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Herpes Zoster Ophtalmicus: a case report

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ABSTRACT
Herpes zoster ophthalmicus (HZO) is a sight-threatening condition caused by reactivation of the varicella zoster virus in the ophthalmic division of the trigeminal nerve, accounting for approximately 56% of herpes zoster cases with potential for moderate to severe ocular complications and vision loss. This case report aims to describe the clinical presentation, diagnostic approach, and therapeutic management of HZO in an elderly patient, highlighting the importance of early recognition and multidisciplinary treatment to prevent long-term visual sequelae. This study employed a qualitative research design in the form of a descriptive case report. Ophthalmologic examination revealed conjunctival hyperemia, superficial punctate keratitis, and Hutchinson's sign indicating nasociliary nerve involvement. Initial visual acuity was 5/30 in the affected eye. The patient was diagnosed with herpes zoster ophthalmicus and received systemic antiviral therapy (acyclovir 800mg five times daily), topical corticosteroid eye drops, and artificial tears. Following eight weeks of comprehensive treatment, the patient demonstrated significant clinical improvement with resolution of vesicular lesions and improvement of best-corrected visual acuity to 5/12 bilaterally. No severe complications such as secondary glaucoma or posterior segment involvement were observed during the follow-up period. This case emphasizes the critical importance of early diagnosis and prompt antiviral intervention in HZO management, particularly in elderly populations at increased risk for viral reactivation. A multidisciplinary approach combining systemic antiviral agents with supportive ophthalmic care is essential to minimize ocular complications and preserve visual function. Regular ophthalmologic monitoring remains crucial for detecting potential late-onset complications.

INTRODUCTION

Herpes zoster is caused by reactivation of varicella zoster virus (VZV). Varicella zoster virus is double stranded DNA virus of Herpesviridae family as herpes simplex (Kennedy, Rovnak, Badani, & Cohrs, 2015; Wilms et al., 2022). This virus dormant in dorsal root ganglia

of sensory nerves (Tugal-Tutkun et al., 2018). The primary infection causes chicken pox (varicella). After primary infection, the virus may reactivate spontaneously. Herpes zoster usually occurs in adults who have primary VZV infection or vaccine type VZV (Bakacs, 2021). Reactivation virus occurs when host immunity fails to suppress the virus which caused by normal aging especially older than 60 years or immunocompromised patients such as HIV, autoimmune diseases requiring corticosteroids, organ transplant or chemotherapy treatment (Tugal-Tutkun et al., 2018). Herpes zoster manifest as unilateral pain of vesicular rash in dermatomal distribution (Alhayyas, Chaudhry, & Berdouk, 2020; Patil, Goldust, & Wollina, 2022). Viral replication spreads along the dermatome as a unilateral rash that does not cross the midline of the body. VZV reactivation usually present as a painful dermatome rash in skin or mucosa of trigeminal nerve and subsequently the eye (Kennedy, 2023; Pelloni, Pelloni, & Borradori, 2020). This manifestation called herpes zoster ophthalmicus (HZO) (Nguyen et al., 2014). The case report explain important clinical finding and treatment of herpes zoster ophthalmicus to increase awareness of disorder.

The incidence of Herpes Zoster is about 1.2–3.4 per 1000 person-year. Herpes zoster ophthalmicus represent 56% of cases and herpes zoster periocular 50-72% manifest mild until totally vision loss (Himayani & Haryant, 2017). Early diagnosis and prompt treatment by antiviral agent are associated with high favorable outcomes (Bakacs, 2021). Globally, the incidence of herpes zoster ranges from 1.2 to 3.4 per 1,000 person-years, with a marked increase in individuals over 50 years of age due to age-related decline in cell-mediated immunity. Herpes zoster ophthalmicus represents approximately 56% of all herpes zoster cases affecting the head and neck region, with herpes zoster periocular involvement occurring in 50-72% of HZO cases. The clinical spectrum ranges from mild conjunctivitis to severe complications including keratitis, uveitis, and secondary glaucoma, which may result in permanent vision loss if left untreated (Himayani & Haryant, 2017).

