ABSITE GOLD

(from Dr. Webber, Wayne State)
Loved by,
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UPDATES

- Erythromycin binds the motilin receptor to increase GI motility.
- Most important in neovascularization of tumor metastases is VEGF (vascular endothelial growth factor) receptor.
- Gentamicin:

  peak (5-10); trough (< 1)

  thus, if patient had peak of 70 and trough < 1, you would decrease the dose but maintain the same frequency.

UPDATES

- Refeeding syndrome – severely malnourished pt given food to quickly.
- This results in hypo – kalemia, magnesemia, and phosphotemia.
- Can result in cardiac arrhythmias.
- Treated by refeeding pt slowly 10-15 kca/kg/day.

UPDATES

- Most common malignancy following transplantation is skin cancer.
- Most common organism associated with post-transplant lymphoproliferative disorder is EBV.
- After massive transfusion and packing of a liver injury, the patient is still hypotensive, most likely the result of low calcium which can lead in turn to hypotension.
- Diaphragm injuries are difficult to see on CT, and more commonly occur on the right.

UPDATES

- UES pressure at rest/swallow is 70 mm Hg/15 mm Hg and LES pressure at rest/swallow is 15 mm Hg/0 mm Hg.

UPDATES

- Testicular atrophy after hernia repair is secondary to too much dissection of the cord with venous thrombosis.
- NGT is an independent risk factor for post-operative pneumonia.
- Penicillin and clindamycin are used for the treatment of necrotizing fasciitis. Clindamycin stops toxin production.
- Painful ejaculation and hematospermia after an inguinal hernia repair is a result of kinking and fibrosis of the vas deferens. Treatment is vasectomy.
- Most likely structure injured during a paraduodenal hernia repair is the IMV.

UPDATES

- If dopamine is inadvertently infused into the sub-q, treat with local injection of phentolamine (an alpha-blocker and sympatholytic).
- Late onset of vascular graft infection should make one suspicious for *Staphylococcus epidermidis* infection.
- Point tenderness at the medial aspect of the wound radiating to the base of the penis after an inguinal hernia repair is secondary to inflammation at the pubic tubercle (osteitis pubis – due to suturing there) and is treated with NSAIDS.

UPDATES

- Felon is treated by an axial incision, longitudinal incision along side of finger.
- Neurofibromatosis I is associated with renal artery stenosis.
- Best test for GERD is the 24 hour pH probe.
- EUS is the best test for T-staging of esophageal neoplasms.
- Low-grade MALToma is treated by treating H. Pylori.
- Bad reflux and a low LES pressure with minimal peristalsis in the esophagus is associated with scleroderma.

UPDATES

- If a patient has poor esophageal motility, perform only a partial wrap.
- Patient with a short esophagus gets a Collis gastroplasty with a wrap.
- True Barrett's must have goblet cells.
- Most common intraoperative fundoplication complication is a pneumothorax.
- Bleeding from radiation-induced proctitis is formalin.

UPDATES

- Duodenal perforation after ERCP – operate for symptoms and contrast leak not just for free air in the retroperitoneum on CT scan.
- Cystic appendiceal mass found at OR – perform R hemicolectomy and assume it's cancer.
- Long-standing celiac sprue with worsening symptoms – think cancer.
- Recurrent bleeding after TIPS – check shunt patency via an ultrasound.

UPDATES

- IFN-alpha is used for the treatment of Stage 3 melanoma.
- Il-2 is used for the treatment of Stage 4 melanoma.
- Hepatic focal nodular hyperplasia appears as a central stellate scar.
- Technetium sulfur colloid test for FNH.
- GIST tumor – c-Kit protein mutation and is treated with Gleevec.

UPDATES

- FAP patients have a high incidence of desmoid and periampullary tumors.
- Small bowel bleeding in children – Meckel's; in adults – AVM.
- Annular pancreas is treated with duodenoduodenostomy and duodenojejunostomy.
- Most common cause of jaundice in pregnant patients is viral hepatitis and not gallstones.
- Perforated gastric ulcer is best treated by resection of the stomach including the ulcer unless unstable.

UPDATES

- Tumors infiltrated with lymphocytes better prognosis, especially in breast and melanoma.
- Treatment of contaminated soft tissue wounds starts with debridement and not irrigation.
- Seizures/spasms after resuscitation is secondary to hypernatremia from 0.9NS resuscitation fluid.
- Perioperative glucocorticoids should be given if on Prednisone 20 mg > or = one week, any dose > month or < 2 years after corticoid tumor removal.

UPDATES

- Hypophosphatemia shifts Hb curve to the left.
- V tach after CABG give magnesium.
- Chromium deficiency can result in glucose intolerance.
- Copper deficiency can cause pancytopenia.
- Best indicator of failure of non-operative management of splenic injury is a blush on CT.
- Traumatic aortic dissection – fix blood pressure and other injuries first.

UPDATES

- DDAVP increases vWF.
- (+) FAST exam but stable patient – CT.
- Empyema unresolved with tube drainage – VATS.
- CT incidentally shows hepatic lesion with peripheral enhancement – repeat CT in 20 min (hemangioma).
- Burn after airbag deployment is caused by hot nitrogen gas.
- AgNO3 on burns – methemoglobinemia, tx with methylene blue (AgNo3 also leaches Na).

UPDATES

- Treatment of V-Fib after rewarming a hypothermic pt is Bretyllium.
- An elderly woman with ruptured TOA – TAH/BSO.
- Adrenal cyst – aspirate and do cystogram – bloody or irregular wall – remove.
- Most common cause of anterior mediastinal mass is adults is thymoma.
- Subglottic suctioning effective in reducing VAP.
- 65% of patients with spina bifida are latex allergic.

UPDATES

- SBP – discontinue antibiotics when tap shows < 250 PMNs/cc.
- Most common cause of pyogenic liver abscess – cryptogenic (no source).
- Epidural anesthesia: Respiratory depression from opioid and low BP from local anesthetic.
- Sudden increase in end-tidal CO2 – malignant hyperthermia.
- Sudden decrease in end-tidal CO2 – PE.

UPDATES

- RSBI – best predictor about ability to extubate.
- Cyanide poisoning from Nipride – thiosulfate.
- Pulsatile buttock mass – aneurysm of persistent sciatic artery.
- MS changes after trauma and normal CT head – angiogram to look at carotids, anti-coagulate if there is injury.
- Effort thrombosis of subclavian vein – catheter-directed lysis and then 1st rib resection.
- HNPCC in woman – look for endometrial CA.

UPDATES

- Chylothorax – initially treat with drainage and TPN (1-2 weeks), unless tension cylothorax which requires thoracotomy and closure of duct.
- S/P R upper lobectomy (POD #1) with pain, hemoptysis and tachycardia – bronch to r/o middle lobe torsion.
- Pulmonary sequestration: Intralobar – systemic artery, pulmonary vein, no other anomalies; extralobar – systemic artery and vein, no bronchial connection, diaphragmatic hernias.
- Rib notching – coarctation of the aorta.

UPDATES

- Dysphagia lusoria – anomalous R subclavian, resect and anastomose to R carotid.
- Focal segmental glomerulosclerosis – 30% recurrence after transplant.
- Lung transplant: anastomotic problems much higher with single lung transplant, COPD patients have the best outcome.
- Hepatotoxicity after BMT – laparoscopic liver bx.
- Bladder drainage in pancreas transplant – acidosis, bladder infections, pancreatitis.
- Melanoma > 1 mm thick – sentinel LN bx.

UPDATES

- Tracheal CA – resection and radiation.
- Most common extracranial solid CA in children – neuroblastoma.
- Merkel cell CA – wide excision, sentinel node, radiation, high incidence other malignancies. Red and purple with ulcerated plaques which have NSE (neuron-specific enolase), cytokeratine, and neurofilament protein.
- Halothane – highest degree of cardiac depression and arrhythmias.
- Don’t give succinylcholine in burns, neurologic injury, neuromuscular disorders, spinal cord injury, massive trauma, rhabdo, and ARF.

UPDATES

- Krukenberg tumor is breast, stomach, or colon CA that has metastasized to ovary with signet ring cells.
- Rx of phimosis found at time of laparotomy is dorsal slit.
- Indomethacin causes PDA to close and PGE1 keeps PDA open.
- Right gastric artery is a branch of the common hepatic artery.
- Hepatorenal syndrome has lab findings as prerenal azotemia.

