Emergent Surgical Conditions

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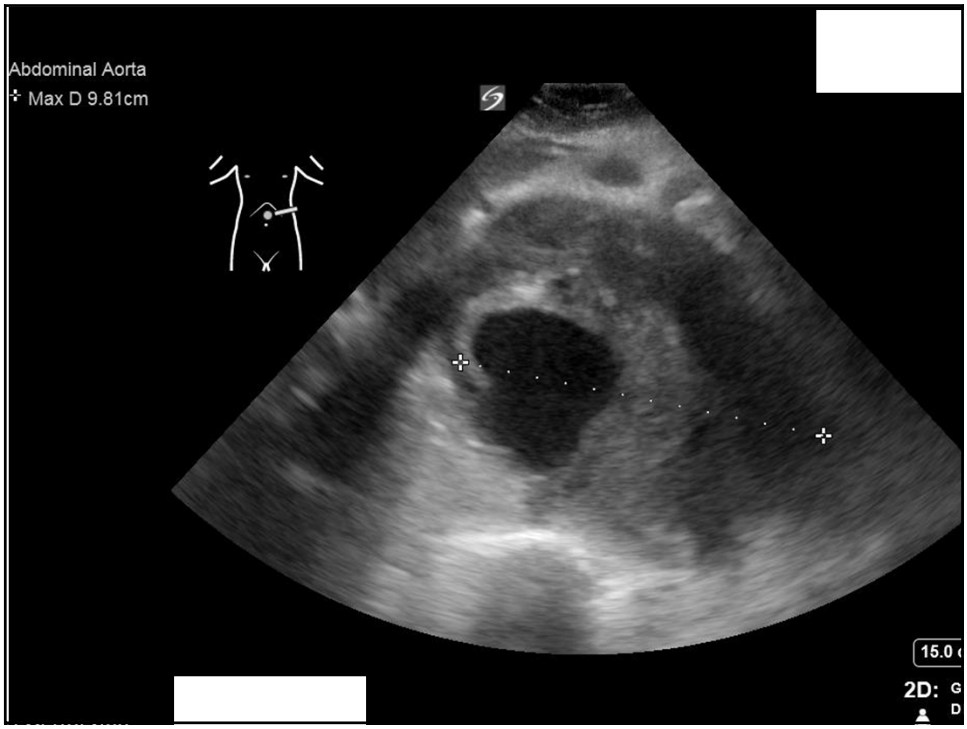
Objectives

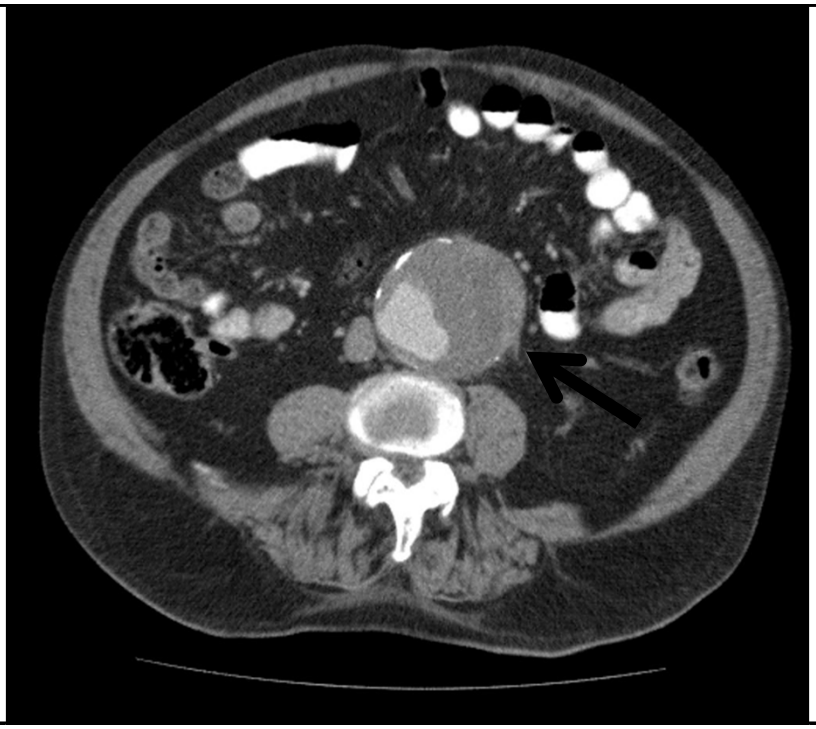
- **Identify emergent surgical conditions that present as abdominal pain.**
- **Discuss the diagnosis and early management of emergent surgical conditions.**
- **Provide practical knowledge for the primary care provider to manage patients with emergent surgical conditions.**

