



# GHAPP

Gastroenterology & Hepatology  
Advanced Practice Providers

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**GHAPP**

Gastroenterology & Hepatology  
Advanced Practice Providers

# Inpatient Management for GI

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# Disclosures

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## **Oyin Penny, FNP**

- No financial relationships to disclose.

# Inpatient Management for GI

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- Requires a multidisciplinary team. Teams that are commonly involved are
- Surgical team – general surgery or colorectal surgeons
- Vascular team
- Interventional radiologists
- Dietician
- Advanced GI endoscopists

# Acute Pancreatitis

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- Acute Pancreatitis – One of the most common GI tract disease
- Phases of Acute pancreatitis
  - A. Early Phase – usually within 1 week of presentation of symptoms
  - B. Late Phase – over 1 week of symptoms and usually characterized by local complication such as pseudocyst or walled-off necrosis

# Acute Pancreatitis Cont'd

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- Diagnosis of pancreatitis is 2 of the 3 criteria
  - Abdominal pain – consistent with the disease
  - Elevated serum amylase and Lipase usually 3x upper LN
  - Characteristic finding from abdominal imaging particularly on CT scan and MRI (ideally should be reserved for those patients who do not show any improvement in the first 48-72 hours)

# Acute Pancreatitis Cont'd

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## Common causes of acute pancreatitis

- A. Gallstones
- B. Alcohol
- C. Medications – 6 MP, Azathioprine, some of the anti retroviral drugs
- D. Infection – Viruses (Mumps, coxsackievirus, hepatitis B, CMV, HSV, HIV), Bacteria (mycoplasma, legionella, Salmonella) Fungi (aspergillus) and Parasites (Toxoplasma, cryptosporidium and Ascaris)
- E. Metabolic – hypercalcemia and hyperparathyroidism
- F. Hypertriglyceridemia – should be suspected when fasting triglyceride level is  $>1000\text{mg/dl}$



# Acute Pancreatitis Cont'd

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- G. Tumor – benign or malignant should be suspected if etiology of pancreatitis is unclear in a patient >40 years of age. EUS should be performed to rule this out.
- H. Idiopathic – when no etiology has been established. EUS can help assess for anatomic anomalies such as pancreatic divisum and sphincter of oddi dysfunction although it remains controversial these disorders alone can cause pancreatitis.
- I. Genetic defects such as cationic trypsinogen mutations, SPINK or CFTR mutations.

# Acute Pancreatitis Cont'd

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## Management of pancreatitis

- Most importantly, you want to risk stratify patients
- Critically ill patients needs to be in the ICU
- Severe course initial risk assessment
  - Age >55
  - Obesity
  - Altered mental status
  - Comorbidities
  - SIRS
  - Abnormal Labs – BUN >20, HCT >44%, elevated creatinine
  - Radiographic findings – pleural effusions, infiltrates, multiple or extensive extra-pancreatic fluid collections

# Acute Pancreatitis Cont'd

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- Aggressive hydration of 250mls-500mls/hour of isotonic fluid preferably Lactated Ringers solution is most beneficial in the first 12-24 hours. The severely volume depleted patients may need fluid boluses. Reassess your patient and check their BUN.
- Patients with acute gallstone pancreatitis/cholangitis should undergo ERCP within 24 hours.
- There is no need for urgent ERCP in most patients with gallstone pancreatitis whose lab data show improvement and they are no longer showing signs of ongoing obstruction.
- Indomethacin should be considered post ERCP to prevent post ERCP pancreatitis.

# Acute Pancreatitis Cont'd

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## Role of antibiotics in acute pancreatitis

- Cholangitis
- Bacteremia
- Pneumonia
- UTI – catheter
- Antibiotics is **NOT** needed prophylactically to treat a sterile pancreatic necrosis. However, infected necrosis should be considered in patients who fail to improve after 7-10 days

# Acute Pancreatitis Cont'd

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## **Nutrition in Patients with Acute pancreatitis**

- Mild Pancreatitis – it is okay to start feeding if no nausea or vomiting. Clear liquids preferred then gradually advance as tolerated
- In severe cases – naso-jejunal feeding is preferred over TPN

# Acute Pancreatitis Cont'd

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## Indication for surgery

- Pseudocyst has matured (walled-off). This can be drained endoscopically by using through EUS.
- In case of infected pancreatic necrosis. Endoscopic drainage after about 4 weeks, which allows the necrosis to liquefy. Surgical removal of drainage can also be performed but this is more invasive. This can be done in a facility where there is no access to endoscopic ultrasound.

