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CASE REPORTS

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Gianotti-crosti syndrome in the setting of recent coronavirus disease-19 infection

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Abstract

Since the onset of the COVID-19 pandemic, the growing body of literature has largely focused on the adult population. Reported symptoms among children appear to be consistent with those in adults, including fever, respiratory symptoms, and gastrointestinal symptoms, though children may experience an overall milder disease course. Viral exanthems with possible association to COVID-19 have been reported in pediatric patients. We describe a 10-month-old boy with Gianotti-Crosti syndrome in the setting of recent SARS-CoV-2 RT-PCR positive testing to increase physician awareness and add to the collection of cutaneous manifestations of COVID-19.

KEYWORDS

COVID-19, dermatology, exanthema, Gianotti-Crosti, pediatrics, virology

1 | INTRODUCTION

Since the onset of the COVID-19 pandemic, the growing body of literature has largely focused on the adult population. Findings from the initial outbreak in China showed that only 2% of 72 314 cases consisted of patients 0-19 years of age, though more recent data from the United States reflects a higher proportion of cases occurring in patients 0-17 years of age at approximately 10%.[1,2] Reported symptoms among children appear to be consistent with those in adults, including fever, respiratory symptoms, and gastrointestinal symptoms, though children may experience an overall milder disease course.[3] Notably, chilblains on the acral surfaces are thought to occur frequently in children and young adults with COVID-19.[4-8] In addition, viral exanthems with possible association to COVID-19 have been reported in pediatric patients, such as erythema multiforme-like lesions, varicella-like lesions, purpuric eruptions, and plantar papules with petechiae and annular lesions.[9-14] Herein, we present a case of Gianotti-Crosti syndrome in the setting of recent COVID-19 infection.

2 | CASE REPORT

A 10-month-old boy with a history of atopic dermatitis presented with a new-onset bumpy rash that started seven days prior to presentation. Per mother, the patient's rash appeared on his buttocks and spread to his extremities and cheeks. The patient had not been itchy or bothered by the rash. No treatments were attempted.

Upon review of systems, mother reported that the patient had fevers and cough with a positive SARS-CoV-2 reverse transcriptase-polymerase chain reaction (RT-PCR) swab four weeks prior. The patient's immediate family members developed similar symptoms and tested positive for SARS-CoV-2 RT-PCR three days later. Constitutional symptoms resolved within one week, and the current rash appeared three weeks later in the patient, but no similar rash was seen in other family members. The patient and family have no history or risk factors for hepatitis.

On clinical examination, the patient appeared well and interactive. Symmetric, well-circumscribed erythematous papules and

Abbreviations: COVID-19, coronavirus disease-19; RT-PCR, reverse transcriptase-polymerase chain reaction; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

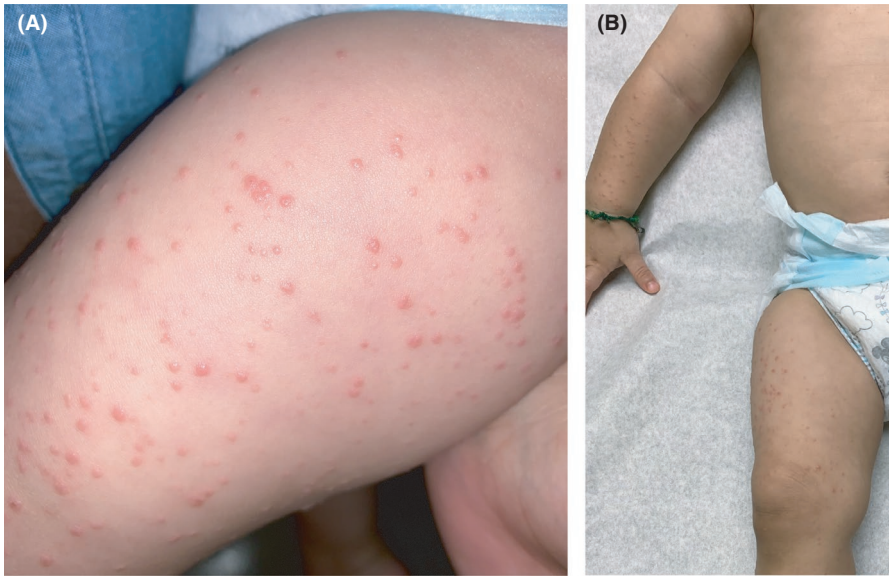

FIGURE 1 Symmetric, well-circumscribed erythematous papules and vesicles with subtle scaling (A) scattered on the extremities and (B) sparing the trunk

