Numerous ulcerated skin lesions, with or without spread to visceral organs (including the central nervous system [CNS]), are characteristic of disseminated sporotrichosis.

Diagnosis *S. schenckii* usually grows readily as a mold when material from a cutaneous lesion is incubated at room temperature. Histopathologic examination of biopsy material shows a mixed granulomatous and pyogenic reaction, and tiny oval or cigar-shaped yeasts are sometimes visualized with special stains. Serologic testing is not useful.

Treatment and Prognosis Guidelines for the management of the various forms of sporotrichosis have been published by the Infectious Diseases Society of America (Table 243-1). Itraconazole is the drug of choice for lymphocutaneous sporotrichosis. Fluconazole is less effective; voriconazole and posaconazole have not been used for sporotrichosis. Saturated solution of potassium iodide (SSKI) also is effective for lymphocutaneous infection and costs much less than itraconazole. However, SSKI is poorly tolerated because of adverse reactions, including metallic taste, salivary gland swelling, rash, and fever. Terbinafine appears to be effective but has been used in few patients. Treatment for lymphocutaneous sporotrichosis is continued for 2–4 weeks after all lesions have resolved, usually for a total of 3–6 months. Pulmonary and osteoarticular forms of sporotrichosis are treated with itraconazole for at least 1 year. Severe pulmonary infection and disseminated sporotrichosis, including that involving the CNS, are treated initially with amphotericin B (AmB), which is followed by itraconazole after improvement has been noted. Lifelong suppressive therapy with itraconazole is required for AIDS patients. The success rate for treatment of lymphocutaneous sporotrichosis is 90–100%, but other forms of the disease respond poorly to antifungal therapy.

TABLE 243-1 SUGGESTED TREATMENT FOR ENDEMIC MYCOSES

Disease	First-Line Therapy	Alternatives/Comments
Sporotrichosis		
Cutaneous, lymphocutaneous	Itraconazole, 200 mg/d until 2–4 weeks after lesions resolve	SSKI, increasing doses[a] Terbinafine, 500 mg bid
Pulmonary, osteoarticular	Itraconazole, 200 mg bid for 12 months	Lipid AmB[b] for severe pulmonary disease until stable; then itraconazole
Disseminated, central nervous system	Lipid AmB[b] for 4–6 weeks	Itraconazole, 200 mg bid after AmB for 12 months Itraconazole maintenance for AIDS patients: 200 mg/d until CD4+ T cell count has been >200/μL for 12 months
Paracoccidioidomycosis		
Chronic (adult form)	Itraconazole, 100–200 mg/d for 6–12 months	TMP-SMX, 160/800 mg bid for 12–36 months
Acute (juvenile form)	AmB[c] until improvement	Itraconazole, 200 mg bid after AmB for 12 months
Penicilliosis		
Mild or moderate	Itraconazole, 200 mg bid for 12 weeks	Itraconazole maintenance for AIDS patients: 200 mg/d until CD4+ T cell count has been >100/μL for 6 months
Severe	AmB[c] until improvement	Itraconazole, 200 mg bid after AmB for 12 weeks Itraconazole maintenance: as for mild or moderate disease

[a]The starting dosage is 5–10 drops tid in water or juice. The dosage is increased weekly by 10 drops per dose, as tolerated, up to 40–50 drops tid. [b]The dosage of lipid AmB is 3–5 mg/kg daily; the higher dosage should be used when the central nervous system is involved. [c]The dosage of AmB deoxycholate is 0.6–1.0 mg/kg daily.

Abbreviations: AmB, amphotericin B; SSKI, saturated solution of potassium iodide; TMP-SMX, trimethoprim-sulfamethoxazole.

PARACOCCIDIOIDOMYCOSIS

Etiologic Agent, Epidemiology, and Pathogenesis *Paracoccidioides brasiliensis* is a thermally dimorphic fungus that is endemic in humid areas of Central and South America, especially in Brazil. A striking male-to-female ratio varies from 14:1 to as high as 70:1 (in rural Brazil). Most patients are middle-aged or elderly men from rural areas. Paracoccidioidomycosis develops after the inhalation of aerosolized conidia encountered in the environment. For most patients, disease rarely develops at the time of the initial infection but appears years later, presumably after reactivation of a latent infection.

Clinical Manifestations Two major syndromes are associated with paracoccidioidomycosis: the acute or juvenile form and the chronic or adult form. The acute form is uncommon, occurs mostly in persons <30 years old, and manifests as disseminated infection of the reticuloendothelial system. Immunocompromised individuals also manifest this type of rapidly progressive disease. The chronic form of paracoccidioidomycosis accounts for ~90% of cases and predominantly affects older men. The primary manifestation is progressive pulmonary disease, primarily in the lower lobes, with fibrosis. Ulcerative and nodular mucocutaneous lesions in the nares and mouth—another common manifestation of chronic paracoccidioidomycosis—must be differentiated from leishmaniasis (Chap. 251) and squamous cell carcinoma (Chap. 105).

Diagnosis The diagnosis is established by growth of the organism in culture. A presumptive diagnosis can be made by detection of the distinctive thick-walled yeast, with multiple narrow-necked buds attached circumferentially, in purulent material or tissue biopsies.

Treatment and Prognosis Itraconazole is the treatment of choice for paracoccidioidomycosis (Table 243-1). Ketoconazole is also effective but more toxic; voriconazole and posaconazole have been used with success in a few cases. Sulfonamides also are effective and are the least costly agents, but the response is slower and the relapse rate higher. Seriously ill patients should be treated with AmB initially. Patients with paracoccidioidomycosis have an excellent response to therapy, but pulmonary fibrosis is often progressive in those with chronic disease.

PENICILLIOSIS

Etiologic Agent, Epidemiology, and Pathogenesis *Penicillium marneffei* is a thermally dimorphic fungus that is endemic in the soil in certain areas of Vietnam, Thailand, and several other southeastern Asian countries. The epidemiology of penicilliosis is linked to bamboo rats, which are infected with the fungus but rarely manifest disease. The disease occurs most often among persons living in rural areas in which the rats are found, but there is no evidence for transmission of the infection directly from rats to humans. Infection is rare in immunocompetent hosts, and most cases are reported in persons who have advanced AIDS. Infection results from the inhalation of conidia from the environment. The organism converts to the yeast phase in the lungs and then spreads hematogenously to the reticuloendothelial system.

Clinical Manifestations The clinical manifestations of penicilliosis mimic those of disseminated histoplasmosis and include fever, fatigue, weight loss, dyspnea, diarrhea (in some cases), lymphadenopathy, hepatosplenomegaly, and skin lesions, which appear as papules that often umbilicate and resemble molluscum contagiosum (Chap. 220e).

Diagnosis Penicilliosis is diagnosed by culture of *P. marneffei* from blood or from biopsy samples of skin, bone marrow, or lymph node. The organism usually grows within 1 week as a mold that produces a distinctive red pigment. Histopathologic examination of tissues and smears of blood or material from skin lesions shows oval or elliptical yeast-like organisms with central septation and can quickly establish a presumptive diagnosis.

Treatment and Prognosis Patients who have severe disease should be treated initially with AmB until their condition improves; therapy can