High Yield Surgery

Shelf Exam Review

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Pre-Op Evaluation

• Contraindications to surgery
  – Absolute? Diabetic Coma, DKA
  – Poor nutrition? albumin <3, transferrin <200, weight loss <20%.
  – Severe liver failure? bili >2, PT >16, ammonia > 150 or encephalopathy
  – Smoker? stop smoking 8wks prior to surgery

*If a CO2 retainer, go easy on the O2 in the post-op period. Can suppress respiratory drive.*
• Goldman’s Index ⇒ Tells you who is at greatest risk for surgery
  
  – #1 = CHF
    • What should you check? EF. If <35%, no surg.
  
  – #2 = MI w/in 6mo
    • What should you check? EKG ⇒ stress test ⇒ cardiac cath ⇒ revasc.
  
  – #3 = arrhythmia
  
  – #4 = Old (age >70)
  
  – #5 = Surgery is emergent
  
  – #6 = AS, poor medical condition, surg in chest/abd
    • What should you check?
    Listen for murmur of AS-
    Late systolic, crescendo-decrescendo murmur that radiates to carotids. ↑ with squatting, ↓ with decr preload
Meds to stop:
- Aspirin, NSAIDs, vit E (2wks)
- Warfarin (5 days) – drop INR to <1.5 (can use vit K)
- Take ½ the morning dose of insulin, if diabetic

If CKD on dialysis:
- Dialyze 24 hours pre-op

Why do we check the BUN and Creatinine?
- What is the worry if BUN > 100?
  - There is an increased risk of post-op bleeding 2/2
  - uremic platelet dysfunction.
- What would you expect on coag panel?
  - Normal platelets but prolonged bleeding time
Vent Settings

• Assist-control → set TV and rate but if pt takes a breath, vent gives the volume.

• Pressure support → pt rules rate but a boost of pressure is given (8-20).

  *Important for weaning.*

• CPAP → pt must breathe on own but + pressure given all the time.

• PEEP → pressure given at the end of cycle to keep alveoli open (5-20).

  *Used in ARDS or CHF*
You have a patient on a vent...

- Best test to evaluate management? **ABG**
- If PaO2 is low? **increase FiO2**
- If PaO2 is high? **decrease FiO2**
- If PaCO2 is low (pH is high)? **→ Decr rate or TV**
- If PaCO2 is high (pH is low)? **Incr rate or TV**
- Which is more efficient? **TV is more efficient to change.**

*Remember minute ventilation equation & dead space*
Acid Base Disorders

- Check pH → if <7.4 = **acidotic**.
- Next → Check HCO3 and pCO2:
  - If HCO2 is high and pCO2 is high? **Respiratory Acidosis**
  - If HCO2 is low and pCO2 is low? **Metabolic Acidosis**
    - Next → Check anion gap (Na – [Cl + HCO3]), normal? 8-12
    - Gap acidosis = **MUDPILES**
    - Non-gap acidosis = diarrhea, diuretic, RTAs (I< II, IV)
- Check pH → if >7.4 = **alkalotic**.
- Next → Check HCO3 and pCO2:
  - If HCO3 is low and pCO2 is low → **Respiratory Alkalosis**
  - If HCO3 is high and pCO2 is high → **Metabolic Alkalosis**
    - Next → Check urine [Cl]
    - If [Cl] < 20 Vomiting/NG, antacids, diuretics
    - If [Cl] > 20 Conn’s, Bartter’s, Gittleman’s.
Sodium Abnormalities

• ↓Na = Gain of water
  – Check osm, then check volume status.
  – ↑volume ↓Na: CHF, nephrotic, cirrhotic
  – ↑volume ↓Na: diuretics or vomiting + free water
  – Nl volume ↓Na: SIADH, Addisons, hypothyroidism.
  – Treatment? Fluid restriction & diruetics
  – If hypovolemic? Normal Saline
  – When to use 3% saline? Symptomatic (Seizures), < 110

• ↑Na = Loss of water
  – Treatment? Replace w/ D5W or hypotonic fluid
  – What would you worry about? cerebral edema.
Other Electrolyte Abnormalities

• Numbness, Chvostek or Troussaeu, prolonged QT interval. ↓Ca
• Bones, stones, groans, psycho. Shortened QT interval. ↑Ca
• Paralysis, ileus, ST depression, U waves. ↓K
  – Treatment? give K (kidneys!), max 40mEq/hr
• Peaked T waves, prolonged PR and QRS, sine waves. ↑K
  – Treatment? Give Ca-gluconate then insulin + glc, kayexalate, albuterol and sodium bicarb. Last resort = dialysis
Fluid and Nutrition

• Maintenance IVFs $\rightarrow$ D51/2NS + 20KCl (if peeing)
  – Up to 10kg $\rightarrow$ 100mL/kg/day
  – Next 10 kgs $\rightarrow$ 50mL/kg/day
  – All above 20 $\rightarrow$ 20mL/kg/day

• Enteral Feeds are best $\rightarrow$ keep gut mucosa in tact and prevent bacterial translocation.

• TPN is indicated if gut can’t absorb nutrients 2/2 physical or fxnal loss.
  – Risks = *acalculus cholecystitis*, hyperglycemia, liver dysfxn, *zinc deficiency*, other ‘lyte probs
Burn

• Circumferential burns? Consider escharotomy

• Look for singed nose hairs, wheezing, soot in mouth/nose? Low threshold for intubation

• Patient w/ confusion, HA, cherry red skin?
  – Best test? Check carboxyHb (pulse ox = worthless)
  – Treatment? 100% O2 (hyperbaric if CO-Hb is ↑↑↑)
Clotting & Bleeding

• Clotting-
  – In old people? **Think cancer**
  – Edema, HTN, & foamy pee? **Nephrotic syndrome**
  – In young person w/ +FH **Factor V Leiden**
  – What’s special about ATIII def? **Heparin won’t work**
  – Young woman w/ mult. SABs? **Lupus Anticoagulant**
  – Post op, ↓plts, clots **HIT! (If heparin w/in 5-14 days**
    • What do you treat w/? **Leparudin or agatroban**

• Bleeding
  – Isolated decr in plts? **ITP**
  – Normal plts but incr bleeding time & PTT? **vWD**
  – Low plts, Incr PT, PTT, BT, low fibrinogen, high Ddimer and schistocytes? **DIC!! Caused by gram – sepsis, carcinomatosis, OB stuff**
Burn Work up and Tx

• Rule of 9s –
  Give ½ over the 1st 8hrs and the rest over next 16hrs

• NO PO or IV abx. Give topical.
  • Doesn’t penetrate eschar and can cause leukopenia?
  • Penetrates eschar but hurts like hell?
  • Doesn’t penetrate eschar and causes hypoK and HypoNa? Silver Nitrate

