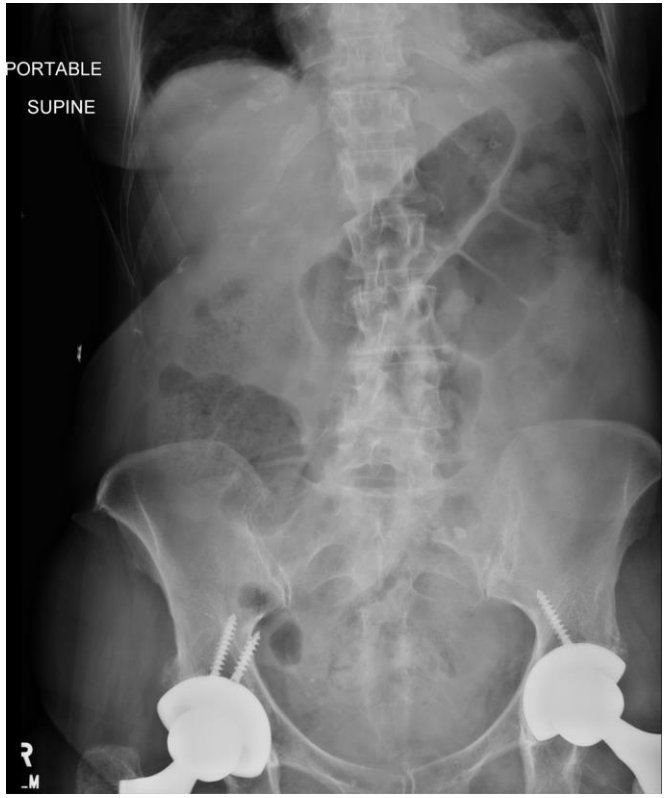
- Presents to ED
- Chief Complaint: constipation, periumbilical pain
- Alleviating/Aggravating factors: Colace, MiraLax, Smooth Move tea
- Relevant PMHx: HTN, CKD, polyp colon adenomatous, s/p recent elbow ORIF (POD 7)
- Other Surgical Hx: BL hip arthroplasty, partial hysterectomy, oophorectomy

Case One

- Vitals:
  - HR: 59
  - BP: 113/59
  - SPO2: 96%
  - Temp: 36.8
  - RR: 22
- ROS: (+) abdominal pain, nausea, vomiting, decreased appetite
- ROS: (-) fevers, chills, chest pain, dyspnea, melena, hematochezia, dysuria
- Medications: HCTZ, atenolol, atorvastatin, hydrocodone, multivitamin
- Exam: decreased bowel sounds, generalized abdominal tenderness (periumbilical), guarding, left arm splint, left arm edema & bruising

ED Course

- Labs
  - CBC,: Hgb (10.9), WBC (4.3), Plt (257)
  - BMP: Na (128), K (3.8), Bicarb (21), Cr (0.8), Glucose (92)
- Abdominal XR
  - mod colonic stool burden, gas and stool scattered through the colon, no evidence of obstruction, no free air
- Supportive Care
  - Maintenance IV fluids
  - Milk and Molasses enema
  - Bentyl



…2 hours later

Worsening abdominal pain- 10/10

Exam: diffuse abdominal tenderness, focal tenderness LLQ, guarding

CT abdomen/pelvis

Rectosigmoid perforation with extraluminal stool and free air.

Moderate colonic stool burden more proximally. Normal appendix. The small bowel is normal in caliber. Diffuse mesenteric edema. Increased number of nonenlarged mesenteric lymph nodes, likely reactive.

CT abdomen/pelvis

Large volume of free air in the pelvis about the rectosigmoid colon with additional scattered locules of free air throughout the remainder of the abdomen. Hyperdense stool throughout the left and sigmoid colon with perforation of the rectosigmoid, and a large volume of extraluminal stool

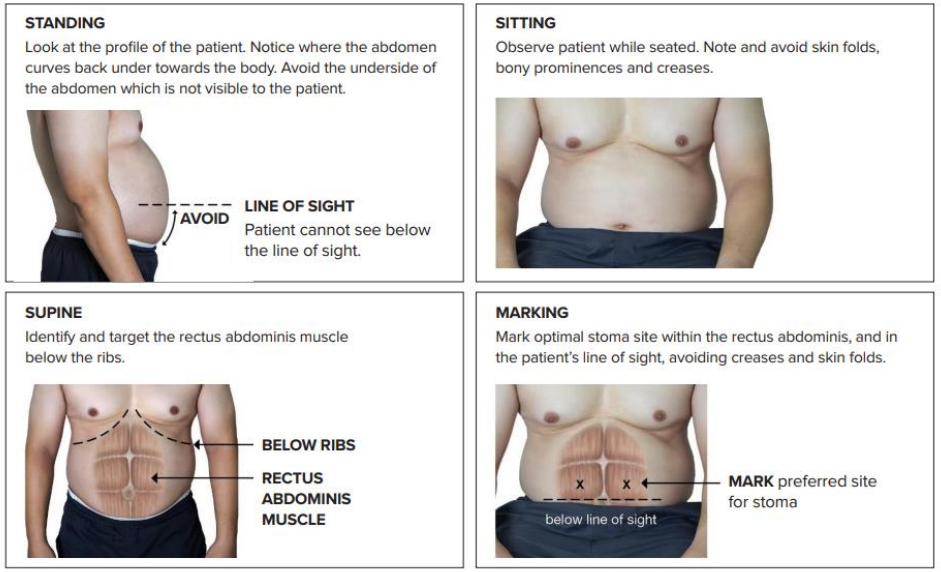
Colonic Perforation - Management

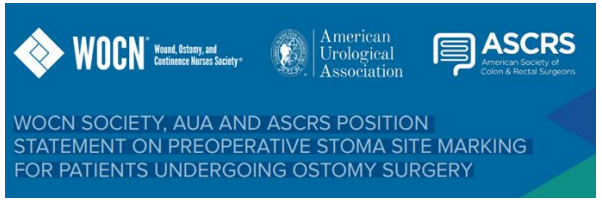
- Nonoperative: contained perforation, gastrointestinal fistula formation, or limited contamination as judged by imaging, in those who have no signs of systemic sepsis
  - Strict NPO, IV fluids, IV abx, serial abdominal exams, trend labs, bowel regimen
  - Benefits: avoid operation
  - Risks: decompensate, septic, surgery (more difficult)

- Operative
  - Benefits: source control, pain control
  - Risks: surgery, future operation, surgical complications, recovery, new lifestyle

Prep for Surgery – Stoma Marking

- Stoma marking
- Pass through the rectus abdominis muscle below umbilicus
- Natural waist, position of pants and belt
- Allow the patient to see the stoma.



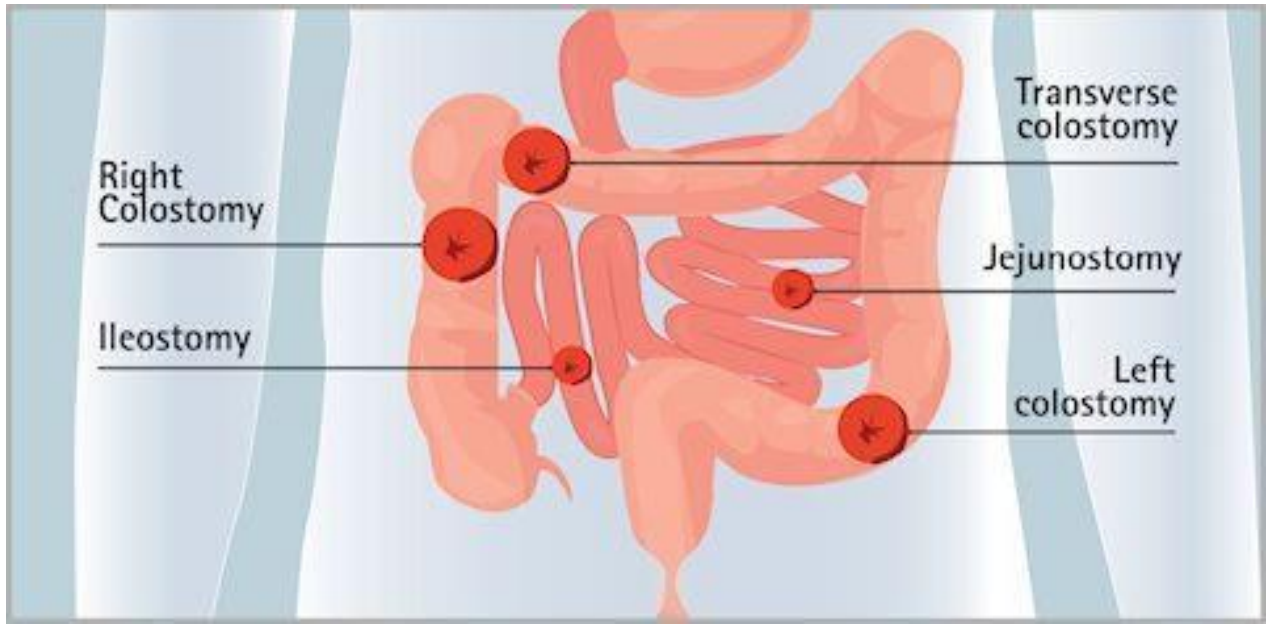


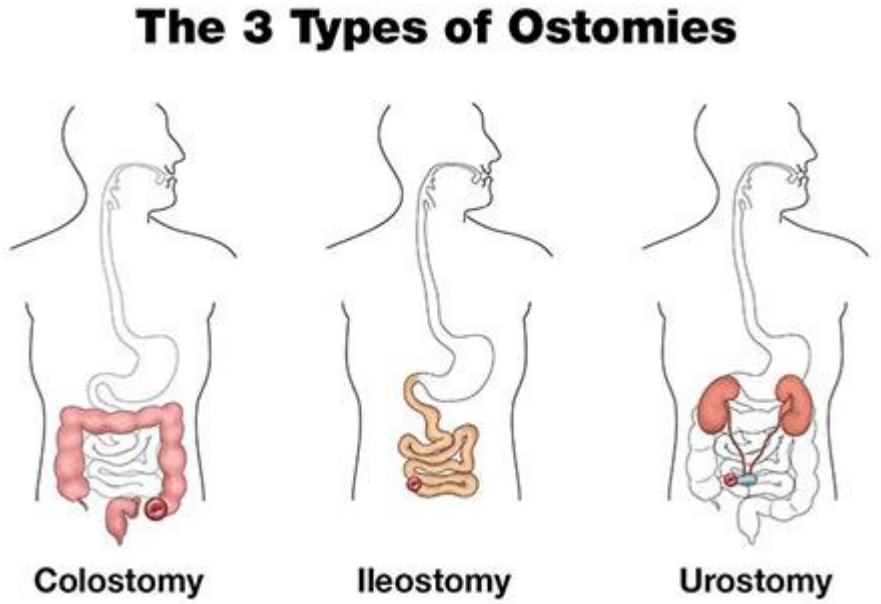
SABBAGH C, REBIBO L, HARIZ H, REGIMBEAU JM. STOMAL CONSTRUCTION: TECHNICAL TRICKS FOR DIFFICULT SITUATIONS, PREVENTION AND TREATMENT OF POST-OPERATIVE COMPLICATIONS. J VISC SURG. 2018;155(1):41-49. DOI:10.1016/J.JVISCSURG.2017.11.002

