Before you begin: This is a big topic, and big topics beget big slide-sets. There are natural breaks at slides 226ish and 303ish; I placed *break time!* slides at those points to mark them.
In a nutshell, what is OIS?
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A constellation of signs and symptoms owing to chronic ocular...
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A constellation of signs and symptoms owing to chronic ocular hypoperfusion
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Blood flow in the ophthalmic artery and its branches. (A) Normal unobstructed flow.
Blood flow in the ophthalmic artery and its branches. (A) Normal unobstructed flow. (B) In a patient with ICA occlusion and collateral circulation via the circle of Willis.
Blood flow in the ophthalmic artery and its branches. (A) Normal unobstructed flow. (B) In a patient with ICA occlusion and collateral circulation via the circle of Willis. (C) In a patient with ICA occlusion and collaterals via the ophthalmic artery.
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If the ophthalmic artery is the occluded vessel, what dz process is implicated?
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Giant cell arteritis (GCA). Always bear GCA in mind when you evaluate an OIS pt!
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How occluded does the internal carotid artery (ICA) have to be for OIS to occur?
Very—at least 90%

In one word, what disease process is responsible for occluding the ICA in these pts?
Atherosclerosis

Atherosclerosis is an affliction of vasculopaths—is vasculopathy a risk factor for OIS?
Very much so

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Ocular Ischemic Syndrome

High-grade stenosis of the internal carotid artery origin (arrow) in two pts
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--CVA?
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Vasculopathy a risk factor for OIS?
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With what nonocular atherosclerotic conditions is OIS associated?
How common are these conditions in OIS pts?
--CAD is present in half of OIS pts
--CVA has occurred previously in 25% of them
--PAD?
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How common are these conditions in OIS pts?
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In a nutshell, what is OIS?
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Does it present unilaterally, or bilaterally?
**Q/A**

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Unilaterally (in about 80% of cases)
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Is there a gender predilection?
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Yes, M v F are twice as likely to have it
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Unilaterally (in about 80% of cases)

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Is there a relationship with age?
In a nutshell, what is OIS?
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Yes, OIS is a dz of older individuals
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How common is it?
**Q/A**

**Ocular Ischemic Syndrome**

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Unilaterally (in about 80% of cases)

*Is there a gender predilection?*
Yes, men are twice as likely to have it

*Is there a relationship with age?*
Yes, OIS is a dz of older individuals—average age is about 65; and it's rare before 55

*How common is it?*
Estimates vary, but fair to say it's uncommon
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Estimates vary, but fair to say it's uncommon
In a nutshell, what is OIS?
A constellation of signs and symptoms owing to chronic ocular hypoperfusion

Does it present unilaterally, or bilaterally?
Unilaterally (in about 80% of cases)

Is there a gender predilection?
Yes, men are twice as likely to have it

Is there a relationship with age?
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**Ocular Ischemic Syndrome**

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Indeed it does—the 5-year mortality rate of OIS is 40%!
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What are the signs/symptoms of OIS?

**Signs:**
--?
--?
--?
--?

**Symptoms**

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**Signs:**
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- Retinal vascular changes

**Symptoms:**
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- Pain
- Prolonged photostress recovery time

Intraretinal hemorrhages in OIS don’t present rando, rather, there’s a classic appearance they tend to display. What is it? The hemorrhages typically have a particular...

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In a nutshell, what is OIS?
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**signs and symptoms**

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Intraretinal hemorrhages in OIS: Midperipheral, medium-large, dot-blot
In a nutshell, what is OIS?
A constellation of signs and symptoms owing to chronic ocular hypoperfusion

What are the signs/symptoms of OIS?

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Intraretinal hemorrhages in OIS don’t present rando, rather, there’s a classic appearance they tend to display. What is it?
The hemorrhages typically have a particular…

**Size:** Medium to large

**Configuration (shape):** Dot/blot (DBH)

**Location:** The mid-periphery?

Note: Inconsistencies exist among the BCSC books regarding the location of retinal hemorrhages in OIS:
--Location per the *Neuro* book: “Midperipheral”

Does OIS carry implications for the general health of the afflicted individual?
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No question—proceed at your own pace
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Inconsistencies exist among the BCSC books regarding the location of retinal hemorrhages in OIS:
--Location per the Neuro book: “Midperipheral”
--Per the Retina book: “More often located in the midperipheral retina”
**Ocular Ischemic Syndrome**

*In a nutshell, what is OIS?*

A constellation of signs and symptoms owing to chronic ocular hypoperfusion.

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Note: Inconsistencies exist among the BCSC books regarding the location of retinal hemorrhages in OIS:

- Location per the *Neuro* book: “Midperipheral”
- Per the *Retina* book: “More often located in the midperipheral retina”
- Per the *Uveitis* book: “The midperiphery and far periphery”

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Indeed it does—the 5-year mortality rate of OIS is 40%!

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--Per the *Uveitis* book: “The midperiphery and far periphery”

FWIW, *EyeWiki* indicates they’re mid-peripheral. I was ‘raised’ to believe they’re mid-peripheral myself, so that’s how I roll. Caveat emptor. (FYI, this is not the last such inconsistency we will encounter re OIS.)

No question—proceed at your own pace
In a nutshell, what is OIS? A constellation of signs and symptoms owing to chronic ocular hypoperfusion.

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**Size:** Medium to large

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**Location:** The mid-periphery

There is another classic configuration for intraretinal hemorrhages, one not expected in OIS. What is it?

Indeed it does... the 5-year mortality rate of OIS is 10%!
In a nutshell, what is OIS?
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There is another classic configuration for intraretinal hemorrhages, one not expected in OIS. What is it?
Elongated and streaky

Indeed it does — the 5-year mortality rate of OIS is 40%!
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What descriptive term is used to label such hemorrhages?

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- **Size:** Medium to large
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---

**There is another classic configuration for intraretinal hemorrhages, one not expected in OIS. What is it?**

- Elongated and streaky

**What descriptive term is used to label such hemorrhages?**

- They are known as ‘flame hemorrhages’ (FH)

---

**Does OIS carry implications for the general health of the afflicted individual?**

- Indeed it does – the 5-year mortality rate of OIS is 40%!
Flame vs DB hemorrhages (and a CWS for lulz)
Flame vs DB hemorrhages (and a **CWS** for lulz)

*Are CWS expected in OIS?*
Flame vs DB hemorrhages (and a CWS for lulz)

Are CWS expected in OIS? No

Ocular Ischemic Syndrome
In a nutshell, what is OIS?
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What descriptive term is used to label such hemorrhages?
They are known as ‘flame hemorrhages’ (FH)

Why causes some intraretinal hemorrhages to be DBHs and others to be FHs?

Indeed it does—the 5-year mortality rate of OIS is 40%!
In a nutshell, what is OIS? A constellation of signs and symptoms owing to chronic ocular hypoperfusion.

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They are known as ‘flame hemorrhages’ (FH)

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Why causes some intraretinal hemorrhages to be DBHs and others to be FHs?
It’s a function of the two words in which the blood is located.

---

Indeed it does—the 5-year mortality rate of OIS is 40%!"
In a nutshell, what is OIS? A constellation of signs and symptoms owing to chronic ocular hypoperfusion.

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Intraretinal hemorrhages in OIS don’t present rando, rather, there’s a classic appearance they tend to display. What is it? The hemorrhages typically have a particular...

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**Location:** The mid-periphery

There is another classic configuration for intraretinal hemorrhages, one not expected in OIS. What is it? Elongated and streaky

What descriptive term is used to label such hemorrhages? They are known as ‘flame hemorrhages’ (FH)

Why causes some intraretinal hemorrhages to be DBHs and others to be FHs? It’s a function of the retinal layer(s) in which the blood is located.

Indeed it does...the 5-year mortality rate of OIS is 40%!
In a nutshell, what is OIS?
A constellation of signs and symptoms owing to chronic ocular hypoperfusion

Does it present unilaterally, or bilaterally?
Unilaterally (in about 80% of cases)

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Yes, men are twice as likely to have it

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Is there a gender predilection?
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Is there a relationship with age?
Yes, OIS is a disease of older individuals—average age is about 65; and it’s rare before 55.

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NVI/NVA often leads to what dreaded ocular condition?
Neovascular glaucoma (NVG)

How does NVA lead to NVG?
The NVA vessels don’t ride solo; rather, they are accompanied by contractile elements (eg, fibroblasts). Along with the neo vessels, these elements cross from the peripheral iris to the peripheral cornea. Once established, contractile elements gonna contract, and when they do, they pull the iris up against the angle, closing it.

What one word describes the underlying cause of most cases of NVG?
‘Ischemia’

How does ischemia lead to NVI and NVA?
In a desperate attempt to acquire the oxygen they’re lacking, ischemic cells release the signaling molecule VEGF, a potent inducer of new blood vessel formation. VEGF induces the NVI/NVA process.
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Why is NVG “dreaded”?
Because it is difficult to control, and carries a high risk of loss of vision or even the eye

**NVI/NVA often leads to what dreaded ocular condition?**
Neovascular glaucoma (NVG)

How does NVA lead to NVG?
The NVA vessels don’t ride solo; rather, they are accompanied by contractile elements (eg, fibroblasts). Along with the neo vessels, these elements cross from the peripheral iris to the peripheral cornea. Once established, contractile elements gonna contract, and when they do, they pull the iris up against the angle, closing it.

What one word describes the underlying cause of most cases of NVG?
'Ischemia'

How does ischemia lead to NVI and NVA?
In a desperate attempt to acquire the oxygen they’re lacking, ischemic cells release the signaling molecule VEGF, a potent inducer of new blood vessel formation. VEGF induces the NVI/NVA process.
In a nutshell, what is OIS?
A constellation of signs and symptoms owing to chronic ocular hypoperfusion

Does it present unilaterally, or bilaterally?
Unilaterally (in about 80% of cases)

Is there a gender predilection?
Yes, men are twice as likely to have it

Is there a relationship with age?
Yes, OIS is a dz of older individuals—average age is about 65; and it's rare before 55

How common is it?
Estimates vary, but fair to say it's an uncommon condition—vastly less common than diabetic retinopathy and/or CRVO, certainly

What is the long-term visual prognosis for eyes with OIS?
This is uncertain, but it is often poor. One sign in particular portends poor vision (this sign will be identified shortly).