Parkland formula-
  Adults- Kg x % BSA x 3-4
  Kiddos- Kg x % BSA x 2-4

Ringers lactate or normal saline
  Silver Sulfadiazine
  Mafenide
Other Burn Stuff

- Chemical burn, what to do? Irrigate >30min prior to ER
- Electrical Burn, best 1\textsuperscript{st} step? EKG!
- If abnormal? 48 hours of telemetry (also if LOC)
- If urine dipstick + for blood but microscopic exam is negative for RBCs? Myoglobinuria $\rightarrow$ ATN
- Then what do you check? K+! (When cells break)
- If affected extremity is extremely tender, numb, white, cold with barely dopplerable pulses? Compartment syndrome!!
  - Criteria? 5 Ps or compartment pressure $>30$mmHg
  - Treatment? May require fasciotomy. (at bedside!)
Trauma Drama

• Airway-
  – If trauma patient comes in unconscious?  **Intubate!**
  – If GCS < 8?  **Intubate!**
  – If guy stung by a bee, developing stridor and tripod posturing?  **Intubate!**
  – If guy stabbed in the neck, GCS = 15, expanding mass in lateral neck?  **Intubate!**
  – If guy stabbed in the neck, crackly sounds w/ palpating anterior neck tissues?  **Fiberoptic broncoscope**
  – If huge facial trauma, blood obscures oral and nasal airway, & GCS of 7?  **Cricothyroidotomy**
• Breathing-
  – So you intubated your patient... next best step?  
    Check bilateral breath sounds
  – If decr on the left?
    Means you intubated the right mainstem bronchus
  – What to do?  Pull back your ET tube
  – Next step?  Check pulse ox, keep it >90%
Traumatic Aortic Injury

Pneumothorax

Hemothorax

Pulmonary Contusion
Chest Trauma

• A patient has inward mvmt of the right ribcage upon inspiration.
  – Dx? **Flail chest. >3 consec rib fractures**
  – Tx? **O2 and pain control. With what?**
• A patient has confusion, petechial rash in chest, axilla and neck and acute SOB.
  – Dx? **Fat embolism**
  – When to suspect it? **After long bone fx (esp femur)**
• A patient dies suddenly after a 3\(^{rd}\) year medical student removes a central line.
  – Dx? **Air embolism**
  – When else to suspect it? **Lung trauma, vent use, during heart vessel surgery.**
• Cardiovascular-
  – If hypotensive, tachycardic? Worry about shock Hypovolemic/Hemorrhagic
  – If flat neck veins and normal CVP?
  – Next best step? 2 large bore periph IV- 2L NS or LR over 20min followed by blood.
  – If muffled <3 sounds, JVD, electrical alternans, pulsus paradoxus? Pericardial Tamponade
    • Confirmatory test? FAST scan
    • Treatment? Needle decompression, pericardial window or median sternotomy
  – If decr BS on one side, tracheal deviation AWAY from collapsed lung? Tension Pneumothorax
    • Next best step? Needle decompression, followed by a chest tube.
    DON’T do a CXR!!!
# Shock

<table>
<thead>
<tr>
<th>Types of Shock</th>
<th>Causes</th>
<th>Physical Exam</th>
<th>Swan-Ganz Catheter</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hypovolemic</strong></td>
<td>Loss of circulating blood volume (whole blood from hemorrhage or interstitial from bowel obstruction, excessive vomiting or diarrhea, polyuria or burn)</td>
<td>Hypotensive, tachycardic, diaphoretic, cool, clammy extremities</td>
<td>RAP/ PCWP↓ SVR↑ CO↓</td>
<td>Crystalloid resuscitation</td>
</tr>
<tr>
<td><strong>Vasogenic</strong></td>
<td>Decreased resistance w/in capacitance vessels, seen in sepsis (LPS) and anaphylaxis (histamine)</td>
<td>Altered mental status, hypotension <em>warm, dry extremities</em> (early), Late looks like hypovolemic</td>
<td>RAP/PCWP↓ SVR↓ CO↑ (EF↓)</td>
<td>Fluid resuscitation (may cause edema) and tx offending organism</td>
</tr>
<tr>
<td><strong>Neurogenic</strong></td>
<td>A form of vasogenic shock where spinal cord injury, spinal anesthesia, or adrenal insufficiency (suspect in pts on steroids encountering a stressor) causes an acute loss of sympathetic vascular tone</td>
<td>Hypotensive, <em>bradycardic</em>, warm, dry extremities, absent reflexes and flaccid tone. Adrenal insuf will have hypoNa, hyperK</td>
<td>RAP/PCWP↓ SVR↓ CO↑</td>
<td>In adrenal insuff, tx w/ dexamethasone and taper over several weeks.</td>
</tr>
<tr>
<td><strong>Cardio-compressive</strong></td>
<td>Cardiac tamponade or other processes exerting pressure on the heart so it cannot fulfill its role as a pump</td>
<td>Hypotensive, tachycardic, JVD, decreased heart sounds, normal breath sounds, pulsus paradoxus</td>
<td>U/S shows fluid in the pericardial space</td>
<td>Pericardio-centesis performed by inserting needle to pericardial space</td>
</tr>
<tr>
<td><strong>Cardiogenic</strong></td>
<td>Failure of the heart as a pump, as in arrhythmias or acute heart failure</td>
<td>SOB, clammy extremities, rales bilaterally, S3, pleural effusion, decr breath sounds, ascites, periph edema,</td>
<td>RAP/PCWP↑ SVR↑ CO↓</td>
<td>give diuretics up front, tx the HR to 60-100, then address rhythm. Next give vasopressor support if nec.</td>
</tr>
</tbody>
</table>
Head Trauma

- GCS \(\rightarrow\) eyes 4, motor 6, verbal 5

Hematoma, edema, tumor can cause increased ICP

Symptoms?
- Headache, vomiting, altered mental status

Treatment?
- Elevate HOB, hyperventillate to pCO2 28-32, give mannitol (watch renal fxn)

Surgical intervention?
- Ventriculostomy
Neck Trauma

Penetrating Trauma → GSW or stab wound

Zone 3 = ↑ angle of mandible w/u? Aortography and triple endoscopy.

Zone 2 = angle of mandible-cricoid w/u? 2D doppler +/- exploratory surgery.

Zone 1 = ↓ cricoid w/u? Aortography
Penetrating Abdominal Trauma

• If GSW to the abdomen?
  Ex-lap. (plus tetanus prophylaxis)

• If stab wound & pt is unstable, with rebound tenderness & rigidity, or w/ evisceration?
  Ex-lap. (plus tetanus prophylaxis)

• If stab wound but pt is stable?
  FAST exam. DPL if FAST is equivocal.
  Ex-lap if either are positive.

• If blunt abdominal trauma pt with hypotension/tachycardia:
  Ex-lap.
Blunt Abdominal Trauma

If unstable?  Ex-lap.

