

HY Surgery Shelf Review



Some MS4

Introduction

-Welcome to M3.

-The key to doing well on rotations is to study early with a decent resource (ask upperclassmen), and get through (aka do and thoroughly review) the UWorld questions and 4 NBME practice exams.

-The review videos by Emma Ramahi/Onlinemeded are also clutch. Use them!

-The surgery shelf draws on material from many different fields. This makes the test seem very random. There's lots of medicine but in the grand scheme of things, there is some sort of surgical application. This review set is not comprehensive, however, we will discuss some HY material.

-3rd year builds on Step 1 material. Many exam questions depend on your ability to recognize disease scripts (with unusual wording) that draw on pathophysiology you already know. It is especially important in your studying to focus on risk factors for disease, sequential steps in management of disease, and establishing a diagnosis in the context of clinical clues.

Introduction contd.

-One of the strongest indicators of future success on Step 2 is strong performance on shelf exams. I would encourage you to study hard for and try to do well on these exams. You'll thank yourself next year. Unlike Step 1, there is no good comprehensive step 2 resource.

-To do well on NBME exams-> don't make assumptions (don't pick an answer based on something that is not there), pick the simple answer that has the most evidence, don't overthink questions (just put everything together), mark questions you want to return to down the line (don't spend 5 mins on a question with a first pass), study hard (the more you know, the better you'll perform), and practice a lot (UWorld and others).

-There is a "global review" section at the end. It is a fairly long list of HY associations you can go through for final review.

Q1

65 yo M with a BMI of 32 is brought to the ED by ambulance 30 mins after his daughter noticed him complaining of substernal chest pain radiating to his jaw. On arriving at the ED, he receives 325 mg of Aspirin and “some other drugs”. EKG shows ST elevations in V1-6 and aVL. Cardiac cath reveals 90% stenosis of the LMCA.

What is the next best step in the management of this patient?

If ST elevations were observed in 2, 3, and aVF, what should be avoided?

What is the best vessel employed for revascularization based on the first question?

Assuming this patient presents with pleuritic chest pain best relieved by sitting up at his f/u visit 5 days later, what is the next best step in management? Few days after surgery (right in the CVSICU)? 4 weeks after surgery?

Q1 Key

-This patient requires **CABG (LMCA disease or 3 vessel disease)**. The **Internal Mammary (also known as the Internal Thoracic artery)** is the best for this purpose considering its “durable advantages” over the Saphenous vein.

-**Avoid nitrates in RCA infarcts** (preload dependence). Remember 2, 3, and avF for the RCA, V1-4 for the LAD, and V5-V6, 1, and avL for the LCX.

-It is HY to know the different presentations of pericarditis (pleuritic CP worsened with supination but improved with sitting up, tx with NSAIDS);

Fairly quickly **after CARDIAC surgery-postpericardiotomy fibrinous pericarditis**.

Few days after an MI-**Postinfarction fibrinous pericarditis**.

Few weeks after-**Dressler’s syndrome (autoimmune pericarditis)**.

Q1 Aftermath

-Consider **renal failure** in an individual presenting with elevated creatinine after cardiac surgery.

-I would also note the following;

Remember VFib as a common cause of death wrt to arrhythmias in the immediate period surrounding an MI.

Papillary muscle rupture in the setting of a new holosystolic murmur heard best at the apex with radiation to the axilla.

Ventricular free wall rupture in the setting of Beck's triad of cardiac tamponade (JVD, hypotension, and distant heart sounds) and rapid patient decompensation.

Interventricular septal rupture in the setting of a holosystolic murmur at the LLSB with either a bubble study or cardiac cath showing pressure equalization b/w heart chambers.

Q2

A 19 yo M is found down by EMS and brought to the ED. Cardiac auscultation reveals a holosystolic murmur at the LLSB. HEENT exam reveals retinal hemorrhages with surrounding pallor. There are red indentations under his finger.

What is the next best step in diagnosis?

What is the most likely murmur heard on exam?

What is the offending organism associated with murmurs involving recent dental procedures?

What is the offending organism associated with the patient presentation in this question?

What is the offending organism associated with bacteremia after our original patient is treated?

What is the next best step in the management of a 47 yo M with *S. Bovis* bacteremia?

Q2 Key/Aftermath

-An echocardiogram is typically needed for the dx of endocarditis and most valvular disorders. **A TTE is usually done first (although a TEE is an acceptable choice) w/blood cultures.**

-Our patient is likely a drug user with tricuspid regurgitation, most likely from **S. Aureus.**

-Consider **S. Viridans/S. Gallolyticus/S. Mutans** in the setting of dental procedure endocarditis.

-Consider **S. Epidermidis** as the offending organism in prosthetic valve endocarditis.

-With S. Bovis bacteremia, the next step is a **colonoscopy** to evaluate for a large bowel malignancy.

-In an exam Q detailing **reduced haptoglobin, low hemoglobin, and indirect hyperbilirubinemia** in an individual with a prosthetic valve, consider **mechanical intravascular hemolysis from the prosthetic valve.**

-Antibiotic prophylaxis is generally required only in those w/**cyanotic congenital defects and prosthesis.**

Q3 (your leg hurts, welcome to surgery!)

Leg pain that is better at night with “shiny” extremities

Leg pain that is worse at night in a 60 pack year smoker

Leg pain that is relieved with leg elevation

Pathophysiology underlying varicose veins

Next best step in the management of an individual with leg pain with activity

NBS in the mgt of an individual with leg pain relieved with leg elevation

Lesioned artery with no erections, buttock/thigh/calf pain

Lesioned artery with “upper” calf pain with activity

Lesioned artery with “lower” calf pain with activity

Calf pain in an individual with a hx of fullness behind the knee

Sudden onset leg pain in the setting of an irregularly, irregular interval

Leg pain that is better when shopping at Walmart

NBS in the management of sudden onset calf pain with an Afib hx

Shiny skin w/o hair above the medial malleolus

Ulcer beneath the toes with no sensation in a guy with CKD

Painful ulcer beneath the toes in a long time smoker

Painless ulcer above the medial malleolus in a 70 yo F

ABI is 1.5 in a patient with a foot ulcer

First step in the treatment of an individual with leg pain relieved with rest

Drug shown to improve walking distance in the setting of PAD

PAD in a 25 yo Japanese female with high BP and elevated ESR/CRP

NBS in the treatment of a patient with varicose veins

Leg pain with PE revealing a tortuous, palpable “cord”

Unilateral leg swelling and tenderness in a pregnant woman, woman on OCPs, truck driver

Q3 Key

Leg pain that is better at night with “shiny” extremities-**varicose veins**.

Leg pain that is worse at night in a 60 pack year smoker-**Peripheral Arterial Disease**.

Leg pain that is relieved with leg elevation-**varicose veins**.

Pathophysiology underlying varicose veins-**incompetent valves**.

Next best step in the management of an individual with leg pain with activity-**Ankle Brachial Index**.

NBS in the mgt of an individual with leg pain relieved with leg elevation-**Doppler Ultrasonography**.

Lesioned artery with no erections, buttock/thigh/calf pain-**aorta and its branches (iliac arteries. Leriche syndrome)**.

Lesioned artery with “upper” calf pain with activity-**superficial femoral artery**.

Lesioned artery with “lower” calf pain with activity-**popliteal artery**.

Calf pain in an individual with a hx of fullness behind the knee-**Baker’s cyst (ruptured)**.

Sudden onset leg pain in the setting of an irregularly, irregular interval-**Acute Limb Ischemia**.

Leg pain that is better when shopping at Walmart-**Lumbar Spinal Stenosis**.

NBS in the management of sudden onset calf pain with an Afib hx-**Heparin**.

Shiny skin w/o hair above the medial malleolus-**Stasis dermatitis from varicose veins**.

Ulcer beneath the toes with no sensation in a guy with CKD-**ulcers secondary to diabetic neuropathy**.

Painful ulcer beneath the toes in a long time smoker-**ulcers secondary to PAD**.

Painless ulcer above the medial malleolus in a 70 yo F-**ulcers secondary to venous incompetence**.

ABI is 1.5 in a patient with a foot ulcer-**diabetes (vessels are calcified)**.

First step in the treatment of an individual with leg pain relieved with rest-**Supervised walking program**.

Drug shown to improve walking distance in the setting of PAD-**Cilostazol (PDE inhibitor)**.

PAD in a 25 yo Japanese female with high BP and elevated ESR/CRP-**Takayasu Arteritis**.

NBS in the treatment of a patient with varicose veins-**leg elevation and use of compression stockings**.

Leg pain with PE revealing a tortuous, palpable “cord”-**Superficial thrombophlebitis (NSAIDS and warm compresses, no heparin)**.

Unilateral leg swelling and tenderness in a pregnant woman, woman on OCPs, truck driver-**DVT**.

Q4

42 yo M is brought to the ED by ambulance after being “found down” by the police. He is unresponsive on presentation. At the ED, he is intubated, receives 2L of IVF, a thiamine bolus, and a hanging D5W drip. 2 g of Naloxone given in repeated doses has produced no results. 30 mins after presentation, the resident notices that the patient’s muscles are rigid. Vitals are BP 87/48, RR 34, Temp 104.6, and pulse 123. What is the next best step in the management of this patient?

- a. Administer Amiodarone.
- b. Administer 40 mg of IV Bumetanide.
- c. Administer a calcium channel blocker.
- d. Electrical cardioversion.
- e. Urinalysis.

Q4 Key

- The best answer is **C-administer a CCB**. In this case, I am referring to **Dantrolene**.
- This patient has **malignant hyperthermia**. It is HY to know its **autosomal dominant inheritance and associations with ryanodine/dihydropyridine receptor mutations**.
- It is very common with **succinylcholine and halothane administration (intubation)**.
- The patient should be cooled down!
- Watch for similar presentations (**neuroleptic malignant syndrome with a hx of hearing voices-same tx, serotonin syndrome with a hx of myoclonus and combining SSRIs/other antidepressants/Linezolid, etc-give cyproheptadine/benzodiazepines**).
- Watch out for the following sequelae-**peaked T waves-hyperkalemia from rhabdomyolysis, rising creatinine-ditto**. Give IVF support and maybe Sodium Bicarb.

Q5

65 yo M with a PMH of CAD presents with a 6 mo history of a 30 Lb weight loss. He has no smoking history but has regular episodes of LUQ abdominal pain that often lasts for 45 mins after every meal. He has been a missionary for the past 30 years with regular trips 8 times a year to Costa Rica. He has no history of osteoarthritis. Hct is 45% and Fe studies are normal. Total bilirubin is 0.7 and alkaline phosphatase measurements are wnl. What is the next best step in the management of this patient?

- a. Trial of omeprazole.
- b. Abdominal CT angiography.
- c. Abdominal US to screen for AAA.
- d. Endoscopic Retrograde Cholangiopancreatography.

Q5 Key

- The best answer is B. The most likely diagnosis here is **Chronic Mesenteric Ischemia** (consider in the setting of chronic postprandial pain).
- In a patient with a hx of Afib that presents with **sudden onset abdominal POOP** to the exam, consider **acute mesenteric ischemia** as the underlying dx also requiring CT angiography.
- There's **no smoking hx here so a screening US for AAA is not indicated**. There's no indication of biliary pathology, so an ERCP is not an appropriate first step.
- A trial of Omeprazole seems reasonable but severe weight loss, normal Fe studies, hx of CAD, and LUQ pain (splenic flexure) are more consistent with mesenteric ischemia and less consistent with PUD (pain should be epigastric).

Q6-Why is this patient hypertensive?

Given the following parameters what is the most likely diagnosis?

Old guy, abdominal bruit, elevated renin/A1/A2

Young lady, abdominal bruit, elevated renin/A1/A2

45 yo M with hypokalemia, metabolic alkalosis, and decreased renin activity

Buffalo hump, purple striae

New onset Afib and proptosis

35 yo F with no risk factors

20 yo F with elevated arm pressures and chronic leg claudication

30 yo M with episodic HTN, diaphoresis, and tachycardia

35 yo chronic drinker POD #2 s/p appendectomy

Q6 Key-Why is this patient hypertensive?

Given the following parameters what is the most likely diagnosis?

Old guy, abdominal bruit, elevated renin/A1/A2-**renal artery stenosis**.

Young lady, abdominal bruit, elevated renin/A1/A2-**fibromuscular dysplasia**.

45 yo M with hypokalemia, metabolic alkalosis, and decreased renin activity-**Conn Syndrome (primary hyperaldosteronism)**.

Buffalo hump, purple striae-**Cushing's syndrome**.

New onset Afib and proptosis-**Hyperthyroidism**.

35 yo F with no risk factors-**OCP use (most common cause)**

20 yo F with elevated arm pressures and chronic leg claudication-**coarctation of the aorta**.

30 yo M with episodic HTN, diaphoresis, and tachycardia-**pheochromocytoma (don't forget the MEN2A and 2B syndromes)**.

35 yo chronic drinker POD #2 s/p appendectomy-**ETOH withdrawal**.

Q7

A 66 year old man presents to a PCP to establish care. He has not seen a physician within the last five years. Past medical records indicate a recent colonoscopy which was negative 5 years ago. He is married to his wife of 25 years and quit smoking 7 years ago after he retired. He does not drink or use illegal drugs. He previously worked on a shipyard. Physical exam is notable only for an increased body habitus. What is the next best step in the management of this patient?

- a. Upper GI Series.
- b. IV Pyelography.
- c. Screening CXR.
- d. Cystoscopy with biopsy.
- e. Abdominal Ultrasound.

Q7 Key

-The best answer is **E, abdominal ultrasound**.

-This man has a past history of smoking so the USPSTF recommends a **1 time abdominal US for men (not women) b/w the ages of 65-75 who have smoked in the past as a screen for AAA**. If a AAA > 5.5 cm is found in men, it is dealt with surgically. If < 5.5 cm, it is f/u with a 6 mo US. **Growth > 0.5 cm in 6 mo** is an indication for surgery. Another indication for surgery is a **symptomatic AAA**. Remember that the biggest **risk factor for a AAA is smoking**, not atherosclerosis (RFs are HY for most exams!).