Surgery

EXPLORATORY LAPAROTOMY WITH ABDOMINAL WASHOUT, RESECTION OF THE AFFECTED SEGMENT OF THE COLON (SIGMOID), END COLOSTOMY AND HARTMANN'S CLOSURE OF THE RECTUM

Types of stoma/ostomy





Bowel Perforation

Causes

- Four mechanisms:
  - Ischemia (bowel obstruction, necrosis)
  - Infection (appendicitis, diverticulitis)
  - Erosion (malignancy, ulcerative disease)
  - Physical disruption (trauma, iatrogenic injury)

Ogilvie Syndrome

- A fifth mechanism?
- Excess pressure can cause the musculature of the bowel to fail mechanically
- Splits (diastatic rupture) without obvious necrosis.
- Intestinal pseudo-obstruction (Ogilvie syndrome) can also lead to perforation by these mechanisms.

Bowel Obstruction - cancer?

- Colorectal cancer >50% of all large bowel obstructions
  - 10% of all CRC will present as LBO
- Onset insidious – progressive constipation from lumen narrowing, narrowed stools (left), crampy abdominal pain (right).
- Most common location – sigmoid colon
  - 75% of tumors located distal to the splenic flexure
- Perforation at tumor in 70%, proximal to tumor in 30%
  - Perforation at tumor site, contamination often localized
  - Perforation proximal, c can result in diffuse peritonitis, septic shock

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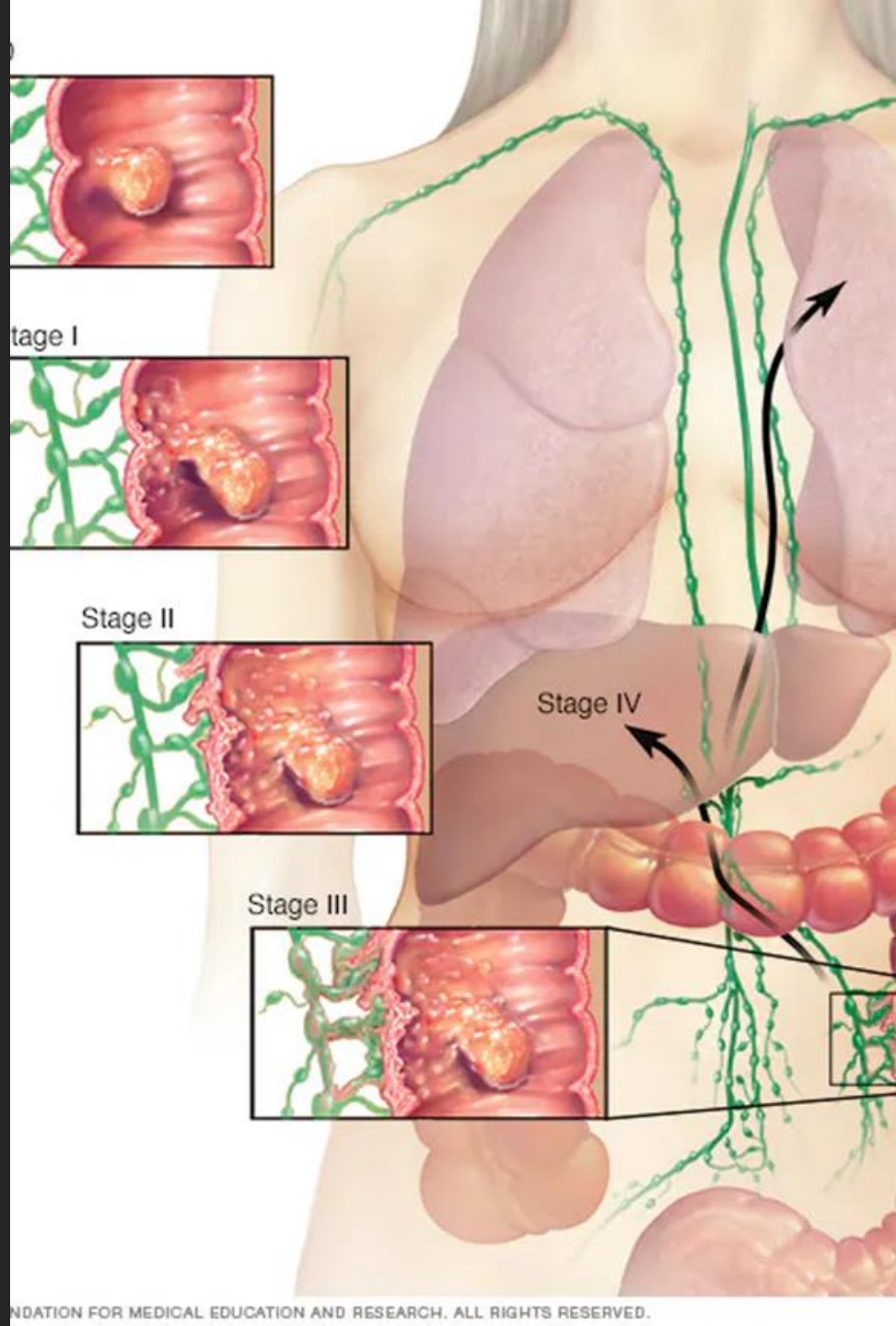
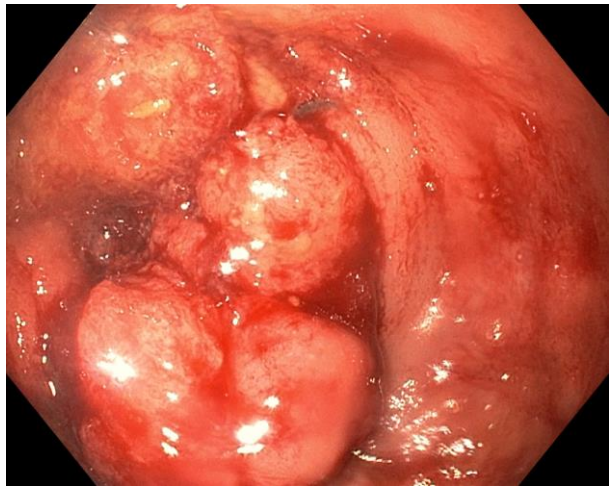


