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## CASE SERIES

# Herpes zoster ophthalmicus at a tertiary health facility, South-western Nigeria: Clinical presentations and outcome

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## Summary

Herpes zoster ophthalmicus is a neurocutaneous disease caused by the human alpha herpes virus Type 3 and it is characterized by reactivation of dormant varicella-zoster virus lying within the trigeminal ganglia. The objective of this study was to describe the clinical presentation and management outcome of patients with herpes zoster ophthalmicus in a tertiary health facility. This was a retrospective study of patients with herpes zoster ophthalmicus managed at the Eye Clinic of a tertiary health facility in the South-western part of Nigeria over eight years. There were 17 patients, comprising five males and the mean age at presentation was 54.9±13.7 years. Seven (41.2%) patients were seropositive for the Human Immunodeficiency Virus (HIV) while nine (52.9%) patients had corneal involvement. Fifteen (88.2%) patients had involvement of the first branch of the trigeminal nerve (V<sub>1</sub>), and one (5.9%) patient each had involvement of the second branch of the trigeminal nerve (V<sub>2</sub>) and the first two branches of the trigeminal nerve (V<sub>1</sub> and V<sub>2</sub>). All the patients were managed with oral and topical antiviral medications. Ten patients (58.8%) developed postherpetic neuralgia. In conclusion, Herpes zoster ophthalmicus is strongly associated with HIV seropositivity and older age and a significant proportion of patients develop post-herpetic neuralgia necessitating long term management.

**Keywords:** *Herpes simplex, Herpes Zoster Ophthalmicus, Human Immunodeficiency Virus, Postherpetic neuralgia, Nigeria.*

## Introduction

Herpes zoster ophthalmicus (HZO) is a neurocutaneous disease caused by the human alpha Herpes virus Type 3, referred to as the Varicella-Zoster Virus. It is a member of the herpes virus family known as Herpes viridae, which are DNA viruses that cause infections in humans. [1] It is characterized by the reactivation of dormant varicella-zoster virus lying within the trigeminal ganglia and is commonly seen in the elderly and individuals with depressed cellular immunity, such as those on immunosuppressive therapy,

treatment for lymphoma or HIV/AIDS. [2] Typically, patients present with painful dermatomal rash involving the ophthalmic division of the trigeminal nerve. [1] There are some studies [3-9] on herpes zoster ophthalmicus in Nigeria but, to the best of the authors' knowledge, there are no published reports from Ibadan. The objective of this cases series was to highlight the clinical presentation and management outcome of patients with HZO at a tertiary health facility in South-western Nigeria.

## Method

This was a retrospective case review. The medical records of patients who were managed for HZO at the Eye Unit of the University College Hospital, Ibadan, south-western Nigeria between August 2010 and July 2018 were retrieved from the Health Information Department of the hospital. The information retrieved from the case notes included socio-demographics, clinical presentation, duration of symptoms, systemic comorbidities, treatment, complications and period of follow-up care. The diagnosis of HZO was made based on the clinical features of typical vesicular or vesiculobullous skin eruptions or healing crusts on one half of the face along the dermatomal distribution of the trigeminal nerve. Ethical approval for the study was obtained from the Ethical Review Committee. The methodology also adhered to the tenets of the Declaration of Helsinki.

The data were entered into a computer, cleaned and analyzed with International Business Machines-compliant Statistical Package for the Social Sciences version 20 software (SPSS Inc, Chicago IL., USA). The data were analysed using simple descriptive statistics.

## Results

A total of 17 patients were managed for HZO within eight years. These comprised 5 males and 12 females (with male to female ratio of 1: 2.4). The mean age was 54.9±13.7 years (range: 29-81yrs) as shown in Table I.