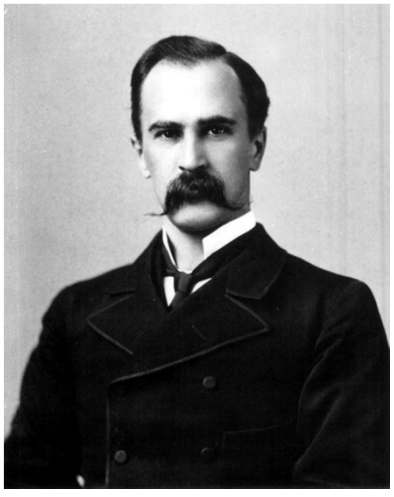
#1. 66 year old male smoker with back pain

HR 110, BP 97/44, 98.7F, RR 24


Abdominal Aorta
Max D 9.81cm
2D:


ominal Aorta
ax D 9.81cm
2D:



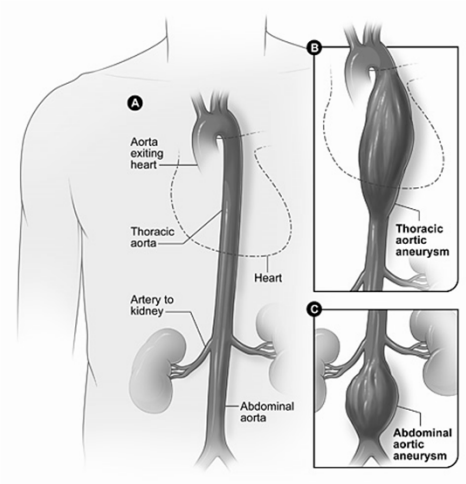


There is no disease more conducive to clinical humility than aneurysm of the aorta.

- Sir William Osler

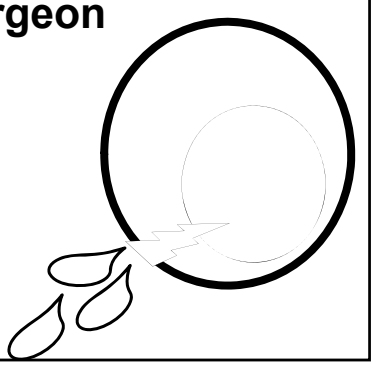
Abdominal aortic aneurysm

- Degraded elastin
- >3cm
- >5cm → Surgical repair
- Men > 65yrs
- Smoker



Diagnosis is Clinical

- Unstable patients go directly to the OR
- Stable patients → ultrasound, CT
- Provide aggressive supportive care
- Transfer to a vascular surgeon



Ruptured AAA mortality has not improved

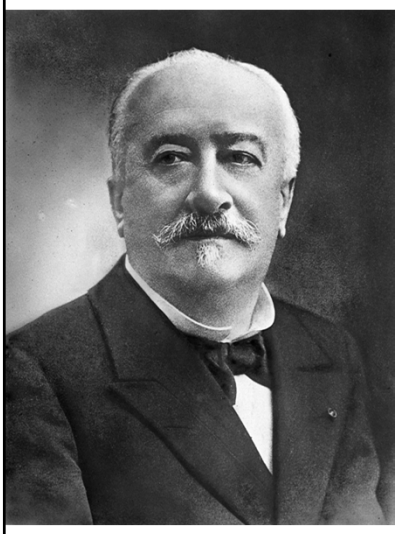
- ≥3 had 100% mortality
  - >76yrs
  - Cr > 2.1 mg/dl
  - Hgb < 9 g/dl
  - Syncope
  - Ischemic ECG
- Screening may prevent rupture
  - 2007 SAAVE Act

#2. 51 year old Male Diabetic with Abdominal Pain

HR 131, BP 110/46, 102.7F, RR 18

Case courtesy of Dr Hein Els, Radiopaedia.org, rID: 33091

Fournier's Gangrene – necrotizing infections



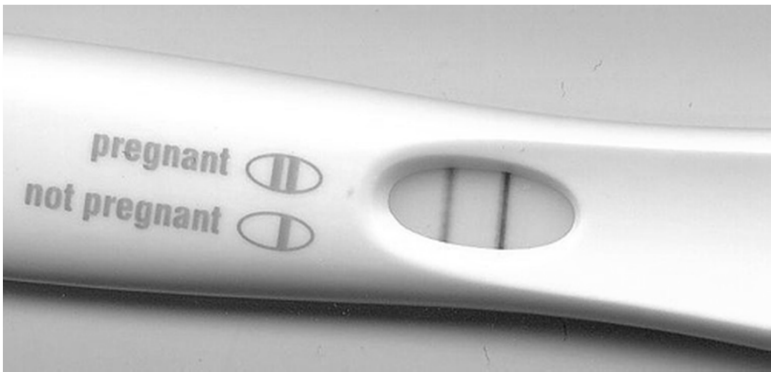
- Jean Alfred Fournier 1884
  - Baurienne in 1764
- Type 1: Polymicrobial
- Risk factors
  - Diabetes, obesity, immunosuppression, malnutrition, alcoholism.
- Type 2: Group A Strep, *S. pyogenes*