If stable?  Abdominal CT
  – If lower rib fx plus bleeding into abdomen
  – If lower rib fx plus hematuria  Kidney lac.
  – If Kehr sign & viscera in thorax on CXR
  – If handlebar sign  Pancreatic rupture.
  – If stable w/ epigastric pain?
    • Best test?  Abdominal CT.
    • If retroperitoneal fluid is found?  Consider duodenal rupture.
Pelvic Trauma

- If hypotensive, tachycardic ➔ FAST and DPL to r/o bleeding in abdominal cavity.
- Can bleed out into pelvis ➔ stop bleeding by fixing fx ➔ internal if stable, external if not.
- If blood at the urethral meatus and a high riding prostate? Consider pelvic fracture w/ urethral or bladder injury.
- Next best test? Retrograde urethrogram (NOT FOLEY!)
- If normal? Retrograde cystogram to evaluate bladder
- What are you looking for? Check for extravasation of dye. Take 2 views to ID trigone injury.
  - If extraperitoneal extravasation? Bed rest + foley
  - If intraperitoneal extravasation? Ex-lap and surgical repair
Ortho Trauma

• Fractures that go to the OR-
  - Depressed skull fx
  - Severely displaced or angulated fx
  - Any open fx (sticking out bone needs cleaning)
  - Femoral neck or intertrochanteric fx

• Common fractures-
  - Shoulder pain s/p seizure or electrical shock  Post. shoulder dislocation
  - Arm outwardly rotated, & numbness over deltoid. Ant. shoulder dislocation
  - Old lady FOOSH, distal radius displaced. Colle’s fracture
  - Young person FOOSH, anatomic snuff box tender. Scaphoid fracture
  - “I swear I just punched a wall...” Metacarpal neck fracture “Boxer’s fracture”. May need K wire
  - Clavicle most commonly broken where? Between middle and distal 1/3s.
    Need figure of 8 device
Ortho Trauma X-rays

Depressed skull fx
mksforum.net

Colle’s fx
xraypedia.com/files/images/fxapcolles.jpg

Scaphoid fx
orthoinfo.aaos.org/figures/A00012F04.jpg

Clavicle fx
en.academic.ru

Femoral neck fx
gentili.net

Intertrochanteric fx
download.imaging.consult.com/.../gr5-midi.jpg
Fever on POD #1-

- Most common cause, low fever (<101) and non-productive cough?
  - Atalectasis
  - Dx?
  - CXR- see bilateral lower lobe fluffy infiltrates
  - Tx?
  - Mobilization and incentive spirometry.

- High fever (to 104!!), very ill appearing. Nec Fasc
  - Pattern of spread?
  - In subQ along Scarpa’s fascia.
  - Common bugs?
  - GABHS or clostridium perfringens
  - Tx?
  - IV PCN, Go to OR and debride skin until it bleeds

- High fever (>104!!) muscle rigidity. Malignant
  - Caused by?
  - Succ or Halothane Hyperthermia
  - Genetic defect?
  - Ryanodine receptor gene defect
  - Treatment?
  - Dantrolene Na (blocks RYR and decreases intracellular calcium.)

- High fever (>104!!) muscle rigidity. Malignant
• Fever on POD #3-5-
  – Fever, productive cough, diaphoresis
  Pneumonia
  • Tx? Check sputum sample for culture, cover w/ moxi etc to cover strep pneumo in the mean time.

  – Fever, dysuria, frequency, urgency, particularly in a patient w/ a foley.

  UTI
  • Next best test? UA (nitritie and LE) and culture.
  • Tx? Change foley and treat w/ wide-spec abx until culture returns.
• Fever > POD 7-
  – Pain & tenderness at IV site
    • Tx? Do blood cx from the line. Pull it. Abx to cover staph.
  – Pain @ incision site, edema, induration but no drainage.
    • Tx? Do blood cx and start antibiotics
  – Pain @ incision site, induration WITH drainage.
    • Tx? Open wound and repack. No abx necessary
  – Pain w/ salmon colored fluid from incision. Dehiscence
    • Tx? Surgical emergency! Go to OR, IV abx, primary closure of fascia
  – Unexplained fever Abdominal Abscess
    • Dx? CT w/ oral, IV and rectal contrast to find it. Diagnostic lap.
    • Tx? Drain it! Percutaneously, IR-guided, or surgically.
  – Random → thyrotoxicosis, thrombophlebitis, adrenal insufficiency, lymphangitis, sepsis.
Pressure Ulcers

- Caused by impaired blood flow → ischemia
  - Don’t culture → will just get skin flora. Check CBC and blood cultures. Can mean bacteremia or osteomyelitis.
  - Can do tissue biopsy to rule out Marjolin’s ulcer
  - Best prevention is turning q2hrs

- Stage 1 = skin intact but red. Blanches w/ pressure
- Stage 2 = blister or break in the dermis
- Stage 3 = SubQ destruction into the muscle
- Stage 4 = involvement of joint or bone.

- Stage 1-2  get special mattress, barrier protection
- Stage 3-4  get flap reconstruction surgery
  - Before surgery, albumen must be >3.5 and bacterial load must be <100K
Thoracic

• Pleural Effusions ➔ see fluid >1cm on lat decu ➔ thoracentesis!
  – If transudative, likely CHF, nephrotic, cirrhotic
    • If low pleural glucose? Rheumatoid Arthritis
    • If high lymphocytes? Tuberculosis
    • If bloody? Malignant or Pulmonary Embolus
  – If exudative, likely parapneumonic, cancer, etc.
  – If complicated (+ gram or cx, pH < 7.2, glc < 60):
    • Insert chest tube for drainage.
  – Light’s Criteria ➔ transudative if:
    - LDH < 200
    - LDH eff/serum < 0.6
    - Protein eff/serum < 0.5
• Spontaneous Pneumothorax ➔ subpleural bleb ruptures ➔ lung collapse.
  – Suspect in tall, thin young men w/ sudden dyspnea (or asthma or COPD-emphysema)
  – Dx w/ CXR, Tx w/ chest tube placement
  – Indications for surgery = ipsi or contra recurrence, bilateral, incomplete lung expansion, pilot, scuba, live in remote area ➔ VATS, pleurodesis (bleo, iodine or talc)

• Lung Abscess ➔ usually 2/2 aspiration (drunk, elderly, enteral feeds)
  – Most often in post upper or sup lower lobes
  – Tx initially w/ abx ➔ IV PCN or clinda
  – Indications for surgery = abx fail, abscess >6cm, or if empyema is present.
Work up of a Solitary Lung Nodule

1\textsuperscript{st} step = Find an old CXR to compare!

