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VARICELLA PRESENTATION IN ADULT: A CASE REPORT

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ABSTRACT
Varicella is a disease caused by the varicella-zoster virus (VZV), a herpesvirus specific to humans. It is highly contagious but preventable through vaccination. It is usually diagnosed clinically and is often self-limiting. However, complications can include pneumonia, neurological, hematologic, ocular, renal, hepatic conditions, as well as sepsis, and secondary infections that can be fatal. Effective antiviral therapy has reduced associated morbidity and mortality. To report a case of varicella with bronchopneumonia in an adult patient. A 58-year-old male presented with persistent vesicular eruptions on the face, chest, back, and extremities. He was admitted to the emergency room and referred to dermatology. He had no history of prior varicella or vaccination. He was diagnosed with varicella with pneumonia and treated with acyclovir, cetirizine, paracetamol, and fusidic acid cream. Data were obtained through anamnesis, physical examination, and relevant supporting investigations, then qualitatively analyzed by correlating clinical findings and investigation results to confirm the diagnosis, evaluate treatment response, and construct the case narrative. Adult varicella is up to 25 times more severe than in children. The virus is transmitted via the respiratory tract with an incubation period of 10–21 days. Physical stress and disruption of circadian rhythms may impair immune response. Lesions typically start on the face and scalp and spread to the body. A This case highlights a presentation of adult varicella with systemic involvement. Early antiviral treatment can improve prognosis.

Keywords: acyclovir; adult infection; rash; tropical disease; varicella

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INTRODUCTION

Varicella (chickenpox) is caused by a double-stranded DNA virus, a member of the Herpesviridae family. In addition to chickenpox, the varicella-zoster virus (VZV) causes herpes zoster (shingles) and is specific to humans. While typically seen in children, adult varicella cases are uncommon and more severe. Primary VZV infection begins with replication in the respiratory epithelium, followed by a widespread vesicular rash after an incubation of 10–21 days. The rash typically evolves rapidly from macules to papules, vesicles, pustules, and crusts, involving 250–500 lesions, preceded by 2–3 days of prodromal symptoms. (Abro et al., 2009; Andrei & Snoeck, 2011; Bandyopadhyay, 2021; Baxter & Ray, 2020).

In Indonesia, incidence increases during the hot-to-rainy season transition, peaking from March to May. Transmission is more likely in densely populated areas. (Bollaerts et al., 2017; Bond & Mooney, 2010). The risk of complications increases with age. Complications reported include pneumonia, neurological and hematological disorders, ocular and renal complications, liver dysfunction, sepsis, and secondary infections that can lead to death. (Bandyopadhyay, 2021; Bandyopadhyay, 2021; Gershon & Gershon, 2013). Effective antiviral therapy has reduced varicella-related morbidity and mortality. Three drugs are approved for VZV infection: acyclovir, valacyclovir, and famciclovir. Acyclovir, a guanosine analog, was the first specific antiviral agent with potent activity against VZV. Its early use can shorten the disease course. (Abro et al., 2009; Leung et al., 2017).

METHOD

This article is a case report describing the diagnosis, clinical management, and follow-up of a patient with adult-onset varicella. Data were obtained through anamnesis, physical examination, and relevant supporting investigations, including chest imaging and laboratory tests. All collected data were analyzed qualitatively and presented in a narrative format. This report presents the case of a 58-year-old male diagnosed with varicella complicated by pneumonia. It highlights contributing risk factors, outlines the clinical progression, and aims to provide insights for clinical practice, particularly regarding the importance of early antiviral therapy in adult varicella with systemic involvement.