-Note that a **low dose annual CT** is recommended to screen for lung cancer in individuals with a > 30 pack year smoking hx who currently smoke or who quit within the last 15 years aged b/w 55-80.

Q8

You are called in to evaluate a 67 yo M who is delirious on POD2 after a cholecystectomy for symptomatic biliary colic. On PE, lungs are clear with no wheezing or crackles noted. Abdominal exam is notable for hypoactive bowel sounds and fullness on lower abdominal palpation. Serum BUN and Cr are moderately elevated above baseline. Vitals are stable with a BP of 110/78. The patient has not passed flatus or had a bowel movement since the surgery. What is the next best step in the management of this patient?

- a. Trial of a stool softener.
- b. Oxybutynin therapy.
- c. Urinary bladder catheterization.
- d. Trial of a 1L 0.9% NS bolus.

Q8 Key

-The best answer here is C. The key finding on PE of **“fullness” on lower abdominal palpation should clue you into possible urinary retention**. The **easiest, most immediate intervention** for the patient that is relatively low risk prior to pursuing zebras is to place a urinary catheter that may almost instantaneously relieve his symptoms. Do not give a cholinergic antagonist (oxybutynin) in urinary retention.

-Remember other HY complications of surgery;

Ogilvie Syndrome-old, very sick guy with signs of a LBO but an abdominal film showing **no obvious obstruction (but massive colonic dilation)**.

Anesthesia is commonly implicated as a cause of GI ileus after surgery. Patients should be encouraged to ambulate. **Neostigmine or any cholinergic agonist** (like bethanechol) could be used in refractory cases.

Q9

A 19 yo college student presents with the acute onset of testicular pain that began 4 hrs ago. On PE, the testicle is exquisitely tender to palpation with no relief on manual elevation. Stroking of the inner aspect of the thigh does not result in testicular elevation. Temperature is 102, BP is 118/72, and RR is 27. What is the next best step in the management of this patient?

- a. Urgent testicular ultrasound.
- b. Trial of amoxicillin and clavulanic acid.
- c. Trial of ceftriaxone and doxycycline.
- d. Prompt surgical exploration with bilateral orchiopexy.
- e. Intracavernosal injection of phenylephrine.

Q9 Key

-The best answer here is D. This is **testicular torsion**. **The absence of a cremasteric reflex is an ominous sign**. **Surgical detorsion and bilateral orchiopexy** is the right thing to do next. Don't wait (not cool to be removing necrotic testes down the line!).

-It is **HY** to distinguish testicular torsion from epididymitis. **TT** is associated with **testicular pain not relieved with elevation, an absent cremasteric reflex, and a horizontal lie of the testes**. **EP** is associated with testicular pain that is relieved with elevation, the presence of a cremasteric reflex and a vertical lie of the testes.

-Treat epididymitis with ceftriaxone and doxycycline (**chlamydia and Neisseria are common causes in younger folk vs. gram negative rods in older folk**).

-A testicular US is the right answer when the **most likely dx is epididymitis but you want to r/o testicular torsion**.

Other HY Testicular Pathologies

-**Hydroceles** are dilations of the tunica vaginalis that occur secondary to fluid secretion from remnants of the peritoneum. The pathophysiology is a failed obliteration of the processus vaginalis. They may **increase in size with valsalva but transilluminate with a penlight (vs. a varicocele that also increases in size with valsalva but DOES NOT transilluminate with a penlight)**.

-Varicoceles arise secondary to **dilation of the pampiniform venous** network that drain blood from the testicle. Consider in the setting of a **bag of worms testicular sensation** in a guy that is relieved with supination and worsened with the valsalva maneuver. They may **give you a story of infertility** since the elevated temps from venous stasis inhibit sperm production. Dx is with **testicular US** and occurrence is **more likely on the left**. Be wary of **renal cell carcinoma** especially in an individual with an **extensive smoking hx and a right sided varicocele**. Dx with an **abdominal CT scan with contrast**.

Q10

A baseball player is mistakenly hit in the head by a teammate during practice. He loses consciousness for about 45s and finishes training after resting for 5 minutes. 2 hrs after getting home, he begins to have a severe headache and is rushed to the ED. What is the next best step in the management of this patient?

- a. Head CT with gadolinium contrast.
- b. Lumbar Puncture.
- c. Intrathecal administration of dexamethasone.
- d. Noncontrast Head CT Scan.
- e. Brain MRI.

Q10 Key

-The best answer is **D, non-contrast head CT**. The most likely dx here is an epidural hematoma (lens/convex shaped, middle meningeal artery tear, temporal bone fracture in the region of the foramen lacerum). Remember the **classic lucid interval after initial LOC**. Go with a **non-contrast head CT first**. LP may trigger herniation.

-Consider subdurals in exam Qs detailing an old guy (taking Warfarin) who falls and over weeks begins to act weird or have FNDs. You should also consider subdurals in alcoholics secondary to cerebral atrophy (and accompanying bridging vein tears, crescent/concave shaped). Subdurals are also common in **Shaken Baby Syndrome**.

-Subarachnoid hemorrhage is common with **aneurysms of the Anterior Communicating Artery** (consider tall individuals-Marfan's, individuals with hyperelastic skin-Ehlers Danlos, and individuals with a hx of ADPKD as potential exam targets). Presents as the "**worst headache of the patient's life**". Give **Nimodipine** after the aneurysm is clipped to prevent **cerebral vasospasm** and future ischemia.

Q11

A 52 yo F with a long history of Crohn's disease undergoes a colonoscopy and stricture dilation as a means of evaluating suspicious "apple core" findings on a recent CT scan in addition to therapeutic measures aimed at relieving a new onset SBO. While recovering in the PACU, the patient's blood pressure is 80/47 and persistently declining. PE does not reveal any focal area of blood loss. She receives a 2L bolus of LR solution which raises her BP to 85/51. What is the next best step in the management of this patient?

- a. IM Epinephrine administration.
- b. IV Diphenhydramine therapy.
- c. IV Fludrocortisone administration.
- d. An added 1L bolus of LR solution.
- e. IV Dexamethasone therapy.

Q11 Key

A 52 yo F with a long history of Crohn's disease undergoes a colonoscopy and stricture dilation as a means of evaluating suspicious "apple core" findings on a recent CT scan in addition to therapeutic measures aimed at relieving a new onset SBO. While recovering in the PACU, the patient's blood pressure is 80/47 and persistently declining. PE does not reveal any focal area of blood loss. She receives a 1L bolus of LR solution which raises BP to 85/51. What is the next best step in the management of this patient?

- a. IM Epinephrine administration.
- b. IV Diphenhydramine therapy.
- c. IV Fludrocortisone administration.
- d. An added 1L bolus of LR solution.
- e. **IV Dexamethasone therapy (chronic hx of Crohn's = maybe she used steroids which nuked her HPA axis. She needs stress dose steroids!..Watch out for this scenario on post surgical patients with unrelenting hypotension).**

Q12

A 66 yo M is sent to the medicine floor 2 days after presenting to the ED with chest pain requiring coronary catheterization and stent placement. He is in stable condition. 6 hrs after admission to medicine, he begins to complain of acute onset 10/10 pain in his left leg. Dorsalis pedis pulses are strong on the right but barely palpable on the left. The leg is exquisitely tender to palpation and appears whiter than the contralateral right extremity. What is the next best step in the management of this patient?

- a. Oral Warfarin administration.
- b. Vascular surgery consultation.
- c. Heparin bolus administration followed by continuous infusion.
- d. Emergent left lower extremity fasciotomy.
- e. Serial limb exams for 2 hrs and supportive care.

Q12 Key

-The best answer here is C. This patient most likely has **acute limb ischemia** secondary to embolization with his recent hx of a myocardial infarction.

-The next step is **immediate anticoagulation** PRIOR to vascular surgery consultation.

-It is really important to read answer choices carefully on an exam.

-Another common scenario with a similar presentation involves an individual with an “irregularly irregular beat” indicating atrial fibrillation.

-Remember the signs of **compartment syndrome**-POOP on passive movement of the extremity, paresthesias, poikilothermia, a tense muscle compartment, paralysis.

Common associations include midshaft tibial fractures, recent burns, crush injuries, etc. Proceed to **immediate fasciotomy**.

Q13

A 56 yo M presents to his PCP with a 1 mo history of shortness of breath. CBC on admission shows a hemoglobin of 6.5, an MCV of 60, decreased ferritin/transferrin saturation with an increased TIBC. His other labs are within normal limits. He has a 45 pack year smoking history. He recently had surgery (7 months ago) for repair of an asymptomatic 6.5 cm AAA. CXR and EKG are unremarkable. FOBT is positive. What is the most likely diagnosis?

- a. Hemorrhagic pleural effusion secondary to pulmonary malignancy.
- b. Aortoenteric fistulizing tract.
- c. Chronic blood loss secondary to an undetected colonic malignancy.
- d. Chronic blood loss secondary to peptic ulcer disease.
- e. Hyperviscosity syndrome secondary to an EPO secreting pulmonary malignancy.

Q13 Key

- The best answer here is B, an **aortoenteric fistula**.
- It is relatively HY to know this unusual association.
- People with a hx of AAA repair who present with sx of anemia and a positive FOBT should clue you into a diagnosis of an aortoenteric fistula.

Q14

A 66 yo M is rushed to the ED by ambulance 30 minutes after the onset of severe, crushing, substernal chest pain with radiation to the back. An EKG on admission shows ST segment elevations in V5, V6, I, and aVL. He is emergently referred for cardiac catheterization with balloon angioplasty and stenting. He has a past history of dyslipidemia being controlled with diet, HTN being controlled with Losartan and Amlodipine, and diabetes being controlled with daily insulin. He has smoked a pack of cigarettes daily for the past 20 years. What is the most significant risk factor for this patient's presentation?

- a. History of cigarette smoking.
- b. Elevated serum levels of homocysteine.
- c. History of hypertension.
- d. History of dyslipidemia.
- e. History of diabetes mellitus.

Q14 Key

-The best answer here is **A, a history of cigarette smoking.**

-It is important to know risk factors for “big picture” diseases on your exam (and also for your **OBGYN shelf**).

Cigarette smoking is the strongest risk factor for most atherosclerotic vascular disease (like CAD and AAA).

HTN is the strongest risk factor for aortic dissection and strokes (the first step in the management of any kind of aortic dissection is to give an IV beta blocker like Labetalol). Management depends on the kind of aortic dissection. Stanford A dissections (ascending aortic involvement) are treated with BBs and surgery. Stanford B dissections are treated primarily with medical therapy.

Q15

Given the following buzzwords, what is the most likely fracture or nerve injury;

An inability to extend the wrist, sensory loss on the back of the forearm and back of the first 3 digits, midshaft humeral fracture.

An inability to spread fingers, claw hand, sensory loss on the front and back of the 4th and 5th digits, recent elbow dislocation.

Inability to pronate the hand or oppose thumbs, sensory loss on the palmar surface of the hand involving the first 3 digits, carpal tunnel syndrome, supracondylar humeral fractures.

Inability to abduct the shoulder, sensory loss on lateral shoulder, anterior shoulder dislocation, upper humeral dislocation.

Q15 contd.

Given the following buzzwords, what is the most likely fracture or nerve injury;

An inability to dorsiflex or evert the foot, loss of sensation on the “skyward” or dorsal surface of the foot and lateral leg, recent knee dislocation, fracture of the fibula.

Fall on an outstretched hand, pain and paresthesias in the “anatomic snuff box”

Q15 Key

Given the following buzzwords, what is the most likely fracture or nerve injury;

An inability to extend the wrist, sensory loss on the back of the forearm and back of the first 3 digits, midshaft humeral fracture-**radial nerve injury**.

An inability to spread fingers, claw hand, sensory loss on the front and back of the 4th and 5th digits, recent elbow dislocation-**ulnar nerve injury (C8-T1 Brachial Plexus, fracture at the medial epicondyle, also cubital tunnel syndrome, “cycling injuries”)**.

Inability to pronate the hand or oppose thumbs, sensory loss on the palmar surface of the hand involving the first 3 digits, carpal tunnel syndrome, supracondylar humeral fractures-**median nerve injury (re-CTS with pregnancy, hypothyroidism, RA)**.

Inability to abduct the shoulder, sensory loss on lateral shoulder, anterior shoulder dislocation, upper humeral dislocation-**Axillary Nerve Injury**.

Q15 contd.

Given the following buzzwords, what is the most likely fracture or nerve injury;

An inability to dorsiflex or evert the foot, loss of sensation on the “skyward” or dorsal surface of the foot and lateral leg, recent knee dislocation, fracture of the fibula-**peroneal nerve injury.**

Fall on an outstretched hand, pain and paresthesias in the “anatomic snuff box”-**this is a scaphoid bone fracture, even with a negative XR, place a thumb spica cast for about 6 weeks to prevent avascular necrosis secondary to disruption of a weird, retrograde blood supply within the scaphoid bone.**

Don't forget weakness of thigh adduction as being indicative of obturator nerve injury and anesthesia over the lateral thigh as being indicative of lateral femoral cutaneous nerve injury.

Q16

A 27 yo F is admitted to the Handelman Service with a chief complaint of fever and neck pain for the past 2 days. PE reveals a neck mass lateral to the sternocleidomastoid muscle. The mass is warm and mildly tender. HEENT reveals no upward displacement with swallowing. The patient has had this mass from birth but has been asymptomatic. Surgical excision is planned. What is the underlying pathophysiology of this patient's illness?

- a. Failed descent of the thyroglossal duct.
- b. Failed migration of neural crest structures.
- c. Failed obliteration of ectodermal structures.
- d. Side effect of chronic neuroleptic administration.
- e. Deficiency of Iodine giving rise to a goiter.

Q16 Key

-The best answer here is C, **failed obliteration of ectodermal structures. This is a branchial cleft cyst (lateral to midline)** which arises from the failed obliteration of pharyngeal clefts (2-4) which are derived from ectoderm (vs pouch from endoderm).