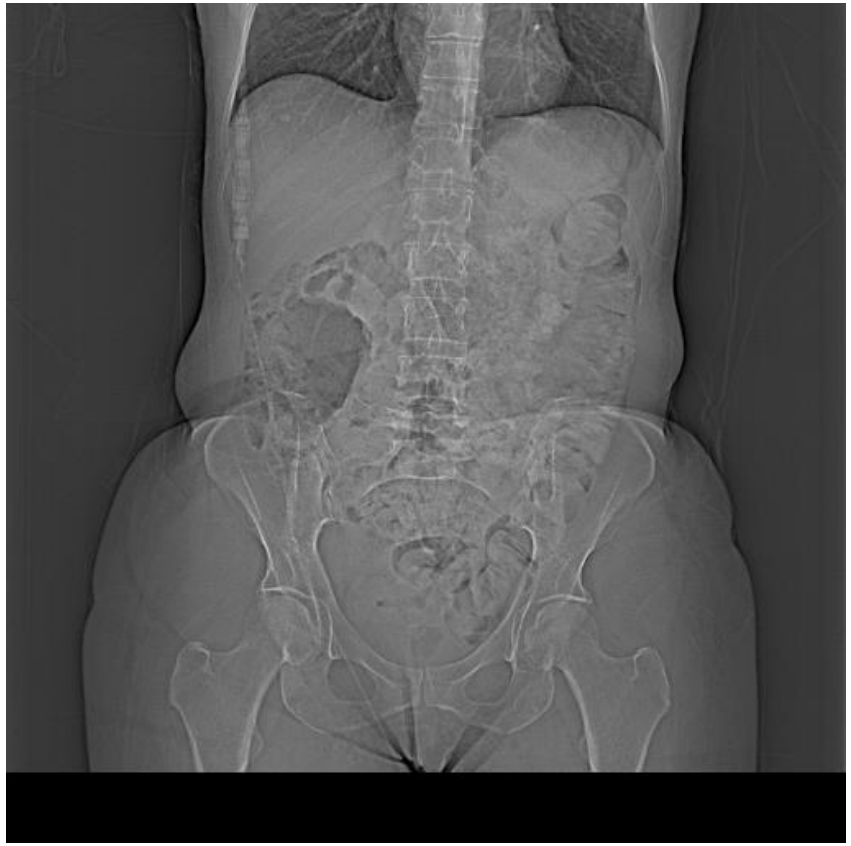
In another case…

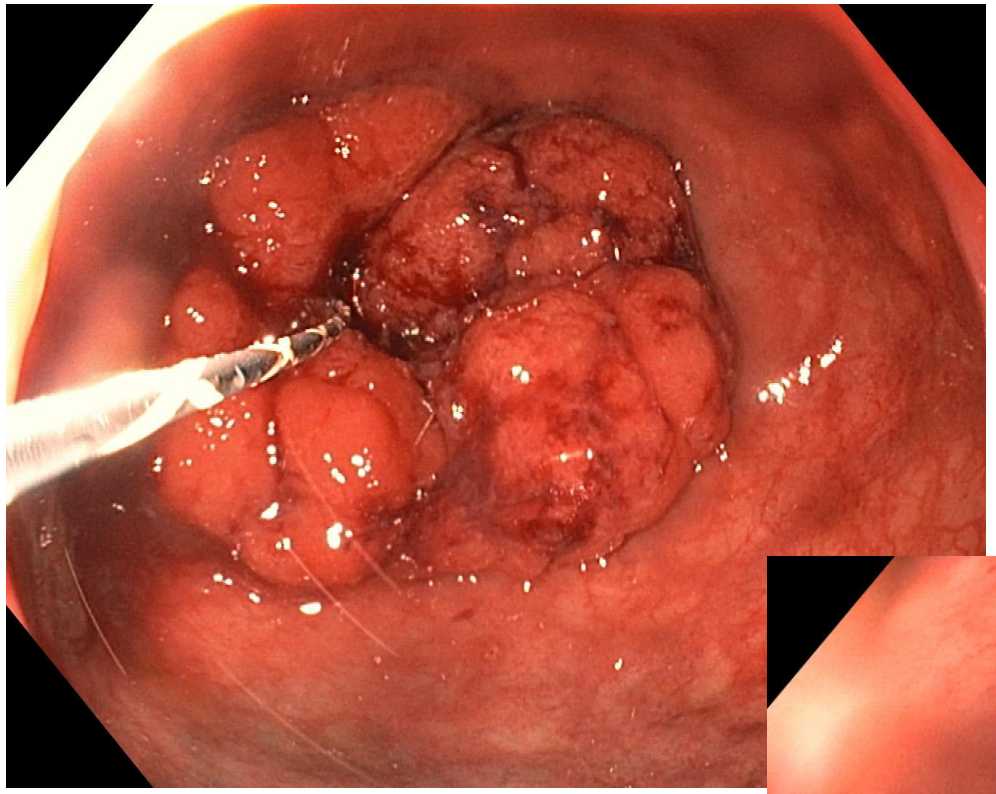
34-year-old female with metastatic adenocarcinoma of the rectum.

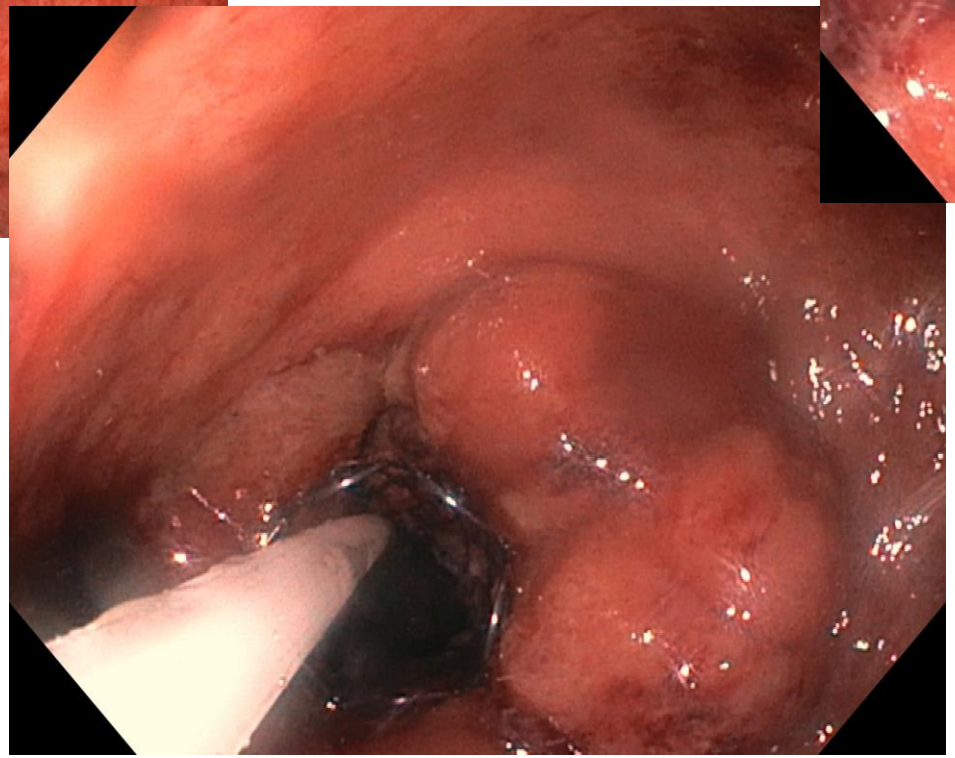
No bowel movement in 9 days

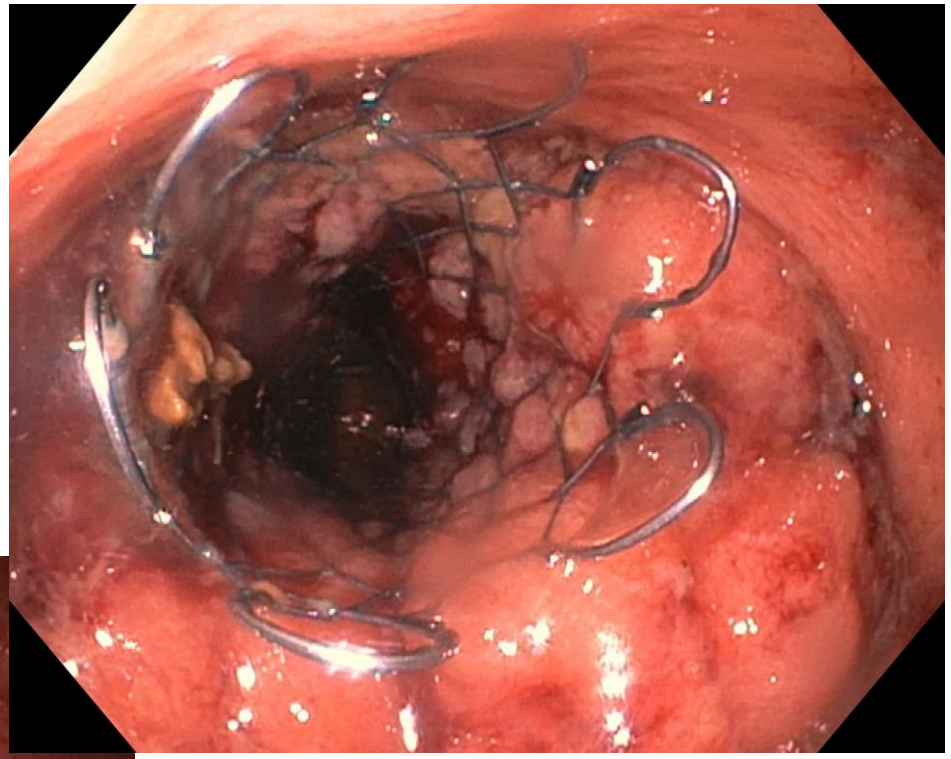
Distension, passing air, mucous and blood

