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### Case of the Week

Pamela Fry, MD

### Objectives

- Discuss interesting case(s)
- Review epidemiology, pathophysiology, diagnosis, treatment, and prognosis of condition(s)
  - Review of literature
- Apply information to clinical practice

### Case #1: QM

- 69 YO man presents with AMS + fever x2 days
  - Confusion
  - Disorientation
- Gait ataxia
- Difficulty with fine motor skills
- Blurry vision
- Left ear pain & deafness
- 7 days ago pt had a root canal performed

### Case #1: QM

- PMH: Hypertension, Hyperlipidemia, Diabetes
- PSH: none
- Allergies: NKDA
- Medications: Atenolol, Glyburide, Lisinopril/HCTZ, Metformin, Losartan, Simvastatin
- Social: Married. Retired professor. No tobacco, ETOH, or drugs
- Family Hx: negative

## **Differential Diagnosis**

- Infection
  - UTI
  - Pneumonia
  - Meningitis
  - Encephalitis
  - Malignant Otitis External
  - Mastoiditis
  - Lyme disease
- Vascular
  - Stroke

- Metabolic
  - Electrolyte abnormalities
  - DKA, HONK
  - Thyroid
- Toxins
- Neurodegenerative
  - Dementia
  - MS



### **Physical Exam**

- VS: T 98.1, HR 90, RR 16, BP 119/69, O2 sat 98% RA
- General: Lying on stretcher in mild distress with obvious rash and swelling on left side of face.
- HEENT: NC/AT, EOMI, PERRL, **ptosis** of left eyelid with **tearing & blurry vision; crusted, vesicular rash** in distribution of 3rd division of trigeminal n on left, **swollen and erythematous left ear canal, pain with manipulation of left pinna**
- Neck: No meningismus signs
- CV: RRR, no m/r/g
- Lungs: CTAB
- Abdomen: soft, NT/ND, no masses
- Neuro: A/Ox2, slow to respond, CN intact except for slight lower facial weakness and numbness to light touch, decreased hearing in left ear, normal strength, ataxic gait



# Imaging/Lab Results:

- Head CT: No acute findings
- CBC: WBC 10.3, Hgb 13.3, Plts 230
- Basic: Na 127, K 3.0, Cl 87, CO2 25, glucose 60, BUN 17, Cr 1.20
- UA: negative
- Blood cultures: pending
- CSF: Pink, hazy fluid
  - Protein 100, Glucose 25
  - Tube 1: RBC 12,700, WBC 250
  - Tube 4: RBC 7,600, WBC 265
  - Viral cultures: +VZV

### Herpes Zoster

- CDC: 32% of all Americans
- Risk Factors<sup>2</sup>:
  - Age, especially >50
  - Female>Male
  - White>Black
  - Immunosuppression
  - Chronic lung or kidney disease
  - Prior episode of shingles
  - Poor diet

Shingles: Reference. Available online at: www.thefullwiki.org/\_Shingles

### Impact of Varicella Vaccine

- NEJM 1991 study: 548 children with ALL<sup>2</sup>
  - 13 children (2.4%) developed zoster
  - Subgroup analysis: 96 vaccinated children matched with natural varicella infection
    - 4 immunized children had zoster
    - 15 natural children had zoster
- NEJM 2005 study: 38,000 pts ≥60<sup>2</sup>
  - Reduced zoster incidence by 50%
  - Reduced postherpetic neuralgia incidence by 66.5%
- CDC: varicella incidence decreased from 2.63 cases to 0.92 cases/100-person years
- CDC: zoster incidence stable

Vaccine recommended for healthy adults ≥60 Shingles: Reference. Available online at: www.thefullwiki.org/\_Shingles



## VZV Meningoencephalitis

- Bimodal age distribution: teens & 70' s-80' s<sup>6</sup>
- Risk Factors<sup>1</sup>:
  - Immunosuppression, including HIV
  - Cranial or cervical dermatome involvement
  - 2 or more prior episodes of shingles
  - Disseminated zoster
- Can occur more than 6 months after rash
- Clinical Features<sup>6</sup>:
  - HA 86%
  - Fever 86%
  - Confusion 57%
  - Neck stiffness 29%
  - Photophobia 57%
  - Focal neurological signs 14%