Seven (41.2%) patients were seropositive for HIV and were receiving HAART. All the patients presented with vesicular or vesiculobullous facial rash while five patients (29.4%) had tingling sensation and paraesthesia (Table I) Nine patients (52.9%) had corneal involvement and presented with superficial epithelial punctate keratitis while 10 (58.8%) patients had positive Hutchinson's

sign. Fifteen patients (88.2%) had involvement of only the ophthalmic (V<sub>1</sub>) branch of the trigeminal nerve, while one (5.9%) patient had involvement of both V<sub>1</sub> and maxillary (V<sub>2</sub>) branches and another one (5.9%) had involvement of only V<sub>2</sub> (Table I). Five (29.5%) patients presented with corrected visual acuity of ≥6/12, and at the last follow-up clinic visit, eight (47.1%) patients had an acuity of ≥6/12 (Table I).

All the patients were managed with both Acyclovir ointment applied topically five times daily over the rash in the acute phase of the disease, and oral acyclovir, 800mg five times daily for two weeks. Patients who had secondary superficial bacterial infection were treated with guttae Ciprofloxacin instilled into the eye four to six times daily and topical Chloramphenicol ointment applied at night. Those with corneal involvement were also treated with guttae atropine and ocular lubricants and all patients had resolution of their symptoms. Ten (58.8%) patients developed post herpetic neuralgic pain. The patients were followed up for a period of 1-36 months with an average of 2.5 months (Interquartile range, 1 – 7 months).

## Discussion

Herpes zoster ophthalmicus occurs in about 10 to 25% of patients with herpes zoster infection. [10] Primary infection with varicella-zoster virus clinically as chickenpox in childhood produces long-term immunity in an individual, and reactivation of the virus in the dorsal root ganglion of the trigeminal nerve depends on the level of cell-mediated immunity in an individual. [10] About half of the patients in this study were seropositive for HIV, similar to the findings from some previous studies in the country. [4, 9] The peak age at presentation in this cohort of patients was the sixth decade of life which is contrary to what was reported from other parts of the country. [3,5]

Table I: Demographic and clinical characteristics and clinical presentations of the 17 patients

S/N	Age (years)	Sex	HIV status	Presenting VA	Final VA	Branch CN <sub>5</sub> affected	Tingling sensation	Hutchinson's sign	Corneal involvement	PHN
1	58	F	Positive	LP	LP	V <sub>1</sub>	Yes	Yes	Yes	Yes
2	58	F	Positive	6/6	6/6	V <sub>2</sub>	Yes	Yes	Yes	Yes
3	62	F	Negative	6/18	6/9	V <sub>1</sub>	No	No	No	Yes
4	81	F	Negative	CF	CF	V <sub>1</sub>	No	Yes	Yes	Yes
5	33	F	Positive	6/24	6/18	V <sub>1</sub> + V <sub>2</sub>	No	Yes	Yes	No
6	29	F	Negative	6/12	6/12	V <sub>1</sub>	No	No	No	No
7	68	M	Negative	LP*	LP*	V <sub>1</sub>	No	No	No	Yes
8	40	F	Positive	6/18	6/9	V <sub>1</sub>	No	Yes	No	No
9	61	M	Negative	CF	CF	V <sub>1</sub>	No	Yes	Yes	Yes
10	55	F	Negative	6/12	6/9	V <sub>1</sub>	No	Yes	Yes	Yes
11	62	M	Positive	LP	LP	V <sub>1</sub>	Yes	Yes	Yes	No
12	38	M	Positive	6/24	6/36	V <sub>1</sub>	Yes	No	Yes	No
13	56	F	Negative	6/9	6/9	V <sub>1</sub>	Yes	No	No	Yes
14	64	F	Negative	6/9	6/6	V <sub>1</sub>	No	Yes	No	Yes
15	52	M	Positive	HM	HM	V <sub>1</sub>	No	No	Yes	Yes
16	48	F	Negative	6/24	6/12	V <sub>1</sub>	No	Yes	No	No
17	68	F	Negative	LP	LP	V <sub>1</sub>	No	No	No	No

