









SPECIAL ISSUE ARTICLE

Global coronavirus pandemic (SARS-CoV-2): Past, present, and future of pediatric dermatology

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Abstract

Two months have passed since the World Health Organization (WHO) declared the pandemic of the Coronavirus Disease 19 (COVID-19), caused by the SARS-CoV-2 virus, on 11 March 2020. Medical and healthcare workers have continued to be on the frontline to defeat this disease, however, continual changes are being made to their working habits which are proving to be difficult. Although the skin is not the main target of the SARS-CoV-2 infection, it is strongly involved both directly and indirectly, in many aspects of dermatological disease management, and particularly in pediatric dermatology. In this manuscript, our goal was to provide a “up-to-date” account on this topic, through analysis of current literature and sharing our experiences during this pandemic.

KEYWORDS

COVID-19, dermatology, pandemic, pediatric, SARS-CoV-2

Two months have passed since the World Health Organization (WHO) declared the pandemic of the Coronavirus Disease 19 (COVID-19), caused by the SARS-CoV-2 virus, on 11 March 2020. Medical and healthcare workers have continued to be on the frontline to defeat this disease, however, continual changes are being made to their working habits which are proving to be difficult.

Although the skin is not the main target of the SARS-CoV-2 infection, it is strongly involved both directly and indirectly, in many aspects of dermatological disease management, and particularly in pediatric dermatology. In this manuscript, our goal was to provide a “up-to-date” account on this topic, through analysis of current literature and sharing our experiences during this pandemic. In particular, we analyzed the changes in dermatological organization and management as well as the clinical-dermatological management of pediatric patients.

The dermatological clinic of the United Hospital of Ancona City is a medium-sized Departmental Organizational Structure (S.O.D.) that belongs to the department of Clinical and Molecular Sciences of a

Level II hospital with a catchment area of 800 000 inhabitants. More than 15 000 day services are recorded annually in our clinic.¹ Within the dermatological clinic, there is a simple organizational structure (S.O.S.) within Pediatric Dermatology, which is the reference point for the entire Marche region. Before the advent of the pandemic, the following services were operational: general dermatological consultations (with about 40 visits per week), urgent pediatric dermatological examinations or access via first aid (more than 20 visits per week), pediatric medications and cryotherapy (about 10 visits per week), treatment of vascular malformations with dye laser therapy (about 10 per month), treatment of benign skin lesions with CO₂ laser therapy (about 10 per month), and dermatological consultations in pediatric wards (approximately 15 per week).

As soon as the first cases of the COVID-19 contagion occurred in Italy, and even while occurring in China, it was determined that dermatology departments could be potentially at a high risk for COVID-19 outbreaks.² Therefore, several measures were taken to reduce the risk of contagion between patients and health professionals. On 9 March 2020, the President of the Italian Council of Ministers

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decreed the beginning of the “lockdown phase” in which substantially all commercial and productive activities were closed and movement of the population was banned, except for urgent reasons.³ On that date, health monitoring of the spread of the SARS-CoV-2 in the Italian territory showed that 7985 people tested positive for the virus, 724 had recovered, 4316 people were hospitalized with symptoms (733 in intensive care units), 2936 people were isolated at home, and 463 had died.⁴ As in every hospital in Italy, the United Hospital of Ancona City worked to deal with emergencies through the strengthening of emergency care activities and with a reduction of non-urgent services. In this scenario, pediatric dermatology also underwent an important reorganization with a substantial modulation of the services offered. This was done also to reflect the role that children play in the COVID-19 pandemic. Chinese reports dating back to February 2020 reported that the SARS-CoV-2 affected children and adolescents less frequently than adults (<1% prevalence in children under 10 years of age) and that the infections had a predominantly asymptomatic course.⁵ Nonetheless, the latter fact did not translate into an impossibility of the transmission of the disease, which was present mainly in the family environment,⁶ thus making children “possible infectors”. For this reason and considering that every pediatric patient is accompanied by at least one parent, in order to avoid grouping in hospitals, access for pediatric patients was prohibited except for urgent reasons. However, patients were not abandoned; a telephone and WhatsApp call center as well as an e-mail consulting service were immediately set up and managed by dermatology residents under the supervision of an expert dermatologist tutor, through which patients and their

parents could communicate with us. In a span of 2 months, approximately 140 contacts were made, with more than 50% of the requests relating to changes in therapies already in progress. The remaining patient requests involved the rescheduling of services (laser and cryotherapy) that had been previously booked (30%) and soliciting visits for acute illnesses (20%).

