

Emergent Surgical Conditions

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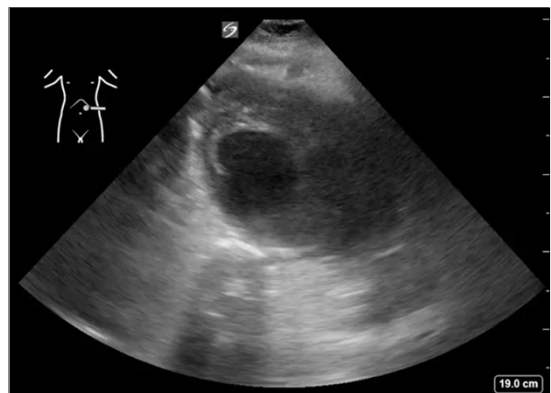
Objectives

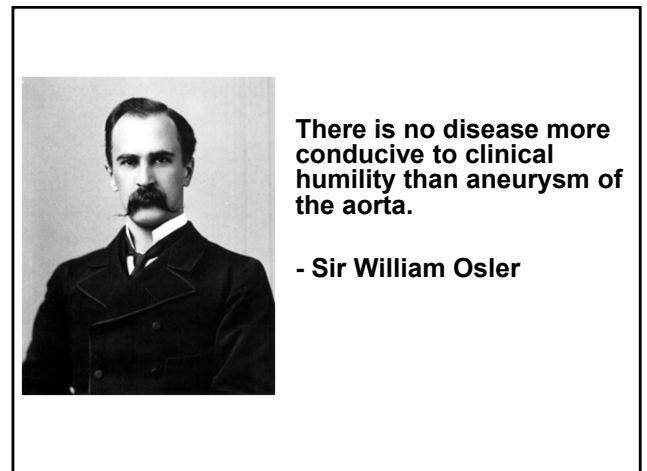
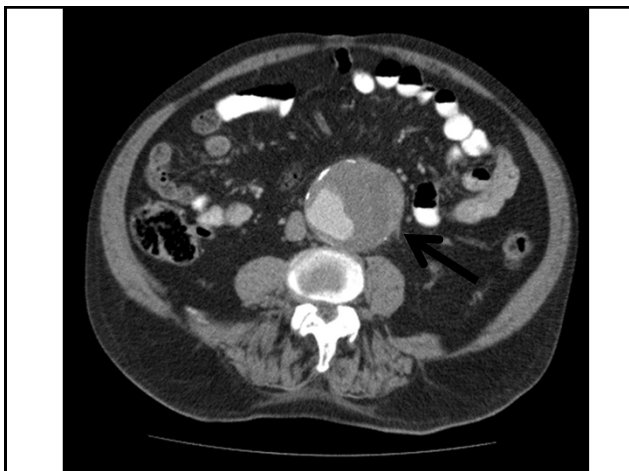
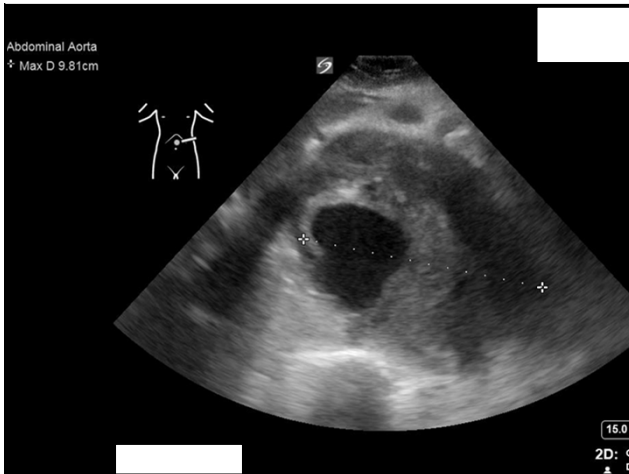
- Identify emergent surgical conditions that present as abdominal pain.
- Discuss the diagnosis and early management of emergent surgical conditions.
- Provide practical knowledge for the primary care provider to manage patients with emergent surgical conditions.

