Answers to QUIZ 1 & 2

Answer to Quiz 1:

Cryptococcosis

Cryptococcosis is a systemic fungal infection caused by Cryptococcus neoformans. The organism is a yeast-like fungus that most commonly affects the lungs and central nervous system. The organism is ubiquitous and exposure therefore is high. Host susceptibility is an important factor in clinical manifestations, dissemination, and histopathologic and immunologic responses.

Primary cutaneous cryptococcosis has been reported (1), however, long term follow up is necessary to rule out systemic involvement. Skin involvement by cryptococcosis occurs in 10-15% of patients with systemic disease. Skin lesions appear as papules, nodules, pustules, plaques, tumors, ulcers, abscesses, or as lesions mimicking cellulitis and molluscum contagiosum.

Cryptococcal cellulitis has been described in immunocompromised patients (2). The eruption develops abruptly, and spreads rapidly. It is characterized by erythematous, edematous, tender plaques and patches. Vesicles and bullae may develop. Fever and constitutional symptoms are occasionally absent due to immunosuppression. The eruption often resembles bacterial cellulitis and antibiotics are often given without clinical improvement. Cryptococcal cellulitis occurs almost always in immunocompromised patients and usually heralds a poor prognosis.

The diagnosis of cryptococcosis is often established by demonstration of the organism in tissue specimen or by tissue culture. Histologically, a spectrum of pathologic changes are seen. On one end of the spectrum, a "gelatinous reaction" is characterized by the presence of numerous organisms in the dermis replacing the collagen fibers associated with minimal cellular reaction (Figure 6). On the other end, a granulomatous reaction with dense lymphohistiocytic inflammation with neutrophils, plasma cells, fibroblasts and foreign body giant cells is seen. The organisms are less frequent than in patients with the gelatinous reaction.

They are often seen within the giant cells and

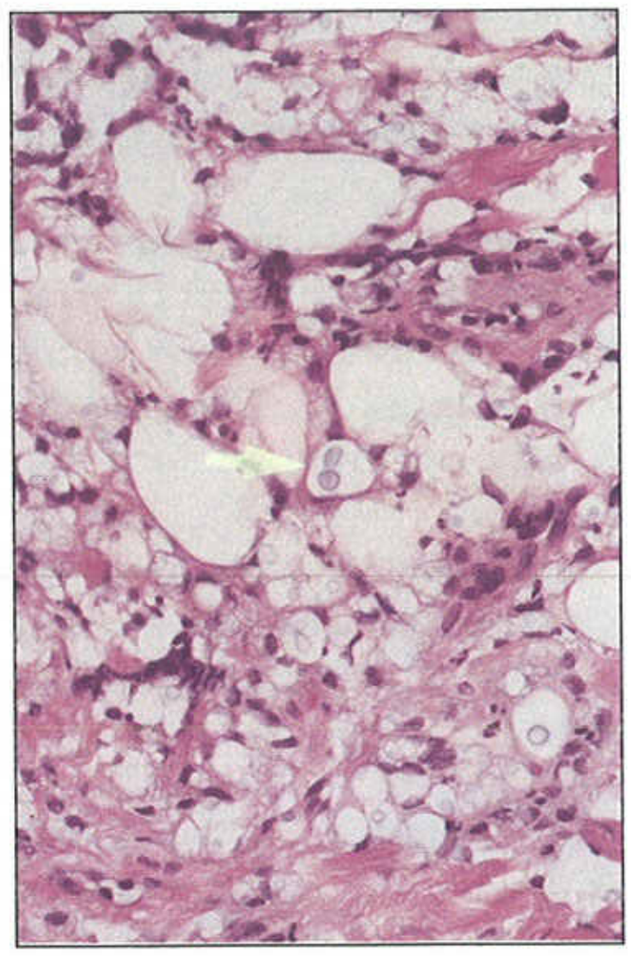

Figure 6 : Numerous C. neoformans organisms in the dermis replacing the collagen fibers associated with minimal cellular reaction, typical of so called " gelatinous reaction"

