

Project: Ghana Emergency Medicine Collaborative

Document Title: Herpes Zoster

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Herpes Zoster

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



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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**



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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

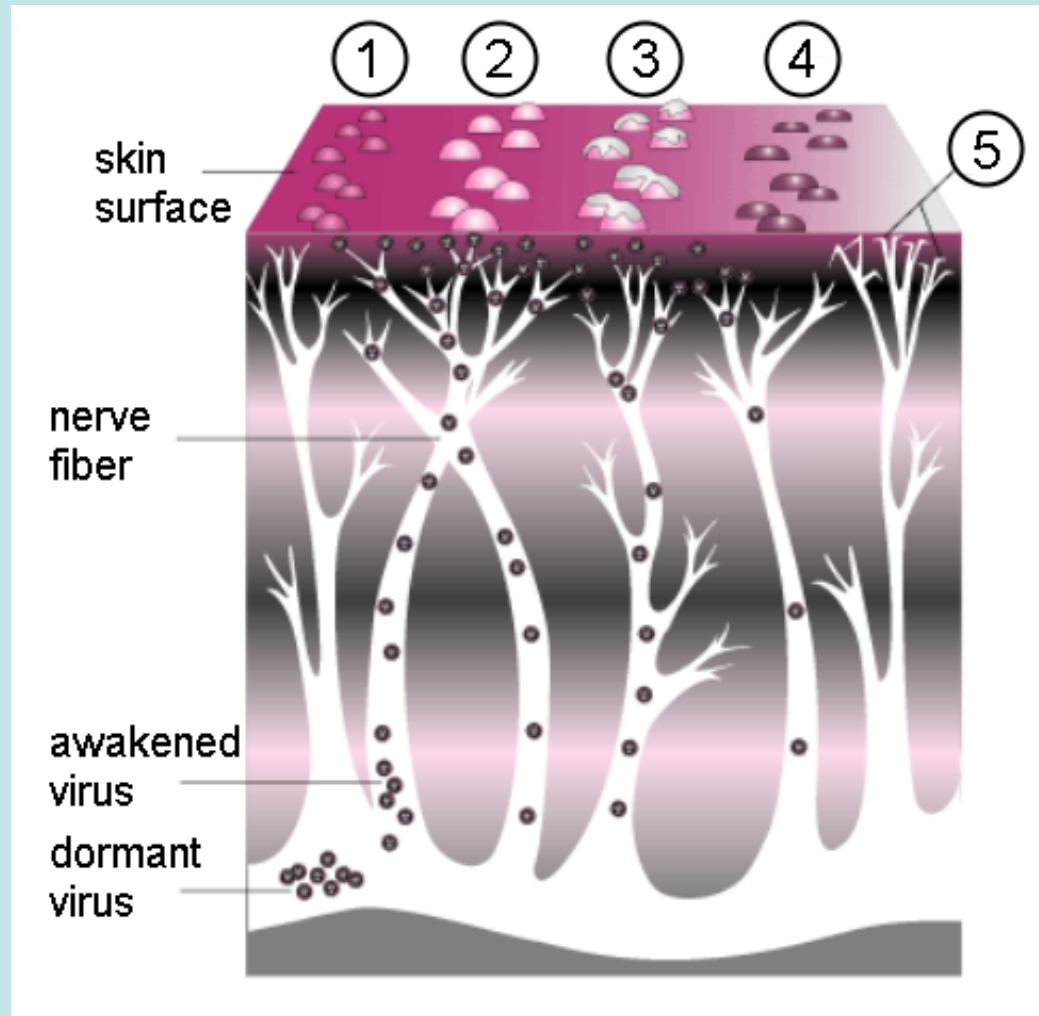
Herpes Zoster

- CDC: 32% of all Americans
- Risk Factors²:
 - Age, especially >50
 - Female>Male
 - White>Black
 - Immunosuppression
 - Chronic lung or kidney disease
 - Prior episode of shingles
 - Poor diet

Impact of Varicella Vaccine

- NEJM 1991 study: 548 children with ALL²
 - 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 ²
 - 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

Pathophysiology



VZV Meningoencephalitis

- Bimodal age distribution: teens & 70's–80's⁶
- Risk Factors¹:
 - 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 Features⁶:
 - 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 & infarct⁵
- 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 months¹⁰

Complications of VZV

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
 - Valacyclovir superior to acyclovir
- Steroids: no change in incidence or duration

Complications of VZV



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Source Undetermined

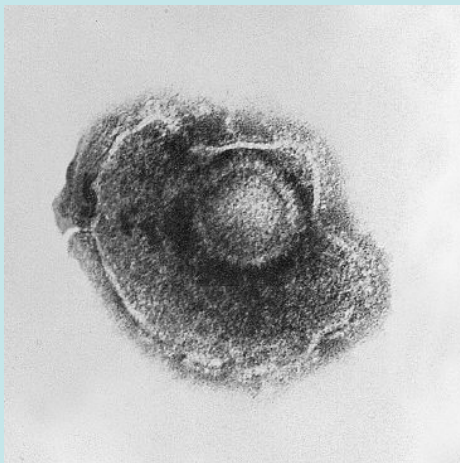
Bacterial Super-infection

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

Complications of VZV



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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

Complications of VZV



James Heilman, MD,
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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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Complications of VZV



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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

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.

