What does HZO stand for in this context?
What does HZO stand for in this context?
Herpes zoster ophthalmicus
What does HZO stand for in this context? Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?
What does HZO stand for in this context?
Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?
Reactivation of the \textbf{three words (including 'virus')} from its dormant status within the CNS.
What does HZO stand for in this context?
Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?
Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS.
What does HZO stand for in this context?
Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?
Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS.
After the virions ‘wake up,’ they travel along sensory vs motor nerve axons until they reach the location for which that nerve is responsible.
What does HZO stand for in this context?
Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?
Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virions ‘wake up,’ they travel along sensory nerve axons until they reach the location for which that nerve is responsible.
What does HZO stand for in this context?
Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?
Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virions ‘wake up,’ they travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination they induce the formation of inflammatory lesions there.
What does HZO stand for in this context?
Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?
Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virus ‘wakes up,’ the infected sensory nerve axons travel until they reach the location the nerve is responsible for. Upon reaching their destination, they induce an inflammatory lesion.

‘Re-activation’ implies the virus gained entry previously.
How do most individuals acquire VZV in the first place?

 Via contracting the common childhood infection colloquially referred to as chicken pox.
What does HZO stand for in this context? Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?

**Reactivation** of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virus reawakens, the viral particles travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination they induce the formation of an inflammatory lesion. ‘Re-activation’ implies the virus gained entry previously.

How do most individuals acquire VZV in the first place?

Via contracting the common childhood infection colloquially referred to as **two words**.
What does HZO stand for in this context?
Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?
**Reactivation** of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virus ‘wakes up’ from this state, it travels along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination, they induce the formation of an inflammatory lesion.

‘Re-activation’ implies the virus gained entry previously.

How do most individuals acquire VZV in the first place?
Via contracting the common childhood infection colloquially referred to as *chicken pox*.
What does HZO stand for in this context?
Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?
**Reactivation** of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virions 'wake up,' they travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination they induce the formation of an inflammatory lesion. ‘Re-activation’ implies the virus gained entry previously.

How do most individuals acquire VZV in the first place?
Via contracting the common childhood infection colloquially referred to as **chicken pox**

Speaking of colloquialisms: What is the layperson’s term for VZV recurrence?
What does HZO stand for in this context?
Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?
Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virus ‘wakes up’, it travels along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination, they induce the formation of an inflammatory lesion.

‘Re-activation’ implies the virus gained entry previously. How do most individuals acquire VZV in the first place? Via contracting the common childhood infection colloquially referred to as chicken pox

Speaking of colloquialisms: What is the layperson’s term for VZV recurrence?
‘Shingles’
What does HZO stand for in this context?

Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?

Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virions ‘wake up,’ they travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination they induce the formation of inflammatory lesions there.

What is the general term for the skin area that is innervated by a given nerve?

Dermatome

Which nerve’s dermatome includes the face?

CN5

HZO Manifestations
What does HZO stand for in this context?
Herpes zoster ophthalmicus

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Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virions ‘wake up,’ they travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination they induce the formation of inflammatory lesions there.

What is the general term for the skin area that is innervated by a given nerve?
Dermatome
HZO Manifestations

Dermatomes
Dermatomal distribution of zoster lesions
What does HZO stand for in this context?
Herpes zoster ophthalmicus

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Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virions ‘wake up,’ they travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination they induce the formation of inflammatory lesions there.

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Let’s drill down on CN5. After arising it splits immediately into divisions (referred to as nerves themselves).
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Dermatome

Which nerve’s ‘dermatome’ includes the face?
CN5

Let’s drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?
--V1
--V2
--V3

HZO Manifestations
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Which nerve’s ‘dermatome’ includes the face?
CN5

Let’s drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?
-- V1 aka the ophthalmic nerve
-- V2
-- V3
What does HZO stand for in this context?
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--V2 aka the maxillary nerve
--V3
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Herpes zoster ophthalmicus

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-- V2 aka the maxillary nerve
-- V3

HZO Manifestations
What does HZO stand for in this context?

Herpes zoster ophthalmicus

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Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virions ‘wake up,’ they travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination they induce the formation of inflammatory lesions there.

What is the general term for the skin area that is innervated by a given nerve?

Dermatome

Which nerve’s ‘dermatome’ includes the face?

CN5

Let’s drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?

--V1 aka the **ophthalmic** nerve
--V2 aka the **maxillary** nerve
--V3 aka the **mandibular** nerve

HZO Manifestations
What does HZO stand for in this context?
Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?
Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virions ‘wake up,’ they travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination they induce the formation of inflammatory lesions there.

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Let’s drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?
-- V1 aka the ophthalmic nerve
-- V2 aka the maxillary nerve
-- V3 aka the mandibular nerve
What does HZO stand for in this context?
Herpes zoster ophthalmicus

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Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS.

After the virions ‘wake up’, they travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination, they induce the formation of inflammatory lesions there.

What is the general term for the skin area that is innervated by a given nerve?
Dermatome

Which nerve’s ‘dermatome’ includes the face?
CN5

Let’s drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?
--V1 aka the ophthalmic nerve
--V2 aka the maxillary nerve
--V3 aka the mandibular nerve

How is facial sensation divvied up among these nerves? (Diagram on next slide)
HZO Manifestations

CN5 dermatomes
What does HZO stand for in this context?
Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?
Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS.

After the virions ‘wake up,’ they travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination they induce the formation of inflammatory lesions there.

What is the general term for the skin area that is innervated by a given nerve?
Dermatome

Which nerve’s ‘dermatome’ includes the face?
CN5

Let’s drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?
--V1 aka the ophthalmic nerve
--V2 aka the maxillary nerve
--V3 aka the mandibular nerve

How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they?
--?
--?
--?

The mnemonic is…
What does HZO stand for in this context?
Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?
Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS.

After the virions ‘wake up,’ they travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination, they induce the formation of inflammatory lesions there.

What is the general term for the skin area that is innervated by a given nerve?
Dermatome

Which nerve’s ‘dermatome’ includes the face?
CN5

Let’s drill down on CN5. After arising, it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?
-- V1 aka the ophthalmic nerve
-- V2 aka the maxillary nerve
-- V3 aka the mandibular nerve

How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they?
-- N
-- F
-- L

The mnemonic is… NFL
HZO Manifestations

What does HZO stand for in this context?
Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?
Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virions ‘wake up,’ they travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination, they induce the formation of inflammatory lesions there.

What is the general term for the skin area that is innervated by a given nerve?
Dermatome

Which nerve’s ‘dermatome’ includes the face?
CN5

Let’s drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?
--V1 aka the ophthalmic nerve
--V2 aka the maxillary nerve
--V3 aka the mandibular nerve

How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they?
--Nasociliary
--Frontal
--Lacrimal

The mnemonic is…NFL
The ophthalmic nerve and its divisions
What does HZO stand for in this context?
Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?
Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virions ‘wake up,’ they travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination they induce the formation of inflammatory lesions there.

What is the general term for the skin area that is innervated by a given nerve?
Dermatome

Which nerve’s ‘dermatome’ includes the face?
CN5

Let’s drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?
--V1 aka the ophthalmic nerve
--V2 aka the maxillary nerve
--V3 aka the mandibular nerve

How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they? What does each go on to do?
--Nasociliary: rise to multiple nasal-related nerves as well as the long ciliary nerves
--Frontal: divides into supraorbital and supratrochlear nerves, both of which are sensory to the upper lid and forehead
--Lacrimal: sensory to temporal aspects of upper lid and conjunctiva

HZO Manifestations
What does HZO stand for in this context? Herpes zoster ophthalmicus.

In a nutshell, what is the cause of HZO? Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virions ‘wake up,’ they travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination they induce the formation of inflammatory lesions there.

What is the general term for the skin area that is innervated by a given nerve? Dermatome.

Which nerve’s ‘dermatome’ includes the face? CN5.

Let’s drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?

--- V1 aka the ophthalmic nerve
--- V2 aka the maxillary nerve
--- V3 aka the mandibular nerve

How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they? What does each go on to do?

--- Nasociliary: Gives rise to multiple nasal–related nerves as well as the ciliary nerves
--- Frontal: Divides into supraorbital and supratrochlear nerves, both of which are sensory to the upper lid and forehead
--- Lacrimal: Sensory to temporal aspects of upper lid and conjunctiva structure

HZO Manifestations
What does HZO stand for in this context?
Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?
Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virions 'wake up,' they travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination, they induce the formation of inflammatory lesions there.

What is the general term for the skin area that is innervated by a given nerve?
Dermatome

Which nerve's 'dermatome' includes the face?
CN5

Let's drill down on CN5. After arising, it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?
--V1 aka the ophthalmic nerve
--V2 aka the maxillary nerve
--V3 aka the mandibular nerve

How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let's drill down on the ophthalmic nerve. It divides into three branches—what are they? What does each go on to do?
--Nasociliary: Gives rise to multiple nasal–related nerves as well as the ciliary nerves
--Frontal
--Lacrimal
Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?

Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virions ‘wake up,’ they travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination they induce the formation of inflammatory lesions there.

What is the general term for the skin area that is innervated by a given nerve?

Dermatome

Which nerve’s ‘dermatome’ includes the face?

CN5

Let’s drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?

--V1 aka the ophthalmic nerve
--V2 aka the maxillary nerve
--V3 aka the mandibular nerve

How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they? What does each go on to do?

--Nasociliary: Gives rise to multiple nasal–related nerves as well as the ciliary nerves
--Frontal: ?

--Lacrimal
What does HZO stand for in this context? Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO? Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virions ‘wake up,’ they travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination, they induce the formation of inflammatory lesions there.

What is the general term for the skin area that is innervated by a given nerve? Dermatome

Which nerve’s ‘dermatome’ includes the face? CN5

Let’s drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?

--V1 aka the ophthalmic nerve
--V2 aka the maxillary nerve
--V3 aka the mandibular nerve

How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they? What does each go on to do?

--Nasociliary: Gives rise to multiple nasal–related nerves as well as the ciliary nerves
--Frontal: Divides into and nerves

--Lacrical
What does HZO stand for in this context?
Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?
Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS.

After the virions ‘wake up’, they travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination they induce the formation of inflammatory lesions there.

What is the general term for the skin area that is innervated by a given nerve?
Dermatome

Which nerve’s ‘dermatome’ includes the face?
CN5

Let’s drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?
--V1 aka the ophthalmic nerve
--V2 aka the maxillary nerve
--V3 aka the mandibular nerve

How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they? What does each go on to do?
--Nasociliary: Gives rise to multiple nasal–related nerves as well as the ciliary nerves
--Frontal: Divides into supraorbital and supratrochlear nerves

--Lacrimal
What does HZO stand for in this context?
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What is the general term for the skin area that is innervated by a given nerve?
Dermatome

Which nerve’s ‘dermatome’ includes the face?
CN5

Let’s drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?
--V1 aka the ophthalmic nerve
--V2 aka the maxillary nerve
--V3 aka the mandibular nerve

How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they? What does each go on to do?
--Nasociliary: Gives rise to multiple nasal–related nerves as well as the ciliary nerves
--Frontal: Divides into supraorbital and supratrochlear nerves, both of which are sensory to the and
--Lacrimal
What does HZO stand for in this context?

Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?

Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virions ‘wake up,’ they travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination they induce the formation of inflammatory lesions there.

What is the general term for the skin area that is innervated by a given nerve?

Dermatome

Which nerve’s ‘dermatome’ includes the face?

CN 5

Let’s drill down on CN 5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?

--V1 aka the ophthalmic nerve
--V2 aka the maxillary nerve
--V3 aka the mandibular nerve

How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they? What does each go on to do?

--Nasociliary: Gives rise to multiple nasal–related nerves as well as the ciliary nerves
--Frontal: Divides into supraorbital and supratrochlear nerves, both of which are sensory to the upper lid and forehead
--Lacrimal
What does HZO stand for in this context? Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO? Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virions ‘wake up,’ they travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination they induce the formation of inflammatory lesions there.

