

## ORIGINAL ARTICLE

## Herpes Zoster ophthalmicus and HIV seropositivity in South-south Nigeria

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**Abstract**

**Background:** Herpes zoster is a painful vesiculobullous dermatitis which occurs as a result of previously established varicella zoster virus infection. It is a well established fact that Herpes zoster ophthalmicus is a well known marker of human immune deficiency virus infection even in Africans.<sup>1</sup> The aim of this study is to determine if indeed the herpes zoster condition is a marker for the immune deficiency condition called AIDS in our locality and whether the positivity is related to age or not.

**Methodology:** A total of 20 consecutive patients that presented between 2003 and 2006 with herpes zoster ophthalmicus were examined retrospectively as to their Human Immune deficiency virus (HIV) status. Their presentation, clinical findings and clinical course are also analyzed.

**Results:** Of the 20 patients examined, there was a male preponderance of 4:3 with most patients above 40 years (35.4% between 41-50 years) and half of them were married. Out of the twelve (n=12, 60%) patients whose serum was tested for human immunodeficiency virus, eight (n=8, 40%) were negative, while four (n=4, 20%) were positive for the virus. Eight were not tested.

Using 40 years of age as the cutoff, those above 40 years (12 in number), two (n=2, 25%) were seropositive while 9 were negative (75%). For those below 40 years (8 in number), two (n=2, 25%) were positive while six were negative (75%).

Upon treatment with antivirals (Zovirax<sup>®</sup>) in the majority of cases there was complete resolution in 8 (57%) of the patients with most of the sequelae occurring in those of them who are seropositive.

**Conclusion:** Correlation of impaired immune status with Herpes zoster affectation was found to be more obvious in the younger than 40 years group. Treatment with antivirals gave good resolution in most cases. Blinding complications were found more in those who were seropositive.

**Key words:** herpes zoster, HIV infection, Nigeria.

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**Introduction**

The Joint United Nations Programme on HIV/AIDS (UNAIDS), reports that at the end of 2005 an estimated 38.6million people worldwide were living with Human immune deficiency virus (HIV).<sup>1</sup> Sub-Saharan Africa was found to be the region with the largest burden of the AIDS epidemic, while Nigeria had the largest epidemic of HIV in West and Central Africa (1.2 – 4.2 million people).<sup>1</sup>

Among individuals with HIV, approximately 70 -80% will be treated for an HIV associated eye disorder during the course of the illness.<sup>2</sup> In many patients, opportunistic disease may be the first manifestation of HIV infection.<sup>3</sup> Herpes zoster has been observed in 10 -20% of patients infected with HIV.<sup>3</sup>

Herpes zoster is a painful vesiculobullous dermatitis which occurs as a result of previously established varicella zoster virus infection. Herpes zoster can involve any dermatome, when the ophthalmic division of the trigeminal nerve is affected it is called herpes zoster ophthalmicus. Herpes zoster may be the presenting sign in HIV and may predict an increased risk for developing AIDS in those already infected with HIV.<sup>4</sup>

Patients with herpes zoster ophthalmicus who are seen in the University of Port Harcourt Teaching Hospital outpatient department are referred to the eye clinic to manage their eye signs. It is a well established fact that Herpes zoster ophthalmicus is a well known marker of human immune deficiency virus infection even in Africans.<sup>5</sup> This was also the conclusion of a study carried out in eastern Nigeria 10 years ago.<sup>6</sup> However this has not to the best of our knowledge been established in our locality.

This study was carried out to find out if the same situation prevails in our locality.

**Methodology**

Files of patients diagnosed to have herpes zoster ophthalmicus between the year 2003 and 2006 were culled from the outpatient register in the ophthalmology

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department of the University of Port Harcourt Teaching Hospital, Port Harcourt, Rivers state and reviewed.

Vital statistics as well as details about complaints, ocular findings, and investigations carried out, management strategies and visual outcome were extracted from the folders of the patients.

The data was analyzed manually.

## Results

Of the 20 patients, there were 13 males and 7 females giving a male female ratio of 4:3.

The age range was between 18 and 79 years with the majority falling between the 41-50 age groups (35.7%). about 12 patients were over 40 years old.

Half of the patients came from Rivers state (50%) while one of the patients was a Caucasian. Only one of the patients was a Muslim. Others were Christians. There was no predilection for a particular occupation with most patients being civil servants, students, or traders. One of them was a fisherman. Majority were married to one wife (50%), 7 were single (35.7%) while there were 2 widows involved. Most of the patients denied having multiple partners (71.4%) while one person admitted that he had.

The presenting complaints were mainly rashes (70%), followed by loss of vision (25%) and then tearing and eye discomfort in order of frequency. The side of the face most commonly affected is the left side (70%) as against the right. Involvement of the tip of the nose was seen in 9 cases (45%), though it was not documented in 2 cases.

The pupil was sluggish but reactive in 2 cases, fixed in 7 cases while it was still active in 9 cases. In 2 cases it was not documented. Most patients had been complaining for a minimum of 4 days and a maximum of 20 weeks before presentation.