UPDATES

- In NHL, 90% are B cell lymphomas. T cell lymphomas more common in HIV (+) patients.
- 90% of NaCl and 90% of water absorbed in the jejunum.
- Jejunum is maximum site of absorption of all nutrients except B12 (terminal ileum), bile acids (ileum), iron (duodenum) and folate (terminal ileum).
- Infectious pouchitis is treated with with Flagyl.
- Low rectal carcinoids < 2 cm, Rx = WLE with negative margins; if > 2 cm or invasion of muscularis propria, Rx = APR.

UPDATES

- Basal caloric need – 20-25 kcal/kg/day.
- LiFraumeni syndrome – defect in p53 gene – patients get childhood sarcomas, breast CA, brain tumors, leukemia, adrenal CA.
- Il-6 is the most potent stimulus for synthesis of hepatic acute phase proteins.
- All patients with hematuria from a possible renal injury need a CT scan.
- PEEP improves FRC and compliance.
- Aging causes a decreased FEV1 and Vital Cap, increased FRC.

UPDATES

- L-selectins – located on leukocytes, bind to E-(endothelial) and P-(platelets) selectins to cause rolling adhesion.
- Beta-2 integrins (CD11/18 molecules) on leukocytes; bind ICAMS and causes anchoring adhesion.
- ICAM, VCAM, PECAM, ELAM – on endothelial cells, bind beta-2 integrin molecules located on leukocytes and platelets.

UPDATES

- Neutrophil recruitment and activation into areas of inflammation is via adherence between constituitively expressed L-selectin on the neutrophil and E-selectin on the activated vascular endothelium.
- Firm adherence of the neutrophil to the endothelium is mediated through ICAM-beta-2 integrin interaction.
- PECAM-1 is important in transendothelial migration of PMNs.

UPDATES

- Most frequent site of aspiration is superior segment of RLL and posterior segment of RUL.
- Chemotherapy for soft tissue sarcomas is usually doxorubicin based.
- Glomus cell tumors are benign painful tumors composed of blood vessels and nerves in the tips of digits.

UPDATES

- Familial adenomatous polyposis (FAP) is autosomal dominant and all have cancer by 40.
- APC gene on chromosome 5.
- With FAP, need total colectomy prophylactically by age 20.
- With FAP, check duodenum for polyps or CA q 2years.
- Most common cause of death is periampullary tumors.
- In Gardner’s syndrome, patients get colon CA (associated with APC gene) and desmoid tumors/osteomas.

UPDATES

- Lynch syndrome (hereditary nonpolyposis colon cancer) are autosomal dominant and associated with DNA mismatch repair gene.
- HNPCC has predilection for R-sided and multiple CAs.
- Lynch I is just colon CA risk and Lynch II patients also have an increased risk of ovarian, endometrial, bladder, and stomach CA.
- With HNPCC, need surveillance colonoscopy starting at age 25 or 10 years before primary relative got CA.

UPDATES

- Peristomal hernias usually need to be moved and placed through the rectus muscle.
- Retroperitoneal fibrosis can occur with hypersensitivity to methylsergide.
- Paraneoplastic syndromes associated with renal cell CA include erythropoieten excess, PTH-related peptide, ACTH and insulin.
- RCC if in the IVC can be resected by pulling tumor thrombus out of the IVC.

UPDATES

- Osteomyelitis in children tends to occur in the metaphysis of long bones and is most commonly due to staph.
- Spondylolisthesis is subluxation or slip of one vetebral body over another due to spondylolysis = defect in the pars interarticularis.
- In performing femoral hernia repair, tissue that must be broken down is the transversalis fascia = floor of the inguinal canal.

UPDATES

- Concerning the following sequence of numbers:

  1, 2, 3, 3, 4, 5, 6 ,7 ,14

- Mode – most frequently occurring value is 3
- Mean – average is 5
- Median – middle value of the data set is 4

UPDATES

- Sensitivity = true positives/ true positives + false negatives (ability to detect disease).
- Specificity = true negatives/ true negatives + false positives (ability to state no disease is present).
- Botryoides is a rhabdosarcoma that occurs in young girls.

UPDATES

- Mammogram looks like CA, but LCIS on bx – needle localized open excisional biopsy.
- Comedo DCIS – sentinel node with excision.
- Atypical ductal hyperplasia on bx – needle localized excisional bx.
- Adenoid cystic breast CA – simple mastectomy.
- PD catheter with fungus in ascites – d/c catheter.
- Radial scar – do open excisional bx (not stereotactic core bx).

UPDATES

- In men, only BRCA 2 mutation predisposes to CA (not BRCA 1).
- Locally advanced breast CA – neoadjuvant first.
- Active UC with reactive atypia on bx – need tx and repeat scope, surgery if no response to med tx or dysplasia on bx.
- Smoking is risk factor for recurrent Crohn's.
- Large type III paraesophageal hernia – open repair (>40% recurrence with lap repair),

UPDATES

- Highly selective vagatomy (preserve Laterjet nerves) – contraindicated in pts with pyloric channel ulcer.
- Pre-operative ABX (Nickel's prep) – increase the risk of C. Diff colitis.
- Treat Flagyl-resistant (p.o.) C. Diff with p.o. Vancomycin, next is i.v. Vancomycin.
- < 120 cm = symptoms of short gut syndrome.
- < 60 cm = TPN dependent.

UPDATES

- Morbidly obese woman with bad reflux, do gastric bypass.
- PDT in Barrett's – high stricture rate.
- Pancreatic polypeptide – used to assess vagotomy.
- Epiphrenic diverticula – pulsion, false, resect and myotomy.
- Initial tx anal fissure – topical NTG.

UPDATES

- Turkish boy with severe abdominal pain, and history of previous attacks – NSAIDS and pain meds (Familial Mediterranean Fever).
- Anatomic anomaly most often encountered when dissecting crura during Nissen fundoplication – aberrant left hepatic artery.
- During Whipple procedure – must divide the gastroduodenal artery.
- Pancreatic cyst with central “starburst” calcification – serous cystadenoma.
- Mucin from ampulla during ERCP – intraductal papillary mucinous tumor of pancreas.

UPDATES

- Large, symptomatic splenic cyst – laparoscopic partial cystectomy (unroof).
- Mirrizzi's syndrome – open cholecystectomy.
- Old, thin woman without prior surgery and SBO – obturator hernia (Howship Romberg sign).
- Infected pancreatic necrosis – operate.
- Sterile pancreatic necrosis – try to wait at least 2 weeks to operate if at all.

UPDATES

- Umbilical hernia with leaking ascites – admit, bedrest ABX, control ascites, repair.
- Umbilical hernia with leaking ascites, with rupture/strangulation – repair, Denver shunt.
- Far objects, dark on U/S – increase gain.
- Jejunoileal atresia – high incidence CF.
- Hirschprung's – lack of neural migration (not aganglionosis).

UPDATES

- Full length esophageal lye injury in child – resect and replace with colon.
- Most common cause solid lung nodule in kid – metastatic (osteogenic sarcoma, Wilm’s).
- Always sample nodes when operating on Wilm’s.
- Well-differentiated thyroid CA in kids - >50% nodal involvement, still good survival.
- Reduce malrotation with counterclockwise rotation.

UPDATES

- Epiglottitis – H. flu, fiberoptic awake intubation in OR.
- Most sensitive test for recurrent thyroid after total thyroidectomy and iodine ablation – serum thyroglobulin.
- Insular thyroid CA – worse prognosis the more there is (often with papillary).
- Drooping after submandibular gland excision – marginal mandibular.

UPDATES

- Thyroid lymphoma – chemotherapy.
- Most common complication after mandible fx repair – malocclusion.
- Carotid body – chemoreceptor, simple excision of tumors (don’t go resecting any carotid arteries), tumors increased at high altitudes.
- ER (+) – 65-95% of male breast CA.
- Don’t operate on gynecomastia in children.

UPDATES

- Cystosarcoma phyllodes – WLE only.
- Tamoxifen metabolized by cyt p450 system.
- Should wait about 2 years after breast CA tx to get pregnant.
- Bilateral prophylactic mastectomy reduces risk for CA by > 90%.

ANATOMY
Head and Neck

- The structure which lies immediately anterior to the anterior scalene muscle is the phrenic nerve.