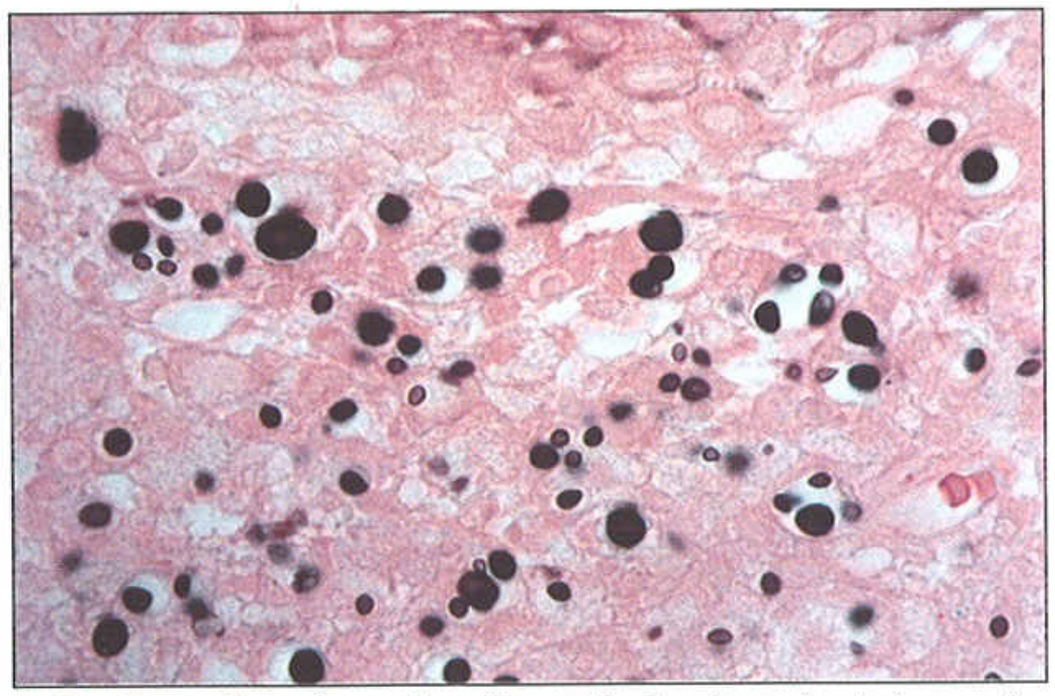

Figure 7 : Gomori's methenamine silver stain showing spherical or oval bodies that vary in size from 5 to 15 mm in diameter. This variation in size is very characteristic of C. neoformans

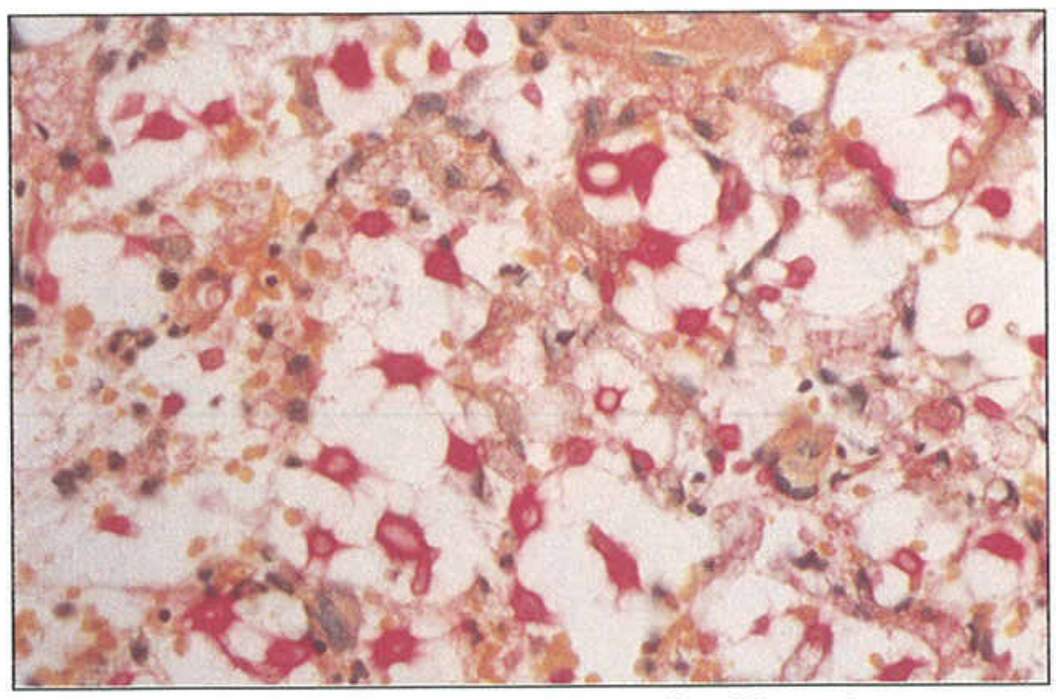

Figure 8 : Mucicarmine stain showing the capsule of C. neoformans.

also freely in the tissue. Intermediate forms between those two reactions are also observed. Both reactions may be seen in different areas of the same lesion.

The organisms appear as spherical or oval bodies that vary in size from 5 to 15 mm in diameter. This variation in size is very characteristic of cryptococcosis (Figure 7). The capsule can be demonstrated by mucicarmine, alcian blue pH 2.5, and colloidal iron stain (Figure 8). The cell wall stains with PAS, and Gomori methenamine silver technique. Occasionally, multiple budding organisms may be observed. This budding is often single and narrow-based.

Differential diagnosis :

The abundance of organisms is tissue specimen, the presence of the characteristic halo around the yeast cell, absence of broad-based budding and the distinctive tissue reaction help to distinguish cryptococcosis from North American blastomycosis (3). Histoplasmosis often reveal intracellular organisms and is rarely confused with cryptococcosis.

Treatment and prognosis :

Intravenous amphotericin B, 5-flucytosine, ketoconazole, and a decrease immunosuppression have been used in treatment (4).

REFERENCE

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3. *Daoud MS, Su WPD. "A case of North American Blastomycosis with special emphasis on differential diagnosis". Pathol Case Reviews, 1996;1(4):152-7.*
4. *Hernandez AD. Cutaneous cryptococcosis. Dermatol Clin 1989;7:269-74.*