What is the general term for the skin area that is innervated by a given nerve? Dermatome

Which nerve’s ‘dermatome’ includes the face? CN5

Let’s drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?

--V1 aka the ophthalmic nerve
--V2 aka the maxillary nerve
--V3 aka the mandibular nerve

How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they? What does each go on to do?

--Nasociliary: Gives rise to multiple nasal-related nerves as well as the ciliary nerves
--Frontal: Divides into supraorbital and supratrochlear nerves, both of which are sensory to the upper lid and forehead
--Lacrimal: Sensory to temporal aspects of the two diff structures

HZO Manifestations
What does HZO stand for in this context?
Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?
Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virions ‘wake up,’ they travel along sensory nerve axons until they reach their location for which that nerve is responsible. Upon reaching their destination they induce the formation of inflammatory lesions there.

What is the general term for the skin area that is innervated by a given nerve?
Dermatome

Which nerve’s ‘dermatome’ includes the face?
CN5

Let’s drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?
--V1 aka the ophthalmic nerve
--V2 aka the maxillary nerve
--V3 aka the mandibular nerve

How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they? What does each go on to do?
--Nasociliary: Gives rise to multiple nasal–related nerves as well as the ciliary nerves
--Frontal: Divides into supraorbital and supratrochlear nerves, both of which are sensory to the upper lid and forehead
--Lacrimal: Sensory to temporal aspects of the upper lid and conj
What does HZO stand for in this context?
Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?
Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virions ‘wake up,’ they travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination they induce the formation of inflammatory lesions there.

What is the general term for the skin area that is innervated by a given nerve?
Dermatome

Which nerve’s ‘dermatome’ includes the face?
CN5

Let’s drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?
--V1 aka the ophthalmic nerve
--V2 aka the maxillary nerve
--V3 aka the mandibular nerve

How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—
--Nasociliary: Gives rise to multiple nasal -related nerves as well as ciliary nerves
--Frontal: Divides into supraorbital and supratrochlear nerves, both of which are sensory to the upper lid and forehead
--Lacrimal: Sensory to temporal aspects of the upper lid and conj

Finally (and crucially so far as HZO is concerned), let’s drill down on the nasociliary nerve (we’ll unpack what makes it so important shortly)
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What is the general term for the skin area that is innervated by a given nerve?
Dermatome

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Let’s drill down on CN5. After arising, it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?
--V1 aka the ophthalmic nerve
--V2 aka the maxillary nerve
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How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they? What does each go on to do?
--Nasociliary: Gives rise to multiple nasal–related nerves as well as ciliary nerves
--Frontal: Divides into supraorbital and supratrochlear nerves, both of which are sensory to the upper lid and forehead
--Lacrimal: Sensory to temporal aspects of upper lid and conjunctiva

Which nasal-related structures are innervated by branches of the nasociliary nerve?
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How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they? What does each go on to do?
--Nasociliary: Gives rise to multiple nasal–related nerves as well as ciliary nerves
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--Lacrimal: Sensory to temporal aspects of upper lid and conjunctiva

Which nasal-related structures are innervated by branches of the nasociliary nerve? The turbinates, septum, nasal wall, and the skin of the nose extending down the bridge to the tip
What does HZO stand for in this context?
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Which nasal-related structures are innervated by branches of the nasociliary nerve?
The turbinates, septum, nasal wall, and the skin of the nose extending down the bridge to the tip

Foreshadowing alert!
HZO Manifestations
CN5 dermatomes re-presented for you to take note of the strip of nose skin that lies within the ambit of the ophthalmic nerve.
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How is facial sensation divvied up among these nerves? (Diagram on next slide)

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--Frontal Divides into supraorbital and supratrochlear nerves, both of which are sensory to the upper lid and forehead
--Lacrimal Sensory to temporal aspects of upper lid and conjunctiva

There are types of ciliary nerves
--Short ciliary nerves: Sensory to posterior globe
--Long ciliary nerves: Sensory to anterior globe

Of the two (short and long), one type is purely sensory whereas the other is mixed. Which is purely sensory?
The long ciliary nerves

In addition to sensory fibers, what else is carried by the shorts?
Sympathetics and parasympathetics (all postganglionic)

Where are these fibers going?
To the iris sphincter/dilator muscles, and the ciliary body

HZO Manifestations
What does HZO stand for in this context?
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---Lacrimal: Sensory to temporal aspects of upper lid and conjunctive

There are two types of ciliary nerves
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- Long ciliary nerves: Sensory to anterior globe

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CN5

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--V2 aka the maxillary nerve
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How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they? What does each go on to do?
--Nasociliary: Gives rise to multiple nasal-related nerves as well as the ciliary nerves
--Frontal: divides into supraorbital and supratrochlear nerves, both of which are sensory to the upper lid and forehead
--Lacrimal: sensory to temporal aspects of upper lid and conjunctiva

There are two types of ciliary nerves—what are they?
--? --?

Of the two (short and long), one type is purely sensory whereas the other is mixed. Which is purely sensory?
The long ciliary nerves

In addition to sensory fibers, what else is carried by the short ciliary nerves?
Sympathetics and parasympathetics (all postganglionic)

Where are these fibers going?
To the iris sphincter/dilator muscles, and the ciliary body

HZO Manifestations
What does HZO stand for in this context?
Herpes zoster ophthalmicus

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What is the general term for the skin area that is innervated by a given nerve?
Dermatome

Which nerve’s ‘dermatome’ includes the face?
CN5

Let’s drill down on CN5, which is sometimes referred to as nerves themselves: How is it divided?
--V1 aka the ophthalmic nerve
--V2 aka the maxillary nerve
--V3 aka the mandibular nerve

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they? What does each go on to do?
--Nasociliary: Gives rise to multiple nasal-related nerves as well as the ciliary nerves
--Frontal Divides into supraorbital and supratrochlear nerves, both of which are sensory to the upper lid and forehead
--Lacrimal Sensory to temporal aspects of upper lid and conjunctiva

There are two types of ciliary nerves—what are they?
--Short ciliary nerves
--Long ciliary nerves

Of the two (short and long), one type is purely sensory whereas the other is mixed. Which is purely sensory?
The long ciliary nerves

In addition to sensory fibers, what else is carried by the short ciliary nerves?
Sympathetics and parasympathetics (all postganglionic)

Where are these fibers going?
To the iris sphincter/dilator muscles, and the ciliary body

HZO Manifestations
What does HZO stand for in this context? Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO? Reactivation of the varicella-zoster virus (VZV) from its dormant status within the CNS. After the virions ‘wake up,’ they travel along sensory nerve axons until they reach the location for which that nerve is responsible. Upon reaching their destination they induce the formation of inflammatory lesions there.

What is the general term for the skin area that is innervated by a given nerve? Dermatome

Which nerve’s ‘dermatome’ includes the face? CN5

Let’s drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves? V1 aka the ophthalmic nerve, V2 aka the maxillary nerve, V3 aka the mandibular nerve

How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they? What does each go on to do?
--Nasociliary: Gives rise to multiple nasal–related nerves as well as the ciliary nerves
--Frontal Divides into supraorbital and supratrochlear nerves, both of which are sensory to the upper lid and forehead
--Lacrimal Sensory to temporal aspects of upper lid and conjunctiva

There are two types of ciliary nerves—what are they? What ocular areas are they sensory to?
--Short ciliary nerves: Sensory to posterior globe
--Long ciliary nerves

Of the two (short and long), one type is purely sensory whereas the other is mixed. Which is purely sensory? The long ciliary nerves

In addition to sensory fibers, what else is carried by the shorts? Sympathetics and parasympathetics (all postganglionic)

Where are these fibers going? To the iris sphincter/dilator muscles, and the ciliary body portion

HZO Manifestations
What does HZO stand for in this context?

Herpes zoster ophthalmicus

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Dermatome

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CN5

Let’s drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?
--V1 aka the ophthalmic nerve
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How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they? What does each go on to do?
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--Lacrimal: Sensory to temporal aspects of upper lid and conjunctiva

There are two types of ciliary nerves—what are they? What ocular areas are they sensory to?
--Short ciliary nerves: Sensory to posterior globe
--Long ciliary nerves

Of the two (short and long), one type is purely sensory whereas the other is mixed. Which is purely sensory?
The long ciliary nerves

In addition to sensory fibers, what else is carried by the shorts?
Sympathetics and parasympathetics (all postganglionic)

Where are these fibers going?
To the iris sphincter/dilator muscles, and the ciliary body

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What is the general term for the skin area that is innervated by a given nerve?

Dermatome

Which nerve’s ‘dermatome’ includes the face?

CN5

Let’s drill down on CN5. After arising, it splits immediately into three divisions (referred to as nerves themselves):

--V1 aka the ophthalmic nerve
--V2 aka the maxillary nerve
--V3 aka the mandibular nerve

How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they? What does each go on to do?

--Nasociliary: Gives rise to multiple nasal–related nerves as well as the ciliary nerves
--Frontal Divides into supraorbital and supratrochlear nerves, both of which are sensory to the upper lid and forehead
--Lacrimal Sensory to temporal aspects of upper lid and conjunctiva.

There are two types of ciliary nerves—what are they? What ocular areas are they sensory to?

--Short ciliary nerves: Sensory to posterior globe
--Long ciliary nerves: Sensory to anterior portion of globe

Of the two (short and long), one type is purely sensory whereas the other is mixed. Which is purely sensory?

The long ciliary nerves

In addition to sensory fibers, what else is carried by the shorts?

Sympathetics and parasympathetics (all postganglionic)

Where are these fibers going?

To the iris sphincter/dilator muscles, and the ciliary body portion.
What does HZO stand for in this context?  
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--V1 aka the ophthalmic nerve
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--Lacrimal Sensory to temporal aspects of upper lid and conj

There are two types of ciliary nerves—what are they? What ocular areas are they sensory to?  
--Short ciliary nerves: Sensory to posterior globe
--Long ciliary nerves: Sensory to anterior globe

Of the two (short and long), one type is purely sensory whereas the other is mixed. Which is purely sensory?  
The long ciliary nerves

In addition to sensory fibers, what else is carried by the shorts?  
Sympathetics and parasympathetics (all postganglionic)

Where are these fibers going?  
To the iris sphincter/dilator muscles, and the ciliary body
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What is the general term for the skin area that is innervated by a given nerve?

Dermatome

Which nerve's 'dermatome' includes the face?

CN5

Let's drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?

--V1 aka the ophthalmic nerve
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--V3 aka the mandibular nerve

How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let's drill down on the ophthalmic nerve. It divides into three branches—what are they? What does each go on to do?

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--Lacrimal: Sensory to temporal aspects of upper lid and conj

There are two types of ciliary nerves—what are they? What ocular areas are they sensory to?

--Short ciliary nerves: Sensory to posterior globe
--Long ciliary nerves: Sensory to anterior globe

Of the two (short and long), one type is purely sensory whereas the other is mixed. Which is purely sensory?

The long ciliary nerves

In addition to sensory fibers, what else is carried by the shorts?

Sympathetics and parasympathetics (all postganglionic)

Where are these fibers going?

