



HIV Emergencies



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Case #1

History

Pt is a 41 y.o. AA woman with a h/o HIV (unknown CD4 cell count), oral candidiasis and IDU (heroin 1 day PTA) who presents to the ER with fever and CP for the past few days. The CP was associated with eating, cough and deep inspiration. She also had a runny nose, productive cough with clear to green sputum, and N/V during this same time period. Over the past few weeks, she had lost 15 pounds. The pt denies sick contacts or TB exposure and had never been incarcerated.

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Case #1

Physical Examination

Temp. 102.5 P 97, bp 136/85 RR 24

General: Thin woman in NAD

HEENT: Missing front teeth

Chest: bilateral costophrenic angle tenderness

Lungs: decreased breathe sounds RUL

Cor: RRR with II/VI SEM

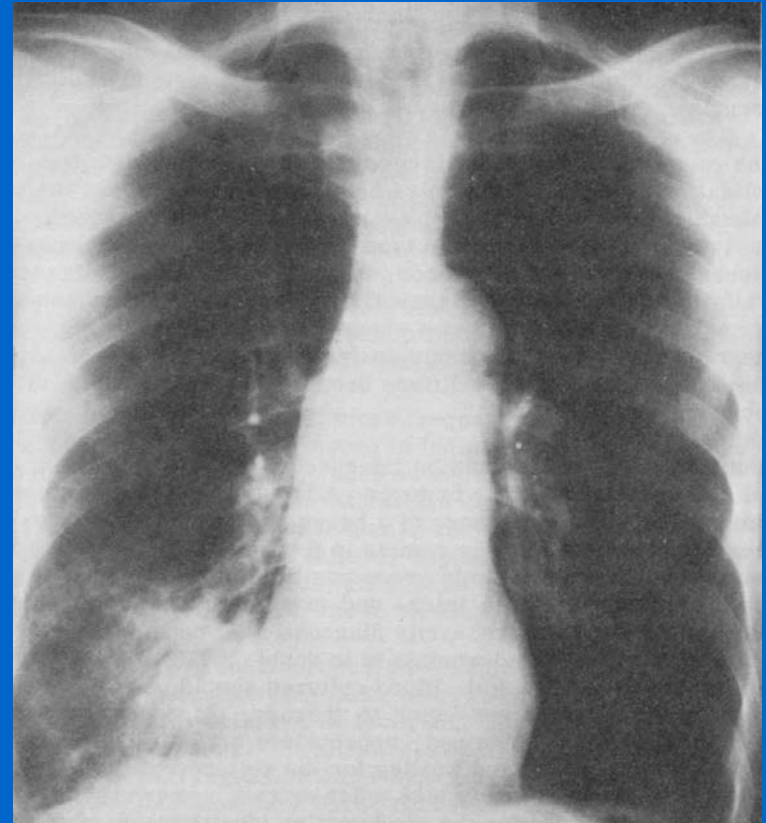
Abdomen: Soft, nontender with BS decreased

Differential Diagnosis

- Sinusitis
- Endocarditis
- CAP
- PCP
- M. tuberculosis and M. kansasii
- Rhodococcus equi
- Nocardia
- Pseudomonas aeruginosa
- Cryptococcus
- KS

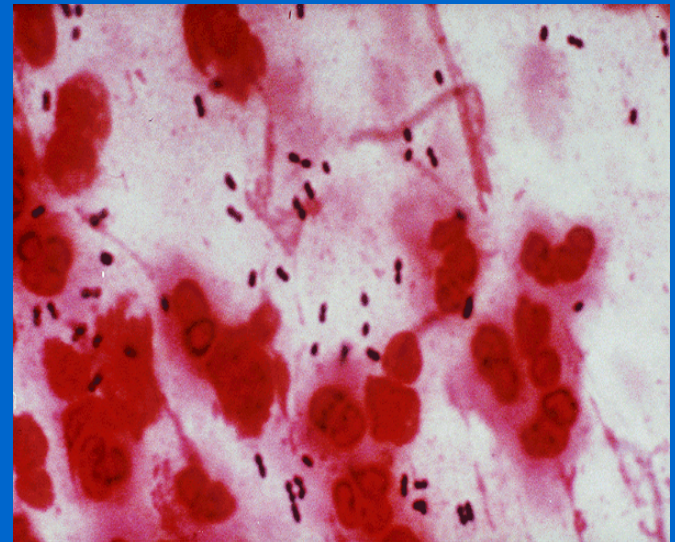
Laboratory Data

- WBC 12.8
- Hct 24.0
- Na 141, K 4.5, Cl 104, CO 28, Bun 34, Cr 2.9
- LDH 604 (nl 618)
- Pulse ox 98% room air
- Pulse ox with exertion 98%



