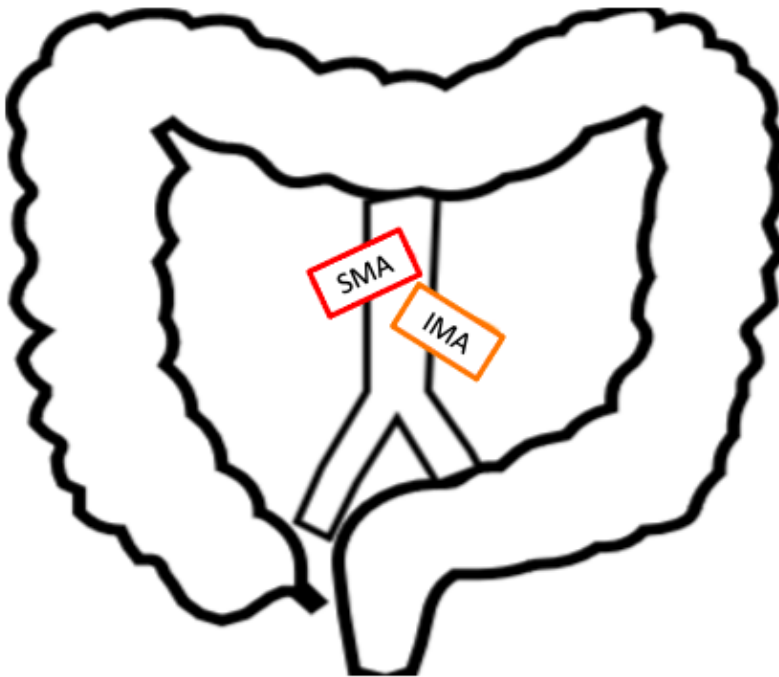


BENIGN REVIEW

Basic Anatomy

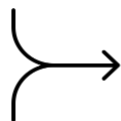
What is the arterial blood supply to the colon?



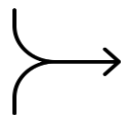
1. Ileocolic artery
2. Right Colic artery
3. Middle Colic artery
4. Left Colic artery
5. Sigmoid arteries

Why is it important to know the arterial blood supply to the colon?

What is the venous drainage of the colon?



Superior Mesenteric Vein (portal)



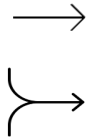
Inferior Mesenteric Vein (portal)

What is the arterial blood supply to the rectum?

Inferior Mesenteric a. → 1. _____ → Proximal rectum

Internal Iliac a. → Internal pudendal a. → 2. _____ → Middle rectum
 ↘ 3. _____ → Distal rectum

What is the venous drainage of the rectum?



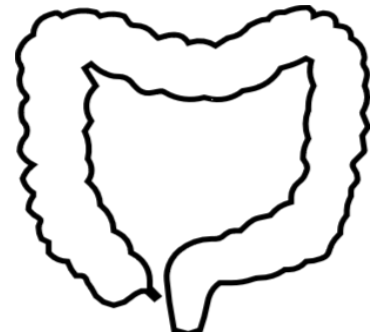
Why is it important to know venous drainage?

Where are collateral arteries located?

What are the watershed regions of the colon?

Middle colic a. ↔ Left colic a.

Superior rectal a. ↔ Middle rectal a.



What parts of the colon are retroperitoneal?

How do you anatomically define the proximal rectum from the sigmoid colon?

- 1.
- 2.
- 3.

How can you identify the ureter intra-operatively?

Posterior to the _____

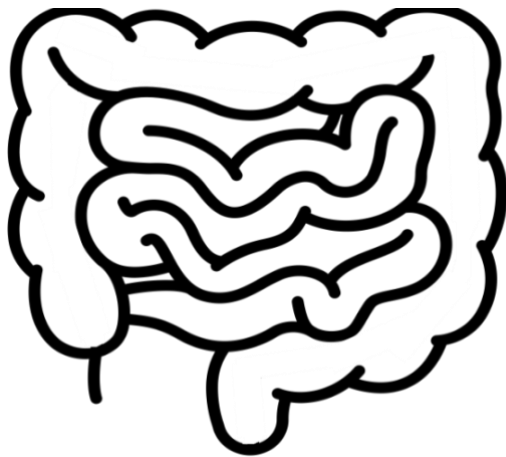
Anterior to the _____

Inflammatory Bowel Disease

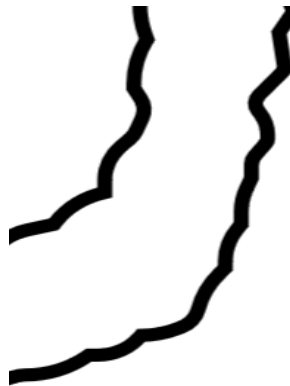
Crohn's Disease

What are the features of Crohn's bowel?

OUTSIDE



INSIDE



MICROSCOPE



What is the most common location of Crohn's disease?

What is the age distribution?



