INTRODUCTION

The Coronavirus disease 2019 (COVID-19) symptoms are variable; but often include fever, cough, and fatigue. Severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2) infection can also present with cutaneous manifestations classified into two major categories: inflammatory and vasculopathy lesions.

The clinical presentation, course, outcome, and cutaneous manifestations of SARS-CoV-2 infection in children usually differ from adults. One uncommon COVID-19-related mucocutaneous manifestation is pityriasis rosea (PR); typically presenting with a single, erythematous plaque followed by a secondary eruption with lesions on the cleavage lines of the trunk (configuration of a “Christmas tree”).

As we reviewed, most of the reported cases of PR lesions after COVID infection are adults and PR is quite rare in children under 10 years old. Herein, we report a child with PR lesions, and a literature review on 5 other case reports in children.

CASE PRESENTATION

A 7-year-old girl presented with erythematous scaly patches on the anterior and posterior of the trunk, in association with a larger herald patch on the back
The patient had no symptoms other than itching at this period. Two weeks before the initiation of cutaneous lesions, she suffered from cough, sore throat, rhinorrhea, and mild diarrhea. She had no remarkable past medical history. At the same time, the patient and her family had the same symptoms with positive RT-PCR for SARS-CoV-2 infection. Based on her clinical presentations and history of confirmed COVID-19, a diagnosis of COVID-19-associated Pityriasis rosea was made. Topical corticosteroids and systemic antihistamines were started for treating pruritic patches. Clinical improvement appeared 2 weeks after the initiation of conservative treatment.

It seems that COVID-19 can be a trigger for PR. In COVID-19 cases, the skin lesions appear due to a large invasion of pro-inflammatory cytokines and microthrombosis on the skin. Overall, SARS-CoV-2 may have triggered a chain viral reaction. SARS-CoV-2 may have played a trans-activating role; triggering HHV-6, HHV-7, and Epstein–Barr virus (EBV) reactivation and causing cutaneous PR-like lesions. EBV concurrent systemic reactivations have been detected in a patient with PR and COVID-19.10

Also, the psychological stress linked to the pandemic and the immunosuppression associated with SARS-CoV-2 infection may enable the reactivation of latent viral infections.8 Dermatologic symptoms of COVID, like other symptoms, are less severe in children than in adults.11 PR lesions in adults can present as erythematosquamous plaques or few patches disseminating after a few days to a wider surface of the body.5–7 Also these lesions in reported adults mostly last more than 2 weeks;4–6,12 which is a long time compared with reported children.11,13,14 The pruritic lesions were treated conservatively with an antihistamine or topical corticosteroids in adults4–7,12 and children.10,11

To date, five cases of PR and PR-like eruption related to COVID-19 in children have been published (Table 1).10,11,13–15 In these cases, the patient’s ages were between 5 and 16 years old; three of them had mild symptoms of COVID-19 and had close contact with confirmed cases.10,11,15 All of them had erythematous scaly patches on the trunk and extremities, which lasted for 10–14 days. They had conservative treatment; but only in one case, systemic steroid therapy was considered.13

![Figure 1](image_url) COVID-19 associated Pityriasis rosea-like eruptions. Several erythematousquamous patches and plaques are located on the trunk of a child (A). Larger, slightly raised, scaly plaque on the back (B).

### DISCUSSION

We reported a 7-year-old girl with SARS-CoV-2-related PR during the post-infection period.

The exact etiopathogenesis of PR is still unknown; but in many cases, before the onset of PR, there are episodes of upper respiratory tract infections, that highlight the viral etiology of this condition.7

Viruses, vaccination, and drugs have been implicated as the cause of PR. The most important viruses are Human Herpesvirus (HHV)-6 and HHV-7. These viruses may also interact with each other, explaining recurrences and atypical presentations.8

Pityriasis rosea and PR-like eruptions have been reported following other viruses vaccines like influenza, poliomyelitis, yellow fever, hepatitis A, rabies, and Japanese encephalitis.9
| No. | Author/Year | Age/Sex | Manifestations of COVID-19 | Dermatologic manifestation | Duration of cutaneous lesions | PCR | Exposure to COVID-19 patients | Treatment for PR |
|-----|-------------|---------|---------------------------|----------------------------|-----------------------------|-----|----------------------------|-----------------|
| 1   | Francesco Drago/2020 | 16 year/Male | Fever, headache, fatigue, arthralgias, myalgias, loss of appetite | Oval erythematous papulosquamous lesions in the typical “Christmas tree” observed over the trunk, eruption preceded by a single scaly oval patch on the abdomen | 4 weeks | P | Three weeks earlier, the mother and father of the patient had COVID-19 | Conservative |
| 2   | Sze May Ng/2020 | 12 year/Male | Fever, sore throat, abdominal pain, diarrhea | Generalized maculopapular rash, herald patch noted on the back of the torso | 2 weeks | P | NA | NA |
| 3   | Antonio Urbano Monteiro Neto/2020 | 5 year/Male | NA | Sparse small plaques with an oval shape and little desquamation on the trunk | 15 days | NA | Housekeeper had COVID-19 15 days ago. His father diagnosed with coronavirus | Conservative |
| 4   | Maria Dakoutrou/2021 | 7 year/Male | Mild abdominal pain, diarrhea | Erythematous scaly patches on the trunk and upper extremities and a typical herald patch on the right upper arm | NA | NA | Close contact with two COVID-19 cases in the family | NA |
| 5   | Fabrizio Martora/2021 | 16 year/Female | NA | Erythematous-squamous papules and plaques with pruritus placed on the trunk | 2 weeks | N | NA | Topical steroid and systemic antihistamine therapy without any result/Systemic steroid therapy |
| 6   | Our case | 7 year/Female | Gastroenteritis, cough, sore throat, rhinorrhea | Erythematous scaly itchy patches on the trunk and a larger herald patch on the back | 8 days | NA | The family had the same symptoms with positive PCR for COVID-19 | Topical steroid therapy and systemic antihistamine |

Abbreviations: N, negative; NA, not available; P, positive.
CONCLUSION

COVID-19 can cause pityriasis rosea as other systemic and cutaneous symptoms. Due to the mild symptoms of COVID-19 in children, considering these cutaneous manifestations can guide to better diagnosis and care.

AUTHOR CONTRIBUTIONS

B.A.-N. provided the case. M.K. and B.A.N. contributed to designing and conducting the study. M.K. and B.A.N. contributed to the revised manuscript critically for important intellectual content. K.A. and F.R. assisted in the interpretation of data and the preparation of the first draft of the manuscript. All authors have read the final version and approved the content of the manuscript to be published and confirmed the accuracy or integrity of any parts of the work.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this paper.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are not publicly available due to containing information that could compromise the privacy of our research participant but are available from our first author as requested.

CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal’s patient consent policy.

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