

A Case Report of Disseminated Herpes Zoster in Association with COVID-19

The current COVID-19 pandemic is associated with various cutaneous manifestations like urticaria, morbilliform rash, papulovesicular exanthem, chilblain lesions, and livedo reticularis^[1] Prevalence of herpes-zoster (HZ) as well as vesicular eruptions mimicking herpes infection has been increasingly reported during the pandemic.

A 38-year-old woman presented with multiple fluid-filled lesions all over the body of 20 days duration which started on the right side of the chest in a dermatomal pattern and later spread all over the body associated with high-grade fever. There was no history of cough, dyspnea, or drug intake before the onset of lesions. The patient had history of pulmonary tuberculosis treated adequately, 2 months ago. Cutaneous examination revealed grouped vesicles on erythematous background on right side of trunk, involving T3-T4 dermatome [Figure 1] and multiple discrete vesicles with central necrosis distributed diffusely over face, trunk [Figure 2a], upper and lower limbs [Figure 2b and c] including palms and soles. Tzanck smear from the vesicles showed multi-nucleated giant cells [Figure 3a and b] and a clinical diagnosis of disseminated HZ was made. Laboratory investigations however revealed a negative varicella-zoster virus (VZV) and herpes simplex virus (HSV) serology. HIV was non-reactive. ESR and CRP levels were elevated; lymphopenia was present. Chest X-ray showed patchy infiltrates bilaterally. Intravenous acyclovir was started to which there was partial response followed by reappearance of lesions on stopping treatment. In view of high-grade fever, recurrence of lesions, and lymphopenia, COVID RT-PCR and computed tomography (CT) scan of the chest was



Figure 1: Grouped crusted vesicles along T3-T4 dermatomes on right side of the trunk

advised. CT showed bilateral ground-glass opacities of lower lobes (CORADS 5) with a positive RT-PCR. The patient eventually developed respiratory complications and succumbed to the disease after 2 weeks.

Disseminated HZ is characterized by the occurrence of more than 20 lesions outside the area of primary or adjacent dermatomes, usually seen within a week of onset of primary lesions. It is commonly described in patients with HIV infection, malignancy, diabetes, immunosuppressive drugs, and rarely in immunocompetent persons. Risk of visceral organ involvement

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Figure 2: (a-c) Discrete vesicles with necrotic center and erythematous rim distributed diffusely over the trunk, upper limbs and lower limbs respectively

especially the lungs, liver, and brain is increased in patients with disseminated HZ, although it is less common in immunocompetent patients with disseminated lesions.^[2] During the current pandemic, HZ has been increasingly reported in association with COVID-19 infection.^[3] Chickenpox-like vesicles in COVID-19 were first reported by Recalcati *et al.*^[4] Subsequently, Marzano *et al.*^[5] reported a series of 22 patients of COVID with varicella-like exanthem and suggested that such cutaneous lesions can represent a useful clue for suspecting COVID-19 in asymptomatic/paucisymptomatic patients. However, there was no mention of investigations to rule out herpes infection in their study. Llamas-Velasco *et al.*^[6] reported three patients with COVID infection who presented with vesicles in whom PCR for different herpes group of viruses was positive. Fernandez-Nieto *et al.*^[7] studied 53 cases of COVID-19 patients with vesicular eruptions and categorized 24 cases as COVID-19 associated vesicular rashes after ruling out other common conditions. However, in a report by Nourmohammadi *et al.*^[8] there was neither increase in incidence nor an association between HZ and COVID. Decreased cell-mediated immunity caused by COVID-19 infection as evidenced by a reduction in lymphocyte count, and of CD3+, CD4+ and CD8+ T cells has been proposed as a reason for reactivation of HZ during COVID-19 infection which is also likely in our case. It is important to rule out herpes infection before diagnosing COVID-associated vesicular rash with appropriate investigations like tzanck smear, histopathology, serology, or PCR. Although our patient presented with characteristic clinical features of disseminated HZ, VZV serology was negative probably due to low antibody production secondary to lymphopenia or a false-negative ELISA test. VZV PCR could not be done in our case due to financial constraints.

Although there are many reports of increased prevalence of HZ in COVID-19, large-scale studies with proper control group will help in establishing this association. However, it is advised to look for COVID-19 infection in patients with HZ or varicella like exanthem during this pandemic. HZ/varicella needs to be ruled out with

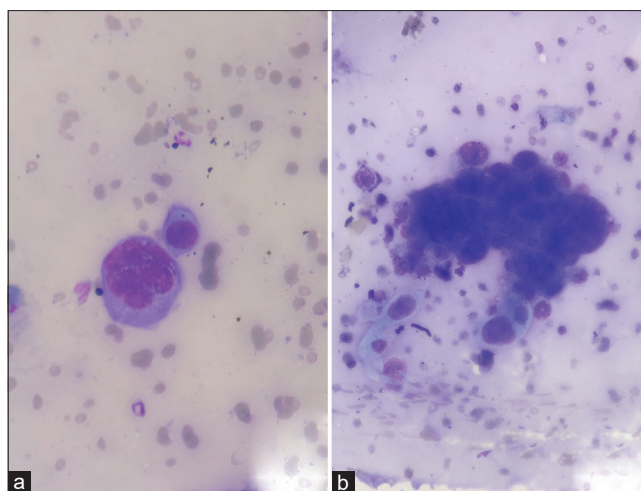


Figure 3: (a and b) Tzanck smear with multinucleated giant cell and acantholytic cells during primary and recurrent episodes respectively (Oil immersion 100x)

proper investigations before labeling the rash as vesicular eruption of COVID.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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