A RARE CASE OF HERPES ZOSTER OPHTHALMICUS WITH THE ONSET PRESENTING AS HEADACHE

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Abstract: The article presents a rare case of herpes zoster ophthalmicus with headache as a first symptom, and discusses clinical presentation, diagnosis and treatment in the context of clinical experience and published literature.

Keywords: herpes zoster virus ophthalmicus, varicella-zoster virus ophthalmicus.

DOI 10.53301/lw/166150

Received: 2023.04.19

Accepted: 2023.05.15

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Introduction

Herpes zoster ophthalmicus (HZO) is an eye infection caused by localised reactivation of latent varicella-zoster virus (VZV), also known as human herpesvirus 3 (HHV-3), present in the sensory ganglion and extending along ophthalmic branch of the fifth cranial (trigeminal) nerve [1]. HZO develops in approximately 10 to 25 percent of all treated cases of herpes zoster infection, but affects 50 percent of all cases when the antiviral treatment is not readily available [2, 3]. The first exposure to the virus causes primary infection, which is chickenpox occurring mostly in children [4]. Afterwards, VZV is maintained in the latent state by VZV-specific T cell-mediated immunity and is reactivated under favourable conditions of decreased immunity due to infection, age, treatment with immunosuppressants, or inflammation [5]. After reactivation, VZV is highly contagious, and may be transmitted via aerosols or by direct contact with infected tissues [1, 2, 4].

Prodromal symptoms are usually present, including pain or tingling in the forehead, fever, headache, malaise and chills. The initial and characteristic symptom is unilateral hyperesthesia or paraesthesia of the skin within the affected area. This area is then covered by the rash which evolves through the macular, papular, vesicular, and pustular stages before it scabs over [3]. Other common HZO symptoms include painful and severe eyelid and corneal oedema, ocular pain, conjunctival, episcleral, and circumcorneal conjunctival hyperaemia (ciliary flush) and photophobia [6]. HZO may affect all eye tissues and structures, causing keratitis, scleritis, uveitis, trabeculitis, choroiditis, acute retinal necrosis, optic neuritis, nerve palsies, and cavernous sinus thrombosis [3].

Clinical diagnosis of HZO is based on history, and findings on physical and slit-lamp examination. In rare cases, viral cultures, polymerase chain reaction (PCR), and antibody testing, are required for diagnosis. Other tests, such as tonometry and corneal esthesiometry, may also be needed to assess the risk of complications [6].

Treatment is based on topical and if needed systemic antiviral agents, such as acyclovir, valacyclovir, and famciclovir. Mydriatics and topical corticosteroids are also in use [2].

Below is presented a case of patient with HZO with an unusual initial presentation.

Case report

A 77-year-old generally healthy man attended the Emergency Department (ED) late at night with unspecific, generalised headache and mild pain in his right eye which persisted for 2 days. He denied history of any recent injury or accident. He had lost his left eye as a result of a childhood injury, and had an ocular prosthesis in the left orbit.

On an ocular examination, the best corrected visual acuity (BCVA) in the right eye was 20/25, the intraocular pressure (IOP) was 19 mmHg with full visual field and normal eye movements, not limited by pain. In the slit lamp biomicroscopy, the bulbar conjunctiva was pale, the cornea was transparent, smooth and clean. The anterior chamber was quiet. The pupil was mildly dilated, with normal pupillary reflex. The lens showed a degree of opacity and was otherwise normal. The fundus exam revealed an orange-pink optic disc with distinct, smooth margins and cup to disc ratio of 0.9, vasculature adequate for age, attached retina and absent foveal reflex.

The unremarkable ocular examination prompted a neurological consultation and another ophthalmic examination to ascertain any new signs and symptoms occurring overnight. The patient left the ED in the morning pain-free, but he returned 3 days later with palpebral oedema and erythematous vesicular rash on the right side of his forehead and right eyelids, but without visual impairment. He was initially prescribed oral acyclovir 800 mg p.o. 5 times a day and instructed to clean the skin lesions with skin disinfectant and apply ichthammol ointment twice a day. He was also admitted as an inpatient to the dermatology ward due to facial involvement with fluid-filled vesicles typical of HZO. As the laboratory tests revealed serum level of C-reactive protein (CRP) of 3.0 mg/dl (the upper normal limit is 0.8) and procalcitonin (PCT) of 0.21 ng/mL, oral acyclovir was substituted with intravenous injection at 10 mg/kg and oral doxycycline 200 mg once a day. Another 3 days later, in another ophthalmic examination, palpebral oedema was still visible, alongside blepharostenosis, with fully preserved eye movements. Topical medications were added, including ofloxacin eyedrops, vitamin A eye ointment and sulfathiazole ointment for external use.

On day 9. following the initial visit, corneal epithelial defects were identified on slit lamp biomicroscopy without other abnormalities. On day 12. following the initial visit, the man was discharged home on oral acyclovir 800 mg to be taken 5 times a day for the next 12 days and ofloxacin eyedrops as well as vitamin A eye ointment to be applied 4 times a day. Detailed recommendations were provided regarding skin care regimen to be followed twice a day, including cleaning all skin lesions with skin disinfectant and applying ichthammol ointment. An emollient cream was recommended for the face and head skin, alongside the recommendation to use sun protection, ensure proper hydration and nutrition. Follow-up ophthalmology and neurology appointments were also scheduled.