Hospital Course

- She is admitted with a diagnosis of pneumonia.
- **Ceftriaxone/azithromycin** are begun.
- ***Streptococcus pneumoniae*** grows from blood and sputum cultures
- CD4 cell count = 178 cells/mm³



Hospital Course

- By day 3 she is afebrile with a normal O₂ saturation
- She is discharged with a prescription to complete 10 days of moxifloxacin
- TMP/SMX SS daily given for PCP prophylaxis

VACCINATION

FOR CD4 Cell >200 cells/mm³

TYPE

- Pneumovax

FREQUENCY

- Repeat if CD4 < 200 cells/mm³ when initially given

CD4 Cell Count and HIV

Associated Conditions

(Arch Intern Med 1995)

CD4
Cells

HIV Associated Conditions

200-500

Pneumonia, TB, HZ, thrush,
cervical cancer, KS,

<200

PCP, PML

<100

HSV, toxo, cryptococcus,
cryptosporidiosis (chronic),
microsporidiosis, candida
esophagitis

<50

CMV, MAC, CNS lymphoma

Case #2

Patient is a 37 y.o. AA man with h/o AIDS (CD4 12) who is admitted with a 2 week history of progressive **cough** with shortness of breath on exertion. He also notes **fever** and night sweats, nausea, and weakness.

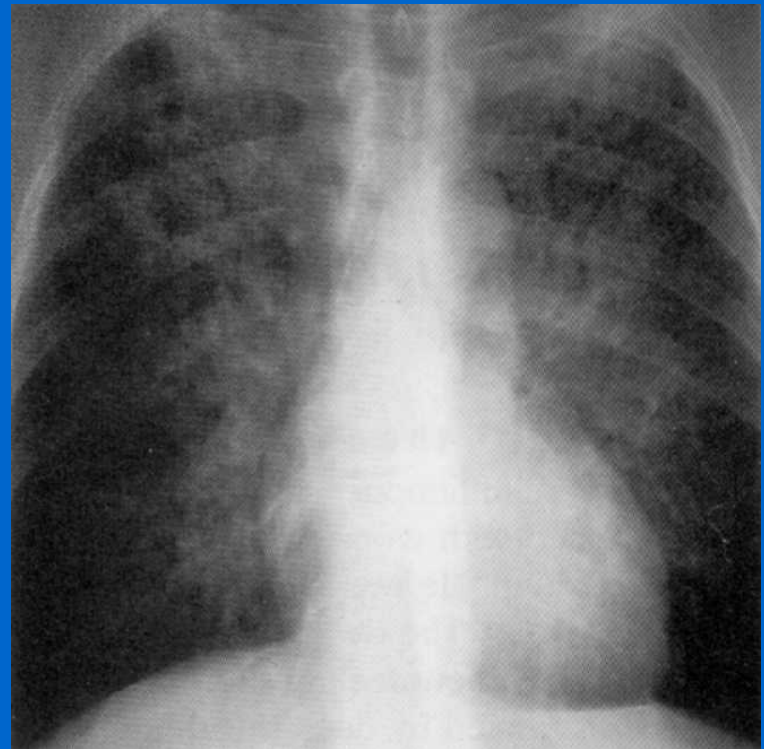
Physical Examination

T 98.4°F; P 76; RR 20; BP 130/82

- Moderately obese man who appears in NAD
- Neck supple
- HEENT benign
- No lymphadenopathy
- Clear lungs

Laboratory Data

- 7.48/36/63 O₂ saturation
96% on room air, 90% with
exertion
- WBC 5.9 (68% P, 1% B,
25% M, 6% L)
- LDH 1633
- CXR - diffuse bilateral
interstitial infiltrates

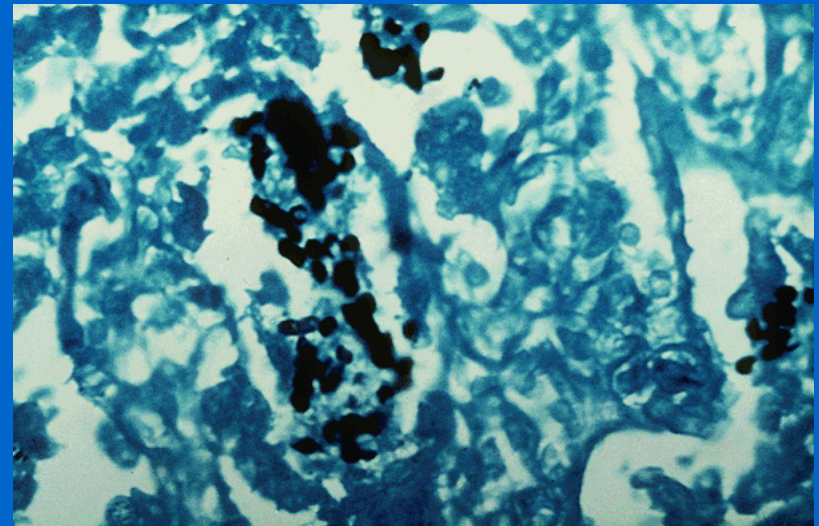


Hospital Course

- He is admitted with a diagnosis of pneumonia.
- Ceftriaxone, azithromycin, trimethoprim-sulfamethoxazole, and **prednisone** ($pO_2 < 70$, $A-a > 35$ mm) are begun.