CASE

A 58-year-old male from the Batak tribe presented to the emergency department of Chairuddin Hospital, Panusunan Lubis University of North Sumatra, on May 5, 2023, with complaints of a generalized vesicular rash and fluctuating fever. He also reported itching in the affected areas and a dry cough without nasal congestion. The patient works in Pekanbaru and had recently traveled to Medan for a holiday. He denied any prior history of varicella vaccination or contact with individuals known to have similar illnesses. Upon physical examination, the patient appeared alert, with a good general condition and nutritional status. His vital signs were as follows: blood pressure 163/100 mmHg, pulse 88 beats per minute, respiratory rate 22 breaths per minute, and body temperature 37.9°C. The patient was newly diagnosed with hypertension. Dermatologic examination revealed multiple papules, vesicles, pustules, erosions, and crusts involving the face, trunk, and extremities. No vesicles were observed on the mucosal surfaces. Laboratory tests on the same day showed a hemoglobin level of 14.5 g/dL, hematocrit 43.6%, white blood cell count of 4,280/µL, and a platelet count of 119,000/µL. Tzanck smear examination revealed numerous nucleated cells, supporting the diagnosis of a herpesvirus infection. Serological tests for dengue IgG and IgM were negative. Chest radiography showed cardiomegaly with dilation of all heart chambers, aortic elongation and calcification, and findings suggestive of bronchopneumonia.

Figure 1. Papules, vesicles, pustules, erosions, and crusts are present on the face, trunk, and extremities.

The differential diagnoses considered included varicella, bullous pemphigoid, and disseminated herpes simplex virus infection. Based on the clinical presentation and laboratory findings, the working diagnosis was varicella. The patient was started on oral acyclovir 800 mg five times daily

for seven days, cetirizine 10 mg once daily at night, paracetamol 500 mg three times daily as needed for fever, and topical fusidic acid cream applied twice daily to the affected areas. Supportive instructions were provided, including advice to maintain normal hygiene practices, avoid scratching lesions, and keep the skin clean. During the third follow-up, vesicles, pustules, erosions, and crusts were still observed on the face, trunk, and extremities. The patient reported intermittent fever and persistent itching. At the fourth follow-up, pustules and crusts remained, but the fever had resolved. Itching persisted. By the fifth follow-up on May 9, 2023, there were no new lesions or fever. Although advised to remain under observation for an additional three days, the patient returned to work in Pekanbaru. A teledermatology follow-up conducted one week later showed healing lesions with residual reddish-brown discoloration. The patient reported mild residual pruritus but had resumed his daily activities without difficulty. Despite thrombocytopenia, there were no signs of bleeding, and the platelet count gradually improved without the need for additional therapy.

Figure 2. Follow-up on the patient with teleconsultation

DISCUSSION

Varicella is significantly more severe and potentially fatal in adults compared to children, with mortality rates up to 25 times higher. This increased severity often necessitates hospitalization or prolonged observation. In this case, the patient had not received varicella vaccination nor had any known exposure to infected individuals. Vaccination is known to significantly reduce the risk of severe disease, with two doses providing stronger protection than one. (Miller, 2019). Varicella-zoster virus is transmitted via respiratory droplets, with an incubation period of 10 to 21 days. Cellular immunity plays a critical role in viral clearance. In older adults, declining cell-mediated immunity increases susceptibility and severity of infection. During infection, CD4+ T cells stimulate interferon-gamma production and CD8+ T-cell responses, which are essential in limiting viral replication. The role of major histocompatibility complex (MHC) class II expression is also crucial in activating regulatory T cells during the immune response. (Navaratnam et al., 2017).

In this case, the patient had traveled by night bus from Pekanbaru to Medan two weeks prior to symptom onset. Physical stress from travel and disruption of circadian rhythms may have contributed to immune dysregulation. Stress can elevate pro-inflammatory cytokines and stress hormones, as well as alter hemodynamic distribution of immune cells. Disrupted circadian rhythms have been shown to impact respiratory tract immunity through modulation of macrophages and stromal cell activity. (Pedersen & Hoffman-Goetz, 2000). Varicella-zoster virus initially infects the upper respiratory tract and oropharynx, where it invades tonsillar T cells. The virus then disseminates hematogenously and through the lymphatic system to the reticuloendothelial tissues for further replication. Although transmission is thought to begin approximately 48 hours before the rash appears, definitive evidence for this is limited. During the vesicular stage, viral particles can become aerosolized through skin contact or scratching, further facilitating transmission. Scratching can also lead to secondary bacterial infections, most commonly due to Staphylococcus aureus or Streptococcus pyogenes. (Abro et al., 2009; Levin et al., 2019).