- The external branch of the superior laryngeal nerve innervates the cricothyroid muscle.

ANATOMY
Intra-abdominal

- Relationships in the porta hepatis:
  - CBD lateral to hepatic artery, both of which are anterior to the portal vein

- In the French classification, the segment of the liver immediately to the right of the gallbladder fossa is segment V.

- A replaced right hepatic artery derives from the superior mesenteric artery in 15-20% of cases.

ANATOMY

Extremities

- Young, healthy male who develops swelling in upper extremity after vigorous exercise and which is relieved by dependency has effort thrombosis.
- Thoracic outlet syndrome is compression of neurovascular structures of upper extremity.
- Etiology is cervical rib, abnormal first rib, muscles (anterior and middle scalene) or fibrous bands. Treatment usually conservative, and first operation is complete excision first rib.
- Interossei muscles of the hand are innervated by the ulnar nerve.

ANATOMY
Extremities

- Lateral boundary of the femoral canal is the femoral vein.
- Nerve root which controls the achilles reflex is S1.
- Nerve root which controls the patellar reflex is L4.

DRUG MECHANISMS

- The quinolone antibiotics (ciprofloxacin) work by inhibiting DNA production (DNA gyrase).
- Tamoxifen works by binding to and inhibiting the estrogen receptor.
- Taxol (Paclitaxel) is a tubulin inhibitor, thus it inhibits microtubules.
- Proscar (Finasteride) works by inhibiting steroid 5-alpha reductase.
- Plasmids are the most common mechanism of acquiring antibiotic resistance.

DRUG TOXICITIES

- The most common electrolyte abnormality associated with Amphotericin B is hypokalemia.
- Omeprazole in rats can cause enterochromaffin cell hyperplasia (carcinoid tumors).
- Tamoxifen can cause DVT's, PE's and increases risk of endometrial cancer.
- Coumadin-induced skin necrosis has been associated with protein C deficiency. Treated with cessation of coumadin, give Vitamin K and heparin and surgical excision.
- Vitamin K-dependent coagulopathy has been linked to oral administration of cefoperazone, moxalactam, cefamandole, and ceftizoxime.

CHEMOTHERAPY TOXICITIES

- Bleomycin – pulmonary fibrosis
- Cyclophosphamide – hemorrhagic cystitis
- Doxorubicin – cardiomyopathy
- Vincristine – peripheral neuropathy
- Cyclosporine – renal toxicity

FLUID/ELECTROLYTES

- Initial management of SIADH is fluid restriction.
- Most important factor in the regulation of ADH release is extracellular osmolarity.
- Hypokalemia may lead to serious arrhythmias particularly among patients administered digitalis.
- Hypercalcemia can present as HTN, obtundation, nausea and vomiting. EKG shows shortened QT intervals and widened T waves. Treatment is first normal saline and then once urinating, Lasix.

ACID/BASE

Increased anion-gap acidosis

M = methanol
U = uremia
D = DKA
P = paraldehydes
I = isoniazid
L = lactic acidosis
E = ethylene glycol
S = salicylates

ACID/BASE

Non-anion gap metabolic acidosis

U = ureterosigmoid fistula
S = small bowel fistula
E = excess chloride
D = diarrhea
C = carbonic anhydrase inhibitors
A = amphotericin B
R = renal tubular acidosis
P = pancreatic fistulas

NUTRITION

- The amount of glucose necessary for protein sparing is 100 gm/day.

- RQ (respiratory quotient)

> 1 carbohydrate excess

1 pure carbohydrate use

.7 pure fat utilization

< .7 ketogenesis

- Major substrate for RBC is glucose

NUTRITION

- Compartment with the most protein flux is the gastrointestinal tract.
- The nitrogen content of 100 gm of amino acids is calculated by division by 6.25 of the # gms of protein.
- Enterocyte utilizes glutamine.
- Colonocyte prefers short chain fatty acids.

TRACE METAL DEFICIENCIES

- Zinc deficiency – perioral pustular rash, darkened skin creases, and neuritis.

- Essential fatty acid deficiency – dry, flaky skin, small reddish papules and alopecia.

WOUND HEALING

- Collagen synthesis becomes stable after 3 weeks.
- Most dominant cell in the wound at ten days is the fibroblast.
- Wound strength:
  21 days = 15%
  6 weeks = 70-80%
  6 months = 90%
- Most important cell in the healing wound is the macrophage.

WOUND HEALING

- Stimulant of angiogenesis is basic fibroblast growth factor.
- All aspects of steroid-induced healing impairment other than wound contraction can by reversed by vitamin A.
- Fibroblasts are derived from mesenchymal tissue.
- Order of appearance of wound healing substances:
  - platelets, PMNs, macrophages, lymphocytes and fibroblasts

INFLAMMATION/IMMUNOLOGY

- Aspirin inhibits cyclo-oxygenase.
- Aspirin's anti-pyretic effect results from a change in the set-point of the hypothalamus.
- Microglia are considered a part of the reticulo-endothelial system.
- Gamma-interferon upregulates MHC I and MHC II.
- Immunosurveillance in the skin is performed by langerhans cells.

IMMUNOLOGY

- IL-1: endogenous pyrogen, promotes phagocytic function
- IL-2: produced by T-helper cells, stimulates T cell proliferation
- IL-6: proliferation of B cells and fibroblasts, stimulates acute phase protein synthesis
- IL-8: stimulates PMN movement through vascular endothelium, stimulates granulocyte degranulation

ONCOGENES

- Oncogenes are thought to work during G1 of the cell cycle.
- K-*ras* is associated with pancreatic cancer.
- Familial gastric cancer is related to gene CDH1 (E-cadherin), autosomal dominant transmission and treatment is prophylactic total gastrectomy.
- The intracytoplasmic portion of growth factor receptors is characterized by domains with tyrosine kinase activity.

MOLECULAR BIOLOGY

- Apoptosis is programmed cell death, examples include loss of tadpole's tail, post-radiation effect and natural cell death.

- *bcl*-2 gene on chromosome 18 is characterized as a major repressor of programmed cell death.

- A trisomy, the presence of three chromosomes is a common example of aneuploidy.

ONCOLOGY

- The pathophysiology in radiation injury is obliterative endarteritis.
- Sarcomas diagnosed with incisional or Tru-Cut biopsy (masses > 5 cm), followed by wide local excision with 2-3 cm margins.
- Concerning sarcomas, adjuvant radiation improves local control, while chemotherapy adds little.
- Tumor suppressor gene P16 implicated in familial melanoma.
- Dermatofibrosarcoma Protuberans – intermediate-grade sarcoma arising from fibroblasts in the dermis. Half-dollar-sized plaque that is violaceous to red-brown or skin-colored. Treated by surgical excision with 3 cm margin of skin.

RADIOLOGY

- PET scans are based on glucose metabolism.
- Hypertonic radiocontrast materials can be used therapeutically in meconium ileus.

BURNS

- Sulfamylon – painful, inhibits carbonic anhydrase and can cause acidosis.
- Silver sulfadiazine – poor penetration, painless and causes neutropenia.
- Silver nitrate – leaching of electrolytes and can cause alkalosis.
- Parkland formula (4.0 mL/kg/% burn)

TRAUMA

- Common peroneal nerve injury – loss of sensation dorsum of foot, with weakened dorsiflexion, foot drop and toe drag, “slapping gait.”

- Most sensitive clinical indicator of compartment syndrome is pain to passive stretch, first compartment usually affected is anterior compartment.

- Blunt trauma and CT scan which shows non-visualization of a kidney in a stable patient requires arteriogram.

TETANUS PROPHYLAXIS

Tetanus immun. History	*Clean Wound*	*"Tetanus-prone"*
Fully immun:last booster:		
– < 5 years	None	None
– 5-10 years	None	Toxoid booster
>10 years booster+TIGH	Toxoid booster	Toxoid
Incompletely immun./ or uncertain history	Toxoid+complete immun.	Toxoid+TIGH+ complete immun.

ANESTHESIA

- Drug of choice in a patient with hyperkalemia is atracurium.
- Spinal headache refractory to supine positioning should be treated with a blood patch.
- Ketamine causes a dissociative anesthesia.
- Succinylcholine side effects include cardiac arrhythmias, hyperkalemia, increases pressures in the cranial, gastric and ocular spaces. It can trigger malignant hyperthermia (Dantrolene).