Source: Wellcome Images, London CC BY 4.0)

Diagnosis is Clinical

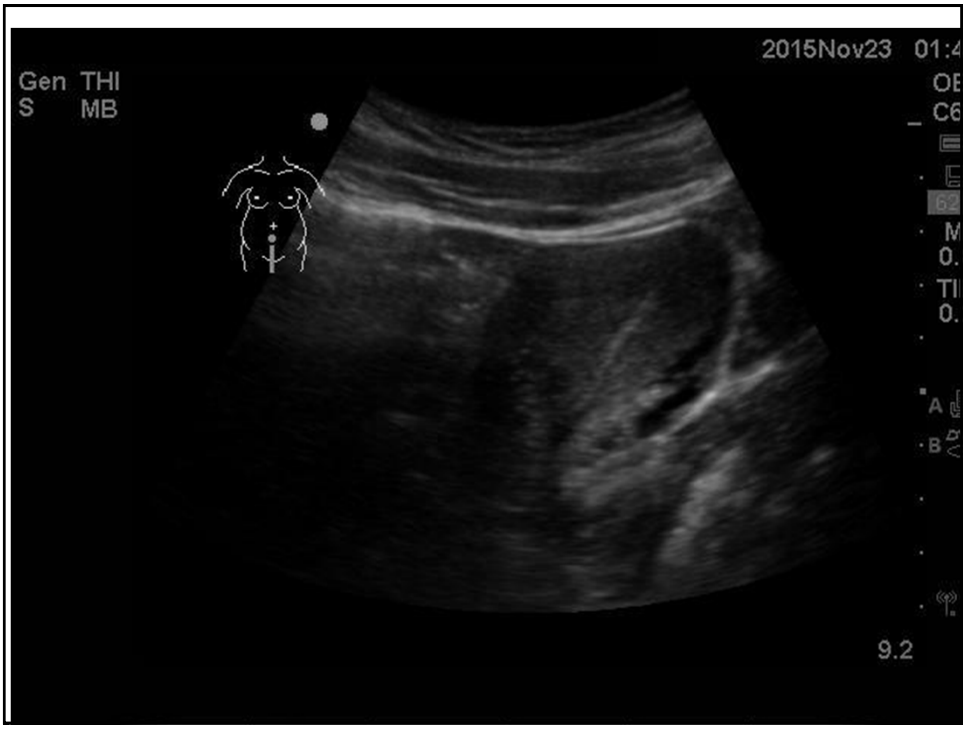
- Ultrasound – tissue air
- CT or MRI
- Aggressive resuscitation
  - Clindamycin
  - Broad spectrum antibiotics
  - Fluids, pressors

