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Linear Darier disease after COVID-19 infection

Aaron Burch, BS,a Tyler Long, DO,b and Craig Garofola, DOb

Key words: acantholysis; COVID-19; COVID-19 vaccine; cutaneous; Darier disease; dermatology; dyskeratosis; genodermatosis; linear Darier disease.

INTRODUCTION
Darier disease, also named Darier-White disease and keratosis follicularis, is an inherited skin disease that commonly presents in childhood but can present later in life. Clinically, disease is characterized by multiple brown keratotic papules coalescing into greasy plaques in the seborrheic distribution/areas of the body. Lesions are histologically characterized as acantholytic dyskeratosis with associated hyperkeratosis.1 Most cases first appear between ages 6 and 20 years old and clinically present in a generalized and symmetric distribution, but approximately 10% of patients present with localized disease described as segmental, unilateral, linear, or zosteriform.2 Here, we discuss a case of a 74-year-old Caucasian male with a linear truncal rash after hospitalization for COVID-19 infection. While COVID-19 vaccination has been reported to precipitate Darier disease, Darier disease after natural COVID-19 infection has not been previously published.3

CASE PRESENTATION
A 74-year-old Caucasian male with no past medical history presented with a raised, scaly erythematous rash located on the trunk for the past 5 months. The patient reported no pain but complained of moderate pruritus. Five months prior, the patient was hospitalized for COVID-19 infection and the rash appeared shortly after discharge. The patient did not receive a COVID vaccination prior to this infection nor after the admission. Current medications included aspirin, and the patient completed a short course of oral steroids for COVID pneumonia symptoms. The patient denied any associated symptoms or history of any similar skin findings. The patient also denied fever, chills, cough, blisters, recent sore throat, diarrhea, or joint aches. He reported no household contacts with a similar rash. Patient had no recent changes in medications and reports no new personal care products. Examination revealed brown vesicular and keratotic papules in a linear distribution on the left lateral abdomen (Fig 1). Differential diagnoses included linear Darier disease, Grover disease, and acantholytic dyskeratotic epidermal nevus. Saucerization biopsy showed acantholytic dyskeratosis, confirming a diagnosis of linear Darier disease (Fig 2). Topical tazarotene 0.05% treatment was initiated with moderate improvement at 3 months.

DISCUSSION
We are reporting a case of linear Darier disease after COVID-19 infection. Linear Darier disease is a rare, localized variant that occurs in approximately 10% of patients with this autosomal dominant disease.2 Lesions commonly follow Blaschko’s lines due to the underlying genetic mosaicism from postzygotic mutations in genes encoding SERCA2 pump.4 Histopathology demonstrates acantholysis and dyskeratosis represented by the hallmark findings of corps ronds and grains. Disease can be triggered and further exacerbated by heat, stress, medications, or infection.5 It is possible that this case represents a
disease exacerbation following the stressors of infection.

To our knowledge, an association has not been observed among COVID-19 infections and linear Darier disease. However, COVID-19 has been associated with many cutaneous manifestations such as rash, pernio-like acral lesions, urticaria, macular erythema, vesicular eruption, papulosquamous eruption, and retiform purpura. The underlying pathophysiology that best explains this spectrum of dermatologic presentations is believed to be from an overactive immune response to the viral nucleotides as well as the presence of the viral particles in the cutaneous vasculature that interact with keratinocytes.

Recently, a case has been reported of a patient who presented with a flare of Darier disease 2 days after receiving her COVID-19 vaccination. Therefore, an association between COVID-19 vaccination and Darier disease has been observed, but the authors were unable to find a natural COVID-19 infection associated with linear Darier disease presentation. PubMed was queried for “Darier” AND “COVID.” Our patient had no prior history of Darier disease, so we believe his infection precipitated development of disease despite his advanced age and the fact that a majority of cases develop in childhood. This presentation adds to our understanding of variable presentation of linear Darier disease.

The primary management goal in Darier disease is to control symptoms while avoiding triggers, wearing loose and cotton clothing, and using emollients and topical corticosteroids to control itching. In extensive or severe disease, topical and oral retinoids have been found to be effective. Our patient’s rash resolved partially after initiation of topical tazarotene 0.05%.

Dermatologists and other providers should be aware of this association due to the current nature/condition of the global pandemic. This case adds to our understanding that COVID-19 can not only incite flares of Darier disease and its variants but can precede the initial onset of disease. When differentiating between linear lesions, it’s important to consider linear Darier disease as a viable diagnosis to not delay in starting supportive management to improve the patient’s quality of life.

Conflicts of interest
None disclosed.

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