

## IMAGING CASES

### Chilblain-like lesions in a pediatric patient

#### Lesões tipo-frieira num doente pediátrico

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A 12-year-old female patient was observed in the Emergency Department due to red-violet lesions on the toes, without edema, as depicted in the images below. She reported minor trauma to the third toe of the right foot one month earlier. The girl denied pain, discomfort, pruritus, or similar previous episodes. She had the diagnosis of COVID-19 17 days earlier but was always asymptomatic. Blood tests, including coagulation studies, were performed, disclosing no significant alterations.

**What is your diagnosis?**



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## DIAGNOSIS

Pernio-like skin lesions associated with COVID-19 (“COVID-toes”).

## DISCUSSION

Coronavirus infectious disease 2019 (COVID-19) usually has a benign course in the pediatric population, with most children being asymptomatic or presenting mild symptoms. Cutaneous manifestations related to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection were initially reported by Italian dermatologists, and an increasing number of cases has been identified since. They comprise maculopapular rash, urticarial lesions, chilblain-like lesions, vesicular eruptions, or thrombotic ischemic lesions.<sup>(1,2)</sup>

Classic chilblains, also called pernio, are characterized by the development of erythrocyanotic skin lesions in the acral region and usually represent an exacerbated skin response to nonfreezing cold exposure in susceptible individuals. They are most common in women and middle-aged adults, being relatively uncommon in children.<sup>(3)</sup> Chilblains may be primary (idiopathic) or secondary to a systemic disorder.<sup>(1,4)</sup> Clinically, they are characterized by single or multiple pink to violaceous macules or papules on acral surfaces, most commonly on the hands and feet. The dorsal toes or fingers are classic sites of involvement, with the heels, nose, and ears less frequently affected. Symptoms include pruritus, pain, tenderness, or burning sensation.<sup>(1)</sup>

Since March 2020, an increasing number of cases of chilblain-like lesions associated with COVID-19 (“COVID toes”) have been reported, with current estimates suggesting that they represent up to 19% of cutaneous manifestations of the infection.<sup>(4)</sup> These cases differ from classic pernio for their predilection for younger patients (average age 12–14 years), absence of triggering factors (such as cold exposure), and balanced sex distribution. Lesions present on the feet in 74–100% of cases but can also occur on the hands and fingers.<sup>(4,5)</sup> Most patients are asymptomatic or mildly symptomatic and may present with local pain or itching.

Little is known about the pathogenesis of these lesions. Some theories postulate that COVID-19 may be responsible for coagulation disorders and an increased risk of thromboembolism leading to acral ischemia.<sup>(2,3)</sup>

Polymerase chain reaction (PCR) of nasopharyngeal SARS-CoV-2 samples is negative in most children with pernio-like lesions. To explain this, it has been proposed that these patients have very mild disease, with low viral load undetectable by PCR, or that chilblains may present later in the course of COVID-19 when viral RNA is no longer detectable.<sup>(5)</sup>

Most children and adolescents with the condition have a favorable outcome, with complete resolution of lesions without treatment or complications, although hyperpigmentation can occur.<sup>(1,3)</sup> In some cases, supportive measures may be necessary to control pain or

pruritus. In the present case, no treatment was required, with lesions spontaneously resolving.

Since children with COVID-19 are often asymptomatic, the development of pernio-like lesions should raise clinicians’ awareness of this diagnosis, helping to early identify silent carriers and prevent further transmission of the infection.

## ABSTRACT

COVID-19 usually has a mild course in the pediatric population. Several cutaneous manifestations of the condition have been reported, being chilblain-like lesions one of the most common in younger ages. These may manifest as erythematous or violaceous macules, mostly involving the toes and feet, but less frequently also the fingers and hands. These patients usually have a favorable outcome, with complete spontaneous regression of lesions and no complications. The authors report the case of a 12-year-old female patient who presented to the Emergency Department with cutaneous lesions suggestive of chilblains and a diagnosis of COVID-19 infection 17 days earlier.

**Keywords:** chilblains; COVID-19; COVID-toes; foot; pernio; skin

## RESUMO

A infecção por COVID-19 tem habitualmente um curso indolente na população pediátrica. Têm sido descritas diversas manifestações cutâneas da condição, sendo as lesões do tipo frieira as mais comuns em idades jovens. Estas podem manifestar-se através de máculas eritematosas ou violáceas que atingem os dedos dos pés e os pés em quase todos os casos, e menos frequentemente as mãos e os dedos das mãos. Estes doentes têm habitualmente uma evolução favorável, com regressão espontânea completa das lesões e sem complicações. É apresentado o caso de uma rapariga de 12 anos que recorreu ao Serviço de Urgência por lesões cutâneas sugestivas de frieiras, que tinha tido o diagnóstico de infeção por COVID-19 17 dias antes.

**Palavras-chave:** COVID-19; dedos-COVID; frieiras; lesão perniosa; pele; pé

## AUTHORSHIP

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