#1. 66 year old male smoker with back pain



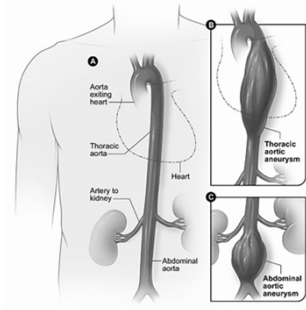
HR 110, BP 97/44, 98.7F, RR 24





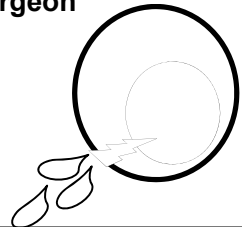
Abdominal aortic aneurysm

- 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



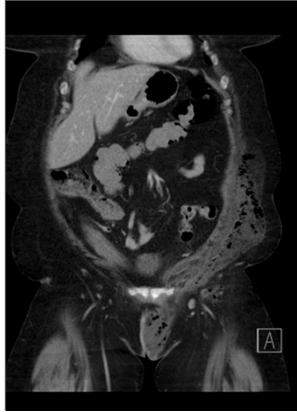
Ruptured AAA mortality has not improved

- ≥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

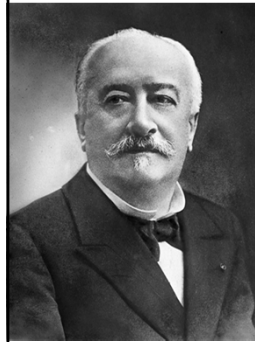
HR 131, BP 110/46,
102.7F, RR 18





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)