M = male, F = female, VA = visual acuity, LP = light perception, CF = counting fingers, HM = hand movement, PHN = Post-herpetic neuralgia, HIV = Human Immunodeficiency Virus, V<sub>1</sub> = ophthalmic branch of trigeminal nerve, V<sub>2</sub> = maxillary branch of trigeminal nerve LP\* poor vision in the patient due to advanced chronic glaucoma

This may be explained partly by the fewer number of patients who were HIV-positive in the present series. HIV-seropositivity has been reported more commonly in individuals younger than 50 years. [5,6] Other conditions causing immune compromise were not found in the present cohort of patients, similar to the report of Saka *et al.* [9] in another part of the country. A female predominance was noted in the present series, similar to the findings of Owoye and co-workers. [4] This could be explained in part by the reported a higher prevalence of HIV infection among the female gender. [11]

The mean duration of symptoms in this series was 12.2±9.3days. This fairly short duration of complaints before presentation to our facility, when compared with the known delayed pattern of pre-hospital consultation in the region, [12] can be partly attributed to the acute severe pain associated with HZO. The commonest presenting symptom was vesicular or vesiculobullous rash involving the forehead and periocular region in line with the typical presentation of patients with HZO. The other symptoms in the patients included

eyelid swelling, scalp pain and ocular ache as previously reported in other studies. [9,13]

At presentation, about a third of the patients were blind (acuity <3/60), with another third having good vision (acuity ≥6/12), and these levels of acuity were maintained after treatment. Of the seven patients presenting with mild to severe visual impairment (acuity <6/12 to 3/60), three of them improved to good vision following treatment while the other four patients maintained their level of visual acuity. The major cause of visual affectation in our patients was corneal involvement, similar to the finding in the study by Kahloun *et al.*, [14] who reported corneal involvement as the most common vision-threatening complication of HZO following corneal neovascularization, neurotrophic ulceration, secondary bacterial infection and scarring. More than half (58.8%) of the patients presented with Hutchinson's sign, and greater than two-thirds of them had corneal involvement, while less than a third of those with negative Hutchinson's sign had corneal involvement. It has been reported that

Hutchinson's sign is a strong predictor for ocular involvement in HZO. [15,16]

The ophthalmic branch (V<sub>1</sub>) of the trigeminal nerve was most affected in this series, as recorded in about 90% of the patients with one patient each presenting with the involvement of only V<sub>2</sub> or a combination of V<sub>1</sub> and V<sub>2</sub> involvement. This pattern of nerve affection is similar to the findings in other studies, [5,9] as the herpes virus has been noted to have a predilection for the first branch of the trigeminal nerve. The involvement of the maxillary branch of the trigeminal nerve with accompanying keratitis is an uncommon presentation of the disease. [5]

The patients responded well to the range of therapies with the resolution of the acute phase of the infection. Antiviral therapy promotes the early resolution of the acute symptoms in patients with HZO. [9,17] About a third of the patients developed postherpetic neuralgia of varying severity after the resolution of the acute phase of the illness, similar to the report of Umeh *et al.*[3] Post herpetic neuralgic pain was managed in conjunction with the neurologist using oral amitriptyline or pregabalin.

This study is limited in its retrospective design as investigations for some risk factors like syphilis were not carried out in all the patients, and clinical details of corneal affection were not documented in many of the cases.

## Conclusion

HZO is associated with HIV infection and older age group in south-western Nigeria and it mostly affects the V<sub>1</sub> branch of the trigeminal nerve. A great proportion of the patients may develop post-herpetic neuralgia necessitating long-term pain control treatment. Encouraging early care-seeking when affected and prompt commencement of appropriate

treatment may reduce corneal complications and the resultant blindness.

**Authors' Contributions:** FO conceptualized the study, contributed to data collection and analysis, and drafted the manuscript. HSJ contributed to data collection and analysis, and the drafting of the manuscript. Both authors approved the final version of the manuscript.

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