Common Out-Patient ID Problems
Case Studies

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NO DISCLOSURES
CASE PRESENTATION #1

- A 45 year old man awoke the day prior to presentation with a sore throat. Throughout the day the sore throat worsened, and he had difficulty eating dinner because of pain. The next morning he awoke with an even worse sore throat and an elevated temperature of 103.5°F. In the office he complained of a severe sore throat, his temperature was 98°F and his pharynx had mild erythema without exudate.

What Would You Do At This Point?

A. Rapid strep test
B. Antibiotics without testing
C. Observe without antibiotics (send home)
D. Send to ENT
E. Order head/neck CT
SORE THROAT DIAGNOSIS NOT TO MISS

- Epiglottitis
- Uvulitis
- Para and retropharyngeal abscess
- Angioedema/anaphylaxis
- Diphtheria
- Foreign Body
- HIV
Uvulitis

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When To Suspect Epiglottitis

• “Worst sore throat of my life”
  – With minimal findings on exam
  – Hoarse/muffled voice
  – Severe odynophagia

Adult Epiglottitis

• Increasing incidence in adults (decreasing in children due to Hib vaccination)
• Adults --more indolent (days v hours) and less toxic appearing
• Dx made by direct visualization
  – fiberoptic laryngoscopy less likely to provoke spasm than mirror exam
  – Lateral neck films less sensitive than laryngoscopy, but still good in adults – 77% - 88% sensitive ("thumb sign")
"Thumb Sign"

Adult Epiglottitis

• Bacteriology
  – H. influenzae/parainfluenzae; S. pneumoniae; Gp A strep; S. aureus (MSSA & MRSA)

• Therapy
  – Antibiotics – 3rd generation cephalosporin +/- vancomycin (severe sepsis or require intubation)
  – Airway maintenance—not standard as it is in children
  – Steroids—Controversial—generally not given as no clear benefit demonstrated
Case Presentation #2

- 20 year old previously healthy male
- Day 1
  - Onset of sore throat with fever
- Day 2
  - Evaluated in office—exudative pharyngitis with tender anterior cervical adenopathy, h/o fever and no cough (4/4 of Centor Criteria)
  - Azithromycin started (within 24 hours of onset of symptoms)

Diagnosis of Gp A Streptococcal Pharyngitis

- IDSA (Infectious Disease Society of America)
  - Rapid strep test
- ACP (American College of Physicians) and the AAFP (American Academy of Family Practice)
  - Modified Centor Criteria
Case Presentation #2 (cont.)

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Case Presentation #2 (cont.)

• Day 3
  – PC—not better—still with sore throat and fever
  – Plan—continue azithromycin

• Day 5
  – Phone Call—not better
    • Diffuse myalgias, difficulty swallowing, pain on (R) side of neck
  – Plan—to finish Azithromycin; encourage fluids; ibuprofen for symptom relief; call if not better

Case Presentation #2 (cont.)

• Day 6
  – PC--SOB and pleuritic chest pain
  – Instructed to go to ED for evaluation
Case Presentation #2 (cont.)

- ED evaluation
  - WBC—21,400 with 51% PMNs and 42% bands
  - Plts—16,000
  - BUN 80, Cr 4.2
  - PTT 50; FDP elevated
  - pH 7.29 with elevated lactic acid
  - CXR, chest CT and BCs obtained

Case Presentation--CXR
Case Presentation—Chest CT

Fusobacterium necrophorum
Lemierre’s Syndrome

• Infection with Fusobacterium necrophorum resulting in septic thrombophlebitis of the internal jugular vein often associated with bacteremia and septic pulmonary emboli.

What Went Wrong?