The eye examination on day 19. following the initial ED visit was largely unremarkable, except for mild corneal oedema visible in slit lamp biomicroscopy. Topical treatment was modified to corneal dehydration eyedrops 4 times a day and hydrocortisone eyedrops twice a day. Additionally, the neurologist diagnosed the patient with postherpetic neuralgia, prescribing a combination of tramadol (37.5 mg) and paracetamol (325 mg) PRN, as well as gabapentin (400 mg once a day) for pain relief. The most recent ophthalmology follow-up appointment only yielded the diagnosis of blepharitis, so dexpanthenol-containing eye drops were prescribed to be used 3 to 4 times per day.

Discussion

The typical course of HZO seen in most cases of latent virus reactivation in the trigeminal ganglia causes flu-like symptoms of fatigue, malaise and low-grade fever, which precede the onset of skin rash by even a week. In some cases, however, HZO may start with headache (generalised or cluster), without the above prodromal symptoms. This was the case with our patient, and a few similar cases have been published to date, both in children and adults [7, 8].

While not uncommon itself, HZO has some detrimental consequences, which makes it a potentially dangerous infection. If detected late, it may lead to chronic ocular inflammation, disabling pain as the infection spreads along the ophthalmic branch of the nerve and even vision loss [6]. In the presented case, our key objective was to prevent vision loss, as the man's only eye was affected, so the treatment decisions were made accordingly.

The aim of treatment in HZO is three-fold and includes managing the acute viral infection, controlling the acute pain, and preventing postherpetic neuralgia [5]. The standard antiviral treatment, involving oral acyclovir administered at the dose of 800 mg five times a day, should be continued for 7 to 10 days [2]. Intravenous acyclovir is recommended especially in immunocompromised patients [9]. In the reported case the decision to switch from oral to intravenous acyclovir was guided by the need to protect the only eye of the patient and it, indeed, prevented potentially damaging ocular manifestations. If the treatment is commenced within the first 72 hours following the onset of symptoms, it may accelerate rash resolution, reduce pain, limit the spread of the virus, lead to a milder postherpetic neuralgia, or prevent it, as well as decrease the risk of dendritic and stromal keratitis, and anterior uveitis [5]. In some cases, antibiotics are administered to prevent secondary bacterial infection. This was true in the above case – topical ofloxacin and oral doxycycline were used, considering the patient's age and the fact that it was his only eye. Topical and systemic corticosteroids may be used in cases with favourable risk to benefit ratio [6]. Their effect is two-fold, as not only do they help to control inflammatory response to VZV infection, but additionally become a part of pain management strategy. In line with that, the above patient was treated with hydrocortisone eyedrops to help manage his ocular pain.

Pain in HZO, both acute and chronic, can be really debilitating, affecting the quality of life to a degree comparable to myocardial infarction, major depression, or type 2 diabetes mellitus [10]. Acute pain is managed with local agents. However, topical anaesthetics should not be prescribed due to their corneal toxicity [2]. Oral analgesics may also be needed. The described patient experienced pain of headache as his first (and main symptom) followed by neuralgia. Pain management was, therefore, used accordingly and neurology referral was made early.

Neurology follow-up plays an important role, due to possible postherpetic neuralgia which affects approximately 7 percent of all patients with HZO [5]. It involves constant or intermittent pain in the distribution of the affected dermatome, which may last for months to years, generally improving with time [3]. It is seen more often in older patients and those with pronounced prodromal symptoms, which means that the male discussed above met only one of those criteria, as he did not report the usual prodromal non-specific symptoms of developing infection. In some cases, HZO may lead to cranial nerve palsies, typically involving the third, fourth, and sixth cranial nerve [5, 11]. Treatment involves topical capsaicin cream, analgesics, tricyclic antidepressants and, sometimes, anticonvulsants [11]. Treatment of our patient reflects those principles, too.

It is generally believed that the age and immune status predispose people to develop HZO and its sequelae, as well as affect their severity [12]. However, the paper by Campos et al. [7], who reported HZO followed by postherpetic neuralgia and two severe flare-ups, in an immunocompetent 8-year-old girl, appears to demonstrate that it is not always the case. Similarly, the research suggests that the prevalence of HZO in females is higher than in males [13]. Our patient is a male, and while he falls into the age category where shingles would be normally included in differential diagnosis granted the typical presentation, he did not have any significant underlying diseases making him unusual in this age group. This suggests the need for vigilance to identify cases with more 'atypical' presentations.

Conclusions

Each suspicion of HZO, in primary care or elsewhere, should prompt an urgent ophthalmology referral, as the involvement of an ophthalmologist is crucial. Physicians need to be vigilant, as the presentations may vary on onset. Rapid treatment commencement may help to avoid vision-threatening and neurological sequelae. Patients with HZO require interdisciplinary care and regular follow-up appointments.

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