ANESTHESIA

- Protamine can cause hypotension.
- Lidocaine toxicity manifests as restlessness, nystagmus, and tinnitus. Treated with Diazepam. Safe dose without Epi is 4 mg/kg and with Epi 7 mg/kg.
- Pancuronium tends to aggravate tachycardia.
- Proof of endotracheal intubation is end-tidal CO_2.

NEUROPHYSIOLOGY

- Cerebral perfusion pressure (CPP) = MAP – ICP.
- Cushing reflex is high blood pressure, bradycardia and altered respirations, usually decreased rate.
- Peripheral nerves grow by 1 mm/day (1 inch/month).

NEUROTRAUMA

- CPP should be maintained above 80 mm Hg (?).
- Glasgow Coma Scale.
- Central cord syndrome – loss of distal upper-extremity pain and temperature and strength with relative sparing of lower-extremity strength and sensation.
- Brown-Sequard syndrome – loss of ipsilateral motor and contralateral pain and temperature as well as ipsilateral proprioception.
- Traumatic CSF leak is treated with head elevation and bed rest.

HEAD AND NECK

- Virus associated with Burkitt's lymphoma and nasopharyngeal cancer is Epstein-Barr virus.
- Parotid tumor which is bilateral is Warthin's.
- Parotid tumor which invades the nerve is adenoid cystic.
- Mass in the neck should get FNA.
- After submandibular gland resection, drooping of the mouth should make one suspicious of marginal mandibular nerve injury.

HEAD AND NECK

- Gustatory sweating = auriculotemporal nerve injury.
- Acinic cell carcinoma of the parotid should get superficial parotidectomy.
- Parotid tumor which tends to invade the facial nerve (CN VII) = adenoid cystic.
- Characterize Le Fort fractures.

PULMONARY PHYSIOLOGY

- Gas used in VQ scans is Xenon 133.
- The perfusion portion is performed with radiolabelled albumin.
- Compliance is the change in volume divided by the change in pressure.
- Vital capacity = TLC – RV.

PULMONARY PHYSIOLOGY

- Popcorn calcification in the lung is a hamartoma.
- V/Q ratio is higher at the apex and lower at the lung base.
- 2,3 diphosphoglycerate, decreased pH, increased PCO_2, and increased temperature shift the oxygen dissociation curve to the left therefore releasing more oxygen to the tissues.

GROWTH AND DEVELOPMENT

- Intralobar pulmonary sequestration – venous drainage is into the pulmonary vein
- Extralobar pulmonary sequestration – venous drainage is into the azygous system.
- Congenital lobar emphysema is usually limited to the upper lobes or right middle lobe and is characterized by severe air trapping and overdistention of the lung parenchyma. Treatment consists of excision of the affected lobe.
- Indomethacin induces ductal closure (PDA).

PULMONARY CRITERIA

	Pneumonectomy	*Lobectomy*	*noperable*
MVV (% of predicted)	> 55%	> 40%	< 35%
FEV1 (liter)	> 2 L	> 1 L	< 0.6 L
FEV 25% - 75% (liter)	> 1.6 L	> 0.6 L	< 0.6 L

CARDIAC PHYSIOLOGY

- Intra-aortic balloon pump (IABP) should be timed with the peak of the T-wave if timed with the EKG.
- The IABP decreases the afterload.
- Tension pneumothorax results in death from kinking of the IVC.
- “Myocardial stunning” is a reversible injury. Myocardial ischemia of 15 min duration despite restoration of normal blood flow can be associated with postischemic myocardial dysfunction. Related to intracellular calcium overload and oxidative stress induced by reactive oxygen species released at time of reperfusion.

HEMATOLOGY

- von Willebrand's disease is treated with cryoprecipitate.
- Factor XI deficiency is treated with FFP.
- Treatment of urokinase overdose is epsilon-aminocaproic acid.
- In vWF disease, DDAVP increases platelet function.
- Hereditary spherocytosis responds the best to splenectomy.
- Sickle cell anemia and osteomyelitis = salmonella
- Initial site of blood cell production is the yolk sac, followed by the fetal liver in second month.
- The most common presenting site for asymptomatic lymphadenopathy in Hodgkin's disease is cervical.

GASTRIC PHYSIOLOGY

- Receptive relaxation is mediated by the vagus nerve.
- Gastric chief cell = pepsinogen/pepsin
- Gastric parietal cell = intrinsic factor/acid production
- Intrinsic factor is secreted from the corpus and fundic cells.
- Antral acidification suppresses gastrin release.
- Surface gastric epithelial cells secrete mucus.

GI PHYSIOLOGY

- Migrating myoelectric complex (MMC) is regulated by motilin.
- Mass movement is the characteristic motility pattern of the colon.
- Jejunal-ileal bypass tends to cause hyperoxaluria and can cause liver failure (cirrhosis) which is irreversible despite reversal of bypass.
- In patients with alcoholic and nonalcoholic cirrhosis, portal pressure can be indirectly estimated by measurement of hepatic venous wedge pressure.

GI PHYSIOLOGY

- Patients who have had massive small bowel resection and an intact colon have a tendency to form calcium oxalate renal stones. This results from the increased absorption of dietary oxalate, which is normally rendered insoluble by calcium in the intestinal lumen and therefore, ordinarily unabsorbable. However, in patients with short bowel syndrome and steatorrhea, intraluminal intestinal calcium is bound preferentially to unabsorbed fatty acids, lending to decreased binding and increased colonic absorption of oxalate.

- After ileal resection, the most common stones to develop are oxalate stones.

GI PHYSIOLOGY

- Carcinoid syndrome most often comes from an ileal carcinoid tumor.
- Traction diverticula occur in the mid-esophagus.
- H. pylori occurs in asymptomatic patients. The antrum of the stomach can be biopsied for this organism.
- CLO test measures H. pylori's ability to split urea by the enzyme urease.

GI PHYSIOLOGY

- Order of appearance of bowel motility after an operation = small intestine, stomach and colon.
- Duodenal gastrinomas have the highest rate of cure.
- Diarrhea in the ZE syndrome is caused by acid load into the intestines.

GI PHYSIOLOGY

- A patient with Crohns disease and draining perianal fistulas should be started on Flagyl and Azulfidine.
- Most common benign tumor of esophagus = leiomyoma.
- Gastric varices without esophageal varices should make one consider splenic vein thrombosis = splenectomy.
- Portion of esophagus a swallowed foreign body is likely to get stuck is at the cricopharyngeus = narrowest point.
- Most extraintestinal complications of IBD subside or remit after resection of involved bowel except ankylosing spondylitis and sclerosing cholangitis.

GI PHYSIOLOGY

- Enteroglucagon-massive small bowel resection increases levels of this hormone.
- Glucose and galactose are almost absorbed entirely by active Na-dependent system.
- Medium chain fatty acids (6-10 carbons) enter portal blood directly from the enterocyte.
- Most protein absorption occurs as dipeptides and amino acids in the small bowel.
- Primary bile salts Secondary bile salts
  - Cholic acid deoxycholic acid
  - Chenodeoxycholic acid lithocolic acid

GI ANATOMY

Branches of the hepatic artery

1. Gastroduodenal - R gastroepiploic/S. pancreaticoduodenal
2. Right gastric
3. R hepatic
4. L hepatic

- The vessel which must be divided during the performance of a whipple procedure is the gastroduodenal artery.

GI CANCERS

- Lynch I syndrome – proximal colon cancer at an early age.
- Lynch II syndrome – colorectal cancer and extracolonic cancers, including cancers of endometrial, ovarian, gastric, small intestinal, pancreatic, ureteral, renal pelvic origin.
- Lynch syndromes – autosomal dominant, genes *(hMLH1 and hMSH2).*
- Vinyl chloride = liver cancer
- Nitrosamines = gastric cancer

GYNECOLOGY/UROLOGY

- Ovarian cancer is the most common cancer associated with peritoneal carcinomatosis and ascites.
- Ovarian cancer tends to spread first to the peritoneum.
- Sudden onset of a left varicocele in an elderly male = renal cell carcinoma (hypernephroma).
- Testicular torsion when necrotic is treated by orchiectomy and contralateral orchiopexy.

THYROID

- Thyroid tissue found in the lateral neck compartments may represent metastatic deposits from well-differentiated thyroid carcinoma. It is not lateral aberrant thyroid tissue and it is not an embryologic variant.

