A Case of Systemic Candidiasis with Skin Manifestations Simulating Varicella

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The characteristic skin lesions of systemic candidasis are papulonodules and a few cases of ecthyma gangrenosum and folliculitis-like lesions have been reported[1,2].

We report on another skin manifestation of systemic candidiasis clinically simulating varicella. A 6-year-old female patient, who had received chemotherapy for acute lymphoblastic leukemia, developed papulovesicles on the whole body accompanied by high fever and muscle tenderness. *Candida tropicalis* was isolated in fungus cultures from vesicular skin lesions, blood, urine and stool. (Ann Dermatol 6:(2) 212-214, 1994)

Key Words: Systemic candidiasis

Systemic candidiasis is a frequent and serious complication in the host whose immune responses have been compromised. Although wide-spread organ involvement is common, cutaneous lesions are uncommon in such patients. We report on another skin manifestation of systemic candidiasis clinically similar to varicella.

Therefore, the appearance of varicelliform papulovesicles in addition to papulonodular skin lesions accompanied by high fever in immunocompromised hosts would raise the possibility of systemic candidiasis.

REPORT OF A CASE

A 6-year-old female patient was admitted to our pediatric department for the evaluation and treatment of leukemia. At admission, her laboratory findings and bone marrow examinations were compatible with acute lymphoblastic leukemia (ALL), so she received scheduled anticancer chemotherapy with prednisolone, vincristine, L-asparaginase. She was relatively well until the 25th hospital day, when a sudden high fever to 39.5℃ and generalized papulovesicular skin eruption developed. Despite aggressive broad-spectrum antibiotics therapy for suspected septicemia high fever persisted. She was referred to our dermatologic department. The initial skin lesions showed discrete match head-sized papulovesicles surrounded by erythematous halo on the whole body surface(Fig. 1). Her family and past history were not contributory. On physical examinations, she appeared pale and edematous and complained of severe muscle pain to light palpation, lung sound was coarse with rale in RLL, hepatomegaly was detected. There were whitish patches on the oral mucosa. The laboratory data at that time included leukocyte count 2,900/mm^3, hemoglobulin 7.9 gm/dl, platelets 17,000/mm^3, prolonged PT/APTT, Na/K/CI/HCO_3 ; 126/2.6/93/22(meq/l), total protein/albumin ; 3.4/1.6(mg/dl), normal levels of SGOT/SGPT & BUN/Cr, positive CRP, many RBCs in the urine and positive stool occult blood. Chest roentgenogram revealed pneumonia in RLL and peripheral blood smear and bone marrow exam were compatible with ALL(L1). Tzanck smears from the skin lesions were negative. On the KOH examination, fungal spores and pseudohyphae were detected from the oral mucosa and vesicular skin lesions,

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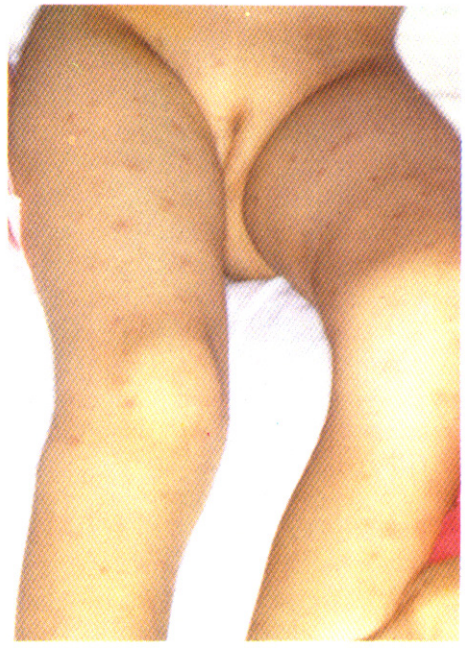

Fig. 1. Papulovesicles surrounded by erythematous halo on the whole body.

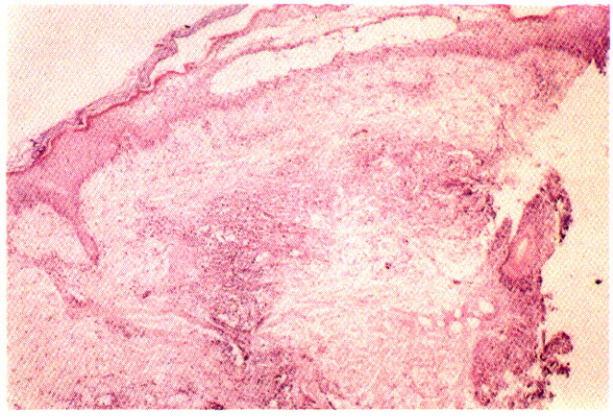

Fig. 3. Intraepidermal vesicles & granulomatous inflammatory infiltrates in the dermis(H & E, × 40).

Fig. 2. Creamy smooth surfaced whitish colonies were grown in fungus culture using vesicular fluid of the skin lesion(Sabouraud dextrose agar).