To the iris sphincter/dilator muscles, and the ciliary body
What does HZO stand for in this context?
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What is the general term for the skin area that is innervated by a given nerve?
Dermatome

Which nerve’s ‘dermatome’ includes the face?
CN5

Let’s drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?
--V1 aka the ophthalmic nerve
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How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they? What does each go on to do?
--Nasociliary: Gives rise to multiple nasal-related nerves as well as the ciliary nerves
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--Lacrimal: Sensory to temporal aspects of upper lid and conjunctiva

There are two types of ciliary nerves—what are they? What ocular areas are they sensory to?
--Short ciliary nerves: Sensory to posterior globe
--Long ciliary nerves: Sensory to anterior globe

Of the two (short and long), one type is purely sensory whereas the other is mixed. Which is purely sensory?
The long ciliary nerves

Sympathetics and parasympathetics (all postganglionic)

Where are these fibers going?
To the iris sphincter/dilator muscles, and the ciliary body
What does HZO stand for in this context?
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How is facial sensation divvied up among these nerves? (Diagram on next slide)

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There are two types of ciliary nerves—what are they? What ocular areas are they sensory to?
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Of the two (short and long), one type is purely sensory whereas the other is mixed. Which is purely sensory?
The long ciliary nerves

In addition to sensory fibers, what else is carried by the shorts?
Sympathetics and parasympathetics (all postganglionic)

Where are these fibers going?
To the iris sphincter/dilator muscles, and the ciliary body
What does HZO stand for in this context?
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Let’s drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves). What are these divisions/nerves?
--V1 aka the ophthalmic nerve
--V2 aka the maxillary nerve
--V3 aka the mandibular nerve

Let’s drill down further. How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they? What does each go on to do?
--Nasociliary: Gives rise to multiple nasal–related nerves as well as the ciliary nerves
--Frontal: Divides into supraorbital and supratrochlear nerves, both of which are sensory to the upper lid and forehead
--Lacrimal: Sensory to temporal aspects of upper lid and conjunctiva

There are two types of ciliary nerves—what are they? What ocular areas are they sensory to?
--Short ciliary nerves: Sensory to posterior globe
--Long ciliary nerves: Sensory to anterior globe

Of the two (short and long), one type is purely sensory whereas the other is mixed. Which is purely sensory?
The long ciliary nerves

In addition to sensory fibers, what else is carried by the shorts? Sympathetics and parasympathetics (all pre- vs post-gang’ic).

HZO Manifestations
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Herpes zoster ophthalmicus

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How is facial sensation divvied up among these nerves? (Diagram on next slide)

Let’s drill down on the ophthalmic nerve. It divides into three branches—what are they? What does each go on to do?
--Nasociliary: Gives rise to multiple nasal-related nerves as well as the ciliary nerves
--Frontal Divide into supraorbital and supratrochlear nerves, both of which are sensory to the upper lid and forehead
--Lacrimal: Sensory to temporal aspects of upper lid and conjunctiva

There are two types of ciliary nerves—what are they? What ocular areas are they sensory to?
--Short ciliary nerves: Sensory to posterior globe
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Of the two (short and long), one type is purely sensory whereas the other is mixed. Which is purely sensory?
The long ciliary nerves

In addition to sensory fibers, what else is carried by the shorts? Sympathetics and parasympathetics (all postganglionic)
What does HZO stand for in this context?
Herpes zoster ophthalmicus

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Dermatome

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CN5

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--V2 aka the maxillary nerve
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How is facial sensation divided among these nerves? (Diagram on next slide)

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Of the two (short and long), one type is purely sensory whereas the other is mixed. Which is purely sensory?
The long ciliary nerves

In addition to sensory fibers, what else is carried by the shorts?
Sympathetics and parasympathetics (all postganglionic)

Where are these fibers going?
What does HZO stand for in this context?

Herpes zoster ophthalmicus

In a nutshell, what is the cause of HZO?

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What is the general term for the skin area that is innervated by a given nerve?

Dermatome

Which nerve’s ‘dermatome’ includes the face?

CN5

Let’s drill down on CN5. After arising it splits immediately into three divisions (referred to as nerves themselves):

--V1 aka the ophthalmic nerve
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How is facial sensation divvied up among these nerves? (Diagram on next slide)

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--Nasociliary: Gives rise to multiple nasal-related nerves as well as the ciliary nerves
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There are two types of ciliary nerves—what are they? What ocular areas are they sensory to?

--Short ciliary nerves: Sensory to posterior globe
--Long ciliary nerves: Sensory to anterior globe

Of the two (short and long), one type is purely sensory whereas the other is mixed. Which is purely sensory?

The long ciliary nerves

In addition to sensory fibers, what else is carried by the shorts?

Sympathetics and parasympathetics (all postganglionic)

Where are these fibers going?

To the iris sphincter/dilator muscles, and the ciliary body
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Where did the postganglionic parasympathetics synapse?
In the ganglion

Do the postganglionic sympathetics synapse there too?
No, they simply pass through the ciliary ganglion

Where do they synapse?
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Do the postganglionic sympathetics synapse there too?

Where did the postganglionic parasympathetics synapse there too?

In the ciliary ganglion

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Where did the postganglionic parasympathetics synapse?

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In the superior cervical ganglion (aka the stellate ganglion) of the sympathetic chain located on either side of the spine

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Where did the postganglionic parasympathetics synapse? (continued)

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Long and short ciliary nerves. Note that the short posterior nerves pass through the ciliary ganglion on the way to the eye, whereas the long ciliary nerves do not.
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Is HZO a condition of younger, or older individuals?
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Older. Risk increases significantly after age
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Younger individuals are at increased risk if what is true of their general health?
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Younger individuals are at increased risk if what is true of their general health?
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Yes—pts may c/o four things prior to the appearance of a rash
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Does HZO presentation typically include a prodromal phase?
Yes—pts may c/o fever, malaise, HA, and eye pain prior to the appearance of a rash
Next we will delve into specific HZO manifestations. We’ll start with skin findings and work our way in from there.
Skin:
1) Ulcerated lesions
2) of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis
   - sector atrophy secondary to vasculitis-induced ischemia
2) Trabeculitis
   - increased IOP

Posterior manifestations:
-- Focal choroiditis
-- Occlusive retinal vasculitis
   - acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
-- Occlusive vasculitis
   - ptosis, proptosis
-- Occlusive vasculitis
   - CN palsy, especially CN3, in up to 1/3 cases

HZO Manifestations
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HZO Manifestations
Skin:
1) Ulcerated lesions with pain and/or pain-like
2)

HZO Manifestations

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HZO Manifestations
HZO Manifestations

**Skin:**
1) **Ulcerated** lesions with pain and/or **dysesthesia**
2) 

**Sclera:**
1) **Scleritis**
2) **Episcleritis**

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1) Neurotrophic keratopathy (on exam, check corneal sensation)
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**HZO Manifestations**
** Skin:**

1) **Ulcerated** lesions with pain and/or **dysesthesia**
2) in the distribution of the nerve

**Sclera:**

1) **Scleritis**
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1) **Neurotrophic keratopathy** (on exam, check corneal sensation)
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**HZO Manifestations**
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**Skin:**
1) *Ulcerated* lesions with pain and/or *dysesthesia*  
2) in the distribution of the ophthalmic nerve

**Sclera:**
1) Scleritis  
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**Anterior uveitis:**
1) Iritis – sector atrophy secondary to vasculitis-induced ischemia  
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-- Focal choroiditis  
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-- Occlusive vasculitis – CN palsy, especially CN3, in up to 1/3 cases in the distribution of the ophthalmic nerve
HZO Manifestations

HZO: Ulcerated skin lesions in the distribution of the ophthalmic nerve
Despite involvement of the lower lid, this is **not** HZO (reflects involvement of the **maxillary** nerve)
Despite involvement of the lower lid, this is **not** HZO (reflects involvement of the maxillary nerve)
Despite involvement near the lateral canthus, this is **not** HZO (reflects involvement of the **mandibular** nerve)
Despite involvement near the lateral canthus, this is not HZO
(reflects involvement of the mandibular nerve)
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) in the distribution of the ophthalmic nerve

It's time to unpack why we devoted so much energy to covering the nasociliary nerve.
HZO Manifestations

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It's time to unpack why we devoted so much energy to covering the nasociliary nerve.
Consider: If a pt presents with zoster on their forehead, we know the following:
--Virions in the trigeminal ganglion woke up and chose violence
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) in the distribution of the ophthalmic nerve

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis
2) Trabeculitis

Posterior manifestations:
--Focal choroiditis
--Occlusive retinal vasculitis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
--Occlusive vasculitis

It's time to unpack why we devoted so much energy to covering the nasociliary nerve.
Consider: If a pt presents with zoster on their forehead, we know the following:
--Virions in the trigeminal ganglion woke up and chose violence; and
--those virions marched down the ophthalmic nerve
HzO Manifestations

Skin:
1) Ulcerated lesions with pain and/or dysesthesia in the distribution of the ophthalmic nerve.
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis.

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis
   → sector atrophy secondary to vasculitis-induced ischemia
2) Trabeculitis
   → increased IOP

Posterior manifestations:
--Focal choroiditis
--Occlusive retinal vasculitis
   → acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
--Occlusive vasculitis
   → ptosis, proptosis
--Occlusive vasculitis
   → CN palsy, especially CN3, in up to 1/3 cases in the distribution of the ophthalmic nerve.

It’s time to unpack why we devoted so much energy to covering the nasociliary nerve.
Consider: If a pt presents with zoster on their forehead, we know the following:
--Virions in the trigeminal ganglion woke up and chose violence; and
--those virions marched down the ophthalmic nerve; and
--because they reached the forehead, we know virions traversed the frontal nerve and then the supraorbital and/or supratrochlear nerves.
Skin:
1) Ulcerated lesions with pain and/or dysesthesia in the distribution of the ophthalmic nerve
2)

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
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4) Disciform keratitis

Anterior uveitis:
1) Iritis
   → sector atrophy secondary to vasculitis-induced ischemia
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   → increased IOP

Posterior manifestations:
-- Focal choroiditis
-- Occlusive retinal vasculitis
   → acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
-- Occlusive vasculitis
   → ptosis, proptosis
-- Occlusive vasculitis
   → CN palsy, especially CN3, in up to 1/3 cases in the distribution of the ophthalmic nerve

It's time to unpack why we devoted so much energy to covering the nasociliary nerve.
Consider: If a pt presents with zoster on their forehead, we know the following:
--Virions in the trigeminal ganglion woke up and chose violence; and
--those virions marched down the ophthalmic nerve; and
--because they reached the forehead, we know virions traversed the frontal nerve and then the supraorbital and/or supratrochlear nerves.
**HZO Manifestations**

**Skin:**
1) Ulcerated lesions with pain and/or dysesthesia in the distribution of the ophthalmic nerve.
2) Sequelea of eyelid skin involvement: Entropion, ectropion, trichiasis.

**Sclera:**
1) Scleritis
2) Episcleritis

**Cornea:**
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

**Anterior uveitis:**
1) Iritis
   - Sector atrophy secondary to vasculitis-induced ischemia
2) Trabeculitis
   - Increased IOP

**Posterior manifestations:**
--- Focal choroiditis
--- Occlusive retinal vasculitis
   - Acute retinal necrosis

**Optic nerve manifestations:**
1) Papillitis
2) Optic neuritis

**Orbital manifestations:**
--- Occlusive vasculitis
   - Ptosis, proptosis
--- Occlusive vasculitis
   - CN palsy, especially CN3, in up to 1/3 cases

*It's time to unpack why we devoted so much energy to covering the nasociliary nerve.*

Consider: If a pt presents with zoster on their forehead, we know the following:
--- Virions in the trigeminal ganglion woke up and chose violence; and
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--- Because they reached the forehead, we know virions traversed the frontal nerve and then the supraorbital and/or supratrochlear nerves. OTOH, what we don't know is whether any virions traversed the nasociliary nerve, the ophthalmic-nerve branch that leads to the globe itself.
Skin:

1) Ulcerated lesions with pain and/or dysesthesia

2) in the distribution of the ophthalmic nerve

Sclera:

1) Scleritis

2) Episcleritis

Cornea:

1) Neurotrophic keratopathy (on exam, check corneal sensation)

2) Punctate or dendritic epithelial keratitis

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Anterior uveitis:

1) Iritis

→ sector atrophy secondary to vasculitis-induced ischemia

2) Trabeculitis

→ increased IOP

Posterior manifestations:

-- Focal choroiditis

-- Occlusive retinal vasculitis → acute retinal necrosis

Optic nerve manifestations:

1) Papillitis

2) Optic neuritis

Orbital manifestations:

-- Occlusive vasculitis → ptosis, proptosis

-- Occlusive vasculitis → CN palsy, especially CN3, in up to 1/3 cases

It's time to unpack why we devoted so much energy to covering the nasociliary nerve.