Does OIS carry implications for the general health of the afflicted individual?
Indeed it does—the 5-year mortality rate of OIS is 40%!

Signs:
--Intraretinal hemorrhages
--NVI/NVA
--AC cell/flare
--Retinal vascular changes

Symptoms:
--Decreased vision
--Pain
--Prolonged photostress recovery time

What do NVI and NVA stand for in this context?
Neovascularization of the iris (NVI) and the angle (NVA)

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**Ocular Ischemic Syndrome**

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- Retinal vascular changes

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Ocular Ischemic Syndrome

Closed angle in NVG
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**Signs:**
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- Prolonged photostress recovery time

**NVI/NVA often leads to what dreaded ocular condition?**
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Given this description, into what general class of glaucoma does NVG fall?

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Q/A

What do NVI and NVA stand for in this context?
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It is a form of secondary angle-closure glaucoma (and an important one at that)

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**Ocular Ischemic Syndrome**

*In a nutshell, what is OIS?*

A constellation of signs and symptoms owing to chronic ocular hypoperfusion

---

**NVI/NVA often leads to what dreaded ocular condition?**

Neovascular glaucoma (NVG)

---

**How does NVA lead to NVG?**

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**Does OIS carry implications for the general health of the afflicted individual?**

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Given this description, into what general class of glaucoma does NVG fall?
It is a form of secondary angle-closure glaucoma (and an important one at that)

We divide the 2ndry angle-closure glaucomas into two groups—what are they?

Does OIS carry implications for the general health of the afflicted individual?
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In a nutshell, what is OIS?
A constellation of signs and symptoms owing to chronic ocular hypoperfusion

---

**Signs and symptoms**

- Intraretinal hemorrhages
- NVI/NVA
- AC cell/flare
- Retinal vascular changes

**Symptoms**

- Decreased vision
- Pain
- Prolonged photostress recovery time

---

What are the signs/symptoms of OIS?

**Signs:**

- Intraretinal hemorrhages
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What do NVI and NVA stand for in this context?
Neovascularization of the iris (NVI) and the angle (NVA)

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We divide the 2ndry angle-closure glaucomas into two groups—what are they?

**With pupillary block**

**Without pupillary block**

---

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What are the signs/symptoms of OIS?

**Signs:**
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-- NVI/NVA
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**Symptoms:**
-- Decreased vision
-- Pain
-- Prolonged photostress recovery time

What do NVI and NVA stand for in this context?
Neovascularization of the iris (NVI) and the angle (NVA)

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Given this description, into what general class of glaucoma does NVG fall?
It is a form of **secondary angle-closure glaucoma** (and an important one at that)

With pupillary block

**NVG?**

Without pupillary block

**NVG?**

We divide the 2ndry angle-closure glaucomas into two groups—what are they?

To which group does NVG belong?

Does OIS carry implications for the general health of the afflicted individual?
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In a nutshell, what is OIS?
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To which group does NVG belong? Without pupillary block

With pupillary block

Without pupillary block

NVG!
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For (lots) more on secondary angle-closure glaucoma, see slide-set G16
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**Ocular Ischemic Syndrome**

**Signs:**

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- AC cell/flare
- Retinal vascular changes

**Symptoms:**

- Decreased vision
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- Prolonged photostress recovery time

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NVI/NVA often leads to what dreaded ocular condition?
Neovascular glaucoma (NVG)

How does NVA lead to NVG?
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Unilaterally (in about 80% of cases)

Is there a gender predilection?
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Is there a relationship with age?
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How common is it?
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What are the signs/symptoms of OIS?

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Low IOP??!! How is that possible? Why doesn’t NVI/NVA in OIS consistently lead to NVG?
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**Q/A**

**What are the signs/symptoms of OIS?**

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Does it present unilaterally, or bilaterally?
Unilaterally (in about 80% of cases)

Is there a gender predilection?
Yes, men are twice as likely to have it

Is there a relationship with age?
Yes, OIS is a dz of older individuals—average age is about 65; and it's rare before 55

How common is it?
Estimates vary, but fair to say it's an uncommon condition—vastly less common than diabetic retinopathy and/or CRVO, certainly

What is the long-term visual prognosis for eyes with OIS?
This is uncertain, but it is often poor. One sign in particular portends poor vision (this sign will be identified shortly).

Does OIS carry implications for the general health of the afflicted individual?
Indeed it does—the 5-year mortality rate of OIS is 40%!

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**Signs:**

---Intraretinal hemorrhages
---NVI/NVA

---AC cell/flare
---Retinal vascular changes

**Symptoms:**

---Decreased vision
---Pain
---Prolonged photostress recovery time

---NVI and NVA

---Neovascularization of the iris (NVI) and the angle (NVA)

---Are NVI/NVA common in OIS?
Yes—roughly 2/3 of pts will manifest one or both

---When you hear 'NVI/NVA,' one condition should come to mind first—what is it?
Diabetes. Diabetic retinopathy is by far the most common cause of NVI/NVA

---Other than DBR, what should come to mind before OIS when contemplating NVI/NVA? (Remember, OIS is an uncommon condition.)
CRVO is mos def next on the list. The list after that is more difficult to order, with entities like uveitis, tumors, CRAO, sickle-cell, etc.

---What one word describes the underlying cause of most cases of NVG?
'Ischemia'

---How does ischemia lead to NVI and NVA?
In a desperate attempt to acquire the oxygen they’re lacking, ischemic cells release the signaling molecule **VEGF**. VEGF induces the NVI/NVA process.

---If most OIS pts get NVI/NVA, and NVA leads to NVG, it follows that most OIS pts must get NVG, yes?
You’d think so, but no. While a few OIS pts will have elevated IOP, most will not, instead presenting with normal or even low IOP.

---Low IOP??!! How is that possible? Why doesn’t NVI/NVA in OIS consistently lead to NVG?
In a word—hypoperfusion. The same lack of blood flow that resulted in ocular ischemia leads to shutdown of the ciliary body. This result in a dramatic reduction in the rate of aqueous-humor formation, which in turn precludes the development of high IOP.

---What specific component of the ciliary body creates aqueous?
The nonpigmented epithelial layer of the pars plicata

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**How does ischemia lead to NVI and NVA?**
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**Symptoms:**
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Q

**Neovascular glaucoma (NVG)**

If an eye has a zipped-up angle secondary to NVA from OIS, what can happen to IOP if/when blood flow to the ciliary body is re-established—say, by successful CEA for an occluded ICA?

In such cases, IOP can spike precipitously when the CB ‘wakes up’ and resumes producing aqueous at a normal rate. If this occurs, the pt may be thrown into NVG severe enough to threaten vision or even the eye. Because of this possibility, it is vital that you 1) are looped in on plans to operate on your OIS pt, and 2) have a plan in place to intervene acutely if the above scenario comes to pass!

**What specific component of the ciliary body creates aqueous?**
The nonpigmented epithelial layer of the pars plicata

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**Symptoms:**
- Decreased vision
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- Prolonged photostress recovery time

What do NVI and NVA stand for in this context?

Neovascularization of the iris (NVI) and the angle (NVA).

Are NVI/NVA common in OIS?

Yes—roughly 2/3 of pts will manifest one or both.

When you hear ‘NVI/NVA,’ one condition should come to mind first—what is it?

Diabetes. Diabetic retinopathy is by far the most common cause of NVI/NVA.

Other than DBR, what should come to mind before OIS when contemplating NVI/NVA? (Remember, OIS is an uncommon condition.)

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What one word describes the underlying cause of most cases of NVG?

‘Ischemia.’

How does ischemia lead to NVI and NVA?

In a desperate attempt to acquire the oxygen they're lacking, ischemic cells release the signaling molecule VEGF, a potent inducer of new blood vessel formation. VEGF induces the NVI/NVA process.

So, if most OIS pts get NVI/NVA, and NVA leads to NVG, it follows that most OIS pts must get NVG, yes?

You'd think so, but no. While a few OIS pts will have elevated IOP, most will not, instead presenting with normal or even low IOP.

Low IOP??!! How is that possible? Why doesn't NVI/NVA in OIS consistently lead to NVG?

In a word—hypoperfusion. The same lack of blood flow that resulted in ocular ischemia leads to shutdown of the ciliary body. This result in a dramatic reduction in the rate of aqueous-humor formation, which in turn precludes the development of high IOP.

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If an eye has a zipped-up angle secondary to NVA from OIS, what can happen to IOP if/when blood flow to the ciliary body is re-established—say, by successful CEA for an occluded ICA?

In such cases, IOP can spike precipitously when the CB 'wakes up' and resumes production of aqueous at a normal rate. If this occurs, the pt may be thrown into NVG severe enough to threaten vision or even the eye. Because of this possibility, it is vital that you 1) are looped in on plans to operate on your OIS pt, and 2) have a plan in place to intervene acutely if the above scenario comes to pass!

How should NVI/NVA in OIS be managed?

PRP successfully induces regression of anterior-segment neo in a majority of cases. Intravitreal anti-VEGF tx can be considered as well.
In a nutshell, what is OIS?
A constellation of **signs and symptoms** owing to chronic ocular hypoperfusion

1. **A constellation of signs and symptoms** owing to chronic ocular hypoperfusion

   - NVI/NVA
   - AC cell/flare
   - Intraretinal hemorrhages
   - Retinal vascular changes

2. **Decreased vision**
   - **Pain**
   - **Prolonged photostress recovery time**

3. **Neovascularization of the iris (NVI) and the angle (NVA)**

   - Roughly 2/3 of pts will manifest one or both

4. **Diabetes**. Diabetic retinopathy is by far the most common cause of NVI/NVA

5. **CRVO** is mos def next on the list. The list after that is more difficult to order, with entities like uveitis, tumors, CRAO, sickle-cell, etc.

