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Erythema nodosum-like rash in a COVID-19 patient: A case report

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Coronavirus 2019 (COVID-19) is a viral disease first described in Wuhan, China, which has quickly emerged as a global pandemic with a myriad of manifestations including dermatologic [Li My et al., n.d.; Gottlieb and Long, 2020 [1,2]]. A variety of cutaneous symptoms have presented throughout various stages of the disease (Marzano, 2020; Recalcati, n.d.; Henry et al., n.d.; Fernandez-Nieto et al., n.d.; Quintana-Castanedo et al., n.d. [3-5,7,8]). We describe a case of a female patient who presented with an Erythema Nodosum-like exanthema likely secondary to COVID-19. The patient described tested positive for COVID-19 three days prior to presentation for the rash with minimal other symptoms of COVID-19. Given the high infectivity rate as well as multisystem presentation, it is important to continue to report on novel presentations of the virus for early identification and treatment of complications.

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Introduction

Erythema nodosum (EN) is a delayed-type hypersensitivity reaction that can be triggered by a variety of conditions, including infection, drugs, pregnancy, malignancy, and inflammatory processes. While its pathophysiology is not fully elucidated, EN is most commonly associated with infection, particularly Streptococcus species [6]. It occurs in both sexes and all age ranges, although more often in women [6]. On exam, classic presentation involves the lower extremities with patients presenting with tender, erythematous nodules on bilateral shins. Nodules typically resolve on their own without intervention within eight weeks of onset [6]. The diagnosis of EN is primarily clinical based on history and physical examination. Laboratory studies and skin biopsy may be considered in atypical presentations to confirm diagnosis. The condition typically resolves spontaneously and therefore treatment targets symptom control [6].

Coronavirus 2019 (COVID-19) is a novel virus thought to infect cells through angiotensin-converting enzyme 2 (ACE2) receptors which can be found on multiple organ systems, including skin [1]. There have been multiple reports of cutaneous manifestations of the disease ranging from pernio (chilblain)-like lesions to urticarial rashes [2]. Below, the authors discuss a case of COVID-19 triggered EN.

Case presentation:

A 54-year-old female with history of hypothyroidism and hypertension presented to the Emergency Department with chief complaint of new rash developing over the last 24 h. This erythematous, painful and pruritic rash was diffusely spread over the bilateral upper extremities, chest, neck, back, and face. The patient was confirmed positive by nasopharyngeal Polymerase Chain Reaction (PCR) for COVID-19 72 h prior to rash onset. The patient's review of systems was unremarkable.

The patient's initial vital signs were blood pressure of 149/78 mmHg, heart rate of 81 beats per minute, respiratory rate of 20 breaths per minute, oxygen saturation of 96% on room air with a temperature of 97.9 degrees Fahrenheit. On exam the patient had erythematous, non-blanching, circular, raised, tender nodules located on bilateral upper extremities, chest, back, neck, and face consistent with EN (Figs. 1-3). Ulceration and weeping were not noted on exam.

The patient was discharged with strict return precautions and advised to quarantine per Center for Disease Control guidelines. To reduce the spread of COVID-19 to healthcare workers, Dermatology was not consulted during the patient’s Emergency Department visit based on her clinically stable exam. She was prescribed naproxen and hydroxyzine for symptom control.

Discussion

With the continued rise in COVID-19 cases globally, recognizing the multitude of disease presentations is key in both treatment of individuals and containment of viral spread. The true frequency of cutaneous manifestations is unknown but is estimated to be up to 20.4% of cases [4]. There have been multiple case reports and case series outlining dermatologic manifestations of COVID-19. The previously described exanthems include vesicular, pernio (chilblain)-like lesions, livedo reticularis, urticarial, petechial, and maculopapular [2,5,7-11]. These viral exanthems have been described to occur throughout various stages of the disease and do not correlate well with severity of illness.

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While many cases have reported dermatologic symptoms prior to respiratory symptoms, the majority of studies have suggested onset a few days after other symptoms [2].

However, the above case describes a novel cutaneous presentation of COVID-19 as well as a unique presentation of EN. This particular patient did not warrant hospitalization at the time of presentation, though further cases outlining the presentation of similar exanthems would be helpful in elucidating timing and severity of illness associated with EN-like eruptions in COVID-19. It is crucial for emergency physicians to recognize the variety of COVID-19 manifestations, including dermatologic, to aid in earlier identification of this highly communicable world-wide disease.

Conclusion

Erythema nodosum is a self-limiting rash that has been implicated with many known triggers including infection, malignancy, and drugs. Its identification as possible dermatologic exanthema for COVID-19 is important for early identification, treatment, and quarantine of this disease. Earlier identification and recognition of the virus by emergency physicians will help improve outcomes and mitigate transmission.

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