Consider: If a pt presents with zoster on their forehead, we know the following:

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1) Ulcerated lesions with pain and/or dysesthesia
2) 

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
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1) Iritis
   → sector atrophy secondary to vasculitis-induced ischemia
2) Trabeculitis
   → increased IOP

Posterior manifestations:
-- Focal choroiditis
-- Occlusive retinal vasculitis → acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
-- Occlusive vasculitis → ptosis, proptosis
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It’s time to unpack why we devoted so much energy to covering the nasociliary nerve. Consider: If a pt presents with zoster on their forehead, we know the following:
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Skin:
1) Ulcerated lesions with pain and/or dysesthesia in the distribution of the ophthalmic nerve
2)

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Posterior manifestations:
--Focal choroiditis
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Orbital manifestations:
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It's time to unpack why we devoted so much energy to covering the nasociliary nerve. Consider: If a pt presents with zoster on their forehead, we know the following:
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The nasociliary nerve has a property that allows us to draw a strong inference regarding whether the globe may be involved. If the tip of the nose has a zoster lesion, we know that virions traversed the nasociliary nerve.
HZO Manifestations

Didja notice the involvement here the first time you saw the pic?
It's time to unpack why we devoted so much energy to covering the nasociliary nerve. Consider: If a pt presents with zoster on their forehead, we know the following:
--Virions in the trigeminal ganglion woke up and chose violence; and
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The nasociliary nerve has a property that allows us to draw a strong inference regarding whether the globe may be involved. If the tip of the nose has a zoster lesion, we know that virions traversed the nasociliary nerve. And while this doesn’t prove virions traversed the ciliary nerves (ie, it’s possible none took those offramps and instead remained on the naso-highway), it certainly raises it as a possibility.
Skin:

1) Ulcerated lesions with pain and/or dysesthesia in the distribution of the ophthalmic nerve
2)

Sclera:

1) Scleritis
2) Episcleritis

Cornea:

1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
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Anterior uveitis:

1) Iritis
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-- Focal choroiditis
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Optic nerve manifestations:

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-- Occlusive vasculitis → ptosis, proptosis
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-- Virions in the trigeminal ganglion woke up and chose violence; and
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-- Because they reached the forehead, we know virions traversed the frontal nerve and then the supraorbital and/or supratrochlear nerves. OTOH, what we don't know is whether any virions traversed the nasociliary nerve, the ophthalmic-nerve branch that leads to the globe itself. This is unfortunate, because we'd really like to know whether virions accessed the globe, as lesions therein can have serious, even sight-threatening sequelae (which is the main reason this slide-set exists in the first place).

The nasociliary nerve has a property that allows us to draw a strong inference regarding whether the globe may be involved. If the tip of the nose has a zoster lesion, we know that virions traversed the nasociliary nerve. And while this doesn't prove virions traversed the ciliary nerves (ie, it's possible none took those offramps and instead remained on the naso-highway), it certainly raises it as a possibility. Thus when one is evaluating an HZO pt, it is vital to note the presence (or absence) of lesions near the tip of the nose. The status of such lesions is important enough to have an eponym—it is called Hutchinson's sign.
It's time to unpack why we devoted so much energy to covering the nasociliary nerve. Consider: If a pt presents with zoster on their forehead, we know the following:

--Virions in the trigeminal ganglion woke up and chose violence; and
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HZO Manifestations

HZO: Hutchinson’s sign
Skin:
1) Ulcerated lesions with pain and/or dysesthesia in the distribution of the ophthalmic nerve.
2) sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis.

Sclera:
1) Scleritis.
2) Episcleritis.

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation).
2) Punctate or dendritic epithelial keratitis.
3) Stromal keratitis: Interstitial or nummular.
4) Disciform keratitis.

Anterior uveitis:
1) Iritis → sector atrophy secondary to vasculitis-induced ischemia.
2) Trabeculitis → increased IOP.

Posterior manifestations:
--Focal choroiditis.
--Occlusive retinal vasculitis → acute retinal necrosis.

Optic nerve manifestations:
1) Papillitis.
2) Optic neuritis.

Orbital manifestations:
--Occlusive vasculitis → ptosis, proptosis.
--Occlusive vasculitis → CN palsy, especially CN3, in up to 1/3 cases in the distribution of the ophthalmic nerve.

It's time to unpack why we devoted so much energy to covering the nasociliary nerve.
Consider: If a pt presents with zoster on their forehead, we know the following:
--Virions in the trigeminal ganglion woke up and chose violence; and
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--because they reached the forehead, we know virions traversed the frontal nerve and then the supraorbital and/or supratrochlear nerves. OTOH, what we don't know is whether any virions traversed the nasociliary nerve, the ophthalmic-nerve branch that leads to the globe itself. This is unfortunate, because we'd really like to know whether virions accessed the globe, as lesions therein can have serious, even sight-threatening sequelae.

The nasociliary nerve has a property that allows us to draw a strong inference regarding whether the globe may be involved. If the tip of the nose has a zoster lesion, we know virions traversed the nasociliary nerve. And while this doesn't prove virions didn't traverse the nasociliary nerve—it could be they did so, but all ended up getting off the highway at the ciliary-nerve exits.

Note that the converse is also the case, ie, if Hutchinson’s sign is negative it doesn’t prove virions didn’t traverse the nasociliary nerve—it could be they did so, but all ended up getting off the highway at the ciliary-nerve exits.

HZO Manifestations

The nasociliary nerve has a property that allows us to draw a strong inference regarding whether the globe may be involved. If the tip of the nose has a zoster lesion, we know that virions traversed the nasociliary nerve. And while this doesn’t prove virions traversed the ciliary nerves (ie, it’s possible none took those offramps and instead remained on the naso-highway), it certainly raises it as a possibility. Thus when one is evaluating an HZO pt, it is vital to note the presence (or absence) of lesions near the tip of the nose. The status of such lesions is important enough to have an eponym—it is called Hutchinson's sign.
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: bad thing 1, bad thing 2, bad thing 3

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis \[\rightarrow\] sector atrophy secondary to vasculitis-induced ischemia
2) Trabeculitis \[\rightarrow\] increased IOP

Posterior manifestations:
-- Focal choroiditis
-- Occlusive retinal vasculitis \[\rightarrow\] acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
-- Occlusive vasculitis \[\rightarrow\] ptosis, proptosis
-- Occlusive vasculitis \[\rightarrow\] CN palsy, especially CN3, in up to 1/3 cases

HZO Manifestations
HZO Manifestations

Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
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Anterior uveitis:
1) Iritis
   - sector atrophy secondary to vasculitis-induced ischemia
2) Trabeculitis
   - increased IOP

Posterior manifestations:
-- Focal choroiditis
-- Occlusive retinal vasculitis
  - acute retinal necrosis
Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
-- Occlusive vasculitis
  - ptosis, proptosis
-- Occlusive vasculitis
  - CN palsy, especially CN3, in up to 1/3 cases

HZO Manifestations
HZO Manifestations

Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) -itis 1
2) -itis 2

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis → sector atrophy secondary to vasculitis-induced ischemia
2) Trabeculitis → increased IOP

Posterior manifestations:
--Focal choroiditis
--Occlusive retinal vasculitis → acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
--Occlusive vasculitis → ptosis, proptosis
--Occlusive vasculitis → CN palsy, especially CN3, in up to 1/3 cases

HZO Manifestations
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

HZO Manifestations
HZO Manifestations

Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

What is the characteristic color in…
Scleritis: ?
Episcleritis:
HZO Manifestations

Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

What is the characteristic color in...
Scleritis: Violaceous
Episcleritis:
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) **Scleritis**
2) **Episcleritis**

What is the characteristic color in...

Scleritis: **Violaceous**
Episcleritis: ?
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

What is the characteristic color in...
Scleritis: Violaceous
Episcleritis: Bright red or salmon pink
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) **Scleritis**
2) **Episcleritis**

For each statement, indicate whether it applies to Scleritis, Episcleritis, Neither, or Both

Can be *diffuse* or *nodular*: ?
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

For each statement, indicate whether it applies to Scleritis, Episcleritis, Neither, or Both

Can be diffuse or nodular: Both
HZO Manifestations

Nodular anterior scleritis
HZO Manifestations

Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

For each statement, indicate whether it applies to Scleritis, Episcleritis, Neither, or Both

Can be diffuse or nodular: Both
If nodular, nodule is mobile: ?
HZO Manifestations

Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) **Scleritis**
2) **Episcleritis**

For each statement, indicate whether it applies to Scleritis, Episcleritis, Neither, or Both

Can be *diffuse* or *nodular*: Both
If nodular, nodule is mobile: Episcleritis
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) **Scleritis**
2) **Episcleritis**

---

**For each statement, indicate whether it applies to Scleritis, Episcleritis, Neither, or Both**

- Can be *diffuse* or *nodular*: **Both**
- If nodular, nodule is mobile: **Episcleritis**
- Can be anterior or posterior: ?
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

For each statement, indicate whether it applies to Scleritis, Episcleritis, Neither, or Both

Can be diffuse or nodular: Both
If nodular, nodule is mobile: Episcleritis
Can be anterior or posterior: Scleritis
Posterior scleritis on b-scan. Note the scleral thickening and edema.
HZO Manifestations

Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) **Scleritis**
2) **Episcleritis**

For each statement, indicate whether it applies to Scleritis, Episcleritis, Neither, or Both

Can be *diffuse* or *nodular*: Both
If nodular, nodule is mobile: Episcleritis
Can be anterior *or* posterior: Scleritis
Is more common in women than men: ?
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) **Scleritis**
2) **Episcleritis**

For each statement, indicate whether it applies to Scleritis, Episcleritis, Neither, or Both

Can be *diffuse* or *nodular*: Both
If nodular, nodule is mobile: Episcleritis
Can be anterior or posterior: Scleritis
Is more common in women than men: Both
**Skin:**
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

**Sclera:**
1) **Scleritis**
2) **Episcleritis**

---

**For each statement, indicate whether it applies to Scleritis, Episcleritis, Neither, or Both**

Can be *diffuse* or *nodular*: Both
If nodular, nodule is mobile: Episcleritis
Can be anterior *or* posterior: Scleritis
Is more common in women than men: Both
Can be *necrotizing* or *non-necrotizing*: ?
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

For each statement, indicate whether it applies to Scleritis, Episcleritis, Neither, or Both

- Can be diffuse or nodular: Both
- If nodular, nodule is mobile: Episcleritis
- Can be anterior or posterior: Scleritis
- Is more common in women than men: Both
- Can be necrotizing or non-necrotizing: Scleritis
HZO Manifestations

Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) **Scleritis**
2) **Episcleritis**

For each statement, indicate whether it applies to Scleritis, Episcleritis, Neither, or Both

- Can be **diffuse** or **nodular**: Both
- If nodular, nodule is mobile: Episcleritis
- Can be anterior or posterior: Scleritis
- Is more common in women than men: Both
- Can be **necrotizing** or **non-necrotizing**: Scleritis
- Scleromalacia perforans is a variant: ?
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

For each statement, indicate whether it applies to Scleritis, Episcleritis, Neither, or Both

Can be diffuse or nodular: Both
If nodular, nodule is mobile: Episcleritis
Can be anterior or posterior: Scleritis
Is more common in women than men: Both
Can be necrotizing or non-necrotizing: Scleritis
Scleromalacia perforans is a variant: Scleritis
Scleromalacia perforans with anterior staphyloma


**HZO Manifestations**

**Skin:**
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

**Sclera:**
1) **Scleritis**
2) **Episcleritis**

---

**For each statement, indicate whether it applies to Scleritis, Episcleritis, Neither, or Both**

- Can be *diffuse* or *nodular*: **Both**
- If nodular, nodule is mobile: **Episcleritis**
- Can be anterior *or* posterior: **Scleritis**
- Is more common in women than men: **Both**
- Can be *necrotizing* or *non-necrotizing*: **Scleritis**
- *Scleromalacia perforans* is a variant: **Scleritis**
- Associated with severe pain: ?

