Cutaneous manifestations in a patient with COVID-19 treated at a hospital in the Peruvian jungle. A case report

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Abstract

Introduction: Most patients infected with the coronavirus disease 2019 (COVID-19) experience mild to moderate symptoms. This condition may affect multiple organs and systems, including the skin, and cutaneous manifestations are varied. Although several studies on COVID-19 have been conducted in Peru, this type of manifestation has not been described in the Peruvian population, especially in environments with high prevalence of viral diseases that cause similar dermatological lesions, such as the Peruvian jungle.

Case presentation: A 16-year-old male patient with no relevant medical history was admitted to a hospital in the Peruvian jungle due to headache, chills, general malaise, and respiratory distress. On physical examination, oxygen saturation was 89-90%, and a skin rash was observed; it was characterized by non-evanescent, confluent, pruritic, and symmetrical morbilliform lesions in the limbs, abdomen, thorax, and face, without mucous membrane involvement. Due to the shortage of molecular tests in the region where he was treated, he was diagnosed with COVID-19 based on serological (serological tests for SARS-CoV-2 (IgM+ and IgG+)) and radiological criteria (imaging findings compatible with COVID-19 atypical pneumonia). The initial treatment included the administration of ceftriaxone, azithromycin, dexamethasone, cetirizine, as well as the use of oxygen by binal nasal cannula. After 5 days and given the persistence of symptoms and respiratory and skin signs, treatment with ivermectin was started. 48 hours after the introduction of this treatment, the cutaneous and respiratory manifestations had completely resolved.

Conclusions: Patients with COVID-19 may develop several cutaneous manifestations similar to those produced by other viruses or adverse drug reactions. Therefore, it is necessary to appropriately interview the patient and establish the chronological order of symptom onset to diagnose this disease correctly.

Keywords: COVID-19; Exanthema; Skin Manifestations (MeSH).
Introduction

COVID-19 is the disease caused by the SARS-CoV-2 virus. It was first described in Wuhan, China, in December 2019, and has since rapidly spread worldwide, affecting more than 60 million people. In this regard, COVID-19 has become a health problem that has dramatically and negatively impacted health systems, especially in Latin American countries where facilities and service delivery are often deficient.1-3

The clinical characteristics of COVID-19 are variable, depend on the severity of the disease, and may range from an asymptomatic state to severe conditions in which complications such as respiratory distress and multiple organ failure occur. Even though the most common manifestations are respiratory, other extrapulmonary manifestations such as neurological, digestive, and dermatological conditions have also been reported.2,4 This variability can be explained because SARS-CoV-2 enters cells through angiotensin-converting enzyme 2 receptors, which are found in various organs such as lungs, heart, brain, testicles, blood vessels, and even skin.5

Several studies on COVID-19 have been conducted in Peru, but, to date, no cases of skin manifestations related to this disease have been reported in the Peruvian population. This becomes important because there are environments in the country where viral diseases that produce similar dermatological manifestations coexist, as is the Peruvian jungle. This article reports the case of a patient diagnosed with COVID-19 and associated skin manifestations who was treated in a hospital in the Peruvian jungle.

Case presentation

A 16-year-old male patient with no relevant medical history was admitted to the emergency department of the Hospital Amazónico in Pucallpa, Peru, on April 28, 2020. The patient had experienced headache, cough, myalgia, malaise, hyposmia, and hypogeusia for 5 days. On admission, he had diarrhea (four stools per day without mucus or blood) and reported chills and respiratory distress.

Physical examination findings were heart rate of 154 bpm, respiratory rate of 32 brpm, blood pressure of 90/70 mmHg, oxygen saturation of 89-90%, and axillary temperature of 38°C. Also, slight bilateral decrease in vesicular breath sounds were found, as well as a skin rash characterized by non-evanescent, confluent, pruriginous, and symmetrical erythematous papules in limbs, abdomen, chest, and face, with no mucosal involvement (Figure 1). Laboratory results taken on admission showed positive serological tests for SARS-CoV-2 (IgM+ and IgG+), C-reactive protein at 4.2 mg/dl and negative dengue ELISA test. Figure 2 shows the result of the non-contrast chest CT scan performed on the patient, where ground-glass opacities associated with interstitial thickening of patchy distribution were found predominantly in the posterior basal segment of both lung fields. This was consistent with viral atypical pneumonia and confirmed the presence of COVID-19.

Figure 1. Morbilliform lesions in upper limbs in a patient with COVID-19.
Source: Document obtained during the study.

Figure 2. Non-contrast chest CT scan showing lesions consistent with COVID-19 atypical pneumonia.
Source: Document obtained during the study.
The diagnosis of COVID-19, in this case, was confirmed based on clinical, serological, and radiological parameters since molecular tests are usually scarce in the Hospital Amazónico.

The patient received initial treatment in the Emergency COVID Unit within the first 24 hours and was subsequently hospitalized in the COVID Medicine Service, where he was administered 2g of intravenous ceftriaxone every 24 hours, 500mg of oral azithromycin every 24 hours, 8mg of intravenous dexamethasone every 24 hours, 5mg cetirizine every 12 hours, and binasal cannula oxygen therapy at an inspired oxygen fraction of 32%. No biopsy of skin lesions was performed. On the fifth hospitalization day, and in view of the persistence of respiratory and cutaneous symptoms, oral treatment was initiated with a single dose of 50 drops of ivermectin (6 mg/mL); 48 hours after administering this medicine, the skin rash improved (Figure 3).

Finally, the patient was discharged with clinical improvement eight days after being admitted to the emergency room.

Discussion

At first, COVID-19 was described as a respiratory disease that caused atypical pneumonia, whose main symptoms were fever, cough, and myalgia. However, other neurological (hyposmia, hypogeusia), gastrointestinal (nausea, vomiting, diarrhea, abdominal pain) and dermatological symptoms were subsequently reported; the latter were observed in the reported patient.

COVID-19 is diagnosed based on symptoms and results of imaging studies and reverse-transcription polymerase chain reaction (RT-PCR) test for SARS-CoV-2. However, the RT-PCR test, in the present case, was replaced by the detection of IgG and IgM against SARS-CoV-2 through a rapid test, which is readily available in Peru. It should be noted that, in Peru, due to their high diagnostic performance, serological tests are very similar to those of COVID-19 (fever, maculopapular rash, and lymphopenia). Since these diseases are endemic to the Peruvian jungle, it is important to consider them when diagnosing COVID-19.

Some research has found that urticaria and maculopapular lesions in COVID-19 patients have a resolution period between 6 and 8 days and appear on par with the other symptoms, as in the present case. Recalcati reported that there is no correlation between skin manifestations and disease severity.

The mechanism by which SARS-CoV-2 causes skin lesions is still unknown; however, Sachdeva et al. have proposed, based on the report of three cases and a literature review, that the virus triggers a vasculitis that releases cytokines and attacks keratinocytes after Langerhans cells activation, which affects the epidermis. According to the National Technical Standard of the Ministry of Health of Peru, the present case of COVID-19 was classified as moderate-severe. The patient received...
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