

# Ophthalmic Herpes Zoster in Patient with Systemic Lupus Erythematosus

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**Abstract:** Ophthalmic herpes zoster (OHZ) might manifest as pain and cutaneous rash limited to periocular region, but ocular involvement have been reported in immunocompromised patients. We present a case report of ophthalmic herpes zoster in a patient with systemic lupus erythematosus who receive immunosuppressive therapies to add up to the literature about risk factors and management of OHZ. The diagnosis was established by the findings from history, physical examination, and supporting examination. The management of this was conducted collaboratively with Departments of Internal Medicine and Ophthalmology. The prognosis of this case was dubious due to the higher risk of recurrency associated with the ongoing immunosuppression therapy.

## 1 INTRODUCTION

Ophthalmic herpes zoster (OHZ) occurs in 10% to 20% of all herpes zoster cases. This condition might manifest as pain and cutaneous rash limited to periocular region, but 50%-72% cases have demonstrated ocular involvement with varied clinical manifestation and degree of severity (Vreck et al, 2017). Several studies have reported the higher rate of herpes zoster infection among immunocompromised patients than the general population, including patients with systemic lupus erythematosus (SLE) who receive immunosuppressive therapies (Cohen, 2013). This paper reports a case of ophthalmic herpes zoster in a patient with SLE who underwent chemotherapy with intravenous cyclophosphamide to add up to the literature about risk factors and management of OHZ.

## 2 CASE

The patient was a 21-year-old Balinese Indonesian female with SLE. She was consulted from the Department of Internal Medicine with vesicles in the right forehead and around patient's right eye since three days before consultation day. These painful

and non itchy vesicles initially appeared in the forehead. They had been increasing in numbers, some had coalesced, and further these vesicles extended to the patient's right eye. The patient then complained about red, watery, painful right eye and trouble with opening it. These complains also presented with fever. No medications had been taken, including topical treatment. The patient had a history of varicella during childhood.

The patient was currently receiving 500mg pulse dose metilprednisolone within 250cc sodium chloride 0.9% for 3 days, followed by intravenous 62.5mg metilprednisolone every 12 hours for 5 days, then intravenous 62.5 mg metilprednisolone every 24 hours for, and a maintenance dose of 16 oral prednisolones every 12hours. She had also received one cycle of chemotherapy with 500 mg cyclophosphamide within 250cc sodium chloride 0.9%.

During the examination, the patient demonstrated normal vital sign, mild pain (visual analog scale/VAS: 2), and right eye visual acuity of 6/15. Vesicles and crusts presented in the edematous right eyelid. The dermatological examination of the right frontal region, right upperlid (in concordance with the dermatome of the ophthalmic branch of the trigeminal nerve) revealed efflorescence of multiple vesicles, some had coalesced and formed rounded geographical bullae with sizes ranging from 0.1 x

0.2 cm to 0.5 x 0.8 cm above the erythematous skin surface, as illustrated in Figure 1.



Figure 1: Findings of dermatological state examination day 1.

Complete blood count revealed lowered values red blood cells measurements and blood chemistry demonstrated increased values of liver enzyme tests, blood urea nitrogen, and lowered albumin. The Tzanck smear of specimen from scraping of the bullae base showed multinucleated giant cells.

The diagnosis of the patient was ophthalmic herpes zoster that was in concordance with the dermatome of trigeminal nerve's ophthalmic branch. She was treated with 800 mg oral acyclovir every 5 hours (day 1) for 10 days, 500 mg oral paracetamol tablet every 8 hours (if fever arose), oral vitamin B1, B6, B12 tablet every 24 hours, 500 mg oral mefenamic acid tablet every 8 hours (if required), 1% salicyl powder + 0.5% menthol applied in the bullous lesions every 12 hours. The patient also received explanations about her condition, planned treatment, and possible complications. She was also consulted to the Department of Ophthalmology who subsequently diagnosed her with right ophthalmic blepharconjunctivitis and provided gentamycin eye ointment every 8 hours and 1 drop of levofloxacin and lyteers every 4 hours for the right eye. The maintenance prednisolone dose was continued by Department of Internal Medicine, and the second cycle of cyclophosphamide chemotherapy was delayed until the skin lesions had improved.

Further follow up on day 11 revealed that the bullae had resolved and left erosions on the erythematous skin surface partially covered by dark

brown crusts. No new lesions nor fever were reported, and the pain improved.