Other HY neck pathologies for your test include;

Thyroglossal duct cyst-midline mass that elevates with swallowing.

Cystic Hygroma-occluded lymphatics that present as a translucent mass in an individual with a history of Turner's syndrome.

Cervicofacial infection w/sulfur granules-think *Actinomyces Israelii*.

Paragangliomas-carotid body tumors derived from neural crest cells. Palpation on PE may cause dizziness/bradycardia. **ARE NOT VASCULAR TUMORS.**

Q17

A 76 yo healthy F is admitted to the surgery service for an elective total knee replacement secondary to severe osteoarthritis. Her pre-op labs were Hb-13, Hct-40%, MCV-91, Plt-289, PT and PTT are wnl. The surgery is uneventful. She receives routine SCD prophylaxis and enoxaparin for anticoagulation. Labs on POD5 are Hb-12.4, Hct-37%, Plt-119, PT is wnl, PTT is mildly elevated. What is the next best step in the management of this patient?

- a. Bridge patient to Warfarin.
- b. Discontinue SCDs.
- c. Argatroban therapy.
- d. Platelet transfusion.
- e. Infusion with cryoprecipitates and factor 8 concentrates.

Q17 Key

-The best answer is **C, Argatroban therapy**. This patient has **Heparin Induced Thrombocytopenia**. On NBME exams, it usually helps to just scan labs before and after a fact. They almost always do this to get you to “**observe a change**”.

-HIT is defined by a $> 50\%$ drop in platelet count about 5 days after resuming heparin. The next step here is to **never give the patient any heparin/LMWH** products in the future.

-In general, you can switch to a **direct thrombin inhibitor like argatroban, dabigatran, or other drugs like lepirudin/bivalirudin**.

-It is also HY to know that **HIT is a hypercoagulable state** (even in the presence of thrombocytopenia) b/c the heparin-PF4 complex actually serves to activate platelets.

Q18-Other HY Bleeders

PIts

BT

PT

PTT

Bleeding Problem

a) HUS

b) Hemophilia A/B

c) VWD

d) DIC

e) Warfarin

f) ASA

g) Waiting for a
new liver.

Q18 Key-Other HY Bleeders (will discuss pathophysiology..)

Bleeding Problem

a) HUS

b) Hemophilia A/B

c) VWD

d) DIC

e) Warfarin

f) ASA

g) Waiting for a new liver.

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Q19-Triggers

Proximal ulna fracture with radial head dislocation

Distal radial fracture with dislocation of the distal ulna

Painless GI bleed in a 2 yo, technetium scan shows gastric mucosa 2 ft from the ileocecal valve, 2 in long, 2% of the population, 2x more common in males

Patient on a ventilator, sudden onset tachypnea, pleuritic chest pain, BP 80/50, JVD, hyperresonance to percussion of the right lung, absent breath sounds in the right lung

Next best step in the mgt of a TPTX

Antibiotic regimen for an obese 67 yo M with LLQ pain and fever

Single, rubbery, mobile breast mass in a 21 yo F

Most common cause of a bloody nipple discharge

Refractory GERD sx, barium swallow reveals an intact GE junction but a gastric fundus displaced above the diaphragm

Surgical management of refractory GERD sx

Q19-Triggers Key

Proximal ulna fracture with radial head dislocation-**Monteggia fracture.**

Distal radial fracture with dislocation of the distal ulna-**Galeazzi fracture.**

Painless GI bleed in a 2 yo, technetium scan shows gastric mucosa 2 ft from the ileocecal valve, 2 in long, 2% of the population, 2x more common in males-**Meckel's Diverticulum.**

Patient on a ventilator, sudden onset tachypnea, pleuritic chest pain, BP 80/50, JVD, hyperresonance to percussion of the right lung, absent breath sounds in the right lung-**Tension Pneumothorax.**

Next best step in the mgt of a TPTX-**Needle Thoracostomy (ICS2, MCL) then chest tube placement.**

Antibiotic regimen for an obese 67 yo M with LLQ pain and fever-**Any FQ and Metronidazole.**

Single, rubbery, mobile breast mass in a 21 yo F-**Fibroadenoma (observe!)**

Most common cause of a bloody nipple discharge-**Intraductal Papilloma (get this right!).**

Refractory GERD sx's, barium swallow reveals an intact GE junction but a gastric fundus displaced above the diaphragm-**Paraesophageal hernia (high risk of incarceration).**

Surgical management of refractory GERD sx's-**Nissen Fundoplication.**

As an aside, there are many very specific rules relating to carotid endarterectomy (CEA) but generally a patient with symptoms that has stenosis of > 70% gets a CEA (especially men). The rules are not super clear cut in women.

Q20

A 45 yo M presents to the ED with severe, generalized, abdominal pain. He has a prior history of 10-15 bloody bowel movements per day requiring mesalamine therapy but was lost to follow up. His last visit to the physician was 4 years ago. PE reveals a pale, cachectic man with dry mucus membranes and conjunctival pallor. His abdomen appears distended and light/deep palpation elicits severe pain in all 4 quadrants. What is the next best step in the management of this patient?

- a. Abdominal ultrasound looking for free air.
- b. Medical management with broad spectrum antibiotics.
- c. Exploratory Laparotomy.
- d. Abdominal CT scan with contrast enhancement.
- e. Serial abdominal exams.

Q20 Key

-The best answer here is C, **exploratory laparotomy**. This patient most likely has **toxic megacolon secondary to poorly treated Ulcerative Colitis** which has ultimately led to bowel perforation. With signs of **peritonitis (rebound/guarding)**, the NBSIM is surgical exploration. You'll very likely find this scenario on your test.

Other HY toxic megacolon associations include;

-Recent antibiotic use and **C. Difficile Colitis**.

-Diffuse abdominal pain with recent S. America travel (**T. Cruzi**).

-Bacterial overgrowth and abdominal distension in a patient with Raynaud's phenomenon (**Scleroderma**).

-Peds patient with a weird GI hypomotile process (**Hirschsprung's, SBO, meconium ileus, malrotation, etc**) OR bacterial overgrowth (consider **Necrotizing Enterocolitis in preemies**).

Q21

A 56 yo M is recovering in the CVSICU from a recent anterolateral MI. He is POD5 from a coronary artery bypass procedure and is doing well. PE on POD7 by a medical student reveals prominent a, c, and V wave pulsations all the way to the ear. His vitals are notable for a RR of 32, HR 109, BP-87/50. EKG reveals sinus tachycardia with reduced QRS and P wave amplitude. The QRS amplitudes vary with each beat of the cardiac cycle. What is the next best step in the management of this patient?

- a. Return to the cath lab for emergent revascularization.
- b. Blood draws for Troponin I and CKMB measurement.
- c. Administration of a 1g bolus of nitroprusside.
- d. Insertion of an intra-aortic balloon pump.
- e. Immediate pericardiocentesis and emergent sternotomy.
- f. Measurement of PCWP with a Swan Ganz Catheter.

Q21 Key

-The best answer here is E, immediate pericardiocentesis and emergent sternotomy.

-This patient has the classic **Beck's triad of cardiac tamponade-JVD, hypotension, and muffled heart sounds** (was not directly mentioned but the Q clearly described the common finding of **electrical alternans** which would be present in an individual with a heart essentially dancing in fluid).

-Cardiac tamponade can occur in the setting of a recent MI with **ventricular free wall rupture**.

-Mortality here is pretty high so you'll ultimately need to wheel the person back to the OR to redeem any sort of fighting chance.

Q22

A 52 yo F is brought to the ED with intractable nausea and vomiting for the past 3 days. PE reveals dry mucus membranes, skin tenting, a 5s capillary refill time, moderate abdominal distension, and scleral icterus. Vitals are BP-91/65, HR-140, RR-33, T-101.5. BUN is 45 and serum creatinine is 1.5. The patient is obtunded but her son recounts how his mom has had severe, constant, RUQ pain for the past 7 days. What is the most likely diagnosis?

- a. Viral hepatitis.
- b. Gallstone ileus.
- c. Biliary Colic.
- d. Acute liver failure secondary to acetaminophen toxicity.
- e. Fistulizing right lower lobe pneumonia.

Q22 Key

-The best answer here is B. The patient has a **gallstone ileus**. Consider this dx in the setting of **recent “biliary” pathology and bowel obstruction findings**.

-As an aside, this patient will most likely have a **hypochloremic, hypokalemic, metabolic alkalosis** secondary to vomiting and subsequent volume depletion.

-This patient also has prerenal AKI secondary to hypovolemia. Remember the key lab findings-**BUN/Cr > 20, FeNa < 1%**, etc. She deserves a **bolus of IV fluids** as the first step in management prior to pursuing other surgical interventions.

Q23

What is the diagnosis that best matches the following info cluster?

- Periumbilical pain radiating to $\frac{2}{3}$ the distance b/w the umbilicus and the ASIS.
- Palpating the LLQ elicits RLQ pain.
- Passive internal rotation of the hip (in flexion) elicits RLQ pain.
- Passively extending the hip elicits RLQ pain.
- US is the dx test of choice in the pregnant.
- CT scan is the dx test of choice in regular people.

Q23 Key

What is the diagnosis that best matches the following info cluster?

-Periumbilical pain radiating to $\frac{2}{3}$ the distance b/w the umbilicus and the ASIS
(**McBurney's point**).

-Palpating the LLQ elicits RLQ pain (**Rovsing Sign**).

-Passive internal rotation of the hip (in flexion) elicits RLQ pain (**Obturator sign**).

-Passively extending the hip elicits RLQ pain (**Psoas sign**).

-**US** is the dx test of choice in the pregnant.

-**CT scan** is the dx test of choice in regular people.

-**Appendicitis**.

Q24

Given the following parameters, what is the most likely dx?

An alcoholic is brought to the ED after 3 episodes of hematemesis. Vital signs are wnl.

An alcoholic is brought to the ED after an episode of severe hematemesis. PE reveals subcutaneous emphysema.

Hypotension, severe tearing abdominal pain with radiation to the back, pulsatile abdominal mass.

Elderly patient on Warfarin, crescent shaped lesion on head CT, chronic alcoholic.

LOC, lucid interval, lens shaped lesion on head CT.

Q24 Key

Given the following parameters, what is the most likely dx?

An alcoholic is brought to the ED after 3 episodes of hematemesis. Vital signs are wnl-**Mallory Weiss tear**.

An alcoholic is brought to the ED after an episode of severe hematemesis. PE reveals subcutaneous emphysema-**Boerhaave rupture (use gastrografin, not barium!)**.

Hypotension, severe tearing abdominal pain with radiation to the back, pulsatile abdominal mass-**ruptured AAA**.

Elderly patient on Warfarin, crescent shaped lesion on head CT, chronic alcoholic-**subdural hematoma (bridging veins)**.

LOC, lucid interval, lens shaped lesion on head CT (**epidural hematoma, MM artery**).

Q25

An 18 yo college student is rushed to the ED after passing out during a basketball game. He was tackled by an opponent a few minutes before passing out. Vitals on admission-BP 80/50, RR-30, Pulse-115 bpm. 2 large bore IVs are inserted with a 2L bolus of LR given. PE is notable for severe left shoulder pain and exquisite LUQ tenderness and rebound. He is rushed to the OR where he successfully undergoes exploratory laparotomy with 4L of blood drained from the abdominal cavity. Of note, the patient was seen 3 weeks ago by his PCP for a sore throat and posterior cervical lymphadenopathy. In addition to adequate pain control, this patient should receive?

- a. The Streptococcus Pneumoniae vaccine.
- b. Hepatitis D vaccine.
- c. Rotavirus vaccine.
- d. Tetanus Diphtheria and Acellular Pertussis booster.
- e. Oral ferrous sulfate repletion.

Q25 Key

-This patient has a history of Infectious Mononucleosis.

-He ruptured his spleen. The spleen protects against encapsulated organisms like S. Pneumo, H. Influenzae Type B, and Neisseria species (SHiN organisms). Asplenic patients deserve these vaccines to avoid fatal sepsis.

-The best answer is A.

Q26

A 19 yo college student is brought to the ED by EMS 30 mins after getting into a severe motor vehicle accident as the unrestrained driver. On initial evaluation by EMS, his eyes are closed, his back is arched upward with his UEs in an extensor stance, and he continually moans in pain.

What is his GCS score?

- a. 7
- b. 6
- c. 3
- d. 5
- e. 4

Q26 Key

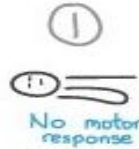
-The best answer here is D, 5. This patient has his eyes closed (1 E), is moaning (incomprehensible sounds, 2V), and has decerebrate posturing (2M). His GCS is 5. He should be intubated ASAP.

Glasgow Coma Scale

Points Scored

Category

Best motor response



Best verbal response



Eye opening
"four eyes"



Remember, even a toaster has a GCS of 3!

Q27

A 44 yo F presents with a 2 day history of severe nausea, vomiting, and 10/10 abdominal pain. PE is notable for abdominal pain most severe in the LLQ. An emergent XR is notable for the presence of distended loops of bowel shaped like an “omega” sign with the rounded edge pointed towards the RUQ. There is no free air under the diaphragm. What is the most likely diagnosis?

- a. Sigmoid volvulus.
- b. Diverticulosis.
- c. Perforation of a para-diverticular abscess.
- d. Mittelschmerz.
- e. Rupture of an ovarian cyst.

Q27 Key

A 44 yo F presents with a 2 day history of severe nausea, vomiting, and 10/10 abdominal pain. PE is notable for severe lower abdominal pain most severe in the LLQ. An emergent XR is notable for the presence of distended loops of bowel shaped like an “omega” sign with the rounded edge pointed towards the RUQ. There is no free air under the diaphragm. What is the most likely diagnosis?

