Per Stephen Foster MD: When confronted with a retinal vasculitis, the first step is to determine to which of these categories it belongs.
Retinal Vasculitis

- Primarily Arterial
- Both Arterial and Venous
- Primarily Venous

Per Stephen Foster MD: When confronted with a retinal vasculitis, the first step is to determine to which of these categories it belongs.
Retinal Vasculitis

Both Arterial and Venous

Primarily Arterial

Primarily Venous

(Note: The BCSC Retina book asserts that simultaneous involvement of both retinal arterioles and venules is the rule, and that isolated disease of either is distinctly uncommon)
Retinal Vasculitis

Primarily Arterial:
Think of these 3 diseases:

?  
?  
?  

Both Arterial and Venous

Primarily Venous
Retinal Vasculitis

Primarily Arterial: Think of these 3 diseases:
- SLE (systemic lupus erythematosus)
- PAN (polyarteritis nodosa)
- Churg-Strauss

Both Arterial and Venous

Primarily Venous
Retinal Vasculitis

Retinal Vasculitis

- Primarily Arterial:
  Think of these 2 diseases:
  - SLE
  - PAN
  - Churg-Strauss

- Both Arterial and Venous

- Primarily Venous

Neither the Retina nor Uveitis book addresses Churg-Strauss, so with all due respect to Dr. Foster, we will not consider it further. Just file it away as a very rare cause of retinal arteritis.
Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous

Primarily Venous:
Think of these 3 diseases:
- ?
- ?
- ?
Retinal Vasculitis

- Primarily Arterial: Think of these 2 diseases: SLE, PAN
- Both Arterial and Venous
- Primarily Venous: Think of these 3 diseases: Sarcoid, Multiple sclerosis, Birdshot
Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis
- Birdshot

Birdshot is addressed in detail in the set entitled White Dot Syndromes
Retinal Vasculitis

Primarily Arterial: Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous: Think of these 3 diseases:
- ?
- ?
- ?

Primarily Venous: Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis
Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous:
Think of these 3 diseases:
- Behçet’s
- Wegener’s
- Toxoplasmosis

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis
Toxoplasmosis is addressed in detail in its own slide-set
The term ‘Wegener’s granulomatosis’ has fallen out of favor. What term is preferred in its place?
Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous:
Think of these 2 diseases:
- Behçet’s
- Granulomatosis with polyangiitis

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

The term ‘Wegener’s granulomatosis’ has fallen out of favor.
What term is preferred in its place?
‘Granulomatosis with polyangiitis’
Retinal Vasculitis

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- PAN

Both Arterial and Venous:
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What is the name ‘Wegener’s granulomatosis’ no longer preferred?
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- PAN

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Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

The term ‘Wegener’s granulomatosis’ has fallen out of favor.

What is the name ‘Wegener’s granulomatosis’ no longer preferred?
Because Dr. Wegener was a Nazi
Primarily Venous:
Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
- Retinal Vasculitis

Primarily Arterial:
Think of these 3 diseases:
- PAN
- SLE
- MS

Both Arterial and Venous:
Think of these 3 diseases:
- Behçet’s
- MS
- Wegener’s

Who is the classic lupus pt?
A woman of childbearing age
Is there a racial predilection?
Yes, black and Hispanic women are at greater risk than are white women
What proportion of lupus pts manifest retinal findings?
About 5-10%
Why is lupus-associated retinal arteritis such an ominous finding?
It heralds CNS and/or renal involvement with the disease, and carries a high risk of mortality
Given its dire systemic significance, how should lupus-associated retinal arteritis be managed?
With the big dogs: Plasmapheresis + IV cyclophosphamide acutely
Retinal Vasculitis

Who is the classic lupus pt?
A woman of childbearing age

Who is the classic SLE pt?
A woman of childbearing age

Who is the classic PAN pt?
A man of childbearing age

Who is the classic Behçet’s pt?
A man of childbearing age

Who is the classic MS pt?
A woman of childbearing age

Who is the classic Wegener’s pt?
A man of childbearing age

Who is the classic Sarcoid pt?
A man of childbearing age
Primarily Venous:
Think of these 3 diseases:
Sarcoid
Multiple sclerosis
Retinal Vasculitis

Primarily Arterial:
Think of these 3 diseases:
PAN
SLE
MS

Both Arterial and Venous:
Think of these 3 diseases:
Behçet's
MS
Wegener's

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Retinal Vasculitis

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SLE
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Lupus is a multisystem dz with protean manifestations. Which two are most common, found in up to 80% of pts?

- Arthralgias
- __________

What proportion of pts will manifest ophthalmic findings?
About half

Lupus' ophthalmic manifestations are protean. Which two are most common?