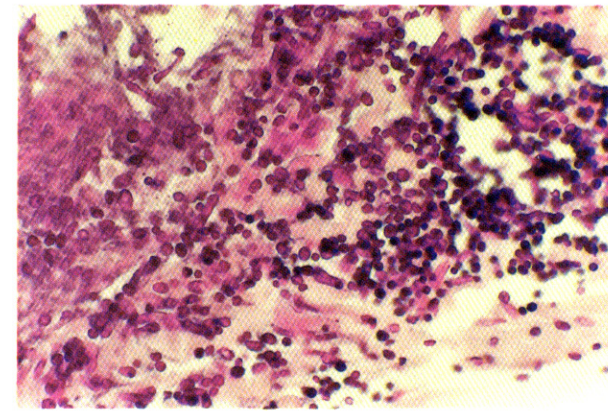

Fig. 4. Numerous PAS positive fungal spores and pseudohyphae noted in the granulomatous lesion(PAS, × 400).

and *Candida tropicalis* was isolated from oral mucosa, vesiclular skin lesions, blood, urine and stool by assimilation test and API 20C-AUX. Histopathological examination of the skin lesion showed intraepidermal vesicles containing several fungal spores and a large granulomatous collection of neutrophils, lymphohistiocytes and numerous fungal spores with myceliae in the dermis(Fig. 3, Fig. 4). On the following day, amphotericin B 20 mg daily was started under the diagnosis of systemic candidiasis. The skin lesions were gradually improved leaving crusts but the clinical status continued to remain unstable. On the 10th day after starting amphotericin B, repeated fungus cultures showed negative, but general condition was the same as before. Most of antibiotics were discontinued and fluorocytosine 2.0 gm daily was added. Despite the addition of fluorocytosine, she died on the 40th day from the onset of the skin lesions.

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DISCUSSION

Systemic candidiasis has become increasingly recognized among patients with compromised immune status[1]. In a recent series, it was seen at autopsy in 20 to 30% of patients with underlying acute leukemia[2]. But it is often difficult to diagnose early because of the low incidence of skin involvements and frequent negative blood cultures[3]. In one series, the cutaneous lesion occurred in 13% of patients with systemic candidiasis[4]. Several factors known to predispose to systemic candidiasis include the presence of an underlying diseases such as hematologic malignancy, neutropenia, and the use of broad-spectrum antibiotics and steroids[5]. The characteristic skin lesions are pink to red colored 0.5 to 1.0cm sized papulonodules and a few cases of ecthyma gangrenosum and folliculitis-like lesions have been reported[2, 6, 7, 8]. Although this life-threatening disease has tended to increase, a low incidence of skin involvements and low positive rates of blood cultures may delay the physician making a prompt diagnosis.

The skin lesions of this present case differed from erythematous papulonodules of systemic candidiasis described previously, although there were granulomatous infiltrates containing yeasts and pseudohyphae in the dermis histopathologically. Clinically, they resembled vaeicella that showed discrete match head-sized papulovesicles surrounded by erythematous halo on the whole body surface including face. This 6-year-old female patient suffered from sudden high fever and complained of muscle pain on light palpation despite aggressive antibiotics therapy. Microbial studies for septicemia were negative and Tzanck smears for vesicular skin lesions were negative. Suspecting systemic candidiasis, we performed KOH preparations using vesicles on the skin, in which, to our surprise, several fungal spores and pseudohyphae were observed and *Candida tropicalis* was isolated from blood, urine and stool in repeated fungus cultures. The histopathological examination of the skin lesion revealed large intraepidermal vesicles containing several fungal spores in addition to a large granulomatous inflammatory infiltrates with numerous fungal spores and myceliae in the middermis. No other reports about systemic candidiasis and organisms in the epidermis. The histopathological findings of the skin lesions of systemic candidiasis differs from that of cutaneous candidiasis in the location of the organisms and the tissue reactions[9]. In systemic candidiasis, the organisms are usually found in the perivascular areas of the dermis and the inflammatory reactions are not substantial in contrast to intracorneal or subcorneal distribution of organisms and polymorphonuclear leukocytes infiltrates of cutaneous candidasis. It seems that the mild inflammatory infiltrates in systemic candidiasis are attributable to the impairment of the patients' immune mechanisms and their neutropenia. The present case also showed relatively less amount of inflammatoy infiltrates compared with numerous organisms.

In conclusion, the appearance of varicelliform skin eruptions in addition to papulonodules, ecthyma gangrenosum, or folliculitis-like lesions in a febrile patient who is failing to respond to antibacterial antibiotics could indicate the possibility of systemic candidiasis, especially if the patient has impaired host-defence mechanism.

REFERENCES

1. File TM, Marina OA, Flowers FP: Necrotic skin lesions associated with disseminated candidiasis. Arch Dermatol 1979; 115: 214-215.
2. Fine JD, Miller JA, Harrist TJ, et al: Cutaneous lesions in disseminated candidiasis mimicking ecthyma gangrenosum. Am J Med 1981; 70: 1133-1135.
3. Stone HH, Kolb LD, Camilla A, et al: Candida sepsis. Ann Surg 1974; 179: 697-711.
4. Bodey GP, Luna M: Skin lesions associated with disseminated candidiasis. JAMA 1974; 229: 1466-1468.
5. Stiehm ER, Fischer TJ, Young LS: Severe candidal infection. Ann Intern Med 1978; 89: 91-106.
6. Jorowski CI, Fialk MA, Murray HW: Fever, rash, and muscle tenderness. Arch Intern Med 1978; 138: 544-546.
7. Collignon PJ, Sorrell TC: disseminated candidiasis. Br Med J 1983; 287: 861-862.
8. Bielsa I, Miro JM, Herrero C: Systemic candidiasis in heroin abusers. Int J Dermatol 1987; 26: 314-319.
9. Balandran L, Rothschild H, Pugh N: A cutaneous manifestation of systemic candidiasis. Ann Intern Med 1973; 78: 400-403.