Hospital Course

- Bronchoscopy revealed *Pneumocystis jiroveci*
- Direct fluorescent antibody test for PCP was positive



Hospital Course

- Ceftriaxone is discontinued
- Azithromycin is changed to mycobacterium avium complex (MAC) prophylaxis dosing
- By day 5, he is afebrile with a normal O₂ saturation.
- He is discharged on prednisone, and TMP-SMX for a total of 21 days.

TMP/SMX Toxicities

- ↓ WBCs, ↓ plts, ↑ LFTs, ↑ K, ↑ amylase, rash,
- ↑ creatinine: tubular necrosis, interstitial nephritis, RTA
- fever, pruritis,
- “sepsis”: transient diffuse pulmonary infiltrates & ↓ bp
- cross reactivity to dapsone 50%

1999 USPHS/IDSA Guidelines for PCP Prophylaxis

- PCP
 - CD4 < 200 cells mm³ within last 3 months
 - h/o PCP and no increase in CD4 cell count since episode
 - oropharyngeal candidiasis
 - Consider if CD4 % <14% or history of an OI

PCP Prophylaxis Regimens

FIRST LINE

- TMP/SMX SS daily
- TMP/SMX DS daily

PCP Prophylaxis Regimens

SECOND LINE

- TMP/SMX DS every other day
- Dapsone 100 mg daily or 50 mg bid
- Dapsone 50 mg daily + pyrimethamine 50 mg/wk + leucovorin (folinic acid) 25 mg/wk
- Dapsone 200 mg/wk + pyrimethamine 75 mg/wk + leucovorin (folinic acid) 25 mg/wk
- Aerosolized pentamidine 300 mg/month
- Atovaquone 1500 mg daily

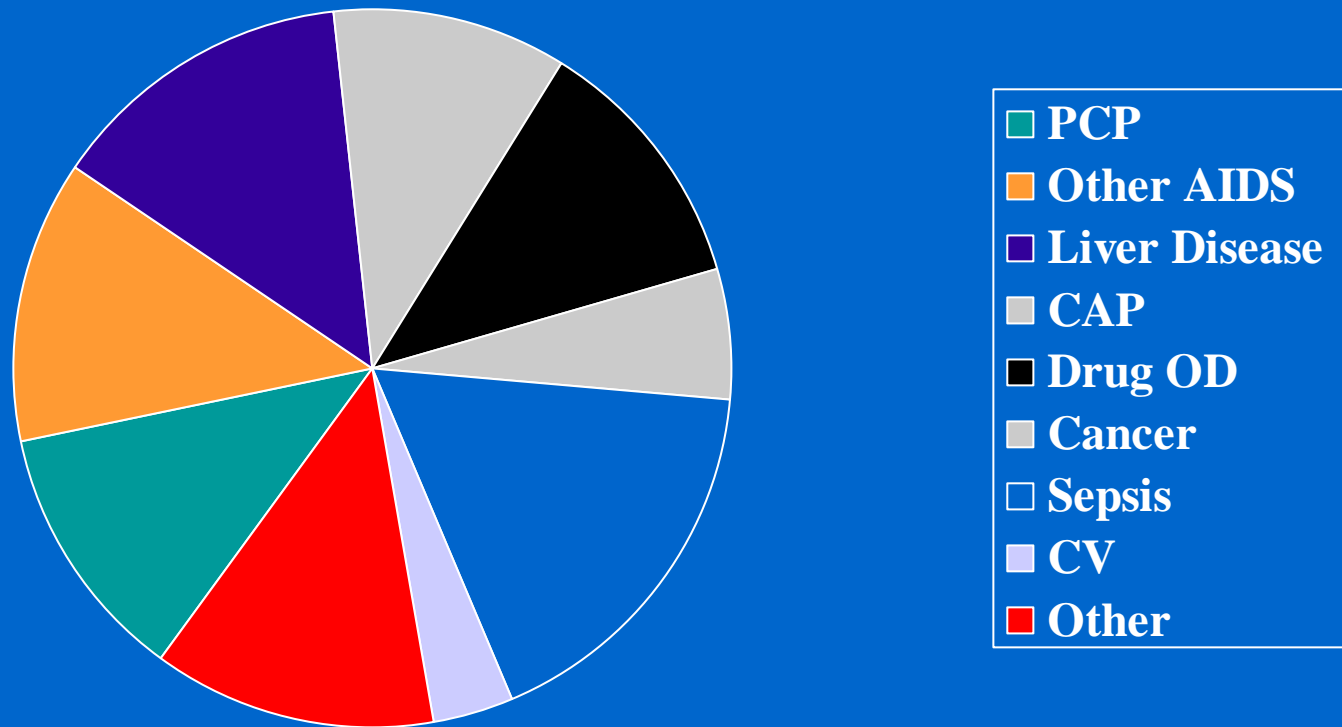
Mortality in Urban Cohort of HIV-Infected Patients

