

*Clinical & Refractive Optometry* is pleased to present this continuing education (CE) article by Dr. Ron Melton and Dr. Randall Thomas entitled **Herpes Zoster Infection**. In order to obtain 2-hours of COPE-approved CE credit, please refer to page 90 for complete instructions.

## Herpes Zoster Infection

Ron Melton, OD; Randall Thomas, OD

### SUBJECTIVE

A 50-year-old man developed a small skin irritation to his right forehead region. His family doctor suspected a staphylococcus skin infection and placed him on Cipro (ciprofloxacin) 250 mg q.i.d. p.o. Four days later his condition was much worse with significant irritation and pain to the right forehead and periorbital tissue. The right eyelid had been swollen shut for one day. He was then referred by the family doctor for further evaluation and treatment.

### OBJECTIVE

- Visual acuity is OD 6/7.5 (20/25), OS 6/6 (20/20)
- Gross observation: 4+ vesicular eruption of the right forehead region extending to the superior periorbital area (Fig. 1)
- Lids: right upper lid has 4+ edema with vesicular involvement
- Conjunctiva 1+ hyperemia OD
- Cornea: superior epithelial defects with fluorescein stain (Fig. 2)
- Anterior chamber/IOP: normal
- Dilated fundus exam is normal OD

### ASSESSMENT

- Herpes zoster ophthalmicus (HZO) OD with secondary keratoconjunctivitis

### PLAN

- Famciclovir (Famvir) 500 mg t.i.d. p.o. x 1 week
- TheraTears 1 gt. 6 to 8 x daily, OD, and erythromycin ophthalmic ointment, h.s. OD

- OTC ASA or acetaminophen for pain
- Recheck in 4 days. Significant improvement in forehead lesions and right upper lid swelling (Fig. 3) with conjunctival injection and corneal defects showing some improvement.
- Continue present medications and recheck in 5 days; considerable improvement to skin lesions. Right upper lid has minimal involvement with conjunctiva clear and no significant corneal stain remaining.
- Continue TheraTears 1 gt. q.i.d. for 1 to 2 more weeks and recheck in one month.

**Comments:** The traditional therapy for varicella zoster (VZ) virus has been acyclovir (Zovirax) 800 mg 5 x daily for 1 week. Valacyclovir (Valtrex) is a new form of acyclovir available for the treatment of HZO in a dosage of 1 gm t.i.d. p.o. x 1 week. Famciclovir is a newer systemic antiviral medication used in treating herpes zoster. It is known to reduce the severity and duration (but not the incidence) of post-herpetic neuralgia associated with herpes zoster. Also having the patient use a medicine t.i.d. (famciclovir or valacyclovir) compared to acyclovir (5 x daily) is helpful. These medicines have minimal side effects; the most common complaint with their use is nausea.

The above case showed corneal epithelial defects associated with the HZO. These corneal lesions can mimic herpes simplex lesions, but it would be extremely rare to have HSK associated with HZO. Even if you are concerned about the corneal involvement, you should be aware that the famciclovir, valacyclovir, or acyclovir also eradicates the herpes simplex virus (and in doses half of that used for HZO). There is no reason to add Viroptic with these corneal defects. As a matter of fact, it is contraindicated because of its potential toxicity to the corneal surface. We know that treatment with systemic antivirals is much more effective if initiated within the first 48 to 72 hours of the appearance of the skin lesions, but it is still wise to follow through with a course of famciclovir, valacyclovir, or acyclovir even if the patient delays seeking care.

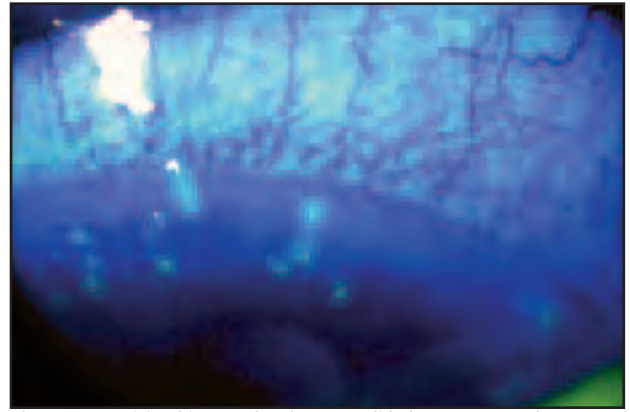
It is important to monitor for increased IOP in patients with HZO, especially if iridocyclitis develops.

---

R. Melton, R. Thomas — Adjunct faculty members at the Pennsylvania, Pacific University and SUNY Colleges of Optometry; Consultants to the American Optometric Association and Fellows of the American Academy of Optometry; both are in clinical practice in North Carolina. Recipients of the Glaucoma Educators of the Year Award presented by the American Academy of Optometry.



**Fig. 1** This man shows a classic "1st division" of trigeminal (5th cranial nerve) dermatome herpes zoster disease. Note the exaggerated edema to his upper eyelid.



