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Disseminated Herpes Zoster infection in an Immunosuppressed patient with neurological complication

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Abstract

Presentation
We are reporting a case involving a 67-year-old woman who exhibited a rash on the left side of her face with desensitization, extending into the oral cavity in the distribution of trigeminal nerve. The patient was on immunosuppressive therapy for rheumatoid arthritis.

Diagnosis
was established clinically and later on with facial nerve palsy, MRI brain was conducted that confirmed facial nerve swelling in ear canal.

Treatment
started with intravenous acyclovir keeping in mind disseminated herpes zoster in immunocompromised patient. However, during antiviral treatment for VZV infection, she developed facial nerve palsy, of lower motor neuron type.

Discussion
Varicella-zoster virus can sometimes lead to severe neurological complications. This case emphasizes the implication of two nerves (initially the trigeminal nerve and subsequently the facial nerve during antiviral treatment). This progression is then followed by the avulsion of a tooth in the affected region, likely attributed to a VZV infection in an immunosuppressed patient.

Introduction

The Varicella-zoster virus is a DNA virus belongs to Herpesviridae group. It is associated with two distinct infections: the primary VZV infection is called as varicella or chickenpox, and the reactivation leading to herpes zoster or shingles. The clinical presentation can be more complicated in immunocompromised patients.

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The complexity of this case arose from a generalized VZV infection in immunosuppressed patient, initially affecting the trigeminal nerve and subsequently leading to facial nerve palsy despite the patient being on antiviral medication. Subsequently, the patient experienced tooth avulsion on the affected side, likely attributable to the VZV infection and affected maxillary nerve.

Case Report

A female patient presented to causality with complaints of a rash on the left side of her face, and oral cavity associated with fever. Few days prior to this, patient had consulted her general practitioner as rash started as whitish-yellow patches on the left side of the roof of her mouth. She was prescribed a topical antifungal cream, which didn't help. Later on, she developed itchy vesicles inside her mouth and on the left side of her face that keep on worsening associated with severe pain. On further enquiry, she denied any headache, photophobia, blurring of vision, neck stiffness and vomiting.

The patient has past medical history that includes a previous history of chickenpox, rheumatoid arthritis (well controlled on Methotrexate), well-controlled chronic obstructive pulmonary disease and hypertension.

On examination, the patient was febrile with temperature of 38.5 ^{0}C and tachycardic to 118 beats per minute. Facial examination revealed a combination of vesicular and crusted lesions on the left side of the face with the involvement of trigeminal nerves V2 and V3 (Figure 1). Additionally, few clusters of similar lesions were observed on her back, with no specific dermatomal distribution. Oral cavity exam revealed unilateral blackish discoloration of the roof of the mouth with whitish plaque and vesicles. The central nervous system (CNS) examination was normal.

Her blood tests were normal, except raised C-reactive protein of 192 (normal range <5). Tests for vasculitis, including ANCA, ANA, C3, C4, and immunoglobulins, were negative. Blood culture were negative. A chest X-ray was normal and a CT scan of the neck and facial bones didn't show any abscess formation. VZV PCR from lesions came back positive.

Differential diagnosis thoughts were Herpes simplex virus lesions, dermatitis herpitiformis, mucormycosis and herpangina but as swab came back positive for VZV so final diagnosis was disseminated VZV.

Her methotrexate was held and she was commenced on intravenous acyclovir due to disseminated varicella-zoster virus (VZV) in the context of immunocompromised along with antibacterial treatment to address any concurrent bacterial infections. Rash showed improvement except persistent neuralgic pain. On 8th day of acyclovir she reported sudden spontaneous avulsion of upper left incisor tooth which was an unusual finding in a VZV patient. Subsequently, on the day 14th of intravenous acyclovir she developed facial nerve palsy (Brackman scale 4) with no features of Ramsey hunt syndrome and started on steroids. An MRI of the brain and internal acoustic meatus (IAM) showed subtle enhancement of the facial nerve on the left side compared to the right side suggesting potential inflammation.

During her hospitalization, the patient positively responded to acyclovir and prednisolone. The facial lesions resolved, leaving only minimal scarring (Figure 2), and the facial weakness showed improvement. The infectious disease team recommended continuing the antiviral medication for an extended course of 21 days to ensure coverage for disseminated infection.

Following that, the patient was discharged from the hospital with further follow up as outpatient.

Discussion

Varicella, commonly known as chickenpox, is a global occurrence[1]. Following the initial chickenpox infection, VZV keeps itself in a hidden form within the dorsal root ganglia or cranial nerve ganglia. Reactivation of this latent virus gives rise to herpes zoster[2,3,4]. Zoster lesions typically manifest unilaterally and can show up in any dermatome, including the face[5].

In this study, the patient was immunocompromised and undergoing methotrexate treatment for rheumatoid arthritis. Our observations indicate that immunocompromised individuals, particularly those receiving certain immunomodulator therapies[6], are at a higher risk of Varicella-zoster virus reactivation due to compromised T cell-mediated immunity. Furthermore, the incidence of complications is notably higher in immunocompromised patients[7].We can find its occurrence with in people with autoimmune diseases, such as rheumatoid arthritis and inflammatory bowel disease. It can be observed that higher risks are primarily associated with the use of immunosuppressive therapies[8-10].

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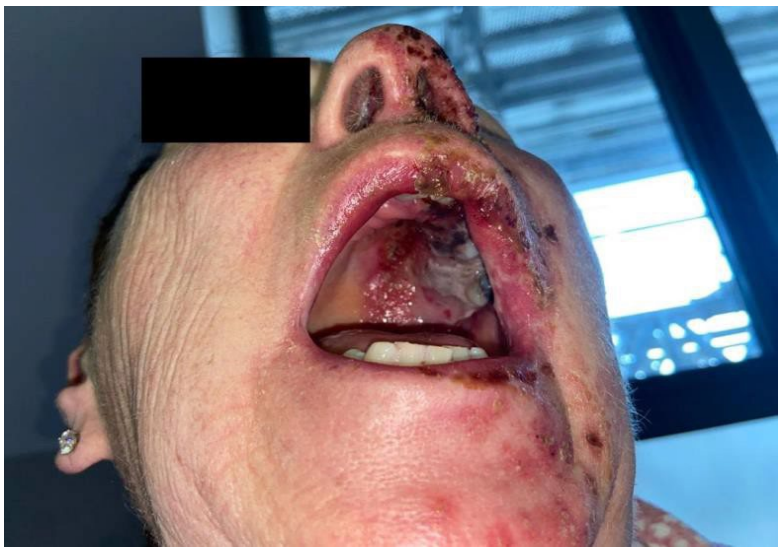

Figure 1: vesicular lesions seen inside oral cavity and over face in V2,V3 distribution of trigeminal nerve on admission.

Figure 2: Day 21 post treatment showing adequate resolution of lesions with antiviral treatment.

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Declaration of Conflicts of Interest:
None declared.

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