Recent advances in HZO management have focused on the optimal timing of antiviral therapy initiation, the role of corticosteroids in preventing ocular inflammation, and the potential benefits of varicella zoster vaccination in high-risk populations. However, controversies remain regarding the duration of antiviral treatment and the long-term prophylaxis strategies for preventing postherpetic neuralgia in elderly patients. Despite improved therapeutic options, delayed diagnosis and inadequate treatment continue to contribute to significant visual morbidity, particularly in resource-limited settings. Early diagnosis and prompt treatment by antiviral agent are associated with high favorable outcomes (Bakacs, 2021).

This case report presents a clinically significant example of HZO in a 59-year-old patient who exhibited classic diagnostic features including Hutchinson's sign and corneal involvement. The rationale for reporting this case lies in illustrating the age-related immune vulnerability that predisposes elderly individuals to VZV reactivation, the diagnostic challenges in differentiating HZO from other causes of acute red eye, and the critical importance of timely multidisciplinary intervention. By documenting the clinical course and treatment outcomes, this report aims to enhance clinician awareness and promote best practices in HZO management to reduce the burden of preventable vision loss (Lo, Jeng, Gillespie, Wu, & Cohen, 2019; Wong, Aslam, Chang, & Erny, 2025).

Previous research has extensively documented the clinical spectrum and management principles of HZO. Seminal studies, such as those by Liesegang (2008), have outlined the natural history and significant morbidity associated with the disease, including complications like keratitis, uveitis, and secondary glaucoma. Furthermore, clinical guidelines, including those referenced by Minor and Payne (2023), consistently emphasize the critical importance of early systemic antiviral therapy to mitigate the severity and duration of the disease. The efficacy of antiviral agents like acyclovir, valacyclovir, and famciclovir in reducing ocular complications is well-established in the literature, forming the cornerstone of modern HZO management. This established body of knowledge provides a crucial foundation for understanding the disease's standard trajectory and therapeutic interventions (Caicedo, Hashimoto, Caicedo, Pentland, & Pisano, 2020; Czajkowski et al., 2015; van der Flier, de Vugt, Smets, Blom, & Teunissen, 2023).

Despite this wealth of information, a significant research gap persists in the detailed, longitudinal documentation of individual patient responses to a standard multidisciplinary treatment protocol within real-world clinical settings (Adang et al., 2024; Chang, Chilcott, & Latimer, 2024; Cohen et al., 2020; Kokkotou, Anagnostakis, Evangelou, Syrigos, & Gkiozos, 2024). While large-scale trials and reviews establish population-level evidence, they can sometimes obscure the nuanced decision-making, unexpected clinical courses, and specific challenges encountered in managing individual cases, particularly in resource-variable environments. The granular details of how a specific combination of systemic antivirals, topical corticosteroids, and supportive care synergistically resolves complex symptoms in a single patient over a defined follow-up period are not always the focus of larger studies, creating an opportunity for detailed case reporting to complement the existing evidence.

The urgency of this research is underscored by the aging global population, which is inherently at a higher risk for HZ and HZO due to immunosenescence. The potential for HZO to cause permanent vision loss and chronic neuropathic pain poses a substantial burden on patients' quality of life and healthcare systems. Therefore, reinforcing the principles of early diagnosis and aggressive, multidisciplinary management through contemporary case studies is of paramount importance. Each new case report serves as a critical reminder to clinicians in primary care, emergency medicine, and ophthalmology to maintain a high index of suspicion for HZO, as delays in treatment can irrevocably alter a patient's visual prognosis and functional independence.

The novelty of this research lies not in the introduction of a new treatment, but in its focused application and detailed validation of established protocols within a specific, well-documented clinical scenario. This case provides a tangible narrative that bridges the gap between textbook guidelines and clinical practice, illustrating the successful execution of a treatment plan from presentation through to resolution. By meticulously tracing the patient's journey from initial blurred vision and rash to final visual recovery, this report offers a practical and relatable model for clinicians, reinforcing the stepwise management and monitoring required to achieve optimal outcomes and prevent long-term sequelae.