• Natural History of GpA Streptococcal Pharyngitis
  – w/o therapy, symptoms better in 3-4 days
  – With early therapy (24 hours) symptoms resolve 24-48 hours sooner
Fusobacterium necrophorum

- Anaerobic gram-negative rod
- Common upper respiratory organism in ADOLESCENTS AND YOUNG ADULTS (age 15-30)
  - Can isolate F. necrophorum from 10% with sore throat (equal in frequency to gp A streptococcus)
  - Peritonsillar abscesses—F. necrophorum isolated in 23% (most in pure culture) c/w gp A streptococcus—17%

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Fusobacterium necrophorum

- Student Health Service in the US
- Students age 15-30 presenting with a sore throat
  - F. necrophorum detected (by PCR) in 20.5%
  - Gp A strep detected in 10.3%

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Pharyngitis in Adolescents

• *Fusobacterium necrophorum*
  – Resistant to azalides and macrolides (azithromycin/clarithromycin)
  – Sensitive to penicillins, cephalosporins and clindamycin

Take Home Points

• Pharyngitis in the adolescent and young adults (ages 15-30) can be more complicated than previously thought

• ALTHOUGH CONTROVERSIAL, SOME HAVE RECOMMENDED
  – In patients 15-30 years of age, with a Centor score of > 3 and negative diagnostic tests for gp A strep to treat with penicillin, amoxicillin or a cephalosporin
Take Home Points

• WHAT IS NOT CONTROVERSIAL
  – Remember the natural history of pharyngitis
  – If patients do not improve as expected think about complications
    • Peritonsillar abscess
    • Retropharyngeal abscess
    • Lemierre’s syndrome

Trivia Question # 1--Which President Died of Peritonsillar Abscess?

A. John Quincy (Quinsy ?) Adams?
B. Thomas Jefferson
C. George Washington
D. Andrew Jackson
Case Presentation #3

• 55 y/o woman with a past hx of kidney stones presents to Urgent Care c/o upper mid-back pain and pain in the left shoulder for 2 days. No history of trauma. On PE she is afebrile with normal vital signs and TTP over the left posterior shoulder.

• She is treated symptomatically and sent home

Case Presentation #3 (cont.)

• The following day, as instructed, she calls her PCP who orders thoracic and lumbar spine films —> degenerative disc disease
• CBC —> WBCs 14.6 (4-11) with 90% PMNs (40-80)
• ESR —> 48 (0-15)
Case Presentation #3 (cont.)

• Told to go back to Urgent Care b/o elevated WBCs. She c/o pain in the upper back that has been getting progressively worse. Her Temp is 100.6°F and on exam there is tenderness in the thoracic paraspinous area
• WBC—> 14.5
• UA—> 10-20 WBC’s/HPF; 0-2 RBCs; 1+ bacteria
• ABD CT—> bilateral renal calculi and no hydronephrosis

Your Next Step?

1. Analgesics and fluids for renal calculi
2. Analgesics for musculoskeletal pain
3. Nitrofurantoin for a UTI
4. MRI spine
Case Presentation #3

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• WBC—> 14.5

• UA—> 10-20 WBC’s/HPF; 0-2 RBCs; 1+ bacteria

• ABD CT—> bilateral renal calculi and no hydroureter
FEVER AND BACK PAIN

- Pyelonephritis w/wo stone and obstruction
- Pancreatitis
- Cholecystitis
- PID
- Endocarditis
- Osteomyelitis/Discitis
- Epidural abscess

Take Home Point

- Fever and back pain is an epidural abscess until proven otherwise***
- Best diagnostic test is an MRI with contrast
• BUT ONLY ≈ 50% OF PATIENTS WITH AN EPIDURAL ABSCESS HAVE FEVER ON PRESENTATION

Role of ESR/CRP in Diagnosis

• If there is back pain and a predisposing condition for SEA (DM, IVDU, co-existing infection, recent back surgery, indwelling catheter, immunocompromised)

  Obtain an ESR/CRP

  If elevated —> obtain MRI (sensitivity 98% Specificity 70%)

  \(\text{J Neurosurg Spine 14:765-770, 2011}\)
Case Presentation #4

- A 62 y/o man with HTN, hyperlipidemia and CAD presents with new onset of headache. He notes that over the last 2-3 weeks he has not been feeling well with intermittent low-grade fevers and decreased appetite. On PE he is afebrile with a BP of 118/65 and a P of 98. He has a 2/6 SEM at RUS boarder (old) but an otherwise normal exam.
- A diagnosis of sinusitis is made —> Augmentin for 7 days

Case Presentation #4 (cont.)