- Lingual thyroid results from a failure of the median thyroid anlage to descend in a normal fashion. It is usually the only thyroid tissue that remains and is best treated by suppression with thyroid hormone or radioactive iodine.

- Patient with upper respiratory tract symptoms and who develops a painful thyroid, malaise and weakness should be treated with aspirin and observation.

- Patient with upper respiratory tract symptoms and who develops a painful thyroid, malaise and weakness should be treated with aspirin and observation.

- Amyloid deposits in a thyroid mass = medullary thyroid carcinoma.

ENDOCRINE PHYSIOLOGY

- Operation on pheochromocytoma – alpha-blockade prior to beta-blockade. (phenoxybenzamine)
- Most common tumor implicated in paraneoplastic syndromes is small cell carcinoma of the lung.
- Conn's syndrome (hyperaldosteronism) = urine is characterized by low sodium, high potassium and hydrogen ion levels.

ENDOCRINE PHYSIOLOGY

- Asymptomatic patient with a 6 cm adrenal mass = transperitoneal resection.
- Asymptomatic patient with a 3 cm adrenal mass = observe and repeat CT scan (abdomen) in 6 months.
- Drugs which inhibit ADH release include Lithium and EtOH.

ENDOCRINE PHYSIOLOGY

- Posterior pituitary releases ADH and oxytocin but these are made in the hypothalamus.
- Pathognomonic finding in insulinoma is an inappropriately high level of insulin during symptomatic hypoglycemia. Diagnostic ratio of insulin/glucose > 0.4
- Separate factitious hyperinsulinemia from insulinoma by C-peptide.
- N-terminus of parathyroid hormone active. C-terminus inactive.
- Vitamin D is first hydroxylated at C-25 and then at C-1 (by PTH in kidney)

ENDOCRINE PHYSIOLOGY

- Most common extra-adrenal site for pheochromocytomas is organ of Zuckerkandl.

- In MEN I syndrome, if a patient has severe ulcer disease (gastrinoma) and hypercalcemia, parathyroidectomy is the first operation.

- Renin is made in the juxtaglomerular apparatus and cleaves angiotensinogen to angiotensin I in the plasma. Angiotensin I is cleaved to angiotensin II in the pulmonary endothelium by angiotensin converting enzyme.

BREAST

- BRCA1 chr 17 ovary/breast
- BRCA2 chr 13 breast only
- Most common complication following axillary dissection is numbness along inner aspect of upper arm.
- Inflammatory breast cancer (IBC) usually treated initially with neoadjuvant chemotherapy.
- Pathologic hallmark of IBC is dermal lymphatic permeation with tumor cells.

BREAST

- Breast cancer which is bilateral is lobular.
- In a patient who is 20 years s/p mastectomy who develops chronic lymphedema and then purplish nodules on the arm, think lymphangiosarcoma.
- Her-2/neu suggests aggressive behavior in breast cancer, monoclonal antibody against the Her-2/neu receptor protein is Herceptin.
- Contraindications to segmental mastectomy (lumpectomy) in stage I breast cancer are multicentricity, contraindication to radiation, cosmesis and collagen vascular diseases.
- Best treatment of a symptomatic intraductal papilloma (bloody nipple discharge) is surgical excision, mostly to rule in this diagnosis and to exclude invasive papillary carcinoma.

ORTHOPAEDICS

- Fall with bilateral calcaneal fractures = thoracolumbar compression fracture.
- Pediatric femoral neck fractures can result in avascular necrosis.
- ACL rupture is associated with the “drawer sign” and with medial meniscus tear.
- Bones which undergo avascular necrosis include:

  a) scaphoid (navicular)

  b) talus

  c) femoral neck

ORTHOPAEDICS

- Nerve injury associated with posterior hip dislocation is sciatic.
- Characteristic presentation of posterior hip dislocation is an externally rotated hip (abducted femoral head), flexed and internally rotated knee (adducted).
- Treatment of a thoracolumbar compression fracture is a TLSO brace.
- Young patient with a posterior knee dislocation complains of pain and undergoes successful closed reduction, the next step in evaluation is arteriography.
- Mid-shaft femur fracture in a young male is treated with IM rod.

TRANSPLANT

- HLA haplotypes:

  The chance two siblings will have identical HLA haplotypes (assuming they not identical) is 25%.

- Most common long term complication of lung transplantation is bronchiolitis obliterans.

- Hyperacute rejection = preformed antibodies (humoral immunity) and complement.

- Acute rejection = cell-mediated immunity.

- Chronic rejection = cellular and humoral response.

TRANSPLANT & IMMUNE COMPROMISE

- Diagnosis of acute rejection is suggested by renogram showing poor perfusion, U/S showing kidney swelling, but only confirmed by renal biopsy.

TRANSPLANT DRUGS

- Cyclosporine = inhibits IL-2 production by T-helper cells.
- Azathioprine = inhibits DNA synthesis, lymphocyte production.
- Glucocorticoids = inhibits DNA and RNA synthesis.
- Sirolimus = inhibits IL-2 action.

CRITICAL CARE

- PEEP increases the FRC, and decreases the cardiac output.
- Reperfusion injury can be limited by giving nifedipine before and after.
- Post-operatively, the most common cause of hypoxia is V-Q mismatch. A normal PCO_2 usually means adequacy of ventilation.
- $CaO_2 = HGB \times SaO_2 \times 1.34 + .003 \times PaO_2$.
- An increase in the CO usually increases the SvO_2.

CRITICAL CARE

- Recombinant human activated protein C (APC) has been shown to significantly reduce mortality rates. Its drawback is bleeding in 2-3.5% of those treated.

SURGICAL COMPLICATIONS

- The most common nerve entrapment syndrome after a laparoscopic hernia repair is the lateral femoral cutaneous nerve.

- After a TURP, a patient develops hypotension and mental status changes. Need to check his electrolyte status = hyponatremia.

- Winged scapula is caused by injury to the long thoracic nerve.

MISCELLANEOUS

- Nitric oxide – substrate for its synthesis is L-arginine.
- P53 codes for a tumor suppressor gene which is important for genomic stability.
- Endothelin is a potent vasoconstrictor.
- Antibiotic which should be prescribed in patients who are Penicillin allergic is Clindamycin.
- Recurrent DVTs should suggest antithrombin III deficiency.
- Sudden onset of ascites in a post-partum woman should suggest hepatic vein thrombosis.

1. A 55 year-old male, who is noted to have diarrhea, flushing and bronchoconstriction as well as right-sided cardiac valvular disease, is most likely to have his primary tumor where?

a) appendix
b) bronchus
c) rectum
d) stomach
e) ileum

2. A patient has a serum sodium of 115 but is asymptomatic. His sodium is corrected by the next day and is 135. However, the patient develops seizures and cerebral edema. What is the most likely etiology of this?

a) central pontine myelinolysis
b) hepatic encephalopathy from unrecognized liver failure and poor sodium homeostasis
c) hypercalcemia
d) hypomagnesemia
e) Wernicke's encephalopathy

3. Which hormone can be used to stimulate small bowel hypertrophy in order to lessen the symptoms of short gut syndrome?

a) glucagon
b) enteroglucagon
c) somatostatin
d) growth hormone
e) insulin-like growth factor

4. Which is the only pancreatic enzyme which is not secreted as a prohormone? It is active at the time of secretion into the pancreatic duct.

a) phospholipase A2
b) chymotrypsin
c) colipase
d) carboxypeptidase A
e) lipase

5. In which portion of the gastrointestinal tract are proteins mostly absorbed?

a) stomach
b) duodenum
c) jejunum
d) ileum
e) colon

6. Which of the following is the toxic component of lipopolysaccharide (LPS)?

a) O-specific antigen

b) lipid A moiety

c) core M protein

d) M protein coat

e) capsule wall

7. Mechanism of inheritance in MEN I, MEN IIa and MEN IIb?

a) genomic, non-dominant
b) X-linked
c) autosomal dominant
d) autosomal recessive
e) sex-linked

8. Which bacterial *genus* produces the most potent exotoxins?

a) *Staphylococcus*
b) *Pseudomonas*
c) *Klebsiella*
d) *Streptococcus*
e) *Serratia*

