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AIDS Infectious Dermatoses

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Disease Category	Condition	HIV/AIDS Stage of Initial Presentation	Clinical Cutaneous Features	Treatment	Notes
Bacterial infections	Bacillary angiomatosis	AIDS; CD4 count, <250 cells/mm^3	Red and purple vascular-appearing papules and nodules	Macrolides or tetracycline for a minimum of 2 months	*Bartonella henselae* or *Bartonella quintana* infection; can have visceral and bone involvement
	Botryomycosis	AIDS; CD4 count, <250 cells/mm^3	Classic, solitary, ulcerated plaque on the head/neck or atypical presentation of clustered papules and nodules	Antibiotics that target *Staphylococcus* (eg, tetracyclines), heat therapy, laser treatment, surgical excision	*Staphylococcus aureus* infection; *S aureus* is most common bacterial infection in HIV patients; decolonization typically is temporary
	Miliary tuberculosis	AIDS; CD4 count, <250 cells/mm^3	Variable lesions; widespread papules, nodules, ulcerations	Multidrug therapy with rifampin, isoniazid, ethambutol, pyrazinamide	Skin involvement is rare, even in AIDS patients
	Mycobacterial infection	Advanced AIDS; CD4 count, <50 cells/mm^3	Erythematous papules, nodules, ulcers, verrucous lesions	HAART and antimycobacterial agents (eg, rifampin, ethambutol, clofazimine)	*Mycobacterium avium-intracellulare complex, Mycobacterium haemophilum, Mycobacterium fortuitum*
	Syphilis	HIV	Small erythematous papules and macules; involvement of the palms and soles; pustules; ulcerative nodules	Penicillin	Caused by the bacterium *Treponema pallidum*; higher risk for CNS involvement; all HIV patients should be tested for syphilis
Fungal infections	Candidiasis	HIV; CD4 count, <500 cells/mm^3	Burning pain, altered taste sensation, dysphagia, vaginal pruritus, urodynia; mucocutaneous candidiasis presents with oropharyngeal, esophageal, and/or vulvovaginal manifestations; oral candidiasis presents with white plaques on the buccal mucosa and tongue; vaginal candidiasis presents with watery or curdlike, thick, white discharge	Most patients will respond to any of the numerous oral and topical antifungal medications; for fluconazole-resistant *Candida,* IV amphotericin B can be administered	Oropharyngeal candidiasis may be a presenting sign of HIV infection; *Candida dubliniensis* is more commonly identified in HIV-infected individuals
	Coccidioidomycosis	AIDS; CD4 count, <250 cells/mm^3	Variable papules, nodules, and ulcers; can have erythema multiforme or erythema nodosum lesions	IV amphotericin B	N/A

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Fungal infections (continued)	Cryptococcosis	AIDS; CD4 count, <250 cells/mm^3	Papules, pustules, plaques, molluscumlike lesions, and ulcerations	IV amphotericin B	Most common systemic fungal infection in HIV patients
	Dermatophytosis	HIV	Well-defined scaling and erythematous plaques on the skin; thickening and discoloration of the nails; proximal white subungual onychomycosis is associated with HIV infection	Can use standard topical and oral antifungals; amphotericin B or caspofungin can be used for refractory cases; itraconazole cannot be administered with protease inhibitors due to CYP450 interactions	Rate of dermatophyte infection is similar among HIV and non-HIV patients but is more severe in HIV patients and often is atypical and refractory to treatment; *Trichophyton rubrum* and *Trichophyton mentagrophytes* are the most common causes of dermatophytosis in HIV patients
	Histoplasmosis	AIDS; CD4 count, <250 cells/mm^3	Progressive systemic disease with papules, ulcers, and erythema multiforme–like lesions	IV amphotericin B	N/A
	Pneumocystis jiroveci (formerly *Pneumocystis carinii)*	AIDS; CD4 count, <200 cells/mm^3	Molluscumlike lesions, bluish plaques, and abscess formation	TMP-SMX or pentamidine	Initially thought to be a protozoan infection, now considered a fungus
Parasitic infections/ infestations	Leishmaniasis (protozoa)	HIV	Ulcerated nodules on the arms and legs, mucosal ulcerations; ulcerations are painless	Amphotericin B or pentavalent antimony	Transmitted by *Lutzomyia* and *Phlebotomus* sandflies
	Scabies *(Sarcoptes* mite)	HIV	Classic burrows and hand/wrist involvement may be absent; instead see involvement of face and widespread crusted hyperkeratotic plaques	Oral ivermectin, permethrin cream 5%	Most common skin infestation in HIV patients
	Strongyloidiasis (nematode)	HIV	Violaceous, reticulated patches mimicking livedo reticularis; purpuric thumbprint lesions	Ivermectin; in HIV patients increased risk for dissemination with poor response to medication	*Strongyloides stercoralis,* classic presentation is larva currens
Viral infections[a]	Acute retroviral syndrome	Initial infection with HIV; CD4 count, >500 cells/mm^3	Morbilliform eruption sparing the palms and soles	HAART	Often appears before detectable levels of HIV antibodies
	CMV infection	AIDS; CD4 count, <200 cells/mm^3	Perineal ulcers, squamous metaplasia of eccrine ducts	N/A	Retinitis, colitis, and esophagitis are more common than cutaneous manifestations of CMV infection