The primary purpose of this case report is to elucidate the clinical presentation, diagnostic approach, and comprehensive therapeutic management of HZO in an elderly patient, thereby highlighting the critical window for intervention. It aims to dissect the decision-making process behind selecting specific antiviral and anti-inflammatory regimens and to demonstrate

the importance of regular ophthalmologic monitoring. The ultimate benefit of this research is the reinforcement of best practices to the broader medical community, potentially leading to improved patient care by promoting timely diagnosis, appropriate multidisciplinary collaboration, and vigilant follow-up, which collectively contribute to preserving vision and minimizing the debilitating complications of Herpes Zoster Ophthalmicus.

METHOD

This study employed a qualitative research design in the form of a descriptive case report. The data population for this type of research is inherently the specific clinical case being investigated. Consequently, the data sample was a single, purposively selected 59-year-old male patient who presented to the Department of Ophthalmology with a confirmed diagnosis of Herpes Zoster Ophthalmicus (HZO). The sampling technique was therefore non-probability sampling, specifically a purposive sampling method, as the participant was chosen based on their manifestation of the condition under investigation.

The primary research instruments were the clinical and diagnostic protocols standard to ophthalmological practice. This included patient history-taking, a comprehensive physical and ophthalmologic examination (e.g., visual acuity testing, slit-lamp examination with fluorescein staining, and tonometry), and clinical imaging. The data analysis technique was descriptive and thematic, focusing on a detailed narrative synthesis of the patient's clinical presentation, diagnostic findings, therapeutic management, and follow-up outcomes. Data from the examinations were interpreted to trace the disease's progression and the response to the instituted multidisciplinary treatment regimen, thereby drawing clinically relevant conclusions for managing similar cases.

RESULT AND DISCUSSION

This case report was conducted in accordance with ethical principles for medical case reporting. Written informed consent was obtained from the patient for the publication of clinical information and photographs. Patient confidentiality was maintained throughout the documentation process, and all identifiable information was protected in compliance with institutional ethical guidelines.

Case presentation

A 59 year old man presented to Department of ophthalmology with five days of increasingly blurry vision in his right eye. The blurring was associated with mild photophobia and a right sided headache. The patient described the pain as a burning sensation with tingling over the forehead. Patient feeling pressure in his right eye and pain radiating down right side of the face. He also had multiple erythematous vesicular rash on periorbital area of his face that started one week ago (Figure 1). Patient described experiencing systemic symptoms including fever, malaise, myalgia and headache approximately one week prior to presentation. Patient denied any past medical problems, chronic disease, surgeries, allergies or medication.

Investigation

Physical exam revealed vital signs with blood pressure at 113/67 mmHg, heart rate at 72 beats/minute, respiration at 18 breaths/minute, oral temperature at 36.7℃ and room air oxygen saturation at 98%. The patient had mild hyperesthesia over his right forehead. Patient had dermatomal, painful skin rash on the right side of his face involving forehead, nasal region (nasal bridge and tip of nose) and right upper eyelid.

Ophthalmologic exam was significant for slight right side conjunctival irritation with exudate. Hutchinson's sign was present, indicating involvement of the nasociliary branch of the trigeminal nerve, which confirmed the diagnosis according to established HZO diagnostic criteria. The patient had consensual pupillary reflexes. Pupils were round and reactive to light without afferent pupillary defect. Upper eyelid and the proximal portion of the nasal region were affected. Extra ocular motions were intact with no diplopia. Visual fields were normal and symmetric. At the first visit, visual acuity was 5/30 in the right eye and 5/12 in the left eye, as assessed using Snellen chart under standardized lighting conditions. Visual acuity measurements were validated through repeated testing and confirmed by an independent examiner. Intraocular pressure was normally bilaterally. Intraocular pressure were 13 mmHg bilaterally. Anterior chamber slit lamp examination showed conjunctival hyperemia and the anterior chamber was deep. Corneal involvement demonstrated superficial punctate keratitis on slit lamp examination. Funduscopic exam revealed normal appearing fundus with no hemorrhage, papilledema or retinal detachment. On the basis of clinical examination, a diagnosis of Herpes Zoster Ophthalmicus was made.