Special attention was paid to the possible dermatological manifestations of COVID-19 reported in children. In fact, recent literature has reported cases mainly in adults pertaining to urticarial, morbilliform, vesicular and petechial exanths, and vasospastic manifestations, such as livedo reticularis and acral ischemic lesions, in association with the SARS-CoV-2 infection.^{7,8} Only chilblain-like lesions have been reported in children and adolescents, most of which appear in subjects without other symptoms and who have had contact with a family member who tested positive for the SARS-CoV-2 via swab tests.⁹ These lesions appear to be related to vascular alteration, secondary to cell-mediated responses to initial viral infection; however, further studies are needed to confirm this.¹⁰ In our clinic, we observed two cases of chilblain-like lesions; in a 12-year-old teenager and in an 8-year-old boy, both with a relative who had tested positive for the SARS-CoV-2.¹⁰

The current epidemiological trend of the pandemic in Italy shows a significant reduction in contagions and in patients admitted to the intensive care unit. This has allowed the start of phase 2,¹¹ which consists of maintaining social distancing but with a resumption of productive and commercial activities. In our hospital, phase 2 also began with the partial reopening of some activities that had previously been completely shut down (Figure 1). In our pediatric dermatology clinic,

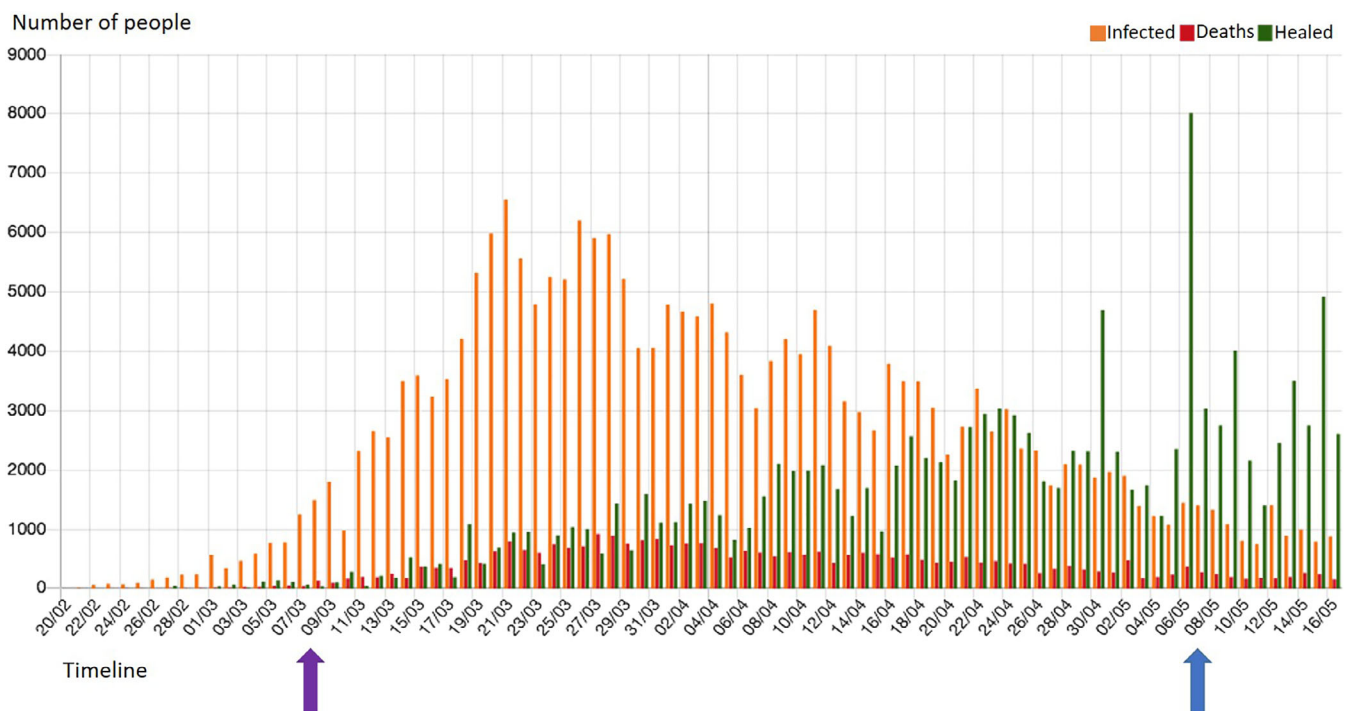


FIGURE 1 The graph illustrates the new daily cases of the SARS-CoV-2 infection in Italy from 20 February to 16 May.⁴ Purple arrow: lockdown and reduction of activity at the Pediatric Dermatology Clinic “United Hospital” of Ancona City, Marche Region, Italy; blue arrow: phase 2 and resumption of activity at the Pediatric Dermatology Clinic “United Hospital” of Ancona City, Marche Region, Italy

the following outpatient clinics have been reactivated: general dermatological consultation (10 visits per week) and pediatric medications and cryotherapy (five visits per week), in addition to the urgent visits already made previously. For each outpatient service, a specific clinical-assistance pathway has been traced to protect the health of both the patient and the operator.

The telephone and e-mail counseling services have currently remained active with the additional task of carrying out a triage for patients who need to make an outpatient visit to assess a possible SARS-CoV-2 infection.

At present we do not know if there will be a new wave of pandemics in the coming months, so it is necessary to carefully respect the rules of social distancing, especially in hospitals. It is also essential to continue evaluating possible skin manifestations of the virus, especially in children, in order to identify those who could be paucisymptomatic subjects, and have the potential to infect others. For the aforementioned reasons, it is necessary to increase teledermatology and teleconsulting services,¹² for both patients and pediatricians, and reserve hospital access only to those who really need it.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

All authors have contributed to the writing of the manuscript.

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