If a patient has a Crohn's stricture, what imaging can you order to help decide management?

What is first line treatment for Crohn's disease (flare, maintenance, severe disease)?

FLARE

MAINTENANCE

SEVERE CHRONIC THERAPY

1. Aminosalicylates

Add Biologics

1. TNF- α inhibitors
 Example: Infliximab

2. Immunosuppressives

2. Novel agents
 Example: vedolizumab
 or ustekinumab

When should you offer surgery for Crohn's disease?

Surgical Indications
 for Crohn's

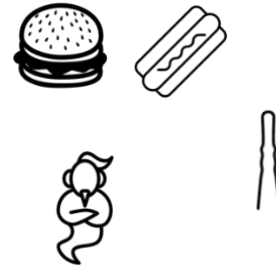


What are different surgical options for stricture management?

1. Endoscopic dilation:

2. Strictureplasty:

- Heineke-Mikulicz
- Finney
- Michelassi



When do you offer a strictureplasty?

What must you do before a strictureplasty?

When performing a segmental resection for a Crohn's patient, do you remove all diseased bowel or just what is actively inflamed?

How do you manage an abscess from Crohn's disease?

30% chance of recurrence

Ulcerative Colitis

What extra-intestinal symptoms will not improve with total colectomy?

1.

2.

50% chance:

What are features of UC bowel?

All are microscopic features:

- 1.
2. Paneth cell metaplasia
3. Basal Lymphoid Aggregates
4. Lamina Propria Eosinophils

What are the indications for surgery?



1. Perforation
2. Progressive sepsis
3. Toxic megacolon > _____
4. Massive GI bleed



Failed Medical Management

- *Persistent malnutrition
- *



Cancer including...

What are the surgical options for UC

EMERGENCY: total abdominal colectomy with end ileostomy...

ELECTIVE: Total Proctocolectomy +/- Ileal Pouch Anal Anastomosis (IPAA)

What is the management for pouchitis?

1st line=

2nd line= mesalamine enemas or

What are absolute contraindications for IPAA after total abdominal colectomy?

1. Severe baseline
2. Rectal cancer
- 3.

How do you manage steroids in periop setting based on surgery type?

	Continue home steroid?	Stress Dose?	Post-op steroid?
MINOR:	YES or NO	YES or NO	
MODERATE:	YES or NO	YES or NO	
MAJOR:	YES or NO	YES or NO	

Diverticulitis

How do you classify diverticulitis?

- I. Abscess --
- II. Abscess --
- III. Peritonitis --
- IV. Peritonitis --

How do you manage diverticulitis?

Diverticulitis symptoms	Management
Mild symptoms, Tolerate PO	
Unable to tolerate PO, <3 cm abscess, microperforation	
Large abscess >5 cm	
Failure of medical management, unable to drain abscess, purulent peritonitis	
Feculent peritonitis or septic shock	

What are features of complicated diverticulitis?

Free air, abscess, fistula, bowel obstruction, peritonitis

What size abscess should be drained?

Should you refer a patient for an elective sigmoidectomy after a first uncomplicated diverticulitis episode?



Kidney Transplant =
 Immunosuppressed

Who should be offered an elective sigmoidectomy?

1. Chronic diverticulitis + pain
- 2.
3. Prior episode + immunocompromised

What should you do prior to elective sigmoidectomy?

Why is MIS the preferred approach for sigmoidectomy?

PROS	CONS
Surgical Site infection	Operative time
Length of Stay	Long Term Outcome Differences
Intraop blood loss	
Post-operative pain	
Return of bowel function	

Colonic Pseudo-obstruction (Ogilvie's)

What are the greatest risks of perforation?

1. Size
2. Colon distension
3. No improvement in 48 hours

What is the progression of colonic pseudo-obstruction management?

First Line

-NPO

-NGT

-Correct electrolytes

-Avoid lactulose, opioids,
anti-cholinergics, CCBs, and
bowel regimen meds

FAIL



1.

2.

FAIL



Clostridium Difficile Colitis

What is C diff colitis?

Pseudomembrane colitis from a toxin-producing anaerobic spore-forming gram positive bacilli

What C diff toxin is more cytotoxic?

What is the strongest risk factor for C diff colitis?

How do you diagnose C diff?

Do you test for cure of C diff?

What is the treatment for first time episode in otherwise well patient?

What is the treatment for recurrent C diff colitis?

1.

2.

3.

What is the medical treatment for fulminant C diff colitis?

PO vancomycin, IV flagyl +/- vancomycin enemas if ileus

What are surgical indications for C diff colitis?



“Sick”

Fulminant disease
Shock, organ failure



Toxic Megacolon



Fail Medical
Management

What is the surgery for C diff colitis?

What if the colon looks viable during surgery?

Ischemic Colitis

What are the classic symptoms?

Sudden crampy abdominal pain +

What is the cause?

Low flow state > hypovolemia, heart failure, severe vascular disease (after AAA repair)

Diagnostic test of choice?

