

HIV-Associated Opportunistic Infections (OI): Part 3

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Disclosures of Financial Relationships with Relevant Commercial Interests

- None

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HIV Associated Opportunistic Infections: Part 3

- Mucocutaneous Infections: Candida, VZV, HSV, EBV
- Endemic Mycoses
- Gastrointestinal (GI) Complications

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Mucocutaneous Candidiasis in PWH

- Oropharyngeal and esophageal candidiasis common in people with HIV (PWH) who have CD4 counts <200
 - Esophageal candidiasis typically occurs at lower CD4 counts than oropharyngeal candidiasis
- Most *Candida albicans*
- Invasive candidiasis **NOT** HIV related
 - Candida in blood should raise suspicion of catheter related blood stream infection or injection drug use

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Oropharyngeal Candidiasis

Pseudomembranous



Erythematous



Angular cheilosis



Photograph from
David H. Spach, MD

<https://www.hiv.uw.edu/go/basic-primary-care/oral-manifestations/core-concept/all>
Also: Drs. Anisa Mosam, Richard Johnson, Patil S et al, Front Microb, 2015

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Esophageal Candidiasis



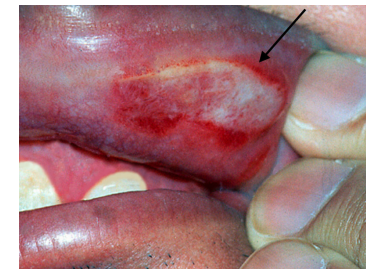
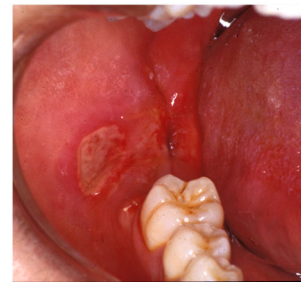
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Mucocutaneous Candidiasis in PWH: Management

- Fluconazole primary prophylaxis or chronic suppression NOT RECOMMENDED
- Treatment:
 - Oral candidiasis: oral fluconazole 100 to 200 mg daily (except during pregnancy); topical miconazole, clotrimazole troches, nystatin
 - Esophageal candidiasis: fluconazole, 14-21 days

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Aphthous Ulcers



Black arrow points to a large aphthous lesion on the lip. Photograph from David H. Spach, MD

<https://www.hiv.uw.edu/go/basic-primary-care/oral-manifestations/core-concept/all>
Additional images courtesy of Drs. Anisa Mosam, Richard Johnson and Medscape

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Causes of Odynophagia in People with Advanced HIV

- Esophageal candidiasis
- Giant aphthous ulcers
- HSV esophagitis
- CMV esophagitis

Herpes Zoster

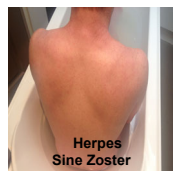
- **Pre ART**
 - 15-fold higher incidence of zoster than general population!
- **Post ART**
 - Still increased risk even on suppressive ART
- **Localized (dermatomal)**
 - May occur at all CD4 counts
 - More frequent when CD4 count <200 or HIV RNA not suppressed
 - Risk of zoster increased soon after ART initiation, possibly because of **immune reconstitution inflammatory syndrome**

<https://clinicalinfo.hiv.gov/en/guidelines/hiv-clinical-guidelines-adult-and-adolescent-opportunistic-infections/varicella-zoster?view=full>

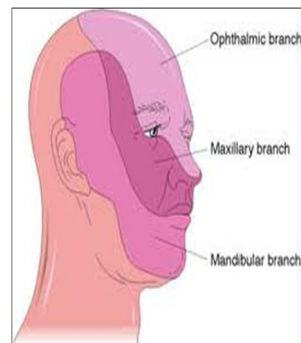
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Localized and Disseminated Herpes Zoster



