



Round : General surgery

Group no : B3

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Mesenteric ischemia/ischemic colitis/diverticular.ds./meckel's diverticulum

Anatomy:

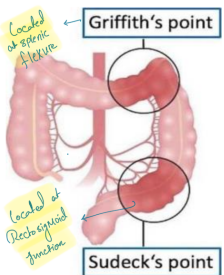
- ✨ Foregut from mouth to second part of duodenum supplied by celiac trunk
- ✨ Midgut from distant duodenum to proximal to third of the transverse colon supplied by superior mesenteric artery
- ✨ Hindgut distal third of a transverse colon to upper anal canal supplied by inferior mesenteric artery

Mesenteric ischemia:

- ✨ It is infarction of the bowel by a sudden superior mesenteric vessel occlusion
- 🌸 Arterial occlusion accounts for about 2/3 of cases (SMAE=50% ,SMAT=15-25% , NOMI 20-30%) but venous occlusion is more serious.
- 🌸 Most common risk factor of venous occlusion is hypercoagulable state
- 🌸 Symptoms: non specific abdominal pain (**the pain is disproportionate to the examination findings (on physical examination is soft and lax with no guarding or rebound)**) with N/V
- ✨ Superior mesenteric artery is the usual site of thrombosis or embolism (Due to its vertical course and forming acute angle from their origin from aorta. Unlike IMA and celiac artery that has more transverse course)
- ✨ Acute mesenteric **arterial** thrombosis is typically found in female heavy smoker(presents with weight loss due to postprandial mid abdominal pain , relieved by vomiting. constipation.)
- ✨ Mesenteric vein thrombosis: Caused by protein C, S deficiency , antithrombin III deficiency, polycythemia vera hyperfibrinogenemia.
- ✨ Labs: (**high**(WBCs, amylase , LDH,CPK,ALP)) but I did a radiological studies:better in cases of acute MVT
- ✨ In severe cases we do laparotomy, embolectomy, revascularization

Ischemic colitis:

- ✨ hypoperfusion limited to colon
- 🌸 Most common areas to be affected are watershed areas (griffith's point , Sudeck's point)



Presentation:

In Acute:

- ✨ Hyperactive phase: Severe lower abdominal pain, bloody loose stools (melena).

✨ Paralytic phase (if ischemia persists): Pain decreases, becomes more continuous.

✨ Shock phase: Hypotension, Distention of the colon.

Diagnosis: colonoscopy is gold standard

Treatment:

✨ 80% resolves spontaneously with supportive care

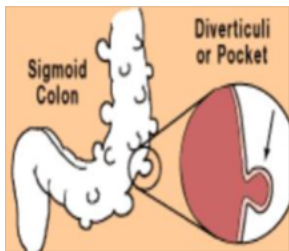
🌸 In treatment avoid vasoconstrictors

✨ Laparotomy in **severe** cases

Ischemic colitis	Acute mesenteric ischemia
Pathophysiology: Hypoperfusion due to low-flow state, often due to volume depletion, heart failure, or recent aortic surgery	Pathophysiology: Arterial embolus to SMA (usually from atrial fibrillation) or thrombosis (from underlying atherosclerosis in SMA)
Natural history: 80% resolve spontaneously with supportive care (e.g., fluids, IV antibiotics, blood pressure support)	Natural history: Usually leads to bowel necrosis requiring resection; high mortality
Most commonly affected territories: Segment of colon between arterial supplies, known as watershed areas	Most commonly affected territories: Small bowel (from ligament of Treitz) to mid-transverse colon
Layers of bowel affected: Usually mucosa only	Layers of bowel affected: Often transmural (i.e., all layers)
Diagnosis: Colonoscopy often shows mucosal changes	Diagnosis: CT scan often shows small bowel wall thickening, occlusion of SMA, and gas in the intestinal wall (known as pneumatosis)

	Ischemic colitis	Acute mesenteric ischemia
Pathophysiology	Hypoperfusion due to low-flow state; ↓BP, ↓CO; due to volume depletion, heart failure, vasoconstricting drugs or recent aortic surgery	Arterial embolus to SMA (usually from atrial fibrillation) or thrombosis (from underlying atherosclerosis in SMA)
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Diverticular ds:



✨ Diverticulosis is the MC cause of LGIB

✨ Pouching out of the colonic mucosa, May be congenital (true) or acquired (false) and **they** are NOT precancerous.

Congenital (True)	Acquired (False)
Usually occur in <u>proximal</u> colon	Usually in the <u>distal</u> colon mainly the <u>sigmoid</u> . 90% (do <u>not</u> appear in the rectum)
Contains <u>all</u> the colon layers (mucosa, submucosa, muscularis, and serosa)	Acquired pouch contains <u>only</u> the <u>mucosa</u>
Only <u>one</u> (not multiple protrusions)	(Multiple protrusions) High in number ↗

False/acquired:(mostly)

✨ The plugging occurs in the weakest point of colon (between the tenia coli at the anti-mesenteric border)

🌸 The MC site is sigmoid (rectum is never affected)

🌸 Important risk factors are low fiber diet and constipation

Clinical presentation:

🌸 90% asymptomatic

🌸 Pain in left inferior fossa, NOOO relation to food, constipation alternating with diarrhea.

