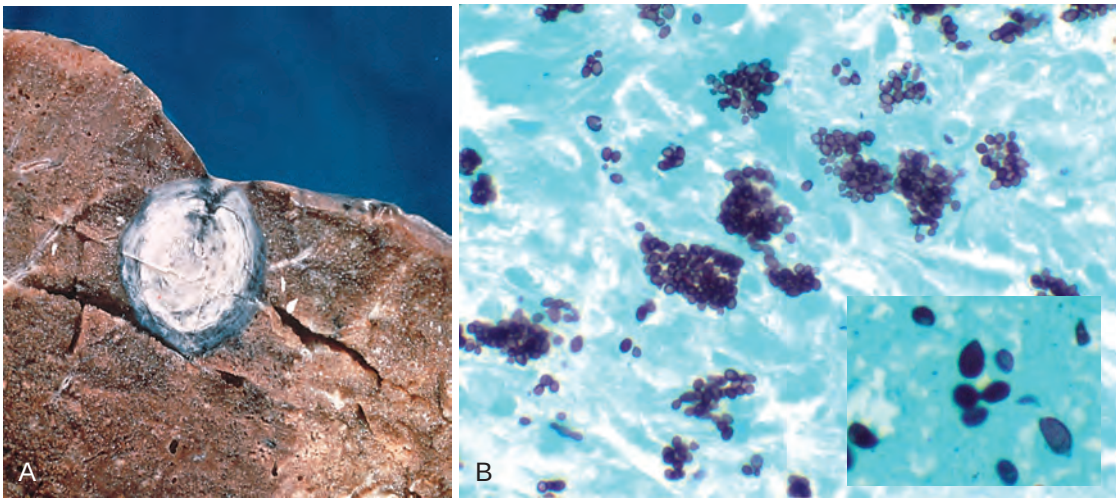

Figure 15-37 Histoplasmosis. **A,** Laminated *Histoplasma* granuloma of the lung. **B,** *Histoplasma capsulatum* yeast forms fill phagocytes in the lung of a patient with disseminated histoplasmosis, inset shows high power of pear-shaped thin-based budding yeasts (silver stain).

MORPHOLOGY

In the normal host, the lung lesions of blastomycosis are suppurative granulomas. Macrophages have a limited ability to ingest and kill *B. dermatitidis*, and the persistence of the yeast cells leads to continued recruitment of neutrophils. In tissue, *B. dermatitidis* is a round, 5- to 15-μm yeast cell that divides by broad-based budding. It has a thick, double-contoured cell wall, and visible nuclei (Fig. 15-38). Involvement of the skin and larynx is associated with marked epithelial hyperplasia, which may be mistaken for squamous cell carcinoma.

Coccidioidomycosis

Almost everyone who inhales the spores of *Coccidioides immitis* becomes infected and develops a delayed-type hypersensitivity reaction to the fungus. Indeed, more than 80% of people in endemic areas of the southwestern and western United States and in Mexico have a positive skin test reaction. One reason for the infectivity of *C. immitis* is that infective arthroconidia, when ingested by alveolar macrophages, block fusion of the phagosome and lysosome and so resist intracellular killing. As is the case with *Histoplasma*, most primary infections with *C. immitis* are asymptomatic, but 10% of infected people develop lung lesions, fever, cough, and pleuritic pains, accompanied by erythema nodosum or erythema multiforme (the San Joaquin Valley fever complex). Less than 1% of people develop disseminated *C. immitis* infection, which frequently involves the skin and meninges. Certain ethnic groups (e.g., Filipinos and African Americans) and the immunosuppressed are at particularly high risk for disseminated disease.

MORPHOLOGY

The primary and secondary lung lesions of *C. immitis* are similar to the granulomatous lesions of *Histoplasma.* Within macrophages or giant cells, *C. immitis* is present as thick-walled, nonbudding spherules 20 to 60 μm in diameter, often filled with small endospores. A pyogenic reaction is superimposed when the spherules rupture to release the endospores (Fig. 15-39). Rare progressive *C. immitis* disease involves the lungs, meninges, skin, bones, adrenals, lymph nodes, spleen, or liver. At all these sites, the inflammatory response may be purely granulomatous, pyogenic, or mixed. Purulent lesions dominate in patients with diminished resistance and with widespread dissemination.

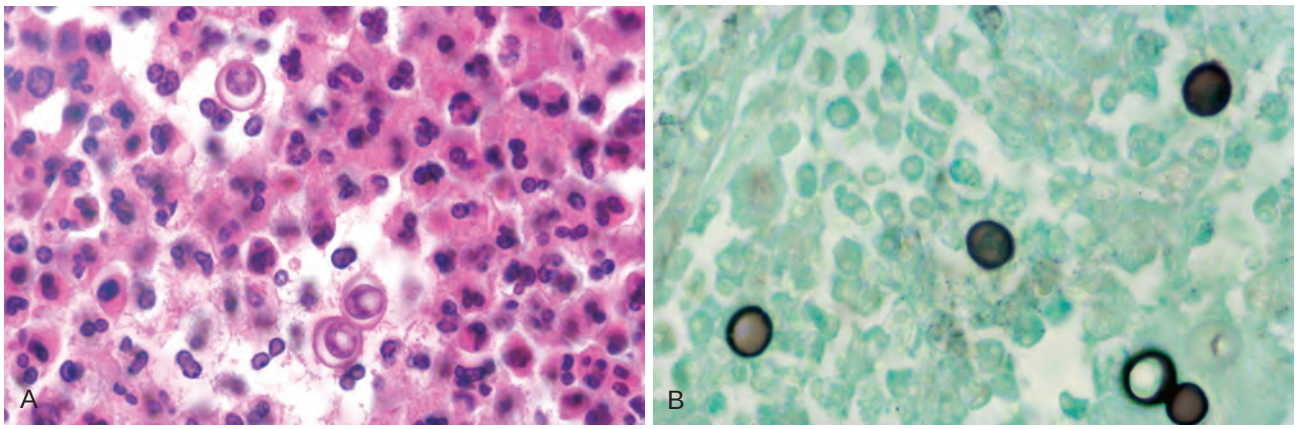

Figure 15-38 Blastomycosis. **A,** Rounded budding yeasts, larger than neutrophils, are present. Note the characteristic thick wall and nuclei (not seen in other fungi). **B,** Silver stain.