Case Report

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Extensive Disseminated Herpes Zoster in a Young Immunocompetent Male: A Rare Occurrence

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ABSTRACT

Herpes zoster is a viral infection caused by the reactivation of the varicella zoster virus. It usually presents with vesiculobullous lesions along a single dermatome. Disseminated herpes zoster (DHZ) is said to occur when there are more than 20 lesions outside the primarily affected dermatome. Cases of DHZ have been reported in elderly patients and those with states of immunosuppression such as HIV infections, cancer, post-COVID-19 infections, or patients on immunosuppressive drugs. However, here the authors are reporting a rare case of extensive cutaneous dissemination of herpes zoster in a young, healthy, immunocompetent male without any other comorbidities, treated successfully with intravenous acyclovir.

Introduction

Herpes zoster is a viral infection caused by the reactivation of the varicella zoster virus. It usually presents with vesiculobullous lesions along a single dermatome. Reactivation of varicella zoster virus (VZV) is related to impaired cell-mediated immunity [1]. Disseminated herpes zoster (DHZ) is said to occur when there are more than 20 lesions outside the primary and adjacent dermatomes [2]. Herpes zoster shows different clinical stages with variable clinical manifestations. Some of these come with a higher risk of complications. Among all possible complications, postherpetic neuralgia is one of the most frequent. Meningitis, pneumonia, renal and gastrointestinal complications, along with cutaneous complications such as vasculitis and erythema multiforme, have been reported in the past [3]. Cases of DHZ have been reported in elderly patients and often those with states of immunosuppression such as HIV infections, cancer, post-bone marrow transplantation, post-COVID-19 infections or vaccinations, and in patients on immunosuppressive drugs [4]. However, here the authors are reporting a rare case of extensive cutaneous dissemination of herpes zoster in a young, healthy, immunocompetent male without any other comorbidities.

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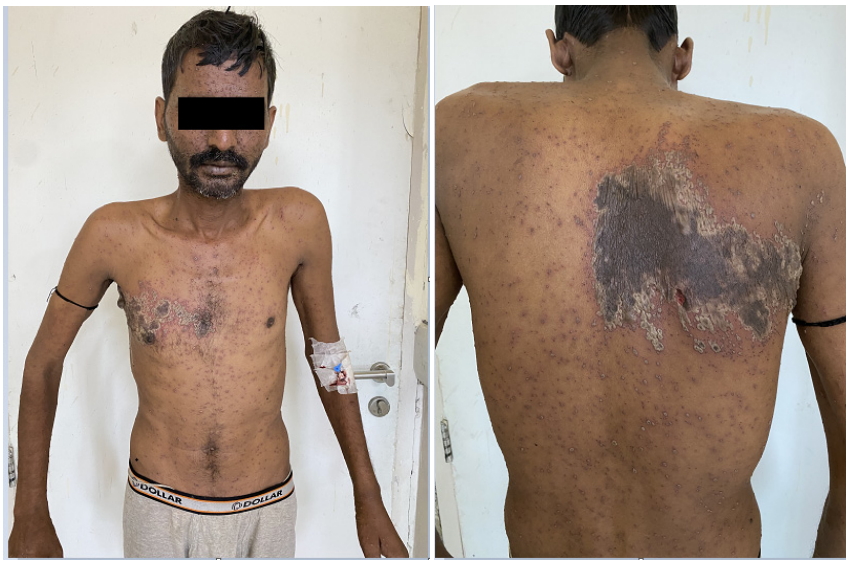
Case Presentation

A previously healthy 32-year-old male presented with multiple fluid-filled lesions all over the body for 15 days. The lesions began on the right side of the chest in a dermatomal pattern and then spread throughout the body. They were associated with severe pain and high-grade fever. There was no history of any underlying systemic illnesses, immunosuppressive medications, HIV, or any drug intake prior to the onset of the lesions. Mucocutaneous examination revealed extensive necrotic flaccid bullae and erosions on the right side of the trunk, involving the T3–T4 dermatome, along with multiple discrete vesicles and bullae with surrounding erythema, some of which showed central necrosis distributed throughout the rest of the body. Multiple necrotic vesicles and erosions were present on the lips and oral mucosa as well (Figure 1; A–C). A Tzanck smear was taken from a fresh vesicle, which revealed acantholytic cells with multinucleated giant cells. On general physical examination, the patient was febrile, tachycardic, and normotensive. Systemic examination revealed no cardiovascular, pulmonary, or neurological abnormalities. Laboratory investigations revealed leukocytosis, normal haemoglobin and platelet levels. Liver function tests were normal apart from mild transaminitis noted along with mildly raised serum alkaline phosphatase. C-reactive protein and procalcitonin levels were raised significantly (Table 1). Fasting blood sugar, kidney function tests, serum



A ,B

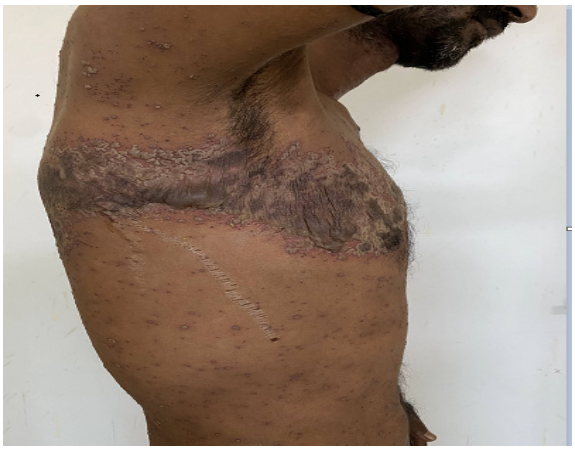


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Fig. 1 (A, B, C). Extensive necrotic flaccid bullae and erosions on the right side of trunk, involving T3-T4 dermatome along with multiple discrete vesicles and bullae with surrounding erythema over the rest of the body (A=Anterior view, B= Posterior view, C= Lateral view)

Table 1. Blood investigative abnormalities on admission and after 7 days of therapy.