- Lid-skin involvement in a rash
- Sjögren syndrome
Primarily Venous:
Think of these 3 diseases:
Sarcoid
Multiple sclerosis
2
Retinal Vasculitis

Primarily Arterial:
Think of these 3 diseases:
PAN
SLE
2
Wegener's

Both Arterial and Venous:
Think of these 3 diseases:
Behçet's
MS
Wegener's

Who is the classic lupus pt?
A woman of childbearing age

Lupus is a multisystem dz with protean manifestations. Which two are most common, found in up to 80% of pts?
--Skin lesions (eg, the classic malar rash)
--Arthralgias

What proportion of pts will manifest ophthalmic findings?
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Retinal Vasculitis

SLE: Malar rash
Primarily Venous:
Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
- Retinal Vasculitis

Primarily Arterial:
Think of these 3 diseases:
- PAN
- SLE
- MS

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- MS
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- Multiple sclerosis
- Retinal Vasculitis

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Think of these 3 diseases:
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- SLE
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- MS
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About half

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--Lid-skin involvement in a rash
--Sjögren syndrome
Primarily Venous:
Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
- Retinal Vasculitis

Primarily Arterial:
Think of these 3 diseases:
- PAN
- SLE
- MS

Both Arterial and Venous:
Think of these 3 diseases:
- Behçet’s
- Retinal Vasculitis
- Wegener’s

Who is the classic lupus pt?
- A woman of childbearing age
- Yes, black and Hispanic women are at greater risk than are white women

What proportion of lupus pts manifest retinal findings?
- About 5-10%

Why is lupus-associated retinal arteritis such an ominous finding?
- It heralds CNS and/or renal involvement with the disease, and carries a high risk of mortality

Given its dire systemic significance, how should lupus-associated retinal arteritis be managed?
- With the big dogs: Plasmapheresis + IV cyclophosphamide acutely
Primarily Venous:
Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
- 2 Retinal Vasculitis

Primarily Arterial:
Think of these 3 diseases:
- PAN
- SLE
- 2 MS
- Wegener's

Both Arterial and Venous:
Think of these 3 diseases:
- Behçet's
- MS
- Wegener's

Who is the classic lupus pt?
A woman of childbearing age

Is there a racial predilection?
Yes, black and Hispanic women are at greater risk than are white women

What proportion of lupus pts manifest retinal findings?
About 3-30%
Primarily Venous:
Think of these 3 diseases:
- Sarcoidosis
- Multiple sclerosis
- 2 Retinal Vasculitis

Primarily Arterial:
Think of these 3 diseases:
- PAN
- SLE
- 2 Multiple sclerosis (MS)

Both Arterial and Venous:
Think of these 3 diseases:
- Behçet's
- MS
- Wegener's

Who is the classic lupus pt?
A woman of childbearing age

Is there a racial predilection?
Yes, black and Hispanic women are at greater risk than are white women

What proportion of lupus pts manifest retinal findings?
About 3-30%

This range represents a compromise between inconsistencies in the BCSC books:
--Rate of lupus retinopathy per the Retina book: 3-10%
--Rate per the Uveitis book: 3-29%
(I rounded to 30 to make it easier to remember)
Who is the classic lupus pt?
A woman of childbearing age

Is there a racial predilection?
Yes, black and Hispanic women are at greater risk than are white women

What proportion of lupus pts manifest retinal findings?
About 3-30%

What retinal findings may occur?
Occlusive events: Asymptomatic cotton wool spots if 'lucky,' an infarcted macula if not
Primarily Venous:
Think of these 3 diseases:
Sarcoid
Multiple sclerosis
Retinal Vasculitis

Primarily Arterial:
Think of these 3 diseases:
PAN
SLE
Wegener's

Both Arterial and Venous:
Think of these 3 diseases:
Behçet's
MS (multiple sclerosis)

Who is the classic lupus pt?
A woman of childbearing age

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Yes, black and Hispanic women are at greater risk than are white women

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Primarily Venous: Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
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Primarily Arterial: Think of these 3 diseases:
- PAN
- SLE
- 34

Both Arterial and Venous: Think of these 3 diseases:
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- MS
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Who is the classic lupus pt?
A woman of childbearing age

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Yes, black and Hispanic women are at greater risk than are white women

What proportion of lupus pts manifest retinal findings?
About 3-30%

CWS are the classic manifestation of lupus retinopathy!

Occlusive events: Asymptomatic cotton wool spots if ‘lucky,’ an infarcted macula if not

(No question—proceed when ready)
Retinal Vasculitis

SLE: CWS
**Retinal Vasculitis**

**Primarily Venous**: Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
- Retinal Vasculitis

**Primarily Arterial**: Think of these 3 diseases:
- PAN
- SLE
- MS

**Both Arterial and Venous**: Think of these 3 diseases:
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About 3-30%

CWS are the classic manifestation of lupus retinopathy!

Is macular infarction also a classic manifestation of lupus retinopathy?

Occlusive events: Asymptomatic cotton wool spots if ‘lucky,’ an infarcted macula if not
Primarily Venous: Think of these 3 diseases:
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- Multiple sclerosis
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Both Arterial and Venous: Think of these 3 diseases:
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- SLE
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CWS are the classic manifestation of lupus retinopathy!

Occlusive events: Asymptomatic cotton wool spots if ‘lucky,’ an infarcted macula if not

Is macular infarction also a classic manifestation of lupus retinopathy?
Thankfully no—it is quite rare
Retinal Vasculitis

SLE: Macular infarction
Primarily Venous:
Think of these 3 diseases:
Sarcoid
Multiple sclerosis
Retinal Vasculitis

Primarily Arterial:
Think of these 3 diseases:
PAN
SLE
Both Arterial and Venous:
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MS
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Retinal Vasculitis

Who is the classic lupus pt?
A woman of childbearing age

What is the fundamental difference between the pathophysiology of CWS and macular infarction?
It’s the size of the vessel involved. CWS result from infarction of tiny end-arterioles of the arterial tree, whereas macular infarction involves the relatively ginormous central retinal artery, or an immediate branch thereof.