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Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

For each statement, indicate whether it applies
to Scleritis, Episcleritis, Neither, or Both

Can be diffuse or nodular: Both
If nodular, nodule is mobile: Episcleritis
Can be anterior or posterior: Scleritis
Is more common in women than men: Both
Can be necrotizing or non-necrotizing: Scleritis
Scleromalacia perforans is a variant: Scleritis
Associated with severe pain: Scleritis
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HZO Manifestations

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Cornea:
1) ya feel me? keratopathy
2)
3)
4)
HZO Manifestations

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2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

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1) Neurotrophic keratopathy
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### HZO Manifestations

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2) Sequelae of eyelid skin involvement: *Entropion, ectropion, trichiasis*

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1) *Scleritis*
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3) Disciform keratitis

Anterior uveitis:
1) Iritis
   - Sector atrophy secondary to vasculitis-induced ischemia
2) Trabeculitis
   - Increased IOP

Posterior manifestations:
-- Focal choroiditis
-- Occlusive retinal vasculitis
   - Acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
-- Occlusive vasculitis
   - Ptosis, proptosis
-- Occlusive vasculitis
   - CN palsy, especially CN3, in up to 1/3 cases

What is the pathogenesis of neurotrophic keratopathy?

Decreased corneal sensation leads to compromised epithelial integrity and inadequate epithelial regeneration, which in turn results in poor epithelial healing. Severe cases can proceed to stromal melting and corneal perforation.
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**What is the pathogenesis of neurotrophic keratopathy?**
Decreased corneal sensation leads to compromised epithelial integrity and inadequate epithelial regeneration, which in turn result in poor epithelial healing. Severe cases can proceed to stromal melting and corneal perforation.

**Where does herpetic (HSV or HZV) dz rank as a cause?**
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
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**What is the pathogenesis of neurotrophic keratopathy?**
Decreased corneal sensation leads to compromised epithelial integrity and inadequate epithelial regeneration, which in turn result in poor epithelial healing. Severe cases can proceed to stromal melting and corneal perforation.

**Where does herpetic (HSV or HZV) dz rank as a cause?**
#1

*What’s the #2 cause?*
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
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What is the pathogenesis of neurotrophic keratopathy?
Decreased corneal sensation leads to compromised epithelial integrity and inadequate epithelial regeneration, which in turn result in poor epithelial healing. Severe cases can proceed to stromal melting and corneal perforation.

Where does herpetic (HSV or HZV) dz rank as a cause?
#1

What’s the #2 cause?
Damage to the ophthalmic branch of the trigeminal nerve during surgical tx of two words
**HZO Manifestations**

**Skin:**
1) Ulcerated lesions with pain and/or *dysesthesia*
2) Sequelae of eyelid skin involvement: *Entropion, ectropion, trichiasis*

**Sclera:**
1) *Scleritis*
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**Cornea:**
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2) 3) Stromal keratitis: *Interstitial or nummular*
4) *Disciform keratitis*

**Anterior uveitis:**
1) *Iritis* ➔ sector atrophy secondary to vasculitis-induced ischemia
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**Posterior manifestations:**
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**Orbital manifestations:**
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**What is the pathogenesis of neurotrophic keratopathy?**
Decreased corneal sensation leads to compromised epithelial integrity and inadequate epithelial regeneration, which in turn result in poor epithelial healing. Severe cases can proceed to stromal melting and corneal perforation.

**Where does herpetic (HSV or HZV) dz rank as a cause?**
*#1*

*What’s the #2 cause?*
Damage to the ophthalmic branch of the trigeminal nerve during surgical tx of trigeminal neuralgia
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Where does herpetic (HSV or HZV) dz rank as a cause?
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Is a nidus of corneal epithelial trauma necessary to initiate the process?
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**Where does herpetic (HSV or HZV) dz rank as a cause?**
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No, it can happen in intact corneas
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-- Occlusive vasculitis \(\rightarrow\) ptosis, proptosis
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**How does it present at the slit lamp?**
Early and/or mild disease presents only with punctate epithelial changes. Severe/advanced cases present with a central epithelial defect that slowly enlarges and deepens.
HZO Manifestations

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How do VZV dendrites differ from HSV dendrites?

<table>
<thead>
<tr>
<th>Terminal bulbs?</th>
<th>HSV</th>
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HZO Manifestations
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HZO Manifestations

Dendrites in HSV: Note the presence of terminal bulbs

Pseudodendrites in VZV: Note the absence of terminal bulbs

Dendrites and (pseudo)dendrites in HSV and VZV respectively
HZO Manifestations

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   1) Iritis
   2) Trabeculitis

Posterior manifestations:
-- Focal choroiditis
-- Occlusive retinal vasculitis → acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
-- Occlusive vasculitis → ptosis, proptosis
-- Occlusive vasculitis → CN palsy, especially CN3, in up to 1/3 cases

How do VZV dendrites differ from HSV dendrites?

<table>
<thead>
<tr>
<th></th>
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<th>VZV</th>
</tr>
</thead>
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<tr>
<td>Edges stain with rose bengal?</td>
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HZO Manifestations
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3)
4)

Anterior uveitis:
1) Iritis
   \[\rightarrow\] sector atrophy secondary to vasculitis-induced ischemia
2) Trabeculitis
   \[\rightarrow\] increased IOP

Posterior manifestations:
-- Focal choroiditis
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How do VZV dendrites differ from HSV dendrites?

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HZO Manifestations
**HZO Manifestations**

**Skin:**
1) Ulcerated lesions with pain and/or dysesthesia
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**Sclera:**
1) Scleritis
2) Episcleritis

**Cornea:**
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: one type or another
HZO Manifestations

Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

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HZO Manifestations

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4) Anterior uveitis:
   1) Iritis
   2) Trabeculitis → increased IOP

**Posterior manifestations:**
-- Focal choroiditis
-- Occlusive retinal vasculitis → acute retinal necrosis

**Optic nerve manifestations:**
1) Papillitis
2) Optic neuritis

**Orbital manifestations:**
-- Occlusive vasculitis → ptosis, proptosis
-- Occlusive vasculitis → CN palsy, especially CN3, in up to 1/3 cases

What does nummular mean?
**Skin:**
1) Ulcerated lesions with pain and/or dysesthesis
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

**Sclera:**
1) Scleritis
2) Episcleritis

**Cornea:**
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Anterior uveitis:
   1) Iritis
      → sector atrophy secondary to vasculitis-induced ischemia
   2) Trabeculitis
      → increased IOP

**Posterior manifestations:**
-- Focal choroiditis
-- Occlusive retinal vasculitis
   → acute retinal necrosis

**Optic nerve manifestations:**
1) Papillitis
2) Optic neuritis

**Orbital manifestations:**
-- Occlusive vasculitis
   → ptosis, proptosis
-- Occlusive vasculitis
   → CN palsy, especially CN3, in up to 1/3 cases

What does nummular mean?
‘Coin-like’
HZO Manifestations

VZV: Nummular keratitis
HZO Manifestations

Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform circle-ish keratitis
**HZO Manifestations**

**Skin:**
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: **Entropion, ectropion, trichiasis**

**Sclera:**
1) **Scleritis**
2) **Episcleritis**

**Cornea:**
1) **Neurotrophic** keratopathy (on exam, check **corneal sensation**)
2) **Punctate** or **dendritic** epithelial keratitis
3) Stromal keratitis: **Interstitial** or **nummular**
4) **Disciform** keratitis
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) **Disciform keratitis**

What specific corneal tissue is the primary site of inflammation in disciform keratitis?
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

What specific corneal tissue is the primary site of inflammation in disciform keratitis?
The endothelium
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) **Disciform** keratitis

*What specific corneal tissue is the primary site of inflammation in disciform keratitis?*
The endothelium

*What is the other common name for this condition?*
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

What specific corneal tissue is the primary site of inflammation in disciform keratitis? The endothelium

What is the other common name for this condition? Endotheliitis
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

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1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) **Disciform** keratitis

*What specific corneal tissue is the primary site of inflammation in disciform keratitis?*
The endothelium

*What is the other common name for this condition?*
Endotheliitis

*How does it present at the slit lamp?*
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

What specific corneal tissue is the primary site of inflammation in disciform keratitis?
The endothelium

What is the other common name for this condition?
Endotheliitis

How does it present at the slit lamp?
As a disc-shaped area of stromal edema
HZO Manifestations

Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) **Disciform keratitis**

*What specific corneal tissue is the primary site of inflammation in disciform keratitis?*
The endothelium

*What is the other common name for this condition?*
Endotheliitis

*How does it present at the slit lamp?*
As a disc-shaped area of stromal edema
HZO Manifestations

Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
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1) Neurotrophic keratopathy (on exam, check corneal sensation)
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3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

What specific corneal tissue is the primary site of inflammation in disciform keratitis?
The endothelium

What is the other common name for this condition?
Endotheliitis

How does it present at the slit lamp?
As a disc-shaped area of stromal edema with Abb. on the underlying endothelium
**Skin:**
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

**Sclera:**
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*What specific corneal tissue is the primary site of inflammation in disciform keratitis?*
The endothelium

*What is the other common name for this condition?*
Endotheliitis

*How does it present at the slit lamp?*
As a disc-shaped area of stromal edema with KP on the underlying endothelium
HZO Manifestations

VZV: Disciform keratitis (KP are present but not easily seen)
**HZO Manifestations**

**Skin:**
1) Ulcerated lesions with pain and/or **dysesthesia**
2) Sequelae of eyelid skin involvement: **Entropion, ectropion, trichiasis**

**Sclera:**
1) **Scleritis**
2) **Episcleritis**

**Cornea:**
1) **Neurotrophic** keratopathy (on exam, check **corneal sensation**)
2) **Punctate** or **dendritic** epithelial keratitis
3) Stromal keratitis: **Interstitial** or **nummular**
4) **Disciform** keratitis

**Anterior uveitis:**
1) Iritis \(\rightarrow\) **pattern** atrophy of the iris
2)
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
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1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis → sector atrophy of the iris
2)
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
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4) Disciform keratitis

Anterior uveitis:
1) Iritis → sector atrophy of the iris secondary to

HZO Manifestations
Skin:
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Sclera:
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Anterior uveitis:
1) Iritis → sector atrophy of the iris secondary to vasculitis-induced ischemia
2)
HZO Manifestations

Skin:
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Sclera:
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Anterior uveitis:
1) Iritis → sector atrophy of the iris secondary to vasculitis-induced ischemia
2)

*How does HZO iris atrophy differ from the iris atrophy associated with HSV iritis?*
HZO Manifestations

Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
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Anterior uveitis:
1) Iritis → sector atrophy of the iris secondary to vasculitis-induced ischemia
2)

How does HZO iris atrophy differ from the iris atrophy associated with HSV iritis?
In HSV the atrophy tends to be diffuse, not sectoral
Diffuse iris atrophy in HSV

Sectoral iris atrophy in VZV

Iris atrophy in HSV and VZV respectively
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
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1) Neurotrophic keratopathy (on exam, check corneal sensation)
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Anterior uveitis:
1) Iritis \(\rightarrow\) sector atrophy of the iris secondary to vasculitis-induced ischemia
2) \(\text{-itis}\) \(\rightarrow\) increased IOP
**Skin:**
1) Ulcerated lesions with pain and/or dysesthesia
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**Anterior uveitis:**
1) Iritis → sector atrophy of the iris secondary to vasculitis-induced ischemia
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Anterior uveitis:
1) Iritis → sector atrophy of the iris secondary to vasculitis-induced ischemia
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Posterior manifestations:
1) Focal -itis
2)
Skin:
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Sclera:
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Anterior uveitis:
1) Iritis → sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis → increased IOP

Posterior manifestations:
1) Focal choroiditis
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Sclera:
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3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis → sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis → increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis → scary bad dz (three words)
HZO Manifestations

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HZO Manifestations

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Posterior manifestations:
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2) Occlusive retinal vasculitis
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Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
-- Occlusive vasculitis
   → ptosis, proptosis
-- Occlusive vasculitis
   → CN palsy, especially CN3, in up to 1/3 cases

In a nutshell, what is ARN?
A necrotizing retinitis 2ndry (in most cases) to VZV

Who is the typical pt?
An immunocompetent adult age 40s-60s

How does it present?
With unilateral loss of vision, floaters, and pain/photophobia