- a. **Sigmoid volvulus (emergently treat with sigmoidoscopy and colonoscopy, coffee bean sign on an abdominal XRay).**
- b. Diverticulosis.
- c. Perforation of a para-diverticular abscess.
- d. Mittelschmerz.
- e. Rupture of an ovarian cyst.

Q28

A 1.5 yo toddler presents with a 2 day history of intermittent abdominal pain along with vomiting. PE reveals a palpable mass in the RLQ. Abdominal ultrasound reveals what appears to be a “target sign” in the RLQ. What is the next best step in the management of this patient?

- a. Surgical exploration.
- b. Laparoscopy.
- c. Air enema.
- d. Broad spectrum antibiotic treatment.
- e. Nothing, this is a self limited condition.

Q28 Key

A 1.5 yo toddler presents with a 2 day history of intermittent abdominal pain along with vomiting. PE reveals a palpable mass in the RLQ. Abdominal ultrasound reveals what appears to be a “target sign” in the RLQ. What is the next best step in the management of this patient?

- a. Surgical exploration.
- b. Laparoscopy.
- c. **Air enema (or contrast enema). This is intussusception. Caused by one segment of bowel protruding into another segment. Most commonly occurs at the ileocecal valve. With an unsuccessful air/contrast enema, consider surgical reduction. The presence of bloody stools suggests bowel necrosis. Consider avoiding the rotavirus vaccine in the future.**
- d. Broad spectrum antibiotic treatment.
- e. Nothing, this is a self limited condition.

Q29

Plop sound on chest auscultation, recent history of TIA

Pain, pallor, paresthesias, poikilothermia, paralysis, and pulselessness in an extremity.

Thickened gallbladder wall, distended gallbladder wall, gallstones, pericholecystic fluid, fever.

Otoscopic exam revealing a “pearly mass” behind the tympanic membrane in a toddler with a recent hx of tympanic membrane perforation.

3 most common causes of a Small Bowel Obstruction.

Abdominal pain, distension, vomiting, hx of psych illness, alopecia.

Burn involving the epidermis only.

Burn involving the epidermis and upper dermis.

Burn involving the epidermis and all layers of the dermis.

Burn involving all skin layers along with muscle/bone involvement.

Q29 Key

Plop sound on chest auscultation, recent history of TIA-**Cardiac Myxoma**.

Pain, pallor, paresthesias, poikilothermia, paralysis, and pulselessness in an extremity-**compartment syndrome (immediate fasciotomy)**.

Thickened gallbladder wall, distended gallbladder wall, gallstones, pericholecystic fluid, fever-**cholecystitis (US -> HIDA Scan, cystic duct obstruction, murphy's +ve)**.

Otoscopic exam revealing a "pearly mass" behind the tympanic membrane in a toddler with a recent hx of tympanic membrane perforation-**Cholesteatoma**.

3 most common causes of a Small Bowel Obstruction-**Adhesions, Hernias, and Cancer**.

Abdominal pain, distension, vomiting, hx of psych illness, alopecia-**bowel obstruction secondary to Bezoar**.

Burn involving the epidermis only-**First degree burn (superficial)**

Burn involving the epidermis and upper dermis-**Second degree (partial thickness)**

Burn involving the epidermis and all layers of the dermis-**Third degree (full thickness)**

Burn involving all skin layers along with muscle/bone involvement-**4th degree**

Note that F1 burns are painful/blanchable, F2's are painful/blanchable/blistering, F3's and 4's are non painful/blanchable with the difference being F4's being hard/leathery.

Q30-Diagnostic Test of Choice

Fever, LLQ pain, WBC of 15,000

Most common cause of Lower GI Bleeding in the elderly

Recurrent LLQ pain, gas/feces in the urine

Appendicitis in the pregnant population

Appendicitis in all other people

Q30 Key-Diagnostic Test of Choice

Fever, LLQ pain, WBC of 15,000-**Abdominal/pelvic CT w/PO and IV contrast (diverticulitis).**

Most common cause of Lower GI Bleeding in the elderly-**Barium enema (diverticulosis). CT is also right.**

Recurrent LLQ pain, gas/feces in the urine-**Abdominal/pelvic CT with oral or rectal contrast (colovesical fistula).**

Appendicitis in the pregnant population-**Ultrasound.**

Appendicitis in all other people-**abdominal CT.**

Q31

Given the following clinical scenarios, what is the most likely diagnosis?

A premature baby has been feeding well for the past 36 hrs. He presents with abdominal pain and distension with bloody bowel movements. XR shows air in the wall of the small intestine and biliary tree.

Newborn presents with drooling, choking, and respiratory distress with a first feed. There is a maternal history of polyhydramnios.

5 week old male presents with persistent, projectile, nonbilious vomiting. He is fine b/w episodes. He is the firstborn and had to be treated with erythromycin for “some infection” at birth.

Q31 Key

Given the following clinical scenarios, what is the most likely diagnosis?

A premature baby has been feeding well for the past 36 hrs. He presents with abdominal pain and distension with bloody bowel movements. XR shows air in the wall of the small intestine and biliary tree-**necrotizing enterocolitis. Consider typhlitis if you get a similar vignette in the setting of neutropenia.**

Newborn presents with drooling, choking, and respiratory distress with a first feed. There is a maternal history of polyhydramnios-**EA with TEF. Check for other anomalies. A NGT won't go into the abdomen. There's air in the stomach.**

5 week old male presents with persistent, projectile, nonbilious vomiting. He is fine b/w episodes. He is the firstborn and had to be treated with erythromycin for “some infection” at birth-**Pyloric Stenosis. Don't be surprised by an elyte question (hypochloremic, hypokalemic metabolic alkalosis). Dx is with US (target sign). Fix elytes -> surgery.**

Q32

Given the following clinical scenarios, what is the most likely diagnosis?

36 hr old infant presents with bilious vomiting. Chorionic Villus Sampling at 13 weeks was consistent with Trisomy 21.

6 mo presents with bilious vomiting. He feeds just fine. He has also had 2 “currant jelly stool episodes”.

A 5 day old has failed to pass meconium. He has severe abdominal distension. CVS at 13 weeks was consistent with Trisomy 21.

Q32 Key

Given the following clinical scenarios, what is the most likely diagnosis?

36 hr old infant presents with bilious vomiting. Chorionic Villus Sampling at 13 weeks was consistent with Trisomy 21-**duodenal atresia**.

6 mo presents with bilious vomiting. He feeds just fine. He has also had 2 “currant jelly stool episodes”-**Intussusception. Remember the association with Meckel’s diverticulum and the Rotavirus vaccine.**

A 5 day old has failed to pass meconium. He has severe abdominal distension. CVS at 13 weeks was consistent with Trisomy 21-**this is colonic aganglionosis (Hirschsprung’s disease)**. A similar presentation is a newborn with elevated sweat chloride concentrations should clue you into Cystic Fibrosis (along with a congenital absence of the vas deferens). It is generally HY to know Down’s Syndrome associations for your test (we will discuss these, along with a “sports” exam association).

Q33

Given the following clinical scenarios, what is the most likely dx?

An athlete withdraws from a game with an ortho injury. On PE, there is an increased anterior displacement of the proximal tibia with an “anterior pull” in the flexed position with support of the femur.

An athlete withdraws from a game with an ortho injury. A click is heard when the knee is flexed, tibia is rotated, and pressure is applied to either side of the knee.

An athlete is the unrestrained driver in a MVC. On impact, his knees forcefully ram into the dashboard. A posterior drawer sign is positive.

Same vignette as above but PE reveals abnormal passive abduction in the presence of a laterally applied force to the knee. Most commonly injured ligament.

Q33 Key

Given the following clinical scenarios, what is the most likely dx?

An athlete withdraws from a game with an ortho injury. On PE, there is an increased anterior displacement of the proximal tibia with an “anterior pull” in the flexed position with support of the femur-**ACL Injury (Lachman/30, anterior drawer/90)**.

An athlete withdraws from a game with an ortho injury. A click is heard when the knee is flexed, tibia is rotated, and pressure is applied to either side of the knee-**meniscal tear (Positive McMurray test)**.

An athlete is the unrestrained driver in a MVC. On impact, his knees forcefully ram into the dashboard. A posterior drawer sign is positive-**PCL tear**.

Same vignette as above but PE reveals abnormal passive abduction in the presence of a laterally applied force to the knee. Most commonly injured ligament-**MCL tear**.

Q34

A 23 yo M is brought to the ED with a 3 day history of nausea, vomiting, and recurrent episodes of watery diarrhea. Colonoscopy with biopsy reveals extensive stricturing and transmural inflammation of the proximal colon and terminal ileum. The patient undergoes surgical resection and is discharged 2 weeks later with significant symptomatic improvement. This patient is at increased risk of?

- a. A normocytic, normochromic anemia.
- b. Megaloblastic anemia with peripheral neuropathy.
- c. Microcytic anemia with increased RBC pallor.
- d. Hemolytic anemia in the setting of a positive osmotic fragility test.
- e. Deficiency of cofactor for thymidylate synthase.

Q34 Key

A 23 yo M is brought to the ED with a 3 day history of nausea, vomiting, and recurrent episodes of watery diarrhea. Colonoscopy with biopsy reveals extensive stricturing and transmural inflammation of the proximal colon and terminal ileum. The patient undergoes surgical resection and is discharged 2 weeks with later significant symptomatic improvement. This patient is at increased risk of?

- a. A normocytic, normochromic anemia.
- b. **Megaloblastic anemia with peripheral neuropathy (B12 is reabsorbed in the terminal ileum, also fat soluble vitamins). This patient has Crohn's disease.**
- c. Microcytic anemia with increased RBC pallor.
- d. Hemolytic anemia in the setting of a positive osmotic fragility test.
- e. Deficiency of cofactor for thymidylate synthase.

Q35

A healthy 35 yo M comes to the hospital for an elective sliding hiatal hernia repair. On POD1, he is found to have mild jaundice and scleral icterus. POD1 labs are-Na 140, K 3.5, Mg-2.5, Total Bilirubin-3, Direct bilirubin-0.9, WBC-6k with normal differential, Hct is 41%. His PE and VS are completely normal. He has no prior history of serious illness. What is the next best step in the management of this patient?

- a. Broad spectrum antibiotic therapy.
- b. Supportive care.
- c. Ursodeoxycholic acid therapy.
- d. Surgical exploration for an anastomotic leak.
- e. Fecal Occult Blood Testing.

Q35 Key

A healthy 35 yo M comes to the hospital for an elective sliding hiatal hernia repair. On POD1, he is found to have mild jaundice and scleral icterus. POD1 labs are-Na 140, K 3.5, Mg-2.5, Total Bilirubin-3, Direct bilirubin-0.9, WBC-6k with normal differential, Hct is 41%. His PE and VS are completely normal. He has no prior history of serious illness. What is the next best step in the management of this patient?

- a. Broad spectrum antibiotic therapy.
- b. Supportive care (this patient has Gilbert's syndrome). Consider this dx in a question dealing with a relatively normal patient with very mild indirect hyperbilirubinemia after a minor "stressor" like surgery or illness.**
- c. Ursodeoxycholic acid therapy.
- d. Surgical exploration for an anastomotic leak.
- e. Fecal Occult Blood Testing.

Q36

A 79 yo M is s/p coronary artery bypass graft for recent MI. His postop course has been complicated by sepsis. On POD5, he has not passed flatus or had a bowel movement. PE is notable for significant abdominal distension. CT of the abdomen and pelvis reveals significant stool impaction throughout the colon with no visible signs of obstruction. What is the most likely diagnosis?

- a. Ileus secondary to anesthetic administration.
- b. Ileus secondary to mechanical colonic obstruction.
- c. Pseudo Colonic obstruction.
- d. Adhesions from recent surgery.
- e. Obstruction secondary to an undetected colonic malignancy.

Q36 Key

A 79 yo M is s/p coronary artery bypass graft for recent MI. His postop course has been complicated by sepsis. On POD5, he has not passed flatus or had a bowel movement. PE is notable for significant abdominal distension. CT of the abdomen and pelvis reveals significant stool impaction throughout the colon with no visible signs of obstruction. What is the most likely diagnosis?

- a. Ileus secondary to anesthetic administration.
- b. Ileus secondary to mechanical colonic obstruction.
- c. **Pseudo Colonic obstruction (this is Ogilvie syndrome). Consider in the setting of a very sick, old guy with signs consistent with a large bowel obstruction with no “real” obstruction noted on abdominal imaging.**
- d. Adhesions from recent surgery.
- e. Obstruction secondary to an undetected colonic malignancy.

