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Case Report

Painless Multi-dermatomal Shingles: A Case Report of Atypical Varicella Zoster impacting Cervical and Trigeminal Dermatomes in an Immunocompetent Elderly Female

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Abstract

Herpes zoster, or shingles, is a common pathology in the Emergency Room. It typically presents as a painful, unilateral vesicular rash confined to a single dermatome, often in immunocompromised or elderly patients. Multidermatomal involvement, particularly crossing spinal and cranial dermatomes, is rare and typically associated with significant immunosuppression.

We present the case of an 86-year-old female who presented to the ED with presyncope and pruritic neck rash on the left face and neck. Dermatologic exam revealed erythematous vesicular lesions involving cervical dermatomes C2-C5 and the mandibular division of the trigeminal nerve (V3). Diagnosis of varicella zoster virus was confirmed using PCR. Full clinical recovery was achieved with standard antiviral treatment. This case highlights an atypical case of painless, multidermatomal shingles in an immunocompetent patient. A review of the literature reveals that such presentations are exceedingly rare, with the absence of neuralgia contributing to delayed diagnosis. Early recognition remains critical for antiviral initiation and complication prevention, underscoring the need to maintain clinical vigilance even in the absence of pain or immunosuppression.

Key Words: unilateral vesicular; single dermatome; immunocompromised; trigeminal nerve; chickenpox or varicella; type II diabetes mellitus

Introduction

Herpes zoster, also known as shingles, is a common infectious dermatological condition characterized by painful, vesicular lesions presenting in a unilateral, dermatomal pattern. It is caused by reactivation of the varicella zoster virus (VZV), typically in immunocompromised individuals.1 The initial infection with VZV commonly occurs in childhood termed chickenpox or varicella, where it is transmitted via respiratory droplets or through direct contact with active lesions.2 Upon resolution of symptoms, VZV may remain latent indefinitely in the dorsal root ganglia of the CNS1. In elderly or immunocompromised individuals, VZV can reactivate, traveling up nerves to the skin corresponding with the infected nerve. This causes the localized, painful and blistering rash known as shingles. 1,2

In the United States, shingles has an incidence of 10.46 per 1000 people over age sixty.3 It is a common presentation in the Emergency Department, and the annual cost burden of Shingles treatment and complications is estimated to be around 1 billion per year.10 The majority of cases will affect the thoracic dermatomes (up to 50%) followed by cervical (up to 23%) and trigeminal (up to 15%).1,4,5 In 85% of cases, the distribution is limited to a single dermatome.5 Multidermatomal involvement, particularly including both spinal and trigeminal dermatomes, is a rare presentation of this condition that has only been documented a handful of times. It is typically associated with severely immunocompromised individuals, including those with HIV or malignancy.5 The presentation of an immunocompetent individual meeting these criteria was cause for documentation to further share atypical presentations of zoster.

Case Description

We present the case of an 86-year-old female with a medical history of hypertension and well-controlled type II diabetes mellitus, who presented to the ED with chief complaints of presyncope and pruritic neck rash. She reported associated symptoms of global headache and episodes of dizziness and nausea prior to arrival. Upon initial assessment, the patient was comfortable and in no acute distress. Vital signs demonstrated hypertension at 171/74, with heart rate of 85, temperature of 37.3 C (99

F) and respirations of 18. Ophthalmologic, otologic, and oral exams revealed no significant findings. History was negative for new medications, creams, detergents, or environmental exposures. Patient denied a history of allergies or prior skin conditions. HIV rapid and HSV PCR testing was negative. CBC, renal function, hepatic function, and electrolytes were within normal limits other than mild thrombocytopenia (145,000). EKG showed sinus tachycardia with evidence of old inferior wall infarct that was unchanged from prior EKG. CT showed no evidence of an acute process. Neurologically, the patient was oriented to self and location only without any focal deficits.

Upon dermatological assessment, we appreciated a left-sided, erythematous rash with vesiculation and bullae in various stages of healing (Figure 1). Per family members at bedside, the lesions had first appeared 48 hours prior on the anterolateral surface of the left neck, eventually extending up to the earlobe and left mandibular region. The region affected first corresponded with the C3 dermatome, with spread into C2, C4, and C5. The facial region affected corresponded with the mandibular division of the trigeminal nerve (V3). The patient endorsed associated pruritus of the region but only endorsed irritation upon palpation of blisters. There was no extension of the rash into the nares, oral cavity, or ear canal, and cranial nerve exam did not reveal focal deficits.