What does anterior segment exam reveal?
Cell, KP, synechiae, and elevated IOP

What does posterior segment exam reveal?
A retinal arteritis is present. Vitreous cell is present. Peripherally a multifocal yellow-white retinitis is apparent. Over time the peripheral lesions coalesce, then progress posteriorly. These lesions result in retinal breaks that, owing to their multiplicity and posterior location, are extremely hard to manage surgically. The end result is that 75% of cases end in retinal detachment.
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1) Ulcerated lesions with pain and/or dysesthesia
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In a nutshell, what is ARN?
A necrotizing retinitis 2ndry (in most cases) to VZV

acute retinal necrosis
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Anterior uveitis:
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Posterior manifestations:
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1) Papillitis
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In a nutshell, what is ARN?
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acute retinal necrosis

HZO Manifestations
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4) Disciform keratitis

Anterior uveitis:
1) Iritis ➔ sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis ➔ increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis ➔ acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
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Orbital manifestations:
-- Occlusive vasculitis ➔ ptosis, proptosis
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In a nutshell, what is ARN?
A necrotizing retinitis 2ndry (in most cases) to VZV

Who is the typical pt?
Skin:
1) Ulcerated lesions with pain and/or dysthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

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Anterior uveitis:
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In a nutshell, what is ARN?
A necrotizing retinitis 2ndry (in most cases) to VZV

Who is the typical pt?
An immunocompetent adult age range

Acute retinal necrosis
HZO Manifestations

Skin:
1) Ulcerated lesions with pain and/or dysesthesia
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Sclera:
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Anterior uveitis:
1) Iritis ➔ sector atrophy of the iris secondary to vasculitis-induced ischemia
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Posterior manifestations:
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Orbital manifestations:
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In a nutshell, what is ARN?
A necrotizing retinitis 2ndry (in most cases) to VZV

Who is the typical pt?
An immunocompetent adult age 40s-60s
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
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Sclera:
1) Scleritis
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Anterior uveitis:
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   → sector atrophy of the iris secondary to vasculitis-induced ischemia
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Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis → acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
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Orbital manifestations:
-- Occlusive vasculitis → ptosis, proptosis
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In a nutshell, what is ARN?
A necrotizing retinitis 2ndry (in most cases) to VZV

Who is the typical pt?
An immunocompetent adult age 40s-60s

How does it present?

acute retinal necrosis
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
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Sclera:
1) Scleritis
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Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis
2) Trabeculitis

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis → acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
--Occlusive vasculitis → ptosis, proptosis
--Occlusive vasculitis → CN palsy, especially CN3, in up to 1/3 cases

In a nutshell, what is ARN?
A necrotizing retinitis 2ndry (in most cases) to VZV

Who is the typical pt?
An immunocompetent adult age 40s-60s

How does it present?
With unilateral loss of vision, floaters, and pain/photophobia

acute retinal necrosis
**Skin:**
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: **Entropion, ectropion, trichiasis**

**Sclera:**
1) Scleritis
2) Episcleritis

**Cornea:**
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

**Anterior uveitis:**
1) Iritis
   - Sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis
   - Increased IOP

**Posterior manifestations:**
1) Focal choroiditis
2) Occlusive retinal vasculitis
   - Acute retinal necrosis

**Optic nerve manifestations:**
1) Papillitis
2) Optic neuritis

**Orbital manifestations:**
-- Occlusive vasculitis
   - Ptosis, proptosis
   - CN palsy, especially CN3, in up to 1/3 cases

---

**In a nutshell, what is ARN?**
A necrotizing retinitis secondary (in most cases) to VZV

**Who is the typical pt?**
An immunocompetent adult age 40s-60s

**How does it present?**
With unilateral loss of vision, floaters, and pain/photophobia

**Acute retinal necrosis**
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis \[\rightarrow\] sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis \[\rightarrow\] increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis \[\rightarrow\] acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
- Occlusive vasculitis \[\rightarrow\] ptosis, proptosis
- Occlusive vasculitis \[\rightarrow\] CN palsy, especially CN3, in up to 1/3 cases

In a nutshell, what is ARN?
A necrotizing retinitis secondary (in most cases) to VZV

Who is the typical pt?
An immunocompetent adult age 40s-60s

How does it present?
With unilateral loss of vision, floaters, and pain/photophobia

What does anterior segment exam reveal? \[\textbf{acute retinal necrosis}\]
**Skin:**
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

**Sclera:**
1) Scleritis
2) Episcleritis

**Cornea:**
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

**Anterior uveitis:**
1) Iritis
   → sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis
   → increased IOP

**Posterior manifestations:**
1) Focal choroiditis
2) Occlusive retinal vasculitis
   → acute retinal necrosis

**Optic nerve manifestations:**
1) Papillitis
2) Optic neuritis

**Orbital manifestations:**
-- Occlusive vasculitis
   → ptosis, proptosis
-- Occlusive vasculitis
   → CN palsy, especially CN3, in up to 1/3 cases

In a nutshell, what is ARN? A necrotizing retinitis 2ndry (in most cases) to VZV

Who is the typical pt?
An immunocompetent adult age 40s-60s

How does it present?
With unilateral loss of vision, floaters, and pain/photophobia

What does anterior segment exam reveal?
Cell, KP, synechiae, and elevated vs reduced IOP

acute retinal necrosis

**HZO Manifestations**

**Skin:**
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

**Sclera:**
1) Scleritis
2) Episcleritis

**Cornea:**
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

**Anterior uveitis:**
1) Iritis
   - Sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis
   - Increased IOP

**Posterior manifestations:**
1) Focal choroiditis
2) Occlusive retinal vasculitis
   - Acute retinal necrosis

**Optic nerve manifestations:**
1) Papillitis
2) Optic neuritis

**Orbital manifestations:**
- Occlusive vasculitis
  - Ptosis, proptosis
  - CN palsy, especially CN3, in up to 1/3 cases

In a nutshell, what is ARN?
A necrotizing retinitis 2ndry (in most cases) to VZV

Who is the typical pt?
An immunocompetent adult age 40s-60s

How does it present?
With unilateral loss of vision, floaters, and pain/photophobia

What does anterior segment exam reveal?
Cell, KP, synechiae, and elevated IOP

Acute retinal necrosis
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis
   → sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis
   → increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis → acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
-- Occlusive vasculitis → ptosis, proptosis
-- Occlusive vasculitis → CN palsy, especially CN3, in up to 1/3 cases

In a nutshell, what is ARN?
A necrotizing retinitis 2ndry (in most cases) to VZV

Who is the typical pt?
An immunocompetent adult age 40s-60s

How does it present?
With unilateral loss of vision, floaters, and pain/photophobia

What does anterior segment exam reveal?
Cell, KP, synechiae, and elevated IOP

What does posterior segment exam reveal?
acute retinal necrosis
In a nutshell, what is ARN?
A necrotizing retinitis 2ndry (in most cases) to VZV

Who is the typical pt?
An immunocompetent adult age 40s-60s

How does it present?
With unilateral loss of vision, floaters, and pain/photophobia

What does anterior segment exam reveal?
Cell, KP, synechiae, and elevated IOP

What does posterior segment exam reveal?
A retinal arteritis phlebitis present.
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis → sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis → increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis → acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
--Occlusive vasculitis → ptosis, proptosis
--Occlusive vasculitis → CN palsy, especially CN3, in up to 1/3 cases

In a nutshell, what is ARN?
A necrotizing retinitis 2ndry (in most cases) to VZV

Who is the typical pt?
An immunocompetent adult age 40s-60s

How does it present?
With unilateral loss of vision, floaters, and pain/photophobia

What does anterior segment exam reveal?
Cell, KP, synechiae, and elevated IOP

What does posterior segment exam reveal?
A retinal arteritis is present.

Acute retinal necrosis
HZO Manifestations

ARN: Arteritis
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis
   \[\rightarrow\] sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis
   \[\rightarrow\] increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis
   \[\rightarrow\] acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
--Occlusive vasculitis
   \[\rightarrow\] ptosis, proptosis
   --Occlusive vasculitis
   \[\rightarrow\] CN palsy, especially CN3, in up to 1/3 cases

In a nutshell, what is ARN?
A necrotizing retinitis 2ndry (in most cases) to VZV

Who is the typical pt?
An immunocompetent adult age 40s-60s

How does it present?
With unilateral loss of vision, floaters, and pain/photophobia

What does anterior segment exam reveal? (Acute Retinal Necrosis)
Cell, KP, synechiae, and elevated IOP

What does posterior segment exam reveal?
A retinal arteritis is present. Vitreous cell is present vs absent

HZO Manifestations
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis → sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis → increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis → acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
-- Occlusive vasculitis → ptosis, proptosis
-- Occlusive vasculitis → CN palsy, especially CN3, in up to 1/3 cases

In a nutshell, what is ARN?
A necrotizing retinitis 2ndry (in most cases) to VZV

Who is the typical pt?
An immunocompetent adult age 40s-60s

How does it present?
With unilateral loss of vision, floaters, and pain/photophobia

What does anterior segment exam reveal?
Cell, KP, synechiae, and elevated IOP

What does posterior segment exam reveal?
A retinal arteritis is present. Vitreous cell is present.
**Skin:**
1) Ulcerated lesions with pain and/or *dysesthesia*
2) Sequelae of eyelid skin involvement: *Entropion*, *ectropion*, *trichiasis*

**Sclera:**
1) *Scleritis*
2) *Episcleritis*

**Cornea:**
1) *Neurotrophic keratopathy* (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: *Interstitial* or *nummular*
4) *Disciform keratitis*

**Anterior uveitis:**
1) *Iritis* → sector atrophy of the iris secondary to vasculitis-induced ischemia
2) *Trabeculitis* → increased IOP

**Posterior manifestations:**
1) *Focal choroiditis*
2) Occlusive retinal vasculitis → *acute retinal necrosis*

**Optic nerve manifestations:**
1) *Papillitis*
2) *Optic neuritis*

**Orbital manifestations:**
---Occlusive vasculitis → *ptosis, proptosis*
---Occlusive vasculitis → *CN palsy*, especially *CN3*, in up to 1/3 cases

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**In a nutshell, what is ARN?**
A necrotizing retinitis 2ndry (in most cases) to VZV

*Who is the typical pt?*
An immunocompetent adult age 40s-60s

*How does it present?*
With unilateral loss of vision, floaters, and pain/photophobia

*What does anterior segment exam reveal?*
Cell, KP, synechiae, and elevated IOP → **acute retinal necrosis**

*What does posterior segment exam reveal?*
A retinal arteritis is present. *Vitreous cell is present*. Peripherally a *retinitis* is apparent.
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis
   → sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis
   → increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis → acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
-- Occlusive vasculitis → ptosis, proptosis
-- Occlusive vasculitis → CN palsy, especially CN3, in up to 1/3 cases

In a nutshell, what is ARN?
A necrotizing retinitis secondary (in most cases) to VZV

Who is the typical pt?
An immunocompetent adult age 40s-60s

How does it present?
With unilateral loss of vision, floaters, and pain/photophobia

What does anterior segment exam reveal?
Cell, KP, synechiae, and elevated IOP

What does posterior segment exam reveal?
A retinal arteritis is present. Vitreous cell is present. Peripherally a multifocal yellow-white retinitis is apparent.
ARN: Multifocal yellow-white retinitis
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis — sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis — increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis — acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
-- Occlusive vasculitis — ptosis, proptosis
-- Occlusive vasculitis — CN palsy, especially CN3, in up to 1/3 cases

In a nutshell, what is ARN?
A necrotizing retinitis secondary (in most cases) to VZV

Who is the typical pt?
An immunocompetent adult age 40s-60s

How does it present?
With unilateral loss of vision, floaters, and pain/photophobia

What does anterior segment exam reveal?
Cell, KP, synechiae, and elevated IOP

What does posterior segment exam reveal?
A retinal arteritis is present. Vitreous cell is present. Peripherally a multifocal yellow-white retinitis is apparent. Over time the peripheral lesions coalesce, then progress.

