Herpes zoster ophthalmicus: the essentials

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Herpes zoster, also referred to as shingles, is a common infection most typically caused by the reactivation of varicella zoster virus that lies dormant (sometime for decades) in the dorsal root nerve ganglion following primary chickenpox infection [1]. In 10-20% of cases, the first division of the trigeminal nerve (V1) is involved and herpes zoster ophthalmicus occurs [1,2]. A patient with herpes zoster ophthalmicus typically presents with a painful, unilateral, vesicular rash in a dermatomal distribution [1]. It may (but not always) present with ocular involvement including painful inflammation of the anterior, and rarely, posterior structures of the eye including conjunctivitis, keratitis, iritis and uveitis [1]. This is a clinical diagnosis but can be confirmed by viral swabs.

This article aims to assist trainees by providing an overview of the essential aspects of history, examination and initial management plan for any patient who presents with suspected herpes zoster ophthalmicus.

1. History

Whilst taking a patient history, it is key to ascertain when the rash started, initiating antiviral treatment within 72 hours from the onset of rash is essential in reducing the risk of long-term ocular complications including uveitis, stromal keratitis and pseudo-dendritis [1,3]. To decipher whether there is an ocular involvement it is pivotal that the following symptoms are enquired about: eye pain, diplopia, discharge, red eye, photophobia, visual loss / disturbance, floaters and flashing lights. Systemic symptoms including general malaise, headache and fever should also be asked. It is then important to enquire about past medical history particularly if there is any recent systemic illness which would impair immunity thus increasing the risk of developing herpes zoster [1]. Additionally, asking whether there is any history of immunosuppression (including malignancy, HIV or history of chickenpox) would aid with investigations and starting stronger antiviral treatment. Likewise, asking if the patient is on any immunosuppressive medication would be beneficial. Finally, taking a thorough social history is pivotal to ascertain if there are any vulnerable populations including children and pregnant women who the patient has recently been in close contact with that may require urgent medical attention if showing signs of varicella or herpes zoster.

2. Examination

On general examination, look at the pattern and distribution of the rash: a unilateral (not crossing the midline) vesicular rash along the V1 dermatomal distribution would highly indicate herpes zoster [1]. A key sign to be aware of is Hutchinson's sign, this is a rash involving the tip, side or root of nose [1]. It indicates involvement of the nasociliary branch of the trigeminal nerve and is strongly correlated with ocular inflammation and permanent corneal denervation [4]. Using fluorescein drops to determine if there are any corneal changes is also essential. Finally, signs of infection both locally (purulent discharge) and spread (e.g. confusion in encephalitis) need to be assessed. On ocular examination the external eye should be examined for conjunctival redness, acuity should be assessed using Snellen chart and viral swabs taken for herpes simplex / varicella zoster if there is diagnostic uncertainty, e.g. if the rash is atypical [1]. After external examination of the eye, a dilated fundus examination can then be performed including intraocular pressures.

3. Management

The key in managing patients with herpes zoster ophthalmicus regardless of ocular involvement is initiating antiviral treatment (oral aciclovir is first line) within 72 hours of the onset of rash. Ocular involvement occurs in approximately 50% of HZ patients without the use of antiviral therapy [5]. If there is any evidence of uveitis or stromal keratitis, topical steroids should be used [1]. Immunosuppressive therapy should be used for scleritis. Topical anaesthesia should not be used as it prevents corneal healing and may worsen corneal denervation [1]. Analgesia and lubricating eye drops should also be considered. Educating patients regarding avoiding close contact until vesicles have fully crusted over with vulnerable populations, particularly children and pregnant women should also be reinforced by healthcare professionals.

Table 1: Key elements of a history for suspected herpes zoster ophthalmicus.

Key elements in history:
▪ Onset of rash: within 72 hours?
▪ Key symptoms suggesting ocular involvement: eye pain, diplopia, discharge, red eye, photophobia, visual loss / disturbance, floaters and flashing lights?
▪ Past medical history and drug history: any evidence of immunosuppression?
▪ Social history: any recent close contacts with similar symptoms?

Table 2: Key elements of an examination for suspected herpes zoster ophthalmicus.

Key elements in examination:
▪ General examination: Pattern and distribution of rash, Hutchinson's sign, corneal changes, local and wider signs of spread?
▪ Ocular examination: Conjunctiva, acuity, swabs, fundoscopy?

Table 3: Key elements in management herpes zoster ophthalmicus.

Key elements in management:
▪ Initiating systemic antiviral (e.g. aciclovir) treatment within 72 hours after rash onset
▪ Topical steroids if uveitis / stromal keratitis
▪ Analgesia and lubricating eye drops as required
▪ Immunosuppressive therapy for scleritis
▪ Patient education in close contacts

4. Complications

The two most important complications of herpes zoster ophthalmicus are uveitis (pain and photophobia without discharge) and acute retinal necrosis (pain with loss of vision +/- floaters) [1]. Other complications include: conjunctivitis, corneal pseudo-dendritis, episcleritis, post-herpetic neuralgia and disciform keratitis.

5. Prevention

The recombinant herpes zoster vaccine is recommended for adults ≥70 years in the UK and has been shown to reduce cases of herpes zoster by 38% [6]. Public health education campaigns would be useful to highlight the importance of this vaccination to this population given the severity of the complications that may arise from it if not identified or treated appropriately.

References

1. Jeng TDS, Niru G, Saurabh G. Herpes Zoster Ophthalmicus. *BMJ* 2019;**364**:523-4.
2. Liesegang TJ. Herpes zoster ophthalmicus natural history, risk factors, clinical presentation, and morbidity. *Ophthalmology* 2008;**115(Suppl)**:S3-12.
3. Cobo LM, Foulks GN, Liesegang T, et al. Oral acyclovir in the treatment of acute herpes zoster ophthalmicus. *Ophthalmology* 1986;**93**:763-70.
4. Zaal MJ, Völker-Dieben HJ, D'Amaro J. Prognostic value of Hutchinson's sign in acute herpes zoster ophthalmicus. *Graefes Arch Clin Exp Ophthalmol* 2003;**241**:187-91.
5. Liesegang TJ. Herpes zoster ophthalmicus natural history, risk factors, clinical presentation, and morbidity. *Ophthalmology* 2008;**115(2 Suppl)**:S3-12
6. Root MI. Herpes Zoster Ophthalmicus. MSD Manual of Professional Version. 2018.

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Declaration of competing interests: None declared.