Herpes Zoster Ophthalmicus in a Patient with Wegener’s Granulomatosis

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Abstract
Herpes zoster ophthalmicus (HZO) is a serious presentation of varicella-zoster virus infection in the periocular region that may manifest cutaneously but can progress to have ocular involvement, justifying ophthalmologic consultation. Co-morbid diseases may complicate the diagnosis and management of HZO, requiring thorough monitoring of the patient’s progress and potential drug interactions of patient’s medications. Early oral antiviral treatment decreases the rate of development of ocular complications. Post-herpetic neuralgia is a frequent complication of herpes zoster and is best managed with multi-modal drug regimens that work on different mechanisms of the disease.

Introduction
Herpes zoster ophthalmicus is a reactivation of herpesvirus-3, also known as the varicella-zoster virus, in the distribution of the ophthalmic branch of the trigeminal nerve (CN V). It represents up to 25% of all herpes zoster presentations.1 Risk factors for re-activation of the virus include old age, immunosuppressive drugs and diseases, emotional stress, neoplastic disorders, fatigue, poor nutrition, and recreational drug abuse.2,3 Clinical presentation may be preceded by malaise, fatigue, headache, fever, and/or photophobia.3 Lesions typically follow the phases of non-ophthalmic zoster or “shingles,” beginning with unilateral dermatomal pruritus, pain, and/or tingling that may be present for up to five days before an erythematous vesicular rash appears. The vesicles eventually rupture, form crusts, and then heal without scarring.

Case Presentation
A 44-year-old Puerto Rican female presented to the emergency department for right periorbital erythema and edema for two days’ duration. She reported difficulty opening the right eye, radiating throbbing pain along the right side of her face, and fever. The blistering rash was present in the right periorbital region, on the right anterior scalp and right dorsum of the nose. The patient also complained of tenderness of affected areas along the right hemi-facial region. The patient also stated that over the past year, she’d experienced gradually increasing weakness in the lower extremities, hearing loss, and joint pain. Past medical history included depression, asthma, and Wegener’s granulomatosis, which was diagnosed in 2010 in Puerto Rico based on a skin biopsy of the patient’s thigh, for which she was placed on chronic prednisone therapy by her primary physician. Past surgical history included multiple skin grafts for perforated nasal septum secondary to Wegener’s granulomatosis. The patient’s home medications included: prednisone, gabapentin, fluoxetine, tramadol, trazodone, iron sulfate, and alprazolam. The patient had a family history of diabetes mellitus and stroke.

Physical examination revealed multiple vesicles on an erythematous base in the right periorbital region, forehead, scalp and nasal dorsum (Figure 1). Additionally, white exudative plaques were visible on the anterior tongue. Coalescing yellow exophytic verrucous plaques were present on the soles of her feet. Examination of extremities revealed multiple, bilateral, atrophic hypopigmented plaques on the anterior tibial and thigh regions (Figure 2). Urinalysis revealed hematuria and proteinuria. A bilateral renal sonogram was unremarkable; however, ultrasound of the bladder displayed focal bladder irregularity. Computed tomography (CT) scan, with and without contrast, of the head and neck indicated right periorbital cellulitis and pansinusitis. The ophthalmologic service was consulted, and they noted no ocular involvement. Laboratory tests revealed elevated p-ANCA (2.7), but negative c-ANCA. The erythrocyte sedimentation rate (ESR) was also elevated. The patient was rapid plasma reagin (RPR) negative and human immunodeficiency virus negative.

The patient was admitted and placed on intravenous acyclovir 200 mg (TID), methylprednisolone 20 mg (BID), terbinafine for her presumed tinea pedis, nystatin mouth wash for oral candidiasis, and pertinent antibiotics for her periorbital cellulitis. Blood cultures showed no growth after five days, and antibiotics were discontinued. A punch biopsy of the thigh lesion revealed dermal fibrosis with mild inflammation (Figure 3). Elastin staining showed fragmented, thin elastic fibers indicative of scar. The scar most likely was a result of healing from a previous active Wegener’s lesion. Subsequent laboratory testing revealed low absolute lymphocyte counts (468), low absolute CD4 counts (147), and low CD8 counts (147). Because the patient was immunosuppressed, she was given prophylactic sulfamethoxazole/trimethoprim. The patient continued to complain of facial pain and was...
CD8+ T cell counts tend to be comparatively systemic medications but also to the relocation of CD4+ T cell counts compared to controls. This decreased numbers of total, absolute, and relative granulomatosis have been reported to have corneal denervation associated with keratitis and mesencophalic nuclear brainstem injury. Corneal nerve involvement and injury results in neurotrophic keratopathy, which may cause several complications, including blindness; therefore, it is imperative to seek ophthalmologic evaluation to determine the extent of the disease and whether ocular involvement is present. Other ocular presentations of HZO include conjunctivitis, uveitis, episcleritis, acute retinal necrosis, progressive retinal necrosis, optic neuritis, and cranial nerve palsy.

The diagnosis of HZO is clinical; however, some cases of HZO may be difficult to delineate in the presence of other co-morbid diseases such as granulomatosis with polyangiitis or peri-orbital cellulitis, as was the situation in our patient. Viral cultures may be performed from lesions, but they are less sensitive and more time-consuming than direct immunofluorescence assay.13,14 Differential diagnoses include herpes simplex, varicella, trigeminal neuralgia, erysipelas, cellulitis, sarcoidosis, trigeminal trophic syndrome, cutaneous lupus erythematosus, syphilis, cutaneous antrach, leshmaniasis, leprosy, zygomycosis, and sporotrichosis.

Treatment of HZO is important because approximately half of untreated patients suffer from ophthalmologic complications.15 Acyclovir, valacyclovir, and famciclovir are FDA-approved for the treatment of herpes zoster.16 Patients with an active rash can be treated with acyclovir 800 mg five times daily for up to 10 days’ duration. Based on numerous studies, this regimen has been shown to prevent the formation of new lesions, decrease pain, reduce viral shedding, and decrease the incidence of certain late ocular complications including anterior uveitis and early-to-late keratitis.17-22 Patients with immunosuppressive states should be treated with intravenous acyclovir. Due to our patient’s concurrent vesiculovirus and low CD4 counts, she was placed on intravenous therapy, but was discharged on oral valacyclovir, 1000 mg twice daily dosing for one week, which has been shown to prevent ocular complications such as keratitis and conjunctivitis. It has also been found to decrease average time of zoster-related pain in comparison to acyclovir.23,24 Post-herpetic neuralgia is a significant complication of herpes zoster, particularly in the elderly population. It occurs in up to 20% of patients with herpes zoster within the same region of the infection and can last anywhere from a few months to a few years, at times being intractable to many medications.25 In the management of post-herpetic neuralgia, targeting multiple mechanisms of disease with combination therapies is logical, and often gabapentin, tricyclic antidepressants and/or topical lidocaine patches are used as first-line agents, followed by opioids and captacin as second-line agents.26

References


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