



Published by
Department of Dermatology and
Venereology, Universitas Udayana

A case report of an elderly male with herpes zoster and atrial fibrillation taking warfarin



Gilang Widratama Putra^{1*}, Wilona Devina¹, Ida Ayu Uttari Priyadarshini²

ABSTRACT

Background: Demographic and geographic constraints make access to specialists difficult, reinforcing the role of general practitioners (GPs) in dermatology. The purpose was to investigate dermatology practice, referral patterns to dermatologists, training needs in this field, and their opinions on tele dermatology.

Methods: A survey questionnaire was randomly distributed through Google Forms among Moroccan GPs. The statistical analysis of the collected data was carried out using SPSS.

Results: 189 responses were collected. The mean age was 41.2 years. 61.4% were female. The proportion of dermatological consultations in general practice was 10 to 20% in 42.9% of cases. Dermatological disorders were the main reason for consultation in 42.9% of cases. Approximately 75.6% of the GPs felt they were moderately or not proficient in dermatology. 64% were not satisfied with their initial training. 84.7% were interested in additional training courses dedicated mainly to inflammatory pathologies (82%), infectious diseases (78.8%), and facial dermatoses (71.4%). 64.6% favored tele dermatology and saw it as interesting, mainly for obtaining a rapid diagnostic opinion (71.4%) and training through direct exchange with the specialist (67.7%). A multivariate analysis was performed using age, practice location, and recent continuing education.

Conclusion: Our study has highlighted insufficient initial training for current practice and, therefore, a need for further training. This suboptimal diagnostic capacity would contribute to the increase in the dermatologist use by GPs. The development of tele dermatology could respond to this problem.

Keywords: Anticoagulant, herpes zoster, warfarin.

Cite This Article: Putra, G.W., Devina, W., Priyadarshini, I.A.U. A case report of an elderly male with herpes zoster and atrial fibrillation taking warfarin. *Bali Dermatology Venereology and Aesthetic Journal*. 2024;7(2): 31-33. DOI: 10.51559/balidervenaesthj.v7i2.101

¹Intern in Dermatology and Venereology
Department of Wangaya General
Hospital, Denpasar, Bali, Indonesia

²Dermatology and Venereology
Department of Wangaya General
Hospital, Denpasar, Bali, Indonesia

*Corresponding author: Gilang
Widratama Putra
Intern in Dermatology and Venereology
Department of Wangaya General
Hospital, Denpasar, Bali, Indonesia
Phone: 085156968432
gilangwp.md@gmail.com

Submitted: 2024-07-08

Accepted: 2024-10-10

Published: 2024-10-13

INTRODUCTION

Herpes zoster (HZ) is a reactivation of varicella-zoster virus (VZV), which causes latent infection of the sensory ganglia after primary infection. Primary VZV infection in childhood is known as chickenpox, and latent VZV causes HZ in adults. HZ affects peripheral nerves and causes painful, localized skin eruptions.^{1,2} Individuals with a history of Varicella have a 20% potential of developing HZ during their lifetime.³ Risk factors for HZ reactivation are decreased immunity, increasing age, and stress.^{2,4} In >90% of patients, HZ infection may begin with prodromal symptoms, including fever, pain, headache, pruritus, and tingling that precede the rash by several hours to days. These symptoms may occur without subsequent skin lesions, a phenomenon called “zoster sine herpette”. However, according to dermatomal distribution,

most patients experience a painful eruption of clustered vesicles on an erythematous base.³ After the prodromal phase, the activation phase begins when the patient shows typical skin lesions such as erythematous papules or macules that develop into blisters in 12-24 hours, into pustules in 1-7 days and finally into crusts in 14-21 days (resolution phase).⁵ All skin parts can be affected, with the trunk being the most commonly affected location, followed by the face. Shingles usually resolves without sequelae in children and young adults with good immunity. However, the pain, skin lesions, and complications of shingles become more severe with age and impaired immunity. The most common complication is post herpetic neuralgia (PHN), characterized by a burning or prickling sensation that persists after the skin lesions have healed. It is experienced by 10-20% of all shingles patients and increases in incidence and

severity with age.³ Currently, research or studies examining the association between atrial fibrillation and the development of herpes zoster are quite limited, unlike the well-established link between herpes zoster and an increased risk of cardiovascular events. However, several studies have explored the impact of warfarin on immune system regulation, which is considered a potential risk factor for the onset of herpes zoster. Now, we present the case of a 55-year-old male with herpes zoster who was on warfarin therapy due to a history of atrial fibrillation.