HZO Manifestations
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis ➔ sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis ➔ increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis ➔ acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
--Occlusive vasculitis ➔ ptosis, proptosis
--Occlusive vasculitis ➔ CN palsy, especially CN3, in up to 1/3 cases

In a nutshell, what is ARN?
A necrotizing retinitis secondary (in most cases) to VZV

Who is the typical pt?
An immunocompetent adult age 40s-60s

How does it present?
With unilateral loss of vision, floaters, and pain/photophobia

What does anterior segment exam reveal?
Cell, KP, synechiae, and elevated IOP

What does posterior segment exam reveal?
A retinal arteritis is present. Vitreous cell is present. Peripherally a multifocal yellow-white retinitis is apparent. Over time the peripheral lesions coalesce, then progress posteriorly.
ARN: Posterior involvement
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis
    sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis
    increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis
    acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
--Occlusive vasculitis
    ptosis, proptosis
    CN palsy, especially CN3, in up to 1/3 cases

In a nutshell, what is ARN?
A necrotizing retinitis 2ndry (in most cases) to VZV

Who is the typical pt?
An immunocompetent adult age 40s-60s

How does it present?
With unilateral loss of vision, floaters, and pain/photophobia

What does anterior segment exam reveal?
Cell, KP, synechiae, and elevated IOP

What does posterior segment exam reveal?
A retinal arteritis is present. Vitreous cell is present. Peripherally a multifocal yellow-white retinitis is apparent. Over time the peripheral lesions coalesce, then progress posteriorly. These lesions result in retinal breaks that, owing to their multiplicity and posterior location, are extremely hard to manage surgically.
ARN: Large break in necrotic retina
**Skin:**
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

**Sclera:**
1) Scleritis
2) Episcleritis

**Cornea:**
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

**Anterior uveitis:**
1) Iritis
   - Sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis
   - Increased IOP

**Posterior manifestations:**
1) Focal choroiditis
2) Occlusive retinal vasculitis
   - Acute retinal necrosis

**Optic nerve manifestations:**
1) Papillitis
2) Optic neuritis

**Orbital manifestations:**
-- Occlusive vasculitis
   - Ptosis, proptosis
-- Occlusive vasculitis
   - CN palsy, especially CN3, in up to 1/3 cases

In a nutshell, what is ARN?
A necrotizing retinitis 2ndry (in most cases) to VZV

Who is the typical pt?
An immunocompetent adult age 40s-60s

How does it present?
With unilateral loss of vision, floaters, and pain/photophobia

What does anterior segment exam reveal?
Cell, KP, synechiae, and elevated IOP

What does posterior segment exam reveal?
A retinal arteritis is present. Vitreous cell is present. Peripherally a multifocal yellow-white retinitis is apparent. Over time the peripheral lesions coalesce, then progress posteriorly. These lesions result in retinal breaks that, owing to their multiplicity and posterior location, are extremely hard to manage surgically. The end result is that % of cases end in two words.
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis
   → sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis
   → increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis
   → acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
-- Occlusive vasculitis
   → ptosis, proptosis
-- Occlusive vasculitis
   → CN palsy, especially CN3, in up to 1/3 cases

In a nutshell, what is ARN?
A necrotizing retinitis secondary (in most cases) to VZV

Who is the typical pt?
An immunocompetent adult age 40s-60s

How does it present?
With unilateral loss of vision, floaters, and pain/photophobia

What does anterior segment exam reveal?
Cell, KP, synechiae, and elevated IOP

What does posterior segment exam reveal?
A retinal arteritis is present. Vitreous cell is present. Peripherally a multifocal yellow-white retinitis is apparent. Over time the peripheral lesions coalesce, then progress posteriorly. These lesions result in retinal breaks that, owing to their multiplicity and posterior location, are extremely hard to manage surgically. The end result is that 75% of cases end in retinal detachment.
Skin:
1) Ulcerated lesions with pain and/or dysesthesis
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis
   → sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis
   → increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis
   → acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
-- Occlusive vasculitis
   → ptosis, proptosis
-- Occlusive vasculitis
   → CN palsy, especially CN3, in up to 1/3 cases

In a nutshell, what is ARN?
A necrotizing retinitis 2ndry (in most cases) to VZV

Who is the typical pt?
An immunocompetent adult age 40s-60s

How does it present?
With unilateral loss of vision, floaters, and pain/photophobia

What does anterior segment exam reveal?
Cell, KP, synechiae, and elevated IOP

What does posterior segment exam reveal?
A retinal arteritis is present. Vitreous cell is present. Peripherally a multifocal yellow-white retinitis is apparent. Over time the peripheral lesions coalesce, then progress posteriorly. These lesions result in retinal breaks that, owing to their multiplicity and posterior location, are extremely hard to manage surgically. The end result is that 75% of cases end in retinal detachment.

For more on ARN, see slide-set R18

HZO Manifestations
HZO Manifestations

Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis → sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis → increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis → acute retinal necrosis

What else is in the DDx for an occlusive retinal vasculitis?
--?
--?
--?
--?
--?
(List not exhaustive, obv)
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis \( \rightarrow \) sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis \( \rightarrow \) increased IOP

Posterior manifestations:
1) Focal choroiditis
2) **Occlusive retinal vasculitis** \( \rightarrow \) acute retinal necrosis

*What else is in the DDx for an occlusive retinal vasculitis?*
--TB
--Sarcoid
--Wegener’s
--Behçet
--Syphilis
(List not exhaustive, obv)
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis \(\rightarrow\) sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis \(\rightarrow\) increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis \(\rightarrow\) acute retinal necrosis

If this occurs in an AIDS patient, what closely-related entity might it be?
**HZO Manifestations**

**Skin:**
1) Ulcerated lesions with pain and/or *dysesthesia*
2) Sequelae of eyelid skin involvement: *Entropion, ectropion, trichiasis*

**Sclera:**
1) *Scleritis*
2) *Episcleritis*

**Cornea:**
1) *Neurotrophic* keratopathy (on exam, check *corneal sensation*)
2) *Punctate* or *dendritic* epithelial keratitis
3) Stromal keratitis: *interstitial* or *nummular*
4) *Disciform* keratitis

**Anterior uveitis:**
1) Iritis $\rightarrow$ *sector* atrophy of the iris secondary to *vasculitis-induced ischemia*
2) *Trabeculitis* $\rightarrow$ increased IOP

**Posterior manifestations:**
1) Focal *choroiditis*  
   *progressive outer retinal necrosis (PORN)*
2) Occlusive retinal vasculitis $\rightarrow$ *acute retinal necrosis*

*If this occurs in an AIDS patient, what closely-related entity might it be?*
HZO Manifestations

**Skin:**
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

**Sclera:**
1) Scleritis
2) Episcleritis

**Cornea:**
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

**Anterior uveitis:**
1) Iritis → sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis → increased IOP

**Posterior manifestations:**
1) Focal choroiditis
2) Occlusive retinal vasculitis → acute retinal necrosis

**Optic nerve manifestations:**
1) two more –'itises'
2)
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

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Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

HZO Manifestations
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Anterior uveitis:
1) Iritis $\rightarrow$ sector atrophy of the iris secondary to vasculitis-induced ischemia
2) Trabeculitis $\rightarrow$ increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis $\rightarrow$ acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
1) Occlusive vasculitis $\rightarrow$ lid prob and/or 2nd to congestion
2)
HZO Manifestations

Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
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Cornea:
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Posterior manifestations:
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Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
1) Occlusive vasculitis → ptosis and/or proptosis
2)
HZO Manifestations

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Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
1) Occlusive vasculitis → ptosis and/or proptosis
2) Occlusive vasculitis → abbr. + word
Skin:
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2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

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4) Disciform keratitis

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Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis → acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
1) Occlusive vasculitis → ptosis and/or proptosis
2) Occlusive vasculitis → CN palsy
Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (on exam, check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis → sector atrophy of the iris secondary to vasculitis-induced ischemia
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Posterior manifestations:
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Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
1) Occlusive vasculitis → ptosis and/or proptosis
2) Occlusive vasculitis → CN palsy, especially #
HZO Manifestations

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Posterior manifestations:
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Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
1) Occlusive vasculitis → ptosis and/or proptosis
2) Occlusive vasculitis → CN palsy, especially CN3
HZO Manifestations

**Skin:**
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

**Sclera:**
1) Scleritis
2) Episcleritis

**Cornea:**
1) Neurotrophic keratopathy (check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

**Anterior uveitis:**
1) Iritis → sector atrophy secondary to vasculitis-induced ischemia
2) Trabeculitis → increased IOP

**Posterior manifestations:**
1) Focal choroiditis
2) Occlusive retinal vasculitis → acute retinal necrosis

**Optic nerve manifestations:**
1) Papillitis
2) Optic neuritis

**Orbital manifestations:**
1) Occlusive vasculitis → ptosis and/or proptosis
2) Occlusive vasculitis → CN palsy, especially CN3

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**Management of HZO**

--Start PO ACA 800 mg 5x/d within 72h
--IV if immunocompromised
--Start amitriptyline within 72h to ↓ intensity and duration of post-herpetic neuralgia
--Treat skin lesions with warm compresses and antibiotic ointment
--Treat keratitis and/or uveitis with topical steroids and cycloplegia
--Consider PO steroids to ↓ early zoster pain
--Consider capsaicin cream for post-herpetic neuralgia
--Manage neurotrophic keratopathy with PF ATs, ointments, +/- punctal plugs, +/- tarsorrhaphy

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HZO Manifestations

Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (check corneal sensation)
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4) Disciform keratitis

Anterior uveitis:
1) Iritis → sector atrophy secondary to vasculitis-induced ischemia
2) Trabeculitis → increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis → acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
1) Occlusive vasculitis → ptosis and/or proptosis
2) Occlusive vasculitis → CN palsy, especially CN3

Management of HZO
--Start PO ACA 800 mg 5x/d within 72°
Management of HZO

--Start PO ACA 800 mg 5x/d within 72°

---IV if immunocompromised

**HZO Manifestations**

**Skin:**
1) Ulcerated lesions with pain and/or *dysesthesia*
2) Sequelae of eyelid skin involvement: *Entropion, ectropion, trichiasis*

**Sclera:**
1) *Scleritis*
2) *Episcleritis*

**Cornea:**
1) Neurotrophic keratopathy (check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

**Anterior uveitis:**
1) Iritis → sector atrophy secondary to vasculitis-induced ischemia
2) Trabeculitis → increased IOP

**Posterior manifestations:**
1) Focal choroiditis
2) Occlusive retinal vasculitis → acute retinal necrosis

**Optic nerve manifestations:**
1) Papillitis
2) Optic neuritis

**Orbital manifestations:**
1) Occlusive vasculitis → ptosis and/or proptosis
2) Occlusive vasculitis → CN palsy, especially CN3
**HZO Manifestations**

**Skin:**
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

**Sclera:**
1) Scleritis
2) Episcleritis

**Cornea:**
1) Neurotrophic keratopathy (check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

**Anterior uveitis:**
1) Iritis → sector atrophy secondary to vasculitis-induced ischemia
2) Trabeculitis → increased IOP

**Posterior manifestations:**
1) Focal choroiditis
2) Occlusive retinal vasculitis → acute retinal necrosis

**Optic nerve manifestations:**
1) Papillitis
2) Optic neuritis

**Orbital manifestations:**
1) Occlusive vasculitis → ptosis and/or proptosis
2) Occlusive vasculitis → CN palsy, especially CN3

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**Management of HZO**

--Start PO ACA 800 mg 5x/d within 72°
--IV if immunocompromised
--Start amitriptyline within 72° to ↓ intensity and duration of unpleasant sequelae of HZO (three words)

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Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (check corneal sensation)
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Anterior uveitis:
1) Iritis → sector atrophy secondary to vasculitis-induced ischemia
2) Trabeculitis → increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis → acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
1) Occlusive vasculitis → ptosis and/or proptosis
2) Occlusive vasculitis → CN palsy, especially CN3

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**Management of HZO**

--Start PO ACA 800 mg 5x/d within 72°
--IV if immunocompromised
--Start amitriptyline within 72° to ↓ intensity and duration of post-herpetic neuralgia