**Fig. 2** Upon raising his grossly edematous lid, the cornea can be seen to have mild pseudo-dendritiform epithelial disease which merits frequent lubrication.



**Fig. 3** After four days of oral antiviral treatment, the zoster expression is rapidly subsiding.



**Fig. 4** Although the forehead area is relatively spared, this is an excellent demonstration of Hutchinson's sign.

### GENERAL OVERVIEW

- There is acute vesicular eruption of the ophthalmic division of the fifth cranial nerve.
- The first (ophthalmic) division of the trigeminal nerve is involved in 10% to 25% of all cases (single most commonly affected dermatome) of VZ infection;
- Skin pain is the most common presenting symptom.
- Etiology: VZ virus (chicken pox in youth, shingles in older patients).

- This disease is more common after age 50, but can occur in young people, especially if they are immunocompromised.
- Ocular involvement occurs in 50% of cases and is known as HZO.
- Ocular involvement can occur concurrently with acute vesicular disease. However, it is often delayed in onset by weeks or months and chronic in nature.
- Types of ocular involvement commonly include:

- Dendriiform keratopathy (These can mimic epithelial lesions seen in herpes simplex disease. However, the zoster epithelial lesions are generally more peripheral and lobulated with rolled or heaped edges.)
- Anterior uveitis (with keratic precipitates)
- Stromal keratitis
- Episcleritis
- The nasociliary branch of the ophthalmic division of the trigeminal (fifth cranial) nerve subserves both the globe and the ipsilateral aspect of the nose. Vesicular eruptions on the distal aspect of the nose is known as Hutchinson's sign (Fig. 4). This usually indicates ocular involvement; however, global tissues can be involved without nasal involvement and vice versa.
- Treatment consists of one or more of the following approaches:
  - Systemic acyclovir is an excellent treatment, especially if treatment can be instituted within 72 hours of the onset of symptoms. Standard dosing is 800 mg p.o. 5 x daily for 7 days. Acyclovir is very safe, and nausea (usually mild) is the only commonly encountered side effect.
  - Systemic valacyclovir is a new form of acyclovir that has become available for the treatment of HZO. It has the advantage of being effective in a dosage of 1 gm t.i.d. p.o. for 1 week, it is more expensive than acyclovir.

- Systemic famciclovir is rapidly replacing acyclovir because of its more patient friendly dosing schedule (500 mg t.i.d. x 1 week). It has also been shown to mute the severity and duration, but not the incidence, of post-herpetic neuralgia. As with acyclovir, early treatment maximizes its therapeutic benefit, and some nausea is a common side effect.

- Systemic corticosteroids have historically been the mainstay of treatment of HZO; however, since the availability of systemic antivirals, such therapy is largely contraindicated. There is some thought that concomitant corticosteroid therapy may be helpful in healthy patients over age 70 who have greater than usual pain. There is no clearly established standard for such systemic corticosteroid therapy.

- Topical corticosteroids are very useful in managing most of the inflammatory conditions affecting the globe as listed above.

- Artificial tears such as TheraTears (non-toxically preserved) are always helpful in flushing away the toxic viral antigens that bath the corneal surface during an active HZO. □

*Disclaimer: Not every detail of every case is discussed, rather the key clinical findings are described. For example, if nothing is said about the corneal status, you should assume that the cornea is normal, etc. When vision is recorded, it should be assumed to be best corrected or pinholed. Regarding therapy, we show how we treated the particular case. Given that medicine is an art, as well as a science, therapy will — and often does — vary with each unique patient presentation depending on severity, known drug allergies, prior treatment, response to therapy, etc.*



## INSTRUCTIONS FOR **2-HOURS** OF CE CREDIT

In order to obtain 2-hours of COPE-approved CE credit, please follow these steps:

- Fill in the identification section and answer the 20 multiple choice questions in this CE credit application form
- Prepare a cheque for \$50.00 made out to Medicconcept
- Mail your completed CE credit application form and cheque to the Journal at: *Clinical & Refractive Optometry*, 3333 Cote Vertu Blvd., Suite 300, St. Laurent, Quebec H4R 2N1

Your answers will be sent for marking to the School of Optometry, University of Montreal, Quebec. If you score 70% or more, a COPE-approved CE Credit Certificate will be issued by the University of Montreal and *Clinical & Refractive Optometry* for your records and display in your office.