#3. 32 year old Female with Abdominal Pain



HR 112, BP 96/56, 98.7F, RR 22

Image source: http://tipstimes.com/pregnancy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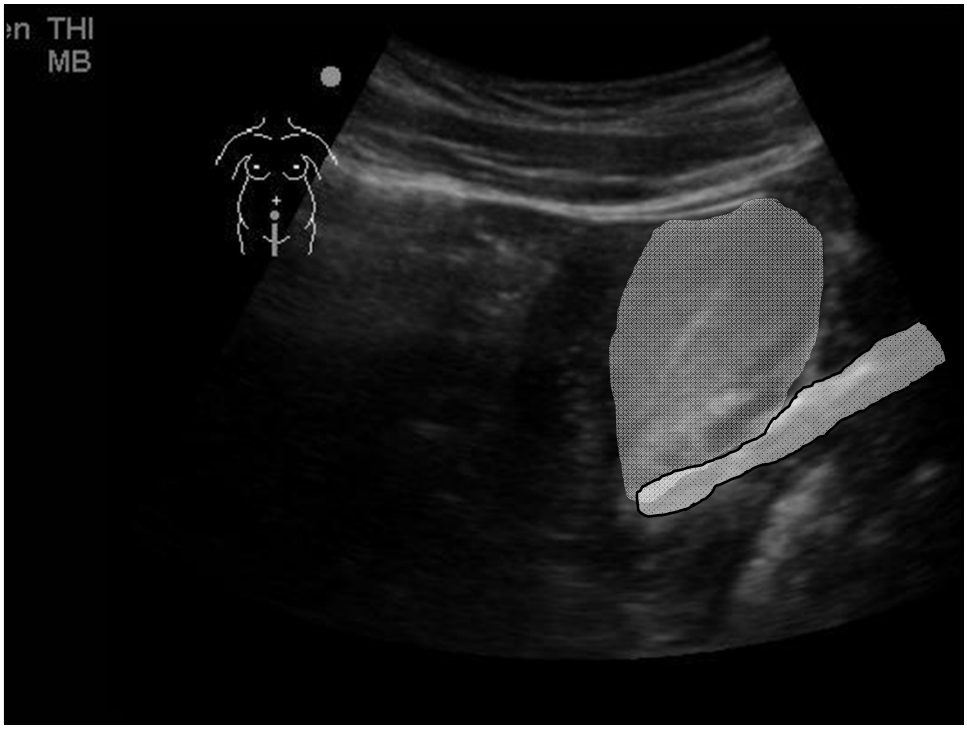
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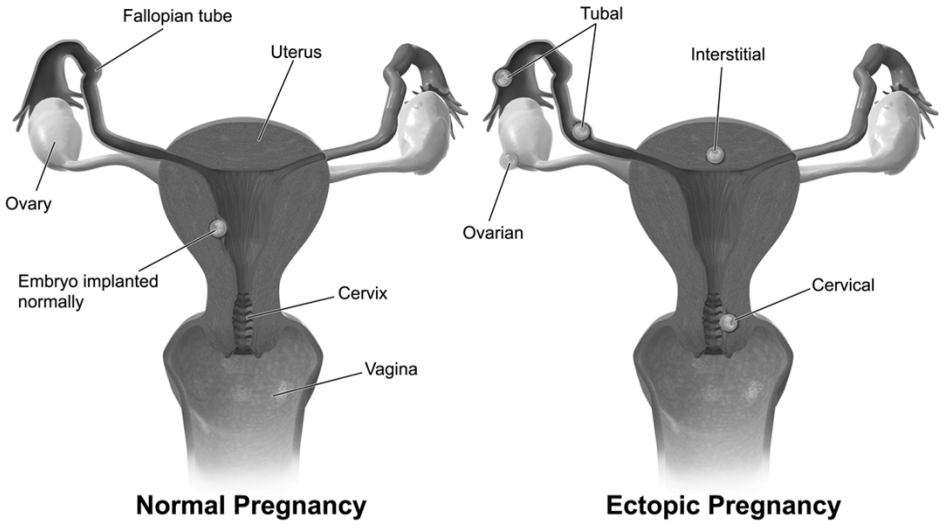

Author: BruceBlaus
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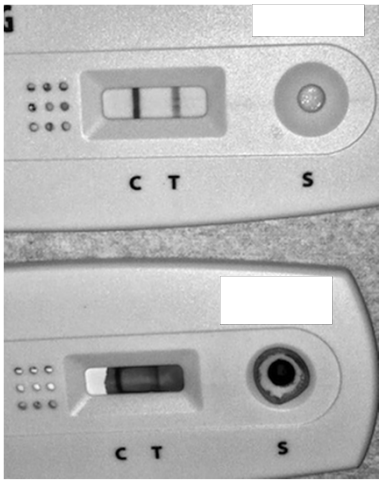
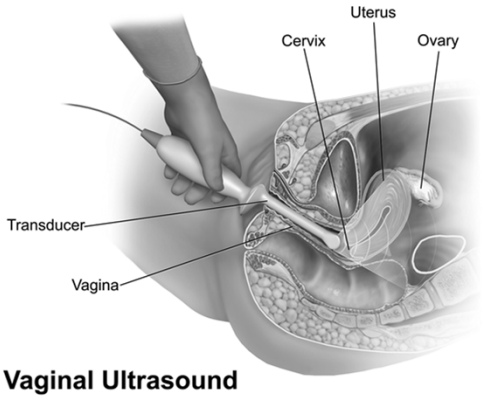
β-hCG and ultrasound confirm diagnosis