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 vestibulocochlear nerve enhancement
- Ophthalmology: 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



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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:
 - ETOH socially
 - Rare cigarettes in past, but not recently
 - MJ use in past, but not recently, no other drugs
 - works at a manufacturing company
 - lives with parents

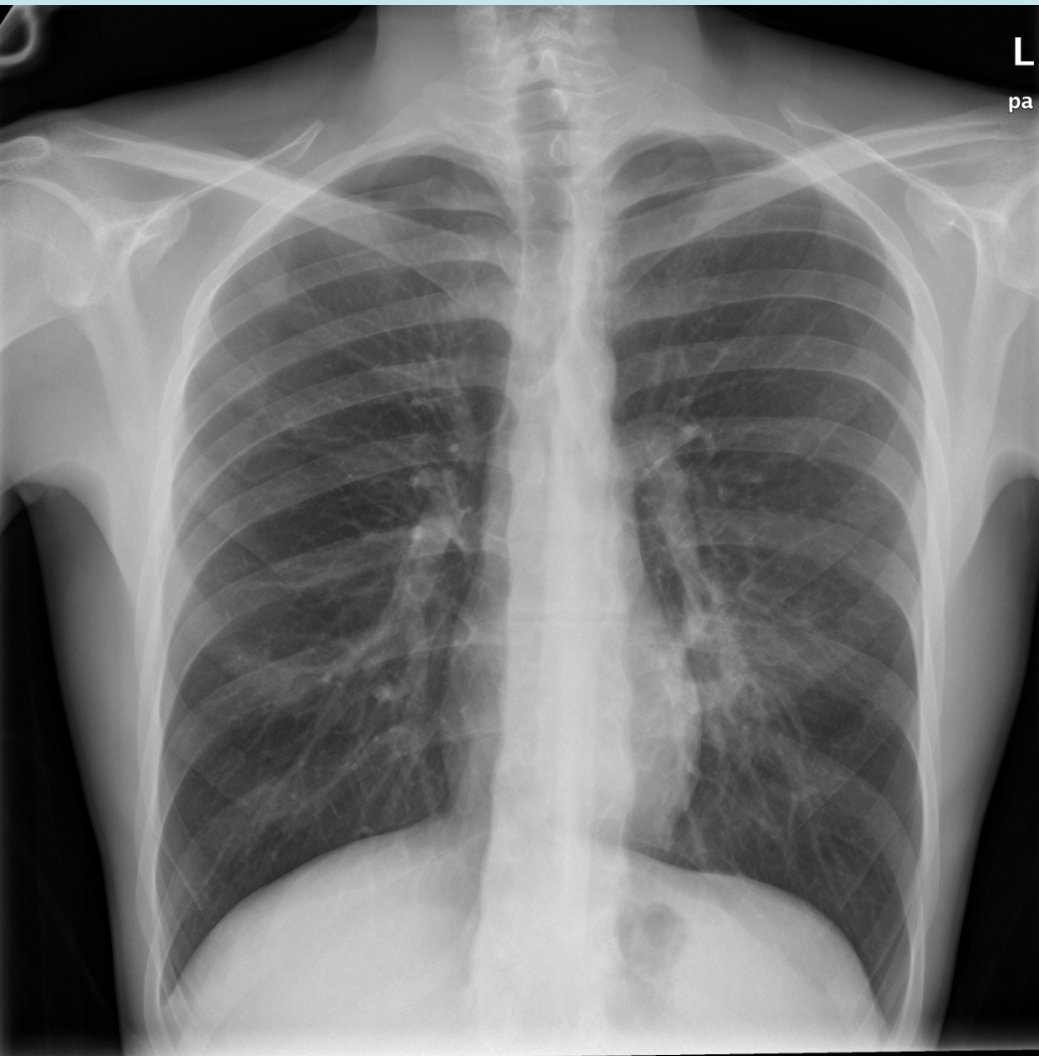
Physical Exam

- 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^{1&3}:
 - Male Sex 82–83%
 - Oral surgery/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
 - Overall mortality 10%
 - Primary/Community-acquired 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

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