CWS are the classic manifestation of lupus retinopathy!

Occlusive events: Asymptomatic if ‘lucky,’ an infarcted macula if not

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retinal vasculitis

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How does this explain the fact that CWS are vastly more common than macular infarction?
It’s because lupus is a microvasculopathy, and thus much more likely to affect end-arterioles.
Retinal Vasculitis

Who is the classic lupus pt?
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- SLE
- MS
(multiple sclerosis)

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A woman of childbearing age

Is there a racial predilection?
Yes, black and Hispanic women are at greater risk than are white women

What proportion of lupus pts manifest retinal findings?
About 3-30%

Why is lupus-associated retinal arteritis an ominous finding?
It heralds CNS and/or renal involvement with the disease, and carries a high risk of mortality

Given its dire systemic significance, how should lupus-associated retinal arteritis be managed?
With the big dogs: Plasmapheresis + IV cyclophosphamide acutely
In a nutshell, what is the pathophysiology of PAN?

Subacute episodes of focal necrotizing inflammation of arteries

Who is the typical PAN pt?

A male between 40 and 60 years old

Is there a racial predilection?

No

PAN is strongly associated with seropositivity for what virus?

Hepatitis B

Primarily Venous:

Think of these 3 diseases:

- Sarcoid
- Multiple sclerosis
- Retinal Vasculitis

Primarily Arterial:

Think of these 3 diseases:

- PAN
- SLE
- MS

Both Arterial and Venous:

Think of these 3 diseases:

- Behçet’s
- MS
- Wegener’s
Primarily Venous:
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Multiple sclerosis
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Primarily Arterial:
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SLE
Both Arterial and Venous:
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MS
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In a nutshell, what is the pathophysiology of PAN?
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Is it a common, or uncommon condition?
Uncommon

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Hepatitis B

Once considered a single entity, PAN is now subdivided into two conditions—what are they?
'Classic' PAN, and microscopic polyangiitis (MP)

What is the difference between the two?
Classic PAN affects medium and small arteries, whereas MP affects smaller arteries


**Primarily Venous:**

Think of these 3 diseases:

- Sarcoid
- Multiple sclerosis
- 2

**Primarily Arterial:**

Think of these 3 diseases:

- PAN
- SLE
- 2

**Both Arterial and Venous:**

Think of these 3 diseases:

- Behçet's
- MS
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Primarily Arterial: Think of these 3 diseases: PAN, SLE, MS

Both Arterial and Venous: Think of these 3 diseases: Behçet’s, MS, Wegener’s

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Primarily Arterial:
Think of these 3 diseases:
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Both Arterial and Venous:
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- MS (multiple sclerosis)
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Subacute episodes of focal necrotizing inflammation of arteries

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What's the difference between a 'small' artery and a 'smaller' artery?
Rule of thumb: Classic PAN only affects arteries large enough to be named, whereas MP only affects vessels smaller than that
Primarily Venous:
Think of these 3 diseases:
Sarcoid
Multiple sclerosis
Retinal Vasculitis

Primarily Arterial:
Think of these 3 diseases:
PAN
SLE
MS (multiple sclerosis)
Wegener’s

Both Arterial and Venous:
Think of these 3 diseases:
Behçet’s
MS
Wegener’s

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---

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Subacute episodes of focal necrotizing inflammation of arteries

*Is it a common, or uncommon condition?*

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Retinal Vasculitis
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- Multiple sclerosis
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Primarily Arterial:
Think of these 3 diseases:
- PAN
- SLE
- MS

Both Arterial and Venous:
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What is the typical presentation of PAN? (Note: It’s not ocular.)
- Constitutional symptoms: Fever, fatigue, weight loss
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SLE
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Behçet’s
MS
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In a nutshell, what is the pathophysiology of PAN?
Subacute episodes of focal necrotizing inflammation of arteries

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No

What proportion of PAN pts develop ocular involvement?
About 20%

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A miserable 10%

What is the 5 year survival rate of treated PAN?
A robust 80%

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What is the typical ocular presentation of PAN? (Head’s up: It’s probably not what you think.)
Peripheral ulcerative keratitis (PUK). It can cause scleritis (both anterior and posterior) as well.

OK fine. What is the typical posterior-pole presentation of PAN?
In a manner consistent with severe HTN.
**Primarily Venous:**

Think of these 3 diseases:
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**Primarily Arterial:**

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In a nutshell, what is the pathophysiology of PAN?

Subacute episodes of focal necrotizing inflammation of arteries

Is it a common, or uncommon condition?

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Who is the typical PAN pt?

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Retinal Vasculitis

PUK (full disclosure: I don’t think it’s 2ndry to PAN)
Retinal Vasculitis

Scleritis (same disclosure)
**Primarily Venous:**

Think of these 3 diseases:

- Sarcoid
- Multiple sclerosis
- Retinal Vasculitis

**Primarily Arterial:**

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What is the typical posterior-pole presentation of PAN? In a manner consistent with severe HTN

Retinal Vasculitis
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Multiple sclerosis
Retinal Vasculitis

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PAN
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Advance to the next slide to see what this entails…

Retinal Vasculitis

In a manner consistent with severe HTN
What process mediates damage caused by acute, severe HTN?
**Retinal Vasculitis**

Acute, severe HTN

What process mediates damage caused by acute, severe HTN?