Kohli et al CID 2005:41

- 1996-2001
- 50% on HAART at last visit
- 84% ever used injection drugs
 - 50% IDU in past 6 months
- 95% cigarette users
- 65% Hispanic
- 60% men

Mortality in Urban Cohort of HIV-Infected Patients

Kohli et al CID 2005:41



Case #3

History

Pt is a 41 y.o. AA woman with a h/o AIDS (CD4=3, 3/99), oral candidiasis, snorting heroin, and asthma who presents with pain upon swallowing which worsened over the past week. She also c/o difficulty swallowing both solids and liquids so that she has not been able to even drink much fluid. She also c/o a lump in her mouth, white spots in her mouth, a dry cough, and SOB.

Case #3

Physical Examination

T 99.9°F; P 115; RR 12; BP 94/51

- Cachectic young woman in NAD
- Neck supple
- Mouth
- Decreased breathe sounds
- RRR with no murmurs
- Abdomen benign



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Case#3

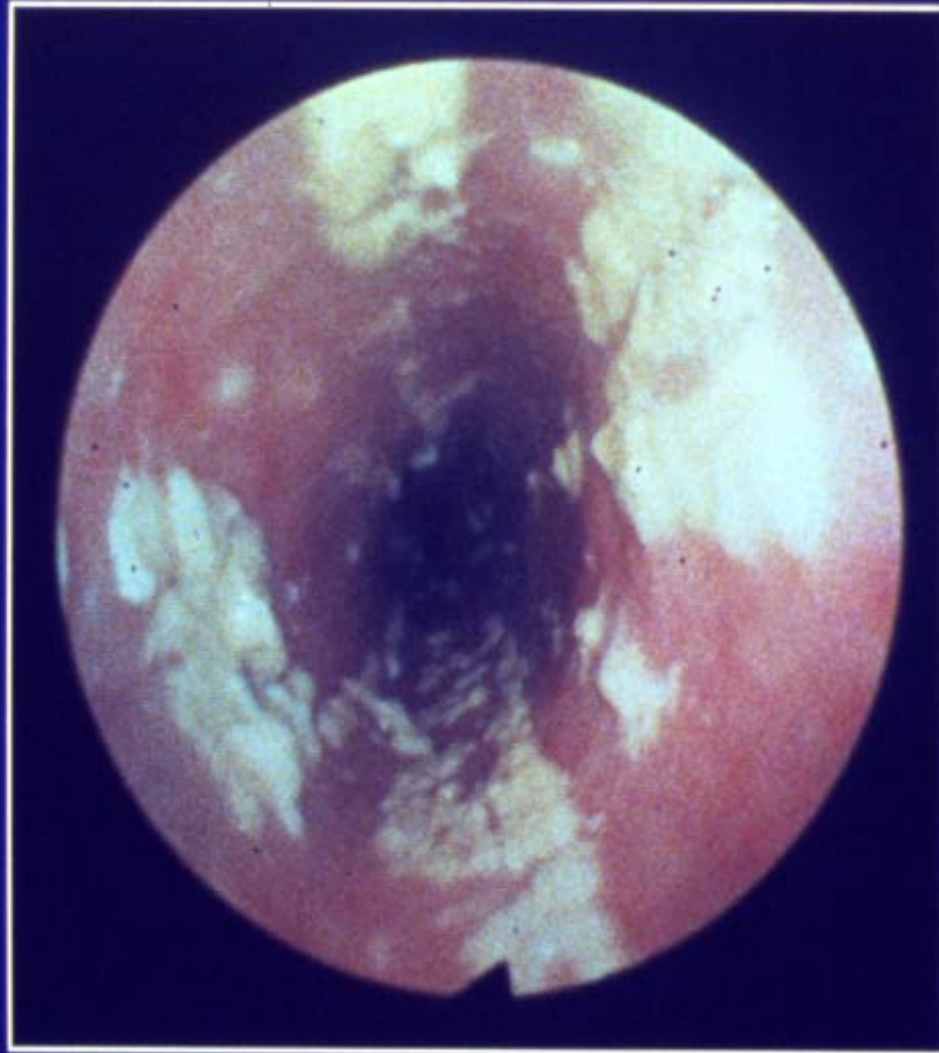
Laboratories

- WBC 6.8 (81% PMNs, 10% lymphs)
- Hct 23.5
- Na 140, K 4.1, Cl 99, CO 38, Bun 11, Cr 1.3
- pulse oximetry
 - 96% room air sitting
 - 97% room air with exertion