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Viral infections[a] (continued)	Herpes zoster	HIV; CD4 count, <500 cells/mm^3	Erythematous papules, vesicles, and ulcers that are extremely painful to touch; dermatomal or disseminated distribution	IV acyclovir	In HIV patients, VZV outbreaks often occur before development of an AIDS-defining illness; can be complicated by fatal pulmonary involvement
	HPV	HIV	Flesh-colored verrucous papules on the face, limbs, and genitals that can be quite large	Imiquimod, podophyllotoxin, trichloroacetic acid, cryotherapy, CO_2 laser, ED&C	High risk for transformation into CINs and AINs
	Molluscum contagiosum	HIV/AIDS; CD4 count, <250 cells/mm^3	Classic lesions are small, flesh-colored or white, umbilicated papules; HIV patients can develop giant lesions (≥15 mm in diameter), larger numbers of lesions, and lesions that are more resistant to standard therapy	Therapies that aim to boost the immune system (eg, intralesional interferon) have proven most effective in HIV patients; imiquimod; topical cidofovir	Patients with severe HIV/AIDS can have widespread facial molluscum lesions
	Oral and anogenital HSV	HIV	Sharply demarcated, punched-out ulcers on the oral mucosa, scrotum, penile shaft, and vagina; can be associated with esophagitis, hepatitis, pneumonitis, meningoencephalitis, and acute retinal necrosis	May not respond to treatment with acyclovir or valacyclovir; may require cidofovir or foscarnet	HHV-1 has increasingly been shown to cause genital ulcers in HIV patients; transmission of HSV is increased in HIV patients
	Oral hairy leukoplakia	HIV; CD4 count, >500 cells/mm^3	White corrugated plaques with hairlike growths; cannot be removed with toothbrush or scraper	HAART	Caused by Epstein-Barr virus; no malignant transformation seen

Abbreviations: HIV, human immunodeficiency virus; HAART, highly active antiretroviral therapy; CNS, central nervous system; IV, intravenous; N/A, not applicable; CYP450, cytochrome P450; TMP-SMX, trimethoprim-sulfamethoxazole; CMV, cytomegalovirus; VZV, varicella-zoster virus; HPV, human papillomavirus; ED&C, electrodesiccation and curettage; CIN, cervical intraepithelial neoplasia; AIN, anal intraepithelial neoplasia; HSV, herpes simplex virus; HHV-1, human herpesvirus 1.

[a]Kaposi sarcoma typically is thought to be caused by human herpesvirus 8 but is considered a noninfectious malignancy in the context of this fact sheet.

Practice Questions

1. What is the most common treatment of invasive fungal infections in immunocompromised patients?

a. caspofungin
b. griseofulvin
c. intravenous amphotericin B
d. itraconazole
e. terbinafine

2. What mucosal infection is caused by Epstein-Barr virus and can be seen in human immunodeficiency virus and AIDS patients?

a. aphthous stomatitis
b. Kaposi sarcoma
c. median rhomboid glossitis
d. oral hairy leukoplakia
e. thrush

3. Which infection can cause thumbprint purpura and often is fatal in immunocompromised patients?

a. botryomycosis
b. coccidioidomycosis
c. invasive candidiasis
d. Kaposi sarcoma
e. strongyloidiasis

4. Which infection classically presents in advanced AIDS cases with a CD4 count less than 50 cells/mm^3?

a. crusted scabies
b. giant molluscum
c. herpes zoster
d. leishmaniasis
e. *Mycobacterium avium-intracellulare complex*

5. Which antifungal medication should be avoided in patients taking protease inhibitors?

a. caspofungin
b. griseofulvin
c. itraconazole
d. micafungin
e. terbinafine

Fact sheets and practice questions will be posted monthly. Answers are posted separately on www.cutis.com.