vesicles with subtle scaling were found scattered over the bilateral cheeks, bilateral upper extremities, bilateral lower extremities, and buttocks with notable and abrupt sparing of the chest, abdomen, and back (Figure 1A,B). No hepatosplenomegaly or lymphadenopathy was present. History and physical were consistent with papular acrodermatitis of childhood, commonly known as Gianotti-Crosti syndrome. The mother was provided reassurance about the benign, self-resolving nature of this rash without the need for further treatment.

3 | DISCUSSION

Gianotti-Crosti syndrome is a common dermatosis that primarily affects children 2 to 6 years of age and is classically described as an asymptomatic, self-limited monomorphous papulovesicular exanthem predominantly occurring on the cheeks, extensor extremities, and buttocks.[15] The lesions may be mildly pruritic. Systemic findings, such as lymphocytosis, lymphadenopathy, and hepatosplenomegaly, are considered to be indicators of recent infectious etiologies. No gender, genetic, or familial predispositions have been expressed; however, patients with atopic diseases are frequently affected.[15] Diagnosis is largely clinical, and the disease is self-limited, lasting between 25 and 45 days; no treatment is indicated.

Although Gianotti-Crosti syndrome is commonly associated with Epstein-Barr virus and hepatitis B virus, numerous viruses, including hepatitis A virus, cytomegalovirus, coxsackievirus, influenza, enteroviruses, echovirus, herpes simplex virus, HHV-6, rotavirus, mumps, parainfluenza virus, parvovirus B19, poxviruses, respiratory syncytial virus, and HIV, as well as vaccinations, including influenza, diphtheria-pertussis-tetanus, poliomyelitis, hepatitis B, and measles, have been reported as infectious triggers. Recent reports of bacterial infections, such as *Bartonella henselae*, *Borrelia burgdorferi*, β-hemolytic *Streptococcus*, and *Mycoplasma pneumoniae* have also been noted.[15]

In the era of COVID-19, maculopapular rashes, with or without pruritus, have been reported more frequently than other cutaneous manifestations.[16] Unlike the majority of these rashes, which appear during the active phase of COVID-19, Gianotti-Crosti appears after resolution of the infection. A post-viral immunologically mediated pathophysiology has been proposed, stimulated by at least two immunomodulating factors; viral infection appears to be the most important immunomodulating agent.[17] Atopy, being a widespread immunomodulating disease, is likely associated with Gianotti-Crosti for this reason.[18] It has also been postulated that a virus-induced delayed hypersensitivity immune response can precipitate this acral papular dermatosis based on the findings of CD4 + lymphocytes in the dermal infiltrate and CD8 + lymphocytes in the dermoepidermal junction, as well as CD1 + Langerhans cells in the papule.[19] As with any other viral trigger, COVID-19 is suspected to create immunocomplexes, leading CD4 + T-helper lymphocytes to produce cytokines and recruit CD8 + cytotoxic lymphocytes in the later stages of its natural course.[20]

Lee et al described a similar presentation of an acral papular eruption in a child with previous flu-like symptoms.[21] The 29-month-old girl discussed in their case series developed Gianotti-Crosti syndrome four weeks after multiple family members were found to be SARS-CoV-2 RT-PCR positive, although the patient had not been tested herself. While she was later found to have positive SARS-CoV-2 serology by ELISA, this technique has demonstrated low specificity compared with SARS-CoV-2 RT-PCR.[22,23]

Due to lack of identifiable confounding variables, we believe that COVID-19 was the infectious trigger for this patient's papular acrodermatitis. We report this case to increase physician awareness and encourage further data collection of cutaneous manifestations of COVID-19.

AUTHOR CONTRIBUTIONS

All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

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