Hospital Course

- She is admitted with a diagnosis of presumed candida esophagitis.
- Fluconazole IV is begun.
- She is transfused 2 units pRBCs
- She is discharged after 3 days to complete a 14 day course of fluconazole
- She has follow up at the Evelyn Jordan Center

Endoscopic View of *Candida* Esophagitis



Differential Diagnosis

- HSV esophagitis
- CMV esophagitis
- Aphthous ulcers
- Lymphoma
- KS

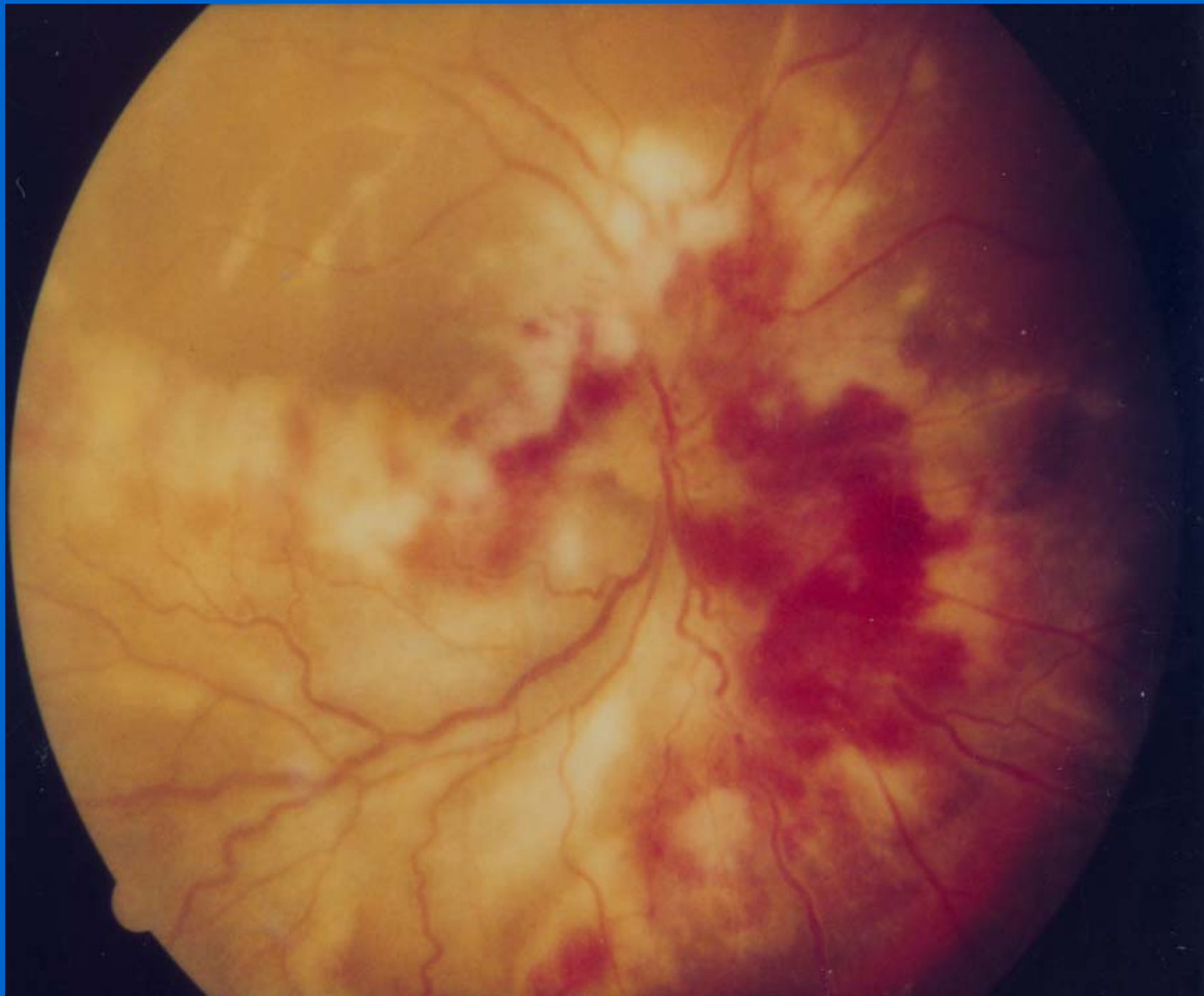
Case #4

History and Physical Examination

Pt is a 26 y.o. Hispanic woman with a h/o AIDS, oral candidiasis, PCP who presents with difficulty with vision over the past week. She denied eye pain or discharge.

