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The Clinical Picture

Dermatitis in an intestinal transplant candidate

FIGURE 1

A 36-year-old woman on total parenteral nutrition because of short-bowel syndrome presented with a 2-week history of skin lesions on the face, arms, and legs, but no fever. Examination revealed prominent vesicular lesions on the left arm (**FIGURE 1**), face, palms, and soles. Cultures of biopsy specimens were negative for viral, bacterial, and fungal organisms.

Q: Which is the most likely diagnosis?

- ☐ Herpes simplex infection
- ☐ Varicella zoster infection
- ☐ Coxsackievirus infection
- ☐ Micronutrient deficiency
- ☐ Pemphigus vulgaris

A: Micronutrient deficiency is most likely the cause of her lesions—specifically, severe zinc deficiency, as she was found to have a serum zinc concentration of 12 µg/dL (reference range 55–150). Biopsy specimens showed characteristic intraepidermal blistering with necrosis and minimal inflammation. Serum levels of other micronutrients (iron, copper, selenium) were normal.

Her total parenteral nutrition regimen contained no zinc. Zinc supplementation was started, and a few days later the lesions began to resolve.

Herpes viral infections can cause similar blistering lesions, but this diagnosis was unlikely given the negative viral culture and direct fluorescence antibody test. Coxsackievirus infection is most often seen in children and typically causes fever and mouth sores, which this patient did not have. Lesions of pemphigus vulgaris typically exhibit the Nikolsky sign, ie, they are flaccid, they rupture easily, and the surrounding superficial skin separates from the deeper layers with rubbing or minor trauma. Our patient's blisters were tense, with a negative Nikolsky sign, and skin biopsy was not consistent with pemphigus vulgaris.

Dermatitis can result from zinc deficiency, which can occur in conditions that cause severe malnutrition due to malabsorption or reduced dietary intake—eg, inflammatory bowel disease, anorexia nervosa, chronic alcoholism, and cystic fibrosis. The lesions can be complicated by secondary bacterial infection, which can cause significant morbidity. Zinc deficiency can also suppress cell-mediated and humoral immunity.

Zinc deficiency can be diagnosed on the basis of clinical findings, skin biopsy, and serum zinc levels. Other micronutrient deficiencies can coexist and should be ruled out. Perioral and acral skin lesions are typically more prominent. Zinc supplementation usually produces rapid resolution of the lesions.

Our patient's presentation highlights the importance of monitoring micronutrient levels, including zinc, in patients on long-term total parenteral nutrition. Nutritional deficiencies should be considered as a possible cause of dermatitis in such patients. ■

SUGGESTED READING

Gehrig KA, Dinulos JG. Acrodermatitis due to nutritional deficiency. Curr Opin Pediatr 2010; 22:107–112.

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doi:10.3949/ccjm.80a.12101