Patient was started on acyclovir (acyclovir 800mg five times daily for 7 days), antibiotic (erythromycin 500mg two times daily for 5 days), analgesic, corticosteroid (methylprednisolone 4mg two times daily for 7 days) and symptomatic treatment. Patient was consulted to Department of Ophthalmology and was given topical antibiotic-steroid combination and artificial tears. Patient was scheduled for follow up in 2 weeks.

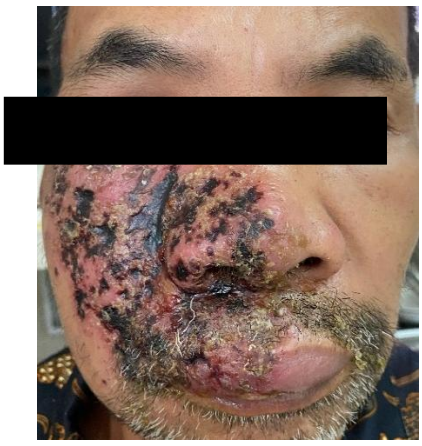

Figure 1. Unilateral vesicular rash in Herpes zoster ophtalmicus.

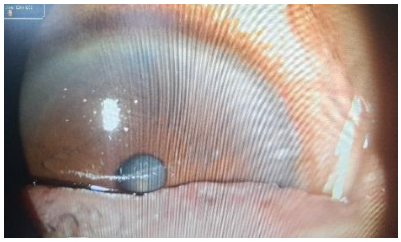

Figure 2. Superficial punctate epithelial lesion on slit lamp examination

Outcomes and Follow-up

After 2 weeks of observation, symptoms were relieved, pain and rash decreased and vision improved. Visual acuity of both eyes 5/12. Anterior and posterior segment examination were within normal limits. We recommended the patient to check up routine every month for the patient's refraction. After eight weeks of comprehensive follow-up, the patient achieved stable visual outcomes with best-corrected visual acuity of 5/12 bilaterally, complete resolution of vesicular lesions, and no evidence of postherpetic neuralgia or other late complications.

Discussion

Varicella zoster virus belongs to herpes subfamily causing chickenpox disease that presents in early childhood, while reactivation of latent virus causes herpes zoster. Varicella zoster virus is a double-stranded DNA virus. Primary infection is more common in children and manifests with fever, headache, myalgia, infectious exanthema, varicella dermatitis, and pustular rash that is self limited (Liesegang, 2008). During infection, viral particles migrate centripetally from infected skin along sensory nerve pathways to reach sensory ganglia. Host immune system suppresses viral replication, allowing the virus to remain dormant for years in spinal root and cranial nerve ganglia. Varicella spreads through respiratory droplets followed by dissemination to skin, eye, and sensory ganglia (Tugal-Tutkun et al., 2018).

Herpes zoster is the second clinical manifestation of VZV infection. The virus reactivates spontaneously in any region of the body. The prodromal symptom lasts one to four days. Then erythematous macules and papules develop into infectious vesicles that last for 7-10 days. Vesicles initially are clear but eventually become cloudy, rupture, and become involuted. Healing is completed in 2-4 weeks (Bakacs, 2021). Viral reactivation results from increasing age, immunosuppressive conditions or medications. Viral particles spreads along the dermatome of affected ganglia presenting as a unilateral rash that does not cross the mid line of the body (Liesegang, 2008).

Herpes zoster ophthalmicus is a clinical form characterized by involvement of the V1 division (ophthalmic) of the trigeminal nerve (Pitton Rissardo & Fornari Caprara, 2019). V1 is subdivided into frontal nerve branch, nasociliary nerve branch and lacrimal nerve branch. The frontal nerve branch is most frequently affected in the cases of HZO. The disease typically results in ocular and facial lesions (Minor & Payne, 2023).