6. **Low IOP??!!** How can an eye with NVI/NVA have low IOP?

   - If an eye has a zipped-up angle secondary to NVA from OIS, what can happen to IOP if/when blood flow to the ciliary body is re-established—say, by successful CEA for an occluded ICA?

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7. **What one word describes the underlying cause of most cases of NVG?**

   - ‘Ischemia’

8. **How does ischemia lead to NVI and NVA?**

   - In a desperate attempt to acquire the oxygen they’re lacking, ischemic cells release the signaling molecule VEGF, a potent inducer of new blood vessel formation. VEGF induces the NVI/NVA process.

9. **Does OIS carry implications for the general health of the afflicted individual?**

   - Indeed it does—the 5-year mortality rate of OIS is 40%!

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**Symptoms:**
- Decreased vision
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Will all OIS pts manifest cell and flare?
No, but a fairly significant minority will (20%)

How common is it?
Estimates vary, but fair to say it’s an uncommon condition—vastly less common than diabetic retinopathy and/or CRVO, certainly

What is the long-term visual prognosis for eyes with OIS?
This is uncertain, but it is often poor. One sign in particular portends poor vision (this sign will be identified shortly).

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**Symptoms:**
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**Will all OIS pts manifest cell and flare?**
No, but a fairly significant minority will (20%)

**How severe is the reaction?**
Not terrible—certainly nowhere near the ‘hypopyon’ range, say.

Of note, the classic presentation will have flare that is out of proportion to the cell.
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What is the classic description of the retinal arterioles in OIS?

-Narrowed

How about the venules?
-Dilated, not tortuous
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Ocular Ischemic Syndrome

OIS: Arteriolar narrowing; venous dilation without tortuosity
In a nutshell, what is OIS?
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What is the classic description of the retinal arterioles in OIS?
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Here we encounter another inconsistency in the BCSC books, regarding the appearance of the retinal venules in OIS:
- Appearance per the *Neuro* book: “dilated (nontortuous)”
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- Per the *Uveitis* book: “dilated [and] tortuous”

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No question—proceed
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**What is the classic description of the retinal arterioles in OIS?**

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*Why does the appearance of the venules—specifically, whether they are tortuous—matter? (Other than being able to answer OKAP/WQE/Board questions correctly, that is.)*

*Here we encounter another inconsistency among the BCSC books, regarding the appearance of the retinal venules in OIS:*

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Why does the appearance of the venules—specifically, whether they are tortuous—matter? (Other than being able to answer OKAP/WQE/Board questions correctly, that is.)
Because the DDx for an OIS-like fundus includes mild CRVO, and in CRVO the venules are always tortuous (as well as dilated).

Does the appearance of tortuous venules in OIS portend a poor visual outcome?
Yes, this sign will be identified shortly.
In a nutshell, what is OIS?
A constellation of signs and symptoms owing to chronic ocular hypoperfusion.

Does it present unilaterally, or bilaterally?
Unilaterally (in about 80% of cases).

Is there a gender predilection?
Yes, men are twice as likely to have it.

Is there a relationship with age?
Yes, OIS is a disease of older individuals—average age is about 65; and it’s rare before 55.

How common is it?
Estimates vary, but fair to say it’s an uncommon condition—vastly less common than diabetic retinopathy and/or CRVO, certainly.

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Does OIS carry implications for the general health of the afflicted individual?
Indeed it does—the 5-year mortality rate of OIS is 40%!

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- Decreased vision
- Pain
- Prolonged photostress recovery time

What is the classic description of the retinal arterioles in OIS?
‘Narrowed’

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Here we encounter another inconsistency among the BCSC books, regarding the appearance of the retinal venules in OIS:
- Appearance per the *Neuro* book: “dilated (nontortuous)”
- Per the *Retina* book: “dilated but not very tortuous”
- Per the *Uveitis* book: “dilated [and] tortuous”

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FWIW, EyeWiki states the venules are “dilated but not tortuous.” This is my understanding as well. Caveat emptor.

Ocular Ischemic Syndrome
Ocular Ischemic Syndrome

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A constellation of signs and symptoms owing to chronic ocular hypoperfusion.

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Head’s up: We will have much more to say about differentiating between OIS and CRVO later in the slide-set.

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It can be either

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One media issue dwarfs the others in terms of how frequently it's implicated in TMVL—what is it?

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**Q/A**

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TMVL in condition 2ndry to three words

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In a nutshell, what is OIS?
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What are the signs/symptoms of OIS?

**Signs:**
- Intraretinal hemorrhages
- NVI/NVA
- AC cell/flare
- Retinal vascular changes

**Symptoms:**
- Decreased vision

**Is the decreased vision constant, or intermittent?**
It can be either

**What is the term of art for intermittent vision loss in one eye?**
Transient monocular vision loss (TMVL)

**What is Uhthoff’s phenomenon?**
TMVL in optic neuritis secondary to increased body temp

**What temp-elevating activity does the Neuro book emphasize?**
Exercise-induced TMVL should bring to mind what three conditions?
- Uhthoff's phenomenon
- Vasospasm
- Pigment-dispersion syndrome

Yes, OIS is a disease of older individuals—average age is about 65

Is there a gender predilection?
Yes, men are twice as likely to have it

Is there a relationship with age?
Yes, OIS is a disease of older individuals—average age is about 65; and it's rare before 55

How common is it?
Estimates vary, but fair to say it's an uncommon condition—vastly less common than diabetic retinopathy and/or CRVO, certainly

What is the long-term visual prognosis for eyes with OIS?
This is uncertain, but it is often poor. One sign in particular portends poor vision (this sign will be identified shortly).

Does OIS carry implications for the general health of the afflicted individual?
Indeed it does—the 5-year mortality rate of OIS is 40%!
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Unilaterally (in about 80% of cases)

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Finally, the Neuro book emphasizes 4 sorts of vascular causes of TMVL. What are the other three?

**Media issues**

- Dry eyes

**Vascular issues**

- OIS
  - ?
  - ?
  - ?

**Optic nerve disorders**

- Disc edema
- Drusen
- Uhthoff’s phenomenon
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-- OIS
-- Subacute angle-closure glaucoma
-- Migraine

In two words what is the pathologic mechanism underlying subacute angle-closure glaucoma?

Pupillary block

Circling back to the original point: What happens during sleep that provides pain relief in subacute angle-closure glaucoma?

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*Are you sure about this? I thought pupillary block was the mechanism underlying acute angle-closure glaucoma.*
Pupillary block is the mechanism underlying both subacute and acute angle-closure glaucoma

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In acute ACG, the entire angle becomes occluded over a short period of time, producing a precipitous rise in IOP. The extremely high IOP causes severe eye pain and HA, N/V, and blurry vision. The event will not resolve without intervention.

In subacute ACG, some portion of the angle occludes episodically, resulting in periods of moderate (not extreme) IOP elevation. This IOP causes moderate eye pain and HA, and blurry vision. The episodes resolve spontaneously, often after sleep. IOP is normal between episodes, which can make diagnosis challenging.
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1. **Unilaterally (in about 80% of cases)**
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How do OIS pts describe their pain; eg, is it a foreign-body sensation? No, it is a dull, aching pain that locates to the eye or orbit. Pts often report that the pain eases when they do something specific—what? When they lie down. This is a classic finding in OIS—take note of it!

When you hear 'periocular pain that improves with lying down/sleep,' three conditions should come to mind. What are the other two?
- OIS
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In two words what is the pathologic mechanism underlying subacute angle-closure glaucoma? Pupillary block

Circling back to the original point: What happens during sleep that provides pain relief in subacute angle-closure glaucoma? Sleep-induced miosis breaks the pupillary block, thus allowing aqueous outflow to resume (and IOP to drop).

**Pupillary block**

Are you sure about this? I thought pupillary block was the mechanism underlying acute angle-closure glaucoma. Pupillary block is the mechanism underlying both subacute and acute angle-closure glaucoma. It also underlies chronic angle-closure glaucoma, and is implicated in some cases of plateau iris syndrome.

If they share a mechanism, how do acute and subacute angle-closure glaucoma differ?

In acute ACG, the entire angle becomes occluded over a short period of time, producing a precipitous rise in IOP. The extremely high IOP causes severe eye pain and HA, N/V, and blurry vision. The event will not resolve without intervention.

In subacute ACG, some portion of the angle occludes episodically, resulting in periods of moderate (not extreme) IOP elevation. This IOP causes moderate eye pain and HA, and blurry vision. The episodes resolve spontaneously, often after sleep. IOP is normal between episodes, which can make diagnosis challenging.
In a nutshell, what is OIS?
A constellation of signs and symptoms owing to chronic ocular hypoperfusion.

Does it present unilaterally, or bilaterally?
Unilaterally (in about 80% of cases).

Is there a gender predilection?
Yes, men are twice as likely to have it.

Is there a relationship with age?
Yes, OIS is a disease of older individuals—average age is about 65; and it's rare before 55.

How common is it?
Estimates vary, but fair to say it's an uncommon condition—vastly less common than diabetic retinopathy and/or CRVO, certainly.

What is the long-term visual prognosis for eyes with OIS?
This is uncertain, but it is often poor. One sign in particular portends poor vision (this sign will be identified shortly).

Does OIS carry implications for the general health of the afflicted individual?
Indeed it does—the 5-year mortality rate of OIS is 40%!

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*In a nutshell, what is OIS?*

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<table>
<thead>
<tr>
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Can photostress recovery time be formally assessed in the clinic?
It can indeed, via the photostress recovery test. The test is performed unilaterally. The BCVA for the eye is determined (reliable results require that VA be 20/80 or better). An extremely bright light is shone directly into the eye from a distance of about 1 inch for 10 seconds. The pt is then asked to read a Snellen line one row worse than their BCVA, and the amount of time it takes for them to be able to do this is recorded. A normal photostress time would be 30-s or less; pts with OIS will take significantly longer, usually at least 90-s.