Complications:

- ✨ 1-Diverticulitis (MC) and if it ruptured will cause left side peritonitis or left side appendicitis .
(Note please that bleeding is **not** usually associated with diverticulitis)
- ✨ 2-Diverticular bleeding due to Irritation of the arteries that is found next to the diverticula.
- ✨ Contrast enema and colonoscopy are relatively contraindicated in diverticulitis because of risk of perforation

🌸 **Investigations:** CT scan is the gold standard

Treatment:

- ✨ Conservatives (high fiber diet, bran, hydrophilic colloid)
- ✨ In uncomplicated diverticulitis we do elective sigmoid resection after the second episode of diverticulitis. and sigmoid resection after first episode in very young and immunosuppressed patients.
- ✨ If there are complications (perforation, obstruction, abscess, or fistula) do surgery
- ✨ diverticular perforation:

If there is pus we first give IV antibiotics , Keep pt. NPO

Then immediately send him to surgery and do Hartmann's procedure.

Then after approximately 6 weeks (after eradicating infection), we re-anastomose the proximal and the distal part.

🌸 Hinchey classification of complicated diverticulitis:

- o Stage I: pericolic or mesenteric abscess.—>antibiotics
- o Stage II: walled-off pelvic abscess—> percutaneous abscess drainage.
- o Stage III: generalized purulent peritonitis—> resuscitation and **urgent operation.**
- o Stage IV: generalized fecal peritonitis.—> resuscitation and **urgent operation.**

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✨ Note: right side diverticulum (rare condition, occurs in cecum and ascending colon, it is true, solitary, diverticulum, occurs more in young pts, usually asymptomatic, ileocecal resection is usually preferred procedure in single large diverticulum with minimal inflammation.

meckel's diverticulum:

🌸 Failure or incomplete Vitelline (omphalomesenteric) duct obliteration

🌸 True (congenital)-diverticulum

🌸 MC congenital anomaly of GIT

🌸 It is the commonest cause of massive bleeding in children

✨ mostly Asymptomatic), fever, bleeding+painless (mc presentation in youngs), abdominal pain, intestinal obstruction (mc presentation in adults ≥ 30)

✨ Acute Meckel's diverticulitis gives the same manifestations of acute appendicitis but at a

slightly higher and more medial.

✨ M:F 3:2

🌸 Rule of 2:

2% of the population.

2 feet proximal to the ileocecal valve.(100cm away)

2 inches in length

2% are symptomatic

2 types of common ectopic tissue (gastric(mainly) & pancreatic)

2 years is the most common age at clinical presentation

Diagnosis Scintigraphy with sodium ^{99m}Tc -pertechnetate (Meckel's scan) Is the most sensitive and specific diagnostic test injecting technetium-99m, which is absorbed by the ectopic gastric mucosa allowing for visualization of the Meckel diverticulum

Management : surgical excision only if symptomatic

Note:

Litter's hernia :Hernia involving a Meckel's diverticulum

4. Definitive treatment of sigmoid volvulus is accomplished by:

- a. Endoscopic decompression
- b. Endoscopic decompression and placement of a long rectal tube
- c. Sigmoidopexy
- d. Sigmoidectomy**
- e. Total abdominal colectomy

4. **Answer: d.** The initial treatment of sigmoid volvulus is endoscopic decompression; however, the risk of recurrence is 40% and mortality of emergent sigmoidectomy is much higher than elective sigmoidectomy, so all patients should undergo sigmoidectomy if medically able to decrease risk of mortality.

6. Hinchey IV diverticulitis demands operative therapy and is characterized by:

- a. Pericolonic abscess 2 to 4 cm
- b. Pericolonic abscess >4 cm
- c. Purulent peritonitis
- d. Fecal peritonitis**
- e. Pelvic abscess

9. A patient presents to the ED with abdominal pain and hematochezia after endovascular aortic aneurysm repair (EVAAR), how would you confirm your clinical suspicion?

- a. Flexible sigmoidoscopy**
- b. Pelvic MRI
- c. Barium enema
- d. Acute abdominal series
- e. Upper endoscopy/esophagogastroduodenoscopy (EGD)

9. **Answer: a.** It is important to remember that the IMA is ligated in an open AAA repair and covered by the endograft in an EVAAR, so in this patient your primary concern should be ischemic colitis. To confirm this diagnosis, the patient should undergo flexible sigmoidoscopy to diagnose and characterize the extent of disease. CT scan may show colitis, but does not definitively diagnose ischemic colitis. Barium enema is contraindicated.