### IDENTIFICATION

Name: First \_\_\_\_\_ Last \_\_\_\_\_

Address: \_\_\_\_\_  
Number Street Suite

\_\_\_\_\_ City Province Postal Code

Office Phone: ( ) \_\_\_\_\_ Fax: ( ) \_\_\_\_\_ e-mail: \_\_\_\_\_

Registration Number: \_\_\_\_\_

### QUESTIONNAIRE

#### Herpes Zoster Infection

*Ron Melton, OD; Randall Thomas, OD*

1. Which of the following does **NOT** describe the patient at presentation?
  - Significantly reduced visual acuity as a result of the infection
  - Conjunctiva 1+ hyperemia OD
  - Cornea: superior epithelial defects with fluorescein stain
  - Irritation and pain to right forehead
2. Which of the following accurately describes herpes zoster infection?
  - Post-herpetic neuralgia
  - Herpes zoster ophthalmicus can be associated with secondary keratoconjunctivitis
  - Skin pain is the most common presenting symptom
  - All of the above
3. Which of the following is the etiology of herpes zoster ophthalmicus (HZO) or a risk factor for it?
  - Genetic predisposition
  - Varicella zoster virus (chicken pox in youth; shingles in older patients)
  - Previous ocular trauma at a young age
  - Rubella experienced as a child
4. Which of the following statements is **TRUE** of this case?
  - There was trigeminal nerve involvement
  - There was mild pseudo-dendritic epithelial disease present
  - There was exaggerated edema to the upper eyelid
  - All of the above

5. Which of the following statements describes Hutchinson's sign?
  - It is characterized by vesicular eruptions on the distal aspect of the nose
  - Its presence usually indicates ocular involvement
  - Global tissues can be involved without nasal involvement and vice versa
  - All of the above
  
6. Which of the following statements is **FALSE**?
  - Systemic acyclovir is most effective if instituted within 72 hours of symptoms onset
  - The advantage of systemic valacyclovir is that it is less expensive than acyclovir
  - Systemic famciclovir does not impact the incidence of post-herpetic neuralgia
  - Nausea is a common side effect of acyclovir and famciclovir
  
7. Which of the following is the newest therapy for herpes zoster?
  - Zovirax
  - Valacyclovir (Valtrex)
  - Systemic famciclovir
  - Topical famciclovir
  
8. Which of the following statements about herpes zoster is **TRUE**?
  - Ocular involvement occurs in 50% of cases
  - It is more common between ages 35 to 55
  - Ocular involvement rarely occurs concurrently with acute vesicular disease
  - In the vast majority of varicella zoster (VZ) cases, the first division of the trigeminal nerve is involved
  
9. Viroptic is recommended in the treatment of HZO because:
  - It has been proven effective, without the side effect of nausea
  - It is particularly helpful in the presence of corneal epithelial defects associated with HZO
  - It is effective in eradicating the herpes simplex virus
  - None of the above
  
10. Types of ocular involvement may include which of the following?
  - Dendritiform keratopathy
  - Anterior uveitis (with keratic precipitates)
  - Episcleritis
  - All of the above
  
11. Identify the **FALSE** statement about famciclovir:
  - Its dosing schedule is easier for patients than that of acyclovir
  - It mutes the incidence of post-herpetic neuralgia
  - It mutes the severity of post-herpetic neuralgia
  - It mutes the duration of post-herpetic neuralgia
  
12. Which of the following is **NOT** a recommended treatment for HZO?
  - Systemic antibiotics
  - Topical corticosteroids for inflammatory conditions affecting the globe
  - Artificial tears such as TheraTears (non-toxically preserved)
  - Systemic antiviral therapy
  
13. The treatment plan in this case included which of the following?
  - Famciclovir (Famvir) 500 mg t.i.d. p.o. x 1 week
  - OTC ASA or acetaminophen for pain
  - TheraTears 1 gt. 6 to 8 x daily, OD
  - All of the above

14. Which of the following does **NOT** accurately describe the patient's subjective findings?
- Small skin irritation to right forehead
  - Right eyelid swollen shut for one day
  - At Day 4, significant pain and irritation to right forehead
  - Dramatically reduced visual acuity OD
15. Which of the following is considered standard therapy for varicella zoster?
- Acyclovir (Zovirax) 800 mg 5 x daily for 1 week
  - Valacyclovir (Valtrex) 1 gm t.i.d. p.o. x 1 week
  - Systemic famciclovir 500 mg t.i.d. x 1 week
  - All of the above
16. Which of the following is the traditional and original anti-viral drug used for herpes zoster ophthalmicus?
- Valacyclovir
  - Famciclovir
  - Acyclovir
  - Cephalexin
17. Herpes zoster ophthalmicus is a vesicular eruption of the ophthalmic division of which cranial nerve?
- IV
  - III
  - VI
  - V
18. Herpes zoster ophthalmicus is more common after which age group?
- After age 20
  - After age 30
  - After age 40
  - After age 50
19. What role does Viroptic ophthalmic solution play in treating corneal defects secondary to herpes zoster ophthalmicus?
- Kills the secondary herpes simplex corneal infection
  - Lubricates the corneal surface
  - Used to prophylax against secondary bacterial microbial keratitis
  - Plays no role
20. Which of the following 40 year old patients would be more likely to develop herpes zoster ophthalmicus?
- HIV +
  - Healthy patient
  - Hypertensive
  - Female patient