

CASE REPORT

Case of atypical disseminated herpes zoster in a patient with COVID-19: A diagnostic challenge in COVID era

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Abstract

Herpes Zoster caused by reactivation of latent Varicella-Zoster virus (VZV). The rare disseminated form of it occurred mainly in immunocompromised patients. We hereby present the first case of atypical disseminated herpes zoster in a 54-year-old woman admitted with serious COVID. In this case, disseminated herpes zoster developed by purpuric lesions mimicking vasculitis and cutaneous drug reaction. Hence, this case serves as a reminder for considering atypical presentations of cutaneous disorders in immunocompromised patients, especially those affected with severe COVID.

KEYWORDS

COVID-19, herpes zoster, immunocompromised patient, varicella zoster

1 | INTRODUCTION

Herpes Zoster caused by reactivation of latent Varicella-Zoster virus (VZV). Its typical presentation includes unilateral dermatomal rash following pain and paresthesia along that dermatome. The rare disseminated form of disease occurred in 15%–30% of immunocompromised patients.¹ The disseminated VZV infection could be fatal, with up to 50% mortality in cases with visceral involvement.²

The coronavirus disease 2019 (COVID-19) has affected millions of people around the world. A few cases of COVID-associated classic HZ were reported during the current pandemic.

A COVID-associated immunosuppression due to the disease itself and medications used for treating that has

been noted in affected ones,^{3,4} which might lead to serious disseminated forms of many infections including herpes zoster. This can add to the burden of disease due to an increase in COVID-associated mortality rate.

We hereby present the first case of atypical disseminated herpes zoster in a case of serious COVID.

2 | CASE PRESENTATION

A 54-year-old woman came to emergency ward with fever and dyspnea 3 months ago and was hospitalized with diagnosis of COVID due to positive PCR and HRCT findings. One week later, she was intubated and admitted to the ICU owing to deterioration of her condition

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and developing sepsis. Her medications included broad-spectrum antibiotics such as meropenem (1 gr/IV/TDS), cholestin (4.5 milione U/IV/BD), caspofungin (50 mg/day), remdesivir (200 mg/IV/day for 5 days), and dexamethasone (8 mg/TDS).

The situation was more complicated due to happening of GI bleeding, which turned out to be due to an ulcer in lower part of esophagus.

In the meantime, some cutaneous lesions appeared mainly on her trunk and a dermatology consultation was requested from our department.

On physical examination, multiple purpuric and necrotic plaques were noted on her abdomen, back, and proximal parts of her extremities. A few vesicles were also seen beside some more fresh lesions (Figure 1).

During the course of hospitalization, several secondary laboratory deviations were noted such as low Hb and high ESR, FBS, and CRP levels, but any evident coagulopathy was not noted in the laboratory tests.

A biopsy was performed with differential diagnoses of cutaneous drug reaction, vasculitis, and disseminated herpes zoster. Histopathologic evaluation revealed viral changes including intraepidermal vesicle containing ballooned and multinucleate acantholytic keratinocytes, confirming the diagnosis of disseminated herpes zoster (Figure 2).

Acyclovir 10 mg/kg/IV, TDS was initiated, but unfortunately, she could not finish the course of treatment due to a cardiac arrest leading to her death.

3 | DISCUSSION

Disseminated herpes zoster (HZ) is a rare condition reported mainly in immunocompromised patients.^{5,6} To



FIGURE 1 Multiple purpuric lesions with central necrosis

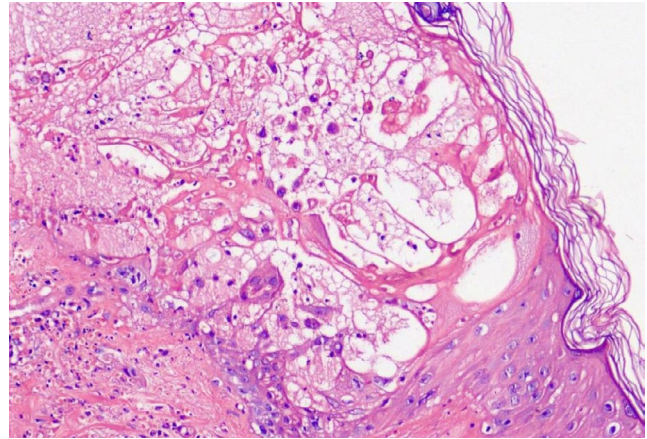


FIGURE 2 Intraepidermal vesicle with ballooned and multinucleate keratinocytes

the best of our knowledge, this is the first case of COVID-associated atypical disseminated HZ.