### **VZV Meningoencephalitis**

- Diagnosis: LP with VZV PCR
- MRI to exclude vasculitis & infarct<sup>5</sup>
- Treatment:
  - IV Acyclovir 10mg/kg TID for at least 10-14 days
  - Steroids are controversial
  - +/- anticonvulsive medication
- Prognosis
  - Mortality 9–10%
  - 1/3 of pts will have persistent neurological symptoms at 3 months<sup>10</sup>



### Postherpetic neuralgia

- Pain beyond 4 months of initial rash
- 10–15% of VZV infections
- 50% of cases occur in pts older than 60
- Antivirals to reduce incidence severity & duration
  - Valacylovir superior to acylcovir
- Steroids: no change in incidence or duration



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### **Bacterial Super-infection**

- Very common complication
- Treat with antiboitics
- Steroid treatment is major risk factor



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Hutchinson's sign

**Ophthalmicus HZO** 

- 8–56% of VZV infections
- Conjunctivitis, episcleritis & lid droop
- 66% corneal involvement
- 40% iritis
- PO antiviral therapy, ophthalmology referral, +/- topical steroid drops

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Source Unknown

# Ramsay Hunt Syndrome

#### • Triad:

- Ipsilateral facial paralysis
- Ear pain
- Vesicles in auditory canal/auricle or hard palate, or anterior 2/3 of tongue
- Neuropathy of CN V, IX, X
  - Tinnitus, hyperacusis, lacrimation, taste perception, vertigo
- More severe than Bell's palsy
- Tx: Antivirals + Steroids
  - Treat within 3 days of symptom onset

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Source Unknown

### Complications of VZV Oticus





- Zoster infection of ear without neuropathies
- Tx: Antivirals + Steroids
- ENT consult
- Limit tactile stimulation

Audiogram if hearing affected

May require canal debridement after vesicles resolve

Source Unknown

# Isolation Precautions

- Varicella infection
  - Infectious from 24-48 hours prior to onset of rash to 5 days after onset of rash
    - Once vesicles are crusted over they are no longer infectious
    - Immunocompromised pt will be infectious longer
- Zoster infection
  - Risk of transmission is 1/3 that of varicella
- Transmission is both airborne and through contact
- CDC recommends negative pressure room with airborne & contact precautions for varicella, disseminated zoster, & immunocompromised.
  - Contact precautions only for immunocompetent zoster patients.

Prevention and control of varicella in hospitals. UpToDate. 18.2. June 18, 2009.

### Case #1: QM Case Update

- ID consult: VZV Meningoencephalitis
  - IV Acyclovir x 2 weeks
  - PO prednisone x 1 week
  - No super-infection
- Neurology consult: Ramsay-Hunt Syndrome
  - MRI: Bilateral and left vestibulocohlear nerve enchancement
- Ophthamology: Mild conjunctivitis, no iritis or keratitis, visual acuity 20/30 both eyes
  - Artificial tears
- ENT: Outpatient follow-up for possible debridement
- Pt had improvement of AMS, ataxia, hearing loss, facial paralysis, and blurry vision
- Discharged after 3 days with IV meds at home

## Summary

- All people >60 years old should receive a varicella vaccination booster
- All zoster infections should be treated with antivirals
- Use steroids on a case-by-case basis
- Look at the ears!
- Zoster infections don't always have a rash
- Infectious period is 24-48 hrs before rash until vesicles crust over
  - Admit to negative pressure rooms with airborne and contact precautions

### Case #2: DF



### Case #2: DF

- CC: Chest pain
- 23 YO man presents with left-sided pleuritic chest pain x 3 days
  - 6 weeks of URI symptoms, malaise, and fatigue, DOE, night sweats, decreased PO intake
  - Cough productive of yellow-brown phlegm
    - +occasional hemoptysis
  - No fevers, chills, wt loss, GI/GU symptoms, rash
- Saw PMD 2 days ago
  - Prescribed Z-pack & Mucinex for tonsillitis
  - No improvement in symptoms