Vasospasm of arterioles
Retinal Vasculitis

Acute, severe HTN

What process mediates damage caused by acute, severe HTN?

Vasospasm of arterioles

What categories of pathology can result?

?
Acute, severe HTN

What process mediates damage caused by acute, severe HTN?

Vasospasm of arterioles

What categories of pathology can result?

Retinopathy  Choroidopathy  Optic Neuropathy
Acute, severe HTN

What process mediates damage caused by acute, severe HTN?

Vasospasm of arterioles

What categories of pathology can result?

Retinopathy  Choroidopathy  Optic Neuropathy
Acute, severe HTN

*What process mediates damage caused by acute, severe HTN?*

Vasospasm of arterioles

*What categories of pathology can result?*

- Retinopathy
- Choroidopathy
- Optic Neuropathy

- Cotton-wool spots
- Retinal hemorrhages
- Macular star
Retinal Vasculitis

HTN retinopathy
Acute, severe HTN

What process mediates damage caused by acute, severe HTN?

Vasospasm of arterioles

What categories of pathology can result?

Retinopathy
- Retinal hemorrhages
- Cotton-wool spots
- Macular star

Choroidopathy

Optic Neuropathy

Leads to...

Leads to...

Leads to...

Leads to...
Acute, severe HTN

What process mediates damage caused by acute, severe HTN?

Vasospasm of arterioles

What categories of pathology can result?

Retinopathy
- Retinal hemorrhages
- Cotton-wool spots
- Macular star

Choroidopathy
- Choroidal infarction

Optic Neuropathy
- Leads to...
Retinal Vasculitis

HTN choroidopathy with exudative RD
Acute, severe HTN

What process mediates damage caused by acute, severe HTN?

Vasospasm of arterioles

What categories of pathology can result?

Retinopathy
- Cotton-wool spots
- Retinal hemorrhages
- Macular star

Choroidopathy
- Leads to…
- Choroidal infarction
- Leads to…
- Exudative RD

Optic Neuropathy
- Leads to…
- ?
Acute, severe HTN

What process mediates damage caused by acute, severe HTN?

Vasospasm of arterioles

What categories of pathology can result?

Retinopathy
- Cotton-wool spots
- Retinal hemorrhages
- Macular star

Choroidopathy
- Leads to...
- Choroidal infarction
- Leads to...
- Exudative RD

Optic Neuropathy
- Leads to...
- Disc edema, hemorrhages
Retinal Vasculitis

HTN optic neuropathy
Granulomatosis with polyangiitis

Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous:
Think of these 2 diseases:
- Behçet’s
- Granulomatosis

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

Who is the typical Bechet’s disease (BD) pt?
Retinal Vasculitis

Primarily Arterial: Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous: Think of these 2 diseases:
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- Granulomatosis

Primarily Venous: Think of these 2 diseases:
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Who is the typical Behçet’s disease (BD) pt?
An individual of ‘Silk Road’ descent age 25-35
Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- SLE
- PAN

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- Sarcoid
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Who is the typical Behçet’s disease (BD) pt?
An individual of ‘Silk Road’ descent age 25-35

What is/was the Silk Road?

The Silk Road was an ancient trading route extending from the eastern Mediterranean to the Far East. It passed through the Middle East, Turkey, China, Korea, and Japan.
Retinal Vasculitis

Primarily Arterial: Think of these 2 diseases:
- SLE
- PAN

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What is/was the Silk Road?
An ancient trading route extending from the eastern Mediterranean to the Far East
Retinal Vasculitis
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What is/was the Silk Road?
An ancient trading route extending from the eastern Mediterranean to the Far East

What regions/countries are found along the Silk Road?
Retinal Vasculitis

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What regions/countries are found along the Silk Road?
The Middle East; Turkey; China; Korea; Japan
Retinal Vasculitis

Both Arterial and Venous: Think of these 2 diseases:

- Behçet's
- Granulomatosis
- Sarcoid
- Multiple sclerosis

Who is the typical Behçet's disease (BD) pt?
An individual of 'Silk Road' descent age 25-35

What is/was the Silk Road?
The Middle East; Turkey; China; Korea; Japan

Which of these areas has the highest rate of BD?
Turkey
Retinal Vasculitis

Primarily Arterial: Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous: Think of these 2 diseases:
- Behçet’s
- Granulomatosis

Primarily Venous: Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

Who is the typical Behçet’s disease (BD) pt?
An individual of ‘Silk Road’ descent age 25-35

What is/was the Silk Road?