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This is uncertain, but when they walk, and the jaw pain GCA pts get when they chew. will be identified shortly.

Does OIS carry implications for the general health of the afflicted individual?
Indeed it does—the 5-year mortality rate of OIS is 40%!
In a nutshell, what is OIS?
A constellation of signs and symptoms owing to chronic ocular hypoperfusion

Is it unilaterally or bilaterally?
Unilaterally (in about 80% of cases)

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Yes, men are twice as likely to have it

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Yes, OIS is a disease of older individuals—average age is about 65; and it’s rare before 55

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--Retinal vascular changes

**Symptoms:**
--Decreased vision
--Pain
--Prolonged photostress recovery time

What is the photostress recovery test?
It refers to the length of time it takes for vision to recover after the retina has been subjected to a very bright light (OIS pts will complain of being ‘blind for a long time’ in the affected eye after exposure to bright light)

Why is recovery time prolonged in OIS?
Because the ischemic retinal circulation is unable to meet the high metabolic demand created by the photostress in a timely manner. Think of it as retinal claudication, with prolonged visual recovery time being analogous to the calf pain PAD pts get when they walk, and the jaw pain GCA pts get when they chew. 

Can photostress recovery time be formally assessed in the clinic?
It can indeed, via the photostress recovery test. The test is performed unilaterally. The BCVA for the eye is determined (reliable results require that VA be 20/80 or better). An extremely bright light is shone directly into the eye from a distance of about 1 inch for 10 seconds. The pt is then asked to read a Snellen line one row worse than their BCVA, and the amount of time it takes for them to be able to do this is recorded. A normal photostress time would be 30-s or less; pts with OIS will take significantly longer, usually at least 90-s.
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How would a pt with VA loss 2ndry to an optic neuropathy perform on the test?
Her result would be normal—which makes this test very useful in determining whether a pt with VA loss has macular/vascular dz vs an optic neuropathy.

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**Q/A**

**Ocular Ischemic Syndrome**

**What are the signs/symptoms of OIS?**

**Signs:**
- Intraretinal hemorrhages
- NVI/NVA
- AC cell/flare
- Retinal vascular changes
- ? [Kinda goes with cell/flare]
- ?
- ?
- ?

**Symptoms:**
- Decreased vision
- Pain
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- NVI/NVA
- AC cell/flare
- Retinal vascular changes
- **Ocular surface injection**
- ?
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**Symptoms:**

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- ONH
- ?

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**What type of cataract is classically associated with OIS?**

Posterior subcapsular (PSC)

Are other ocular ischemic conditions associated with PSC?
I’m glad you asked…
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Four more signs come up enough that we should at least mention them here:
(This is a good point in the set to take a break)
Regarding ischemic conditions that cause PSCs…The *Lens* book names besides OIS:

- **Ocular ischemic syndrome**
Regarding ischemic conditions that cause PSCs... The *Lens* book names three besides OIS.

- Ocular ischemic syndrome
Regarding ischemic conditions that cause PSCs... The *Lens* book names **three** besides OIS. *What are they?*

- ?
- **Ocular ischemic syndrome**
- ?
- ?

*Mnemonic forthcoming*
Regarding ischemic conditions that cause PSCs... The *Lens* book names three besides OIS. *What are they?*

- B
- Ocular ischemic syndrome
- A
- T

*Mnemonic: BOAT*

*Hints forthcoming*
Regarding ischemic conditions that cause PSCs... The *Lens* book names *three* besides OIS. *What are they?*

- **B**
- **O**cular ischemic syndrome
- **A**
- **T**

*Mnemonic: BOAT*

*Hints:* One is ocular and...
  Two are systemic and...
Regarding ischemic conditions that cause PSCs... The *Lens* book names **three** besides OIS. *What are they?*

**Systemic**
- B
- Ocular ischemic syndrome

**Ocular**
- A

**Systemic**
- T

*Mnemonic: BOAT*

*Hints:* One is ocular and... iatrogenic
Two are systemic and... eponymous, and rare (but you read about them in med school)
Regarding ischemic conditions that cause PSCs... The *Lens* book names three besides OIS. *What are they?*

- **Buerger’s disease** (Thromboangiitis obliterans)
- **Ocular ischemic syndrome**
- **Anterior segment ischemia syndrome**
- **Takayasu’s arteritis** (Pulseless disease)

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**Question:**

*How bad can the cataract get in these conditions?*
Regarding ischemic conditions that cause PSCs... The *Lens* book names three besides OIS. What are they?

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**Hints:**
- One is ocular
- Two are systemic and eponymous, and rare (you read about them in med school)

*How bad can the cataract get in these conditions?*

*Total opacification is not uncommon*
Regarding ischemic conditions that cause PSCs... The *Lens* book names three besides OIS. *What are they?*

- Buerger’s disease (Thromboangiitis obliterans)
- Ocular ischemic syndrome
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**In a nutshell, what is Buerger’s disease?**

*An inflammatory vaso-occlusive disease of small/medium-sized vessels. It has a propensity for affecting vessels of the extremities, and because of this, it is not uncommon for Buerger’s pts to undergo multiple distal amputations. It is strongly associated with smoking.*

**Mnemonic:** **BOAT**

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Regarding ischemic conditions that cause PSCs... The *Lens* book names three besides OIS. *What are they?*

- **Buerger's disease (Thromboangiitis obliterans)**

  *In a nutshell, what is Buerger's disease?*
  
  An inflammatory vaso-occlusive disease of small/medium-sized vessels. It has a propensity for affecting vessels of the extremities.

  **Mnemonic:** **BOAT**

  **Hints:** One is ocular and... iatrogenic
  
  Two are systemic and... eponymous, and rare (but you read about them in med school)
Regarding ischemic conditions that cause PSCs... The *Lens* book names three besides OIS. *What are they?*

- **Buerger’s disease** (Thromboangiitis obliterans)
- **Ocular Ischemic Syndrome**
- **Anterior segment ischemia syndrome**
- **Takayasu’s arteritis** (Pulseless disease)

In a nutshell, what is Buerger’s disease?

*An inflammatory vaso-occlusive disease of small/medium-sized vessels. It has a propensity for affecting vessels of the extremities, and because of this, it is not uncommon for Buerger’s pts to undergo multiple amputations.*

Mnemonic: **BOAT**

Hints: One is ocular and... iatrogenic
Two are systemic and... eponymous, and rare (but you read about them in med school)
Regarding ischemic conditions that cause PSCs... The Lens book names three besides OIS. What are they?

- **Buerger’s disease (Thromboangiitis obliterans)**

**In a nutshell, what is Buerger’s disease?**
An inflammatory vaso-occlusive disease of small/medium-sized vessels. It has a propensity for affecting vessels of the extremities, and because of this, it is not uncommon for Buerger’s pts to undergo multiple distal amputations.

**Mnemonic: BOAT**

**Hints:** One is ocular and...iatrogenic
Two are systemic and...eponymous, and rare (but you read about them in med school)
Regarding ischemic conditions that cause PSCs…The *Lens* book names three besides OIS. What are they?

- **Buerger’s disease (Thromboangiitis obliterans)**

  *In a nutshell, what is Buerger’s disease?*
  An inflammatory vaso-occlusive disease of small/medium-sized vessels. It has a propensity for affecting vessels of the extremities, and because of this, it is not uncommon for Buerger’s pts to undergo multiple distal amputations. It is strongly associated with one word.

  **Mnemonic:** BOAT

  **Hints:** One is ocular and…iatrogenic
  Two are systemic and…eponymous, and rare (but you read about them in med school)
Regarding ischemic conditions that cause PSCs... The *Lens* book names three besides OIS. *What are they?*

- **Buerger’s disease (Thromboangiitis obliterans)**
  
  *In a nutshell, what is Buerger’s disease?*
  An inflammatory vaso-occlusive disease of small/medium-sized vessels. It has a propensity for affecting vessels of the extremities, and because of this, it is not uncommon for Buerger’s pts to undergo multiple distal amputations. It is strongly associated with smoking.

  **Mnemonic:** **BOAT**

  **Hints:** One is ocular and... iatrogenic
  Two are systemic and... eponymous, and rare (but you read about them in med school)
It was noted that anterior segment ischemia syndrome is iatrogenic. In very general terms, what physician-related activity is the cause?

**Anterior segment ischemia syndrome**

**Takayasu’s arteritis (Pulseless disease)**

Mnemonic: **BOAT**

Hints: One is ocular and **iatrogenic**

Two are systemic and...eponymous, and rare (but you read about them in med school)
It was noted that anterior segment ischemia syndrome is iatrogenic. In very general terms, what physician-related activity is the cause?
Eye surgery

Mnemonic: BOAT
Hints: One is ocular and... iatrogenic
Two are systemic and... eponymous, and rare (but you read about them in med school)
It was noted that anterior segment ischemia syndrome is iatrogenic. In very general terms, what physician-related activity is the cause?

Eye surgery

Again in general terms, how does eye surgery cause anterior segment ischemia?

Mnemonic: BOAT

Hints: One is ocular and iatrogenic

Two are systemic and...eponymous, and rare (but you read about them in med school)
Regarding ischemic conditions that cause PSCs...The Lens book names three besides OIS. What are they?

- Buerger’s disease (Thromboangiitis obliterans)
- Ocular ischemic syndrome
- Anterior segment ischemia syndrome
- Takayasu’s arteritis (Pulseless disease)

**Mnemonic:** BOAT

**Hints:** One is ocular and... iatrogenic
Two are systemic and... eponymous, and rare (but you read about them in med school)

It was noted that anterior segment ischemia syndrome is iatrogenic. In very general terms, what physician-related activity is the cause? Eye surgery

Again in general terms, how does eye surgery cause anterior segment ischemia? By impeding/disrupting blood flow to the anterior segment
Ocular Ischemic Syndrome

It was noted that anterior segment ischemia syndrome is iatrogenic. In very general terms, what physician-related activity is the cause? Eye surgery

Again in general terms, how does eye surgery cause anterior segment ischemia? By impeding/disrupting blood flow to the anterior segment

What two eye surgeries are the most common cause?
--?
--?

