SELECTED SURGICAL SUBSPECIALTIES

As students are now required to obtain additional credits in surgery, an attempt has been made here to VERY BRIEFLY present a few high-yield facts pertinent to several subspecialty rotations. If you would like further information, please contact the program coordinator for the rotation you are interested in:

Ophthalmology  Dorrie Quirante  685-1969  dorrieq@u.washington.edu
Orthopedics  Pam Young  598-9960  pijyoung@u.washington.edu
Otolaryngology  Patti Peterson  616-4328  peterp@u.washington.edu
Urology  Leo Calipusan  731-6384  leowill@u.washington.edu

OPHTHALMOLOGY
References & Helpful Resources

• Basic Ophthalmology for Medical Students and Primary Care Residents (Cynthia A. Bradford, M.D. Executive Editor, 8th edition, 2004)
• Diseases and Conditions Simulation: http://www.visionsimulator.com/

Eye Exam
1. Visual acuity
2. Pupillary reactions
3. Extraocular movements (remember LR-6 SO-4, the rest CN 3)
4. Direct ophthalmoscopy – check red reflex, view fundus, in particular vessels, fovea/macula and optic disk
5. Slit lamp exam
6. Optional
   • Tonometry
   • Anterior chamber depth assessment
   • Confrontation field testing
   • Color vision testing
   • Fluorescein staining
   • Eversion of the upper lid

Acute Visual Loss
Differential Diagnosis:
1. Media opacities
2. Angle closure glaucoma (EMERGENCY!! Watch for painful red eye!)
3. Hyphema (blood in the anterior chamber following trauma)
4. Vitreous hemorrhage
5. Retinal detachment (watch for the symptom of flashing lights, inc. floaters, loss of peripheral vision; distinguish from ocular migraine)
6. Central retinal artery occlusion (EMERGENCY!! Watch for painless sudden loss of vision with cherry red spot on fundoscopic exam!)
7. Optic neuritis (may occur in multiple sclerosis)
8. Head trauma
9. Ischemic optic neuropathy
10. Giant cell arteritis (watch for ↑ESR, headaches, jaw claudication)
Gradual Visual Loss
Differential Diagnosis:
1. Cataract
2. Chronic papilledema
3. Open angle glaucoma (glaucomatous cupping is optic cup to disc ratio over 0.5, and intraocular pressure over 21)
4. Macular degeneration
5. Diabetic/hypertensive retinopathy
6. Sickle cell anemia
7. CMV retinitis (occurs in AIDS and immunocompromised patients)
8. Syphilitic chorioretinitis

Red Eye
Differential Diagnosis:
1. Acute angle closure glaucoma
2. Iritis or iridocyclitis
3. Herpes simplex keratitis
4. Conjunctivitis
5. Episcleritis/scleritis
6. Adnexal disease
7. Sunconjunctival hemorrhage (not an emergency)
8. Pterygium
9. Keratoconjunctivitis sicca (dry eyes)
10. Abrasions/foreign bodies

Myopia: refractive error leading to loss of far vision
Hyperopia: refractive error leading to loss of near vision
Astigmatism: refractive error caused by an irregular curvature of the cornea leading to inability to focus
Presbyopia: loss of vision that occurs with aging
Amblyopia: disruption of normal development of vision due to strabismic v. refractory form of deprivation or occlusion.

Strabismus:
Eso - inward  Hypo – downward  Phoria - latent
Exo – outward  Hyper – upward  Tropia – manifest
For example: exotropia of the left eye means an obvious (to a student) deviation of the left eye outward

ORTHOPEDICS
References & Helpful Resources (nothing is required, but these may help)
• Netter’s Orthopaedic Anatomy—helpful book that fits in a coat pocket, but not necessary. Anatomy is what you really need to know and this allows you brush up briefly before a case.
• Physical Examination of the Spine and Extremities—this is best for those going into ortho, but can improve your physical exam if you can get your hands on it.
Surgical Exposures in Orthopaedics, The Anatomic Approach—You will most often be pimped on anatomy as surgery progresses. If you have access to this book, it will give you a first look at the approaches which may be helpful.

**General Tips**
- You can’t know everything. It is most important to work hard and be interested
- You have to work hard, so don’t plan on doing anything else that month
- The test at the end is hard. Try to get through the packet of reading they gave you, but the subject is too big to know everything.

**Ward Tips**
- Be helpful and interested. This is the most important thing for being successful in your ortho rotation. Those who do the best are the ones who are always available, always attentive and willing to do whatever without excessive brownnosing.
- Rounds are fast. Watch the residents then copy them
- Carry the box of dressing changes
- See the Surgery ward tips for additional suggestions

**Sample Notes**
The daily note will vary based on the rotation, but is going to be much more focused. Use the notes of the junior resident as a guide.