- **Unstable patient → OR**



Author: ALiEM/Michelle Lin, MD



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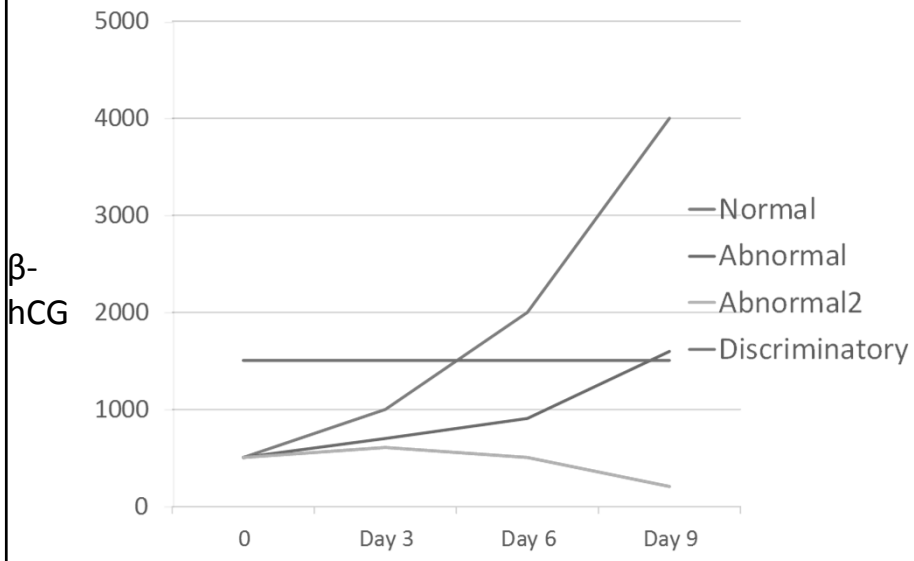

30% of Ectopic Pregnancies have *normal* β-hCG trend

No IUP? Consult OB.

-David Bahner MD, RDMS

Trust your instincts

- Emergent surgical conditions are a clinical diagnosis
- Bedside ultrasound can aid rapid diagnosis
- Initiate aggressive resuscitation
  - Hemorrhage → massive transfusion
  - Septic → fluids, antibiotics, hemodynamic support
- Mobilize definitive surgical care

Urgent Gastrointestinal Problems

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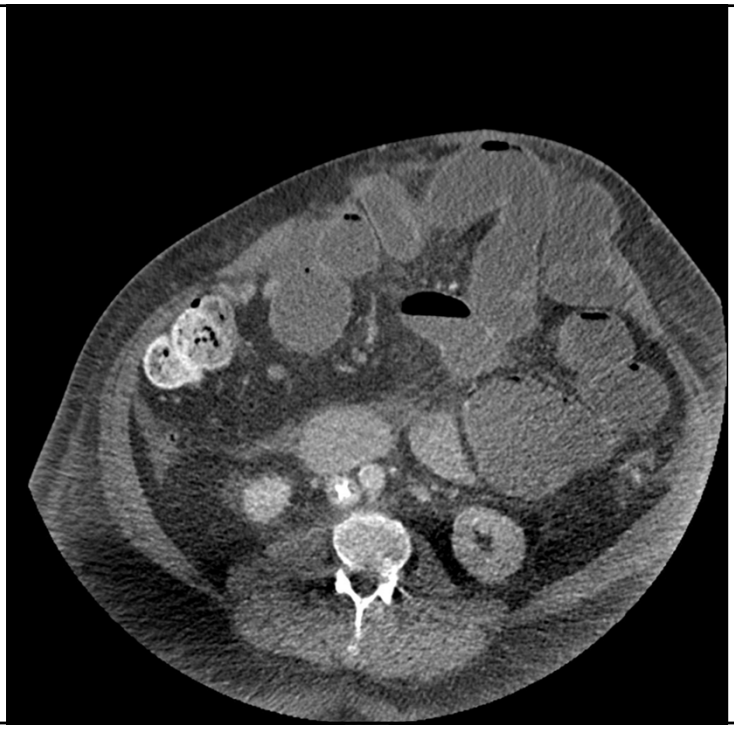
- **65 year old man with a 2 day history of crampy abdominal pain, nausea, and vomiting. No BM or flatus in last 24 hours**
- **He had an extensive past medical history including CAD s/p MI, COPD, colectomy with colostomy for perforated diverticulitis and later ostomy closure**
- **Physical Examination:**
  - **VS – mildly tachycardic, afebrile, normotensive**
  - **Abdomen – distended, well healed midline scar, tympanitic, mild diffuse tenderness without peritoneal signs, several obvious bulges along incision – the larger upper one seems reducible, the smaller, lower one is not**
- **Labs: Hg 14.5, BUN - 35, Creat – 1.3, K – 3.7**



