

## Herpes Zoster Ophthalmicus

A Patient Education Monograph prepared for the American Uveitis Society **March 2003**  
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### Introduction

Herpes zoster ophthalmicus (HZO), or ocular shingles, is caused by reactivation of the chicken pox virus. The condition produces a striking picture, with a blistering, crusting rash confined to well-demarcated areas of the body. Herpes zoster can occur anywhere in the body but is unfortunately common on the face and in and around the eye. Some serious complications can result if this occurs in the eye.

### Course of Disease

HZO usually starts with pain or tingling feelings on the scalp, forehead and face on one side. Since in the very early stages there is usually no rash, HZO may be hard to diagnose. Generally, the rash appears within a few hours to days after the sensation of pain or tingling has begun. Rarely, there may be pain and tingling with ocular complications without a rash ever appearing (herpes zoster sine herpeticum). The rash of HZO begins as a reddening of the skin followed by the appearance of fluid-filled blisters that quickly rupture and crust over. These crusted lesions take days to weeks to resolve and may result in significant scarring.

### *Uveitis in Herpes Zoster Ophthalmicus*

Uveitis (inflammation inside the eye) occurs in about 40% of patients with HZO and generally starts one to three weeks after the onset of rash. The initial symptoms include pain, redness, sensitivity to light, and reduced vision. Anyone who develops any of these symptoms should have a careful eye examination using a microscope called a slit lamp as well as a dilated eye examination and measurement of eye pressures. On examination, there may be damage to the iris with resultant irregularities (Figure 1). Elevated pressures may be present which could lead to the development of glaucoma. In most patients, the uveitis seen in Herpes Zoster Ophthalmicus (Ocular Shingles) lasts just a few weeks but in some patients, it may come and go for many years.

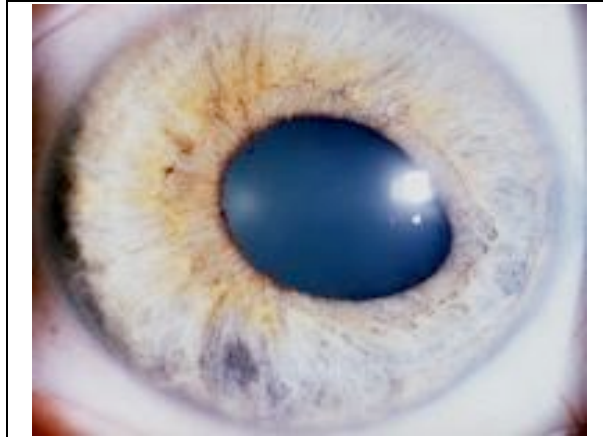


Figure 1. Irregularity of the iris that can be seen in herpes zoster uveitis.

Not all patients with herpes zoster adjacent to the eye will develop ocular involvement, but in those that do, there can be a wide variety of manifestations:

<b>Structure Involved</b>	<b>Acute complications</b>	<b>Chronic complications</b>
Eyelid	Rash and vesicles	Scarring, loss of lashes
Conjunctiva	Conjunctivitis	
Cornea	Corneal ulcers,	Corneal inflammation and scarring, loss of corneal sensation
Uvea	Uveitis	Uveitis and iris damage, glaucoma
Retina	Retinitis	Cystoid macular edema (swelling of the central retina)
Optic nerve	Optic neuritis	Glaucoma
Orbit and brain	Partial or complete paralysis of eye movements	

### **Diagnosis and Testing**

The diagnosis of HZO is relatively straightforward and is usually based on the presence of the characteristic rash with pain. Often no tests are required. If needed, the diagnosis can be confirmed by identifying the virus from the fluid in the rash. If a careful history reveals the possibility of a pre-existing immune disorder then blood tests may be performed, including a complete blood count and tests for the presence of the human immunodeficiency virus (HIV, or the AIDS virus). The relationship between HZO and the immune system is further discussed in the section on “Cause of Condition”.

Rarely, it may be desirable to test for the presence of the herpes zoster virus in a sample of fluid taken from the eye. This may occur if there are atypical features of the disease. This testing may be performed using either viral culture or the polymerase chain reaction (a newer, more sensitive

test for the virus). Testing for the presence of antibodies to the virus in the blood is rarely useful.

### **Treatment**

Once the diagnosis is made, HZO is usually treated with a course of antiviral medication (options for which include acyclovir, valacyclovir, and famciclovir). This course of treatment is usually given by mouth, but if the patient is very sick it may be given through the vein and in this situation may be accompanied by other “supportive” therapy such as bed rest, painkillers, and intravenous fluids. Most individuals tolerate these antiviral medications extremely well.

Patients with the acute rash of herpes zoster are contagious and contact with individuals who have not had chicken pox or the chicken pox vaccine should be avoided. This is especially true for anyone with an impaired immune system or those individuals on immunosuppressive medicines.

Some of the corneal manifestations of HZO require no treatment, while others require lubrication or topical corticosteroids. If HZO results in a loss of feeling of the front surface of the eye (corneal anaesthesia), then surgery may be required to protect this surface by partially sewing the eyelids together.

HZO uveitis is typically treated with corticosteroid and dilating eye drops. Severe inflammation unresponsive to eye drops, or disease resulting in optic nerve inflammation or eye movement problems may require corticosteroid pills. Many ophthalmologists believe that in persistent disease, continuation of the antiviral medication helps in maintaining control of the inflammation. If high pressure develops in the eye (glaucoma) then additional eye drops or even surgery may be required to control the pressure.

Unfortunately, some patients develop long-term pain in the distribution of the rash, termed “post herpetic neuralgia.” This complication may be the most difficult to control, but may respond to treatment with painkillers or with medications that are also used to treat epilepsy and depression.

### **Cause of Condition**

HZO is caused by the varicella-zoster virus, the same virus that causes chicken pox, a very common infection in children. Varicella-zoster is a member of the herpes virus family, thus another common name of the virus is *herpes zoster*. Most children (and adults) who have chicken pox do not completely rid their bodies of the virus. Rather, the virus goes into a dormant (or latent) state in the root of one or more nerves in the body. In most people, the virus remains dormant forever and never causes problems. In some people, however, the virus reactivates, or flares up. At this point, the virus travels down the nerve to the region of the body that that nerve supplies. Upon reaching the skin, the virus causes the painful, blistering rash as previously described. The most characteristic feature of this rash is its restriction to a certain area of the skin, as opposed to the rash of chicken pox, which is wide spread on the skin. If this process involves the nerve that supplies the skin around the upper eyelid, forehead, and scalp, then the condition is called herpes zoster ophthalmicus (HZO or ophthalmic shingles). Sometimes the zoster virus reactivates for no apparent reason, while at other times it is secondary to another condition. Conditions that may result in reactivation of the herpes zoster virus include increased

age, the acquired immunodeficiency syndrome (AIDS), or immunosuppression for other reasons (use of immunosuppressive medications following an organ transplant, for example). Depending on the circumstances of each patient, the ophthalmologist may perform tests to determine if some of these conditions exist.

### **Prognosis**

Most patients with HZO have a single attack and do not go on to get further attacks. Visual outcome is generally good, with vision loss usually due to corneal problems rather than uveitis. Some patients, however, may develop chronic disease, including uveitis that requires long-term therapy and may persist for years.

### **Research and Future Outlook**

Herpes zoster is a common infection. Whether the recently developed chicken pox vaccine will prevent or reduce the occurrence of herpes zoster later in life is currently unknown. Scientists are working to understand why the virus flares up in some patients and not others. New, antivirals that are more effective are also under development for the treatment of HZO.

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