# Colon Ischemia

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- Colon ischemia also known as ischemic colitis is when there is decreased blood flow to the colon to maintain its cellular metabolic function. This is usually followed by reperfusion.
- Ischemic colitis can be reversible or irreversible.
- **Clinical presentation**
  - Usually patients present with sudden cramping, mild to severe abdominal pain.
  - Urgent desire to defacate and passage of bright red blood and bloody diarrhea within 24 hours.

# Colon Ischemia Cont'd

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## Risk factors for Ischemic colitis

- Cardiovascular disease
- Diabetes
- IBS – Constipation
- Thrombophilia
- Abdominal surgeries such as AAA repair or surgeries for colon cancer or resection where the IMA was ligated
- Drugs such as constipation including meds that reduce blood flow and increases intraluminal pressure
- Immunomodulator drugs – Anti TNF affect thrombogenesis
- Illicit drugs – amphetamines, cocaine, hypercoagulation an direct epithelial injury



# Colon Ischemia Cont'd

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## Imaging

- CT abdomen and pelvis with oral and IV contrast to assess the distribution and phase of colitis – CT will report findings such as bowel wall thickening, edema and thumb-printing.
- CT angiogram – should be performed in patients who are suspected to have isolated right colonic ischemia or if acute mesenteric ischemia cannot be excluded.
- CT scan/MRI findings of porto-mesenteric venous gas or pneumatosis can be used to predict if a patient has suffered a transmural colonic infarction.

# Colon Ischemia Cont'd

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## Colonoscopy

- Early colonoscopy can be done within 48 hours of presentation in mild to moderate cases of presentation. Minimal insufflation is recommended to prevent perforation.
- It is okay to obtain biopsies EXCEPT if there is gangrene, peritonitis or irreversible ischemia.
- In severe cases of ischemic colitis, CT scan is sufficient enough.

# Colon Ischemia Cont'd

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## Severity and Treatment

- Most cases of ischemic colitis resolve and do not require specific therapy
- Usually IV fluids and antibiotics for moderate cases
- Surgical intervention in the presence of colonic ischemia in the presence of hypotension, tachycardia, abdominal pain, rectal bleeding, pancolitis and gangrene

# Colon Ischemia Cont'd

- Mild
  - Usually associated with segmental colitis not isolated to the risk factors
  - Treatment includes observation and supportive care
- Moderate
  - Associated with 3 of the following
    - Male gender
    - Hypotension
    - Tachycardia
    - BUN >20mg/dl
    - Hgb 12g/dl
    - LDH >350 IU/l
    - Serum sodium <136mEq/l
    - WBC >15 Cells/cmm
    - Colonic mucosal ulceration identified via colonoscopy

# Colon Ischemia Cont'd

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## Moderate

- Management of moderate ischemic colitis include correction of the cardiovascular abnormalities such as volume replacement
- Broad spectrum antibiotic therapy
- Surgical consultations – this does not necessarily mean the patient will need to have a surgical intervention

# Colon Ischemia Cont'd

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- Severe
  - Any patient that has more than 3 of the criteria listed above is considered to have severe colitis
  - Peritoneal signs on physical exam
  - Pneumatosis or portal venous gas on radiographic imaging
  - Gangrene on colonoscopy
  - Pancolonic distribution or Isolated right colon ischemia
- Management
  - Emergent surgical consultation likely will need surgery
  - Transfer to ICU, IV fluids and Antibiotic therapy

# Colon Ischemia Cont'd

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## Indications for surgery in ischemic colitis

- Acute indication for surgery
  - Peritoneal signs
  - Massive bleeding
  - Universal fulminant colitis with and without toxic megacolon
  - Portal venous gas and/or pneumatosis intestinalis on imaging
  - Deteriorating clinical condition