Out of the twelve (n=12, 60%) patients whose serum was tested for human immunodeficiency virus, eight (n=8, 40%) were negative, while four (n=4, 20%) were positive for the virus. Eight were not tested.

Using 40 years of age as the cutoff, those above 40 years (12 in number), two (n=2, 25%) were seropositive while 9 were negative (75%). For those below 40 years (8 in number), two (n=2, 25%) were positive while six were negative (75%).

The standard treatment given that provided relief was topical Zovirax and topical steroids with majority of patients receiving relief on an average of 2 visits. Most patients (n=17, 85%) had no significant past ocular history and in eleven (n=11) patients there was no sequelae, with complete resolution.

Two (2) patients lost their vision completely while 2 patients developed a secondary cataract and 3 developed corneal opacities. Of these 7 patients with significant sequelae, all presented as late as 3 to 12 weeks after symptoms had developed and 4 of the patients were seropositive.

## Discussion

HIV infection causes a reduction in cellular immunity. This predisposes patients to opportunistic infections. Generally CD4+ T- lymphocyte count has been used to predict the onset of certain ocular infections in patients who are HIV positive but even if the patient has higher Cd4 counts, problems could still occur.<sup>27</sup> Ocular complications occur in 75% of AIDS patients.<sup>8</sup> . Ophthalmic zoster, which is one of these complications has an incidence of 3.2/1000 patients /year.<sup>9</sup> Recent reports from eastern Nigeria shows that herpes zoster ophthalmicus accounts for 48% of the 50% of cases of herpetic eye disease.<sup>10</sup>

Herpes zoster ophthalmicus is a recrudescence of a latent varicella zoster virus in the dorsal root ganglion of the trigeminal nerve. The loss of regulatory control of T-cells that occurs with aging and immunocompromised conditions such as HIV infection and AIDS are believed to contribute to the reactivation of the virus and the morbidity that results there from.<sup>24</sup> Herpes zoster ophthalmicus accounts for 10 -25 % of all cases of Herpes zoster(Shingles).<sup>4,11</sup> Herpes zoster infection(Shingles) is observed in 10 -20% of patients with HIV infection and has been shown to indicate a modest decline in immune function and also the first clinical indication of immunodeficiency.<sup>34</sup> Herpes zoster ophthalmicus on its own may be the presenting sign in HIV and may predict an increased risk for developing AIDS in those already infected with HIV.<sup>4</sup>

Patients with herpes zoster ophthalmicus usually present with various stages of cutaneous lesions along the distribution of the ophthalmic division of the trigeminal nerve. The rashes typically start as macules then progress to form papules, vesicles pustules and eventually become crusted. Rashes are usually preceded by a prodromal period with fever malaise and headaches. Involvement of the nasociliary nerve as evidenced by a rash on the tip of the nose, heralds ocular involvement. Patients may therefore present to the eye clinic with deterioration of vision, eye discomfort, pain, tearing and redness .Ocular conditions therefore associated with Herpes zoster

ophthalmicus include, blepharitis, conjunctivitis, keratitis, uveitis and their sequelae.

In our study 70% of the patients presented with various stages of development of the cutaneous rashes along the distribution of the trigeminal nerve on the affected side of the face. Twenty-five percent presented with visual loss and others with tearing and eye discomfort. There was involvement of the tip of the nose (Hutchinson's sign) in 45% of the cases. A similar picture was reported in southwestern Nigeria where 66.7% of patients with HIV, presented with vesicular rashes.<sup>12</sup> Herpes zoster ophthalmicus ordinarily affects the middle aged and elderly however since the HIV/AIDS pandemic it is increasingly been observed in young adults and has been associated in this age group with HIV seropositivity or AIDS.<sup>4,14</sup> However in our study majority of the patients were between 40 and 51 years of age. Using 40 years as a cutoff point, those above 40 years demonstrated less seropositivity (6 negative, 2 positive) than those below 40 years (1 negative, 2 positive).

The course of the disease (herpes zoster ophthalmicus) is more severe and prolonged in patients with HIV/AIDS. Complications maybe associated with inflammatory changes (keratitis, episcleritis/scleritis, orbital

vasculitis).<sup>4,14,15</sup> Others occur from nerve damage, neurotrophic keratitis, ocular motor palsies and neuralgia.<sup>15,16</sup> This could lead to devastating sequelae such as chronic ocular inflammation, debilitating pain and the ultimate being loss of vision. With regards to this study, most of the patients (57%) responded to treatment with systemic and topical acyclovir with complete recovery. Sequelae was seen in 7 of our patients. Three had corneal opacities, 2 had secondary cataracts and 2 lost their vision. Out of the 7 patients with significant sequelae, 4 of them were seropositive.

## Conclusion

Correlation of impaired immune status with Herpes zoster affectation was found to be more obvious in the younger than 40 years group. Treatment with antivirals gave good resolution in most cases. It is recommended that all patients presenting with herpes zoster should have a serum test to rule out HIV carried out on them. Also all patients, particularly those who have HIV with suspected herpes zoster should be encouraged to present early at the eye clinic so as to minimize blinding complications.

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