- He presents 2 weeks later to the ED with a visual field defect. An CT is done and he is found to have a (R) posterior communicating artery infarct. He notes that initially he felt better on the antibiotics, but when stopped he developed low grade fevers again.
- CBC —> 14.3 with a normal diff; Hct = 32
- ESR —> 77
At This Point You Would??

A. MRI of the Brain
B. CT of the sinuses
C. Do a temporal artery BX
D. Obtain BCs

Blood Cultures—Gram negative rods
Case Presentation #4

- **HACEK** organisms

- **Haemophilus aphrophilus**
- **Actinobacillus actinomycetemcomitans**
  (Aggregatibacter actinomycetemcomitans)
- **Cardiobacterium hominis**
- **Eikenella corrodens**
- **Kingella kingae**

Trivia Question # 2

- Kingella kingae – named after the American bacteriologist Elizabeth O. King
- Can you name the two other organisms with same genus and species name to honor their discoverer?
- NOTE—LOA LOA does not qualify
  – Mongin, a French surgeon was the first to remove the worm from a patient’s eye
Take Home Points

• A prolonged fever is NOT a viral syndrome or a self-limited bacterial infection
  – Anyone with a prolonged fever should have blood cultures drawn
• “A central nervous system event, especially in a young, otherwise healthy individual, is endocarditis until proven otherwise”

Case Presentation #5

• A 36 y/o F underwent a reduction mammoplasty
• Per protocol she was on Keflex® 500 mg TID for 7 days
• Post-op day #5 she developed wound breakdown with serous drainage
• Antibiotics were changed to Avelox®
• Despite this her wound worsened and she was admitted to the hospital for IV antibiotics and debridement
Case Presentation #5 (cont.)

• A 36 y/o F underwent a reduction mammoplasty and abdominoplasty
• Per protocol she was on Keflex® 500 mg TID for 7 days
• Post-op day #5 she developed wound breakdown with serous drainage
• Antibiotics were changed to Avelox®
• Despite several days of Avelox® her wound worsened and she was admitted to the hospital for IV antibiotics and debridement
Case Presentation #5 (cont.)

• She was taken to surgery where she had an I&D BEFORE systemic antibiotics (vanco & Zosyn®) were started
• Her cellulitis progressed despite broadening coverage (vanco/meropenem/caspofungin) and she was taken to surgery 3 more times over the next week
• All intra-operative cultures were negative and she was eventually transferred to UCSF
Case Presentation #5 (cont.)

• An Infectious Disease Consult was called and a diagnosis was made
What Is The Diagnosis?

A. Fungal infection
B. NTM (M. abscessus/cheloneae)
C. Hydradenitis suppurativa
D. Sweet’s syndrome
E. Pyoderma gangrenosum

Case Presentation #5 (cont.)

- Review of the pathology slides revealed soft tissue necrosis with abscess formation c/w PYODERMA GANGRENOSUM
Pyoderma Gangrenosum

• Neutrophilic dermatosis
• Occurrence
  – IBD
  – After trauma
  – Cosmetic surgery
• Pathergy
• Clue to diagnosis
  – Worsening disease with negative cultures

Take Home Point

• If it looks like a typical case of cellulitis but does not respond to what should be appropriate therapy
  – Get a Dermatology Consult for biopsy to R/O mimickers of cellulitis
Masqueraders of Cellulitis

- Superficial and deep venous thrombosis
- Contact dermatitis
- Insect stings/tick bites
- Fixed drug eruptions
- Hydradenitis suppurativa
- Erythema nodosum
- Panniculitis
- Sweet’s syndrome
- Pyoderma gangrenosum

Case Presentation #6

- The dentist of your 45 year old female patient with MVP and moderate mitral regurgitation calls wanting to know if she needs antibiotic prophylaxis for a root canal and which one.
Should Prophylaxis Be Given?