Differential Diagnosis

- Herpes zoster
 - rapidly progressing
- Toxoplasmosis retinochoroiditis
- Bacterial retinitis
 - syphilis
- Fungal retinitis



Hospital Course

- Immediately started on ganciclovir iv
- Hospital day 2, patient talks with the Jaques Initiative staff about the importance of HAART
- Started on atazanavir, ritonavir, and co-formulated emtricitabine/tenofovir (truvada)
- Hospital day 14, on intraocular ganciclovir implant is placed
- Discharged on valganciclovir

Diseases Treated with HAART

- Oral candidiasis
- HIV nephropathy (Chemlal et al 2000)
- PML (Guidici et al 2000, DeLuca et al 2000)
- microsporidiosis (Carr et al 1998)
- cryptosporidiosis (Carr et al 1998)
- peripheral neuropathy (Martin et al 1999)
- Kaposi's Sarcoma (Wilkinson et al, Tam et al, Hoffmann et al 2000)
- HIV encephalopathy (Gendelman et al 1998)

Case #5

History

Pt is a 35 y.o. AA man with a h/o AIDS (CD4=17, 1/98), B-cell lymphoma of maxillary sinuses, PCP, thrush, and IDU who by report from the prison had weakness, productive cough, SOB, and fever/chills x 2-3 days. He also c/o a chronic frontal headache and diarrhea.

Case #5

Physical Examination

Temp. **103.6** P 66, RR 12, bp 110/78 pulse ox 99% Rm
air with sitting, 97% RM air with exertion

General: Thin, **somnolent** man in NAD

HEENT: no lesions

Lungs: clear

Cor: RRR with no murmurs or gallops

Abdomen: Soft, nontender with BS +. No
organomegaly

Neuro: Cr II-XII intact. **RUE 5-/5, LUE 4/5. RLE 5-/5,
LLE 5-/5.** DTRs and sensation.

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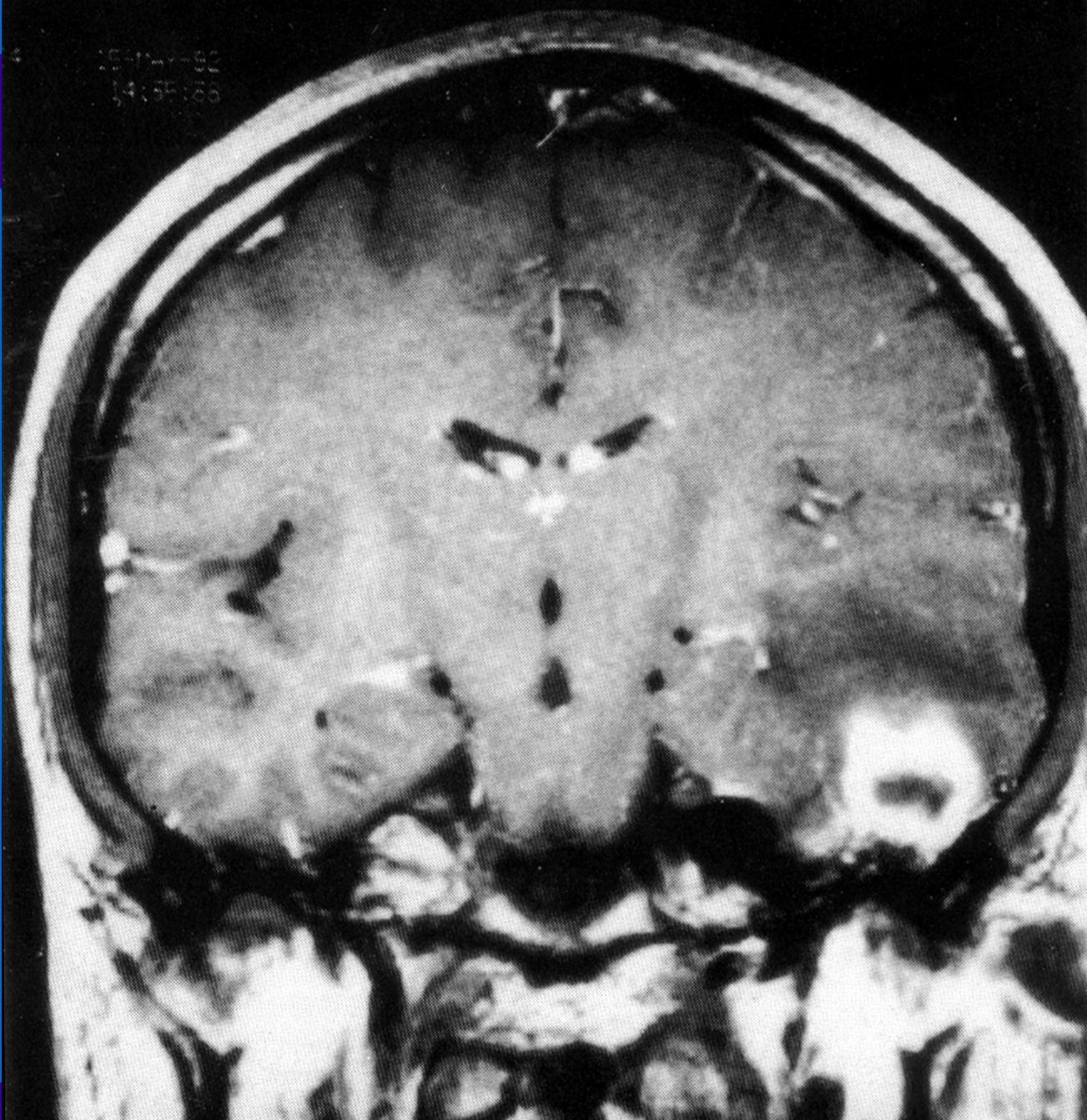
Case#5