Zoster Ophthalmicus Ophthalmic Branch CN V

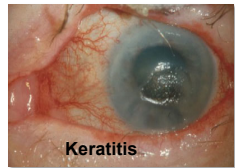


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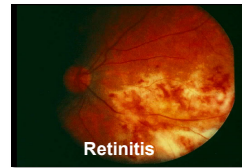
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Hutchinson's Sign As Precursor to VZV Eye Disease

(Nasociliary Nerve of Ophthalmic Branch CN V)



Keratitis



Retinitis

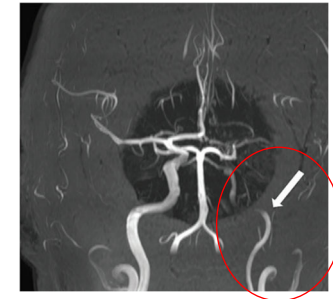
- Vesicles on tip of nose, or vesicles on side of nose
- Accompanies development of ocular manifestations: keratitis, anterior uveitis

Image C. Stephen Foster, MD, Massachusetts Eye Research and Surgery Institute

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Zoster Ophthalmicus Related Stroke

- Vascular inflammation and occlusion
- Days or months post zoster (median 4 months)
- Occasionally cutaneous lesions absent (33%)
- Diagnosis: PCR of CSF or VZV antibody production in CSF



Fugate JE, January 2020, Practical Neurology

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Ramsay-Hunt Syndrome: Herpes Zoster Oticus

Geniculate Ganglion of Cranial Nerve VII
External Ear Vesicles and Facial Nerve Paralysis



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Prevention of Zoster

- Recombinant VZV glycoprotein E /adjuvant AS01B (RZV-Shingrix)
- Recommended in adults with HIV aged ≥ 18 years, regardless of CD4 count
- 2-dose series at 0 and then at 2 to 6 months
- RZV should not be given during acute episode of herpes zoster

<https://clinicalinfo.hiv.gov/en/guidelines/hiv-clinical-guidelines-adult-and-adolescent-opportunistic-infections/varicella-zoster?view=full>

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Herpes Simplex Virus (HSV)

- **Orolabial herpes:** most common manifestation of HSV-1 infection
- **Genital herpes:** typically, HSV-2; increasingly HSV-1
 - Recurrences, viral shedding less often with genital HSV-1
- **Proctitis** in men who have sex with men
 - May not have external anal ulcers
- Other manifestations in PWH who have low CD4 counts (<100)
 - Esophagitis
 - Retinitis (acute retinal necrosis)
 - Chronic, extensive, deep genital ulcers, often acyclovir resistant
- Dissemination: rare, even in severely immunosuppressed patients

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Localized Herpes Simplex



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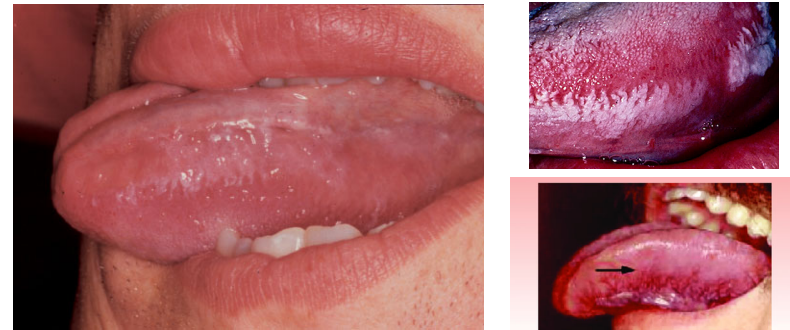
Chronic Extensive Perirectal HSV in PWH with Low CD4 Count



- Look for Acyclovir (ACV) Resistance with Viral Culture and Phenotypic Testing
- Treatment for ACV-resistant HSV: iv foscarnet; investigational drug: pritelivir

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Oral Hairy Leukoplakia EBV Associated



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Oral Hairy Leukoplakia



Photograph from Mark Nichols, DDS, Dental Director, South Central AETC
<https://www.hiv.uw.edu/go/basic-primary-care/oral-manifestations/core-concept/all>