A. Yes
B. No

Prophylaxis for Endocarditis

- “New” AHA Guidelines from 2007
  - Updated from 1997
- Transient bacteremia occurs in up to 50% of individuals as a result of normal daily activities
- Endocarditis is much more likely to occur from frequent bacteremias associated with daily activities than from bacteremias caused by dental, GI or GU procedures.
Procedures for Which Endocarditis Prophylaxis is Recommended

- DENTAL PROCEDURES that involve manipulation of gingival tissue or the periapical region of the teeth (tooth extraction/root canal for abscess) or perforation of the oral mucosa — INCLUDING ROUTINE DENTAL CLEANING

- RESPIRATORY PROCEDURES with violation of the mucosa—tonsillectomy/adenoidectomy, bronchoscopy with biopsy, drainage of an infection (empyema)

Procedures for Which Endocarditis Prophylaxis is Recommended

- SKIN/MUSCULOSKELETAL PROCEDURES—drainage of abscesses (antibiotics active against S. aureus)

- GI PROCEDURES—are low risk for causing endocarditis and prophylaxis is not indicated even in patients with high risk cardiac conditions
Conditions of Highest Risk

- **Included**
  - Prosthetic heart valves
  - Prior endocarditis
  - Cyanotic heart disease
    - Unrepaired
    - Partially repaired
    - Repaired within last 6 months
  - Heart transplant with “valvulopathy”

- **Not included**
  - Bicuspid aortic valve
  - Acquired aortic or mitral valve disease
    - MVP with regurgitation
    - Prior valve repair
  - Hypertrophic cardiomyopathy with latent or resting obstruction

Recommended Regimens
( Single Dose 30-60 min Before Procedure)

<table>
<thead>
<tr>
<th>Situation</th>
<th>Agent</th>
<th>Adult Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral regimen</td>
<td>Amoxicillin</td>
<td>2 g</td>
</tr>
<tr>
<td>Allergic to penicillin or ampicillin (minor allergy)</td>
<td>Cephalexin or Clindamycin or Azithromycin/Clarithromycin</td>
<td>2 g 600 mg</td>
</tr>
<tr>
<td>Allergic to penicillin or ampicillin (anaphylaxis, angioedema or urticaria)</td>
<td>Clindamycin or Azithromycin/Clarithromycin</td>
<td>600 mg 500 mg</td>
</tr>
</tbody>
</table>
Case Presentation #7

• The dentist of your 65 year old patient who is 9 months s/p total hip arthroplasty calls wanting to know if prophylaxis should be given for a root canal

Should Prophylaxis Be Given?

A. Yes
B. No
Dental Prophylaxis for Prosthetic Joints

• Area of controversy for years between the ADA, AAOS and IDSA
  – 2004 AAOS & ADA recommendation prophylaxis if joint placed within past 2 years
  – 2009 AAOS recommends prophylaxis for all prosthetic joints regardless of when placed
  – Promise of collaboration with joint guidelines
  – GOOD NEWS--2013 AAOS & ADA propose new guidelines

• BAD NEWS—> Grade of Recommendation is Limited:

The practitioner might consider discontinuing the practice of routinely prescribing prophylactic antibiotics for patients with hip and knee prosthetic joint implants undergoing dental procedures.

• Implications: Practitioners should be cautious in deciding whether to follow a recommendation classified as Limited.
What TO DO??

