Correspondence

Herpes zoster in COVID-19-positive patients

Dear Editor,

The new severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection has recently been declared a pandemic by the World Health Organization (WHO).[1] The disease was defined as COVID-19 (Coronavirus Disease 2019)[1] and principally affects the respiratory tract with a clinical scenario ranging from common cold to severe pneumonia. Diagnosis of COVID-19 disease is made on the grounds of clinical signs (fever, malaise, fatigue, dry cough, rhinorrhea, ageusia, anosmia, anorexia, and dyspnea), vital signs (fever >37.5°C, pulse oximetry saturation <98%), and radiological findings (chest CT scan for the presence of ground glass opacity).[2] The clinical scenario differs with most patients only needing supportive care, while others require admission to an intensive care unit (ICU) for invasive mechanical ventilation.[2] In Italy, the first person-to-person transmission of the SARS-CoV-2 was recorded on February 21, 2020, and to date (04/28/2020) the number of COVID-19 positive subjects is more than 100,000. The number of people requiring hospitalization and ICU is 30,000 and 3,000, respectively. At the time of writing, the number of positive cases has peaked in Italy. However, little is known on the cutaneous manifestations of COVID-19-positive patients.[3–5] We aim to expand our knowledge by reporting four zoster infections in COVID-19-positive patients observed between March and April 2020. Four cases were retrieved, three female, one male, median age 70.5 years (range 68–74). Three were admitted to the ICU and required mechanical ventilation along with hydroxychloroquine and tocilizumab administration in one patient (for details, see Table 1). All three patients developed a necrotic herpes zoster on the second branch of the trigeminal nerve. The male patient featuring a cardiac transplant was treated with hydroxychloroquine and azithromycin and developed the disease on the dorsum with the classic herpes zoster features (Fig. 1). Despite the transplant and the immunosuppressive drug used, the patient showed a more indolent COVID-19 behavior and did not require hospitalization. The median time from COVID-19 and herpes zoster diagnosis was 5.5 days. All patients at the time of zoster diagnosis showed leukopenia (lymphocyte count

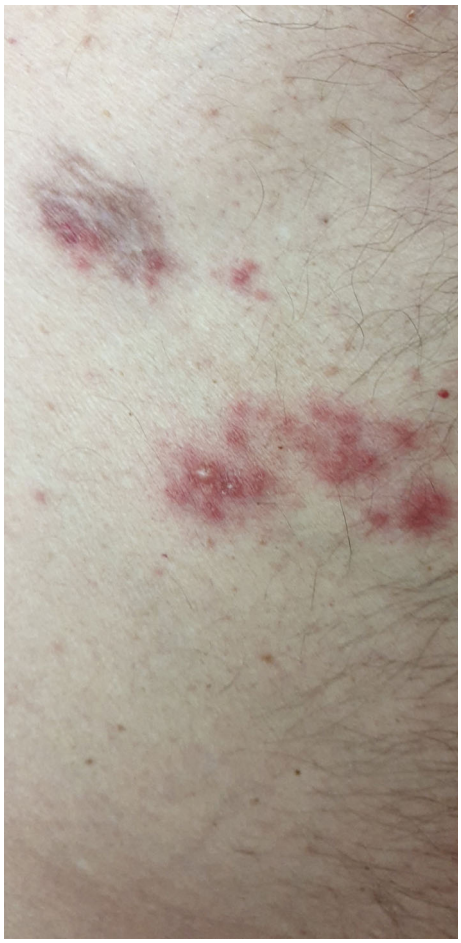

Figure 1 Grouped vesicles on the dorsum over an erythematous background

Table 1 Principal characteristics of our patients

Patient no.	Age	Sex	Time between hospitalization and zoster beginning	Hydroxychloroquine administration	Tocilizumab administration	Mechanical ventilation	Lymphocytes count 10^9/l (n. v. 1.10–4.00)
1	68	F	6 days	Yes	No	Yes	0.53
2	74	F	5 days	Yes	No	Yes	0.61
3	71	F	7 days	Yes	Yes	Yes	0.47
4	70	M	4 days	Yes	No	No	0.62

F, female; M, male; n.v., normal value.

0.57 10^9/l – normal value range 1.10–4.00 10^9/l). After diagnosis, acyclovir treatment was started at the standard dosage as well as analgesics. Little is known about the immunologic mechanisms which can determine severe disease or about skin-related disorders. Recently, different groups[3] reported patients featuring a skin rash after COVID-19, ranging from erythematous rash to chickenpox-like/urticarial eruption. For the first time, we have observed four herpes zoster activations in a COVID-19-positive patient. We observed two clinical pictures: one featuring necrotic herpes zoster involving the second branch of the trigeminal nerve and one showing the classic herpes zoster characteristics. In all the cases, acyclovir led to resolution of the lesions after 10 days. No postherpetic neuritis was observed. Necrotic herpes zoster is more common in HIV-positive patients or in those with iatrogenic immunosuppression. In our cases, none was HIV positive, and only one had a history of immunosuppressive drug intake. Surprisingly, the patient taking immunosuppressive drugs (tacrolimus, mofetil mycophenolate, and prednisone) showed a less severe clinical picture both for COVID-19 and herpes zoster. Unfortunately, due to the high risk of device contamination, we did not take any picture of the patients admitted in the ICU. A possible explanation for varicella-zoster virus (VZV) reactivation may be the decrease in absolute lymphocyte number, especially CD3+ CD8+ lymphocyte due to SARS-CoV-2 infection.[4] Indeed, it has been hypothesized that a decrease in CD3+ CD8+ lymphocytes can be related to VZV reactivation in the elderly.[5] Our patients were over 65 years old, and all showed a decrease in CD3+ CD8+ elements in circulating blood prior to the herpes zoster onset. To conclude, we describe a possible COVID-19-related necrotic zoster, which requires prompt management with acyclovir and pain-relief drugs.

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