Anterior segment ischemia syndrome

Takayasu’s arteritis (Pulseless disease)

Mnemonic: BOAT

Hints: One is ocular and... iatrogenic
Two are systemic and... eponymous, and rare (but you read about them in med school)
Regarding ischemic conditions that cause PSCs...
The Lens book names three besides OIS.

- Buerger's disease (Thromboangiitis obliterans)
- Ocular ischemic syndrome
- Anterior segment ischemia syndrome
- Takayasu's arteritis (Pulseless disease)

**It was noted that anterior segment ischemia syndrome is iatrogenic. In very general terms, what physician-related activity is the cause?**
Eye surgery

*Again in general terms, how does eye surgery cause anterior segment ischemia?*
By impeding/disrupting blood flow to the anterior segment

**What two eye surgeries are the most common cause?**
--Scleral buckling surgery
--Strabismus surgery

**Mnemonic:** **BOAT**

**Hints:** One is ocular and **iatrogenic**
Two are systemic and...eponymous, and rare (but you read about them in med school)
It was noted that anterior segment ischemia syndrome is iatrogenic. In very general terms, what physician-related activity is the cause? Eye surgery

Again in general terms, how does eye surgery cause anterior segment ischemia? By impeding/disrupting blood flow to the anterior segment

What two eye surgeries are the most common cause?
--Scleral buckling surgery
--Strabismus surgery on or more muscles simultaneously

Ocular Ischemic Syndrome

Mnemonic: BOAT

Hints: One is ocular and iatrogenic
Two are systemic and...eponymous, and rare (but you read about them in med school)
Ocular Ischemic Syndrome

It was noted that anterior segment ischemia syndrome is iatrogenic. In very general terms, what physician-related activity is the cause?

Eye surgery

Again in general terms, how does eye surgery cause anterior segment ischemia?

By impeding/disrupting blood flow to the anterior segment

What two eye surgeries are the most common cause?

--Scleral buckling surgery
--Strabismus surgery on three or more muscles simultaneously

Anterior segment ischemia syndrome

Takayasu’s arteritis (Pulseless disease)

Mnemonic: BOAT

Hints: One is ocular and iatrogenic
Two are systemic and...eponymous, and rare (but you read about them in med school)
In a nutshell, what is Takayasu’s arteritis?

Takayasu’s arteritis (Pulseless disease)

Mnemonic: BOAT

Hints: One is ocular and...iatrogenic
Two are systemic and...eponymous, and rare (but you read about them in med school)
In a nutshell, what is Takayasu’s arteritis?

An occlusive vasculitis that typically affects larger vs smaller vessels

Takayasu’s arteritis (Pulseless disease)

Mnemonic: BOAT

Hints: One is ocular and...iatrogenic

Two are systemic and...eponymous, and rare (but you read about them in med school)
In a nutshell, what is Takayasu’s arteritis?
An occlusive vasculitis that typically affects larger vessels

**Takayasu’s arteritis (Pulseless disease)**

**Mnemonic:** BOAT

**Hints:** One is ocular and...iatrogenic
Two are systemic and...eponymous, and rare (but you read about them in med school)
Regarding ischemic conditions that cause PSCs...

The Lens book names three besides OIS. What are they?

- Buerger's disease (Thromboangiitis obliterans)
- Ocular ischemic syndrome
- Anterior segment ischemia syndrome
- Takayasu's arteritis (Pulseless disease)

Systemic Systemic Ocular

Ocular

Systemic

In a nutshell, what is Takayasu's arteritis?

An occlusive vasculitis that typically affects larger vessels

What clinically significant effect results from this occlusion?

Takayasu's arteritis (Pulseless disease)

Mnemonic: BOAT

Hints: One is ocular and...iatrogenic
Two are systemic and...eponymous, and rare (but you read about them in med school)
Regarding ischemic conditions that cause PSCs...
The Lens book names three besides OIS.

- Buerger’s disease (Thromboangiitis obliterans)
- Ocular ischemic syndrome
- Anterior segment ischemia syndrome
- Takayasu’s arteritis (Pulseless disease)

In a nutshell, what is Takayasu’s arteritis?

- **occlusive vasculitis**

*What clinically significant effect results from this occlusion?*

Downstream issues related to chronic (or acute-on-chronic) ischemia

**Takayasu’s arteritis (Pulseless disease)**

*Mnemonic: **BOAT***

*Hints: One is ocular and...iatrogenic*

Two are systemic and...eponymous, and rare (but you read about them in med school)
In a nutshell, what is Takayasu’s arteritis?
An occlusive vasculitis that typically affects larger vessels

How ‘large’ are we talking about here?

Takayasu’s arteritis (Pulseless disease)

Mnemonic: BOAT

Hints: One is ocular and…iatrogenic
Two are systemic and…eponymous, and rare (but you read about them in med school)
In a nutshell, what is Takayasu’s arteritis?
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How ‘large’ are we talking about here?

Takayasu’s arteritis (Pulseless disease)

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Hints: One is ocular and...iatrogenic
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- Takayasu’s arteritis (Pulseless disease)

In a nutshell, what is Takayasu’s arteritis?
An occlusive vasculitis that typically affects larger vessels

*How ‘large’ are we talking about here?*
‘The aorta and its major branches’ is the classic description of the affected vessels

**Takayasu’s arteritis (Pulseless disease)**

**Mnemonic:** BOAT

**Hints:** One is ocular and...iatrogenic

Two are systemic and...eponymous, and rare (but you read about them in med school)
In a nutshell, what is Takayasu’s arteritis?
An occlusive vasculitis that typically affects larger vessels

How ‘large’ are we talking about here?
‘The aorta and its major branches’ is the classic description of the affected vessels

Does this include the carotids?

Takayasu’s arteritis (Pulseless disease)

Mnemonic: **BOAT**

*Hints:* One is ocular and...iatrogenic
Two are systemic and...eponymous, and rare (but you read about them in med school)
In a nutshell, what is Takayasu’s arteritis?
An occlusive vasculitis that typically affects larger vessels

How ‘large’ are we talking about here?
‘The aorta and its **major branches**’ is the classic description of the affected vessels

*Does this include the carotids?*
Indeed it does

**Takayasu’s arteritis (Pulseless disease)**

*Mnemonic: BOAT*

*Hints: One is ocular and…iatrogenic*
*Two are systemic and…eponymous, and rare (but you read about them in med school)*
In a nutshell, what is Takayasu’s arteritis?
An occlusive vasculitis that typically affects larger vessels

How ‘large’ are we talking about here?
The aorta and its **major branches** is the classic description of the affected vessels

*Does this include the carotids?*
Indeed it does

*Are the vertebrais ‘major enough’ be affected?*

**Takayasu’s arteritis** *(Pulseless disease)*

**Mnemonic:** **BOAT**

**Hints:** One is ocular and...iatrogenic
Two are systemic and...eponymous, and rare (but you read about them in med school)
In a nutshell, what is Takayasu’s arteritis? An occlusive vasculitis that typically affects larger vessels.

How ‘large’ are we talking about here? ’The aorta and its major branches’ is the classic description of the affected vessels.

Does this include the carotids? Indeed it does.

Are the vertebrales ‘major enough’ be affected? They are indeed.

Takayasu’s arteritis (Pulseless disease)

Mnemonic: BOAT

Hints: One is ocular and...iatrogenic
Two are systemic and...eponymous, and rare (but you read about them in med school)
In a nutshell, what is Takayasu’s arteritis?
An occlusive vasculitis that typically affects larger vessels

How ‘large’ are we talking about here?
‘The aorta and its major branches’ is the classic description of the affected vessels

Does involvement of these vessels put the pt a risk of CNS involvement?

Takayasu’s arteritis ( Pulseless disease )

Mnemonic: BOAT

Hints: One is ocular and... iatrogenic
  Two are systemic and... eponymous, and rare (but you read about them in med school)
In a nutshell, what is Takayasu’s arteritis?
An occlusive vasculitis that typically affects larger vessels

How ‘large’ are we talking about here?
‘The aorta and its major branches’ is the classic description of the affected vessels

Takayasu’s arteritis (Pulseless disease)

Mnemonic: BOAT

Hints: One is ocular and…iatrogenic
Two are systemic and…eponymous, and rare (but you read about them in med school)
Regarding ischemic conditions that cause PSCs…The Lens book names three besides OIS.

- Buerger's disease (Thromboangiitis obliterans)
- Ocular ischemic syndrome
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- Takayasu's arteritis (Pulseless disease)

In a nutshell, what is Takayasu's arteritis?
An occlusive vasculitis that typically affects larger vessels

How ‘large’ are we talking about here?
‘The aorta and its major branches’ is the classic description of the affected vessels

Is it common, or rare?

Mnemonic: **BOAT**

Hints: One is ocular and…iatrogenic
Two are systemic and…eponymous, and rare (but you read about them in med school)
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**In a nutshell, what is Takayasu’s arteritis?**
An occlusive vasculitis that typically affects larger vessels

**How ‘large’ are we talking about here?**
‘The aorta and its major branches’ is the classic description of the affected vessels

**Is it common, or rare?**
Rare

**Takayasu’s arteritis (Pulseless disease)**

*Mnemonic: BOAT*

*Hints: One is ocular and…iatrogenic
Two are systemic and…eponymous, and rare (but you read about them in med school)*
Regarding ischemic conditions that cause PSCs…The Lens book names three besides OIS.