Q37-HY Surgical Signs

Periumbilical ecchymosis, Flank ecchymosis

Omega sign in a patient with nausea and vomiting

Double bubble sign on abdominal XR

Target sign in a 7 mo on abdominal US in the RLQ

A patient holds his breath in mid-inspiration with RUQ palpation

Fever, RUQ pain, Jaundice, AMS, Hypotension

RLQ pain with hip extension in an anorexic patient with nausea and vomiting

RLQ pain with internal rotation of a flexed hip

RLQ pain with LLQ palpation

Referred pain to the left shoulder in a patient with a history of Mono

RLQ pain $\frac{2}{3}$ of the way from the Umbilicus to the ASIS

Acute onset of abdominal pain in a patient with CAD, XR reveals

“thumbprinting”

Q37 Key-HY Surgical Signs

Periumbilical ecchymosis, Flank ecchymosis-**Cullen's/Grey-Turner of hemorrhagic pancreatitis.**

Omega sign in a patient with nausea and vomiting-**sigmoid volvulus.**

Double bubble sign on abdominal XR-**Duodenal Atresia.**

Target sign in a 7 mo on abdominal US in the RLQ-**Intussusception.**

A patient holds his breath in mid-inspiration with RUQ palpation-**Murphy's sign (cholecystitis).**

Fever, RUQ, Jaundice, AMS, Hypotension-**Reynold's Pentad of ascending cholangitis (first 3 are Charcot's triad).**

RLQ pain with hip extension in an anorexic patient with nausea and vomiting-**Psoas sign (appendicitis).**

RLQ pain with internal rotation of a flexed hip-**Obturator sign (appendicitis).**

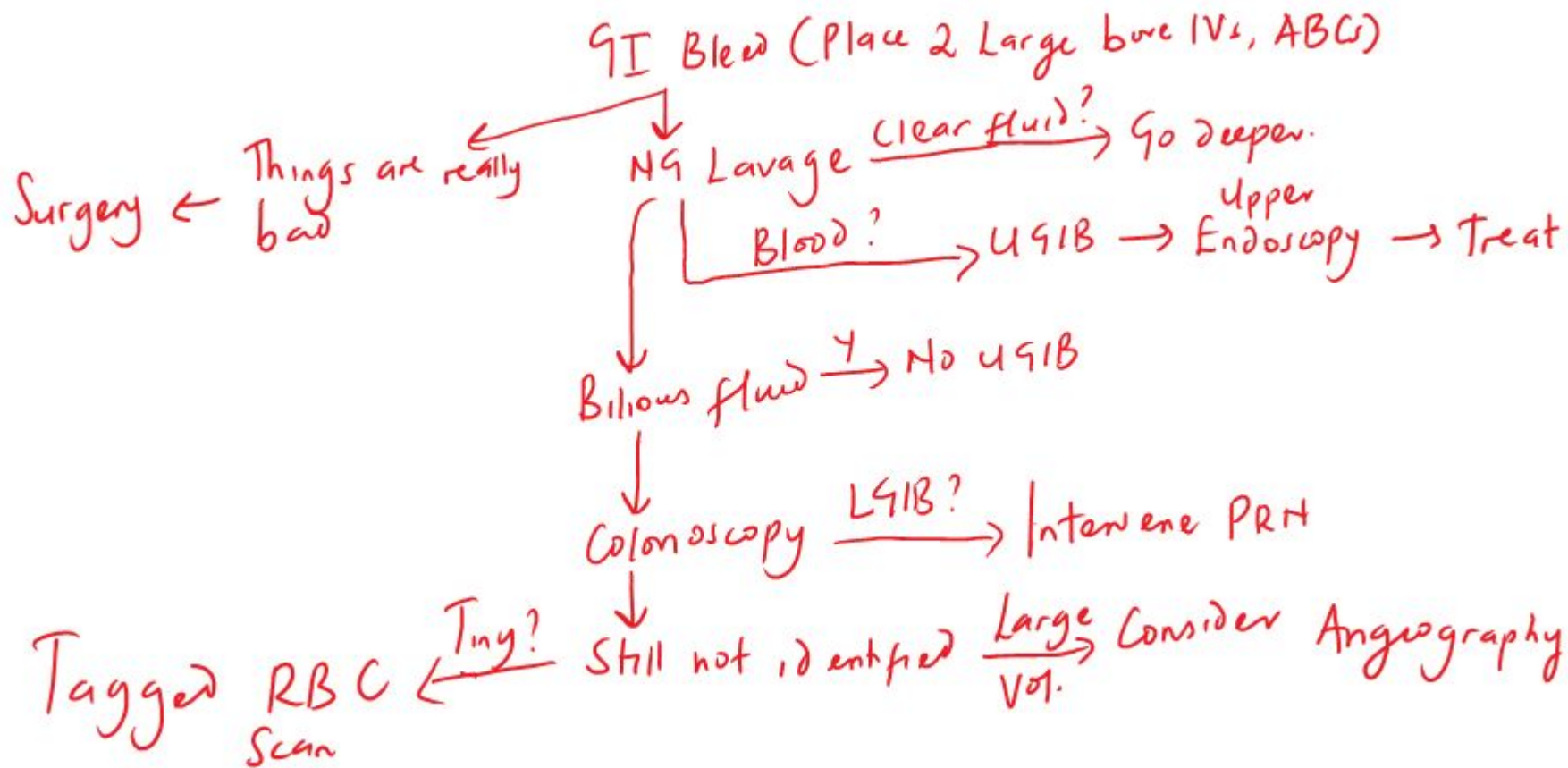
RLQ pain with LLQ palpation-**Rovsing's sign (appendicitis).**

Referred pain to the left shoulder in a patient with a history of Mono-**Kehr's sign (splenic rupture).**

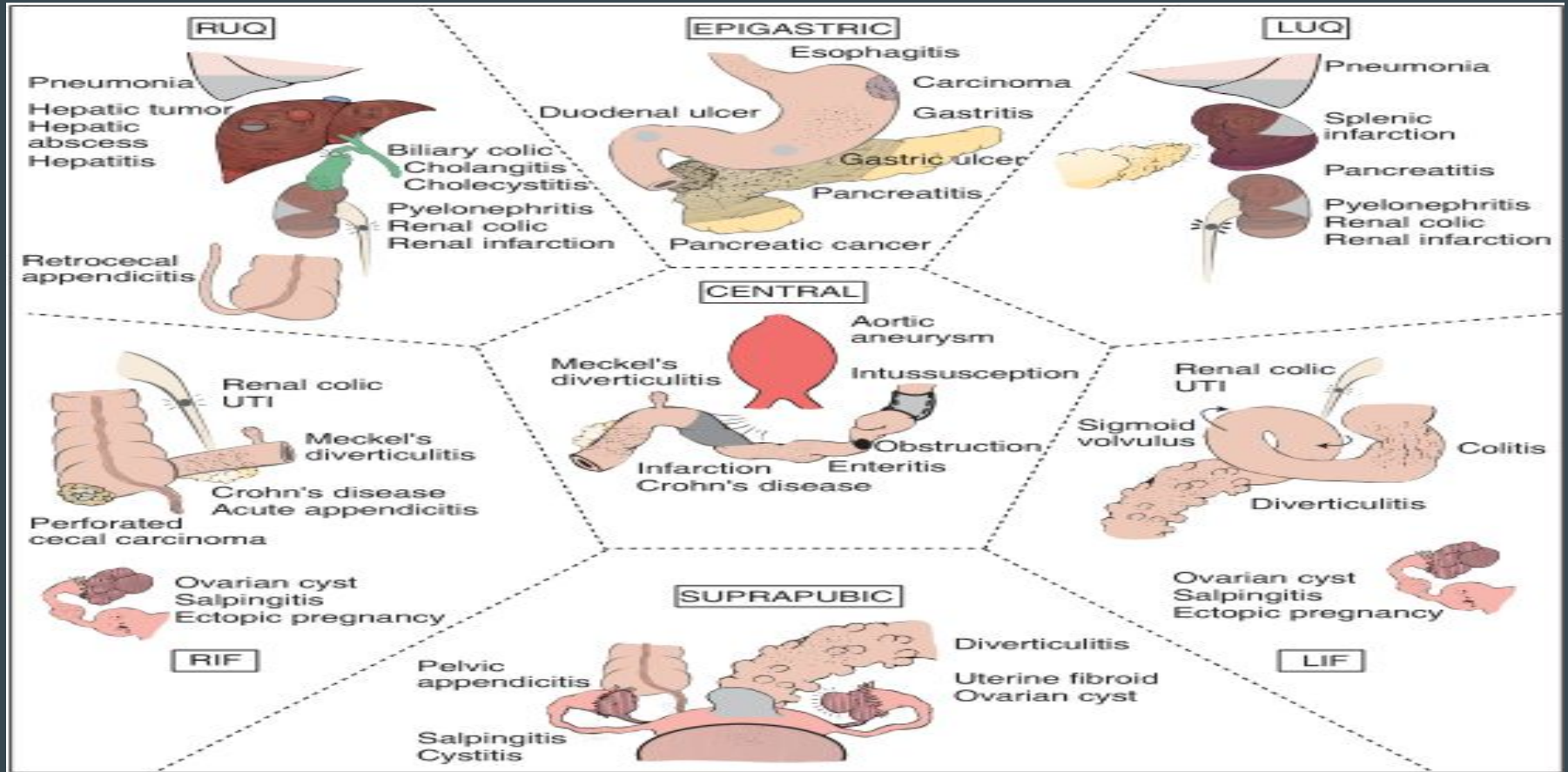
RLQ pain $\frac{2}{3}$ of the way from the Umbilicus to the ASIS-**McBurney's sign (appendicitis).**

Acute onset of abdominal pain in a patient with CAD, XR reveals "thumbprinting" in the bowel-**acute bowel infarction.**

The GI Bleed Algorithm



The Abdominal Pain Ddx



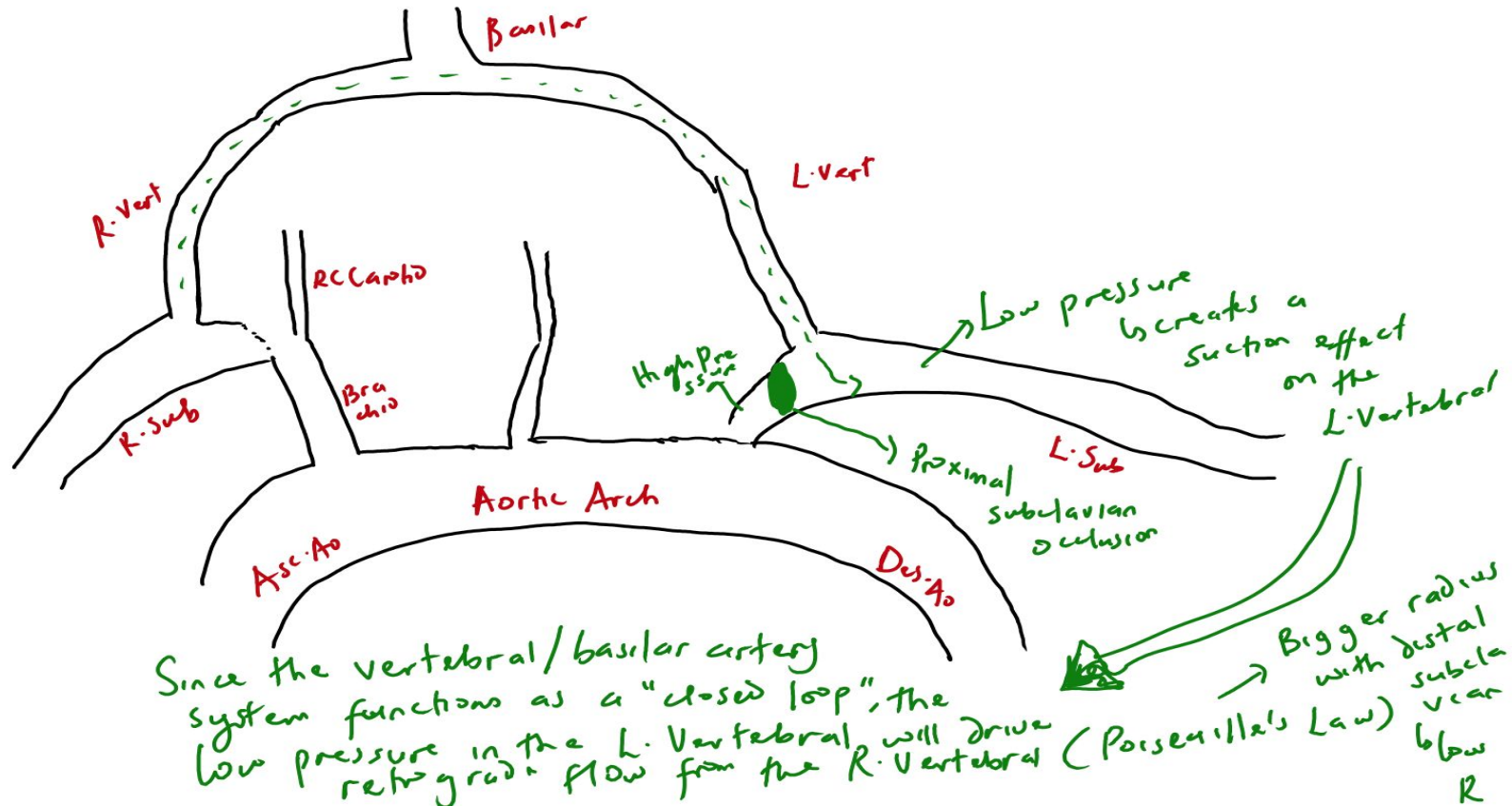
Aortic Dissection

- Is characterized by a tear in the intima of the aorta which essentially creates a false lumen as blood flows through the tear.
- Classically presents as severe, tearing, chest pain with radiation to the back.
- May involve the **ascending aorta (Type A)** which is managed with beta-blockers and immediate surgery or the **descending aorta exclusively (Type B)** which is managed with beta-blockers and supportive care.
- An XR may show a **widened mediastinum**. Dx is typically confirmed in **unstable patients with a bedside TTE** or in **stable patients with a CT Angiogram**.
- They may describe the murmur of **aortic regurgitation**. With a proximal dissection, you may also observe cardiac tamponade OR occlusion of a coronary artery leading to an MI (**classically the RCA with ST elevations in 2, 3, and aVF**).

Weird Associations (will discuss mechanisms later..)

