

CASE REPORT

Infectious-mononucleosis-like exanthema associated with COVID-19 in a child

Meryam Ferjani^{1,2} | Malek Ben Slimane^{2,3} | Taha Sayari^{1,2} | Yosra Hammi^{1,2} |
Noureddine Litaïem^{2,3} | Ouns Najja^{1,2} | Faten Zeglaoui^{2,3} | Tahar Gargah^{1,2}

¹Pediatrics Department, Charles Nicolle Hospital, Tunis, Tunisia

²Faculty of Medicine of Tunis, University of Tunis El Manar, Tunis, Tunisia

³Dermatology Department, Charles Nicolle hospital, Tunis, Tunisia

Correspondence

Malek Ben Slimane, Charles Nicolle hospital, Tunis, Tunisia, 50798509.
Email: benslimanemalek1990@gmail.com

Funding information

None

Abstract

Cutaneous manifestations of childhood COVID-19 differ from those of adults. Maculopapular rash is not specific and could be mistaken with other viral exanthema. A nasopharyngeal swab is strongly recommended to confirm the possible COVID-19 diagnosis.

KEY WORDS

children, COVID-19, skin

1 | INTRODUCTION

A three-year-old girl presented with a 3-day history of fevers and sore throat. She was put on amoxicillin. Five days later, she developed a maculopapular morbilliform exanthema. A nasopharyngeal swab confirms the COVID-19 diagnosis. Skin manifestations of childhood COVID-19 are not specific and could be mistaken with other viral exanthema.

The Coronavirus Disease 2019 (COVID-19) is less common in young children than in adults. Childhood COVID-19 differs from adulthood COVID-19 in terms of clinical presentation, course, and outcomes. The clinical course of COVID-19 is mild in most affected children.¹ Fever and cough are the most commonly reported symptoms in children with COVID-19.² Cutaneous manifestations of childhood COVID-19 are various.³ Herein, we report an infectious-mononucleosis-like exanthema as a possible COVID-19-associated skin manifestation in a child.

2 | CASE REPORT

A three-year-old girl presented with a 3-day history of continuous fevers greater than 38.5°C and sore throat. She was previously fit and well. Her past medical history was unremarkable. Her mother had a headache and diarrhea lasting a week. Clinical examination revealed pseudomembranous angina. The child was put on amoxicillin. Fever lasted five more days, and she developed a skin eruption. On examination, she was systemically well with normal vital signs. She was still feverish and had a generalized maculopapular morbilliform exanthema (Figures 1 and 2). Nikolsky sign was negative. No mucosal involvement was noted. Infectious mononucleosis (IM) was suspected. We performed serologic tests of Epstein-Barr virus (EBV). IgM and IgG antibodies to the viral capsid antigen and antibodies to the nuclear antigen were not detected. Viral tests for cytomegalovirus and parvovirus B19 were negative. The patient was examined by our colleagues at the National Pharmacovigilance center. The role of amoxicillin was excluded. Patch tests were programmed

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later. Routine blood tests, including complete blood count and liver transaminases, showed no abnormalities. C-reactive protein (CRP) level was elevated (160 mg/L). The patient had a nasopharyngeal swab to test for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) using reverse transcription-polymerase chain reaction, which was positive. Due to prolonged fever, exanthema and biological inflammatory syndrome, pediatric multisystem inflammatory syndrome temporally associated with SARS-CoV-2 (PIMS-TS) was suspected. The patient immediately received a dose of 2 g/kg of intravenous immunoglobulin. Other investigations including troponin T, procalcitonin, ferritin, D-Dimer, fibrinogen, lactate, triacylglycerol, chest X-ray, and echocardiography were normal. After one dose of immunoglobulin, fever and exanthema disappeared and no complementary treatments were needed.

3 | DISCUSSION

We reported a case of maculopapular rash in a child leading to the diagnosis of COVID-19. To the best of our knowledge, there are less than ten cases of maculopapular rash in pediatric COVID-19 reported in the literature.