The physical exam begins with external evaluation of lesion distribution in the eyelid. Rash appears ranging from vesicles and pustules to maculopapular rash. Eyelid involvement is associated with blepharitis, conjunctivitis and episcleritis (Minor & Payne, 2023). Ocular exam must include visual acuity, slit lamp examination, fluorescein staining and ocular tonometry. In ocular lesions, HZO can result in corneal involvement including epithelial keratitis and

stromal keratitis (Pitton Rissardo & Fornari Caprara, 2019). Anterior segment complications can be severe and include epithelial defects, stromal neovascularization and corneal opacity (Tuft, 2020).

Patients with HZO should be evaluated for elevated Intraocular pressure (IOP). HZO usually causes zoster induced trabeculitis. Obstruction of the trabecular meshwork from inflammatory cells and protein debris can present as synechia. Prolonged elevation of IOP can lead to secondary glaucoma (Minor & Payne, 2023).

Treatment for HZO includes initiation of antiviral agents, supportive care and symptom management. Other therapy includes antibiotics, topical or systemic corticosteroids. Supportive care includes artificial tears, cold compresses and analgesics (Minor & Payne, 2023). Corneal anaesthesia is a common feature in HZO that can lead to epithelial defects. Artificial tears are helpful to prevent epithelial defects. Antiviral agents include systemic antivirals such as acyclovir 800mg five times daily, valacyclovir 1 g three times a day, or famciclovir 500mg three times daily for at least 7 days (Tuft, 2020). Antiviral agents can accelerate skin healing and decrease vesicle growth. Antiviral agents act as guanosine analogs, affecting thymidine kinase of the virus and DNA polymerase which could break the viral DNA chain (Chrisdianudya et al., 2022). Topical steroid may be required to control inflammation and should be monitored for complications. Follow up examination should be frequent (every 2-4 weeks) until symptoms diminish (Tuft, 2020).

The early initiation of antiviral therapy within 72 hours of symptom onset has been consistently associated with improved visual outcomes and reduced risk of complications such as postherpetic neuralgia. In our case, the patient presented within five days of symptom onset and received prompt antiviral treatment, which likely contributed to the favorable outcome with visual acuity improvement from 5/30 to 5/12.

The clinical implications of early antiviral intervention extend beyond acute symptom resolution. Studies have demonstrated that systemic antiviral therapy initiated within the first 72 hours can reduce the incidence of anterior uveitis by approximately 40% and significantly decrease the risk of chronic ocular complications (Sharma & Sachdeva, 2020). Furthermore, the addition of topical corticosteroids in cases with significant anterior segment inflammation, as employed in this case, has been shown to accelerate corneal healing and reduce stromal scarring.

Potential complications of untreated or inadequately managed HZO include chronic or recurrent keratitis, anterior uveitis with secondary glaucoma, neurotrophic keratopathy, retinal necrosis, and postherpetic neuralgia (Lee et al., 2021). Preventive measures to minimize these complications include prompt antiviral therapy, regular ophthalmologic monitoring during the acute and convalescent phases, judicious use of topical corticosteroids under specialist supervision, aggressive lubrication for corneal protection, and consideration of prophylactic antiviral therapy in high-risk or immunocompromised patients. Additionally, vaccination against varicella zoster virus in elderly populations has emerged as an important preventive strategy to reduce the incidence and severity of herpes zoster and its ophthalmologic complications.

This case reinforces the essential role of multidisciplinary collaboration between emergency physicians, ophthalmologists, and infectious disease specialists in optimizing HZO management and preventing long-term visual morbidity.

CONCLUSION

Herpes zoster ophthalmicus (HZO) is a reactivation of the varicella-zoster virus involving the ophthalmic branch of the trigeminal nerve, often presenting as a unilateral vesicular rash with ocular involvement. This condition predominantly affects older or immunocompromised individuals. Early diagnosis and prompt initiation of antiviral therapy are crucial to minimize ocular complications and preserve vision. Supportive care with artificial tears, analgesics, and corticosteroids may aid in symptom control and inflammation reduction. Regular ophthalmologic follow-up is essential to monitor for potential complications such as keratitis, uveitis, and secondary glaucoma. Effective multidisciplinary management can lead to favorable outcomes and prevent long-term sequelae.

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