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HIV Diseases Associated with EBV

- Oral Hairy Leukoplakia
- Primary CNS Lymphoma

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Dermatologic Findings in PWH

Prurigo nodularis



Image courtesy of Dr. Anisa Mosam

Kaposi Sarcoma (HHV-8 associated)



www.idimages.org

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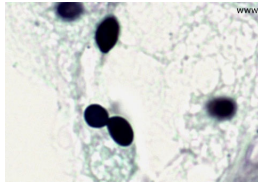
HIV Associated Opportunistic Conditions: Part 3

Endemic Mycoses

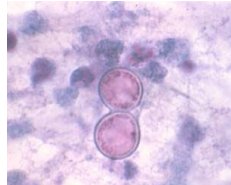
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Other Fungal Diseases that are Covered Elsewhere in IDBR

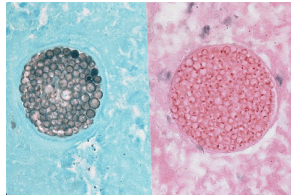
- Look for questions on patients with HIV and....



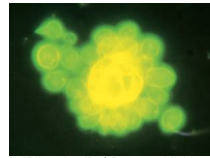
Narrow-based budding of *Histoplasma* (2-5 microns)



Broad based budding of *Blastomyces* 10-15 microns



Spherule of *Coccidioides* (25-100 microns)



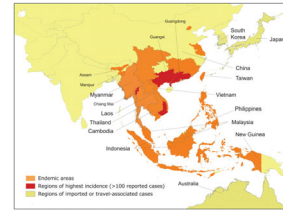
"Pilot wheel" of *Paracoccidioides* (10-20 microns)

www.idimages.org

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Talaromyces marneffi (formerly *Penicillium marneffi*)

- Dimorphic fungus: SE Asia, East Asia, South Asia
- Advanced HIV: risk factor for severe disease
- Skin lesions: central-necrotic or umbilicated papules
- Pulmonary, GI involvement; hepatosplenomegaly

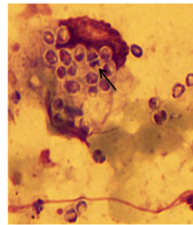
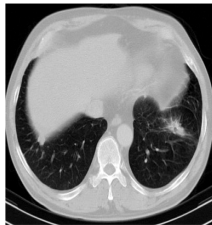


www.idimages.org

<https://clinicalinfo.hiv.gov/en/guidelines/hiv-clinical-guidelines-adult-and-adolescent-opportunistic-infections/talaromycosis?view=full>

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Talaromyces marneffi (formerly *Penicillium marneffi*)



Round-to-oval organisms, 3 to 6 μ m in diameter. Midline septum in a dividing yeast cell

<https://clinicalinfo.hiv.gov/en/guidelines/hiv-clinical-guidelines-adult-and-adolescent-opportunistic-infections/talaromycosis?view=full>

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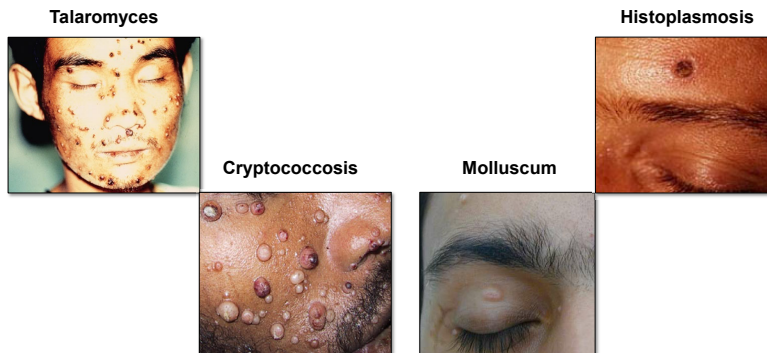
Talaromycosis: Primary Prophylaxis