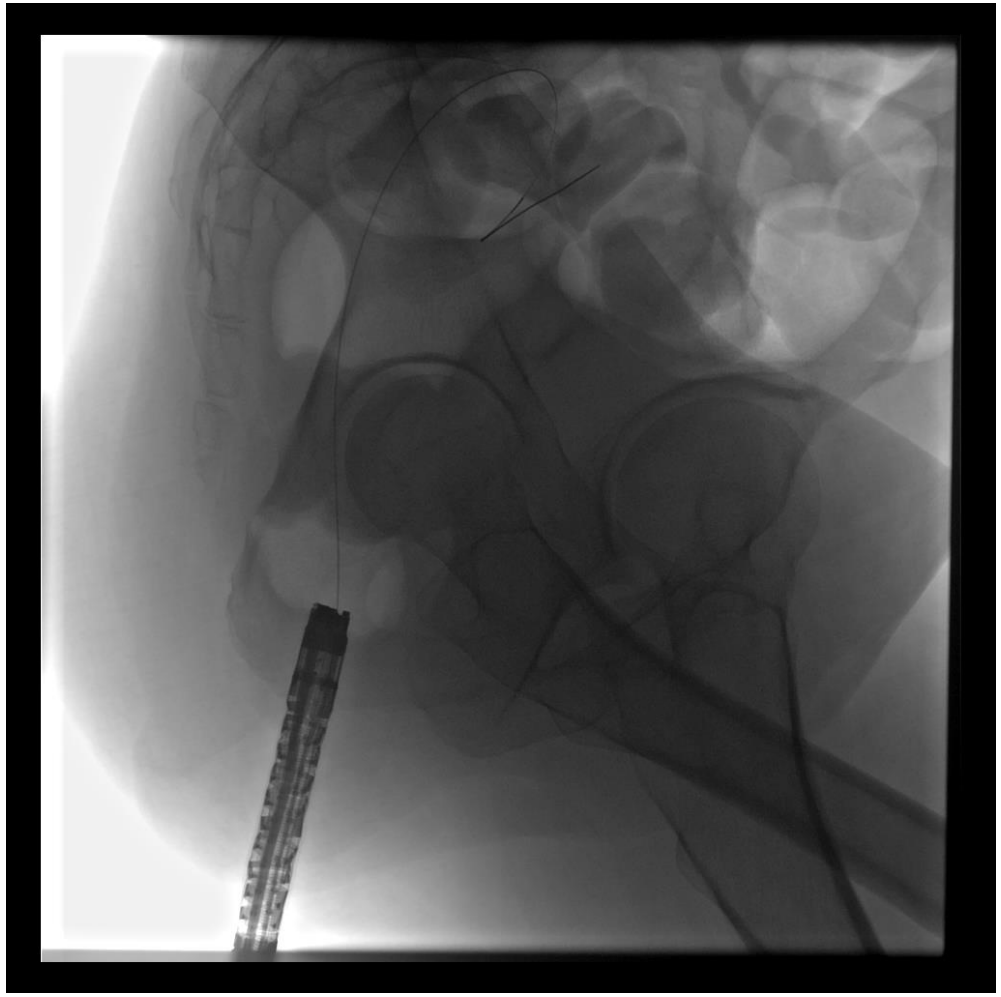


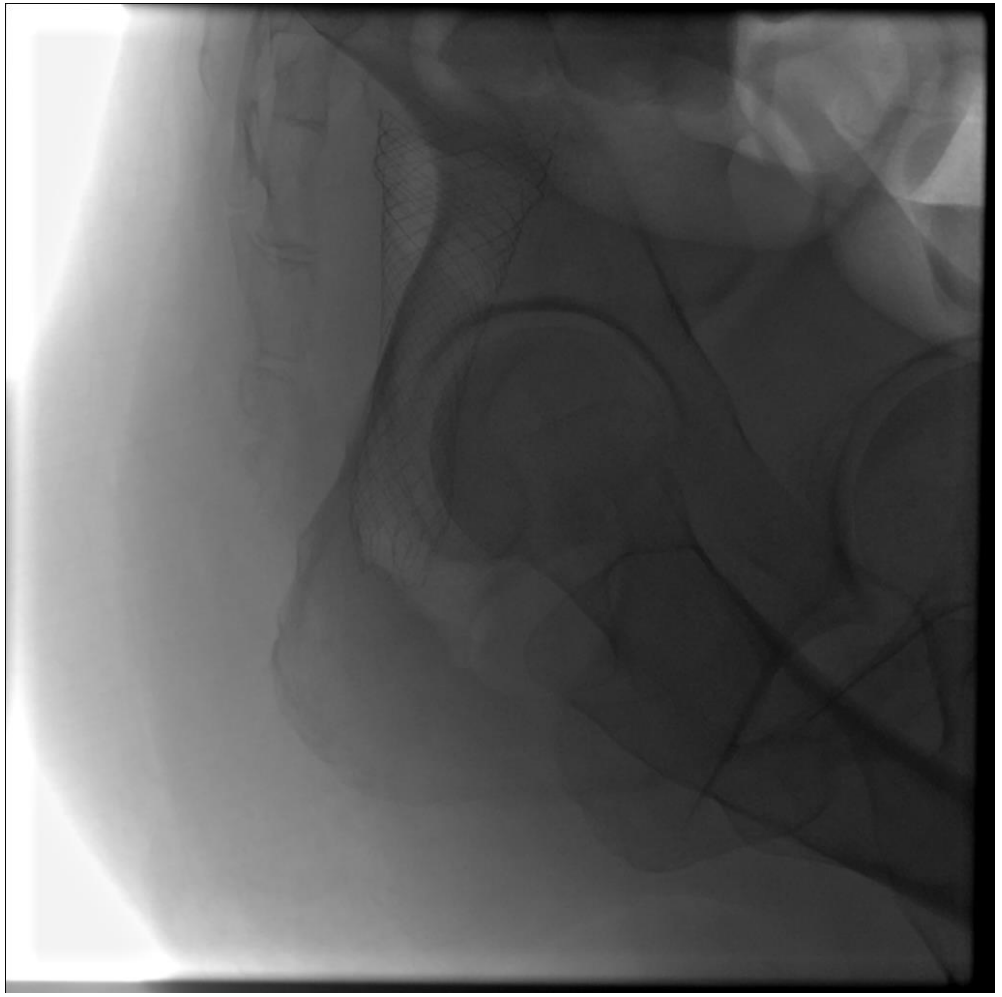












In our case…

- Stercoral perforation: a rare cause of bowel perforation
- pressure builds up within the bowel, exceeding intestinal perfusion pressure, and leading to ischemia and subsequently necrosis

FERNANDO S, SARMA DR. RARE BUT RELEVANT: A SYSTEMATIC REVIEW OF STERCORAL PERFORATION. BR J HOSP MED (LOND). 2021;82(4):1-7. DOI:10.12968/HMED.2020.0659

Stercoral Perforation

- Estimated incidence: 3.2%
- Overall mortality: 34%
- Average age: 62 years
- Non-specific presenting symptoms – constipation, abdominal pain, distension
- At-risk patients:
  - Elderly people, nursing home residents, bedridden individuals and patients with hypothyroidism, scleroderma or diabetic enteropathy
  - Opiates, tricyclic antidepressants, non-steroidal anti-inflammatory drugs (NSAIDs), verapamil and immunosuppressive agents used after renal transplantation can cause constipation
  - NSAIDs reduce the production of protective prostaglandins

KOTHARI K, FRIEDMAN B, GRIMALDI GM, HINES JJ. NONTRAUMATIC LARGE BOWEL PERFORATION: SPECTRUM OF ETIOLOGIES AND CT FINDINGS. ABDOM RADIOL (NY). 2017;42(11):2597-2608. DOI:10.1007/S00261-017-1180-X

Stercoral Perforation

- Abdominal CT scan is the best option for diagnosis.
- Since the peritoneal cavity can be divided into various compartments, the location of gas on abdominal CT scan can help suggest the site and cause of the perforation
- Helps localize the site: discontinuity of the bowel wall, the site of luminal contrast leakage, level of bowel obstruction, and gas in the bowel wall or bowel wall thickening with or without an associated inflammatory mass or abscess, or fistula
- In one study, the most sensitive CT findings in decreasing order were pericolonic stranding (80%), perfusion defects (70%), dense mucosa (62%), thickening of the colon wall (60%), abnormal gas (50%) and pericolonic abscess (20%).

WU CH, WANG LJ, WONG YC, ET AL. NECROTIC STERCORAL COLITIS: IMPORTANCE OF COMPUTED TOMOGRAPHY FINDINGS. WORLD J GASTROENTEROL 2011;17:379–84. DOI:10.3748/WJG.V17.I3.379

Learning Points

- Stercoral perforation is a rare but lethal complication of constipation and faecal impaction.
- Maintain a high index of suspicion for stercoral perforation in patients with a history of chronic constipation who present with acute abdominal pain.
- A chronically constipated patient with increasing abdominal pain without clinical peritonitis may either be developing stercoral perforation or already have it subclinically.
- A plain abdominal radiography may not diagnose stercoral perforation, but early abdominal CT scans can diagnose this condition and prevent possible death.

Case Two

43 year-old male

- PMHx of Crohn's disease on ustekinumab (Stelara) q8w, Barrett's esophagus, psoriasis
- Hospitalized with severe diarrhea at OSH in sequential months
- Colonoscopy showed severe ulceration/inflammation involving the sigmoid colon to the cecum and ileum
- Responded well to IV steroids, unable to taper off past 40 mg prednisone since.
- Loading dose of ustekinumab, one additional dose prior to presentation.

Case Two

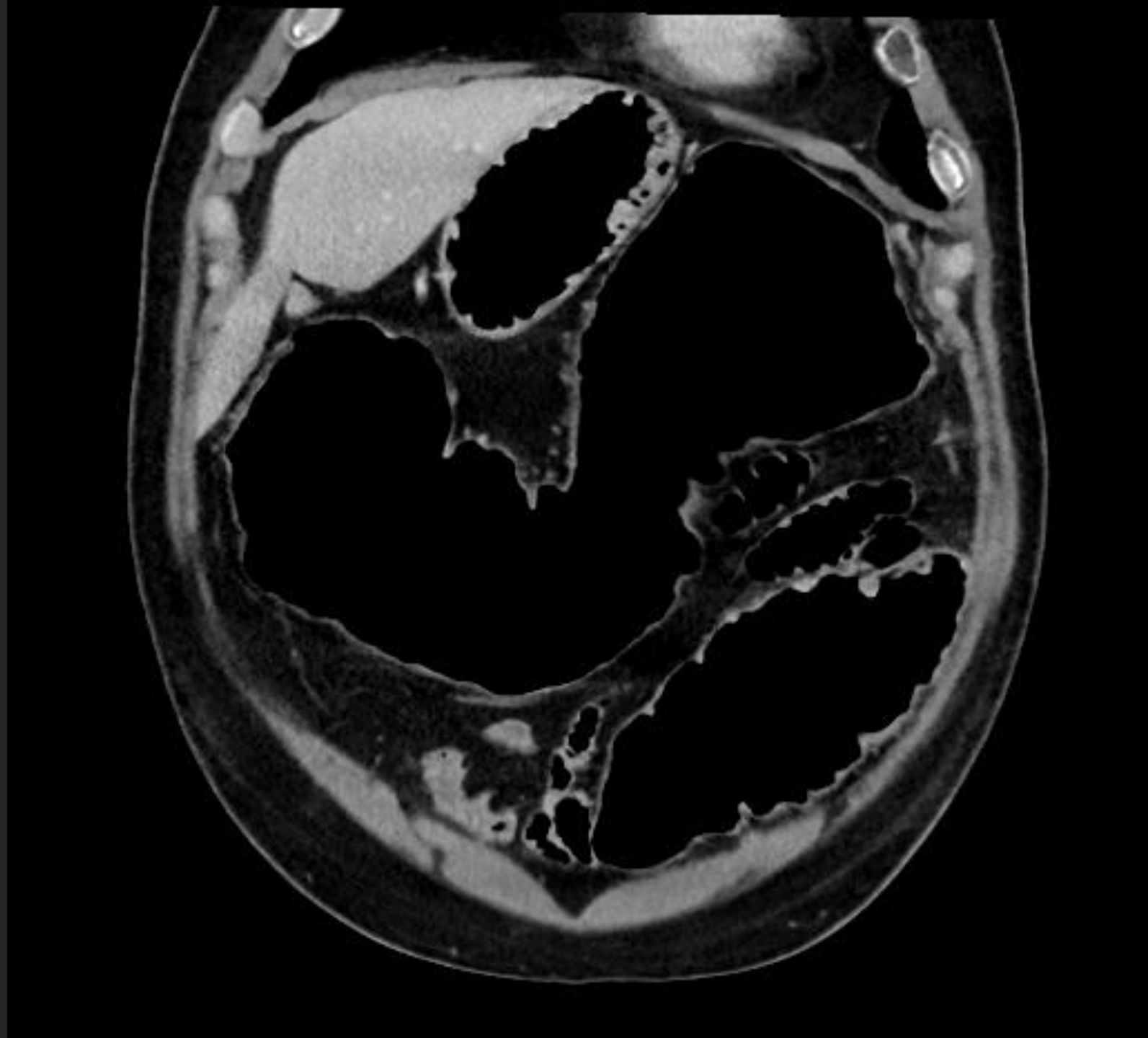
- Initial outpatient consultation: evaluate Stelara level, stool studies, CT enterography, EGD (hx Barrett's) and restaging colonoscopy.
- CT enterography showed long segment inflammation of the colon dilated to 6.3 cm with polyps/pseudopolyps.
- Direct admitted.
- Mild leukocytosis. Mild anemia with low ferritin but elevated iron and saturation. CRP normal. Not immune to HBV but does have HAV antibodies. Stelara level pending.