Small Bowel Obstruction

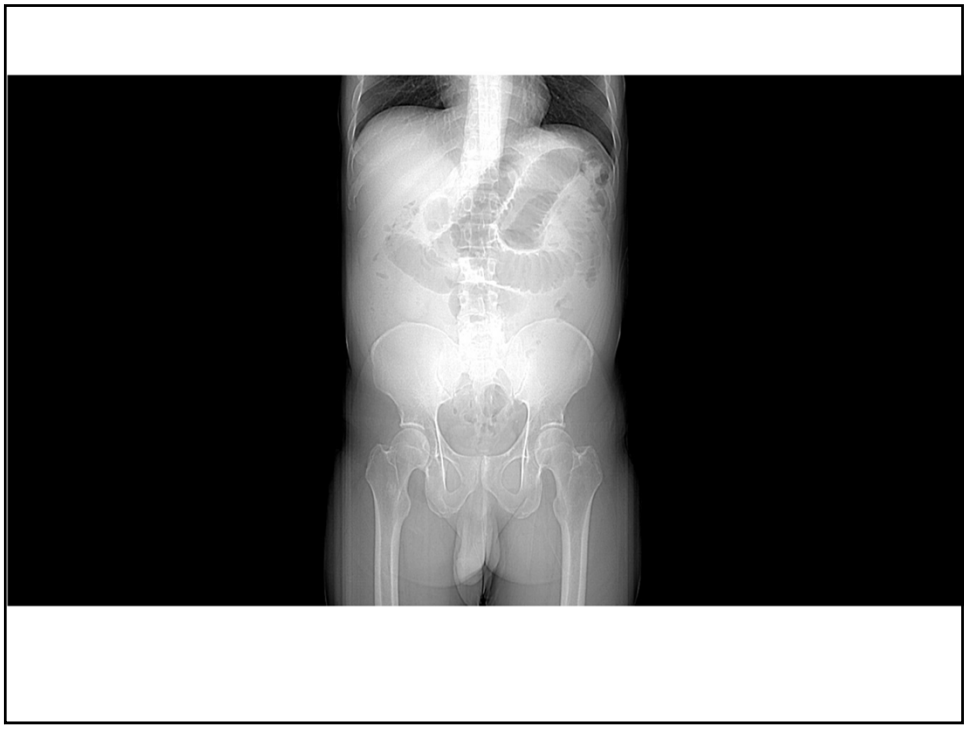
- **Common causes:**
  - **Adhesions**
  - **Hernia**
  - **Cancer**
- **Complete versus Incomplete**
  - **Complete – no BM or flatus since early after the onset of symptoms, gas in colon on x-ray does NOT rule out a complete obstruction**
  - **Incomplete – patient continues to pass some flatus**
- **Strangulated – along with findings of obstruction, patients will typically show signs of infection/inflammation. Fever, leukocytosis, and *continuous* pain are common findings and should preclude non-operative management**