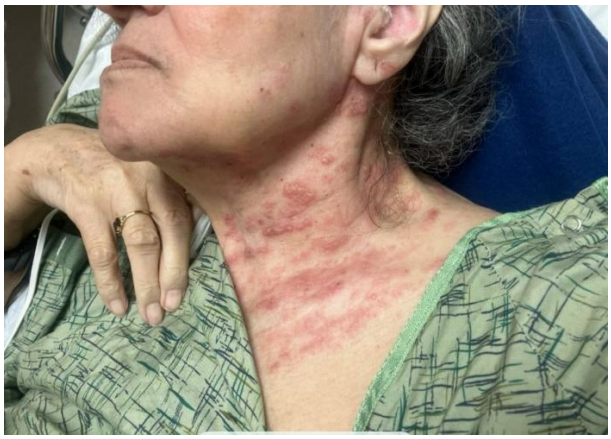

Figure 1: Neck rash on day of presentation.

Upon admission, the patient was started on IV acyclovir 10 mg/kg every 12 hours and prednisone 60 mg daily. She was also provided gabapentin acetaminophen as needed for pain and pruritus. By day two of the hospital stay, the rash had worsened, becoming more diffuse and erythematous. It spread to the central chest and anterior and posterior aspects of the shoulder (Figure 2).

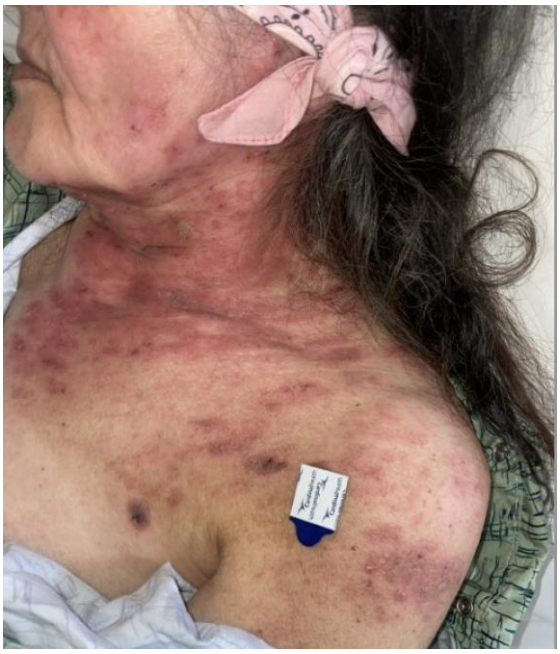

Figure 2: Rash on day two of admission.

By day 3 of admission, the diagnosis of herpes zoster was confirmed via positive PCR testing for Varicella Zoster virus. After briefly spreading and worsening, the rash began to improve, with decreasing erythema and no new vesicles. The patient was treated with intravenous acyclovir and prednisone for a total of four days, until no new blisters had occurred and all vesicles were crusted over, indicating healing and decreased infectivity. On day four, she was discharged with oral valacyclovir 1 g, twice a day, with instruction to complete a seven-day course of treatment. Clinical resolution was achieved with this standard treatment course.