Case Two

- His main complaint - moderate left-sided abdominal pain. He actually
- Feels he had an excellent response to his second dose of Stelara, declined over the past month.
- Averages 2-3 BM/day - compared to his presenting diarrhea of 10-15 movements per day. No blood in stool. He lost 50 lbs. initially but has gained back 30. He feels most of his weight gain has been in the abdomen. He feels much more distended than usual. He is passing gas

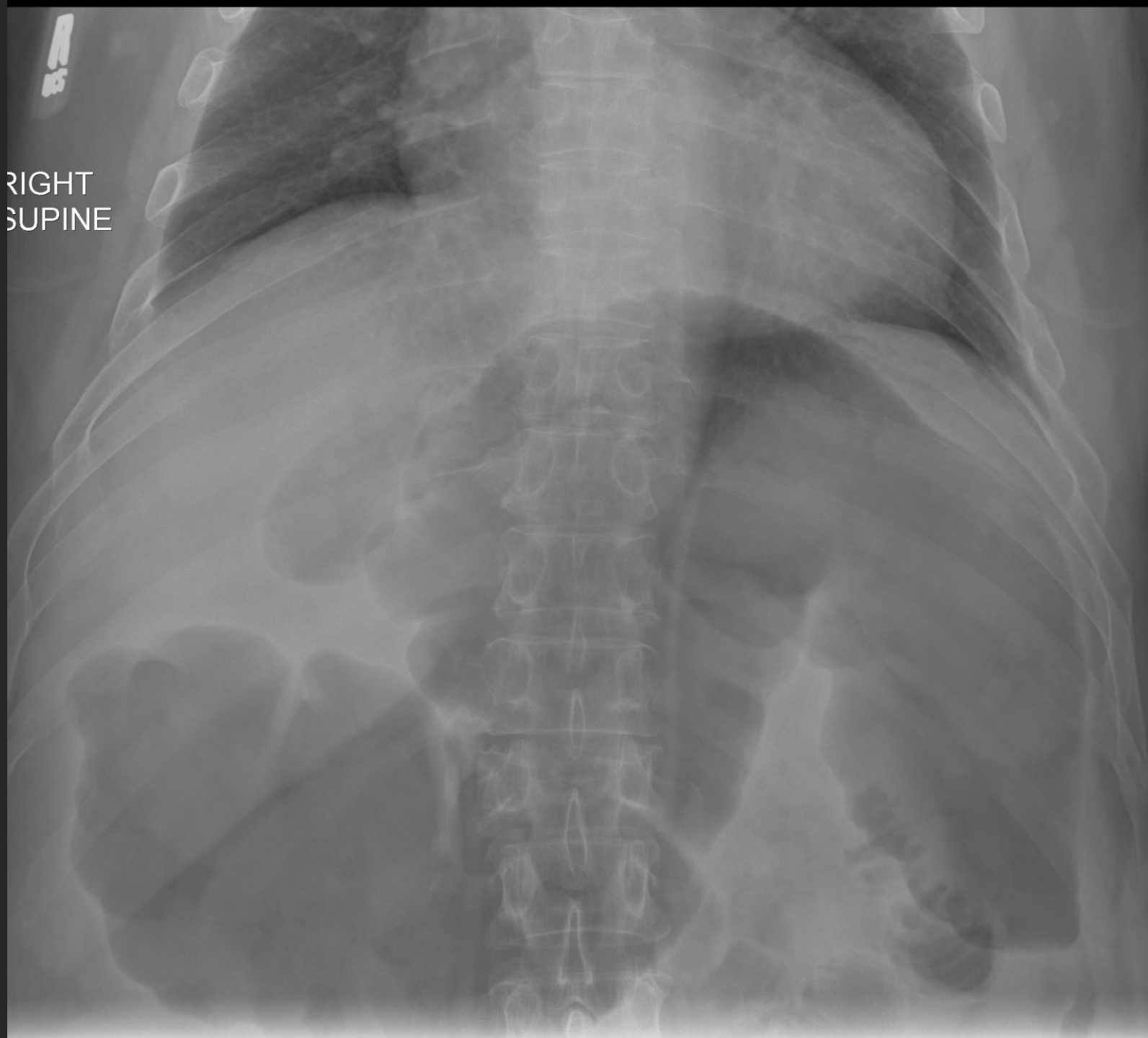
CT Abdomen/Pelvis:

Persistent colitis with scattered polyps/pseudopolyps and worsening distention of the transverse colon up to 11.2 cm and distal descending/sigmoid colon up to 6.7 cm, concerning for toxic megacolon



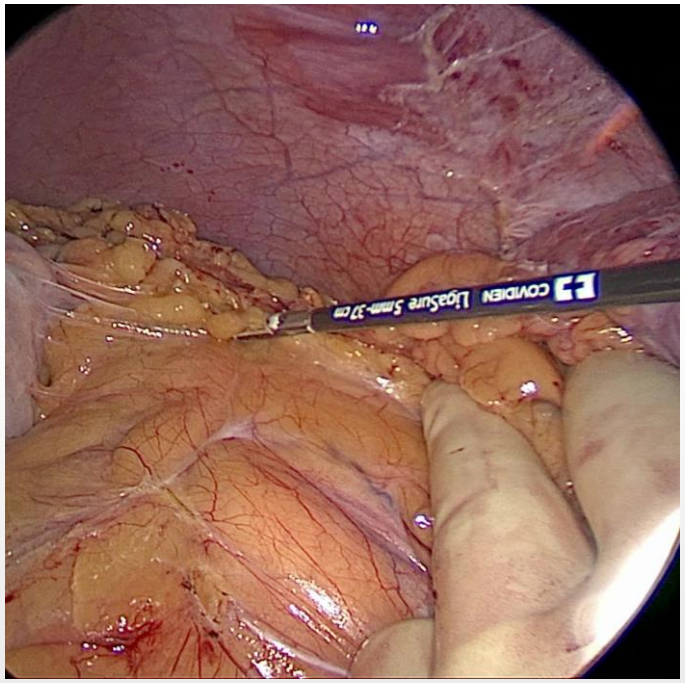
X-ray supine

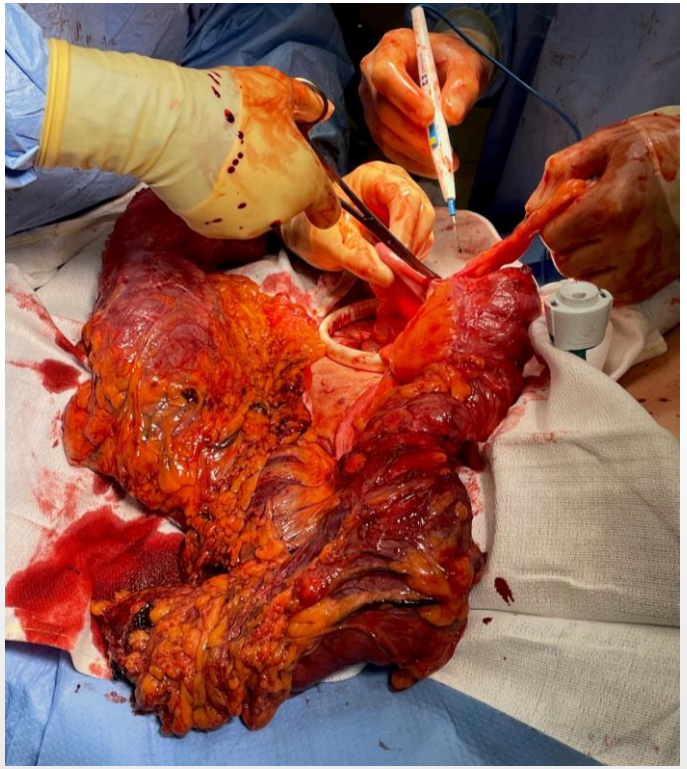
Redemonstrated dilated air-filled transverse colon, measuring up to 14.3 cm in caliber, slightly increased in the interval. Colonic air-fluid levels, thumbprinting, and pseudopolyps are noted, concerning for toxic megacolon.



Surgery

LAPAROSCOPIC HAND-ASSISTED TOTAL ABDOMINAL COLECTOMY, END ILEOSTOMY, IMPLANTATION OF RECTOSIGMOID STUMP IN SUBCUTANEOUS TISSUE OF EXTRACTION SITE


COVIDIEN LigaSure 5mm-37 cm



Toxic Megacolon

Inflammatory Bowel

- Up to 25% of patients with IBD may require hospitalization.
- Up to 30% of UC patients will fail to respond to initial intravenous corticosteroid.
- Goals of Admission:
  - evaluate the severity of the disease
  - exclude infections
  - establish proper treatment while monitoring response
- Closely observe for development of toxic megacolon or perforation - emergency colectomy.