Which of these areas has the highest rate of BD?
Turkey

What regions/countries are found along the Silk Road?
The Middle East, Turkey, China, Korea, Japan
Retinal Vasculitis

Primarily Arterial: Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous: Think of these 2 diseases:
- Behçet’s
- Granulomatosis

Primarily Venous: Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

Who is the typical Bechet’s disease (BD) pt?
An individual of ‘Silk Road’ descent age 25-35

What the classic nonocular complaint in BD?
Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous:
Think of these 2 diseases:
- Behçet’s
- Granulomatosis

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

Who is the typical Bechet’s disease (BD) pt?
An individual of ‘Silk Road’ descent age 25-35

What the classic nonocular complaint in BD?
Recurrent oral ulcers
Retinal Vasculitis

Behçet: Oral aphthae
Retinal Vasculitis

**Primarily Arterial:**
Think of these 2 diseases:
- SLE
- PAN

**Both Arterial and Venous:**
Think of these 2 diseases:
- Behçet’s
- Granulomatosis

**Primarily Venous:**
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

Who is the typical Bechet’s disease (BD) pt?
An individual of ‘Silk Road’ descent age 25-35

What the classic nonocular complaint in BD?
Recurrent oral ulcers

Are the oral ulcers painful?
Retinal Vasculitis

Primarily Arterial: Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous: Think of these 2 diseases:
- Behçet’s
- Granulomatosis

Primarily Venous: Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

Who is the typical Bechet's disease (BD) pt?
An individual of ‘Silk Road’ descent age 25-35

What the classic nonocular complaint in BD?
Recurrent oral ulcers

Are the oral ulcers painful?
Yes, very
Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous:
Think of these 2 diseases:
- Behçet’s
- Granulomatosis

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

Who is the typical Bechet’s disease (BD) pt?
An individual of ‘Silk Road’ descent age 25-35

What the classic nonocular complaint in BD?
Recurrent oral ulcers

In addition to oral ulcers, what three other nonocular findings are common?
Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous:
Think of these 2 diseases:
- Behçet’s
- Granulomatosis

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

Who is the typical Bechet’s disease (BD) pt?
An individual of ‘Silk Road’ descent age 25-35

What the classic nonocular complaint in BD?
Recurrent oral ulcers

In addition to oral ulcers, what three other nonocular findings are common?
--Skin rash
--Genital ulcers
--Arthralgias
Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:

SLE
PAN

Both Arterial and Venous:
Think of these 2 diseases:

Behçet's
Granulomatosis

Primarily Venous:
Think of these 2 diseases:

Sarcoid
Multiple sclerosis

Who is the typical Behçet's disease (BD) pt?
An individual of ‘Silk Road’ descent age 25-35

What the classic nonocular complaint in BD?
Recurrent oral ulcers

In addition to oral ulcers, what other nonocular findings are common?
--Genital ulcers
--Arthralgias

What is the classic rash?
Erythema nodosum
The pre-tibial region
Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous:
Think of these 2 diseases:
- Behçet’s
- Granulomatosis

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

Who is the typical Behçet’s disease (BD) pt?
An individual of ‘Silk Road’ descent age 25-35

What the classic nonocular complaint in BD?
Recurrent oral ulcers

In addition to oral ulcers, what three other nonocular findings are common?

- Skin rash
- Erythema nodosum
- Genital ulcers
- Arthralgias

What is the classic rash?
Erythema nodosum
Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous:
Think of these 2 diseases:
- Behçet’s
- Granulomatosis

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

Who is the typical Behçet’s disease (BD) pt?
An individual of ‘Silk Road’ descent age 25-35

What the classic nonocular complaint in BD?
Recurrent oral ulcers

In addition to what other nonocular findings are common?

Skin rash
- Erythema nodosum
- Genital ulcers
- Arthralgias

What is the classic rash?
- Erythema nodosum

Where is the classic location?
Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous:
Think of these 2 diseases:
- Behçet’s
- Granulomatosis

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

Who is the typical Bechet’s disease (BD) pt?
An individual of ‘Silk Road’ descent age 25-35

What the classic nonocular complaint in BD?
Recurrent oral ulcers

In addition to nonocular findings are common?

皮肤疹

What is the classic rash?
Erythema nodosum

Where is the classic location?
The pre-tibial region
Retinal Vasculitis

Erythema nodosum in Behçet
Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous:
Think of these 2 diseases:
- Behçet’s
- Wegener’s

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

Who is the typical Behçet’s disease (BD) pt?
An individual of ‘Silk Road’ descent age 25-35

What is the classic nonocular complaint in BD?
Recurrent oral ulcers

In addition to oral ulcers, what three other nonocular findings are common?
- Skin rash
- Genital ulcers
- Arthralgias

What is the cause of BD?
It is unknown at this time
Retinal Vasculitis

Primarily Arterial: Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous: Think of these 2 diseases:
- Behçet’s
- Granulomatosis

Primarily Venous: Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

Who is the typical Behçet’s disease (BD) pt?
An individual of ‘Silk Road’ descent age 25-35

What is the cause of BD? It is unknown at this time

What the classic nonocular complaint in BD?
Recurrent oral ulcers

In addition to oral ulcers, what three other nonocular findings are common?
-- Skin rash
-- Genital ulcers
-- Arthralgias
Retinal Vasculitis

Primarily Arterial: Think of these 2 diseases:
- PAN
- SLE

Both Arterial and Venous: Think of these 2 diseases:
- Behçet's
- Granulomatosis

Primarily Venous: Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

Who is the typical BD pt?
An individual of 'Silk Road' descent age 25-35

What is the classic nonocular complaint in BD?
Recurrent oral ulcers

In addition to oral ulcers, what three other nonocular findings are common?
-- Skin rash
-- Genital ulcers
-- Arthralgias

Is ocular involvement common in BD?
Yes; estimates of ocular involvement run as high as 70%

Does BD pose a significant threat to long-term ocular health, and/or vision?
Yes—severe vision loss results in as many as 25% of ocular BD cases.
Retinal Vasculitis

Primarily Arterial: Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous: Think of these 2 diseases:
- Behçet's
- Granulomatosis