CASE REPORT

A 55-year-old male was admitted from the Cardiology department with complaints of pain blisters (**Figure 1**) 7 days after the patient was discharged from hospitalization. The complaint began with itching and pain in the chest and right

back, disturbing the patient's sleep quality. Previous medical history, the patient has a history of Atrial Fibrillation and takes warfarin. The patient had previously suffered from chickenpox in childhood, and the history of vaccination of VZV was negative. The patient had no history of drug or food allergies. Physical examination found blood pressure 126/76 mmHg, pulse 69 times/min, respiration 18 times/min, body temperature 36.3°C, visual analog scale (VAS) pain scale was 5, body weight 45 kg, height 167 cm, and body mass index 16.18 kg/m² (underweight). Dermatologic status appears as herpetiform vesicles on erythematous base accompanied by crusts and scabs arranged according to thoracic dermatomes 6-8 (T6-T8). Further diagnostic investigations were not conducted, and the diagnosis was established solely based on the patient's medical history and physical examination. The patient was diagnosed with herpes zoster at the T6-T8 dermatomes, as well as congestive heart failure and atrial fibrillation by the Cardiology Department. The prescribed medications included digoxin (0.25 mg), warfarin (2 mg), potassium chloride (600 mg), codeine (10 mg), spironolactone (250 mg), tranexamic acid (500 mg), and lactulose syrup (60 ml) intraorally from Cardiology Department. Additionally, the Dermatology and Venereology Department provided topical treatment with desoxymethasone 0.25% cream and 2% fusidic acid ointment every 12 hours topically. The patient underwent routine one-week treatment and reported symptom improvement upon follow-up at the Dermatology and Venereology Department and showed clinical improvement.

DISCUSSION

Varicella zoster virus (VZV) reactivation can be triggered by several risk factors such as elderly patients, patients with immunocompromised status, female gender, psychological stress, mechanical trauma, genetic susceptibility, and systemic diseases (diabetes, hypertension, kidney disease, fever, and other factors.).^{2,4-6} The average period of immunity to varicella after infection is 20 years. (5) In reactivation conditions, VZV-specific memory T cells are present



Figure 1. Dermatologic examination. Multiple clustered vesicles are on an erythematous base with some are already turning into crust. Lesions on unilateral, dermatomal distribution on thoracic 6 to 8 without crossing of the midline.

after initial recovery from VZV infection. However, over time, the immune function of the memory T cells declines, and the risk of *zoster sine herpete* (ZSH) or HZ increases. Once recognized by its recognition receptor, VZV activates signals in the body and induces the gathering of inflammatory cells to fight VZV. It indirectly activates T cells, which cause skin and nerve tissue damage and result in neuralgia and other symptoms of ZSH or HZ.⁶

Clinical symptoms appear in three stages-pre-eruption, acute eruption, and chronic. The pre-eruption stage presents with burning or pain within the affected dermatome at least 2 days before the skin eruption. Non-cutaneous symptoms such as headache, malaise, and photophobia may also occur. In the acute eruption phase, painful vesicles develop. Vesicles often burst, ulcerate, and eventually dry up. This phase is the most contagious. The pain is often worsening and unresponsive to nonsteroidal pain medications. The acute eruption phase may last for 2-4 weeks. Chronic HZ infection is characterized by severe pain lasting >4 weeks. Patients experience dysesthesias, paresthesias, and sometimes shock-like sensations.⁴