CARVELLO M, WATFAH J, SPINELLI A. THE MANAGEMENT OF THE HOSPITALIZED ULCERATIVE COLITIS PATIENT, THE MEDICAL-SURGICAL CONUNDRUM. CURR GASTROENTEROL REP. 2021;23(12):25. PUBLISHED 2021 OCT 30. DOI:10.1007/S11894-021-00820-7

Clostridium difficile

- Incidence/severity of infections has increased significantly over the last decade
  - high-risk populations such as patients with inflammatory bowel disease
- Severe or fulminant colitis - high potential for poor outcome
- Lower mortality rate with colectomy rather than with continued medical treatment
- Colectomy performed before the development of shock requiring vasopressors, respiratory failure, renal failure, multi-organ dysfunction, and mental status changes may reduce mortality of the most severe forms of colitis
- The Surgical Infection Society's Therapeutics and Guidelines Committee: recommend that total abdominal colectomy for definitive therapy of severe or fulminant, non-perforated C. difficile colitis. Colon preservation using DLI with intra-colonic vancomycin may be associated with higher rates of ostomy reversal and restoration of gastrointestinal continuity but may lead to development of recurrent C. difficile colitis

KAISER AM, HOGEN R, BORDEIANOU L, ET AL. CLOSTRIDIUM DIFFICILE INFECTION FROM A SURGICAL PERSPECTIVE [PUBLISHED CORRECTION APPEARS IN J GASTROINTEST SURG. 2015 AUG;19(8):1563]. *J GASTROINTEST SURG*. 2015;19(7):1363-1377. DOI:10.1007/S11605-015-2785-4
FORRESTER JD, COLLING KP, DIAZ JJ, ET AL. SURGICAL INFECTION SOCIETY GUIDELINES FOR TOTAL ABDOMINAL COLECTOMY VERSUS DIVERTING LOOP ILEOSTOMY WITH ANTEGRADE INTRA-COLONIC LAVAGE FOR THE SURGICAL MANAGEMENT OF SEVERE OR FULMINANT, NON-PERFORATED CLOSTRIDIOIDES DIFFICILE COLITIS. SURG INFECT (LARCHMT). 2022;23(2):97-104. DOI:10.1089/SUR.2021.126

Management

- Supportive care:
  - optimizing fluid regime,
  - bowel rest or decompression
  - discontinuation of aggravating drugs.
- Medical therapy is targeted at the underlying cause
  - corticosteroids in UC
  - antibiotics in treating organism-induced TM (reduce mortality if perforation occurs)

CARVELLO M, WATFAH J, SPINELLI A. THE MANAGEMENT OF THE HOSPITALIZED ULCERATIVE COLITIS PATIENT, THE MEDICAL-SURGICAL CONUNDRUM. CURR GASTROENTEROL REP. 2021;23(12):25. PUBLISHED 2021 OCT 30. DOI:10.1007/S11894-021-00820-7

Management

- Absolute indications for surgery:
  - perforations
  - uncontrollable bleeding
  - progressive dilatation.
- Surgical resections- rapid clinical improvement, recommended as soon as diagnosis is made.
- Trial of medical therapy is acceptable

CARVELLO M, WATFAH J, SPINELLI A. THE MANAGEMENT OF THE HOSPITALIZED ULCERATIVE COLITIS PATIENT, THE MEDICAL-SURGICAL CONUNDRUM. CURR GASTROENTEROL REP. 2021;23(12):25. PUBLISHED 2021 OCT 30. DOI:10.1007/S11894-021-00820-7

Learning Points

- Diagnosis of toxic megacolon (TM) is made based on a constellation of clinical, laboratory, and imaging findings.
- Any cause of colitis can lead to TM, but ulcerative colitis is often the culprit.
- Medical therapy can be initiated but surgical resection must be performed if the patient is deteriorating or not showing signs of improvement.

Case Three

- 24 y.o. female
- PMH: sickle cell trait
- Outside hospital with heatstroke (T max 39.5), AKI and rhabdomyolysis. Physical training exercise at a Navy location, syncopal episode, SOB running a military PT test. Patient was transferred to Mayo on HD5 for further management of multiorgan failure. MARS therapy and CRRT initiated. Started on empiric antibiotics.
- Consults: Liver Transplant and Neurosurgery, CRS

Case Three

- VITALS:
  - BP 109/61
  - HR 116
  - On room air
- Corpak in place. Endorses abdominal pressure.
- Denies worsening abdominal pain, nausea or vomiting. Reports bloody stools present since syncopal episode. No history of abdominal or pelvic surgeries in the past. She has never had a colonoscopy.
- In the last 24 hours, labs continue to worsen. She has worsening high anion gap metabolic acidosis and leukocytosis (WBC 30.8). Other labs notable for the following: Hgb (9.7), Plt (156), Cr (1.74), Lactate (2.8) and Ammonia (59).

CT Abdomen/Pelvis

Diffuse pneumatosis throughout the entire colon and extending into the rectum. Appearance is highly suspicious for ischemic colitis. Some scattered areas of colonic wall enhancement are preserved, suggesting discontinuous or incomplete involvement. Pneumatosis also extends into the appendix.

Small areas of mesenteric venous gas. No free intraperitoneal air. No evidence of small bowel ischemia. No bowel obstruction. Trace free fluid. No abscess. Feeding tube extends into proximal jejunum.

Surgery

LAPAROTOMY, SUBTOTAL COLECTOMY, CREATION OF END-ILEOSTOMY, IMPLANTATION OF RECTOSIGMOID STUMP IN DISTAL PORTION OF THE MIDLINE WOUND

Ischemic Colitis

Ischemic Colitis

- Ischemic colitis is predominantly older patients - 6-7th decade.
- Risk factors:
  - Underlying cardiovascular disease
  - Diabetes mellitus
  - Hypertension
  - Hemodialysis
  - Hypoalbuminemia
  - heart failure
  - medications (digoxin, aspirin).
- Symptoms: present with acute-onset abdominal pain with bloody stools

Ischemic Colitis

- Intestinal ischemia occurs when at least a 75% reduction in intestinal blood flow for more than 12 hours
- After a prolongation of low perfusion or hypoxemia, progressive vasoconstriction leads to reducing collateral flow and subsequently full-thickness necrosis of the intestinal wall and perforation
- Differential diagnosis for bowel ischemia is broad and includes all diseases that can present with abdominal pain

Upper Abdominal	Lower Abdominal	Diffuse Abdominal
Gallstones Acute cholecystitis/cholangitis Hepatitis/perihepatitis/liver abscess Epigastric pain Pancreatitis Peptic ulcer disease Gastroparesis	Acute appendicitis Diverticulitis Kidney stone/pyelonephritis Infectious colitis	Obstruction, pseudoobstruction/Ogilvie's Volvulus Inflammatory bowel disease Spontaneous bacterial peritonitis Cancer (colorectal/gastritis/pancreatic)

Ischemic Colitis

Differential diagnosis for bowel ischemia is broad and includes all diseases that can present with abdominal pain

Imaging

- Abdominal X-ray
  - Initially show nonspecific ileus pattern or mesenteric thickening,
  - as ischemia sets into deeper layers there is submucosal edema or hemorrhage, which results in focal mural thickening, seen as “thumb printing”.
  - Thumb printing sign can also be seen in pseudomembrane colitis and inflammatory bowel disease
- Computed tomography scan appears mostly normal in early or mild cases of ischemic colitis but can be useful to rule out other causes of abdominal pain.

CHAWLA, A., TIM, W.L. & LIM, T.C. THE COLONIC THUMBPRINTING SIGN. ABDOM IMAGING 40, 2918–2920 (2015). HTTPS://DOI.ORG/10.1007/S00261-015-0487-8

Thumbprinting sign

- Abdominal X-ray
  - Radiographic sign of large bowel wall thickening, usually caused by edema, related to an infective or inflammatory process (colitis).
  - The normal haustra become thickened at regular intervals appearing like thumbprints projecting into the aerated lumen.
  - The inflammation leads to intense mucosal and submucosal edema with resultant nodular thickening of haustra that appear as soft tissue projections in the air-filled lumen of involved bowel

CHAWLA, A., TIM, W.L. & LIM, T.C. THE COLONIC THUMBPRINTING SIGN. ABDOM IMAGING 40, 2918–2920 (2015). HTTPS://DOI.ORG/10.1007/S00261-015-0487-8

Learning Points

- Approximately one-fifth of ischemic colitis cases require surgery
- Associated with high morbidity and mortality
- Conservative management: IV fluids, broad-spectrum antibiotics, and bowel rest if hemodynamically stable.
- Surgical management: peritoneal signs, hemodynamic instability, massive hemorrhage, ongoing sepsis, or nonviable bowel on radiological imaging or endoscopy warrants surgical exploration and resection of the involved segment(s)

AZAM B, KUMAR M, MISHRA K, DHIBAR DP. ISCHEMIC COLITIS. J EMERG MED. 2019;56(5):E85-E86. DOI:10.1016/J.JEMERMED.2019.01.016

Case Four

- 34 y.o. female seen in ED
- PMH: peripartum cardiomyopathy status post orthotopic heart transplant in 2014 on tacrolimus, sirolimus, prednisone and CellCept, ESRD on HD (MWF), cardiac allograft vasculopathy, HTN, HLD.
- Recently admitted for sepsis secondary to PICC line infection. Colorectal surgery was consulted for perirectal abscess which was initially treated at an outside hospital with multiple I&Ds between January - March. Wound VAC was placed prior to discharge.