Characteristics of benign nodules:
- Popcorn calcification = hamartoma (most common)
- Concentric calcification = old granuloma
- Pt < 40, <3cm, well circumscribed
- Tx? CXR or CT scans q2mo to look for growth

Characteristics of malignant nodules:
- If pt has risk factors (smoker, old), If >3cm, if eccentric calcification
- Tx? Remove the nodule (w/ bronc if central, open lung biopsy if peripheral.
A patient presents with weight loss, cough, dyspnea, hemoptysis, repeated pneumonia or lung collapse.

- Location and Mets? **Peripheral cancer.** Mets to liver, bone, brain and adrenals.
- Characteristics of effusion? Exudative with high hyaluronidase.
- Patient with kidney stones, constipation and malaise low PTH + central lung mass? **Squamous cell carcinoma.** Paraneoplastic syndrome 2/2 secretion of PTH-rP. Low PO4, High Ca.
- Patient with shoulder pain, ptosis, constricted pupil, and facial edema? **Superior Sulcus Syndrome from Small cell carcinoma.** Also a central cancer.
- Patient with ptosis better after 1 minute of upward gaze? **Lambert Eaton Syndrome from small cell carcinoma.** Ab to pre-syn Ca channel.
- Old smoker presenting w/ Na = 125, moist mucus membranes, no JVD? SIADH from small cell carcinoma. Produces Euvolemic hyponatremia. Fluid restrict +/- 3% saline in <112.
- CXR showing peripheral cavitation and CT showing distant Mets? **Large Cell Carcinoma.**
ARDS

- Pathophys: inflammation → impaired gas exchange, inflammatory mediator release, hypoxemia

- Causes:
  - Sepsis, gastric aspiration, trauma, low perfusion, pancreatitis.

- Diagnosis:
  1. $\text{PaO}_2/\text{FiO}_2 < 200$ (≤300 means acute lung injury)
  2. Bilateral alveolar infiltrates on CXR
  3. PCWP is <18 (means pulmonary edema is non-cardio)

- Treatment: Mechanical ventilation w/ PEEP
Murmur Buzzwords

• SEM cresc/decresc, louder w/ squatting, softer w/ valsalva. + parvus et tardus
  Aortic Stenosis

• SEM louder w/ valsalva, softer w/ squatting or handgrip.
  HOCM

• Late systolic murmur w/ click louder w/ valsalva and handgrip, softer w/ squatting
  Mitral Valve Prolapse

• Holosystolic murmur radiates to axilla w/ LAE
  Mitral Regurgitation
More Murmurs

- Holosystolic murmur w/ late diastolic rumble in kiddos
  - VSD
- Continuous machine like murmur-
  - PDA
- Wide fixed and split S2-
  - ASD
- Rumbling diastolic murmur with an opening snap, LAE and A-fib
  - Mitral Stenosis
- Blowing diastolic murmur with widened pulse pressure and eponym parade.
  - Aortic Regurgitation
• Bad breath & snacks in the AM.

• True or false? False. Only contains mucosa

• Dysphagia to liquids & solids. Dysphagia worse w/ hot & cold liquids + chest pain that feels like MI w/ NO regurg

  Achalasia.  
  Tx w/ CCB, nitrates, botox, or heller myotomy  
  Assoc w/ Chagas dz and esophageal cancer.

• Epigastric pain worse after eating or when laying down cough, wheeze, hoarse.

• Indications for surgery? GERD. Most sensitive test is 24-hr pH monitoring. Do endoscopy if "danger signs" present. Tx w/ behav mod 1st, then antacids, H2 block, PPI.

  bleeding, stricture, Barrett’s, incompetent LES, max dose PPI w/ still sx, or no want meds.
If hematemesis (blood occurs after vomiting, w/ subQ emphysema). Can see pleural effusion w/ ↑amylase

**Boerhaave’s**
Esophageal Rupture

Next best test?  
CXR, gastrograffin esophagram. NO endoscopy

Tx?  
surgical repair if full thickness

If gross hematemesis unprovoked in a cirrhotic w/ pHTN.

**Gastric Varices**

If in hypovolemic shock?
do ABCs, NG lavage, medical tx w/ octreotide or SS. Balloon tamponade only if you need to stabilize for transport

Tx of choice?
Endoscopic sclerotherapy or banding

*Don’t prophylactically band asymptomatic varices. Give BB.

If progressive dysphagia/wgt loss.

**Esophageal Carcinoma**  
Squamous cell in smoker/drinkers in the middle 1/3.
Adeno in ppl with long standing GERD in the distal 1/3.

Best 1st test?  
barium swallow, then endoscopy w/ bx, then staging CT.
Stomach

- **Acid reflux pain after eating, when laying down**:
  - Type 1 = Sliding. GE jxn herniates into thorax. Worse for GERD. Tx sxs.
  - Type 2 = Paraesophageal. Abd pain, obstruction, strangulation ⇒ needs surgery.

- **MEG pain worse w/ eating. H.pylori, NSAIDs, ‘roids**:
  - Work up = Double-contrast barium swallow- punched out lesion w/ reg margins
  - Surgery if- EGD w/ bx can tell H. pylori, malign, benign.
  - Lesion persists after 12wks of treatment.

- **Gastric Cancer**- Adeno most common. Esp in Japan
  - Krukenberg Gastric CA ⇒ ovaries
  - Virchow’s node L supraclav fossa
  - Lymphoma- HIV
  - Blummer’s Shelf Mets felt on DRE
  - Sister Mary Joseph Umbilical node
  - MALT-lymphoma- H. pylori

- **Randoms**-
  - Mentriers = protein losing enteropathy, enlarged rugae.
  - Gastric Varices = splenic vein thrombosis.
  - Dieulafoy’s = massive hematemesis ⇒ mucosal artery erodes into stomach

- **Hiatal Hernia**
  - Sliding. GE jxn herniates into thorax. Worse for GERD. Tx sxs.

- **Gastric Ulcers**
  - Double-contrast barium swallow- punched out lesion w/ reg margins
  - EGD w/ bx can tell H. pylori, malign, benign.
  - Lesion persists after 12wks of treatment.

**http://emedicine.medscape.com/article/175765-media**
Duodenum

- MEG pain better w/ eating  
  - 95% assoc w/ H. pylori  
  - Healthy pts < 45y/o can do trial of H2 block or PPI  
  - Dx? blood, stool or breath test for H. pylori but endoscopy w/ biopsy (CLO test) is best b/c it can also exclude cancer.  
  - Tx? PPI, clarithromycin & amoxicillin for 2wks. Breath or stool test can be test of cure.

- What to suspect if MEG pain/ulcers don’t resolve?  
  - Best test? Secretin Stim Test (find inapprop high gastrin)  
  - Tx? Surgical resection of pancreatic/duodenal tumor  
  - What else to look for? Pituitary and Parathyroid problems.

