Generalized Erythematous Maculopapules with Purpuric Center in a 29-year-old Woman with Acute Myeloid Leukemia

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CASE REPORT

A 29-year-old woman with acute myeloid leukemia developed pancytopenia and fever 10 days after a second course of consolidation chemotherapy with cytarabine and idarubicin. Her full blood count revealed white cell count: 80/uL (normal 4500-10000), hemoglobin: 9.1 g/dl (normal 11.3-15.3), and platelet count: 2000/uL (normal 150000-400000). Piperacillin/tazobactum and amikacin sulfate were prescribed, yet fever persisted. One week after fever began, generalized skin rashes and myalgia developed. Skin examination revealed multiple erythematous 3-5 mm maculopapules with purpuric center over face, trunk and limbs without symptoms (Fig. 1). An incisional biopsy was taken from the abdomen and the specimen was sent for routine H&E stain and periodic acid-Schiff stain (Fig. 2). Three sets of previously collected blood cultures grew Candida tropicalis. Antifungal agents with 50mg intravenous caspofungin acetate was administered daily and oral voriconazole 200mg was taken twice daily. Five days after treatment, fever, skin rash and myalgia had subsided. The patient was discharged in a stable condition 2 weeks later.

Fig. 1
Multiple erythematous 3-5 mm maculopapules with purpuric center.

Fig. 2
Numerous small, round to oval clusters of budding yeast spores and pseudohyphae in upper dermis. (PAS, original magnification x400)
DIAGNOSIS: Disseminated Candidiasis

DISCUSSION

Disseminated candidiasis is defined as the presence of Candida spp. in blood with organ system involvement. Incidences of disseminated candidiasis are growing due to an increase in high-risk patients. Patients prone to developing disseminated candidiasis include those with neutropenia, malignancy, indwelling catheter and those receiving broad-spectrum antimicrobial therapy, chemotherapy, organ transplantation and immunosuppressive agents.

Characteristic clinical presentation is antibiotic-resistant fever with tachycardia, dyspnea and hypotension. Any organ can be involved in disseminated infection.

The skin was involved in 10-35.8% of patients with disseminated candidiasis. In 1978, Jarowski et al. proposed clinical triad with fever, skin rashes and muscle tenderness could offer an earlier diagnosis of disseminated candidiasis. The characteristic skin lesions are erythematous to purpuric maculopapular or nodular rashes of variable sizes and numbers that mainly involve the trunk and proximal extremities. The purpuric change over skin lesions may be associated with thrombocytopenia or result from vascular damage by microorganisms.

In a review of 53 cases with disseminated candidiasis, 57% (30/53) were due to Candida albicans. In contrast, C. tropicalis was recovered in 63% (12/19) among those with cutaneous lesions, which may lead to further predilections for the skin.

Early diagnosis of systemic candidiasis is difficult due to the nonspecific clinical presentation and absence of a reliable diagnostic method. For a definite diagnosis, a fungus culture should be performed. Unfortunately, blood cultures are positive in only 25% of cases. Thus, obtaining tissue biopsies from suspected foci, such as liver, lung, cerebrospinal fluid or muscle, is helpful for establishing the presence of Candida. In contrast to tissue biopsies from internal organs, which are usually contraindicated due to the condition of patients, skin lesions are easier to approach and can provide a rapid diagnosis. Histopathologically, Candida is found in the upper dermis with vascular distribution. Inflammatory infiltration may be minimal in neutropenic patients. Under periodic acid-Schiff and Grocott’s methenamine silver stain, Candida species is present as round to oval budding yeast spores and pseudohyphae.

Disseminated candidiasis carries a high mortality rate. Empiric antifungal agents should be given early based on clinical suspicion of systemic fungal infection. Current choices of treatment include fluconazole, caspofungin, voriconazole, and amphotericin B.

Clinicians should be familiar with the clinical presentation of this fatal systemic yeast infection to avoid a delayed or missed diagnosis. Although skin lesions are not frequently present, they can aid in early recognition and treatment for disseminated candidiasis.

REFERENCES