• Disconnect between organisms causing PJIs and mouth flora
  – Late infections almost always due to skin flora (S. epi, P. acnes, corynebacterium spp) not streptococci found in the mouth
• Bacteremias common as a result of everyday activities
• Best study cited in the recommendations: (Clin Infect Dis 2010;50:8–16)
  • Dental procedures do NOT increase the risk of PJIs

ADA Recommendations

• In 2014 the ADA Council on Scientific Affairs convened an expert panel to clarify the 2013 ADA/AAOS confusing recommendations
ADA Recommendations

• In 2014 the ADA Council on Scientific Affairs convened an expert panel to clarify the 2013 ADA/AAOS confusing recommendations

• CLINICAL RECOMMENDATION:
  – In general, for patients with prosthetic joint implants, prophylactic antibiotics are NOT recommended to dental procedures to prevent prosthetic joint infections

Take Home Points

• Prophylaxis NOT indicated for pins, plates, fixation devices, THA or TKA regardless of when the implant was placed
Trivia Question

• Can you name the two other organisms with same genus and species name to honor their discoverer?

Trivia Answer

• Morganella morganii—named after the British bacteriologist H. de R. Morgan
• Rickettsia rickettsii—named after the American pathologist Howard Taylor Ricketts
Case Presentation #8

• Your 48 y/o female patient patient with asthma, who is on a tapering dose of prednisone (present dose 20 mg) for a recent exacerbation, is seen over the weekend at an Urgent Care Clinic for a 3 day h/o fever to 102°F, nasal congestion and facial pain. A diagnosis of ABRS is made and she is placed on amoxicillin-clavulanate (Augmentin) 875/125 BID.

Case Presentation #8 (cont.)

• 3 days later she comes in to see you saying that she is no better on the amoxicillin-clavulanate.
At This Point You Would?

A. Increase the amoxicillin-clavulanate to 2 gm BID
B. Change to levofloxacin
C. Do a sinus CT
D. Refer to ENT

Pathogenesis of Acute Bacterial Rhinosinusitis

- It is *almost* always a pyogenic complication of a viral upper respiratory tract infection
- Viral infection causes mucociliary dysfunction, allowing bacteria from the nasopharynx to ascend to the sinuses and invade the mucosa
Risk factors for Acute Fungal Rhinosinusitis

- Hematologic malignancies
- Hematopoietic stem cell transplantation
- Chemotherapy-induced neutropenia
- Solid organ transplantation
- Advanced HIV infection
- Diabetes mellitus
- Glucocorticoids

Endoscopy Was Performed
Take Home Point

• Maintain a high degree of suspicion in immunocompromised patients who present with sinus complaints, especially those without a preceding viral upper respiratory infection

Case Presentation #9

A 22 yr old comes to the office complaining of the acute onset of unilateral weakness of the right side of his face. Your diagnosis is Bell’s Palsy.
What is Your Therapy?

A. Prednisolone
B. Acyclovir
C. Prednisolone + acyclovir
D. Nothing

Etiology of Facial Nerve Palsy

- 50% are idiopathic (Bell’s Palsy)
- Herpes Simplex/Varicella Zoster
- Lyme disease (most common cause of bilateral FN palsy)
- Diabetes
- Sarcoid
- Trauma
- Tumors
- Other infections
  - CMV, EBV, HIV
Therapy of Bell’s Palsy

- Quite controversial
- Because of the association with herpes viruses the use of acyclovir has been felt to be beneficial
- Two well done prospective, randomized, controlled, blinded studies have been done

Lancet Neurol 2008;7:993-1000
Therapy of Bell’s Palsy

- 839 patients enrolled within 72 hours of onset of symptoms
  - Placebo + placebo (206)
  - Prednisilone (60mg X 5 days then reduced by 10 mg/day) + placebo (210)
  - Valacyclovir (1000mg TID X 7 Days) + placebo (207)
  - Valacyclovir X7 Days + prednisolone X10 Days (206)
Therapy of Bell’s Palsy

• Case closed on therapy?? NO!!
• Other less powered studies and subgroup analyses suggest that acyclovir might be beneficial in the most severe cases
  – Minimal or no movement of facial muscles and inability to close the eye

Take Home Points

• Early treatment (within 72 hours of onset) recommended
• For most cases prednisolone for 10 days is adequate
• For severe cases (complete or near complete paralysis) prednisolone for 10 days + valacyclovir for 7 days is recommended