- A patient has bilious vomiting and post-prandial pain. Recently lost 200lbs on “Biggest Loser”.  
  - Pathophys- 3rd part of duodenum compressed by AA and SMA  
  - Tx? by restoring weight/nutrition. Can do Roux-en-Y

Duodenal Ulcers
ZE Syndrome
SMA Syndrome
Exocrine Pancreas

- MEG pain straight through to the back. **Pancreatitis**
  - Most common etiologies? **Gallstones & ETOH**
  - **Dx?**  
    - Incr amylase & lipase. CT is best imaging test
  - **Tx?**  
    - NG suction, NPO, IV rehydration and observation
  - Bad prognostic factors- **old, WBC>16K, Glc>200, LDH>350, AST>250...** drop in HCT, decr calcium, acidosis, hypox
  - Complications- pseudocyst (no cells!), hemorrhage, abscess, ARDs

- **Chronic Pancreatitis**-
  - Chronic MEG pain, DM, malabsorption (steatorrhea)
  - Can cause splenic vein thrombosis → which leads to ...? **Gastric varices!**

- **Adenocarcinoma**-
  - Usually don’t have sxs until advanced. If in head of pancreas → Courvoisier’s sign large, nontender GB, itching and jaundice
  - Trousseau’s sign = migratory thrombophlebitis
  - **Dx w/ EUS and FNA biopsy**
  - **Tx w/ Whipple if:** no mets outside abdomen, no extension into SMA or portal vein, no liver mets, no peritoneal mets.
Endocrine Pancreas

• Insulinoma-
  – Whipple’s triad? sxs (sweat, tremors, hunger, seizures) + BGL < 45 + sxs resolve w/ glc admin
  – Labs? insulin ↑, C-peptide ↑, pro-insulin ↑

• Glucagonoma-
  – Sxs? Hyperglycemia, diarrhea, weight-loss
  – Characteristic rash? necrolytic migratory erythema

• Somatistainoma-
  – Commonly malignant. see malabsorption, steatorrhea, ect from exocrine pancreas malfxn

• VIPoma-
  – Sxs? Watery diarrhea, hypokalemia, dehydration, flushing.
  – Looks similar to carcinoid syndrome.
  – Tx? Octreotide can help sxs
Gallbladder

- RUQ pain → back, n/v, fever, worse s/p fatty foods.
  - Best 1st test? U/S
  - Tx? Cholecystectomy. Perc cholecystostomy if unstable.
- RUQ pain, high bili and alk-phos. Choledocolithiasis
  - Dx? U/S will show CBD stone.
  - Tx? Chole +/- ERCP to remove stone
- RUQ pain, fever, jaundice, ↓BP, AMS. Ascending Cholangitis
  - Tx? w/ fluids & broad spec abx. ERCP and stone removal.
- Choledochal cysts-
  - Type 1? Fusiform dilation of CBD → Tx w/ excision
  - Type 5? Caroli’s Dz. Cysts in intrahepatic ducts → needs liver transplant
- Cholangiocarcinoma- rare.
  - Risk factors? Primary sclerosing cholangitis (UC), liver flukes and thorothrast exposure. Tx w/ surgery +/- radiation.

Acute Cholecystitis

U/S Cholecystectomy. Perc cholecystostomy if unstable

Choledocolithiasis

Chole +/- ERCP to remove stone

Ascending Cholangitis

w/ fluids & broad spec abx. ERCP and stone removal.

Choledochal cysts-

Type 1? Fusiform dilation of CBD → Tx w/ excision

Type 5? Caroli’s Dz. Cysts in intrahepatic ducts → needs liver transplant

Cholangiocarcinoma- rare.

Risk factors? Primary sclerosing cholangitis (UC), liver flukes and thorothrast exposure. Tx w/ surgery +/- radiation.
Liver

• Hepatitis-
  – AST = 2x ALT → Alcoholic hepatitis (reversible)
  – AST > ALT high (1000s) → Viral hepatitis
  – AST & ALT high s/p hemorrhage, surg, or sepsis → Shock liver

• Cirrhosis and Portal HTN-
  – Tx- SS and VP vasoconstrict to decrease portal pressure, betablockers also decrease portal pressure.
  – Don’t need to treat esophageal varices prophylactically, but band/burn them once they bleed once.
  – TIPS relieves portal HTN but… → worsens hepatic encephalopathy
    • Treat with: Lactulose. helps rid body of ammonia.

• Hepatocellular Carcinoma
  – RF- chronic hepB carrier > hepC. Cirrhosis for any reason, plus aflatoxin or carbon tetrachloride.
  – Dx w/ high AFP (in 70%), CT/MRI.
  – Tx: can surgically remove solitary mass, use rads or cryoablation for pallation of multiple.
More Liver

*Women on OCP → palpable abd mass or spontaneous rupture → hemorrhagic shock
  
  **Hepatic Adenoma**
  
  **Dx?** U/S or MRI
  **Tx?** D/c OCPs. Resect if large or pregnancy is desired

*2nd MC benign liver tumor. W>M but less likely to rupture. No tx needed.

*Bacterial Abscess.
  
  Most common bugs? *E. coli, bacteriodes, enterococcus.*
  **Tx?** Surgical drainage and IV abx.

RUQ pain, profuse sweating and rigors, palpable liver. **Entamoeba histolytica**
  
  **Tx?** Metronidazole. DON’T drain it.
  
  Patient from Mexico presents w/ RUQ and large liver cysts found on U/S
  **Echinococcus.**
  
  – Mode of transmission? Hydatic cyst paracyte from dog feces.
  – Lab findings? eosinophilia, +Casoni skin test
  – **Tx?** albendazole and surgery to remove ENTIRE cyst, rupture → anaphylaxis
Spleen

• Post-Splenectomy →
  – Post op thrombocytosis >1mil → give aspirin.
  – Prophylactic PCN + S. pneumo, H. flu and N. meningitidis vaccines.

• ITP-
  – Consider in isolated thrombocytopenia (bleeding gums, petechiae, nosebleeds).
  – Decr plt count, incr megakaryocytes in marrow.
  – NO splenomegaly.
  – Tx w/ steroids 1\textsuperscript{st}. If relapse → splenectomy.

• Hereditary Spherocytosis-
  – See sxs of hemolytic anemia (jaundice, incr indir bili, LDH, decr haptoglobin, elevated retic count) + spherocytes on smear and +osmotic frag test. Prone to gallstones.
  – Tx w/ splenectomy (accessory spleen too).