Primarily Venous:
- Sarcoid
- Multiple sclerosis

Who is the typical BD pt?
An individual of 'Silk Road' descent age 25-35

What is the classic nonocular complaint in BD?
Recurrent oral ulcers

In addition to oral ulcers, what three other nonocular findings are common?
-- Skin rash
-- Genital ulcers
-- Arthralgias

Is ocular involvement common in BD?
Yes; estimates of ocular involvement run as high as 70%
Granulomatosis Retinal Vasculitis

Retinal Vasculitis

Both **Arterial** and **Venous**:
Think of these 3 diseases:

- PAN
- SLE
- Behçet’s

Primarily **Arterial**:
Think of these 2 diseases:

- SLE
- PAN

Primarily **Venous**:
Think of these 2 diseases:

- Behçet’s
- Multiple sclerosis

Who is the typical BD pt?
An individual of ‘Silk Road’ descent age 25-35

What is the classic nonocular complaint in BD?
Recurrent oral ulcers

What are three other nonocular findings common?
--Skin rash
--Genital ulcers
--Arthralgias

Is ocular involvement common in BD?
Yes; estimates of ocular involvement run as high as 70%

Does BD pose a significant threat to long-term ocular health, and/or vision?

In addition to oral ulcers, what three other nonocular findings are common?
--Skin rash
--Genital ulcers
--Arthralgias
Retinal Vasculitis

Both Arterial and Venous:
Think of these 3 diseases:
- PAN
- SLE
- Behçet’s

Primary Arterial:
Think of these 3 diseases:
- Retinal Vasculitis
- PAN
- Granulomatosis

Primary Venous:
Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
- Behçet’s

Who is the typical BD pt?
An individual of ‘Silk Road’ descent age 25-35

What is the classic nonocular complaint in BD?
Recurrent oral ulcers

In addition to oral ulcers, what three other nonocular findings are common?
--Skin rash
--Genital ulcers
--Arthralgias

Is ocular involvement common in BD?
Yes; estimates of ocular involvement run as high as 70%

Does BD pose a significant threat to long-term ocular health, and/or vision?
Mos def--severe vision loss results in as many as 25% of ocular BD cases
Granulomatosis Retinal Vasculitis

Primary Arterial: Think of these 2 diseases:
- SLE
- PAN

Primary Venous: Think of these 2 diseases:
- Behçet’s
- Granulomatosis

Both Arterial and Venous: Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

What is ocular involvement common in BD?

What is the most common form of ocular involvement? (It’s not retinal vasculitis.)

Does BD pose a significant threat to long-term ocular health, and/or vision?
Mos def--severe vision loss results in as many as 25% of ocular BD cases

In addition to oral ulcers, what three other nonocular findings are common?
--Skin rash
--Genital ulcers
--Arthralgias
Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous:
Think of these 2 diseases:
- Behçet’s
- Granulomatosis

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

What is the most common form of ocular involvement? (It’s not retinal vasculitis.)
- Acute vs chronic
- Granulomatous vs nongranulomatous

What else poses a significant threat to long-term ocular health, and/or vision?
- Mos def--severe vision loss results in as many as 25% of ocular BD cases

In addition to oral ulcers, what three other nonocular findings are common?
- Skin rash
- Genital ulcers
- Arthralgias
Granulomatosis Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous:
Think of these 2 diseases:
- Behçet’s
- Granulomatosis

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

Is ocular involvement common in BD?

What is the most common form of ocular involvement? (It’s not retinal vasculitis.)
Acute nongranulomatous anterior uveitis, often with a hypopyon

Does BD pose a significant threat to long-term ocular health, and/or vision?
Mos def--severe vision loss results in as many as 25% of ocular BD cases

In addition to oral ulcers, what three other nonocular findings are common?
--Skin rash
--Genital ulcers
--Arthralgias
Retinal Vasculitis

BD: Hypopyon
Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- PAN
- SLE

Both Arterial and Venous:
Think of these 2 diseases:
- Behçet's
- Granulomatosis

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

Is ocular involvement common in BD?

What is the most common form of ocular involvement? (It's not retinal vasculitis.)
Acute nongranulomatous anterior uveitis, often with a hypopyon

What then Recurre
Does BD pose a significant threat to long-term ocular health, and/or vision?
Mos def--severe vision loss results in as many as 25% of ocular BD cases

In addition to oral ulcers, what three other nonocular findings are common?

Can BD retinal vasculitis lead to retinal ischemia with subsequent neovascularization?
Retinal Vasculitis

Both Arterial and Venous:
Think of these 2 diseases:

- Behçet’s
- Granulomatosis

Primarily Arterial:
Think of these 2 diseases:

- SLE
- PAN

Primarily Venous:
Think of these 2 diseases:

- Sarcoid
- Multiple sclerosis

Can BD retinal vasculitis lead to retinal ischemia with subsequent neovascularization?
Yes—it is an occlusive vasculitis, so ischemia is a common occurrence, and is a significant cause of ocular morbidity and vision loss.

In addition to oral ulcers, what three other nonocular findings are common?
--Skin rash--Genital ulcers--Arthralgias

What is the most common form of ocular involvement? (It’s not retinal vasculitis.)
Acute nongranulomatous anterior uveitis, often with a hypopyon

Does BD pose a significant threat to long-term ocular health, and/or vision?
No—severe vision loss results in as many as 25% of ocular BD cases

What is ocular involvement common in BD?