Treatment?

1st line supportive care: NPO, IVF, Antibiotics

Should resolve in 1 to 2 weeks

When is surgery indicated?

Volvulus

Label sigmoid vs cecal volvulus based on XR findings.



Non-Toxic Tx:

Ischemia or Toxic Tx: Emergent sigmoidectomy/Hartmann's

Benign Anorectal Disease

Hemorrhoids

How do you differentiate between the types of hemorrhoids?

Internal (above the dentate line) >

External (below the dentate line) >

What is the initial treatment?

Avoid constipation and straining! > Fiber, drink water, stool softeners, Sitz baths

What is the grading system for internal hemorrhoids?

Grade 1: No prolapse

Grade 2:

Grade 3:

Grade 4:

What hemorrhoids should be banded?

Where do you place the band?

What is the alternative therapy for patients with high risk of post-band bleeding?

What is a serious complication of banding?

When should you offer a hemorrhoidectomy?



Failure of Medical Management



Grade 3 or 4



Complications

How do you manage a thrombosed external hemorrhoid?

Anal Dysplasia

What causes an anal condyloma?

What is the screening process for anal dysplasia?

High-risk HPV patients undergo exam and screening cytology

What's the next step for positive cytology?

How do you treat it topically?

Patient-applied

- Podofilox
- Sinecatechins
- Imiquimod

Provider-applied

- Podophyllin
- Acetic acid
- Cryotherapy

Either for 16 weeks then re-evaluate

What are surgical options for anal condylomas?

Fecal Incontinence

What are common risk factors?



What is the treatment progression?

Diet modification,
 Stool bulking agents,
 and/or antidiarrheals → Anal manometry> function →
 Endoanal ultrasound>defects →
 Defecography>prolapse or rectocele

Rectal Prolapse

What is the mainstay of treatment for rectal prolapse?

What are operative treatments for rectal prolapse?

1. Perineal approach (unhealthy)	2. Abdominal approach (ideal)
-- Altemeier (perineal rectosigmoidectomy)	-- Rectopexy +/- mesh +/- resection
-- Delorme (sleeve mucosal resection)	

What approach should be used for an incarcerated prolapse?

When should you avoid the Altemeier procedure?

Prior rectopexy with resection or prior sigmoid resection due to possible *rectal devascularization*

Can an Altemeier procedure be re-done?

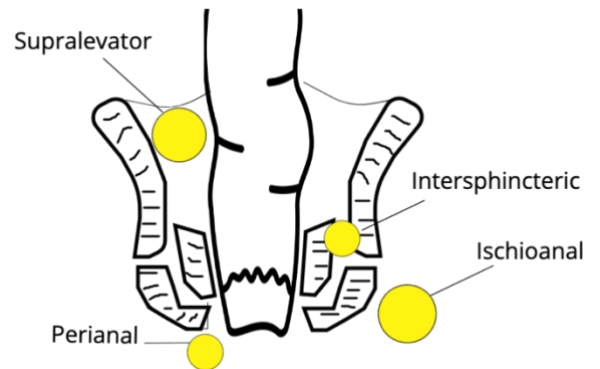
Perianal Abscess

When should I give post-drainage antibiotics?

Immunosuppressed patients (diabetics), cellulitis, systemic signs of infection

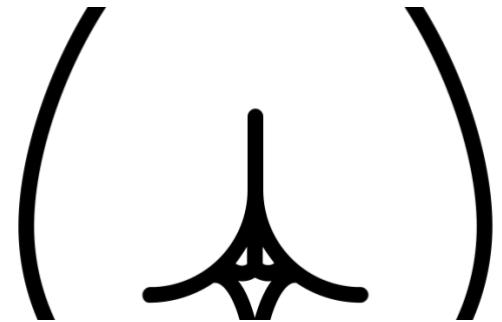
What is the drainage procedure by perianal abscess type?

1. Perianal =
2. Ischioanal =
3. Intersphincteric =
4. Supralelevator =



What is the procedure for a horseshoe abscess?

For a simple perianal abscess, where is the best place to make a perianal skin incision?



Recurrent abscesses in young person?

Anal Fistula

What is the classification system for anal fistulas?

Parks classification

- Type 1: Intersphincteric
- Type 2: Transsphincteric
- Type 3: Suprasphincteric
- Type 4: Extrasphincteric

What is the management for fistulas based on location?

Primary Fistulotomy	Seton
Superficial fistula	High transphincteric fistula or >30% sphincter complex
Intersphincteric	Suprasphincteric
Low transphincteric or <30% sphincter complex	Anterior fistula on female Crohn's fistula

What are the surgical treatments for fistulas?

Anal Fissure

Most common fissure location?

What are causes of atypical fissures?

Lateral fissures! Malignancy, Crohns, HIV, syphilis, TB

Anal fissure symptoms?

Sharp, burning, tearing pain with bowel movement

What are the steps to anal fissure treatment?