• Traumatic Splenic Rupture-
  – Consider w/ L lower rib fx and intra abd hemorrhage. Can have Kehr’s sign (irritates L diaphragm).
Appendix

- pain in umbilical area → RLQ, n/v. perf.  
  Appendicitis
  - Go to surgery if: Clinical picture is convincing.
  - If perforated/abscess? drain, abx (to cover e.coli & bacteriodes),
    and do interval appendectomy

- Carcinoid Tumor- #1 site: Appendix!
  - Carcinoid syndrome sxs? Diarrhea, Wheezing.
  - When do they happen? When mets to liver. (1st pass metabolism)
  - What else to look out for? Diarrhea, Dementia, Dermatitis
  - If >2cm, @ base of appendix, or w/ + nodes → Hemicolecotomy
  - Otherwise → Appendectomy is good enough
Bowel Obstruction

- **Small Bowel Obstruction**
  - Suspect in hernia, prior GI surgery (adhesions), cancer, intussusception, IBD.
  - Sxs are *pain, constipation, obstipation, vomiting*.
  - 1st test is upright CXR to look for free air. CT can show point of obstruction.
  - Tx w/ IVF, NG tube. **Do surgery if** peritoneal signs, Incr WBC, no improvement w/in 48hrs.

- **Volvulus** - either cecal or sigmoid
  - Decompression from below if not strangulated. Otherwise, need surgical removal and colostomy.

- **Post-Op Ileus**
  - Also consider if hypoK (make sure to replete), opiates.
  - See **dilated loops of small bowel** w/ air-fluid level.
  - Do surgery for perforation. Give lactulose/erythromycin.

- **Ogilvie’s syndrome**
  - See massive **colonic** distension. If >10cm, need decompression w/ NG tube and **neostigmine** (watch for bradycardia) or colonoscopic decompression.
Abdominal Imaging
Hernias

• **Umbilical**- in kiddos, close spontaneously by age 2. In adults: 2/2 obesity, ascites or pregnancy.

• **Indirect Inguinal**- MC → through inguinal ring (lat to epigastric vessels) in spermatic cord. R>L, more often congenital (patent proc vaginals)

• **Direct Inguinal**- → through Hasselbeck’s triangle (med to epigastric vessels), more often acquired weakness.

• **Femoral**- more common in women.

• **Tx**- emergent surgical repair if incarcerated to avoid strangulation. Elective if reducible.
**Inflammatory Bowel Disease**

- Involves terminal ileum? **Crohn’s.** Mimics appendicitis. Fe deficiency.
- Continuous involving rectum? **UC.** Rarely ileal backwash but never higher.
- Incr risk for Primary Sclerosing Cholangitis? **UC.** PSC leads to higher risk of cholangioCA.
- Fistulae likely? **Crohn’s.** Give metronidazole.
- Granulomas on biopsy? **Crohn’s.**
- Transmural inflammation? **Crohn’s.**
- Cured by colectomy? **UC.**
- Smokers have lower risk? **UC.** Smokers have higher risk for Crohn’s.
- Highest risk of colon cancer? **UC.** Another reason for colectomy.
- Associated w/ p-ANCA? **UC.**

Treatment = ASA, sulfasalzine to maintain remission. Corticosteroids to induce remission. For CD, give metranidazole for ANY ulcer or abscess. Azathioprine, 6MP and methotrexate for severe dz.
IBD Images & Complications
Diverticular Disease

- **Diverticulosis** -
  - False diverticulae (only outpocketings of mucosa)
  - Occur 2/2 low fiber diet in areas of weakness where blood vessels penetrate → bleed
  - Complications are **bleeding**, obstruction, diverticulitis

- **Diverticulitis** -
  - Diverticulum becomes obstructed and forms abscess/perforates
  - LLQ pain, either constipation or diarrhea,
  - Look for free air, CT is best imaging to evaluate for abscess. No Barium enema!
  - Tx w/ NPO, NG suction, IVF, broad spec abx & pain control.
  - Do colonoscopy: 4-6 weeks later.
  - Surgery indicated if: multiple episodes, age <50. Elective is better than emergency (can do primary anastomosis)
Colorectal Cancer

- RF
  - Genetics? AFP, Lynch Syndrome, HNPCC, Gardners, Cowdens
  - Other? UC. Need colonoscopy 8-10yrs after dx

- Sxs
  - Right sided cancer = bleeding
  - Left sided cancer = obstruction
  - Rectal cancer = pain/fullness, bleeding/obstruction

- Work up
  - DRE, transrectal ultrasound (depth of invasion), Colonoscopy! CEA to measure recurrence, CT for staging.

- Tx
  - For colon- remove affected segments & chemo if node +
  - For rectum- upper/middle 1/3 get a LAR, lower 1/3 gets an APR (remove sphincter, permanent colostomy)
AAA

• Screening = men 65-75 who have ever smoked. Do abdominal U/S.

• Sxs = pulsatile abdominal mass.

• Tx conservatively if:
  if <5cm and asymptomatic, monitor growth every 3-12mo.

• Surgery indicated if: >5cm, growing <4mm/yr

• Rupture =
  – severe sudden abdomen, flank or back, shock, tender pulsatile mass.
  – 50% die before reaching the hospital.

• Post-op complications = #1 cause of death → MI
  – Bloody diarrhea → ischemic colitis
  – Weakness, decreased pain w/ preserved vibr, prop-
  – 1-2 yrs later if have brisk GI bleeding → Aortoenteric Fistula
  – ASA syndrome
Mesenteric Ischemia

• Acute Mesenteric Ischemia = surgical emerg!
  – Acute abdominal pain in a pt w/ A-fib subtherapeutic on warfarin or pt s/p high dose vasoconstrictors (shock, bypass).
  – Work up is angiography (aorta and SMA/IMA)
  – Tx is embolectomy. If thrombus, or aortomesenteric bypass.

• Chronic Mesenteric Ischemia =
  – Slow progressing stenosis (req stenosis of 2.5 vessels → Celiac, SMA and IMA).
  – Severe MEG pain after eating, food fear and weight loss. “Pain out of proportion to exam”.
  – Dx w/ duplex or angiography.
  – Tx w/ aortomesenteric bypass or transaortic mesenteric endarterectomy.
Peripheral Artery Disease

- Acute arterial occlusion: 5P’s → no dopplerable pulses.
  - Tx w/ immediate heparin + prepare for surgery.
  - Surgery (embolectomy or bypas) done w/in 6hrs to avoid loss.
  - Thrombolytics may be possible if: no surg in <2wks, hemorrhagic stroke.
  - Complications = compartment syndrome during reperfusion period → do fasciotomy watch for myoglobinuria.