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- Ocular ischemic syndrome
- Anterior segment ischemia syndrome
- Takayasu’s arteritis (Pulseless disease)

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**Systemic**

Ocular

**Systemic**

**Takayasu’s arteritis (Pulseless disease)**

**Mnemonic:** BOAT

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Two are systemic and…eponymous, and rare (but you read about them in med school)
In a nutshell, what is Takayasu’s arteritis?
An occlusive vasculitis that typically affects larger vessels

How ‘large’ are we talking about here?
‘The aorta and its major branches’ is the classic description of the affected vessels

Is it common, or rare?
Rare

Is there a gender predilection?
Yes, it is far more common in women

Is there an age predilection?
Yes, most cases present in early adulthood

Is there an ethnicity predilection?
Yes, it is reported at higher rates in Asian populations

Takayasu’s arteritis (Pulseless disease)

Mnemonic: BOAT

Hints: One is ocular and...iatrogenic
Two are systemic and...eponymous, and rare (but you read about them in med school)
Regarding ischemic conditions that cause PSCs, the Lens book mentions three besides OIS:

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**In a nutshell, what is Takayasu's arteritis?**
An occlusive vasculitis that typically affects larger vessels.

**How 'large' are we talking about here?**
'The aorta and its major branches' is the classic description of the affected vessels.

**Is it common, or rare?**
Rare

**Is there a gender predilection?**
Yes, it is far more common in women

**Is it common, or rare?**
Rare

**Is there a gender predilection?**
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**Takayasu's arteritis (Pulseless disease)**

Mnemonic: **BOAT**

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**In a nutshell, what is Takayasu’s arteritis?**
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**Is it common, or rare?**
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**Is there a gender predilection?**
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**Is there an age predilection?**

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**Takayasu’s arteritis (Pulseless disease)**

*Mnemonic:* **BOAT**

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How ‘large’ are we talking about here?
‘The aorta and its major branches’ is the classic description of the affected vessels

Is it common, or rare?
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Takayasu’s arteritis (Pulseless disease)

Mnemonic: BOAT

Hints: One is ocular and...iatrogenic
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In a nutshell, what is Takayasu’s arteritis?
An occlusive vasculitis that typically affects larger vessels

How ‘large’ are we talking about here?
‘The aorta and its major branches’ is the classic description of the affected vessels

Is it common, or rare?
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Is there a gender predilection?
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Is there an age predilection?
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Is there an ethnicity predilection?

Takayasu’s arteritis (Pulseless disease)

Mnemonic: BOAT

Hints: One is ocular and…iatrogenic
Two are systemic and…eponymous, and rare (but you read about them in med school)
In a nutshell, what is Takayasu’s arteritis?
An occlusive vasculitis that typically affects larger vessels.

How ‘large’ are we talking about here?
‘The aorta and its major branches’ is the classic description of the affected vessels.

Is it common, or rare?
Rare.

Is there a gender predilection?
Yes, it is far more common in women.

Is there an age predilection?
Yes, most cases present in early adulthood.

Is there an ethnicity predilection?
Yes, it is reported at higher rates in Asian populations.

Takayasu’s arteritis (Pulseless disease)

Mnemonic: BOAT

Hints: One is ocular and iatrogenic
Two are systemic and eponymous, and rare (but you read about them in med school)
In a nutshell, what is Takayasu’s arteritis?
An occlusive vasculitis that typically affects larger vessels

How ‘large’ are we talking about here?
‘The aorta and its major branches’ is the classic description of the affected vessels

Is it common, or rare?
Rare

Is there a gender predilection?
Yes, it is far more common in women

Is there an age predilection?
Yes, most cases present in early adulthood

Is there an ethnicity predilection?
Yes, it is reported at higher rates in Asian populations

Takayasu’s arteritis (Pulseless disease)

Mnemonic: BOAT

Hints: One is ocular and...iatrogenic
Two are systemic and...eponymous, and rare (but you read about them in med school)
Hints: One is ocular and iatrogenic. Two are systemic and eponymous, and rare (but you read about them in med school).

If you encounter Takayasu’s (on the OKAP), how is it likely to present?
As a young woman of Asian descent with OIS, TVL, or VF loss.

What nonocular complaints might she have?
Constitutional S/S: Fever, night sweats, weight loss; also joint pain, fatigue.

What is the classic (nonocular) exam finding?
Weak, absent, or asymmetric pulses of the upper extremities (hence the name).

Regarding ischemic conditions that cause PSCs…The Lens book names three besides OIS.

What are they?

- Buerger’s disease (Thromboangiitis obliterans)
- Ocular ischemic syndrome
- Anterior segment ischemia syndrome
- Takayasu’s arteritis (Pulseless disease)

In a nutshell, what is Takayasu’s arteritis?
An occlusive vasculitis that typically affects larger vessels.

How ‘large’ are we talking about here?
‘The aorta and its major branches’ is the classic description of the affected vessels.

Is it common, or rare?
Rare.

Is there a gender predilection?
Yes, it is far more common in women.

Is there an age predilection?
Yes, most cases present in early adulthood.

Is there an ethnicity predilection?
Yes, it is reported at higher rates in Asian populations.

**Takayasu’s arteritis (Pulseless disease)**

If you encounter Takayasu’s (on the OKAP), how is it likely to present?
In a nutshell, what is Takayasu’s arteritis? An occlusive vasculitis that typically affects larger vessels.

How ‘large’ are we talking about here? ‘The aorta and its major branches’ is the classic description of the affected vessels.

Is it common, or rare? Rare

Is there a gender predilection? Yes, it is far more common in women.

Is there an age predilection? Yes, most cases present in early adulthood.

Is there an ethnicity predilection? Yes, it is reported at higher rates in Asian populations.

Takayasu’s arteritis (Pulseless disease)

Mnemonic: BOAT

In a nutshell, what is Takayasu’s arteritis? An occlusive vasculitis that typically affects larger vessels.

Hints: One is ocular and iatrogenic. Two are systemic and eponymous, and rare (but you read about them in med school).

If you encounter Takayasu’s (on the OKAP), how is it likely to present? As a young woman of Asian descent with OIS, TVL, or VF loss.

What nonocular complaints might she have? Constitutional S/S: Fever, night sweats, weight loss; also joint pain, fatigue.

What is the classic (nonocular) exam finding? Weak or absent pulses of the upper extremities (hence the name).
In a nutshell, what is Takayasu’s arteritis?
An occlusive vasculitis that typically affects larger vessels

How ‘large’ are we talking about here?
‘The aorta and its major branches’ is the classic description of the affected vessels

Is it common, or rare?
Rare

Is there a gender predilection?
Yes, it is far more common in women

Is there an age predilection?
Yes, most cases present in early adulthood

Is there an ethnicity predilection?
Yes, it is reported at higher rates in Asian populations

Takayasu’s arteritis (Pulseless disease)

If you encounter Takayasu’s (on the OKAP), how is it likely to present?
As a young woman of Asian descent with OIS, TVL, or VF loss

Hints: One is ocular and iatrogenic
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What nonocular complaints might she have?
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- Ocular ischemic syndrome
- Anterior segment ischemia syndrome
- Takayasu's arteritis (Pulseless disease)
In a nutshell, what is Takayasu’s arteritis? An occlusive vasculitis that typically affects larger vessels.

How ‘large’ are we talking about here? ‘The aorta and its major branches’ is the classic description of the affected vessels.

Is it common, or rare? Rare.

Is there a gender predilection? Yes, it is far more common in women.

Is there an age predilection? Yes, most cases present in early adulthood.

Is there an ethnicity predilection? Yes, it is reported at higher rates in Asian populations.

**Takayasu’s arteritis (Pulseless disease)**

If you encounter Takayasu’s (on the OKAP), how is it likely to present?
As a young woman of Asian descent with OIS, TVL, or VF loss.

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What is the classic (nonocular) exam finding?
Weak or absent pulses of the upper extremities (hence the name).
**Takayasu’s arteritis (Pulseless disease)**

*If you encounter Takayasu’s (on the OKAP), how is it likely to present?*

As a young woman of Asian descent with OIS, TVL, or VF loss

*What nonocular complaints might she have?*

Constitutional S/S: Fever, night sweats, weight loss; also joint pain, fatigue

**In a nutshell, what is Takayasu’s arteritis?**

An occlusive vasculitis that typically affects larger vessels

**How ‘large’ are we talking about here?**

‘The aorta and its major branches’ is the classic description of the affected vessels

**Is it common, or rare?**

Rare

**Is there a gender predilection?**

Yes, it is far more common in women

**Is there an age predilection?**

Yes, most cases present in early adulthood

**Is there an ethnicity predilection?**

Yes, it is reported at higher rates in Asian populations

**Systemic**

- Rare
- Yes, it is more common in women
- Yes, most cases present in early adulthood
- Yes, it is reported at higher rates in Asian populations

**Ocular**

- Mnemonic: BOAT

**Hints:**

- One is ocular and potentially iatrogenic
- Two are systemic and eponymous and rare (but you read about them in med school)

If you encounter Takayasu’s on the OKAP, how is it likely to present?

As a young woman of Asian descent with OIS, TVL, or VF loss

What nonocular complaints might she have?