This patient first developed a rash on the face and scalp, which later spread to the trunk and extremities. This centripetal pattern of vesicular eruption is characteristic of varicella. A hallmark of varicella is the presence of lesions at various stages of evolution—macules, papules, vesicles, pustules, and crusts—simultaneously. Lesions are typically concentrated on the trunk, especially the interscapular region and buttocks, and are less common on the palms and soles. (Abro et al., 2009; Levin et al., 2019). Prodromal symptoms in adults include low-grade fever, chills, malaise, sore throat, back pain, and headache, which generally precede the rash by 2 to 3 days. Fever usually continues until the appearance of the final crop of lesions and may correlate with the severity of the skin eruption. Intense pruritus is also common and persists until crusting is complete. (Abro et al., 2009; Levin et al., 2019; Putra, 2013).

The Tzanck smear in this patient showed numerous nucleated epithelial cells with eosinophilic intranuclear inclusions, confirming herpesvirus cytopathic effects. Although this method does not distinguish between herpes simplex virus and varicella-zoster virus, mucosal sparing and other clinical features helped exclude disseminated HSV. The presence of thrombocytopenia, with a platelet count of 119,000/μL, is not uncommon in adult varicella. This complication may arise through immune-mediated destruction (e.g., acute idiopathic thrombocytopenic purpura), or from transient bone marrow suppression. In this case, the thrombocytopenia resolved spontaneously without bleeding complications or the need for platelet transfusion. (Abro et al., 2009; Navaratnam et al., 2017)

Hematological findings included thrombocytopenia and relative leukopenia. Thrombocytopenia is a recognized complication of varicella, especially in adults, and may occur via immunologic or non-immunologic mechanisms. Immune-mediated thrombocytopenia, such as acute idiopathic thrombocytopenic purpura (ITP), can develop 1 to 2 weeks post-infection. Non-immunologic causes may involve temporary suppression of bone marrow platelet production during the viral infection. In this patient, platelet counts gradually normalized following antiviral treatment, with no bleeding complications. (Gershon & Gershon, 2013; Sterling, 2016; Tebruegge et al., 2006).

Acyclovir was prescribed at 800 mg five times daily for seven days. This guanosine analog interferes with viral DNA synthesis and is most effective when started within 24–48 hours of symptom onset. Clinical studies have demonstrated that early acyclovir treatment shortens the duration of fever, accelerates crusting of lesions, and reduces symptom severity.(Abro et al., 2009; Putra, 2013) Alternative antivirals include valacyclovir and famciclovir. Paracetamol was administered for fever control. Salicylates were avoided due to the risk of Reye's syndrome. Cetirizine was used to manage pruritus and was well-tolerated, with no reported side effects such as ataxia, hallucinations, or urinary retention. (ul Bari & ber Rahman, 2004).

Topical fusidic acid cream was also prescribed. This steroid-like antibiotic inhibits bacterial protein synthesis and is highly effective against gram-positive organisms, including Staphylococcus aureus and Corynebacterium species. It penetrates well into normal and damaged skin, and achieves high local concentrations when applied topically. Fusidic acid is considered first-line treatment for impetigo and is frequently used in dermatological settings. (Zerboni et al., 2014).

CONCLUSION

A 58-year-old male presented with classic clinical features of varicella, including widespread vesicular eruptions and fever. The diagnosis was confirmed through clinical examination and supported by Tzanck smear and radiologic findings suggestive of bronchopneumonia. The patient was treated with acyclovir, cetirizine, paracetamol, and topical fusidic acid. Although thrombocytopenia was observed, no bleeding occurred, and platelet counts improved without intervention. The patient responded well to treatment, and recovery was favorable. Prognosis in this

case was good in terms of survival (quo ad vitam), function (quo ad functionam), and healing (quo ad sanationam). Early diagnosis and antiviral therapy played a crucial role in the positive outcome.

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