- **Indications**
 - CD4 count <100 and not taking ART or treatment failure who either:
 - Reside in hyperendemic regions in Northern Thailand, Vietnam, southern China
 - Traveler to hyperendemic areas
- **Preferred: Itraconazole 200 mg daily**
- **Alternative: Fluconazole 400 mg once weekly**

<https://clinicalinfo.hiv.gov/en/guidelines/hiv-clinical-guidelines-adult-and-adolescent-opportunistic-infections/talaromycosis?view=full>

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Skin Lesions for HIV Associated Endemic Mycoses May Be Difficult to Distinguish



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GI Complications

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Causes of Diarrhea in PWH

- **CMV Colitis:** bloody diarrhea, intestinal perforation in PWH with CD4 <100
- **Bacterial causes:** Salmonella, Shigella, Campylobacter, Enteraggregative E coli; Clostridioides difficile; STIs/proctitis (LGV, GC, Syphilis); MAC (CD4 count <50: fevers, systemic symptoms)
- **Parasitic causes:** Microsporidia and Cryptosporidia (CD4<100: chronic diarrhea, extra-intestinal manifestations); Cystoisospora (formerly Isospora); Cyclospora; Giardia; Amebiasis
- **Cancer:** Kaposi sarcoma, lymphoma
- **Medications:** antiretroviral therapy (particularly protease inhibitors), antibiotics

<https://clinicalinfo.hiv.gov/en/guidelines/hiv-clinical-guidelines-adult-and-adolescent-opportunistic-infections/bacterial-enteric?view=full>

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Evaluating Diarrhea in PWH

- Acute diarrhea: stool C and S, C difficile testing
- Chronic diarrhea: above plus stool O and P, cryptosporidia, microsporidia, isospora, cyclospora stains; giardia antigen; if proctitis, STI testing
- Diarrhea, fever, systemic symptoms in PWH and low CD4 cell count: AFB blood cultures, CMV DNA
- Endoscopy: if evaluation above is unrevealing

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Salmonella in PWH

- Bacteremia more common in PWH (especially those with low CD4 count) than people without HIV
- Bacteremia merits HIV testing
- Recurrence common unless effective ART given

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Shigella

Update – CDC Recommendations for Managing and Reporting *Shigella* Infections with Possible Reduced Susceptibility to Ciprofloxacin



Distributed via the CDC Health Alert Network

June 7, 2018, 1:00 ET (11:00 AM ET)



June 7, 2018

- Increasing number of *Shigella* isolates that test susceptible to ciprofloxacin (MIC 0.12 to 1 mcg/mL) but harbor resistance genes
- DHHS: consider treatment; may be withheld in PWH and CD4 >500 with mild symptoms or whose diarrhea is resolving before cultures return
- Counsel patients to wait to have sex for 1-2 weeks after diarrhea resolves

<https://clinicalinfo.hiv.gov/en/guidelines/hiv-clinical-guidelines-adult-and-adolescent-opportunistic-infections/bacterial-enteric?view=full>

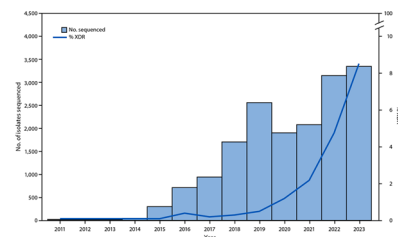
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U.S. Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report
Weekly / Vol. 75 / No. 13
April 9, 2016

Emergence of Extensively Drug-Resistant Shigellosis — United States, 2011–2013

April 29, 2016

- 8.5% of *Shigella* now XDR: resistant to azithromycin, ampicillin, ciprofloxacin, ceftriaxone, TMP/SMX
 - 1/3 *Shigella flexneri*
- 38% hospitalized; no deaths
- Risk factors from previous studies: Men who have sex with men, people experiencing homelessness, people with HIV



- No current treatment recommendations
 - Pivmecillinam, fosfomycin and oral carbapenems (e.g., sulopenem) might be effective; not approved for shigellosis.

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Thank you

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