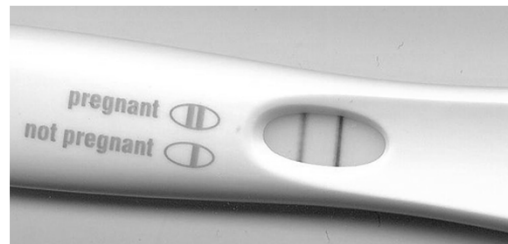
Diagnosis is Clinical

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



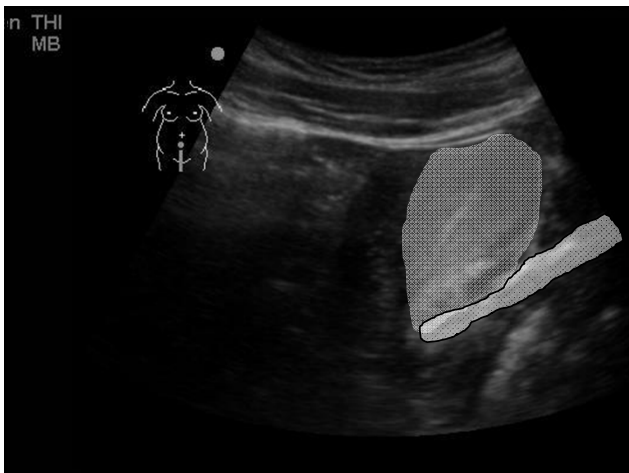
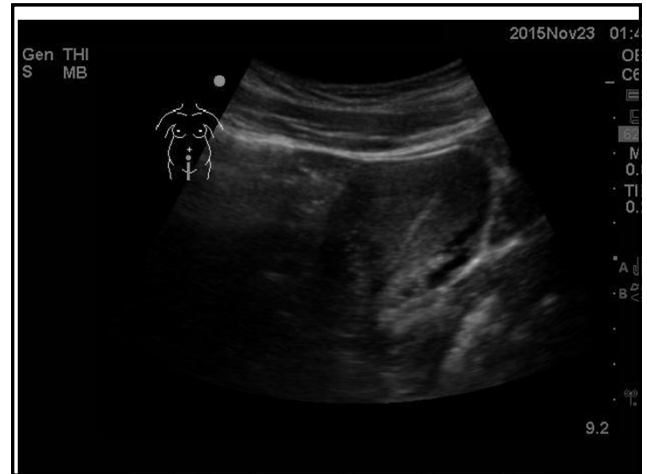
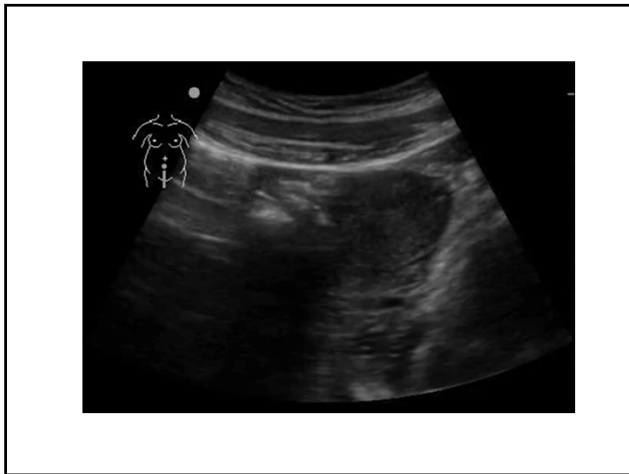
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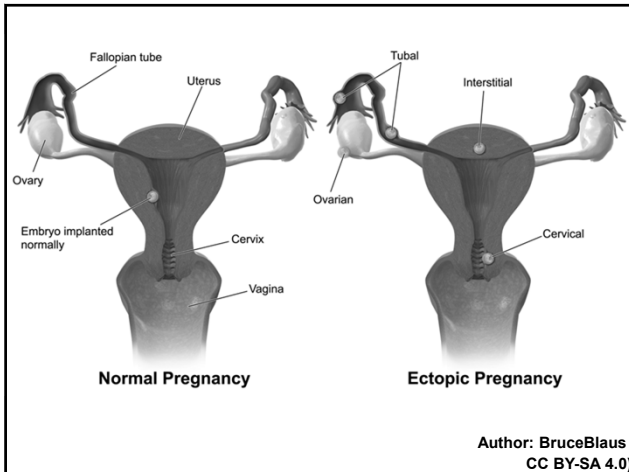
#3. 32 year old Female with Abdominal Pain



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

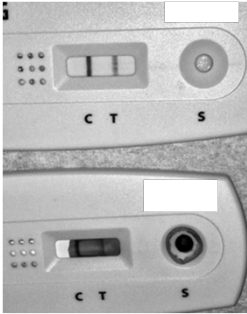
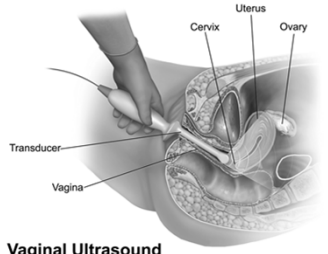
Image source: <http://tipstimes.com/pregnancy>





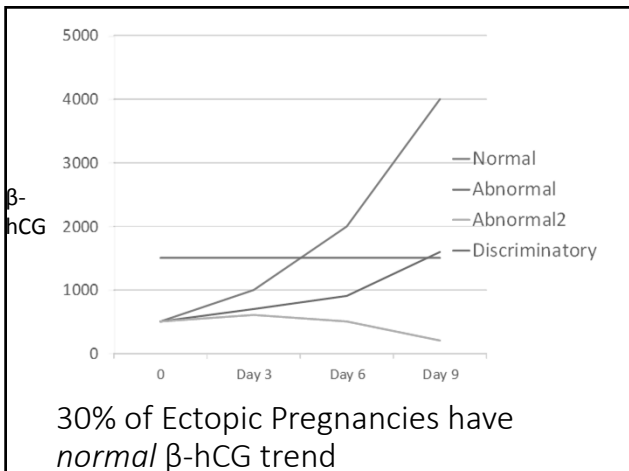
β-hCG and ultrasound confirm diagnosis

- Unstable patient → OR

Vaginal Ultrasound

Author: ALiEM/Michelle Lin, MD
Author: BruceBlaus
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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