Laboratories

- WBC 3.3
- Hct 33.4
- Bun 8, Cr 0.9

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9/5/2007

Hospital Course

- Toxoplasma IgG was reactive
- Started on sulfadiazine (clindamycin) + pyrimethamine + folinic acid
- Complete resolution of symptoms in 2 weeks.
 - Prognosis good

Toxoplasmosis

Etiology

- Ubiquitous obligate intracellular parasite
- Undercooked meats
- Cysts in cat feces
- Iatrogenic
- Congenital
 - acute during gestation
 - chronic if immunosuppressed

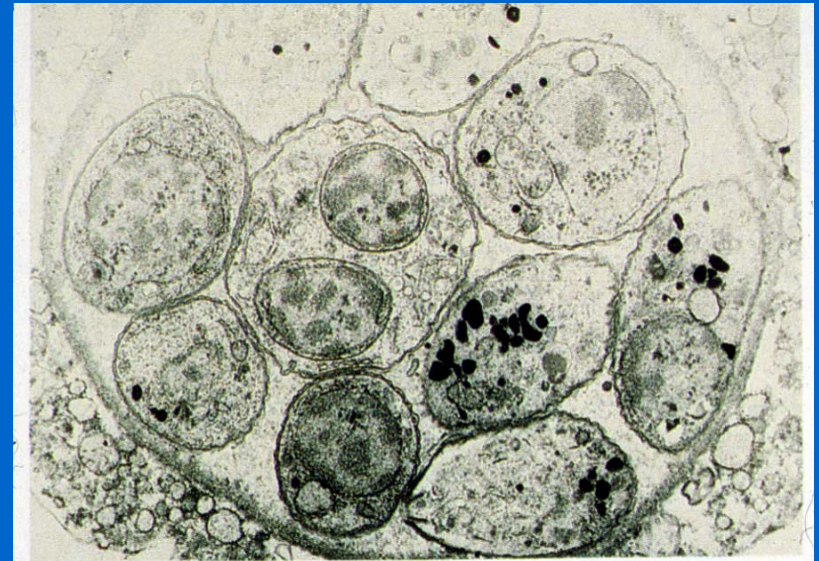


Figure 7-7. Toxoplasma.

Toxoplasma cyst, electron micrograph. (From Still Picture Archives, Centers for Disease Control, Atlanta, Georgia.)

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Toxoplasmosis

Epidemiology

- Seropositivity 10-40% in USA
- As high as 70% in Europe
- Disease almost always is reactivation
- 30% of seropositive patients develop CNS disease without prophylaxis
- Most frequent cause of mass lesion in AIDS

Toxoplasmosis Prevention

Secondary Prevention

- Serum IgG +
- CD4 cells < 100 cells/mm³
- Discontinue when CD4 cell count >200 cells/mm³

Preventive Toxoplasmosis Regimens

FIRST LINE

- TMP/SMX DS daily

SECOND LINE

- Dapsone 50 mg daily + pyrimethamine 50 mg/wk + leucovorin (folinic acid) 25 mg/wk
- Dapsone 200 mg/wk + pyrimethamine 75 mg/wk + leucovorin (folinic acid) 25 mg/wk
- TMP/SMX SS daily
- Atovaquone 1500 mg daily +/- pyrimethamine 25 mg daily + leucovorin (folinic acid) 25 mg/wk