# Colon Ischemia Cont'd

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- Subacute indications for surgery
  - Failure of an acute segmental ischemic colitis to respond to treatment within 2-3 weeks with the continued symptoms of protein-losing colopathy
  - Apparent healing with recurrent bouts of sepsis
- Chronic indications
  - Symptomatic colonic stricture
  - Symptomatic segmental colonic colitis



# Acute Diverticulitis

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- Diverticulitis is when a diverticular becomes inflamed or infected
- A patient's clinical presentation depends on the location of the diverticulitis
- Symptoms of Diverticulitis
  - Abdominal pain usually in the left lower quadrant
  - Nausea +/-vomiting
  - Constipation or obstipation
  - Fever
  - Flatulence
  - Bloating

# Acute Diverticulitis Cont'd

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- Risk factors for Acute diverticulitis
  - Older age
  - Genetic predisposition
  - Obesity
  - Lifestyle and medications (NSAIDS, Corticosteroids and Opioids) can affect the progression of diverticulosis to diverticulitis

# Acute Diverticulitis Cont'd

- Physical Examination
  - Localized abdominal tenderness
  - Abdominal distention
  - Tympanic to percussion
  - Tender mass (in case of abscess formation)
  - Hypo active or hyperactive bowel sounds
  - Absent bowel sounds (in case of a perforation)
  - Generalized abdominal pain with rebound guarding
  - Suprapubic, flank, Costovertebral tenderness, pneumaturia, fecaluria, purulent vaginal discharge can be seen in the presence of colovesicular or colovaginal fistula

# Acute Diverticulitis Cont'd

- Diagnosis of acute diverticulitis
  - CT scan will reveal findings such as pericolic fat stranding due to inflammation
  - Colonic diverticula
  - Bowel wall thickening
  - Abscesses
  - Phlegmon
  - Soft tissues inflammatory masses
  - Contrast enema can sometimes be used in the uncomplicated cases of diverticulitis
  - KUB can show if there is a bowel obstruction vs ileus or presence of free air if there is perforation

# Acute Diverticulitis Cont'd

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- Indication for hospitalization
  - Evidence of severe diverticulitis (systemic signs of infection or peritonitis)
  - Inability to tolerate oral hydration or keep down meds due to nausea and vomiting
  - Failure of outpatient therapy (persistent fever, uncontrolled abdominal pain and persistent leukocytosis after 2-3 days)
  - Immunosuppressed patients or those with significant comorbidities. Need IV antibiotics
  - Pain severe enough requiring IV narcotic analgesia

# Acute Diverticulitis Cont'd

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- Complications of diverticulitis
  - Abscess – this is the most common complication of diverticulitis
  - Intestinal fistula
  - Intestinal perforation
  - Intestina obstruction
  - Peritonitis
  - Sepsis
  - Stricture disease

# Acute Diverticulitis Cont'd

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- Stages of complicated diverticulitis & Management
  - Stage 1b
    - Require clear liquid diet and can advance to low fiber diet as tolerated
    - IV or PO antibiotics
    - Elective surgical resection – usually in cases of recurrent diverticulitis
    - Abscess <3cm typically resolve with antibiotics
    - Abscess >4cm needs percutaneously drainage

# Acute Diverticulitis Cont'd

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- Management of Stage II-IV
  - Hospitalization is required
  - NPO
  - IV antibiotics
  - Percutaneous abscess drainage
  - Surgical consultation – Elective procedure for patients in stage II and urgent surgical evaluation and resection for those in stage III and IV



# Acute Diverticulitis Cont'd

- Antibiotics Therapy
  - Beta-lactamase-inhibiting antibiotics (Augementin, piperacillin, ticarcillin)
  - Carbapenems (meropenem, ertepenem)
  - Multidrug regimens may consist of Metronidazole and a third generation cephalosporin (cefotaxime, ceftriaxone) or a fluoroquinolone (ciprofloxacin, Levofloxacin)
- Pain management consideration
  - Acetaminophen and antispasmodics such as dicyclomine are first line agents for managing pain and cramping in mild to moderate disease
  - Morphine is preferred narcotic
  - Avoid NSAIDS due to greater risk of colonic perforation