- Claudication-
  - Pain in butt, calf thigh upon exertion.
  - Best test? Ankle-Brachial Index
  - Normal- >1
  - Claudication & Ulcers- 0.4-0.8, use medical management
  - Limb ischemia- 0.2-0.4, surgery is indicated
  - Gangrene <0.2, may require amputation
DVT and PE

- High risk after surgery (esp orthopedic)
- DVT-
  - Dx w/ Duplex U/S & also check for PE
  - Tx w/ heparin, then overlap w/ warfarin for 5 days, then continue warfarin for 3-6mo.
  - Complications- post-phlebotic syndrome = chronic valvular incompetence, cyanosis and edema
- PE-
  - Random signs = right heart strain on EKG, sinus tach, decr vascular markings on CXR, wedge infarct, ABG w/ low CO2 and O2.
  - If suspected, give heparin 1st! Then work up w/ V/Q scan, then spiral CT. Pulmonary angiography is gold standard.
  - Tx w/ heparin warfarin overlap. Use thrombolytics if severe but NOT if s/p surgery or hemorrhagic stroke. Surgical thrombectomy if life threatening. IVC filter if contraindications to chronic coagulation.
Work up of a Thyroid Nodule

• 1\textsuperscript{st} step? Check TSH
• If low? Do RAIU to find the “hot nodule”. Excise or radioactive I\textsuperscript{131}
• If normal? FNA
• If benign? Leave it alone.
• If malignant? Surgically excise and check pathology
• If indeterminate? Re-biopsy or check RAIU
• If cold? Surgically excise and check pathology
  – Papillary MC type, spreads via lymph, psammoma bodies
  – Follicular Spreads via blood, must surgically excise whole thyroid!
  – Medullary Assoc w/ MENII (look for pheo, hyperCa). Amyloid/calci
  – Anaplastic 80% mortality in 1\textsuperscript{st} year.
  – Thyroid Lymphoma Hashimoto’s predisposes to it.
Work up of an Adrenal Nodule

• #1- check functional status

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Features</th>
<th>Biochemical Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pheochromocytoma</strong></td>
<td>High blood pressure, catechol symptoms</td>
<td>Urine- and plasma-free metanephrines</td>
</tr>
<tr>
<td><strong>Primary aldosteronism</strong></td>
<td>High blood pressure, low $K^+$, low PRA*</td>
<td>Plasma aldosterone-to-renin ratio</td>
</tr>
<tr>
<td><strong>Adrenocortical carcinoma</strong></td>
<td>Virilization or feminization</td>
<td>Urine 17-ketosteroids</td>
</tr>
<tr>
<td><strong>Cushing or &quot;silent&quot; Cushing syndrome</strong></td>
<td>Cushing symptoms or normal examination results</td>
<td>Overnight 1-mg dexamethasone test</td>
</tr>
</tbody>
</table>

• #2- if <5cm and non-function \(\rightarrow\) observe w/ CT scans q6mo.
If >6cm or functional \(\rightarrow\) surgical excision

Parathyroid Disease

• Hypoparathyroidism
  – Typically comes from thyroidectomy
  – Sxs are perioral numbness, Chvortek, Trousseau
  – ↓[Ca], ↑[PO4], ↓[PTH]

• Hyperparathyroidism
  – Usually asymptomatic ↑Ca, but can present w/ kidney stones, abdominal or psychiatric sxs
  – ↑[Ca], ↓[PO4], ↑vitD, ↑[PTH]
  – Dx w/ FNA of suspicious nodules. Can use Sestamibi scan.
  – Tx w/ surgical removal of adenoma. If hyperplasia, remove all 4 glands and implant 1 in forearm.

• MEN-
  – MEN1- pituitary adenoma, parathyroid hyperplasia, pancreatic islet cell tumor.
  – MEN2a- parathyroid hyperplasia, medullary thyroid cancer, pheochromocytoma
  – MEN2b- medullary thyroid cancer, pheochromocytoma, Marfanoid
Work up of a Breast Mass

- **U/S can tell if solid or cystic. MRI is good for eval dense breast tissue, evaluating nodes and determining recurrent cancer.**
  - Best imaging for the young breast
  - U/S good for determining fibroadenoma/cysto-sarcoma phyllodes.
- **Aspiration of fluid if cystic, FNA for cells if solid**
  - Send fluid for cytology if its bloody or recurs x2
  - Fibrocytic change → cysts are painful and change w/ menses. Fluid is typically green or straw colored.
    - Restrict caffeine, take vitamin E, wear a supportive bra
- **Excisional biopsy if palpable or if fluid recurs**
- **Mammaographically guided multiple core biopsies**
Breast Cancer

- **RF:** BRCA1 or 2, person hx of breast cancer, nulliparity, endo/exogenous estrogen.
- **DCIS**
  - Either excision w/ clear margins or simple mastectomy if multiple lesions (no node sampling) + adjuvant RT.
- **LCIS**
  - More often bilateral. Consider bilateral mastectomy only if +FH, hormone sensitive, or prior hx of breast cancer
- **Infiltrating ductal/lobular carcinoma**
  - If small and away from nipple, can do lumpectomy w/ ax node sampling. Adjuvant RT. Chemo if node +. Tamoxifen or Raloxifen if ER +
  - Modified radical mastectomy w/ ax node sampling w/o adjuvant RT gives same prognosis.
- **Paget’s Dz**
  - Looks like eczema of the nipple. Do mammogram to find the mass.
- **Inflammatory**
Skin Cancer

- **Basal Cell Carcinoma**
  - Shave or punch bx then surgical removal (Mohs)

- **Squamous Cell Carcinoma**
  - AK is precursor lesion (tx w/ 5FU or excision) or keratoacanthoma.
  - Excisional bx at edge of lesion, then wide local excision.
  - Can use rads for tough locations.

- **Melanoma**
  - Superficial spreading (best prog, most common)
  - Nodular (poor prog)
  - Acrolintiginous (palms, soles, mucous membranes in darker complected races).
  - Lentigo Maligna (head and neck, good prog)
  - Need full thickness biopsy b/c depth is #1 prog
  - Tx w/ excision-1cm margin if <1mm thick,
    - 2cm margin if 1-4mm thick, 3cm margin if >4mm
  - High dose IFN or IL2 may help

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Sarcoma

• Soft Tissue Sarcoma-
  – Painless enlarging mass. (Don’t confuse w/ bruised muscle.
  – Dx w/ biopsy (NOT FNA). Excisional if <3cm otherwise incisional.
  – Tx w/ wide, local excision or amputation + RT.
  – Spreads 1st to the lungs (hematogenously) → can do wedge resection if only met and primary is under control.

