Underlying Zinc Deficiency presenting as Recurrent Cellulitis in a Middle-Aged Caucasian Male

Category: Medicine & Medical Specialties; Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

Presenting Author: Anvit Dandu Reddy, BS, 3rd Year Medical Student, Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine, Ft. Lauderdale, Florida

Coauthors: Niyati Patel, 3rd Year Medical Student, Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine, Ft. Lauderdale, FL; Dr. Uma Gudur MD, Hospitalist, Internal Medicine, Advent Health Ocala, Ocala, FL

Introduction: We present a case where recurrent cellulitis occurred secondary to an underlying zinc deficiency. Cellulitis is a deep skin infection characterized by erythema, pain, warmth, and swelling. There are over 650,000 admissions due to cellulitis per year in the United States making it one of the most common diagnoses in the hospital setting. Zinc deficiency is a known complication of chronic alcoholism with 90% of alcoholics having an inadequate dietary intake. Zinc plays a role in gene expression, enzyme function, immune function, and skin integrity among many other functions. Zinc deficiency presents as acrodermatitis, scaly skin, and desquamation throughout the body.

Case: A 57 y/o Caucasian male with a past medical history of COPD and past social history of alcoholism, smoking, and homelessness presented to hospital with a chief complaint of upper limb swelling and bilateral leg swelling. Patient presented several times in the past for similar complaints dating back to 2 years ago. On admission, his vitals were HR: 120, BP:132/88, RR:19, and Temp- 98.4 F.

Physical exam revealed extensive desquamation of hands and legs, erythema on abdomen with some scaling, swelling, and breakage of skin with maggots present in lower extremities.
There was no history of childhood conditions and he was up to date on all immunizations.
Blood cultures were positive for MSSA and his echo revealed no vegetations. A skin Biopsy showed psoriasiform dermatitis with acanthosis, parakeratosis and absent granular layer.

Differentials: Cellulitis- Started on vancomycin and cefepime. Psoriasis- Started on prednisone. Other differentials included pityriasis rubra, pellagra, and atopic dermatitis. The patient was readmitted several times for similar chief complaints.

Diagnosis and Treatment: On the most recent readmission, the patient was treated empirically for cellulitis and psoriasis again. This time, Zinc levels were checked due to his history of alcoholism and were 28.2 (normal is 66 to 110). He was started on a Zinc supplement and the steroid cream was discontinued due to its counterproductive effects (increased thinning of skin). Antibiotics were continued until the course was finished, and the patient was discharged on a zinc supplement. His skin became intact, and the desquamation improved.

Learning Objectives
1. Understand the differential diagnoses and workups for skin abnormalities
2. Recognize the importance of comprehensive physical examination and history taking in managing skin abnormalities

References and Resources

1. Adam B. Raff, MD. “Diagnosis and Treatment of Cellulitis.” JAMA, JAMA Network, 19 July 2016, https://jamanetwork.com/journals/jama/article-abstract/2533510.

2. Kanwar, Amrinder Jit. “Adult-Onset Atopic Dermatitis.” Indian Journal of Dermatology, Medknow Publications & Media Pvt Ltd, 2016, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5122283/.

3. Kim, Whan B, et al. “Diagnosis and Management of Psoriasis.” Canadian Family Physician Medecin De Famille Canadien, College of Family Physicians of Canada, Apr. 2017, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5389757/.

4. McClain, Craig, et al. “Role of Zinc in the Development/Progression of Alcoholic Liver Disease.” Current Treatment Options in Gastroenterology, U.S. National Library of Medicine, June 2017, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6206836/.

5. Ogawa, Youichi, et al. “Zinc and Skin Disorders.” Nutrients, MDPI, 11 Feb. 2018, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5852775/.