FIGURE 1 maculopapular morbilliform exanthema on the trunk

Skin disease of COVID-19 could be seen in 20.4% of adults.⁴ It can be divided into two main clinical patterns: inflammatory lesions (exanthema, chicken pox-like vesicles, and urticaria) and vascular lesions (purpura and livedo).⁵ Cutaneous manifestations of childhood COVID-19 differ from those of adults. Erythema multiform, chilblain, and Kawasaki-like multisystemic inflammatory syndrome in children or PIMS-TS are more frequently seen in children.^{3,6,7} Maculopapular rash, very often in adults, is uncommon in the pediatric COVID-19.⁵ Bursal Duramaz B et al⁸ reported maculopapular rashes and erythematous eruptions in three pediatric patients. The rash was itchy in two patients. It had a similar appearance to the rash of roseola in one patient. Sze May Ng described a maculopapular rash in a 12-year-old boy following recovery of COVID-19, 4 weeks after diagnosis.⁹ In our patient, we did not perform a skin biopsy. Histological feature of maculopapular eruption in children is superficial perivascular dermatitis with slight exocytosis, swollen thrombosed vessels with neutrophils, eosinophils, and nuclear debris.^{10,11} Maculopapular exanthema in COVID-19 children lasted generally less than 1 week. It could resolve with no complications and without specific treatment.¹² There is not any correlation between the exacerbation of the rash and the disease's severity.⁸



FIGURE 2 maculopapular morbilliform exanthema on the lower limbs

Differential diagnosis of pediatric exanthema is numerous including drug reaction and viral eruption. Genovese G et al presented case of COVID-19-associated varicella-like exanthema in an 8-year-old girl with mild systemic symptoms. Varicella infection was unlikely based on prior infection and the absence of mucosal involvement as well as pruritus.¹³ In our patient, the exanthema occurred 5 days after an erythematous angina treated with amoxicillin. These findings suggest the diagnosis of IM secondary to an active EBV replication. A hypersensitivity skin reaction could be seen in the course of IM because of amoxicillin administration. It could be explained by the decreased tolerance of the immune system of patients with IM and/or the enhancement of immune reaction to certain drugs or its metabolites.¹⁴ Typically, it manifests by fever, pharyngitis, and lymphadenopathy. The cutaneous manifestations of IM include a morbilliform exanthema located first on the trunk and upper extremities. The diagnosis of IM usually relies on serologic tests.¹⁵ To the best of our knowledge, there is no case reported in the literature of a rash in COVID-19 patient induced by penicillins. In our patient, we believe that treatment with amoxicillin and the development of this COVID-19-related rash are coincidental.

In conclusion, clinical course of COVID-19 infection in children is mild and the diagnosis could be misdiagnosed. Skin manifestations such as maculopapular rash are not specific and could be mistaken with other viral exanthema. In this time of global pandemic and in order to break the chain of transmission immediately, we would strongly recommend a nasopharyngeal swab to confirm the possible COVID-19 diagnosis.

ACKNOWLEDGEMENTS

Published with written consent of the patient.

CONFLICT OF INTEREST

None.

AUTHOR CONTRIBUTIONS

Drs Malek Ben Slimane, Maryem Ferjani, and Nourredine Litaïem contributed to the first draft of the manuscript. Drs Malek Ben Slimane, Meriem Ferjani, Nourredine Litaïem, Taha Sayari, Yousra Hammi, and Ouns Naija contributed to the literature search, analysis, and interpretation of the data. Dr Taher Gargah and Dr Faten Zeglouï critically revised the manuscript and gave final approval. All authors read and approved the final manuscript and agree to be finally accountable for ensuring the integrity of and accuracy of the work.

ETHICS STATEMENT

Consent for publication has been obtained.

DATA AVAILABILITY STATEMENT

The data that support the findings of this article are available from the corresponding author upon reasonable request.

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How to cite this article: Ferjani M, Ben Slimane M, Sayari T, et al. Infectious-monomucleosis-like exanthema associated with COVID-19 in a child. *Clin Case Rep*. 2021;9:e04481. <https://doi.org/10.1002/ccr3.4481>