9. A 22 year-old male undergoes extensive small bowel resection for complications related to Crohn's disease. He develops short gut syndrome. Which vitamin is he most likely to malabsorb?

a) riboflavin
b) niacin
c) vitamin B_6
d) vitamin B_{12}
e) vitamin C

10. What nerve injury is associated with a proximal shaft of humerus fracture?

a) radial

b) musculocutaneous

c) axillary

d) median

e) long thoracic

11. What is the mechanism for suppression of gastrin release?

a) antral distention

b) elaboration of secretin which has a reciprocal relationship with gastrin

c) decreased levels of pancreatic polypeptide

d) direct vagal inhibition via release of gastrin-inhibiting peptide (GIP)

e) antral acidification

12. Cholesterol solubility depends on which three factors?

a) cholesterol, bile salts, and phospholipids

b) cholesterol, bilirubin, and phospholipids

c) cholesterol, proteins, and bile salts

d) cholesterol, proteins, and phospholipids

e) cholesterol, bilirubin, and proteins

13. The surface gastric epithelial cell secretes which substance?

a) mucus
b) HCl
c) pepsin
d) intrinsic factor
e) bicarbonate

14. Mass movement is the characteristic motility pattern of which portion of the gastrointestinal tract?

a) stomach
b) duodenum
c) jejunum
d) ileum
e) colon

15. The characteristic pattern of motility in the fasted state is the migrating myoelectric complex (MMC). Which hormone is responsible for regulating the MMC?

a) pancreatic polypeptide
b) bombesin
c) somatostatin
d) motilin
e) neurotensin

16. When there is an increased stimulus for pancreatic exocrine secretions, which electrolyte will decrease the most in the pancreatic effluent?

a) sodium
b) chloride
c) bicarbonate
d) potassium
e) calcium

17. What is the mechanism of activation of the pancreatic proenzymes?

a) activation by enterokinase

b) activation by pepsin

c) activation by duodenal acidification

d) activation by trypsin

e) activation by lipase

18. Which of the following is the best indicator of sepsis?

a) tachycardia
b) decreased oxygen consumption
c) decreased cardiac output
d) peripheral vasoconstriction
e) decreased systemic vascular resistance

19. What is the most common mechanism for the development of resistance by a bacterial cell?

a) spontaneous mutation

b) development of multidrug resistance phenotype

c) chromosome transfer

d) bacteriophage infection

e) plasmid acquisition

20. You can declare someone brain-dead if they exhibit one of these?

a) hypothermia
b) gag reflex
c) corneal reflex
d) brisk deep tendon reflexes
e) pupillary light reflex

21. A cirrhotic patient with intractable ascites has a peritoneovenous shunt placed and is noted to begin oozing from many sites including his incisions. What is the best explanation for this?

a) disseminated intravascular coagulation
b) unrecognized preoperative coagulopathy
c) dilutional thrombocytopenia
d) heparin-induced thrombocytopenia
e) hypothermia-induced thrombocytopenia

22. A 70 year-old male is 3 months postoperative from an aortobifemoral revascularization for aortoiliac occlusive disease. He returns to the office complaining of pain and swelling in his right groin. On physical examination, the right groin appears fluctuant and tender. It drains 10 cc of clear, non-foul smelling material. What bacterial species is most likely to cause this infection?

a) *Clostridium perfringens*
b) *Staphylococcus aureus*
c) *Staphylococcus epidermidis*
d) *Streptococcus pneumoniae*
e) *Group A Streptococci*

23. From a hematologic viewpoint, the loss of which immune function performed by the spleen makes patients susceptible to overwhelming post-splenectomy infection (OPSI)?

a) loss of IgA
b) loss of IgM
c) loss of IgG
d) loss of IgE
e) loss of IgD

24. Which of the following statements is true concerning intraperitoneal bacteria?

a) They are absorbed by the diaphragmatic lymphatics.

b) It is normal to have bacteria in the peritoneal cavity.

c) They are cleared by intraperitoneal lymphocytes.

d) Characteristically, secondary peritonitis is caused by a single organism and it is usually a gram negative infection.

e) Secondary peritonitis is usually a blood borne infection from a primary pulmonary focus.

25. An axial groin flap is based on the blood supply of which artery?

a) superficial epigastric
b) superficial circumflex
c) deep circumflex
d) pudendal
e) deep inferior epigastric

26. What is the most common type of bacteria in the colon?

a) *Escherichia coli*

b) *Lactobacillus spp.*

c) *Peptostreptococcus spp.*

d) *Peptococcus spp.*

e) *Bacteroides spp.*

27. A patient undergoes total thyroidectomy with right neck dissection. The surgeon injures the R hypoglossal nerve, the R superior laryngeal nerve, and the L recurrent laryngeal nerve. What deficits would you expect to find postoperatively?

	Cord	Tongue deviation
a)	L cord tensed	L
b)	L cord tensed	R
c)	R cord tensed	L
d)	R cord tensed	R
e)	both cords tensed	L

28. Which of the following sarcomas has the greatest tendency to metastasize to regional lymph nodes?

a) liposarcoma
b) malignant fibrous histiocytoma
c) schwannoma
d) epitheloid sarcoma
e) dermoid sarcoma

29. A 78 year-old female has a node-negative breast cancer with positive ER/PR. Her stage is T_{1C} N_0 M_0. What is the most appropriate therapy?

a) tamoxifen for 1 year

b) tamoxifen for 5 years

c) CMF followed by tamoxifen for 1 year

d) CMF followed by tamoxifen for 5 years

e) no further therapy

30. Where is the most common location to find an accessory spleen?

a) gastrocolic ligament
b) splenocolic ligament
c) gastrosplenic ligament
d) greater omentum
e) splenic hilum

31. A patient undergoes laparoscopic cholecystectomy and 5 days later the pathology report reveals that there was a 0.9 mm foci of adenocarcinoma limited to the mucosa. What is the next appropriate step in management?

a) observation
b) wedge resection of the liver of segment V with lymphadenectomy
c) radiation
d) chemotherapy
e) hepatic infuse-aid pump

32. Which of the following is an absolute contraindication to the use of an intra-aortic balloon pump (IABP)?

a) mitral stenosis
b) pulmonic stenosis
c) aortic stenosis
d) aortic insufficiency
e) mitral insufficiency

33. A 21 year-old jogger develops claudication after 100 yards. On physical examination, he has normal pulses in his lower extremities including the affected leg. What is the next most appropriate step in management?

a) place the patient on Trental
b) obtain ABIs
c) arteriogram looking for deviation of the popliteal artery since this most likely represents popliteal entrapment syndrome
d) graded exercise regimen
e) reassurance and observation

34. Which of the following drugs increases the cardiac output and increases the systemic vascular resistance?

a) isoproterenol
b) milrinone
c) amrinone
d) norepinephrine
e) dobutamine

35. What period of time in wound healing is synthesis of collagen at its maximum?

a) 0 –1 week
b) 3 – 6 weeks
c) 3 – 6 months
d) 6 – 9 months
e) 9 – 12 months

36. Which statement concerning the relationships in the hepatoduodenal ligament is true?

a) The portal vein is posterior to the CBD and hepatic artery; CBD is medial to the hepatic artery.

b) The portal vein is posterior to the CBD and hepatic artery; CBD is lateral to the hepatic artery.

c) The portal vein is anterior to the CBD and hepatic artery.

d) The portal vein is lateral to the CBD and both are anterior to the hepatic artery.

e) The portal vein is medial to the CBD and both are anterior to the hepatic artery.