Constitutional S/S: Fever, night sweats, weight loss; also joint pain, fatigue
**Takayasu’s arteritis (Pulseless disease)**

If you encounter Takayasu’s (on the OKAP), how is it likely to present?
As a young woman of Asian descent with OIS, TVL, or VF loss

*What nonocular complaints might she have?*
Constitutional S/S: Fever, night sweats, weight loss; also joint pain, fatigue

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How ‘large’ are we talking about here?
‘The aorta and its major branches’ is the classic description of the affected vessels

Is it common, or rare?
Rare

Is there a gender predilection?
Yes, it is far more common in women

Is there an age predilection?
Yes, most cases present in early adulthood

Is there an ethnicity predilection?
Yes, it is reported at higher rates in Asian populations

**Takayasu’s arteritis** (Pulseless disease)

If you encounter Takayasu’s (on the OKAP), how is it likely to present?
As a young woman of Asian descent with OIS, TVL, or VFL loss

What nonocular complaints might she have?
Constitutional S/S: Fever, night sweats, weight loss; also joint pain, fatigue

What is the classic (nonocular) exam finding?
Weak, absent, or asymmetric pulses of the upper extremities (hence the name)
Takayasu's arteritis (Pulseless disease)

Mnemonic: BOAT

In a nutshell, what is Takayasu's arteritis?
An occlusive vasculitis that typically affects larger vessels

How ‘large’ are we talking about here?
"The aorta and its major branches" is the classic description of the affected vessels

Is it common or rare?
Rare

Is there a gender predilection?
Yes, it is far more common in women

Is there an age predilection?
Yes, most cases present in early adulthood

Is there an ethnicity predilection?
Yes, it is reported at higher rates in Asian populations

If you encounter Takayasu's (on the OKAP), how is it likely to present?
As a young woman of Asian descent with OIS, TVL, or VF loss

What nonocular complaints might she have?
Constitutional S/S: Fever, night sweats, weight loss; also joint pain, fatigue

What is the classic (nonocular) exam finding?
Weak, absent, or asymmetric pulses of the upper extremities (hence the name)

If an OKAP question refers a young woman of Asian descent with CVA-like symptoms and eye issues, another condition should come to mind. What is it?
Moyamoya
In a nutshell, what is Takayasu's arteritis?
An occlusive vasculitis that typically affects larger vessels.

How ‘large’ are we talking about here?
The aorta and its major branches is the classic description of the affected vessels.

Is there a gender predilection?
Yes, it is far more common in women.

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Yes, most cases present in early adulthood.

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Yes, it is reported at higher rates in Asian populations.

**Takayasu’s arteritis (Pulseless disease)**

If you encounter Takayasu’s (on the OKAP), how is it likely to present?
As a young woman of Asian descent with OIS, TVL, or VF loss.

What nonocular complaints might she have?
Constitutional S/S: Fever, night sweats, weight loss; also joint pain, fatigue.

What is the classic (nonocular) exam finding?
Weak, absent, or asymmetric pulses of the upper extremities (hence the name).
In a nutshell, what is Takayasu's arteritis?
An occlusive vasculitis that typically affects larger vessels.

How ‘large’ are we talking about here?
'The aorta and its major branches' is the classic description of the affected vessels.

Is it common, or rare?
Rare.

Is there a gender predilection?
Yes, it is far more common in women.

Is there an age predilection?
Yes, most cases present in early adulthood.

Is there an ethnicity predilection?
Yes, it is reported at higher rates in Asian populations.

If you encounter Takayasu's (on the OKAP), how is it likely to present?
As a young woman of Asian descent with OIS, TVL, or VF loss.

What nonocular complaints might she have?
Constitutional S/S: Fever, night sweats, weight loss; also joint pain, fatigue.

What is the classic (nonocular) exam finding?
Weak, absent, or asymmetric pulses of the upper extremities (hence the name).

What nonocular complaints might she have?
Constitutional S/S: Fever, night sweats, weight loss; also joint pain, fatigue.

What is moyamoya disease?
An occlusive vascular condition primarily affecting the terminal internal carotids and proximal anterior and middle cerebral arteries.

With what ONH anomaly is moyamoya disease associated?
Morning-glory disc.

In a nutshell, what is morning-glory disc anomaly?
A congenital ONH malformation in which the nerve head appears very large and funneled, and the emerging retinal vessels:
--appear increased in number;
--abnormally straight in their course; and
--emanate from the structure's rim.
In a nutshell, what is Takayasu's arteritis?
An occlusive vasculitis that typically affects larger vessels.

How ‘large’ are we talking about here?
The aorta and its major branches is the classic description of the affected vessels.

If an OKAP question refers a young woman of Asian descent with CVA-like symptoms and eye issues, another condition should come to mind. What is it?
Moyamoya

What is moyamoya disease?
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Weak, absent, or asymmetric pulses of the upper extremities (hence the name)
In a nutshell, what is Takayasu’s arteritis? An occlusive vasculitis that typically affects larger vessels.

How ‘large’ are we talking about here? ‘The aorta and its major branches’ is the classic description of the affected vessels.

If an OKAP question refers a young woman of Asian descent with CVA-like symptoms and eye issues, another condition should come to mind. What is it? Moyamoya.

What is moyamoya disease? An occlusive vascular condition primarily affecting the terminal internal carotids and proximal anterior and middle cerebral arteries.

With what ONH anomaly is moyamoya dz associated? Morning-glory disc anomaly.

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In a nutshell, what is Takayasu's arteritis?
An occlusive vasculitis that typically affects larger vessels

How 'large' are we talking about here?
The arteritis typically affects large vessels in the classic description of the affected vessels

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**Q/A**

**In a nutshell, what is Takayasu's arteritis?**
An occlusive vasculitis that typically affects larger vessels.

**How ‘large’ are we talking about here?**
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**Is it common, or rare?**
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**If you encounter Takayasu’s (on the OKAP), how is it likely to present?**
As a young woman of Asian descent with OIS, TVL, or VF loss.

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Constitutional S/S: Fever, night sweats, weight loss; also joint pain, fatigue.

**What is the classic (nonocular) exam finding?**
Weak, absent, or asymmetric pulses of the upper extremities (hence the name).

**Moyamoya**

**What is moyamoya disease?**
An occlusive vascular condition primarily affecting the terminal internal carotids and proximal anterior and middle cerebral arteries.

**With what ONH anomaly is moyamoya dz associated?**
Morning-glory disc.

**In a nutshell, what is morning-glory disc anomaly?**
A congenital ONH malformation in which the nerve head appears very large, and shape
**Hints:** One is ocular and...iatrogenic
Two are systemic and...eponymous, and rare (but you read about them in med school)

If you encounter Takayasu’s (on the OKAP), how is it likely to present?

As a young woman of Asian descent with OIS, TVL, or VF loss

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What is the classic (nonocular) exam finding?
Weak, absent, or asymmetric pulses of the upper extremities (hence the name)

---

Regarding ischemic conditions that cause PSCs…The Lens book names three besides OIS.

What are they?

- Buerger’s disease (Thromboangiitis obliterans)
- Ocular ischemic syndrome
- Anterior segment ischemia syndrome
- Takayasu’s arteritis (Pulseless disease)

---

**Systemic**

**Ocular**

**Mnemonic:** BOAT

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In a nutshell, what is Takayasu's arteritis? An occlusive vasculitis that typically affects larger vessels.

How 'large' are we talking about here? 'The aorta and its major branches' is the classic description of the affected vessels.

Is it common, or rare? Rare.

Is there a gender predilection? Yes, it is far more common in women.

Is there an age predilection? Yes, most cases present in early adulthood.

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If you encounter Takayasu's (on the OKAP), how is it likely to present? As a young woman of Asian descent with OIS, TVL, or VF loss.

What nonocular complaints might she have? Constitutional S/S: Fever, night sweats, weight loss; also joint pain, fatigue.

What is the classic (nonocular) exam finding? Weak, absent, or asymmetric pulses of the upper extremities (hence the name).

What is moyamoya disease? An occlusive vascular condition primarily affecting the terminal internal carotids and proximal anterior and middle cerebral arteries.

With what ONH anomaly is moyamoya dz associated? Morning-glory disc.

In a nutshell, what is morning-glory disc anomaly? A congenital ONH malformation in which the nerve head appears very large and funneled, and the emerging retinal vessels: --appear increased in number; --are decreased in number.
In a nutshell, what is Takayasu's arteritis?
An occlusive vasculitis that typically affects larger vessels

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A congenital ONH malformation in which the nerve head appears very large and funneled, and the emerging retinal vessels:
--appear increased in number;
--abnormally straight in their course;
straight vs tortuous
**Hints**

One is ocular and...iatrogenic

Two are systemic and...eponymous, and rare (but you read about them in med school)

If you encounter Takayasu's (on the OKAP), how is it likely to present?

As a young woman of Asian descent with OIS, TVL, or VF loss

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Regarding ischemic conditions that cause PSCs...The

- Lens book names three besides OIS.
- Buerger's disease (Thromboangiitis obliterans)
- Ocular ischemic syndrome
- Anterior segment ischemia syndrome
- Takayasu's arteritis (Pulseless disease)

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--appear increased in number;
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--emanate from the structure's location

In a nutshell, what is Takayasu's arteritis?
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What nonocular complaints might she have?
Constitutional S/S: Fever, night sweats, weight loss; also joint pain, fatigue

What is the classic (nonocular) exam finding?
Weak, absent, or asymmetric pulses of the upper extremities (hence the name)
**In a nutshell, what is Takayasu's arteritis?**
An occlusive vasculitis that typically affects larger vessels.

- **How 'large' are we talking about here?**
  'The aorta and its major branches' is the classic description of the affected vessels.

- **Is it common, or rare?**
  Rare.

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  Yes, it is far more common in women.

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**Moyamoya**

**What is moyamoya disease?**
An occlusive vascular condition primarily affecting the terminal internal carotids and proximal anterior and middle cerebral arteries.

**With what ONH anomaly is moyamoya dz associated?**
Morning-glory disc.

**In a nutshell, what is morning-glory disc anomaly?**
A congenital ONH malformation in which the nerve head appears very large and funneled, and the emerging retinal vessels:
--appear increased in number;
--abnormally straight in their course; and
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**What nonocular complaints might she have?**
Constitutional S/S: Fever, night sweats, weight loss; also joint pain, fatigue.

**What is the classic (nonocular) exam finding?**
Weak, absent, or asymmetric pulses of the upper extremities (hence the name).
Morning-glory disc: Lotsa straight vessels emanating from the rim
In a nutshell, what is Takayasu’s arteritis?
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What is the classic (nonocular) exam finding?
Weak, absent, or asymmetric pulses of the upper extremities (hence the name)

For more on moyamoya, see slide-set FELT10
(This is a good point in the set to take a break)
DDx for an OIS-like fundus

?  OIS  ?
DDx for an OIS-like fundus

- Hyperviscosity syndrome
- OIS
- CRVO
The Retina book mentions three causes of hyperviscosity syndrome—what are they?