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HZO Manifestations
### HZO Manifestations

#### Skin:
1. Ulcerated lesions with pain and/or dysesthesia
2. Sequelae of eyelid skin involvement: **Entropion, ectropion, trichiasis**

#### Sclera:
1. **Scleritis**
2. **Episcleritis**

#### Cornea:
1. **Neurotrophic keratopathy** (check corneal sensation)
2. **Punctate or dendritic epithelial keratitis**
3. **Stromal keratitis**: Interstitial or nummular
4. **Disciform keratitis**

#### Anterior uveitis:
1. **Iritis** → sector atrophy secondary to vasculitis-induced ischemia
2. **Trabeculitis** → increased IOP

#### Posterior manifestations:
1. **Focal choroiditis**
2. **Occlusive retinal vasculitis** → acute retinal necrosis

#### Optic nerve manifestations:
1. **Papillitis**
2. **Optic neuritis**

#### Orbital manifestations:
1. Occlusive vasculitis → **ptosis** and/or **proptosis**
2. Occlusive vasculitis → CN palsy, especially **CN3**

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**Management of HZO**

-- **Start PO ACA 800 mg 5x/d within 72°**
-- **IV if immunocompromised**
-- **Start amitriptyline within 72° to ↓ intensity and duration of post-herpetic neuralgia**
-- **Treat skin lesions with** and **nonpharmacologic maneuver**

-- **Treat keratitis and/or uveitis with topical steroids and cycloplegia**
-- **Consider PO steroids to ↓ early zoster pain**
-- **Consider capsaicin cream for post-herpetic neuralgia**
-- **Manage neurotrophic keratopathy with PF ATs, ointments, +/- punctal plugs, +/- tarsorrhaphy**

**nonspecific med**
**HZO Manifestations**

**Skin:**
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

**Sclera:**
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**Cornea:**
1) Neurotrophic keratopathy (check corneal sensation)
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**Anterior uveitis:**
1) Iritis → sector atrophy secondary to vasculitis-induced ischemia
2) Trabeculitis → increased IOP

**Posterior manifestations:**
1) Focal choroiditis
2) Occlusive retinal vasculitis → acute retinal necrosis

**Optic nerve manifestations:**
1) Papillitis
2) Optic neuritis

**Orbital manifestations:**
1) Occlusive vasculitis → ptosis and/or proptosis
2) Occlusive vasculitis → CN palsy, especially CN3

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**Management of HZO**

--Start PO ACA 800 mg 5x/d within 72°
--IV if immunocompromised
--Start amitriptyline within 72° to ↓ intensity and duration of post-herpetic neuralgia
--Treat skin lesions with warm compresses and antibiotic ointment
--Consider PO steroids to ↓ early zoster pain
--Consider capsaicin cream for post-herpetic neuralgia
--Manage neurotrophic keratopathy with PF ATs, ointments, +/- punctal plugs, +/- tarsorrhaphy
HZO Manifestations

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2) Trabeculitis → increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis → acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
1) Occlusive vasculitis → ptosis and/or proptosis
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Management of HZO
--Start PO ACA 800 mg 5x/d within 72°
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--Start amitriptyline within 72° to ↓ intensity and duration of post-herpetic neuralgia
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Posterior manifestations:
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Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
1) Occlusive vasculitis → ptosis and/or proptosis
2) Occlusive vasculitis → CN palsy, especially CN3

Management of HZO

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--IV if immunocompromised
--Start amitriptyline within 72° to ↓ intensity and duration of post-herpetic neuralgia
--Treat skin lesions with warm compresses and antibiotic ointment
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--Consider PO steroids to ↓ early zoster pain
--Consider capsaicin cream for post-herpetic neuralgia
--Manage neurotrophic keratopathy with PF ATs, ointments, +/- punctal plugs, +/- tarsorrhaphy

HZO Manifestations
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**Optic nerve manifestations:**
1) Papillitis
2) Optic neuritis

**Orbital manifestations:**
1) Occlusive vasculitis → ptosis and/or proptosis
2) Occlusive vasculitis → CN palsy, especially CN3

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**Management of HZO**

--Start PO ACA 800 mg 5x/d within 72°
  --IV if immunocompromised

--Start amitriptyline within 72° to ↓ intensity and duration of post-herpetic neuralgia

--Treat skin lesions with warm compresses and antibiotic ointment

--Treat keratitis and/or uveitis with topical steroids and cycloplegia

--Consider PO med to ↓ early zoster pain
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2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

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2) Trabeculitis → increased IOP

**Posterior manifestations:**
1) Focal choroiditis
2) Occlusive retinal vasculitis → acute retinal necrosis

**Optic nerve manifestations:**
1) Papillitis
2) Optic neuritis

**Orbital manifestations:**
1) Occlusive vasculitis → ptosis and/or proptosis
2) Occlusive vasculitis → CN palsy, especially CN3

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**Management of HZO**

---Start PO ACA 800 mg 5x/d within 72°
- IV if immunocompromised

---Start amitriptyline within 72° to ↓ intensity and duration of post-herpetic neuralgia

---Treat skin lesions with warm compresses and antibiotic ointment

---Treat keratitis and/or uveitis with topical steroids and cycloplegia

---Consider PO steroids to ↓ early zoster pain

---Consider capsaicin cream for post-herpetic neuralgia

---Manage neurotrophic keratopathy with PF ATs, ointments, +/- punctal plugs, +/- tarsorrhaphy
HZO Manifestations

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1) Focal choroiditis
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Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
1) Occlusive vasculitis → ptosis and/or proptosis
2) Occlusive vasculitis → CN palsy, especially CN3

Management of HZO
--Start PO ACA 800 mg 5x/d within 72°
   --IV if immunocompromised
--Start amitriptyline within 72° to ↓ intensity and duration of post-herpetic neuralgia
--Treat skin lesions with warm compresses and antibiotic ointment
--Treat keratitis and/or uveitis with topical steroids and cycloplegia
--Consider PO steroids to ↓ early zoster pain
--Consider med cream for post-herpetic neuralgia
### HZO Manifestations

**Skin:**
1. Ulcerated lesions with pain and/or **dysesthesia**
2. Sequelae of eyelid skin involvement: **Entropion, ectropion, trichiasis**

**Sclera:**
1. **Scleritis**
2. **Episcleritis**

**Cornea:**
1. **Neurotrophic keratopathy** (check corneal sensation)
2. **Punctate or dendritic epithelial keratitis**
3. **Stromal keratitis**: Interstitial or nummular
4. **Disciform keratitis**

**Anterior uveitis:**
1. **Iritis**
   - Sector atrophy secondary to vasculitis-induced ischemia
2. **Trabeculitis**
   - Increased IOP

**Posterior manifestations:**
1. **Focal choroiditis**
2. **Occlusive retinal vasculitis**
   - **Acute retinal necrosis**

**Optic nerve manifestations:**
1. **Papillitis**
2. **Optic neuritis**

**Orbital manifestations:**
1. **Oclusive vasculitis** → **ptosis** and/or **proptosis**
2. **Oclusive vasculitis** → CN palsy, especially CN3

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**Management of HZO**

-- **Start PO ACA 800 mg 5x/d within 72°**
   -- IV if immunocompromised

-- **Start amitriptyline within 72° to ↓ intensity and duration of post-herpetic neuralgia**

-- **Treat skin lesions with warm compresses and antibiotic ointment**

-- **Treat keratitis and/or uveitis with topical steroids and cycloplegia**

-- **Consider PO steroids to ↓ early zoster pain**

-- **Consider capsaicin cream for post-herpetic neuralgia**
HZO Manifestations

Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

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4) Disciform keratitis

Anterior uveitis:
1) Iritis → sector atrophy secondary to vasculitis-induced ischemia
2) Trabeculitis → increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis → acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
1) Occlusive vasculitis → ptosis and/or proptosis
2) Occlusive vasculitis → CN palsy, especially CN3

Management of HZO
--Start PO ACA 800 mg 5x/d within 72°
   --IV if immunocompromised
--Start amitriptyline within 72° to ↓ intensity and duration of post-herpetic neuralgia
--Treat skin lesions with warm compresses and antibiotic ointment
--Treat keratitis and/or uveitis with topical steroids and cycloplegia
--Consider PO steroids to ↓ early zoster pain
--Consider capsaicin cream for post-herpetic neuralgia
--Manage neurotrophic keratopathy with +/- surgery, +/- med, +/- med
HZO Manifestations

Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
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Cornea:
1) Neurotrophic keratopathy (check corneal sensation)
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Anterior uveitis:
1) Iritis
   → sector atrophy secondary to vasculitis-induced ischemia
2) Trabeculitis
   → increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis
   → acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
1) Occlusive vasculitis → ptosis and/or proptosis
2) Occlusive vasculitis → CN palsy, especially CN3

Management of HZO
--Start PO ACA 800 mg 5x/d within 72°
   --IV if immunocompromised
--Start amitriptyline within 72° to ↓ intensity and duration of post-herpetic neuralgia
--Treat skin lesions with warm compresses and antibiotic ointment
--Treat keratitis and/or uveitis with topical steroids and cycloplegia
--Consider PO steroids to ↓ early zoster pain
--Consider capsaicin cream for post-herpetic neuralgia
--Manage neurotrophic keratopathy with PF ATs, ointments, +/- punctal plugs, +/- tarsorrhaphy
**HZO Manifestations**

### Skin:
1) Ulcerated lesions with pain and/or **dysesthesia**
2) Sequelae of eyelid skin involvement: **Entropion**, **ectropion**, **trichiasis**

### Sclera:
1) **Scleritis**
2) **Episcleritis**

### Cornea:
1) **Neurotrophic keratopathy** (check corneal sensation)
2) **Punctate** or **dendritic epithelial keratitis**
3) **Stromal keratitis**: **Interstitial** or **nummular**
4) **Disciform keratitis**

### Anterior uveitis:
1) **Iritis**
   - → **sector atrophy secondary to vasculitis-induced ischemia**
2) **Trabeculitis**
   - → **increased IOP**

### Posterior manifestations:
1) **Focal choroiditis**
2) **Occlusive retinal vasculitis**
   - → **acute retinal necrosis**

### Optic nerve manifestations:
1) **Papillitis**
2) **Optic neuritis**

### Orbital manifestations:
1) **Occlusive vasculitis** → **ptosis** and/or **proptosis**
2) **Occlusive vasculitis** → **CN palsy**, especially **CN3**

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**Management of HZO**
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-- **Start PO ACA 800 mg 5x/d within 72°**
-- **IV if immunocompromised**
--- **Start amitriptyline within 72° to ↓ intensity and duration of post-herpetic neuralgia**

**What can be done to prevent HZO?**
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There is a vaccine that reduces the risk of developing zoster.

If HZO occurs in a vaccinated pt, all is not lost. What benefit accrues to a vaccinated pt who develops HZO?

Being vaccinated reduces the likelihood of developing post-herpetic neuralgia by 2/3!
HZO Manifestations

Skin:
1) Ulcerated lesions with pain and/or dysesthesia
2) Sequelae of eyelid skin involvement: Entropion, ectropion, trichiasis

Sclera:
1) Scleritis
2) Episcleritis

Cornea:
1) Neurotrophic keratopathy (check corneal sensation)
2) Punctate or dendritic epithelial keratitis
3) Stromal keratitis: Interstitial or nummular
4) Disciform keratitis

Anterior uveitis:
1) Iritis → sector atrophy secondary to vasculitis-induced ischemia
2) Trabeculitis → increased IOP

Posterior manifestations:
1) Focal choroiditis
2) Occlusive retinal vasculitis → acute retinal necrosis

Optic nerve manifestations:
1) Papillitis
2) Optic neuritis

Orbital manifestations:
1) Occlusive vasculitis → ptosis and/or proptosis
2) Occlusive vasculitis → CN palsy, especially CN3

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Everyone over age 60 years

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**Is it OK to give someone the vaccine during a bout of active zoster?**

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*No!* Doing so will likely exacerbate their condition

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