ID: 37 y/o male s/p ORIF of R acetabular fx
S: ask about pain, mention ROM, weight bearing status, dressing or splinting
O: afvss (afebrile, vital signs stable)
  wound cdi (clean dry and intact), dressing intact
  any new imaging
A/P: include ABX, pain control, ROM or weight bearing status, and DC plans

**Physical Exam**
This is focused on the musculoskeletal system. The area of focus will vary based on your service and you can learn the specific tests as appropriate. Review the shoulder or knee exam as appropriate from your ICM course, Bates, or if you have access to it Physical Examination of the Spine and Extremities. It would be better to go over the exam with a willing resident, learn, be interested, and do it right from then on, than to do a poor exam for half the rotation. Do not forget to be aware of the neuro exam.

**Selected Topics in Orthopedics** (The emphasis will depend on the service)
*Shoulder service:* know the differential for shoulder pain – rotator cuff tears, impingement, dislocation, fractures, arthritis, etc. You be familiar with a few operations such as shoulder replacement (full and hemi), Rotator cuff repair (open), and ream and run.
*Trauma service:* just try to make it through without falling over.
*Sports medicine:* know all of your musculoskeletal anatomy.
In some clinics, you may need to be familiar with the differential for knee pain – meniscal tears, ACL rupture, arthritis, etc. or hip pain – bursitis, fracture, arthritis, etc.
Ward Tips
1. In Seattle, you will be able to choose where you would like to do this rotation (depending on how many students there are)—HMC, UWMC, CHRMC or VA.
2. If you are interested in oto as a career, do a 4-week rotation. The UW is the best place to get a letter of recommendation, but has long hours due to free flap procedures.

Selected Topics in Otolaryngology

Otitis Media (OM)
- Etiology: eustachian tube dysfunction (esp kids w/horizontal tubes) -> negative pressure develops in middle ear -> transudation of serous fluid -> inoculation with bacteria from nasopharynx
  - ↑ risk: cleft palate, GERD, adenoidal hypertrophy, bottle-feeding, passive tobacco
  - often follow URI – viruses increase bacterial colonization, suppress immune response
  - in adults – consider nasopharyngeal CA
- Organisms
  - Acute: S. pneumo, H. flu, M. catarrhalis
  - Chronic: Pseudomonas, Staph, E. coli, anaerobes
- Diagnosis
  - Sx: otalgia/ear tugging, otorrhea, fever ± vertigo, tinnitus, facial paralysis
  - PE: pneumatic otoscopy is gold std – decreased TM mobility
- Treatment
  - Antibiotics: 1st line – amoxicillin 90 mg/kg/d; also bactrim, augmentin, cefuroxime. Ototopic 1st line for chronic suppurative OM.
  - Typanocentesis for immunocompromised, treatment failures
  - Pressure equalization tubes for recurrent OM (3 x in 6 mo), chronic OM w/effusion
  - Consider adenoidectomy if need > 1 set of tubes

- Complications of untreated OM
  - Hearing loss
  - Labyrinthitis
  - Perilymphatic fistula
  - TM perforation
  - Tymanosclerosis
  - Cholesteatoma
  - Mastoiditis
  - Epidural abscess
  - Meningitis

Acute bacterial rhinosinusitis
- mucosal edema -> obstruction of sinus ostia -> impaired mucociliary clearance -> bacterial overgrowth
- maxillary, anterior ethmoid most often involved
- S. pneumo, H. flu, M. catarrhalis most often involved in acute disease
- Dx when URI doesn’t resolve in 10 days & accompanied by:
  - Nasal congestion & drainage, post nasal drip
  - Unilateral facial pain/pressure
  - Fever, cough, fatigue
  - Maxillary dental pain
- Hyposmia/anosmia
- Ear fullness/pressure
- Tx: augmentin, fluoroquinolone or TMP-SMX 10-14 days + nasal steroids. 50% spontaneously resolve. Increasing bacterial resistance.

**Peritonsillar abscess** = pus between pharyngeal tonsil and its capsule
- most common ages 20-40
- predisposition with chronic tonsillitis, acute tonsillitis, s/p antibiotic failure
- Pathophysiology
  - majority: tonsillitis -> peritonsillar cellulitis -> PTA
  - direct spread from parotitis, trauma, odontogenic origin
- Most are mixed aerobic/anaerobic w/S. pyogenes, Fusobacterium spp most common
- Sx: “hot potato voice,” localized sore throat, trismus
- PE: bulging soft palate w/deviated uvula
- Dx: needle aspiration, lateral neck XR, CT w/contrast
- Tx: aspiration/I&D, clinda/cefuroxime or unasyn

**Retropharyngeal abscess**
- Pus in space posterior to buccopharyngeal fascia, anterior to alar & prevertebral fascia; bound laterally by carotid sheaths, extends from base of skull to bifurcation of trachea
- Most common in young kids -> ruptured suppurative retropharyngeal lymph node
- In adults, due to contiguous spread/trauma (intubation, endoscopy)
- Organisms, Sx similar to PTA + neck stiffness, drooling, stridor
- PE: bulging of posterior pharyngeal wall
- Dx: lateral neck CXR, CT w/contrast. DO NOT do needle aspiration
- Tx: airway protection, surgical drainage
- Complications: mediastinitis, jugular venous thrombosis, aspiration pneumonitis + many more