37. A patient who has suffered multi-organ trauma is taken back to the operating room to repair intra-abdominal injuries. He receives multiple transfusions in the OR and it is noted that there is oozing from the retroperitoneum where the R colon was mobilized. After packing and allowing adequate time to stop, it is still noted to be oozing. Intra-operatively his coags and platelets are checked and found to be within normal limits. What should be done at this time?

a) administer platelets

b) administer FFP

c) administer cryoprecipitate

d) administer DDAVP

e) continue to cauterize the area of bleeding

38. Which of the following tends to make bile lithogenic?

a) oral chenodeoxylate
b) resection of the jejunum
c) resection of the distal stomach
d) resection of the terminal ileum
e) resection of the colon

39. What is the most frequent complication after a level I and II axillary lymph node dissection?

a) seroma

b) hematoma

c) winged scapula

d) loss of sensation on the posterior aspect of the upper arm

e) lymphedema

40. A patient sustained a blunt MVA and was noted to have a liver injury which was managed non-operatively. Two months later, he develops hematemesis and melena. EGD and colonoscopy are noncontributory. What is the next most appropriate step in management?

a) vagotomy and antrectomy
b) vagotomy and pyloroplasty
c) exploratory laparotomy and liver resection
d) angiography and embolization
e) observation

41. A patient with Crohn's disease is operated on for symptoms of bowel obstruction. At the time of operation, it is noted that there are two areas of stricture in the small intestine and severe ileocecal Crohn's disease. What is the next most appropriate step in management?

a) ileocecectomy and two enterectomies
b) ileocecectomy and two stricturoplasties
c) ileocecectomy and bypass of the strictures
d) three stricturoplasties
e) enterectomy encompassing all diseased segments

42. A woman presents after blunt MVA. Abdominal CT shows a 3 cm right adrenal mass. All endocrinologic studies are negative and she has no identifiable signs of hormone excess. What is the next most appropriate step in management?

a) transperitoneal adrenalectomy
b) extraperitoneal adrenalectomy
c) MRI of the abdomen
d) selective venous sampling
e) observation and repeat CT scan in 6 months

43. A 25 year-old female undergoes resection of one foot of small intestine including her terminal ileum. Several months later, she presents with renal stones. What kind of renal stones did she most likely develop?

a) calcium phosphate
b) calcium oxalate
c) struvite
d) uric acid
e) magnesium ammonium phosphate

44. A patient with a lateral neck mass undergoes FNA which reveals squamous cell carcinoma. Further work-up is negative for the primary tumor. The patient's Epstein-Barr virus (EBV) titers are noted to be high. Where is the most likely source of the primary?

a) tonsillar pillar
b) hypopharnyx
c) nasopharnyx
d) floor of mouth
e) pyriform sinus

45. von Willebrand factor (vWF) is synthesized in which of the following?

a) platelet
b) macrophage
c) endothelial cell
d) RBC
e) hepatocyte

46. In performing a pericardiocentesis, the most appropriate manner to ensure the needle is in the pericardial sac is to:

a) check for pulsatile flow
b) do it under fluoroscopy
c) connect it to an EKG lead
d) check to see if the blood clots
e) never do it unless there is ultrasound guidance available

47. The initial site of blood cell production in the embryo occurs in which of the following?

a) liver
b) yolk sac
c) bone marrow
d) spleen
e) thymus

48. Which of the following electrolyte abnormalities exacerbates digitalis toxicity and also maintains metabolic alkalosis?

a) hypernatremia
b) hyponatremia
c) hyperkalemia
d) hypokalemia
e) hypercalcemia

49. In a patient with renal failure, which neuromuscular blocking agent would you give in order to maintain constant plasma levels?

a) succinylcholine
b) D-tubocurarine
c) pancuronium
d) atracurium
e) vecuronium

50. Which of the following amino acids is an essential amino acid?

a) tyrosine
b) proline
c) glutamine
d) valine
e) alanine

51. Patients with kidney transplants have an increased incidence of developing cancer. Which of the following cancers has the highest incidence?

a) Kaposi’s sarcoma
b) lymphomas
c) skin cancer
d) lip cancer
e) vulvar cancer

52. An otherwise healthy 22 year-old pregnant female who develops *C. difficile* colitis after antibiotic treatment should receive which of the following regimens?

a) PO flagyl
b) PO vancomycin
c) IV flagyl
d) IV vancomycin
e) No treatment in pregnant patients

53. What is the initial management of a patient with a 5 cm amebic liver abscess?

a) metronidazole

b) percutaneous drainage

c) open surgical drainage

d) mebendazole

e) ampicillin, gentamicin, and flagyl

54. Which of the following equations is correct for the determination of oxygen delivery?

a) [SaO_2 x Hgb x 1.34] + PaO_2 (0.003)
b) [PaO_2 x Hgb x 1.34] + SaO_2 (0.003)
c) [PaO_2/Hgb x 1.34] + SaO_2 (0.003) x CO
d) [SaO_2 x Hgb x 1.34] + PaO_2 (0.003) x CO
e) [SaO_2 x PaO_2 x 0.003] + 1.34 (Hgb) x CO

55. Which of the following is true concerning meperidine (demerol)?

a) contraindicated in patients who are taking MAO inhibitors

b) requires less naloxone to reverse than morphine

c) preferable to use in renal failure over morphine

d) is an agonist/antagonist drug

e) none of the statements are true

56. When looking at carotid endarterectomies statistically, which of the following could be considered a continuous variable?

a) smoking
b) ulcerated plaque
c) race
d) TIAs
e) blood pressure

57. In which portion of the pancreas are insulinomas predominantly found?

a) head
b) neck
c) body
d) tail
e) equal frequency throughout pancreas

58. A 45 year-old female is noted to have inflammatory breast cancer without ulceration. Which of the following is the most appropriate initial treatment?

a) “toilet mastectomy”
b) modified radical mastectomy
c) radical mastectomy
d) neoadjuvant chemotherapy
e) neoadjuvant radiation therapy

59. Which of the following is true concerning splenic artery aneurysms?

a) They have no predilection for either sex.

b) When symptomatic, these aneurysms can often be managed conservatively.

c) Women of childbearing age are at increased risk of rupture and should have elective repair.

d) Surgical treatment should never include splenectomy.

e) Proximal aneurysms are best managed by exclusion and vascular reconstruction in order for splenic salvage.

60. Which of the following is true concerning the thyroid gland?

a) Thyroid tissue found in the lateral neck compartments is known as lateral aberrant thyroid tissue and is an embryologic variation.

b) Any thyroid tissue found in lymph node tissue in the neck which is extrathyroid represents metastatic deposits from thyroid carcinoma.

c) Lingual thyroid results from a failure of the third pharyngeal pouch to descend in a normal fashion.

d) Lingual thyroid usually occurs in conjunction with normal anatomic thyroid tissue.

e) Lingual thyroid is best treated by surgical excision.

61. Which of the following is the initial site of spread of ovarian cancer?

a) bone
b) liver
c) rectum
d) bladder
e) peritoneum

62. Resection of the terminal ileum results in which one of the following?

a) iron-deficiency anemia
b) sideroblastic anemia
c) macrocytic anemia
d) pernicious anemia
e) calcium phosphate renal stones

63. A critically ill patient has been receiving TPN via a two week-old central line. Her TPN is turned off so that she may be given a blood transfusion. She receives one month-old blood through her central venous catheter. Toward the end of her four hour transfusion, she is noted to be hypothermic, hypotensive and comatose. What is the most likely explanation?

a) transfusion reaction
b) hypoglycemia
c) hyperkalemia
d) candidemia
e) line sepsis with bacteremia

64. What is the chance that any two siblings share one haplotype?

a) 0%

b) 25%

c) 50%

d) 100%

e) not enough information

65. Which of the following statements is true concerning congenital lobar emphysema?

a) It is usually limited to the upper lobes and characterized by severe air trapping.

b) Lung destruction associated with this condition is irreversible and often requires pneumonectomy.

c) Treatment consists of conservative measures and rarely requires excision of the affected lobe.

d) Most are located in the anterior mediastinum.

e) Like intralobar pulmonary sequestrations, they drain into the azygous veins.