Case Four

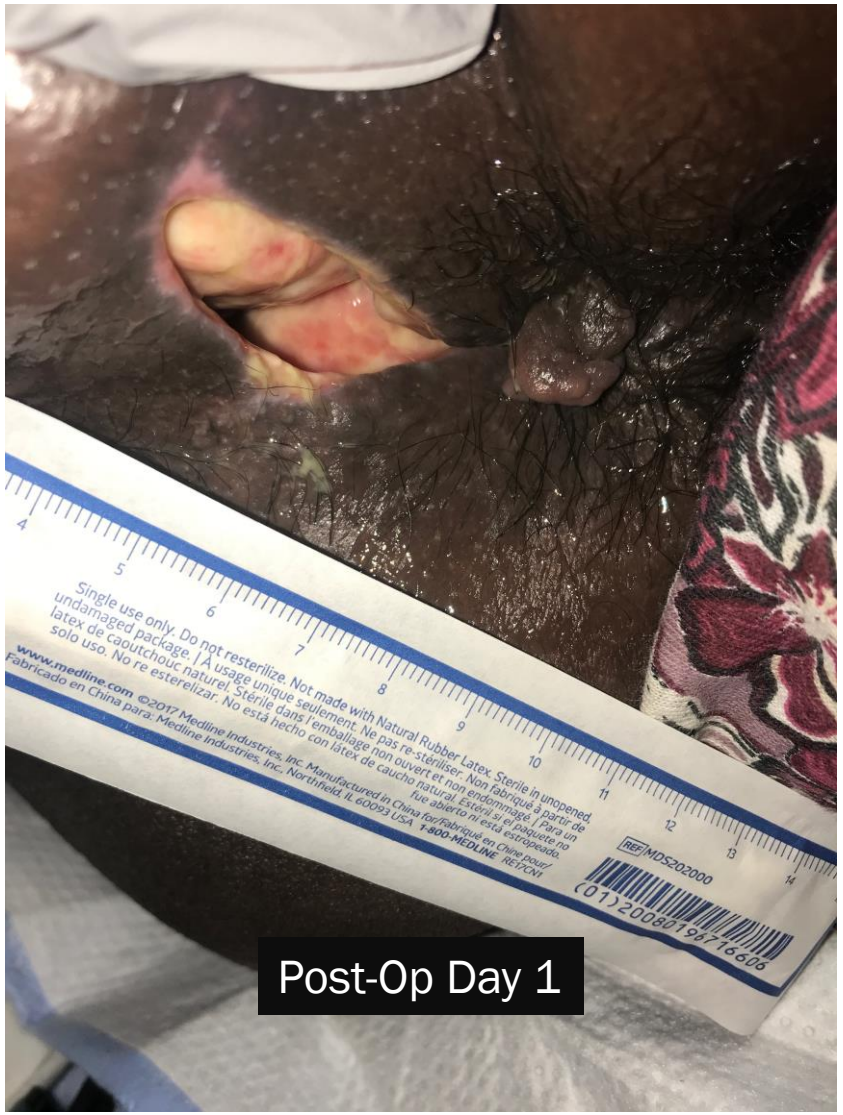
- Patient states the home health with wound VAC changes was going well until this Friday when her home health nurse noticed increased tenderness and swelling in the area. The wound VAC was removed and not replaced.
- Was scheduled for removal of her power Line with IR but had continued swelling and pain in the rectal area.
- In the emergency department she is afebrile, heart rate in the low 100s, hypertensive. White count is normal. CT of the abdomen and pelvis shows worsening of a complex perianal abscess extending superiorly within the soft tissues and abutting the sacrum and coccyx.

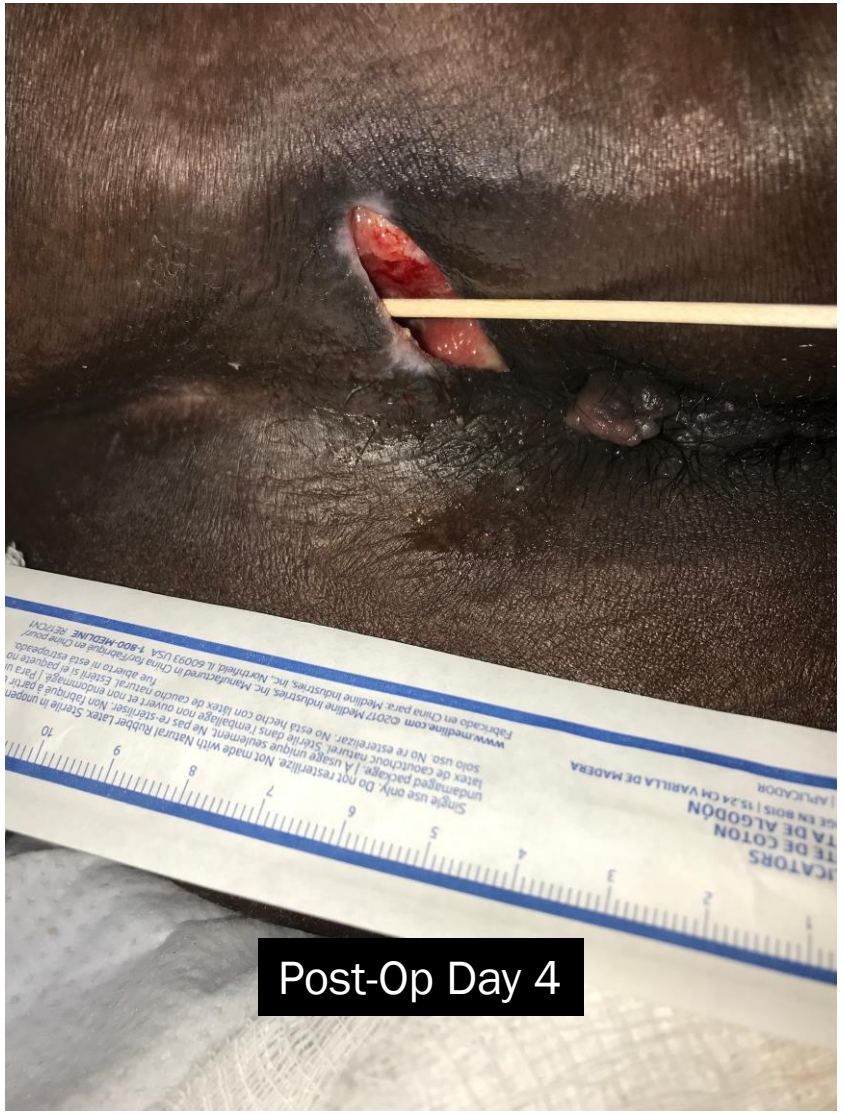
CT Abd/Pelvis

Inflammatory changes with soft tissue gas, soft tissue thickening and ill-defined fluid collections/phlegmonous changes in the perianal region and bilateral ischiorectal fossa tracking superiorly adjacent to the coccyx and distal sacrum. No well-defined fluid collection.

Surgery

EXAMINATION UNDER ANESTHESIA, WOUND DEBRIDEMENT, ABCESS DRAINAGE, SETON PLACEMENT


Post-Op Day 1


Post-Op Day 4

Anorectal Emergencies

Anorectal Abscess & Fistula

- Cause:
  - obstruction of an anal gland, fistula from chronic infection and epithelialization of the abscess drainage tract
- Described by the anatomic space in which they develop
  - ischiorectal (also called ischioanal) most common followed by intersphincteric
- Prevalence:
  - Males > Females
  - Peak Incidence: Age 20-40 years

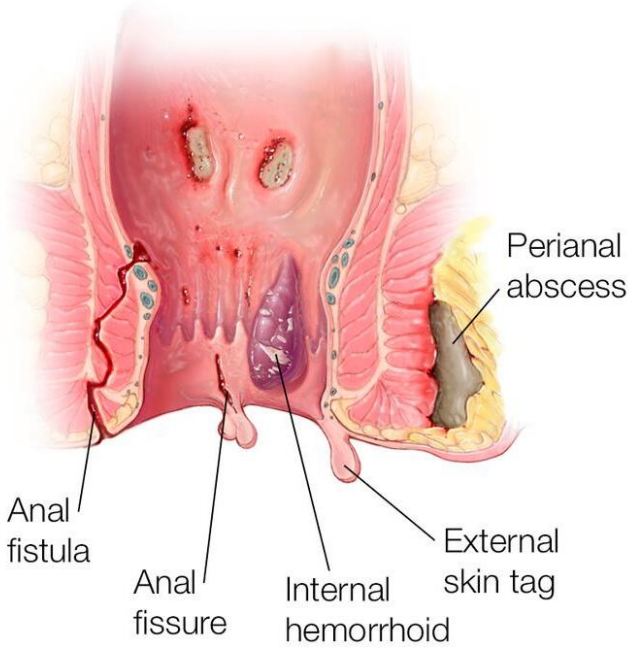
TABLE 1. Parks classification of fistula-in-ano