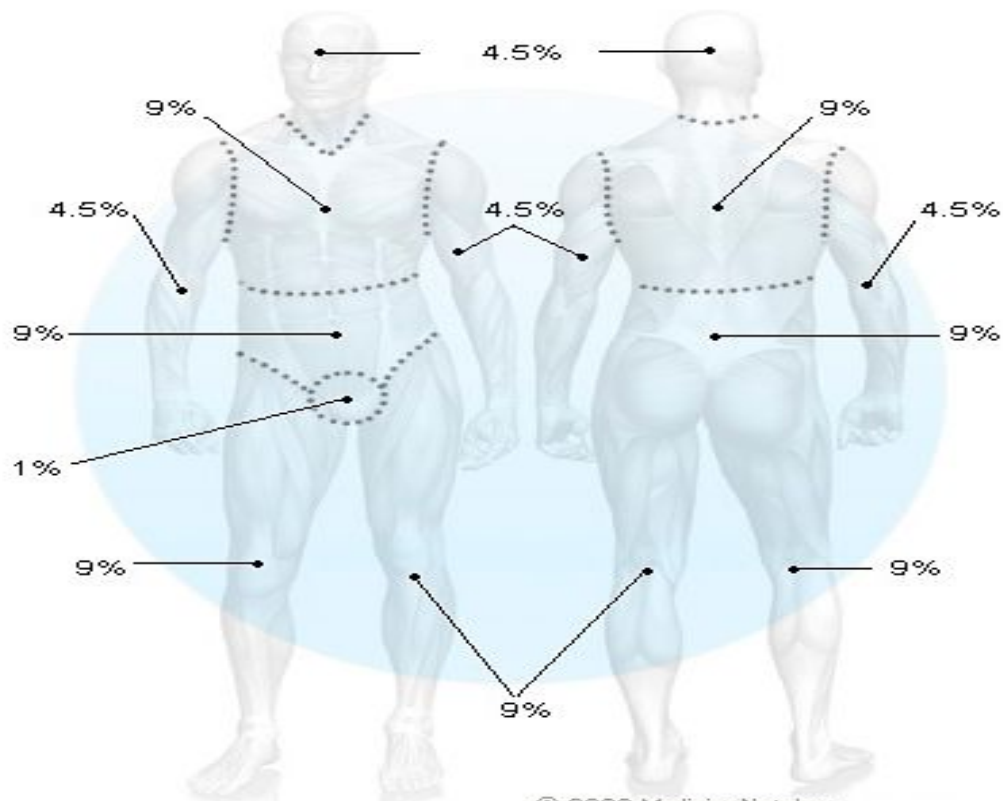
- Consider an **AV fistula** if a Q stem describes a patient with a **palpable, pulsatile mass** in an extremity with a history of **sharp trauma** (stabbing, establishment of some kind of vascular access). There's a strong association with **high output heart failure** (like Paget's disease of the bone).
- Weight loss and **postprandial abdominal pain** in a old person with multiple risk factors should clue you into **chronic mesenteric ischemia**.
- Diplopia and dysarthria (and other vertebrobasilar insufficiency sx's) in an individual with **arm claudication** with exercise is pathognomonic for **Subclavian Steal Syndrome**.
- A **cervical rib** may impinge on nerves/blood vessels that supply the arm giving rise to UE paresthesias. This is also known as **Thoracic Outlet Syndrome**. It has a subclavian steal syndrome presentation but lacks the "brain and brainstem deficits".
- Consider a **diaphragmatic hernia** in a peds question describing a newborn with a **scaphoid abdomen and bowel sounds in the thorax**.

The Pathophysiology of The Subclavian Steal Principle



The Rule of 9s ($4 \text{ ml} \times \text{BSA burned} > 1\text{st degree} \times \text{kg wt}$)/50% first 8 hrs, 50% next 16 hrs.

Burn Percentage in Adults: Rule of Nines



Other HY Burn Factoids

- If you suspect inhalational injury, consider **prompt intubation**.
- DO NOT trust the pulse ox to determine CO poisoning status. Be sure to measure **carboxyhemoglobin levels** (and give 100% or hyperbaric O2 if +ve). Headache is a common presenting symptom.
- Burn patients deserve **PPIs to prophylax against stress ulcers**.
- With very big burns, consider transferring the patient to a **burn center**.

HY Breast Associations

- Risk factors for breast cancer include female sex, early menarche, late menopause, nulliparity, E2 exposure, BRCA mutations, and obesity.
- The **most common** breast cancer is **infiltrating ductal carcinoma**.
- Bloody** nipple discharge = **Intraductal Papilloma** on your test.
- The most common breast mass in a **30-50 yo F** is a **fibrocystic change**.
- The most common breast mass in a teen/female in her **20s** is a **fibroadenoma**.
- A breast mass with a **peau d'orange appearance/fever** is **inflammatory breast cancer**.
- In a female **< 30 with a breast mass**, consider an **ultrasound** as the first imaging test of choice. It is useful for differentiating **cystic from solid** masses. Note the potential for a **lymphangiosarcoma** many years after an axillary LN dissection.

HY Breast Associations contd.

-In the presence of a cystic mass on breast US, consider a **FNA** as the next step. If you get **serous fluid**, **stop** here (may send for cytology). If you see **blood**, **proceed to a biopsy**.

-In general, an older female (**40s and upward**) who presents with a breast mass needs a **mammogram**. If the **mammogram is negative but a mass was palpated on exam**, some kind of **biopsy must be done (excisional, core needle, etc)**.

-Mention of necrosis in the setting of a breast mass should clue you into **comedocarcinoma**.

-Recent **physical trauma** to the breast in the presence of a palpable, mobile breast mass is **fat necrosis** although you should still **get imaging and in an older lady, biopsy**.

Hernias

-Are a protrusion of tissue from one body cavity to another.

Incisional hernias arise from a previous surgical incision (duh!)

Umbilical hernias are common in kids and are associated with **neonatal hypothyroidism**.

Femoral hernias are more common in **females** and are **medial to the femoral vessels/below the inguinal ligament**. They have the **highest risk of incarceration (always choose surgery)**.

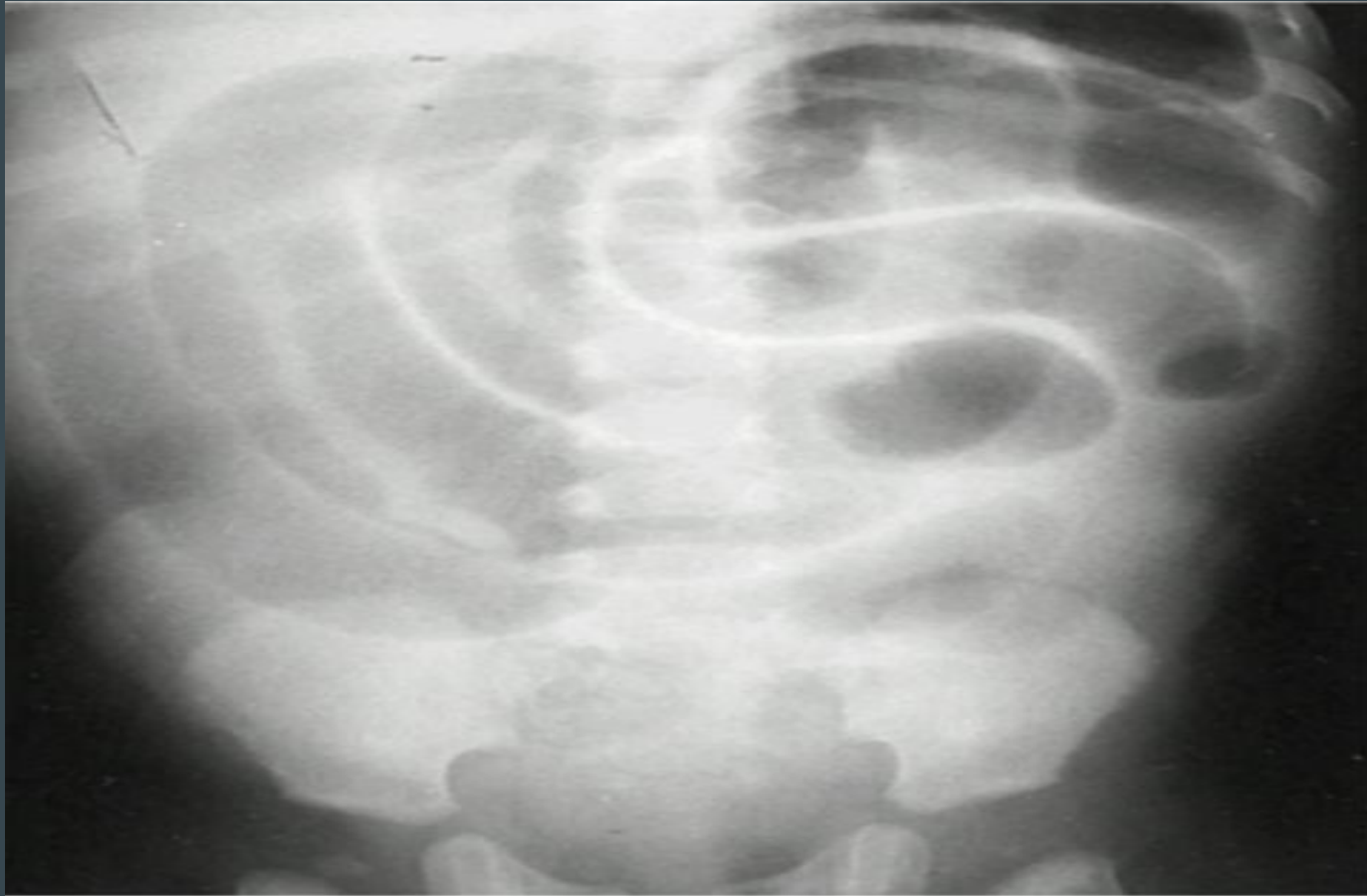
Hasselbalch hernias are similar but are lateral to the femoral vessels.

Direct hernias are **medial** to the inferior epigastric vessels (within Hesselbach's triangle).

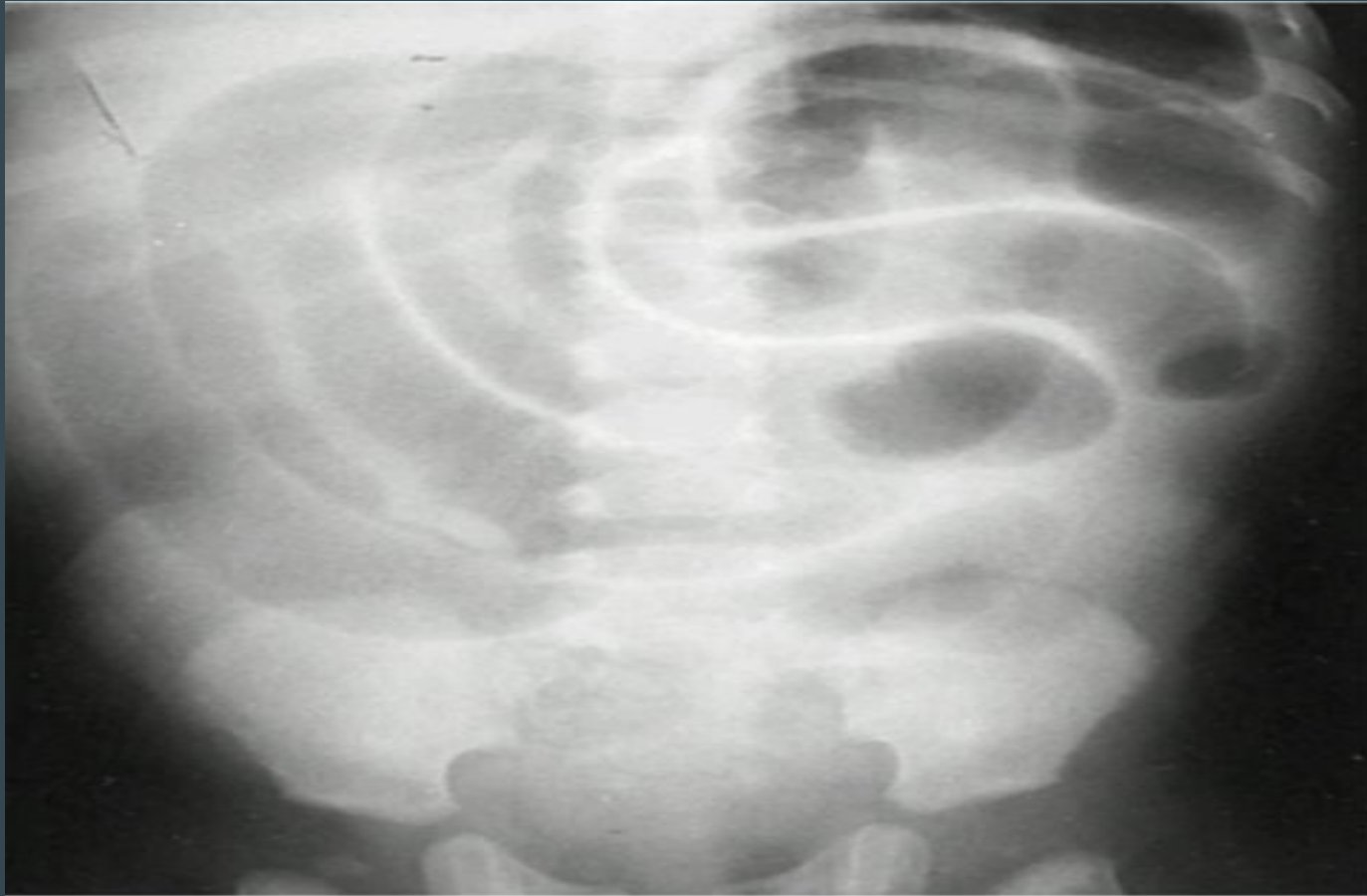
Indirect hernias are **lateral** to the inferior epigastric vessels (lateral to Hesselbach's triangle).

Diaphragmatic hernias could be associated with **Morgagni defects (anterior hernias)** or **Bochdalek defects (posterior hernias)**.

Q38-High pitched, tinkling bowel sounds, prior appendectomy



Q38 Key-Small Bowel Obstruction (NPO, IVF, NG decompression)



Causes of Postop Fever

Wind-Atelectasis (Day 1)

Wind-PNA (Day 2-3)

Water-UTI. (Days 3-5)

Walking-DVT (can show up whenever, approx. day 5)

Wound-Wound infection (Days 5-8).

Wonder Drugs-**drug fever, consider antibiotics or heparin** as potential causes.

Can show up essentially anytime.

Emergency Scenarios

-Remember your **lens shaped epidural hematomas** and **crescent shaped subdurals**.

-In the setting of elevated ICP, remember **hyperventilation** (pCO₂ of 25-30, best), **R. Trendele.**, and **mannitol**. There'll be Cushing's triad-**HTN, bradycardia, and irregular respirations**.

-In a **clean wound**;

Give **only tetanus toxoid** (the vaccine) if the patient has **not completed his vaccine series** or the history of tetanus immunization is unknown (Scenario A).