66. T3 lesion of the colon or rectum means:

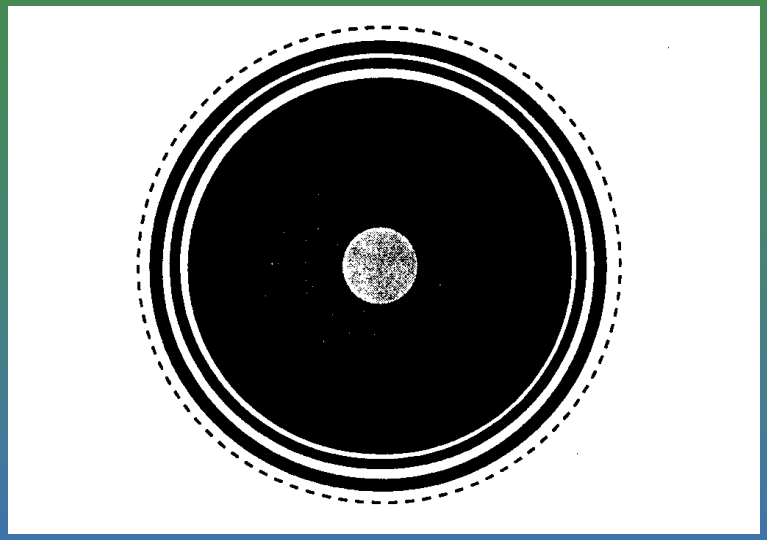
a) limited to the mucosa
b) invasion of submucosa
c) invasion of muscularis propria
d) invasion of subserosa or nonperitonealized pericolic fat
e) invasion of contiguous structures

67. During normal activity, energy expenditure in a healthy adult male in kcal/kg/day is approximately?

a) 15 kcal
b) 20 kcal
c) 35 kcal
d) 50 kcal
e) none of the above

68. In the performance of a femoral hernia repair, which of the following structures must be divided?

a) transversalis fascia
b) lacunar ligament
c) inguinal ligament
d) internal oblique muscle
e) cooper’s ligament



69. This is the normal ultrasound anatomy of the rectal wall. Which of the rings represents the muscularis propria?

a) inner white line

b) first black line

c) middle white line

d) second black line

e) outer white line

70. Concerning a femoropopliteal bypass: Which structure is anterior to the graft at midthigh?

a) gracilis
b) adductor magnus
c) rectus femoris
d) femoral vein
e) deep femoral artery

1. Which is the most common benign tumor of the parotid?

A) Adenoid cystic

B) Acinic cell

C) Mucoepidermoid

D) Pleiomorphic adenoma

E) Warthins tumor

2. During the performance of a parotidectomy, you notice facial nerve involvement by the tumor. What is the most appropriate step in the management of the tumor.

A) Resect the superficial parotid gland and radiate the facial nerve and deep portion of the gland.

B) Abort the procedure since the patient is incurable.

C) Resect the nerve and perform a nerve graft.

D) Resect nothing and give chemotherapy and radiation therapy to the entire gland.

E) Resect the nerve and plan on a staged repair of the facial nerve.

3. After a neck dissection, you notice the patient has lost taste over the anterior ipsilateral tongue. What nerve has most likely been injured?

A) Buccal
B) Masseter
C) Hypoglossal
D) Lingual
E) Marginal mandibular

4. You have performed a laryngectomy/ pharyngectomy and post-operatively you notice that there is cellulitis and purulent drainage from your neck incision. The patient is febrile with an elevated WBC. What is the most appropriate step?

A) Open the wound in the OR and attempt suture repair of the pharyngeal anastomosis.
B) Open the wound in the OR and obtain good drainage without attempting to repair the pharyngeal anastomosis.
C) Start the patient on IV antibiotics only.
D) Place PEG and start IV antibiotics.
E) Place PEG and attempt suture repair of the pharyngeal anastomosis.

5. A patient presents with a neck mass and FNA shows squamous cell carcinoma. The patient has extremely high EBV titers. Further work-up does not show any primary source of tumor. What is the most likely source of the primary?

A) Nasopharynx
B) Tonsillar pillar
C) Hard Palate
D) Soft Palate
E) Epiglottis

6. A patient presents with an inguinal lymph node which is biopsied and is positive for melanoma. Further work-up and physical exam does not reveal a primary source of the tumor. What is the next most appropriate step in management?

A) Sentinel lymph node biopsy of the inguinal lymph node basin.
B) Sentinel lymph node biopsy of the contralateral nodal basin.
C) Ipsilateral inguinal lymphadenectomy.
D) IFN-alpha if this is Stage 3 melanoma.
E) Il-2 treatment if this is Stage 4 melanoma.

7. A woman on mammography is noted to have a cluster of microcalcifications. Excisional biopsy shows atypical hyperplasia with LCIS. The margins are negative. What is the next most appropriate step in management?

   A) Modified radical mastectomy

   B) Lumpectomy alone

   C) Lumpectomy and radiation

   D) Lumpectomy and Tamoxifen

   E) Observe

8. A woman presents with a scaly rash on her nipple which is tender and itches. Biopsy shows Paget's disease of the breast. What would you expect of a mass on histology if found in the excisional biopsy specimen?

   A) Invasive lobular carcinoma
   B) Invasive ductal carcinoma
   C) Tubular carcinoma of the breast
   D) Papillary carcinoma of the breast
   E) Eczema

9. A woman has an 8 cm cystosarcoma phyllodes tumor of the breast and is small-breasted. What is the most appropriate management?

   A) Quandrantectomy
   B) Wide local excision with 2 cm margins
   C) Radiation and Tamoxifen
   D) Total mastectomy
   E) None of the above

10. A woman presents with peau-d' orange in the lower half of her breast. Her breast is markedly abnormal on examination. There is no palpable lymphadenopathy. What is the next most appropriate step in management?

    A) Total mastectomy
    B) Toilet mastectomy
    C) Modified radical mastectomy
    D) Radical mastectomy
    E) Chemotherapy and radiation

11. A woman has microcalcifications on mammogram and biopsy shows DCIS. Which algorithim is associated with the lowest rate of recurrence?

    A) Lumpectomy and RT

    B) Lumpectomy, RT and axillary dissection

    C) Lumpectomy, RT and Tamoxifen

    D) Lumpectomy and Tamoxifen

    E) Total mastectomy

12. A 78 y.o. woman has a node-negative breast cancer with positive ER/PR. Her stage is $T_{1C}N_0M_0$. What is the most appropriate therapy?

A) Tamoxifen for 1 year

B) Tamoxifen for 5 years

C) CMF followed by Tamoxifen for 1 year

D) CMF followed by Tamoixfen for 5 years

E) None of the above

13. Which drug increases the cardiac output and increases the systemic vascular resistance?

A) Isoproterenol
B) Milrinone
C) Amrinone
D) Norepinephrine
E) Dobutamine

14. In a patient who is POD #6 from an abdominal surgery, what is the most likely cause of renal and liver failure?

A) Infection
B) CHF
C) Drug toxicity
D) Abdominal compartment syndrome
E) Anesthetic reaction and “shock”liver

15. A patient is given Cefotan for antibiotic prophylaxis and has an uneventful operation. On POD # 3, the patient develops jaundice and has an elevated bilirubin and dark urine. What has most likely occurred?

A) Liver failure secondary to anesthetics given at surgery.

B) Hemolytic immune reaction to Cefotan.

C) Hemolytic immune reaction to anesthetics.

D) TTP secondary to Cefotan.

E) Development of idiopathic hemolytic uremia secondary to Cefotan.

16. A 68 y.o. man who had a recent MI develops massive UGIB. It is noted to be coming from esophageal varices. What is the best agent to treat this patient with?

A) Somatostatin

B) Nitrates

C) Vasopressin

D) Dopamine

E) Dobutamine

16. Which is an absolute contraindication to the use of the intra-aortic balloon pump (IABP)?

A) Aortic insufficiency
B) Aortic stenosis
C) Mitral insufficiency
D) Mitral stenosis
E) Pulmonary stenosis

17. A patient is on TPN and has an RQ of 1.05. He is also hypercarbic and has a high respiratory rate of 36 bpm. What is most likely the explanation for this occurrence?

A) excessive lipid ingestion

B) deficient lipid ingestion

C) excessive carbohydrate administration

D) insufficient carbohydrate administration

E) lipogenesis

18. Vinyl chloride is associated with which malignancy?

A) Small cell carcinoma of the lung

B) Mesothelioma

C) Struma ovarii

D) Hemangiosarcoma

E) Angiosarcoma of the liver

19. Which of the following is the most appropriate candidate for gastric bypass?

A) 70 y.o. healthy woman with no medical problems and BMI = 42.

B) 35 y.o. woman with diabetes, severe OSA, HTN, high chol with BMI = 34.

C) 42 y.o. man s/p recent MI 2 months ago with diabetes, high chol and BMI = 45.

D) 55 y.o. woman on prednisone for severe asthma and BMI = 44.

E) 47 y.o woman with HTN, diabetes, severe OSA, arthritis and GERD with BMI = 36.

20. What is the next appropriate step in the management of a 21 y.o woman with a lateral anal fissure?

A) Lateral internal sphincterotomy.

B) Wide incision and drainage.

C) Wide incision and drainage with seton placement.

D) Seton placement without I & D.

E) Barium enema.