Recent studies have shown that the onset of HZ causes a series of immune reactions in the body and leads to significant changes in the levels of various inflammatory cytokines. In patients who experience varicella zoster reactivation, serum levels of inflammatory cytokines

tend to increase. In a study conducted by Gu et al., which aimed to investigate the serum levels of inflammatory cytokines in patients with HZ and assess their correlation with the development of PHN, it was found that a significant decrease in TNF- α levels and an increase in interleukin (IL)-10 levels were observed.⁷ Khazan et al. found that concentrations of cytokines such as IL-18 and IL-6 were very high in HZ patients compared to a healthy control group. Moreover, these elevated levels were positively associated with the severity of rash and neuralgia.⁸ Interleukin-6 and type 1 interferon (IFN) are important in the disease of shingles. In the study conducted by Como et al., they studied the effects of IL-6, tumor necrosis factor (TNF)- α , and type 1 IFN on VZV replication in human neurons and found that IL-6 showed the most potent and consistent antiviral properties, significantly reducing transcription of all viral kinetic classes, viral spread, and infectious particle production compared to untreated controls. These strong antiviral effects of IL-6 in vitro align with the high levels of IL-6 observed during VZV reactivation in vivo, which can lead to VZV vasculopathy and giant cell arteritis.⁹

The patient was diagnosed with atrial fibrillation and received 2 mg of warfarin therapy. A study conducted by Maclean et al. to determine oral anticoagulants in the form of warfarin 5 mg loading dose that can cause reduced coagulation activation can regulate inflammation.

The results were a decrease in CRP and IL-6 levels on day 15.¹⁰ This is reinforced by a study conducted by Popov et al. resulted that oral warfarin affects the production of IL-6 and TNF- α peripheral blood leukocytes in rats. Interleukin-6 levels in polymorphonuclear leukocytes (PMNs) rats given warfarin tend to be lower.¹¹ Polymorphonuclear leukocytes are known for their ability to kill human fibroblasts infected and uninfected with varicella-zoster virus (VZV). The results showed that PMNs can effectively kill VZV-infected cells through antibody-dependent cellular cytotoxicity (ADCC).¹²

The main goals of shingles treatment are to reduce pain, promote healing, and avoid complications. Antiviral therapy treats shingles as soon as the diagnosis is made, reducing the risk of post-herpetic neuralgia. Corticosteroids can help control pain and lesions. Other components of therapy include patient isolation and local treatment of skin lesions. Patient isolation is necessary to prevent nosocomial infection.⁵ This patient was given topical therapy in the form of desoxymethason 0.25% cream and 2% fusidic acid ointment. The patient was not given antiviral therapy in the form of acyclovir due to the consideration that acyclovir is more effective if given in the first 72 hours after the appearance of the rash. In addition, other factors, such as the aging process, led to a decline in physical health and the onset of degenerative diseases such as cardiovascular disease. These degenerative conditions cause complications that often lead to elderly patients taking multiple types of drugs (more than five types) in one treatment regimen, a practice known as polypharmacy.¹³

CONCLUSION

Various factors, including old age, decreased immunity, and systemic disease

can trigger herpes zoster reactivation in this patient. The patient had a previous history of cardiovascular disease where there was a history of anticoagulant consumption, and this caused a decrease in immunity, so it became a risk factor for the onset of HZ. The diagnosis of HZ was established based on a previous history of chickenpox and clinically after the rash appeared. The topical treatment given to the patient is expected to speed up the healing time.

ETHIC IN PUBLICATION

The patient received informed consent and agreed to share his clinical picture for publication.

CONFLICT OF INTEREST

None.

FUNDING

None.

AUTHOR CONTRIBUTION

All authors contributed to this article.

