

infected. This observation raises several questions and considerations.

Firstly, it would be important to determine the pathogenesis of vascular damage to understand why the patient developed acral necrosis 20 days after her second test had resulted negative (i.e. the patient could be considered healed). Our case seems to support the theory of a delayed immune-mediated reaction to the virus.<sup>1</sup>

Moreover, until now we have been used to observing benign acral lesions that progress towards complete recovery; therefore, it is important to determine whether the necrotic outcome is related to any risk factor such as the advanced age of the patient, a genetic predisposition or whether it could be related to her well-established venous impairment, the latter being less likely as we did not observe a worsening of the leg ulcers.

We would like to draw clinicians' attention to the possibility that acral lesions may also be observed in the elderly and that these could have a necrotic outcome.

Finally, we underline that, whilst necrosis is considered a primary lesion of COVID-19,<sup>4,5</sup> it can also present with a late onset, suggesting that a longer period of follow-up is needed also in the healed population to detect late complications.

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### Conflicts of interest

The authors have no conflict of interest to disclose.

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## Diversity of clinical appearance of cutaneous manifestations in the course of COVID-19

Dear Editor

The outbreak of COVID-19 has stricken more than 203 000 people in Italy up to 30th of April 2020, with over 27 000 died according to official estimates.<sup>1</sup> While Italy was one of the most affected countries in Europe, the impact of the disease in the southern part of the state was less dramatic than in the north, due to some still not understood reasons. Particularly in Sicily, 'only' 3140 cases have been recorded, of whom 533 encountered in the province of Messina.

Apart from the well-established signs and symptoms of the disease, the spectrum of possible cutaneous manifestations before, in the course of, or after SARS-CoV-2 infection is discussing.

We read with great interest the paper by Recalcati *et al.*<sup>2</sup> together with further clinical contributions on the JEADV.<sup>3–5</sup>

One hundred and twenty-five COVID-19 confirmed cases (by nasopharyngeal swab) have been referred to our COVID Hospital between 10 March 2020 and 26 April 2020. Taking advantage of the front-line involvement of a dermatologist in the medical team, we checked them for cutaneous manifestations and related anamnestic data, when available.

Among these patients, 109 were admitted in conventional hospitalization and 16 to the intensive care unit (ICU). There were 61 females (54.5%) and 51 males (45.5%), with a mean age of 71.9 years (range: 19–100 years). Twenty-three died during their stay, of whom five receiving continuous intensive medical support.

We collected a total of 13 associated cutaneous diseases (10.4%), represented by widespread urticarial eruption (two cases), panniculitis (three cases), erythematous rash (two cases), chilblains-like lesions (one case), two cases of acrocyanosis arisen in patients with leg thrombosis (one of them finally leads to amputation) and two cases of reactivation of oral herpes simplex.

Although three out of 13 cases (23%) were observed in ICU, skin involvement seems not to be related to the severity of the disease; in fact, two of them were HSV-1 reactivation that could be considered as relatively common in course of prolonged intubation during the first days of hospitalization. Besides, their general condition improved in the further weeks.



**Figure 1** Chilblains-like lesions in a female 27-year-old patient



**Figure 2** Similar cutaneous manifestations in a 12-year-old girl. Both patients tested positive for SARS-CoV-2

Erythematous rash has been recognized as a possible specific cutaneous sign of SARS-CoV-2 infection.<sup>1,6</sup> In our case series, rash involved the trunk then the upper and lower limbs in two female patients; cutaneous lesions were present at hospital admission, healing spontaneously in 3 and 18 days. No itching or burning was reported.

As for other reports in literature,<sup>7</sup> we observed also urticaria, with mild pruritus and associated angio-oedema in one case. In our cases, one presenting at the admission, no apparent triggers had been detected. Three males (one hospitalized at the ICU) developed erythema nodosum-like lesions of the legs.

Finally, in addition to the patient with chilblains-like lesion visited directly, we screened *via* teledermatology a total of 22 patients complaining of perniosis-like lesions (Figs 1, 2), mainly in the paediatric age ( $\leq 18$  years). Thus, the whole datum

included nine males (39.2%) and 14 females (60.8%), ranging from 6 to 30 years (mean age: 14.3 years.), 19 (82%) being children (eight males and 11 females). All of them were tested with rhinopharyngeal swabs. SARS-CoV-2 was detected in six patients (26.0%), of whom five were children. Curiously, the percentages of positive results were substantially equal in children (26.3%, five cases) and in adults (25%, one case).

Within the limits of our experience, cutaneous manifestations associated with COVID-19 are mainly not specific and quite rare. Acrocyanosis and chilblains seem to be more common and more suggestive, from a mechanistic point of view, than the others. We also consider the latter as a clue for testing, especially in children.

More studies and serology are needed.

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