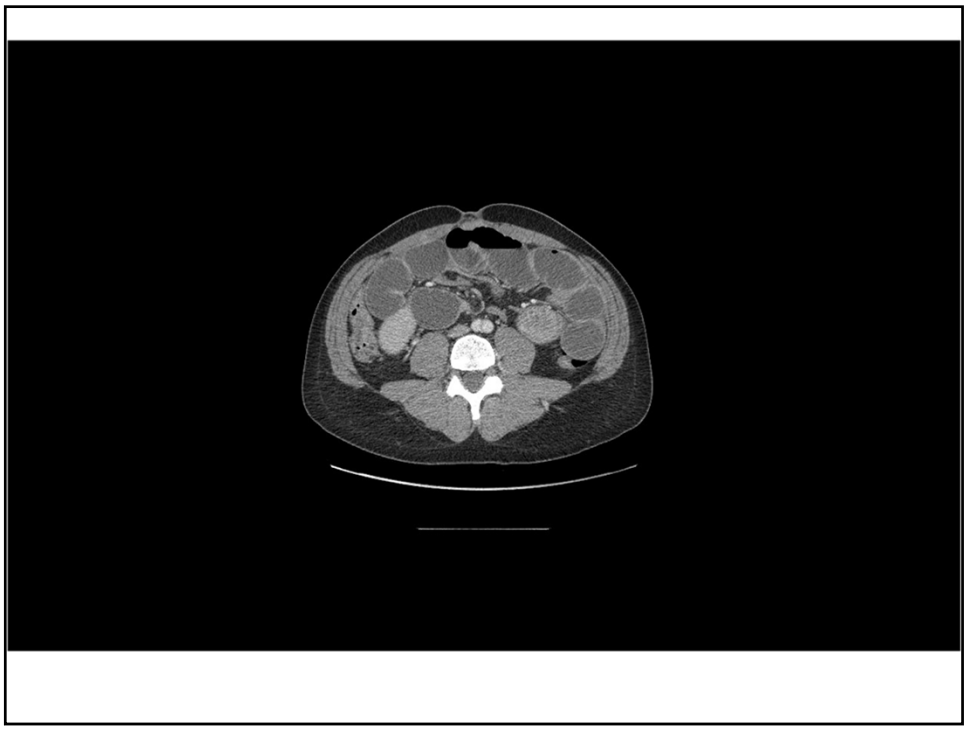
Management Strategies

- Supportive
  - IV rehydration: until intravascular volume is restored – normal VS, good UO, etc.
  - Correction of electrolyte abnormalities – hypokalemia and metabolic alkalosis common
  - NG decompression in all cases of complete obstruction and any case of incomplete obstruction with vomiting or severe nausea
  - No role for antibiotics

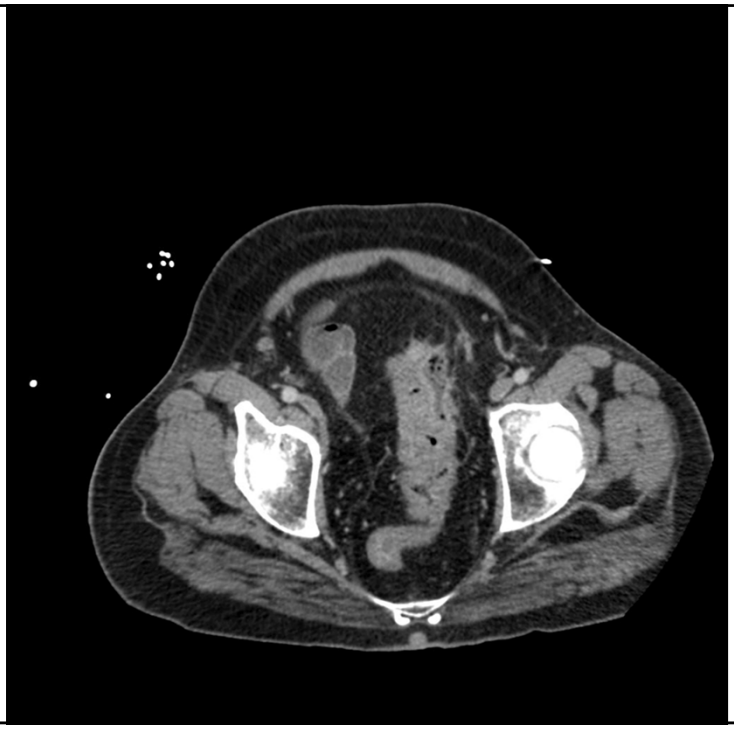
When is Surgery Indicated?

- No trial of observation
  - Signs of strangulation
  - Complete SBO – only 20% will resolve non-operatively
  - SBO in patients who have not had prior surgery
  - SBO associated with ventral hernia
- In the absence of above, a trial of 24-36 hours of bowel rest is reasonable
  - Surgery if no return of bowel function
  - Surgery if recurrent small bowel obstruction in a relatively short period of time





- 72 year old man who presented to the emergency department with a 48 hour history of left lower quadrant pain, fever, nausea and vomiting. No flatus or BM for 24 hours.
- Past history is significant for 3 other similar episodes that required hospitalization
- Physical examination:
  - Temp - 38.6° C; HR – 115; BP – 140/70
  - Abdomen – very distended; diffusely tender with guarding and rebound in LLQ
- Labs:
  - WBC – 17,500; Electrolytes - WNL



- **Patient was started on ertapenem, was rehydrated with crystalloid solution, and had an NG placed**
  - **NG returned 900 ml of stool-like aspirate**
- **Over the course of 48 hours, he became afebrile and began to pass some flatus**
- **He underwent sigmoid colectomy with colostomy**
  - **Colostomy was performed because the proximal colon was quite dilated due to chronic obstruction**

Diverticular Disease

- By age 60, 30% of Americans have diverticulosis
- By age 80, that figure is 60-80%
- Almost certainly, the development is due to the western diet that is low in fiber resulting in high intraluminal pressures
- Sigmoid colon most common location
- Only 10-20% of patients with diverticulosis ever develop symptoms
- Most common symptoms are bleeding and obstruction
  - Account for 300,000 hospitalizations/year, 1.5M outpatient visits, and $2B in health care cost