### Case #2: DF

- PMH:
  - Gilbert's syndrome
  - Anxiety
- PSH: none
- Allergies: NKDA
- Medications: none
- Family Hx: negative for blood clots
- Social Hx:
  - Alcohol socially
  - Rare cigarettes in past, but not recently
  - Marijuana use in past, but not recently, no other drugs
  - works at a manufacturing company
  - lives with parents

- Physical Exam
   VS: T 98.7, HR 90, BP 102/70, RR 18, O2 sat 98% RA, Ht 80", Wt 166 lbs, BMI 18
- General: Uncomfortable appearing
- HEENT: NC/AT, PERRL, EOMI, TM clear bilaterally, nares clear, OP clear, MMM, normal dentition
- Neck: supple, no thyromegaly
- Chest: CTAB with no w/r/r, nml respiratory effort
- Heart: RRR, no m/r/g
- Skin: warm and clammy with mild diaphoresis

## **Differential Diagnosis**

- Cardiovascular
  - PE
  - Dissection
  - Vasculitis
- Pulmonary
  - AVM
  - Spontaneous pneumothorax
  - Sarcoidosis
- Neoplasm

- Infection
  - TB
  - Fungi
  - Pneumonia
  - Pericarditis
  - Empyema
  - Lung abscess
- Environmental Pneumonitis

### CXR





### Labs

- CBC: WBC 13.4, Hg 15.7, HCT 43.5, Plts 142
  - Differential: **80% PMN's, 11% lymphocytes**, 9% monocytes
- CMP: Na 138, K 4.0, Cl 102, CO2 26, glucose 95, BUN 13, Cr 0.79, TP 7.4, albumin 4.7, AST 15, ALT 7, Alk Phos 70, T bili 4.4

## Lung Abscess

- Typically a complication of aspiration pneumonia
- Incidence has decreased with antibiotic use
- Risk factors<sup>1&3</sup>:
  - Male Sex 82-83%
  - Oral sugery/tonsillectomy in seated position
  - Smoking 65–75%
  - Alcoholism 17–70%
  - Cancer (age >50) 8%
  - Periodontal disease 61-82%
  - LOC 79%
  - Bronchiectasis 3%

• 18.5% of patients had no underlying illness

### Lung Abscess Diagnosis

- Symptoms are indolent
  - Fever, other VS normal
  - Productive cough +/- hemoptysis
  - Night sweats
  - Chest pain
  - Putrid sputum
  - Weight loss
  - Assess for risk factors
- Labs: CBC with leukocytosis & anemia
- CXR/CT scans
- Sputum Cultures
  - Usually + anaerobes and gram negatives

### Lung Abscess Treatment

- First line treatment = Antibiotics
  - Clindamycin +/- Cephalosporin
  - Aminopenicillin/b-lactamase inhibitor
  - Metronidazole + Pencillin or Levaquin
- IV antibiotics until pt is afebrile & clinically improved then transition to PO
- Total treatment is usually 3-8 weeks
  Follow Q2 week CXR
- Oral therapy = IV therapy in 1974 study
   Cure rates 85-95%

### Lung Abscess Treatment Failure & Prognosis

- Risks factors for medical failure
  - Recurrent aspiration
  - Large cavity >6 cm
  - Prolonged symptoms before treatment
  - Obstructing lesion
  - Thick-walled cavities
  - Serious co-morbidities
  - Empyema formation
  - Resistant organisms
  - Massive hemoptysis

- Prognosis
  - Pre-antibiotic era
    - 45% had surgery
    - 30% mortality
  - Antibiotic era
    - <15% have surgery</p>
    - Overall mortality 10%
    - Primary/Communityacquired abscess mortality 2-5%

### Case #2: DF Course

- Total outpatient treatment with Levaquin and Flagyl
- Improved after a few days on antibiotics
  - "B" symptoms resolved, appetite & cough improved
  - Feeling better and returned to work
- CT surgeon consulted 130 miles away over phone
  - Plan to re-CT scan after 3 weeks of antibiotic treatment

### Case #2 Summary Points

- Lung abscess usually occurs in people at risk for aspiration pneumonia, but can occur in healthy people
- Periodontal disease is major risk factor
- Treatment is antibiotics
  - IV until symptomatic improvement then PO
  - Cover for anaerobes
- Good prognosis with primary and community-acquired abscesses

### **Special Thanks!**

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