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Case Report

Panniculitis and Diffuse Papulonecrotic skin Lesions in a Paediatric COVID-19 Patient – A Case Report

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Abstract

The skin manifestations of COVID-19 are infrequent but vary widely. Maculopapular rash, urticaria, chilblain, vesicular lesions, livedo reticularis, and petechiae are described. The manifestations are also common in adults and female gender. Authors report an uncommon skin manifestation of Covid-19 in a 15-year-old boy.

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Introduction

The spectrum of clinical manifestations of covid-19 varies widely. The symptoms include fever, cough, dyspnea, diarrhea, ageusia, anosmia, and rarely cutaneous lesions. Maculopapular rash, with or without itching is described as the most common cutaneous manifestation of COVID-19.[1-4] The dematological manifestations are more commonly noticed in adult females.[4] We describe panniculitis and diffuse papulonecrotic skin lesions in an adolescent boy with Covid-19.

Case report

A 15-year-old boy presented with fever and cough for four days, and skin lesions for two days. On examination, he had fever, tachycardia, panniculitis around the umbilicus, papulonecrotic lesions over the upper thorax, neck, abdomen, axilla and both groins (Figure 1A). He also had lower limb and scrotal edema. His height was 140 cm (<3rd centile on WHO growth chart), weight 34 kg and body mass index was 18 (between 3rd and 15th centile). There was no pallor, icterus or cyanosis. Pulse was 160 / min, respiratory rate was 19 / min. He had gibbus due to D12 compression fracture in the past. He was quite anxious with intermittent bouts of cough. Respiratory system examination showed rhonchi in infrascapular area bilaterally. Other system examination was normal. SpO_2 was 88-90% on room air. His birth and developmental history was normal. Immunization was appropriate for the age.

Laboratory investigations showed Hb 8.8 g / dL, total leucocyte count 27300 / mm^3 with neutrophils 86.8%, platelet count 3.2 lakhs / mm^3, elevated ESR of 82 mm / hour, hypoalbuminemia (2.5 g / dL) and elevated C-reactive protein (CRP) of 166 mg / L. Alanine and aspartate transaminase levels were normal. Chest x-ray showed inhomogenous perihilar and right lower zone opacities (Figure 1B). He was started on cefuroxime, amikacin and supportive measures. Nasopharyngeal Covid-19 real-time reverse transcriptase–polymerase chain reaction (RT-PCR) test was sent and he was started on oxygen. He was transferred COVID-19 isolation ward.

His fever fluctuated over next five days. Dermatologists confirmed panniculitis.

His COVID-19 RT-PCR test was positive. Ferritin level (612 ng / mL) and D-Dimer (2.5 microg / mL) were elevated. He was continued on oxygen therapy, antibiotics and supportive measures. Repeat total leucocyte count was 42500 / mm^3. Urea (164 mg / dL) and creatinine (2.6 mg / dL) were elevated. He was added on enoxaparin. He remained stable on oxygen therapy. Skin lesions persisted with same intensity. The gram stain of scrapings did not show any pathogens. The culture of swab from skin lesions remained sterile. The blood culture was also sterile. His oxygen requirement decreased over next 5 days. Remdesivir therapy was planned but deferred due to decrease in oxygen requirement. His TLC was decreased and renal functions normalized. Blood gas analysis was normal. Oxygen was gradually tapered and stopped. He maintained SpO_2 > 95% on room air for four days. The skin lesions healed only after active phase of about 10 days (Figure 1C). Repeat RTPCR was negative.

Figure 1A: Clinical photograph showing panniculitis and papulonecrtotic lesions. **Figure 1B:** Chest radiograph showing inhomogenous opacities in perihilar regions and right lower lobe. **Figure 1C:** Healing of skin lesions after active phase of Covid-19 disease.

Discussion

The cutaneous lesions due to Covid-19 are classified into inflammatory, exanthematous and vasculopathic or vasculitic lesions.[4-7] Maculopapular rashes and urticaria are the two common forms of dermatological manifestations in Covid-19 patients.[1-4,7] The varieties of lesions include urticarial rash, confluent erythematous maculopapular or morbilliform rash, papulovesicular lesions, acral chilblain-like lesions, livedo reticularis, and vasculitic purpuric lesions.[7,8] Complement activation hyperactive immune response, and microvascular injury are proposed as possible mechanisms for skin lesions. The rashes could be transient sometimes. Rashes may resemble varicella lesions in children and predominantly seen over the trunk.[3] Covid-19 induced papulovesicular rashes turning into purpuric rashes were described in an adult patient.[5] A case series from Nepal reported different types of urticaria, urticarial vasculitis, acneiform eruptions, herpes zoster and acute cutaneous lupus erythematosus in Covid-19 patients.[6] A Spanish study on 375 Covid-19 patients reported acral erythema with vesicles or pustules referred as pseudo-chilblain in 19%, other vesicular lesions in 9%, urticaria in 19%, maculopapular lesions in 47% and livedo-reticularis or necrosis in 6%.[7] Few researchers studied correlation of skin manifestations with the severity of the disease. [1, 4, 7] Chilblain indicated less severe disease, and livedo reticularis was associated with the most severe Covid-19 disease. Vesicular lesions occur in early part of the disease, pseudo-chilblain lesions tended to appear later, while the other type of skin lesions accompany the other symptoms of COVID-19. However, Recalcati found no relationship between cutaneous presentations and disease severity.[1] Generally, the skin lesions accompany the active phase of infection (about 61% of cases) like in the present case.[4] The skin manifestations subside within few days without any treatment. In the present case, the lesions persisted in the same intensity in the active phase. The negative reports on gram stain and culture of secretions from skin lesions ruled out bacterial infections in the present case. The lesions started healing after 10 days when the child had no longer needed oxygen supplementation.

Conclusion

In conclusion, Covid-19 infection in children may be associated with severe cutaneous manifestations as well.

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