In a patient with a **complete vaccination hx**, give **tetanus toxoid** if the series was completed **> 10 years ago** (Scenario B).

-For dirty wounds;

For Scenario **A**, give **tetanus toxoid and immunoglobulin**. For Scenario **B**, give the **combo only if the vaccination was concluded > 10 years ago**. If **> 5 years**, give **tetanus toxoid only**.

Emergency Scenarios contd.

-**Anterior Cord Syndrome** is associated with loss of all tracts with the exception of the posterior columns. The common mechanism of injury is a burst fracture of a vertebral body.

-Consider **anterior spinal artery syndrome** in the setting of pain and temperature loss, bowel/bladder incontinence, and LE paralysis in the setting of an AAA repair.

-Loss of pain and temperature in a cape like distribution is classic for **syringomyelia**.

-Sudden onset dyspnea, mental status changes, and petechiae in the setting of recent orthopedic surgery should clue you into the **fat embolism syndrome**.

Q39-Triggers

Pelvic fracture and blood at the urethral meatus

Best donors for organ transplants

Transplanted organ turns bluish-black in the OR, preformed antibodies

T cell mediated, days to weeks after transplant, reversible

T cell and antibody mediated, years after transplant, irreversible

Highest yield side effect of cyclosporine (calcineurin inhibitor)

Urethral opening on the dorsal side of the penis, bladder exstrophy association

Urethral opening on the ventral side of the penis

Oligohydramnios, newborn with limb deformities, abnormal facies, lung hypoplasia.

Next best step in the management of a postsurgical patient with lower abdominal distension and pain with palpation

DOC in the setting of anaphylactic shock

DOC in the setting of septic shock

Postsurgical patient with a long history of Crohn's that is hypotensive

Postsurgical patient with chest pain, SOB, tachypnea, right axis deviation on EKG

Stab wound, distended neck veins, muffled heart sounds

High CO, low PCWP, low SVR, recent history of infection, warm extremities

Low CO, low PCWP, high SVR

Low CO, High PCWP, High SVR

Q39 Key-Triggers

Pelvic fracture and blood at the urethral meatus-**urethral injury (retrograde urethrogram, no foley's)**.

Best donors for organ transplants-**living, related donors**.

Transplanted organ turns bluish-black in the OR, preformed antibodies-**hyperacute rejection**.

T cell mediated, days to weeks after transplant, reversible-**acute rejection**.

T cell and antibody mediated, years after transplant, irreversible-**chronic rejection**.

Highest yield side effect of cyclosporine (calcineurin inhibitor)-**nephrotoxicity**.

Urethral opening on the dorsal side of the penis, bladder exstrophy association-**epispadias**.

Urethral opening on the ventral side of the penis-**hypospadias (for both, don't circumcise!)**

Oligohydramnios, newborn with limb deformities, abnormal facies, lung hypoplasia-**bilateral renal agenesis**.

Next best step in the management of a postsurgical patient with lower abdominal distension and pain with palpation-**Bladder catheterization**.

DOC in the setting of anaphylactic shock-**Epinephrine**.

DOC in the setting of septic shock-**Norepinephrine**.

Postsurgical patient with a long history of Crohn's that is hypotensive-**Adrenal Insufficiency (give stress dose steroids)**.

Postsurgical patient with chest pain, SOB, tachypnea, right axis deviation on EKG-**pulmonary embolus**.

Stab wound, distended neck veins, muffled heart sounds-**pericardial tamponade**.

High CO, low PCWP, low SVR, recent history of infection, warm extremities-**septic shock**.

Low CO, low PCWP, high SVR-**hypovolemic shock**.

Low CO, High PCWP, High SVR-**cardiogenic shock**.

Q40 Triggers

“White out” lung in a postsurgical patient, PCWP < 18

Difficulty walking in a patient on long term steroids, or w/sickle cell

Anterior knee pain over the tibial tubercle

Newborn with a +ve Barlow/Ortolani maneuver

Overweight male adolescent with hip pain (9-13 yo)

Most common location of a lumbar disc herniation

Ophthalmoplegia, proptosis, severe eye pain, recent URI, EOM problems

Next best step in the management of a Japanese guy with severe eye pain and a rock hard eye

Flank mass with calcifications, posterior mediastinal mass in a 3 yo

Flank mass, hematuria, hypertension in a 3 yo, does not cross the midline

Asymmetry, Irregular Borders, Color variation, Diameter > 6 mm, Evolving

Patient from the question above presents with SBO in the future

Locally invasive, pearly umbilicated nodule above the lip

Red, scaly, wound that does not seem to heal (Marjolin’s ulcer)

Sunburst pattern, Periosteal elevation (codman’s triangle), childhood retinoblastoma

Appendiceal tumor with liver mets, right sided murmur, elevated urinary HIAA

Head CT reveals a calcified lesion in a 50 yo M that is stuck to the cranium

Recent breast surgery, winged scapula

Intracranial calcifications on skull radiographs in a young child with VF deficits

Stomach cancer with mets to the ovaries

Q40 Key Triggers

“White out” lung in a postsurgical patient, PCWP < 18-**ARDS**.

Difficulty walking in a patient on long term steroids, or w/sickle cell-**Avascular Hip Necrosis**.

Anterior knee pain over the tibial tubercle-**Osgood Schlatter disease**.

Newborn with a +ve Barlow/Ortolani maneuver-**Developmental Dysplasia of the hip**.

Overweight male adolescent with hip pain (9-13 yo)-**Slipped Capital Femoral Epiphysis**.

Most common location of a lumbar disc herniation-**L5-S1 disc (decreased ankle jerk, weak plantarflexion, +ve straight leg raise)**.

Ophthalmoplegia, proptosis, severe eye pain, recent URI, EOM problems-**Orbital cellulitis**.

Next best step in the management of a Japanese guy with severe eye pain and a rock hard eye-**laser iridotomy**.

Flank mass with calcifications, posterior mediastinal mass in a 3 yo-**Neuroblastoma**.

Flank mass, hematuria, hypertension in a 3 yo, does not cross the midline-**Wilms Tumor**.

Asymmetry, Irregular Borders, Color variation, Diameter > 6 mm, Evolving-**Melanoma**.

Patient from the question above presents with SBO in the future-**metastatic melanoma**.

Locally invasive, pearly umbilicated nodule above the lip-**Basal cell carcinoma**.

Red, scaly, wound that does not seem to heal (Marjolin’s ulcer)-**Squamous Cell Cancer**.

Sunburst pattern, Periosteal elevation (codman’s triangle), childhood retinoblastoma-**Osteosarcoma**.

Appendiceal tumor with liver mets, right sided murmur, elevated urinary HIAA-**Carcinoid Syndrome**.

Head CT reveals a calcified lesion in a 50 yo M that is stuck to the cranium-**Meningioma (psammoma bodies)**.

Recent breast surgery, winged scapula-**Long thoracic nerve lesion**.

Intracranial calcifications on skull radiographs in a young child with VF deficits-**craniopharyngioma**.

Stomach cancer with mets to the ovaries-**Krukenberg tumor**.

Q41 Triggers

Automobile accident, widened mediastinum, death 5 mins after hospital arrival

Chest wall moves inward with inspiration, outward with expiration

Stab wound, unilateral decreased breath sounds, dullness to percussion

Next best step in the management of penetrating abdominal trauma

Next best step in the management of a stable patient with blunt force abdominal trauma

Proptosis, high free T₄/T₃, decreased TSH, diffuse RAIU uptake

High T₄/T₃, decreased TSH, single hot nodule on RAIU scan

High T₄/T₃, decreased TSH, multiple hot nodules on RAIU scan

Palpable thyroid nodule, FNA with histology reveals psammoma bodies

Episodic HTN, headaches, tumor derived from neural crest cells

HTN, hypokalemia, metabolic alkalosis

Perioral tingling, carpopedal spasms, recent thyroid surgery

Lung mass, proximal muscle weakness that improves with use

Lung mass, hyponatremia

Lung mass, stones, bones, groans, psychic overtones

Lung mass, unilateral ptosis, miosis, and anhidrosis

Q41 Triggers key

Automobile accident, widened mediastinum, death 5 mins after hospital arrival-**aortic rupture.**

Chest wall moves inward with inspiration, outward with expiration-**flail chest.**

Stab wound, unilateral decreased breath sounds, dullness to percussion-**hemothorax.**

Next best step in the management of penetrating abdominal trauma-**exploratory laparotomy.**

Next best step in the management of a stable patient with blunt force abdominal trauma-**CT scan.**

Proptosis, high free T4/T3, decreased TSH, diffuse RAIU uptake-**Grave's Disease.**

High T4/T3, decreased TSH, single hot nodule on RAIU scan-**Toxic Adenoma.**

High T4/T3, decreased TSH, multiple hot nodules on RAIU scan-**Multinodular goiter.**

Palpable thyroid nodule, FNA with histology reveals psammoma bodies-**papillary thyroid cancer.**

Episodic HTN, headaches, tumor derived from neural crest cells-**Pheochromocytoma.**

HTN, hypokalemia, metabolic alkalosis-**Primary hyperaldosteronism (Conn Syndrome).**

Perioral tingling, carpopedal spasms, recent thyroid surgery-**hypoparathyroidism.**

Lung mass, proximal muscle weakness that improves with use-**Lambert Eaton Myasthenic Syndrome.**

Lung mass, hyponatremia-**SIADH (Small Cell Lung cancer).**

Lung mass, stones, bones, groans, psychic overtones-**hypercalcemia (PTHrP, squamous cell cancer).**

Lung mass, unilateral ptosis, miosis, and anhidrosis-**Horner's syndrome (Pancoast tumor, small cell).**

Q42

A 42 yo M is the unrestrained driver in a motor vehicle accident. He is rushed to the ED by ambulance. Vitals on admission include BP 80/48, T 99, HR 123 bpm, RR 24. He receives 6L of lactated ringer's solution and 7U of packed red blood cells for volume resuscitation. His most recent pressures are 132/85. He is scheduled for surgery in the morning. A scheduled EKG obtained prior to his procedure is notable for QT prolongations which were absent on his admitting EKG. What is the most likely explanation for these findings?

- a. Evolving myocardial infarction.
- b. Myocardial contusion.
- c. Hypocalcemia.
- d. Hypokalemia.
- e. Metabolic acidosis secondary to excessive volume resuscitation.

Q42 Key

-The best answer here is C, hypocalcemia.

-This patient received a large volume blood transfusion. To prevent stored blood from clotting, EDTA is added. EDTA is a powerful Ca chelator (and can subsequently trigger hypocalcemia in a patient receiving transfusions).

-Remember the Trousseau (carpopedal spasms) and Chvostek (jaw tetany) PE findings that are consistent with hypocalcemia. Hypocalcemia is also associated with a prolonged QT interval.

-It is HY to know that hypocalcemia may arise from parathyroid devascularization after thyroidectomy or from GI pathologies that cause fat soluble vitamin deficiencies (ADEK) or chronic renal insufficiency secondary to impaired 1-alpha hydroxylation of Vitamin D.

-As an aside, a person that suddenly dies from a **high speed/deceleration injury** on your exam should trigger thoughts of a **traumatic aortic disruption**. In an **unstable patient**, perform a **bedside echo->surgery** (weirdly a **CXR may be correct->may show a widened mediastinum**). If **stable**, perform a **chest CT with contrast->surgery**.

Q43-Esophageal Triggers

What is the most likely diagnosis given the clinical description?

Dysphagia, pain relieved by nitroglycerin, corkscrew sign on barium swallow

Long history of GERD/drank DRANO 6 years ago, dysphagia

EGD with biopsy reveals columnar cells in the lower esophagus

Dysphagia to solids and liquids, barium swallow reveals a bird's beak sign

Recent endoscopy, BP 80/48, subcutaneous emphysema

Mechanism underlying GERD

Regurgitation of undigested food, halitosis, 70 yo M

20 yo hx of GERD, severe abdominal pain, fever, succussion splash on exam

Severe trauma, bowel sounds at the T4 level

Mechanism underlying early mets with esophageal malignancy

White lesions on the oral mucosa, dysphagia

Dysphagia, EGD reveals "punched out" lesions in the esophagus

Linear, superficial ulcers, dysphagia, recent transplant

Q43 Key-Esophageal Triggers

What is the most likely diagnosis given the clinical description?

Dysphagia, pain relieved by nitroglycerin, corkscrew sign on barium swallow-**DES**.

Long history of GERD/drank DRANO 6 years ago, dysphagia-**esophageal strictures**.

EGD with biopsy reveals columnar cells in the lower esophagus-**Barrett's esophagus**.

Dysphagia to solids and liquids, barium swallow reveals a bird's beak sign-**achalasia**.

Recent endoscopy, BP 80/48, subcutaneous emphysema-**esophageal perforation**.

Mechanism underlying GERD-**transient LES relaxation**.

Regurgitation of undigested food, halitosis, 70 yo M-**Zenker's diverticulum**.

20 yo hx of GERD, severe abdominal pain, fever, succussion splash on exam-**paraesophageal hernia (high risk of strangulation, GEJ below diaphragm, stomach fundi in thorax)**.

Severe trauma, bowel sounds at the T4 level-**diaphragmatic rupture**.

Mechanism underlying early mets with esophageal malignancy-**absence of a serosa**.

White lesions on the oral mucosa, dysphagia-**candidal esophagitis (AIDS patient)**.

Dysphagia, EGD reveals "punched out" lesions in the esophagus-**HSV esophagitis**.

Linear, superficial ulcers, dysphagia, recent transplant-**CMV esophagitis (give IV Ganciclovir)**.

Q44

A 23 yo M is the unrestrained driver in a serious motor vehicle accident. He sustains fractures to multiple ribs. On arrival in the ED, his BP is 120/80, HR 80 bpm, RR 12, T 98.6. He receives a bolus of IV fluids and prompt surgical repair of a mild liver laceration. He receives subQ LMWH for DVT prophylaxis. His bilateral LEs have SCDs in place. He ambulates 4 times a day with moderate difficulty. On POD 2 an ABG is notable for a pH of 7.47, pCO₂ 31, pO₂ 89 on room air. BP is 135/77, HR 77 bpm, RR is 20. What is the next best step in the management of this patient?