COVID-19 has various cutaneous manifestations; most of them attributed to microthrombosis or lymphocytic vasculitis.⁷

A few cases of COVID-associated HZ were reported during the current pandemic which unlike to our case, none of them pose a diagnostic challenge.⁸⁻¹¹

The majority of these cases including ours belonged to the age group above 50 years.⁹ However, most of those patients developed cutaneous lesions up to 1 week after the onset of COVID symptoms,¹²⁻¹⁴ which was not congruent with the course of disease in our patient. This might be explained by the fact that the previously reported cases developed classic form of HZ. One can infer that when a patient has a serious COVID with long-term hospitalization and/or ICU admission, the risk of dissemination and atypical presentation of HZ would be increased.

The possible etiopathogenesis of multidermatomal herpes zoster might be the involvement of both CD4- and CD8-positive T lymphocytes during COVID^{15,16} which this reduction in lymphocyte number is proportional to COVID severity.¹⁷ Hence, it is not surprising that disseminated form of HZ was seen in our patient with critical condition.

Pneumonia is the most common serious complication of disseminated HZ with a high mortality rate.¹⁷ A question arises in this case is whether lung involvement in this patient was solely COVID-related or might be even partly resulted from zoster infection. VZV pneumonia usually presents radiographically as some ill-defined nodular or reticular densities scattered throughout both lungs.¹⁷ The last HRCT of our patient revealed bilateral multifocal ground-glass opacities with interlobular septal thickening mostly compatible with COVID involvement [Figure 3]. However, a similar view was previously reported in a patient with fatal pneumonia in setting of disseminated

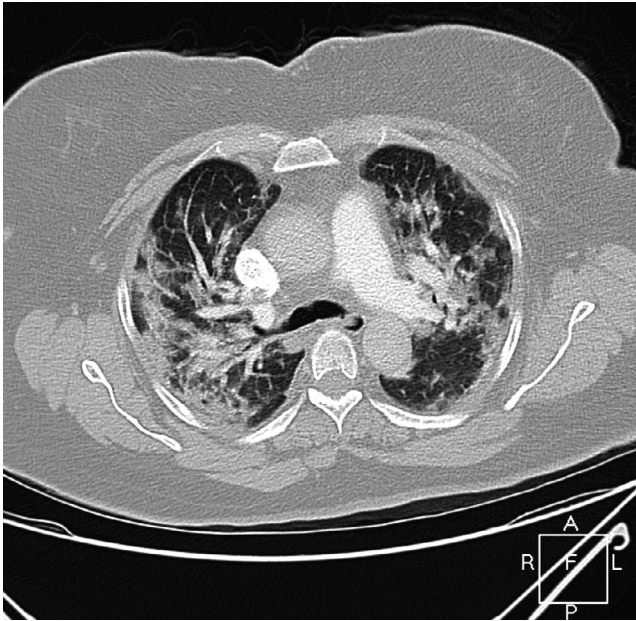


FIGURE 3 Axial non enhanced chest CT scan image (lung view) shows bilateral multifocal ground-glass opacities and crazy-paving appearance highly suggestive of COVID-19 pneumonia

herpes zoster.⁵ Due to rarity of condition, future investigations are needed to shed more light on this issue.

A notable feature of our case was her purpuric lesions which might mislead clinician to the more common diagnosis of vasculitis. It should be borne in mind that in a patient with critical situation, thrombocytopenia is a common finding which might lead to purpuric appearance of lesions in various cutaneous disorders.

In this case, existence of a few vesicles found near some lesions was a valuable diagnostic clue to consider herpes zoster as a differential diagnosis.

Hence, clinical suspicion and careful examination are the key factors for correct diagnosis and management of patients.

4 | CONCLUSION

This case serves as a reminder for considering atypical presentations of cutaneous disorders in immunocompromised patients, especially those affected with severe COVID.

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CONFLICT OF INTERESTS

The authors declare that they have no competing interests.

AUTHOR CONTRIBUTION

F.M visited the patient. F.M and P.H. gathered the data. All authors discussed the results. Z.A supervised the project. P.H and Z.A. provided the initial draft. P.H and F.M wrote the final version.

ETHICAL APPROVAL

Ethics approval from the Medical Ethics Committee of Isfahan University of Medical Sciences was provided.

CONSENT

Since the patient was expired, written informed consent was obtained from the husband of patient for the publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

DATA AVAILABILITY STATEMENT

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

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