What key finding strongly suggests an OIS-like presentation is in fact a manifestation of a hyperviscosity syndrome?

If hyperviscosity syndrome is suspected, what tests should be ordered?

DDx for an OIS-like fundus

Hyperviscosity syndrome

? OIS

? CRVO

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**DDx for an OIS-like fundus**

- Hyperviscosity syndrome
  - Waldenström macroglobulinemia
  - Multiple myeloma
  - Polycythemia vera
- OIS
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What key finding strongly suggests an OIS-like presentation is in fact a manifestation of a hyperviscosity syndrome?
The Retina book mentions three causes of hyperviscosity syndrome—what are they?

What key finding strongly suggests an OIS-like presentation is in fact a manifestation of a hyperviscosity syndrome?

If the findings are bilateral
The Retina book mentions three causes of hyperviscosity syndrome—what are they?

What key finding strongly suggests an OIS-like presentation is in fact a manifestation of a hyperviscosity syndrome?
If the findings are bilateral

If hyperviscosity syndrome is suspected, what tests should be ordered?
--?
--?
--?
The Retina book mentions three causes of hyperviscosity syndrome—what are they?

What key finding strongly suggests an OIS-like presentation is in fact a manifestation of a hyperviscosity syndrome? If the findings are **bilateral**

If hyperviscosity syndrome is suspected, what tests should be ordered?
--CBC
--Serum electrophoresis
--Measurement of whole-blood viscosity
What is the mechanism underlying CRVO?

CRVO

DDx for an OIS-like fundus

What is the mechanism underlying CRVO?

CRVO

Ocular Ischemic Syndrome
What is the mechanism underlying CRVO?
Thrombosis of the central retinal vein

DDx for an OIS-like fundus

Ocular Ischemic Syndrome

CRVO
What is the mechanism underlying CRVO?
Thrombosis of the central retinal vein

Where does thrombosis typically occur?
What is the mechanism underlying CRVO?
Thrombosis of the central retinal vein

Where does thrombosis typically occur?
At the lamina cribrosa, or just posterior to it
**Ocular Ischemic Syndrome**

**DDx for an OIS-like fundus**

*What is the mechanism underlying CRVO?*
Thrombosis of the central retinal vein

*Where does thrombosis typically occur?*
At the lamina cribrosa, or just posterior to it

*Do CRVO pts tend to be vasculopaths?*

---

CRVO
DDx for an OIS-like fundus

**What is the mechanism underlying CRVO?**
Thrombosis of the central retinal vein

**Where does thrombosis typically occur?**
At the lamina cribrosa, or just posterior to it

**Do CRVO pts tend to be vasculopathes?**
Yes—HTN is second only to age as a risk factor for CRVO
Hyperviscosity syndrome

**What is the mechanism underlying CRVO?**
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**Where does thrombosis typically occur?**
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What role does vasculopathy play in the genesis of a CRVO?
What is the mechanism underlying CRVO?
Thrombosis of the central retinal vein

Where does thrombosis typically occur?
At the lamina cribrosa, or just posterior to it

Do CRVO pts tend to be vasculopaths?
Yes—HTN is second only to age as a risk factor for CRVO

What role does vasculopathy play in the genesis of a CRVO?
Vasculopathy contributes to the development of atherosclerotic dz, and it’s atherosclerotic changes to retinal arterial vessels that cause them to impinge upon and compress adjacent venous vessels
What is the mechanism underlying CRVO? 
Thrombosis of the central retinal vein

Where does thrombosis typically occur? 
At the lamina cribrosa, or just posterior to it

Do CRVO pts tend to be vasculopaths? 
Yes—HTN is second only to age as a risk factor for CRVO

What role does vasculopathy play in the genesis of a CRVO? 
Vasculopathy contributes to the development of atherosclerotic dz, and it’s atherosclerotic changes to retinal arterial vessels that cause them to impinge upon and compress adjacent venous vessels. Impingement impedes blood flow through the venous vessel, as well as damages its endothelial cells. The combination of endothelial damage and impeded blood flow initiates the clotting cascade, with the result being formation of a thrombus.
**What is the mechanism underlying CRVO?**
Thrombosis of the central retinal vein

**Where does thrombosis typically occur?**
At the lamina cribrosa, or just posterior to it

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**What two DFE findings are the hallmark of an CRVO event?**
--?
--?
What is the mechanism underlying CRVO?
Thrombosis of the central retinal vein

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At the lamina cribrosa, or just posterior to it

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What two DFE findings are the hallmark of an CRVO event?
--Hemorrhages mainly in the nerve fiber layer (FH)
What is the mechanism underlying CRVO?
Thrombosis of the central retinal vein

Where does thrombosis typically occur?
At the lamina cribrosa, or just posterior to it

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Vasculopathy contributes to the development of atherosclerotic dz, and it’s atherosclerotic changes to retinal arterial vessels that cause them to impinge upon and compress adjacent venous vessels. Impingement impedes blood flow through the venous vessel, as well as damages its endothelial cells. The combination of endothelial damage and impeded blood flow initiates the clotting cascade, with the result being formation of a thrombus.

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**Ocular Ischemic Syndrome**

**DDx for an OIS-like fundus**

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OIS and a mild CRVO can be difficult to differentiate from one another.
Ocular Ischemic Syndrome

OIS and a mild CRVO can be difficult to differentiate from one another. For each statement, indicate whether it best applies to OIS, CRVO, or Both.

No question yet--proceed
For each statement, indicate whether it best applies to **OIS, CRVO, or Both**.

- Retinal hemorrhages present:
For each statement, indicate whether it best applies to OIS, CRVO, or Both.

- Retinal hemorrhages present: Both
For each statement, indicate whether it best applies to **OIS**, **CRVO**, or **Both**.

- Retinal hemorrhages present: **Both**
- c/o periorbital ache:
For each statement, indicate whether it best applies to **OIS, CRVO, or Both**.

- Retinal hemorrhages present: **Both**
- c/o periorbital ache: **OIS**
For each statement, indicate whether it best applies to OIS, CRVO, or Both.

- Retinal hemorrhages present: Both
- c/o periorbital ache: OIS
- Retinal veins dilated:
A

Retinal hemorrhages present: Both

C/o periorbital ache: OIS

Retinal veins dilated: Both
For each statement, indicate whether it best applies to **OIS**, **CRVO**, or **Both**.

- Retinal hemorrhages present: **Both**
- c/o periorbital ache: **OIS**
- Retinal veins dilated: **Both**
- Hemorrhages confined to mid-periphery:
For each statement, indicate whether it best applies to **OIS**, **CRVO**, or **Both**.

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For each statement, indicate whether it best applies to OIS, CRVO, or Both.

- Retinal hemorrhages present: **Both**
- c/o periorbital ache: **OIS**
- Retinal veins dilated: **Both**
- Hemorrhages confined to mid-periphery: **OIS**
- Ophthalmodynamometry normal:
For each statement, indicate whether it best applies to \textit{OIS}, \textit{CRVO}, or \textit{Both}.

- Retinal hemorrhages present: \textbf{Both}
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- Retinal veins dilated: **Both**
- Hemorrhages confined to mid-periphery: **OIS**
- Ophthalmodynamometry normal: **CRVO**
- Slow vision loss:
Retinal hemorrhages present: Both

C/o periorbital ache: OIS

Retinal veins dilated: Both

Hemorrhages confined to mid-periphery: OIS

Ophthalmodynamometry normal: CRVO

Slow vision loss: OIS

Ocular Ischemic Syndrome

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Ocular Ischemic Syndrome

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- Ophthalmodynamometry normal: CRVO
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- Retinal veins tortuous:
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- Retinal veins dilated: Both
- Hemorrhages confined to mid-periphery: OIS
- Ophthalmodynamometry normal: CRVO
- Slow vision loss: OIS
- Retinal veins tortuous: CRVO
- Cell and flare present:
For each statement, indicate whether it best applies to **OIS**, **CRVO**, or **Both**.

- Retinal hemorrhages present: **Both**
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- Cell and flare present: **OIS**
- At risk for rubeosis iridis:
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What is the landmark clinical trial dictating management of carotid occlusive disease as is so often associated with OIS?

The Carotid Endarterectomy (CEA) Study

What forms of management were compared in the CEA Study?

It looked at CEA vs antiplatelet therapy for carotid occlusive disease in symptomatic patients

How was symptomatic defined?

Patients had a history of TIA, amaurosis fugax, or nondisabling CVA

What was the major finding of the CEA Study?

The major finding was that treatment risk/benefit ratio was a function of the extent of carotid blockage. Specific recommendations were as follows:

- If blockage was 70-99%: risk of CVA 9% in CEA group, 26% in antiplatelet group; the benefit outweighed the risk, and these patients should be offered CEA
- If blockage was 50-69%: risk of CVA is 16% in CEA, 22% in antiplatelet group; the risk outweighed the benefit, and these patients should not be offered CEA

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It is not uncommon for pts with OIS to have 100% blockage of their ipsilateral carotid artery. Note that 100% blockage of the carotids is a contraindication to CEA, as it is ineffective in these cases.
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What is the landmark clinical trial dictating management of carotid occlusive disease as so often associated with OIS?
The Carotid Endarterectomy Study

What forms of management were compared in the CEA Study?
It looked at CEA vs antiplatelet therapy for carotid occlusive disease in symptomatic patients

How was symptomatic defined?
Patients had a history of TIA, amaurosis fugax, or nondisabling CVA

What was the major finding of the CEA Study?
The major finding was that treatment risk/benefit ratio was a function of the extent of carotid blockage. Specific recommendations were as follows:
If blockage was...
...70-99%: risk of CVA 9% in CEA group, 26% in antiplatelet group; the benefit outweighed the risk, and these patients should be offered CEA
...50-69%: risk of CVA is 16% in CEA, 22% in antiplatelet group; the risk outweighed the benefit, and these patients should not be offered CEA

As an ophthalmology resident, I don’t really need to know this in detail, do I?
Only if you want to do well on the OKAPs and Boards…