**Epistaxis**
- Anterior = bleeding from Kiesselbach’s plexus; 80% of cases
- Posterior = bleeding from Woodruff’s plexus (sphenopalantine a.); 20% of cases, mostly >50 yo
- Severe recurrent epistaxis in adolescent male -> think juvenile nasopharyngeal angiofibromatosis
- Treatments (try these more or less in order): compression, Afrin & lido spray, silver nitrate cautery, anterior/posterior nasal packs, embolization, arterial ligation

**Tidbits**
Stridor = noise during inspiration and/or expiration due to upper airway obstruction. Most common cause in
- Early childhood -> laryngomalacia
- R/o septal hematoma to prevent perforation, saddle-nose deformity
- Suspect T-bone fracture w/ hearing loss, dizziness, facial weakness, hemotympanum, Battle’s sign
- Samter’s triad: ASA sensitivity, nasal polyposis and bronchospasm
Laryngeal cancer is most common HN cancer; most commonly arises in glottis; majority are SCCAs.
Prior HN cancer increases risk of esophageal cancer 8X

TRANSLAPR SURGERY
References & Helpful Resources
Organ Transplantation (2nd edition) by Frank P. Stuart, et al.

A few words about the UWMC Transplant Service and some commonalities:

- You will receive a Transplant Services Medication Protocol Handbook – generally gives you all the rules you need to know. You’ll get the book above, too.
- Pre-rounds start at 7 AM, followed by ICU rounds at 8 AM, then liver rounds at 9 or so AM, then kidney and pancreas rounds at 1 PM (different attendings apply)
- When the values for medication levels become available, usually later in the morning/early afternoon, the team writes orders for medications
- Request to follow a few patients, otherwise it will be first come, first serve
- There is no call for students (theoretically) but it’s still 24/7 until you’ve seen a few of the liver and kidney transplants. Same applies to weekends.
- Post-surgery, liver transplant recipients go to Transplant ICU where you will follow but NOT manage them, while kidney recipients go to the floor
- Keep in mind that the hours are terrible for everyone but you. When there is an organ, they have to transplant.
- Post-surgery, every recipient gets Bactrim for PCP prophylaxis and ganciclovir for 3 months for CMV prophylaxis
- Liver donor/recipients are matched only by ABO Rh+/-, while the kidney donor/recipients are matched also by the HLA class as rejection is more of a problem in the latter
- Early fever in most post-transplant pts is usually attributable to anti-T-cell antibody administration. When there has been no such administration, do a fever of unknown origin work-up. Don’t forget to include a post-operative abscess, CMV infection, and rejection in your differential diagnosis
- Alcohol dependence/abuse are no longer absolute contraindications to liver transplantation. Theoretically, the patient must demonstrate abstinence for 6 months, but they’re becoming less strict about it

Kidney Transplant Complications:

1. Delayed Graft Function d/t ATN
2. Nephrotoxicity of calcineurin inhibitors (cyclosporine and tacrolimus)
3. Hemolytic Uremic Syndrome
4. CMV infection
5. Pyelonephritis
6. BK virus associated nephropathy (at 6 months or later)
7. Recurrent renal disease
8. Rejection
   - **Hyperacute**: circulating preformed cytotoxic anti-donor antibodies directed to ABO blood group antigens are present – happens after revascularization – no salvage to allograft.
   - **Accelerated Acute**: rapidly progressive, within the first week, with infiltrates of lymphocytes, macrophages, and plasma cells. Treat
Liver Transplant Complications

1. Hypertension due to cyclosporine (also leads to hyperkalemia) and steroids; treat with nifedipine, labetalol, beta blockers, and diuretics
2. Renal insufficiency due to cyclosporine or ATN
3. Hepatic Artery Thrombosis (may lead to intrahepatic abscess)
4. Biliary Leak (may lead to abdominal abscess and peritoneal infection)
5. Diabetes Mellitus (due to prednisone, cyclosporine, tacrolimus, weight gain, hepatitis C)
6. Hyperlipidemia – treat with pravastatine 20 mg qd
7. Metabolic bone disease d/t steroids
8. Biliary strictures
9. Skin cancer

Liver Transplant Patient Selection

• The pt must meet minimal listing criteria before placed in the waiting list (Child-Tucotte-Pugh score of at least 7 for most cases of cirrhosis)
• After, the pt is awarded a priority based on the current UNOS organ allocation scheme (MELD). MELD score=0.957*Log e (creatinine mg/dl)+0.378*Log e (bilirubin mg/dl) + 1.120 * Log e (INR) + 0.643 (you’ll need a special calculator for this!)
• Consequently to above, you will manage VERY ILL patients who’re awaiting liver transplantation. Keep an eye out for variceal hemorrhage, hepatic encephalopathy, ascites, and spontaneous bacterial peritonitis. Fever or delirium are very bad signs and must be diagnosed aggressively.