Is ocular involvement common in BD?

Who is the typical BD pt?
An individual of 'Silk Road' descent age 25-35

What the classic nonocular complaint in BD?
Recurrent oral ulcers

In addition to oral ulcers, what three other nonocular findings are common?
Retinal Vasculitis

BD: Occlusive vasculitis
Granulomatosis Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous:
Think of these 2 diseases:
- Behçet's
- Granulomatosis (especially sarcoid)

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

What is ocular involvement common in BD?
- Is it ocular involvement common in BD?
  - Yes, estimates of ocular involvement run as high as 70%

What is the most common form of ocular involvement? (It's not retinal vasculitis.)
- Acute nongranulomatous anterior uveitis, often with a hypopyon

How is the diagnosis of BD made?
- Clinical diagnosis—there are no specific tests for it

Can BD retinal vasculitis lead to retinal ischemia with subsequent neovascularization?
- Yes—it is an occlusive vasculitis, so ischemia is a common occurrence, and is a significant cause of ocular morbidity and vision loss
**Retinal Vasculitis**

Primarily Arterial:
Think of these 2 diseases:
- SLE
- PAN

Behçet's

Retinal Vasculitis

Both Arterial and Venous:
Think of these 2 diseases:

**Granulomatosis**

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

What is the most common form of ocular involvement? (It's not retinal vasculitis.)
Acute nongranulomatous anterior uveitis, often with a hypopyon

How is the diagnosis of BD made?
It is a clinical diagnosis—there are no specific tests for it

Can BD retinal vasculitis lead to retinal ischemia with subsequent neovascularization?
Yes—it is an occlusive vasculitis, so ischemia is a common occurrence, and is a significant cause of ocular morbidity and vision loss

Who is the typical BD pt?
An individual of 'Silk Road' descent age 25-35

What is the classic nonocular complaint in BD?
Recurrent oral ulcers

In addition to oral ulcers, what three other nonocular findings are common?
- Skin rash
- Genital ulcers
- Arthralgias

Is ocular involvement common in BD?
Yes; estimates of ocular involvement run as high as 70%

Does BD pose a significant threat to long-term ocular health, and/or vision?
Mos def--severe vision loss results in as many as 25% of ocular BD cases
Retinal Vasculitis

**Primarily Arterial:**
Think of these 2 diseases:

- SLE
- PAN

**Both Arterial and Venous:**
Think of these 2 diseases:

- Behçet’s

**Primarily Venous:**
Think of these 2 diseases:

- Sarcoid
- Multiple sclerosis

Is ocular involvement common in BD?

*What is the most common form of ocular involvement? (It’s not retinal vasculitis.)*

Acute nongranulomatous anterior uveitis, often with a hypopyon

How is the diagnosis of BD made?

It is a clinical diagnosis—there are no specific tests for it

What is the HLA association for BD?

- HLA-B51 is associated with ocular BD

Can BD retinal vasculitis lead to retinal ischemia with subsequent neovascularization?

Yes—it is an occlusive vasculitis, so ischemia is a common occurrence, and is a significant cause of ocular morbidity and vision loss
Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous:
Think of these 2 diseases:
- Behçet’s
- Granulomatosis

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

Is ocular involvement common in BD?

What is the most common form of ocular involvement? (It’s not retinal vasculitis.)
Acute nongranulomatous anterior uveitis, often with a hypopyon

How is the diagnosis of BD made?
It is a clinical diagnosis—there are no specific tests for it

What is the HLA association for BD?
There are several; HLA-B51 is associated with ocular BD

Can BD retinal vasculitis lead to retinal ischemia with subsequent neovascularization?
Yes—it is an occlusive vasculitis, so ischemia is a common occurrence, and is a significant cause of ocular morbidity and vision loss
Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- PAN
- SLE

Primarily Venous:
Think of these 2 diseases:
- Behçet’s
- Sarcoid

Both Arterial and Venous:
Think of these 2 diseases:
- Wegener’s
- Multiple sclerosis

For more on Behçet’s, see the self-titled slide-set

Can BD retinal vasculitis lead to retinal ischemia with subsequent neovascularization?
Yes—it is an occlusive vasculitis, so ischemia is a common occurrence, and is a significant cause of ocular morbidity and vision loss.
Retinal Vasculitis

Primarily Arterial: Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous: Think of these 2 diseases:
- Behçet’s
- Granulomatosis with polyangiitis

Primarily Venous: Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

granulomatosis with polyangiitis (GwP)

If you’re having trouble remembering that granulomatosis with polyangiitis (GwP) is the entity formerly known as Wegener’s…
Retinal Vasculitis

- Primarily Arterial: Think of these 2 diseases:
  - SLE
  - PAN
- Both Arterial and Venous: Think of these 2 diseases:
  - Behçet’s
  - Granulomatosis with polyangiitis
- Primarily Venous: Think of these 2 diseases:
  - Sarcoid
  - Multiple sclerosis

Granulomatosis with polyangiitis (GwP)

If you’re having trouble remembering that granulomatosis with polyangiitis (GwP) is the entity formerly known as Wegener’s… think of the little ‘w’ as standing for ‘Wegener’s’
Retinal Vasculitis

Primarily Arterial: Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous: Think of these 2 diseases:
- Behçet’s
- Granulomatosis with polyangiitis

Primarily Venous: Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

What is the classic triad of granulomatosis with polyangiitis (GwP)?