Diverticular Bleeding

- The most common cause of massive lower GI bleeding
- Tends to be recurrent:
  - 30% chance of rebleeding after 1st episode
  - 50% after 2nd episode; 80% after 3rd episode
- Standardized treatment algorithm:
  - NG or EGD to rule out upper GI source
  - Rigid or flexible proctoscopy to rule out rectal source
  - Attempt to localize site of bleeding with radionuclide scan or angiography
  - If by angiography, may embolize but significant risk of rebleeding
    - May also tattoo site of hemorrhage
  - Almost no role for colonoscopy in acute bleeding
  - Hemicolectomy or localized resection if site of bleeding can be indentified
  - Total abdominal colectomy if site cannot be identified

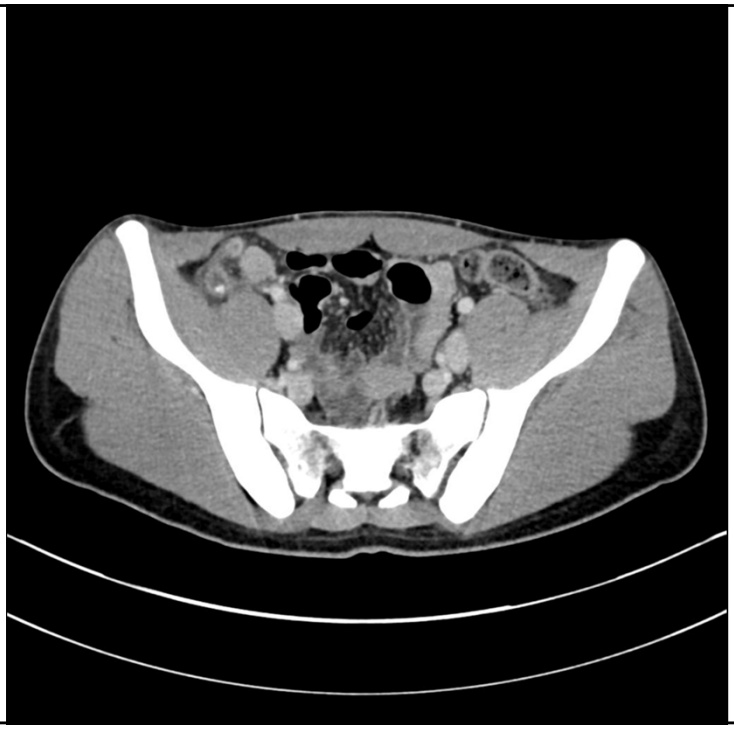
Uncomplicated Acute Diverticulitis

- Due to contained perforation of diverticulum with localized inflammation
- Uncomplicated diverticulitis usually presents with localized LLQ pain and tenderness
  - Low grade temp, abdominal distention, nausea/vomiting
  - Most can be treated non-operatively with antibiotics that cover both gram negative facultative aerobes and anaerobes. If symptoms are mild, many can be treated as outpatients with oral antibiotics
  - Should have a colonoscopy 6-8 weeks after resolution of symptoms to confirm presence of diverticulosis and rule out other pathology

Complicated Acute Diverticulitis

- Infection, fistula, obstruction
- Hinchey Classification
  - Stage I: Small, confined pericolonic or mesenteric abscess
  - Stage II: Larger, walled off pelvic abscess
  - Stage III: Generalized purulent peritonitis
  - Stage IV: Generalized fecal peritonitis
- Stage I and II can often be treated with ATB and percutaneous drainage if the abscess is large enough
- Stage III and IV almost always require emergency surgery

- 21 year old woman with 24 hour history of abdominal pain
  - Began periumbilical and migrated to RLQ
  - No fever, mild nausea, anorexia
  - WBC – 11,000
- Classic presentation for acute appendicitis
- In females of childbearing age, false negative rate for clinical acumen is 10-20%
- CT scanning increases accuracy of diagnosis to ~95%



Management of Acute Appendicitis

- Uncomplicated, no appendicolith: appendectomy versus ATB
  - Very promising but follow up has only been 1-3 years, at longest
    - In adults, 10-37% of patients will require appendectomy in first year
  - It will take 4-5 decades to determine how effective non-operative therapy is
    - Is it a good trade off to avoid appendectomy in a healthy 20 year old only to have to operate on a 60 year old with morbid obesity, CAD, COPD and OSA????
- Uncomplicated, with appendicolith: appendectomy
- Complicated
  - Gangrenous - operation
  - Perforated with abscess – percutaneous drainage followed by interval appendectomy
  - Appendicitis with sepsis or diffuse peritonitis – OPERATION!

Summary

- There are a multitude of urgent and emergent abdominal conditions
  - We have presented just a few of the more common ones
- Many will require an operation or some other mechanical intervention
- Please involve your surgeon early, even if it does not appear that the patient will not require an operation