REFERENCES

1. Wu PH, Chuang YS, Lin YT. Does herpes zoster increase the risk of stroke and myocardial infarction? A comprehensive review. *Journal of Clinical Medicine*. 2019;8(4):1-2. DOI: [10.3390/jcm8040547](https://doi.org/10.3390/jcm8040547)
2. Seo HM, Cha MJ, Han JH, Han K, Park SH, Bang CH, et al. Reciprocal relationship between herpes zoster and cardiovascular diseases: A nationwide population-based case-control study in Korea. *Journal of Dermatology*. 2018 Nov 1;45(11):1312-8. DOI: [10.1111/1346-8138.14597](https://doi.org/10.1111/1346-8138.14597)
3. Downing C, Mendoza N, Sra K, Tying SK. Human Herpesviruses. In: Bologna JL, Schaffer JV, Cerroni L, editors. *Dermatology 4th edition*. Philadelphia: Elsevier; 2018. p. 1408-14112.
4. Patil A, Goldust M, Wollina U. Herpes zoster: A Review of Clinical Manifestations and Management. *Viruses*. 2022;14(2):1-3. DOI: [10.3390/v14020192](https://doi.org/10.3390/v14020192)

5. Koshy E, Mengting L, Kumar H, Jianbo W. Epidemiology, treatment and prevention of herpes zoster: A comprehensive review. *Indian Journal of Dermatology, Venereology and Leprology*. 2018;84(3): 251-62. DOI: [10.4103/ijdv.IJDVL_1021_16](https://doi.org/10.4103/ijdv.IJDVL_1021_16)
6. Zhou J, Li J, Ma L, Cao S. Zoster sine herpete: A review. *Korean Journal of Pain*. Korean Pain Society. 2020;33(3):208-15. DOI: [10.3344/kjp.2020.33.3.208](https://doi.org/10.3344/kjp.2020.33.3.208)
7. Gu J, Yuan Y, Wang J, Liu H, Zhang Z, Yan Y. Serum Inflammatory Cytokine Levels in Herpes Zoster Patients and Their Association with Post-herpetic Neuralgia: A Prospective Study. *Medical Science Monitor*. 2023;29:2-7. DOI: [10.12659/MSM.941878](https://doi.org/10.12659/MSM.941878)
8. Khazan M, Nasiri S, Riahi SM, Robati RM, Hedayati M. Measurement of melatonin, indole-dioxygenase, IL-6, IL-18, ferritin, CRP, and total homocysteine levels during herpes zoster. *J Med Virol*. 2020 Aug 1;92(8):1253-9. DOI: [10.1002/jmv.25484](https://doi.org/10.1002/jmv.25484)
9. Como CN, Pearce CM, Cohrs RJ, Baird NL. Interleukin-6 and type 1 interferon inhibit varicella-zoster virus replication in human neurons. *Virology*. 2018 Sep 1;522:13-8. DOI: [10.1046/j.1538-7836.2003.t01-1-00372.x](https://doi.org/10.1046/j.1538-7836.2003.t01-1-00372.x)
10. Maclean PS, Tait RC, Ruaaley A, McMahon AD, Lowe GD. Anticoagulation with warfarin downregulates inflammation. *Journal of Thrombosis and Haemostasis*. 2003;1(8):1838-9. DOI: [10.3109/1547691X.2012.684159](https://doi.org/10.3109/1547691X.2012.684159)
11. Popov A, Belij S, Subota V, Zolotarevski L, Mirkov I, Kataranovski D, et al. Oral warfarin affects peripheral blood leukocyte IL-6 and TNF α production in rats. *J Immunotoxicol*. 2013 Jan;10(1):17-24. DOI: [10.3109/1547691X.2012.684159](https://doi.org/10.3109/1547691X.2012.684159)
12. Ihara T, Starr SE, Ito M, Douglas SD, Arbeter AM. Human Polymorphonuclear Leukocyte-Mediated Cytotoxicity Against Varicella-Zoster Virus-Infected Fibroblasts. *JOURNAL OF VIROLOGY*. 1984;51(1):110-6. DOI: [10.1128/JVI.51.1.110-116.1984](https://doi.org/10.1128/JVI.51.1.110-116.1984)
13. Rudnicka E, Napierała P, Podfigurina A, Męczekalski B, Smolarczyk R, Grymowicz M. The World Health Organization (WHO) approach to healthy ageing. *Maturitas*. 2020 Sep 1;139:6-11. DOI: [10.1016/j.maturitas.2020.05.018](https://doi.org/10.1016/j.maturitas.2020.05.018)



This work is licensed under a Creative Commons Attribution