• Liposarcoma-
  – 99% DON’T come from lipoma

• Fibrosarcoma/Rhabdomyosarcoma/
  Lymphangiosarcoma-
  – Hard round mass on extremity. Can occur in areas of chronic lymphedema
Work up of a Neck Mass

• 7 days = inflammatory, 7 mo = cancer, 7 yrs = congenital
  – MC is a reactive node, so #1 step is to examine teeth, tonsils, etc for inflammatory lesion
  – If you find a lesion that’s still there in 2 week → FNA it!
  – If node is firm, rubbery and “B sxs” are present → excisional bx looking for Lymphoma
    • Hodgkins = lymphocyte predom is good prog factor. Reed Sternberg cells.
    • Non-Hodgkins = nodular and well-dif are good prog factor.
    • Staging CT, CXR and laparotomy for chemo and XRT treatment
• If midline → thyroglossal duct cyst, move tongue → mass moves. Remove surgically.
• If anterior to SCM → brancial cleft cyst
• If spongy, diffuse and lateral to SCM → cystic hygroma (Turners, Down’s, Klinefelters)
ENT Cancers

• Oral Cancer-
  – Most freq squamous cell. In smokers & drinkers
  – Tx w/ XRT or radical dissection (jaw/neck)

• Laryngeal Cancer-
  – Laryngeal papilloma in kiddo w/ stridor or cough
  – Squamous cell in adults.
  – Tx w/ laryngoscope laser or resection

• Pleomorphic Adenoma-
  – MC salivary glad tumor. Usually on parotid. Benign but recurs

• Warthlin’s Tumor-
  – Can injure facial nerve (look for palsy sxs in ? Stem)

• Mucoepidermoid Carcinoma-
  – MC malignant tumor. Arises from duct. Causes pain and CNVII palsy
Baby is born w/ respiratory distress, scaphoid abdomen & this CXR.

Diaphragmatic hernia

• Biggest concern? Pulmonary hypoplasia
• Best treatment? If dx prenatally, plan delivery at @ place w/ ECMO. Let lungs mature 3-4 days then do surg

Baby is born w/ respiratory distress w/ excess drooling.

• Best diagnostic test? TE- Fistula
  Place feeding tube, take xray, see it coiled in thorax
GI disorders

• Defect lateral (usually R) of the midline, no sac.
  – Assoc w/ other disorders? Not usually.
  – Complications? May be atretic or necrotic req removal. Short gut syndrome

*will see high maternal AFP

• Defect in the midline. Covered by sac.
  – Assoc w/ other disorders? Yes

• Defect in the midline. No bowel present.
  – Assoc w/ other disorders? Assoc w/ congenital hypothyroidism. (also big tongue)
  – Treatment?

  Repair not needed unless persists past age 2 or 3.
A vomiting baby

- 4wk old infant w/ non-bileous vomiting and palpable “olive”
  - Metabolic complications? Hypochloremic, metabolic alkalosis
  - Tx? Immediate surg referral for myotomy

- 2wk old infant w/ bileous vomiting. The pregnancy was complicated by polyhydramnios.
  - Assoc w/? Down Syndrome (esp duodenal)

- 1 wk old baby w/ bileous vomiting, draws up his legs, has abd distension.
  - Pathophys? Doesn’t rotate 270 ccw around SMA

Pyloric Stenosis

Intestinal Atresia
Or Annular Pancreas

Malrotation and volvulus
*Ladd’s bands can kink the duodenum
Pooping Problems

- A 3 day old newborn has still not passed meconium.
  - DDX? (name 2)

- A 5 day old former 33 weeker develops bloody diarrhea
  - What do you see on xray?
  - Treatment? NPO, TPN (if nec), antibiotics and resection of necrotic bowel
  - Risk factors? Premature gut, introduction of feeds, formula.

- A 2mo old baby has colicky abd pain and current jelly stool w/ a sausage shaped mass in the RUQ.
  - **Meconium ileus**- consider CF if +FH
    - *gastrograffin enema is dx & tx
  - **Hirschsprung’s**- DRE → explosion of poo.
    - bx showing no ganglia is gold standard
  - **Necrotizing Enterocolitis**
    - Pneumocystis intestinalis (air in the wall)
    - NPO, TPN (if nec), antibiotics and resection of necrotic bowel
  - **Intussusception**
    - *Barium enema is dx and tx
Urology

• **BPH**-
  – Anticholinergics meds make it worse → foley for acute urinary retention.
  – Medical Tx 1st w/ tamsulosin or finasteride
  – Surgical Tx w/ TURP (hyponatremia, retro-ejac)

• **Prostate Cancer**-
  – Nodules on DRE or elevated/rising PSA means → transrectal ultrasound and bx. Bone scan looks for blastic lesions.
  – Tx w/ surgery, radiation, leuprolide or flutamide.

• **Kidney Stones**-
  – CT is best test. If stone <5mm, hydrate and let it pass. If >5mm, do shock wave lithotripsy. Surgical removal if >2cm.

• **Scrotal Mass**-
  – Transilluminate, U/S, excision! (don’t bx). Know hormone markers!

• **Testicular Torsion**-
  – Acute pain and swelling w/ high riding testis.
  – Do STAT doppler U/S → will show no flow (contrast w/ epididymitis)
  – Can surgically salvage if <6hrs. Do orchiopexy to BOTH testes.
Ortho

• Avascular Necrosis-
  – In kids → Leg-Calve-Perthe’s dz in 4-5 y/o w/ a painless limp and SCFE in a 12-13 y/o w/ knee pain or sickle cell pts
  – In adults → steroid use, s/p femur fracture.

• Osteosarcoma-
  – Seen in distal femur, proximal tibia @ metaphysis, around the knee
  – Codman’s triangle and Sunray appearance

• Ewing Sarcoma-
  – Seen at diaphysis of long bones, night pain, fever & elevated ESR
  – Lytic bone lesions, “onion skinning”.
  – Neuroendocrine (small blue) tumor
Transplant

• Hyperacute Rejection-
  – Vascular thrombosis w/in minutes
  – Caused by preformed antibodies

• Acute Rejection-
  – Organ dysfunction (incr GGT or Cr depending on organ) w/in 5days – 3mo. Due to T-lymphocytes.
  – Technical problems common in Liver → 1st check for biliary obstruction w/ U/S then check for thrombosis by Doppler.
  – In heart, sx come late, so check ventricular bx periodically.
  – Tx w/ steroid bolus and antilymphocyte agent (OKT3)

• Chronic Rejection-
  – Occurs after years. Due to T-lymphocytes.
  – Can’t treat it. Need re-transplantation.
Anesthesia

- **Local- (lidocaine, etc)**
  - Why give with epi? To prevent systemic absorption → numb tongue, seizures hypotension, bradycardia, arrhythmias
  - No epi where? Fingers, nose, penis, toes

- **Spinal-Subarachnoid- (bupivacaine, etc)**
  - For ppl who can’t be intubated. Can’t give if incr ICP or hypotensive.

- **Epidural- (local + opioid)**
  - If “high block” → blocks heart’s SNS nerves and phrenic nerve.

- **General-**
  - Merperidine: Norperidine metabolite can lower seizure threshold esp in pts w/ renal failure.
  - Succinylcholine: Can cause malignant hyperthermia, hyperK (not for burn or crush victim)
  - Rocuronium, etc: Sometimes allergic rxn in asthmatics
  - Halothane, etc: Can cause malignant hyperthermia (dantrolene Na), liver toxicity.