Reference	Age and Sex	Dermatomes	Co-Morbidities
Current	86 F	V3, C2-C5	Diabetes
Jung T, Hong C, Shin JE, Kim CH. Multi-dermatomal herpes zoster involving CN V3 and C2 territories with simultaneous vestibulocochlear deficit: A case report. *Medicine (Baltimore)*. 2023;4(7): e284. Published 2023 Jul 25. doi:10.1097/MD9.0000000000000284	35 F	V3-C2	None reported
Yogi TN, Bhusal A, Subedi S, Katwal S, Acharya K. Multi-dermatomal herpes zoster triggered by psychological stress in an immunocompetent young adult: a rare case report and clinical insights. *Ann Med Surg (Lond)*. 2023;85(12):6231-6236. Published 2023 Oct 17. doi:10.1097/MS9.0000000000001409	26 M	C5, C8, T1, T2	Psychological distress
Shaphe MA, Sharma R, Ghosh A, et al. Concurrent Involvement of Trigeminal and Facial Nerves in Herpes Zoster. anatol j fm. 2023;6(2):123-126. doi:10.5505/anatoljfm.2023.62681.	51 F	V1-V2-V3	Type II Diabetes Mellitus
Pelloni, L.S., Pelloni, R. & Borradori, L. Herpes zoster of the trigeminal nerve with multi-dermatomal involvement: a case report of an unusual presentation. *BMC Dermatol* **20**, 12 (2020). https://doi.org/10.1186/s12895-020-00110-1	71 M	V1-V2	None reported
Alhayyas M, Chaudhry M, Berdouk S. An atypical presentation of multidermatomal herpes zoster: a case report. *Int J Emerg Med.* 2020;13(1):58. doi:10.1186/s12245-020-00325-6	30 M	T1-T4	None reported
Dube S, Pratyush R, Rajshekhar V. Multidermatomal herpes zoster ophthalmicus in an immunocompetent male. J Clin Ophthalm Res. 2017; 5:38–40. [DOI: 10.4103/2320-3897.195308	55 M	CN V1-3, C2-C4	None reported
Ganjoo S, Sawhney MPS, Chawla D. Painless multidermatomal herpes zoster in an immunocompetent elderly male: a case report. *BMJ Case Rep.* 2016; Published April 8, 2016. https://doi.org/10.1515/sjdv-2015-0015	85 M	T12, L1-L4 and S2	None reported
Gomez E, Chernev I. Disseminated cutaneous herpes zoster in an immunocompetent elderly patient. *Infect Dis Rep*. 2014;6(3):5513. Published 2014 Aug 26. doi:10.4081/idr.2014.5513	95 F	V1-V3	CAD, COPD
Gupta LK, Kuldeep CM, Mittal A, Singhal H. Multidermatomal herpes zoster in an immunocompetent female. *Indian J Dermatol Venereol Leprol*. 2005;71(3):210-211. doi:10.4103/0378-6323.16247	25 F	C2-C5	None reported
Jin A, Dejesus Y. Two cases of herpes zoster in multiple adjacent dermatomes. *Consultant360*. Published online January 23, 2012. Available at: https://www.consultant360.com/articles/two-cases-herpes-zoster-multiple-adjacent-dermatomes.	65 M	V3, C1-C8, T1-T3	None reported
Jin A, Dejesus Y. Two cases of herpes zoster in multiple adjacent dermatomes. *Consultant360*. Published online January 23, 2012. Available at: https://www.consultant360.com/articles/two-cases-herpes-zoster-multiple-adjacent-dermatomes.	74 F	V3, C1-C8, T1-T3	None reported

Table 1: Literature review of case reports of multidermatomal herpes zoster in immunocompetent patients.

Discussion

This case describes an elderly female without significant immunosuppression who was diagnosed with a particularly unusual, relatively painless presentation of varicella zoster. This case showed a rare pattern of involvement across multiple cervical dermatomes, with an even rarer extension into the V3 trigeminal dermatome.

In preparation for this report, a review of existing literature was conducted and summarized (Table 1). Parameters included relatively immunocompetent status, zoster impacting multiple dermatomes, and presentation within the past 30 years. This review revealed evidence of eleven documented cases reporting multi-dermatomal zoster in immunocompetent individuals. Of those, five included both trigeminal and cervical dermatomes. Multi-dermatomal involvement, particularly between both cervical and trigeminal dermatomes, is a particularly rare

presentation in an immunocompetent individual such as this patient. Other notable factors about this case include the relative lack of pain reported. A constant, burning, neuralgic pain, with or without lesions, is considered a characteristic presenting symptom of shingles, however an estimated 10%-20% of cases may be painless.1 While the patient did endorse discomfort with the palpation or disruption of vesicles, this pain mechanism appears to be related to the presence of open, inflamed skin rather than the severe neuropathic pain that which is characteristic of shingles.

In examining this case, we reviewed cases suggesting the etiology of multi-dermatomal spread of rare cases of shingles. One report from Jung et al (2023) described an immunocompetent 35-year-old female with herpes zoster involving right CN V3 and C3. This presentation was complicated by rotatory vertigo and right sided hearing loss with tinnitus that resolved with antiviral treatment, and was reported as the first reported case with these involvements. In our case, while the dermatological evidence of spread to V3 was apparent, no facial auditory, or visual deficits were noted. The authors stipulated that the spread of zoster could be attributed to the convergence of the afferent sensory fibers of CN V and C2 in the trigeminocervical nucleus.8 This theory may also be supported by the shorter lengths of sensory nerves in the cervical and trigeminal regions, however nerve length would not explain involvement of thoracic dermatomes in two of the discussed cases. Other proposed mechanisms include the cutaneous transfer of infectious virions across peripheral nerves. Considering the highly infectious nature of active zoster vesicles, this theory seems plausible, however it does not explain the unilateral distribution of most multi-dermatomal cases.

Future studies may further examine the timeline and directionality of multi-dermatomal shingles. While this case describes the lesions as having started in the C3 dermatome, the majority of cases did not report the starting point of the lesions. This poor timeline may be due to patient presentation occurring after multi-dermatomal spread had already occurred. This case highlights the importance of considering herpes zoster as an early and treatable differential diagnosis in elderly patients with atypical presentations.

Consent: Verbal and written consent from the patient for publication of this case was obtained by the author.

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