Laboratory Parameter	On Admission	After 7 days of treatment	Normal Parameters
White blood cell count	17,400 cells/mm^3	9,700 cells/mm^3	4,000-10,000 cells/mm^3
SGOT	93 IU/L	28 IU/L	40 IU/L
SGPT	72 IU/L	32 IU/L	45 IU/L
Serum Alkaline Phosphatase	300 IU/L	179 IU/L	60-260 IU/L
C- reactive protein	64.3 mg/L	16.88 mg/L	0-6 mg/L
Procalcitonin level	0.57 ng/ml	0.09 ng/ml	<0.05 ng/ml

electrolytes, urine routine microscopy, and urine culture revealed no abnormalities. Serum hepatitis B surface antigen, hepatitis C virus, HIV ELISA, and venereal disease research laboratory (VDRL) were non-reactive. Chest X-ray, ultrasound of the whole abdomen, and high-resolution computed tomography (HRCT) of the chest were all normal and revealed no underlying systemic illness. On the basis of history, clinical examinations, and investigative findings, a diagnosis of disseminated herpes zoster was made. The patient was commenced on intravenous acyclovir 1 g 8-hourly along with intravenous meropenem and linezolid 12-hourly to combat the secondary infection as well as to cover for secondary complications like pneumonia. Pregabalin 75 mg was given 12-hourly, and symptomatic treatments with paracetamol 650 mg 8-hourly and antihistamines were given concurrently (hydroxyzine 25 mg 24-hourly). The patient responded well to the treatment, and lesions began to crust after 5 days. After 7 days of treatment, investigative abnormalities also resolved; the parameters are mentioned in detail in Table 1. The patient was then discharged on oral acyclovir 800 mg 5 times a day and oral pregabalin 75 mg twice daily and asked to review after 7 days in the outpatient department.

Discussion

Varicella zoster virus (VZV) is a DNA virus and a member of the human herpesvirus (HHV) family, which consists of eight types of viruses [5]. Varicella, commonly known as chickenpox, is the initial clinical manifestation of VZV infection, characterized by a polymorphic rash all over the body, often accompanied by fever, fatigue, pharyngitis, and headaches, usually lasting five to seven days. VZV remains latent in the dorsal root ganglia, and its reactivation leads to the clinical manifestation of herpes zoster, or shingles [1]. Herpes zoster (HZ) is characterized by a prodrome of burning pain or tingling sensation over the affected skin, along with headache, fever, and general malaise. It is followed by a unilateral vesiculobullous rash over a single dermatome, which usually occurs 48–72 hours after prodromal symptoms [6]. Secondary complications of HZ include postherpetic neuralgia, secondary bacterial infection, and visceral infection, which can lead to increased morbidity and mortality [2].

It is hypothesized that reactivation of VZV in the dorsal root ganglia is due to the physiologic reduction in VZV-specific cell-mediated immunity among immunocompromised and elderly individuals [2]. Advancing age is an important trigger for HZ, with more than 50% of cases occurring in people 50 years of age or older. This is largely due to immunosenescence mechanisms [7]. Other triggers include conditions associated with altered VZV-specific T cell-mediated immunity, such as stress, autoimmune diseases, and immunosuppressive therapies [8].

Disseminated herpes zoster rarely occurs in immunocompetent patients (2%) but is known to occur in about 15–30% of immunocompromised patients [9]. In this case, the patient was healthy, with no underlying disorder, and DHZ developed even though he was not in an immunosuppressed state. Generally, disseminated herpes zoster remains limited to the skin, but extracutaneous disease can occur, leading to pneumonia, encephalitis, meningitis, and/or motor neuropathies [2]. Pneumonia is the most common serious complication of disseminated HZ, with a high mortality rate [10].

It is also important to note that the age of the patient was only 32 years. According to Moon YS et al., the median age of reported disseminated herpes zoster cases in immunocompetent patients was 65.4 years. Moon YS et al. reported that DHZ may occur in elderly patients without any underlying disorder [11]. However, by reporting this case, the authors wish to raise awareness among clinicians of the occurrence of DHZ in a young, immunocompetent patient and emphasize the importance of early initiation of treatment to help prevent further complications, thereby reducing the morbidity and mortality of the disease.

In conclusion, this case highlights the rare occurrence of disseminated herpes zoster in a young, immunocompetent patient, emphasizing that

the condition is not exclusively limited to elderly or immunosuppressed individuals. Correct and timely diagnosis, thorough examination and evaluation to rule out underlying immunosuppression, and prompt initiation of antiviral therapy are crucial to ensure a favorable outcome and to prevent life-threatening complications. This report underscores the need for clinicians to maintain a high index of suspicion for DHZ even in healthy adults, as early intervention significantly reduces morbidity and mortality associated with the disease.

Ethical Considerations

Compliance with ethical guidelines

There were no ethical considerations to be considered in this article.

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Conflict of Interests

The authors have no conflict of interest to declare.

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