Case #6

History

Pt is a 25 y.o. Caucasian woman with a h/o AIDS (**CD4=9**, 9/98, V.L. >750,000), asthma, HSV, thrush, PCP who presents with **abdominal pain, fevers to 103.0, diarrhea, and n/v**. The pain was 8/10, a pressure/tight sensation located in midepigastic region with radiation to the lower back. It was aggravated by heavy foods. She had **lost 22 lbs.** in 2 wks. She is taking no medications

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Case #6

Physical Examination

Temp. 99.7 P 131, RR 16 bp 121/72

General: Thin, woman in NAD

HEENT: no lesions

Lungs: crackles at left base, diffuse wheezes

Cor: RRR with no murmurs or gallops

Abdomen: Soft, RUQ and RLQ tender with BS +. No organomegaly

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Case#6

Laboratories

- WBC 4.6, Plts 120,000
- Hct 17.5
- Na 142, K 3.8, Cl 111, CO 13, Bun 9, Cr 1.0
- AST 80, ALT 62, alk phos 795, amylase 54, lipase 112
- CXR normal

Hospital Course

- Cryptococcal antigen and multiple blood cultures were negative
- Abdominal CT showed retroperitoneal adenopathy
- She was discharged on no medicines with follow up at Evelyn Jordan Center

Outpatient Course

- At follow up at EJC, she was still febrile
- AFB BC were positive for Mycobacterium avium complex (MAC)
- Clarithromycin and ethambutol were started for MAC
- Atazanavir, ritonavir and co-formulated emtricitabine/tenofovir (truvada) for HIV

Nontuberculosis Mycobacterial Immune Reconstitution Syndrome

(Phillips 2005)

- Within months of starting HAART
- Focal disease
 - Peripheral lymphadenitis
 - Intra-abdominal disease to bacteremia
 - Associated with greatest mortality
 - Pulmonary-thoracic disease
 - Other: joint, spine, prostate, skin, soft tissue, bacteremia
- 90% respond to steroids
- Antimycobacterial therapy may not be necessary

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Other Immune Reconstitution Diseases

- M. tuberculosis
- CMV retinitis
- PCP

MAC Prevention

- CD4 cell count < 50 cells/mm³
- Discontinue when CD4 > 100 cells/mm³ for > 3 months

MAC Prophylaxis Regimens

FIRST LINE

- Azithromycin 1200 mg/wk
- Clarithromycin 500 mg bid

SECOND LINE

- Rifabutin 300 mg daily
- Azithromycin 1200 mg/wk + rifabutin 300 mg daily

Case #7

History

Pt is a 48 y.o. African American man with a h/o AIDS (CD4=22, 9/98, V.L. >750,000) and PCP who presents with severe headache and tiredness over the past two weeks. He felt warm at times but did not take his temperature. He denies other complaints including weakness, loss of sensation, nausea, vomiting, or difficulty with gait or vision.

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Case #7

Physical Examination

Temp. 98.0 P 76, RR 16, bp 120/72

General: Thin man in NAD

Neck: Supple

HEENT: no lesions

Lungs: clear

Cor: RRR with no murmurs or gallops

Abdomen: Soft, nontender with BS +. No organomegaly

Neuro: Cr II-XII intact. Strength 5/5 throughout. DTRs 2/4. Sensation intact. Gait and finger to nose normal

Case #7

Laboratories

- WBC 5.2, Plts 110,000
- Hct 27.5
- Na 143, K 3.9, Cl 110, CO 16, Bun 10, Cr 1.1
- CXR and head CT without contrast was normal
- Lumbar puncture showed 10 WBCs/mm³, 4 RBCs/mm³, protein 45 mg/dL, glucose 76 mg/dL

Hospital Course

- Med/ID resident repeated the LP because no opening pressure was done. The opening pressure was 300 mm H₂O
- Started on amphotericin B 0.7 mg/kg per day for presumptive cryptococcus
- Cryptococcal antigen titer in the CSF from ER came back at 1:1024 and in the serum at 1:2048
- Flucytosine (5-FC) 100 mg/kg daily added
- Headache continued

Hospital Course

- Repeat LP was done to reduce opening pressure to 190 mm H₂O
- Headache resolved
- After 14 days amphotericin B changed to fluconazole 400 mg daily
- Patient was discharged with fluconazole 400 mg daily for 8 weeks
- Follow up at EJC in 2 weeks for re-evaluation and initiation of HAART
- Will need maintenance therapy with fluconazole 200 mg daily after 10 weeks treatment

Cryptococcus neoformans

- "meningoencephalitis"
- Most common CNS fungal infection in persons with AIDS
- May cause minimal inflammation so classic signs and symptoms of meningitis may not be present.

Cryptococcus neoformans

- Poor prognostic features:
 - ↑ intracranial pressure
 - Change in mental status
 - High CSF cryptococcal antigen titer
 - Low CSF WBC count
 - Positive extrameningeal blood culture
 - Hyponatremia