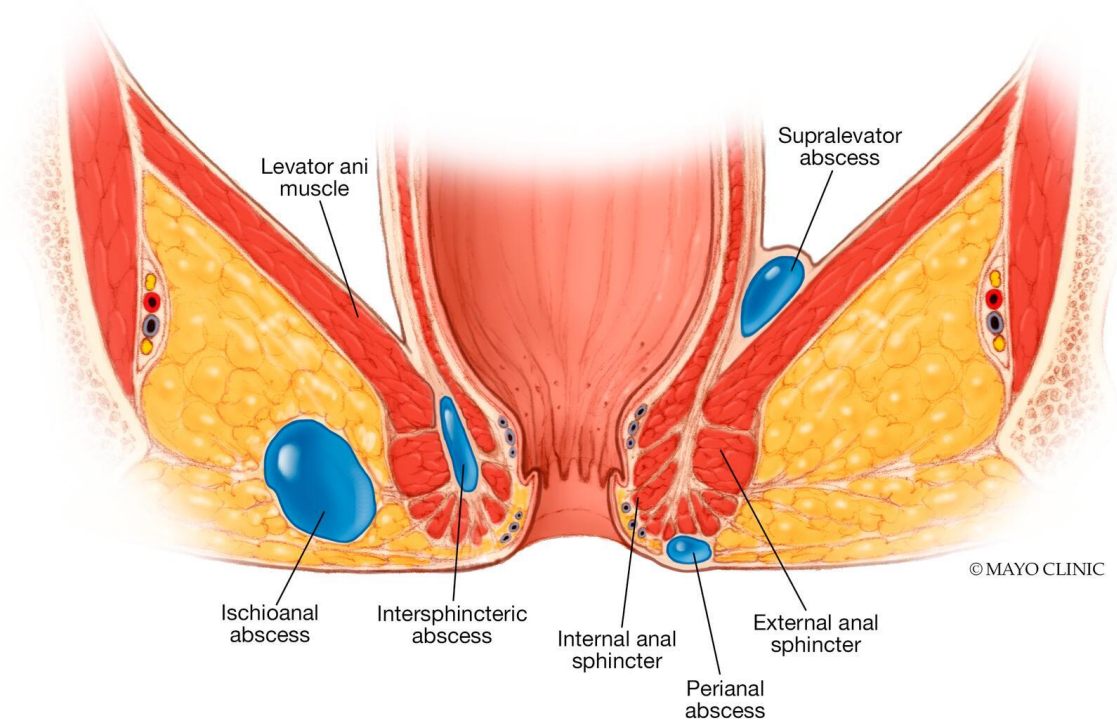
Fistula type	*Description*
Submucosal	Superficial fistula tract. Does not involve any sphincter muscle.
Intersphincteric	Crosses the internal sphincter and then has a tract to the perianal skin. Does not involve any external anal sphincter muscle.
Transsphincteric	Tracks from the internal opening at the dentate line via the internal and external anal sphincters and then terminates in the perianal skin or perineum.
Suprasphincteric	Courses superiorly into the intersphincteric space over the top of the puborectalis muscle and then descends through the iliococcygeus muscle into the ischiorectal fossa and into the perianal skin.
Extrasphincteric	Passes from the perineal skin through the ischio-rectal fossa and levator muscles and then into the rectum and lies completely outside the external sphincter complex.

Adapted from Parks et al.[16]

GAERTNER WB, BURGESS PL, DAVIDS JS, ET AL. THE AMERICAN SOCIETY OF COLON AND RECTAL SURGEONS CLINICAL PRACTICE GUIDELINES FOR THE MANAGEMENT OF ANORECTAL ABSCESS, FISTULA-IN-ANO, AND RECTOVAGINAL FISTULA. DIS COLON RECTUM. 2022;65(8):964-985. DOI:10.1097/DCR.0000000000002473

Crohn's with perianal disease





Anorectal Abscess & Fistula

- Anorectal abscess
  - 30% to 70% present with a concomitant fistula-in-ano
  - Those who do not, approximately 30% to 50% will ultimately be diagnosed with a fistula in the months to years after abscess drainage
- Complex anal fistulas include
  - transsphincteric fistulas that involve greater than 30% of the external sphincter,
  - suprasphincteric, extrasphincteric
  - horseshoe fistulas
  - anal fistulas associated with IBD, radiation, malignancy, preexisting fecal incontinence, or chronic diarrhea.

GAERTNER WB, BURGESS PL, DAVIDS JS, ET AL. THE AMERICAN SOCIETY OF COLON AND RECTAL SURGEONS CLINICAL PRACTICE GUIDELINES FOR THE MANAGEMENT OF ANORECTAL ABSCESS, FISTULA-IN-ANO, AND RECTOVAGINAL FISTULA. DIS COLON RECTUM. 2022;65(8):964-985. DOI:10.1097/DCR.0000000000002473

Anorectal Abscess & Fistula

- Presenting Symptoms
- Differential Diagnosis
  - fissure, hemorrhoid thrombosis, pilonidal disease, hidradenitis, anorectal neoplasia, Crohn's disease, and sexually transmitted infections
- Examination
  - Anus/Perineum: erythema, calor, fluctuance, cellulitis, TTP or unrevealing (deep abscess or intersphincteric)
  - DRE and Anoscopy can be needed

GAERTNER WB, BURGESS PL, DAVIDS JS, ET AL. THE AMERICAN SOCIETY OF COLON AND RECTAL SURGEONS CLINICAL PRACTICE GUIDELINES FOR THE MANAGEMENT OF ANORECTAL ABSCESS, FISTULA-IN-ANO, AND RECTOVAGINAL FISTULA. DIS COLON RECTUM. 2022;65(8):964-985. DOI:10.1097/DCR.0000000000002473

Anorectal Abscess & Fistula

- Diagnostic Imaging:
  - CT SCAN - In a retrospective study of 113 patients with anorectal abscess
    - Overall sensitivity of CT for detecting an abscess was 77%
    - sensitivity of CT in immunosuppressed patients was 70%
  - MRI better?
    - Konan et al found that MRI identified “significant” findings defined as secondary (blind) tracts, horseshoe abscesses, or abscesses undiagnosed by physical exam or EUA in 34% of patients
    - MRI provided significant findings more frequently for complex fistulas than for simple fistulas (54% vs 5%; $p < 0.001$)

GAERTNER WB, BURGESS PL, DAVIDS JS, ET AL. THE AMERICAN SOCIETY OF COLON AND RECTAL SURGEONS CLINICAL PRACTICE GUIDELINES FOR THE MANAGEMENT OF ANORECTAL ABSCESS, FISTULA-IN-ANO, AND RECTOVAGINAL FISTULA. DIS COLON RECTUM. 2022;65(8):964-985. DOI:10.1097/DCR.0000000000002473
KONAN A, ONUR MR, ÖZMEN MN. THE CONTRIBUTION OF PREOPERATIVE MRI TO THE SURGICAL MANAGEMENT OF ANAL FISTULAS. DIAGN INTERV RADIOL. 2018;24(6):321-327. DOI:10.5152/DIR.2018.18340

Anorectal Abscess & Fistula

- Treatment: Incision and Drainage
  - After drainage, abscesses may recur in up to 44% of patients, most often within 1 year of initial treatment.
  - Inadequate drainage, the presence of loculations or a horseshoe-type abscess, and not performing a primary fistulotomy are risk factors for recurrent abscess
- Antibiotics?
  - Antibiotics should typically be reserved for patients with an anorectal abscess complicated by cellulitis, systemic signs of infection, or underlying immunosuppression.

GAERTNER WB, BURGESS PL, DAVIDS JS, ET AL. THE AMERICAN SOCIETY OF COLON AND RECTAL SURGEONS CLINICAL PRACTICE GUIDELINES FOR THE MANAGEMENT OF ANORECTAL ABSCESS, FISTULA-IN-ANO, AND RECTOVAGINAL FISTULA. DIS COLON RECTUM. 2022;65(8):964-985. DOI:10.1097/DCR.0000000000002473

Case Five

- 74 year-old male
- PMHx: hypertension, HIV on HAART, CKD, chronic mild hyponatremia, robotic right colectomy for appendiceal mucinous cystadenoma 2016
- s/p IR embolization with coils (8 days prior) and previous colonoscopy – ulcer seen, no biopsy
- CT abdomen/pelvis showed active bleeding in the right colon just proximal to the ileocolic anastomosis. He was taken to IR, active hemorrhage was seen, with coil embolization performed.

Case Five

- Seen by GI in outpatient clinic with recommendations for surgery consultation if continued bleeding.
- ED with recurrent GI bleeding (4th time) secondary to ulcer in ileocolic anastomosis
- Unstable, syncopated in the toilet. Placed in Trendelenburg, rapidly transfused 3 units
- Hgb ;7.4 (9.6 the day prior)
- CT scan reveals intraluminal extravasation of contrast at the anastomosis site within the proximal ascending colon, compatible with active hemorrhage and new subsegmental pulmonary emboli in the right lower lobe.

Abdomen Pelvis Angiogram with IV Contrast

Surgery

LAPAROTOMY - EXPLORATORY; RESECTION OF ILEOCOLIC ANASTOMOSIS; END ILEOSTOMY

Histopathology

- Ileocolic anastomosis, resection: Portion of anastomosed large and small bowel with no significant mucosal histopathology abnormality, consistent with ileocolic anastomosis site. Blood present. Negative for atypia and malignancy
- CMV immunostain is positive

Lower GI Bleeding

Lower GI Bleeding

- Symptoms may depend on severity of bleeding
  - Black, tarry stool
  - Rectal bleeding, usually in or with stool
  - Lightheadedness
  - Difficulty breathing
  - Fainting
  - Chest pain
  - Abdominal pain
  - Symptoms of shock

HTTPS://WWW.MAYOCLINIC.ORG/DISEASES-CONDITIONS/GASTROINTESTINAL-BLEEDING/SYMPTOMS-CAUSES/SYC-20372729

Lower GI Bleeding

- Causes:
  - Diverticular disease
  - Inflammatory Bowel Disease
  - Tumors, polyps
  - Rectal: fissure, hemorrhoids
  - Proctitis

HTTPS://WWW.MAYOCLINIC.ORG/DISEASES-CONDITIONS/GASTROINTESTINAL-BLEEDING/SYMPTOMS-CAUSES/SYC-20372729

In our case…

- Cytomegalovirus (CMV)
- CMV can affect the entire gastrointestinal tract from the esophagus to the rectum, although it seems to have an affinity for the right colon and the ileocecal valve
- CMV colitis can present with a large mass-like lesion in the colon. Reports of CMV-induced pseudotumor have been limited to cases reports, and predominantly occur in patients with AIDS or post-transplant patients on immunosuppressive therapy

BERINSTEIN JA, EL-DALATI S, CHEY WD. LIFE-THREATENING GASTROINTESTINAL BLEEDING IN AN IMMUNOCOMPROMISED PATIENT. GASTROENTEROLOGY. 2021;161(3):E6-E7. DOI:10.1053/J.GASTRO.2021.01.227

Take Homes

- Structural and functional disruptions of the colon can be addressed medically
- When medical management fails – call the surgeon

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Thank you!

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