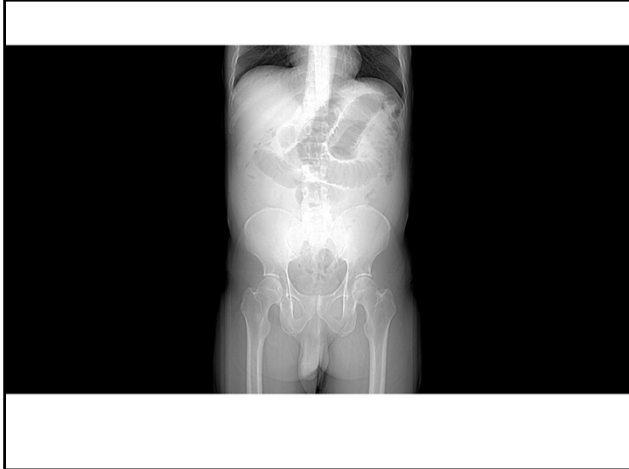
- Common causes:
 - Adhesions
 - Hernia
 - Cancer
- Complete versus Incomplete
 - Complete – no BM or flatus since early after the onset of symptoms, gas in colon on x-ray does NOT rule out a complete obstruction
 - Incomplete – patient continues to pass some flatus
- Strangulated – along with findings 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

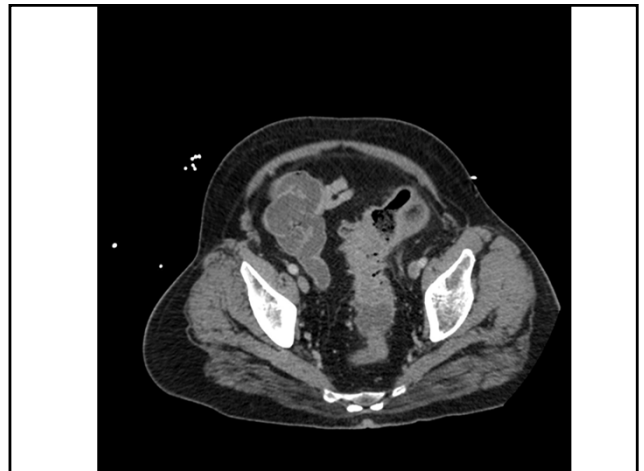
- Supportive
 - IV rehydration: until intravascular volume is restored – normal VS, good UO, etc.
 - Correction of electrolyte abnormalities – hypokalemia and metabolic alkalosis common
 - NG decompression in all cases of complete obstruction and any case of incomplete obstruction with vomiting or severe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

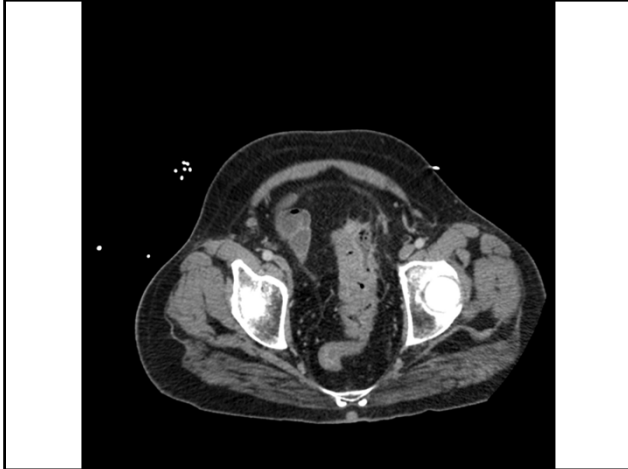
When is Surgery Indicated?

- 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 identified
 - 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 pericolic 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