Acyclovir and paracetamol were no longer administered but the mefenamic acid and vitamin tablets were resumed. Fifteen minutes open dressing with 0.9% Sodium chloride 0.9% was conducted every 8 hours on the erosive lesions, and 2% Sodium Fusidate cream was applied to the lesion every 12 hours afterwards. The patient also continued to receive levofloxacin and lyteers drops.

The examination on day 18 revealed that much of the lesions had dried (Figure 2). No pain, no itchiness, no new lesions, and no fever were encountered. The mefenamic acid was no longer administered while vitamin tablets, open dressing with 0.9% sodium chloride, and the application of 2% Sodium Fusidate cream was continued. The Department of Ophthalmology stopped the administration of levofloxacin drop, but continued the lyteers and added gentamycin eye ointment every 8 hours.



Figure 2: Findings of dermatological state examination day 18.

### 3 DISCUSSION

Cutaneous manifestation of SLE presents in 75% patients and serves as an early sign in about quarter of the cases (Kuhn et al, 2013). These patients have 11-23 higher risk for infection than the general population, and herpes zoster is the most common viral infection encountered (Sayeeda et al, 2010). Herpes zoster infection might present in the form of ophthalmic herpes zoster (OHZ) marked by the occurrence of inflammation in the eye, intraneural,

and perineural of the sensory nerve. OHZ frequently presents with dermal eruptions that are in concordance with the dermatome, but ocular involvement is uncommon.

An immunological study in patient with SLE showed a breakdown of cell mediated immune, delayed of hypersensitivity reaction, and hyperactive humoral immune system. The side effect from high dose corticosteroids therapy and other immunosuppressive agents also can decrease host resistency to some infections. The activity of disease, nephritis lupus, and positive Sm-antibody have been reported as risk factors of herpes zoster in SLE (Leroux, 2016).

This case reported a 21-year-old female with SLE who was consulted from the Department of Internal Medicine due to the emergence of vesicles in the right forehead and around the patient's right eye. This patient was also under treatment of high dose and long term therapy with immunosuppressive agents such as cyclophosphamide and corticosteroids.

The diagnosis of OHZ was then established from the history, physical examination, and supporting examination. This patient presented with efflorescence of multiple vesicles, some of them had coalesced and formed bullae on the erythematous skin of right frontal region and right upper lid (in concordance with the dermatome of the ophthalmic branch of the trigeminal nerve). These clinical features were in concordance with the diagnosis of OHZ (Vrcek et al, 2017). In addition, the Tzanck smear with Giemsa staining revealed multinucleated giant cells. Other modalities to establish the diagnosis might include the histopathological examination, viral culture, polymerase Chain Reaction (PCR), and serological tests (Schmader and Oxman, 2012). However, due to the possibly longer duration to obtain results and cost effectiveness consideration, these test were not conducted in the patient.

The management of OHZ is similar to the herpes zoster infection in general, but additional eye management should be conducted. The management should attempt to decrease viral replications, accelerate recovery, relieve pain, and prevent complications (Dail and Makes, 2002). This includes the main therapy with antivirals, added with supporting therapies such as analgetics and topical therapies both for the skin and the eye (Dworkin et al, 2007). The patient in the case received 800 mg acyclovir every 5 hours for 10 days, added with oral mefenamic and vitamins B1, B6, B12. Open dressing and sodium fusidate cream were provided for the

skin treatment, while gentamycin eye ointment and lyteers were provided for the eye.

The prognosis of OHZ is generally favorable, but patients older than 70 years old or who are immunocompromised are at higher risk of recurrence (Armando et al, 2015). The most common complication of herpes zoster infection is post herpetic neuralgia. In 9% cases, this pain might last for a period that ranges from 4 weeks to 10 years. In this case report, the patient was a 21-year-old female who showed improvement after collaborative treatments. However, due to the ongoing immunosuppression therapy for her SLE, her prognosis was dubious, with a higher risk of recurrent herpes zoster infection than the general population.

## 4 CONCLUSION

This case report presented the occurrence of ophthalmic herpes zoster in a patient with SLE. The diagnosis was established by the findings from history, physical examination, and supporting examination. The management of this was conducted collaboratively according to the available recommendations. The prognosis of this case was dubious due to the higher risk of recurrency associated with the ongoing immunosuppression therapy.

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