- a. Check serum D-Dimer levels.
- b. Optimize pain control.
- c. Tenecteplase therapy.
- d. Broad spectrum antibiotic therapy.
- e. 2L bolus of a Lactated Ringer's solution.

Q44 Key

-The best answer here is B, **optimize pain control**.

-This patient has a **respiratory alkalosis** likely secondary to **hyperventilation from pain**.

-Adequate pain control should normalize breathing cycles and resolve the alkalosis.

-It is perfectly fine to suspect a PE in this patient but the question goes out of its way to assure you that all measures to prevent a PE have been taken (LMWH prophylaxis, regular ambulation, sequential compression devices, etc). In addition, there is no answer that would be an appropriate next step in the PE workup of a postsurgical patient (you'll need a CT scan with PE protocol).

-A D-Dimer is useless in all postsurgical patients. Clot busting therapy (tenecteplase) would be contraindicated to prevent severe bleeding and adverse complications in this patient.

Q45-The Global Review Part A

DOC in the treatment of an oncology patient with copious vomiting
Reversal agent in severe respiratory depression on opioids for pain control
Plt count is 50k 6 days after surgery, it was 140k initially
Treatment of postop CVA tenderness, fever, and pyuria
Treatment combination for most GI infections
DOC for C. Diff colitis
Failure to pass meconium, no neural crest cell migration
Currant jelly stools, colicky abdominal pain, young child
Abdominal distension, extensive drooling, maternal polyhydramnios
Infertility, bag of worms sensation on palpation of the testicles
Double bubble sign on XR, newborn, Down's syndrome-
Next best step in mgt of a normal newborn with an "umbilical bulge"
GI organs extruding through the umbilicus, sealed with peritoneum
Extruded GI organs to the right of midline, not sealed with peritoneum
Bilious emesis in a newborn, abdomen not distended, double bubble
3 yo, BRBPR, lower abdominal tenderness
Scaphoid abdomen, severe respiratory issues at birth
10 d old exposure to erythromycin, non-bilious vomiting, olive mass

Q45 Key-The Global Review Part A

DOC in the treatment of an oncology patient with copious vomiting-**ondansetron**.

Reversal agent in severe respiratory depression on opioids for pain control-**Naloxone**.

Plt count is 50k 6 days after surgery, it was 140k initially-**HIT (no heparin/LMWH, give argatroban)**.

Treatment of postop CVA tenderness, fever, and pyuria-**Ceftriaxone (pyelonephritis)**.

Treatment combination for most GI infections-**Ciprofloxacin and Metronidazole**.

DOC for C. Diff colitis-**MTZ, PO Vancomycin, Fidaxomicin**.

Failure to pass meconium, no neural crest cell migration-**Hirschsprung's disease (rectal biopsy)**.

Currant jelly stools, colicky abdominal pain, young child-**intussusception (air enema, rotavirus)**.

Abdominal distension, extensive drooling, maternal polyhydramnios-**EA with TEF**.

Infertility, bag of worms sensation on palpation of the testicles-**Varicocele**.

Double bubble sign on XR, newborn, Down's syndrome-**Duodenal atresia (poor recanalization)**. **Re-for jejunal/ileal atresia, pathophysiology involves a vascular insult**.

Next best step in mgt of a normal newborn with an "umbilical bulge"-**reassurance (hernia)**.

GI organs extruding through the umbilicus, sealed with peritoneum-**omphalocele**.

Extruded GI organs to the right of midline, not sealed with peritoneum-**gastroschisis**.

Bilious emesis in a newborn, abdomen not distended, double bubble-**Malrotation (may be d. atresia)**.

3 yo, BRBPR, lower abdominal tenderness-**Meckel's diverticulum (vitelline duct persists, gastric mucosa)**

Scaphoid abdomen, severe respiratory issues at birth-**Congenital diaphragmatic hernia**.

10 d old exposure to erythromycin, non-bilious vomiting, olive mass-**Pyloric stenosis**.

Q46-The Global Review Part B

DOC in the treatment of red eye and fever in a contact lens wearer

NBSIM of severe eye pain, slit lamp exam shows dendritic ulcers

Cherry red spot on fundoscopic exam, decreased retinal blood vessel size, painless monocular vision loss

Fundoscopic exam reveals hemorrhage, increased retinal BV size, painless monocular vision loss, “blood and thunder appearance”, edema, cotton wool spots

35 yo F, multiple neuro deficits separated in space and time, severe eye pain

Superior sulcus lung lesion, ptosis, miosis, and anhidrosis

35 yo M punched in the eye, restricted upward gaze, loss of sensation in the “inferior eyelid”

35 yo F has a “foreign body” sensation in the eye, recent makeup use

MVA, patient’s leg is shortened, internally rotated, and adducted

Submandibular tenderness, fever, drooling, “raised floor of the mouth”

Respiratory distress, uvula deviation, muffled voice, difficulty swallowing, unilateral cervical LND

Facial nerve palsy, parotid mass, FNA reveals a benign tumor

Fever, pneumatic otoscopy reveals a bulging, erythematous tympanic membrane

Conductive hearing loss, pneumatic otoscopy reveals middle ear fluid, no fever

Congenital rubella, continuous machine like murmur, treat with indomethacin

Q46 Key-The Global Review Part B

DOC in the treatment of red eye and fever in a contact lens wearer-**topical FQ (pseudomonas)**.

NBSIM of severe eye pain, slit lamp exam shows dendritic ulcers-**Acyclovir (HSV Keratitis)**.

Cherry red spot on fundoscopic exam, decreased retinal blood vessel size, painless monocular vision loss-**Central retinal artery occlusion (ocular massage, hyperbaric oxygen, thrombolytics)**.

Funduscopy exam reveals hemorrhage, increased retinal BV size, painless monocular vision loss, “blood and thunder appearance”, edema, cotton wool spots-**Central retinal vein occlusion (photocoagulation)**.

35 yo F, multiple neuro deficits separated in space and time, severe eye pain-**optic neuritis (MS)**.

Superior sulcus lung lesion, ptosis, miosis, and anhidrosis-**Horner’s Syndrome (pancoast tumor)**.

35 yo M punched in the eye, restricted upward gaze, loss of sensation in the “inferior eyelid”-**Orbital floor fracture (get a coronal CT)**.

35 yo F has a “foreign body” sensation in the eye, recent makeup use-**corneal abrasion (NSAIDs, abx)**.

MVA, patient’s leg is shortened, internally rotated, and adducted-**posterior hip dislocation**.

Submandibular tenderness, fever, drooling, “raised floor of the mouth”-**Ludwig’s angina**.

Respiratory distress, uvula deviation, muffled voice, difficulty swallowing, unilateral cervical

LND-**peritonsillar abscess (dx with CT with IV contrast, give abx, consider I&D)**.

Facial nerve palsy, parotid mass, FNA reveals a benign tumor-**Pleomorphic adenoma**.

Fever, pneumatic otoscopy reveals a bulging, erythematous tympanic membrane-**otitis media**.

Conductive hearing loss, pneumatic otoscopy reveals middle ear fluid, no fever-**otitis media w/effusion**.

Congenital rubella, continuous machine like murmur, treat with indomethacin-**patent ductus arteriosus**

Q47-The Global Review Part C

Multiple murmurs heard in a child with Trisomy 21

Overriding aorta, VSD, pulmonic stenosis, RV hypertrophy

Child with a 6 year history of a VSD now becomes profoundly cyanotic

NBSIM of an oliguric patient with very low output on bladder cath

DOC in tx of a super sick guy with colonic “pseudo obstruction”

Wound type->post surgical abscess

Wound type->patient stabbed in the abdomen, peritoneal line broken

Wound type->incision made to remove a lobe of the thyroid

Wound type->incision made to remove a polyp in the gastric fundus

On POD6, salmon colored fluid is found draining from an incision

On POD6, loops of bowel are seen at the site of an abdominal incision

Most effective method of preventing postop pulmonary complications

Drug that could be used to prevent surgical bleeding in a patient w/liver disease

Conjugated hyperbilirubinemia and jaundice in a newborn

Hip pain in a patient with a long history of severe Crohn’s disease on steroids

Unrelenting PUD, ulcers in the distal jejunum

Hypoglycemia, sx of hypoglycemia, sx relief with glucose administration

Severe watery diarrhea, hypokalemia, achlorhydria

Eczematoid lesion around the areola in a 50 yo F

Q47 Key-The Global Review Part C

- Multiple murmurs heard in a child with Trisomy 21-**Endocardial cushion defects (Down's Syndrome)**
- Overriding aorta, VSD, pulmonic stenosis, RV hypertrophy-**Tetralogy of Fallot (DiGeorge Syndrome)**
- Child with a 6 year history of a VSD now becomes profoundly cyanotic-**Eisenmenger syndrome.**
- NBSIM of an oliguric patient with very low output on bladder cath-**fluid challenge.**
- DOC in tx of a super sick guy with colonic "pseudo obstruction"-**Neostigmine (AchE inhibitor).**
- Wound type->post surgical abscess-**Dirty wound.**
- Wound type->patient stabbed in the abdomen, peritoneal line broken-**contaminated wound.**
- Wound type->incision made to remove a lobe of the thyroid-**clean wound.**
- Wound type->incision made to remove a polyp in the gastric fundus-**clean-contaminated wound.**
- On POD6, salmon colored fluid is found draining from an incision-**Wound dehiscence.**
- On POD6, loops of bowel are seen at the site of an abdominal incision-**Wound evisceration.**
- Most effective method of preventing postop pulmonary complications-**preop smoking cessation (8 wks).**
- Drug that could be used to prevent surgical bleeding in a patient w/liver disease-**Desmopressin.**
- Conjugated hyperbilirubinemia and jaundice in a newborn-**Biliary atresia.**
- Hip pain in a patient with a long history of severe Crohn's disease on steroids-**osteonecrosis.**
- Unrelenting PUD, ulcers in the distal jejunum-**Zollinger Ellison Syndrome (Gastrinoma).**
- Hypoglycemia, sx of hypoglycemia, sx relief with glucose administration-**Insulinoma (Whipple's triad).**
- Severe watery diarrhea, hypokalemia, achlorhydria-**VIPoma (WDHA Syndrome).**
- Eczematoid lesion around the areola in a 50 yo F-**Paget's disease of the breast.**

Q48-The Global Review Part D

Recent repair of a splenic laceration, epigastric pain/shoulder pain

Long history of OCP use, RUQ pain, US shows a circumscribed mass, 45 yo F

Most common anal neoplasm

Blood on the toilet paper, pain with defecation

Fluctuant anal mass, fever, pain unrelated to defecation

History of Crohn's disease, feculent material draining through the skin

Painful, fluctuant mass above the intergluteal cleft

Painful, dilation of inferior rectal venous plexus, squamous epithelium

Painless, dilation of superior rectal venous plexus, columnar epithelium

Colon cancer arising from normal epithelium, mismatch repair gene mutation

Tons of colonic polyps, APC tumor suppressor gene mutation, early subtotal colectomy recommended

FAP + brain malignancies

FAP + multiple soft tissue tumors

Chronic bloody diarrhea, crypt abscesses, continuous inflammation, superficial

Non-caseating granulomas, mucosal cobblestoning, skip lesions, transmural inflammation

Diarrhea and cramping 30 mins after meals, recent gastric bypass surgery

Electrolyte anomaly associated with paralytic ileus

Artery involved in severe bleeding from a perforated duodenal ulcer

Anterior mediastinal mass, diplopia, dysarthria, 45 yo F

Posterior mediastinal mass in a child < 2 yo

Q48 Key-The Global Review Part D

Recent repair of a splenic laceration, epigastric pain/shoulder pain-**subphrenic abscess**.

Long history of OCP use, RUQ pain, US shows a circumscribed mass, 45 yo F-**Hepatic adenoma**.

Most common anal neoplasm-**squamous cell carcinoma**.

Blood on the toilet paper, pain with defecation-**anal fissure**.

Fluctuant anal mass, fever, pain unrelated to defecation-**perianal abscess**.

History of Crohn's disease, feculent material draining through the skin-**anorectal fistula**.

Painful, fluctuant mass above the intergluteal cleft-**Pilonidal cyst/abscess**.

Painful, dilation of inferior rectal venous plexus, squamous epithelium-**external hemorrhoids**.

Painless, dilation of superior rectal venous plexus, columnar epithelium-**internal hemorrhoids**.

Colon cancer arising from normal epithelium, mismatch repair gene mutation-**HNPCC/Lynch syndrome**

Tons of colonic polyps, APC tumor suppressor gene mutation, early subtotal colectomy recommended-**Familial adenomatous polyposis**.

FAP + brain malignancies-**Turcot's syndrome**.

FAP + multiple soft tissue tumors-**Gardner's syndrome**.

Chronic bloody diarrhea, crypt abscesses, continuous inflammation, superficial-**Ulcerative colitis**.

Non-caseating granulomas, mucosal cobblestoning, skip lesions, transmural inflammation-**Crohn's disease**.

Diarrhea and cramping 30 mins after meals, recent gastric bypass surgery-**Dumping syndrome**.

Electrolyte anomaly associated with paralytic ileus-**Hypokalemia**.

Artery involved in severe bleeding from a perforated duodenal ulcer-**gastroduodenal artery**.

Anterior mediastinal mass, diplopia, dysarthria, 45 yo F-**Thymoma (teratomas are also anterior masses)**

Posterior mediastinal mass in a child < 2 yo-**Neuroblastoma**.

References

[Sketchymedicine.com](https://www.sketchymedicine.com)

Make sure you know how to differentiate b/w orbital and periorbital cellulitis.

All The Best!



KEEP CALM

AND

do well in your exam

ALL THE

BEST