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--
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Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous:
Think of these 2 diseases:
- Behçet’s
- Granulomatosis with polyangiitis

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

What is the classic triad of granulomatosis with polyangiitis (GwP)?
Necrotizing vasculitis of:
--the upper and lower respiratory tract
--the kidneys
--small and medium-sized arteries and veins
Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:

Both Arterial and Venous:
Think of these 2 diseases:
- Behçet’s
- Granulomatosis with polyangiitis

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

What is the classic presentation of upper respiratory tract involvement?

What is the classic triad of granulomatosis with polyangiitis (GwP)?
Necrotizing vasculitis of:
--the upper and lower respiratory tract
--the kidneys
--small and medium-sized arteries and veins
Retinal Vasculitis

Primarily Arterial: Think of these 2 diseases:

Both Arterial and Venous: Think of these 2 diseases:

Primarily Venous: Think of these 2 diseases:

What is the classic triad of granulomatosis with polyangiitis (GwP)? Necrotizing vasculitis of:
--the upper and lower respiratory tract
--the kidneys
--small and medium-sized arteries and veins

What is the classic presentation of upper respiratory tract involvement?
Sinusitis with bloody discharge

Retinal Vasculitis

PAN
SLE
Behçet’s
Granulomatosis with polyangiitis
Sarcoid
Multiple sclerosis
Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:

Both Arterial and Venous:
Think of these 2 diseases:

- Behçet’s
- Granulomatosis with polyangiitis

Primarily Venous:
Think of these 2 diseases:

- Sarcoid
- Multiple sclerosis

What is the classic triad of granulomatosis with polyangiitis (GwP)? Necrotizing vasculitis of:
--the upper and lower respiratory tract
--the kidneys
--small and medium-sized arteries and veins

What is the classic presentation of upper respiratory tract involvement?
Sinusitis with bloody discharge
Primarily Venous: Think of these 3 diseases:

- Sarcoid
- Multiple sclerosis
- Retinal Vasculitis

Primarily Arterial: Think of these 2 diseases:

- PAN
- SLE

Both Arterial and Venous: Think of these 3 diseases:

- Granulomatosis with polyangiitis
- Behçet’s
- Retinal Vasculitis

What is the classic presentation of upper respiratory tract involvement?

- Sinusitis with bloody discharge

What is the classic presentation of lower respiratory tract involvement?

- Cough (+/- hemoptysis), wheezing, etc

What is the classic triad of granulomatosis with polyangiitis (GwP)?

- Necrotizing vasculitis of: upper and lower respiratory tract
- the kidneys
- small and medium-sized arteries and veins
Primarily Venous:
Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
- Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- Behcet's
- Granulomatosis with polyangiitis

What is the classic triad of granulomatosis with polyangiitis (GwP)?
Necrotizing vasculitis of:
- the upper and lower respiratory tract
- the kidneys
- small and medium-sized arteries and veins

What is the classic presentation of lower respiratory tract involvement?
A variety of pulmonary S/S: Cough (+/- hemoptysis), wheezing, etc

What is the classic presentation of upper respiratory tract involvement?
Sinusitis with bloody discharge
**Primarily Venous:**
Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
- 2

**Primarily Arterial:**
Think of these 2 diseases:
- Behçet’s
- Granulomatosis with polyangiitis

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**What is the classic presentation of lower respiratory tract involvement?**
A variety of pulmonary S/S: Cough (+/- hemoptysis), wheezing, etc

**What is the classic presentation of upper respiratory tract involvement?**
Sinusitis with bloody discharge

---

**What is the classic triad of granulomatosis with polyangiitis (GwP)?**
Necrotizing vasculitis of:
- the **upper** and **lower respiratory tract**
- the **kidneys**
- small and medium-sized arteries and veins

**What specific pathologic renal condition is caused by GwP?**
Glomerulonephritis

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**Retinal Vasculitis**
Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

Primarily Arterial:
Think of these 2 diseases:
- Behçet’s
- Granulomatosis with polyangiitis

What is the classic presentation of upper respiratory tract involvement?
Sinusitis with bloody discharge

What is the classic presentation of lower respiratory tract involvement?
A variety of pulmonary S/S: Cough (+/- hemoptysis), wheezing, etc

What is the classic triad of granulomatosis with polyangiitis (GwP)?
Necrotizing vasculitis of:
--the upper and lower respiratory tract
--the kidneys
--small and medium-sized arteries and veins

What specific pathologic renal condition is caused by GwP?
Glomerulonephritis
Retinal Vasculitis

Of the three, which does the Uveitis book describe as “the most characteristic clinical feature” of GwP?

Primarily Arterial:
Think of these 2 diseases:
- Sinusitis
- Behçet’s

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

What is the classic presentation of lower respiratory tract involvement? A variety of pulmonary S/S: Cough (+/- hemoptysis), wheezing, etc

What is the classic triad of granulomatosis with polyangiitis (GwP)? Necrotizing vasculitis of:
- the upper and lower respiratory tract
- the kidneys
- small and medium-sized arteries and veins

What specific pathologic renal condition is caused by GwP?
- Glomerulonephritis

What is the classic presentation of upper respiratory tract involvement? Sinusitis with bloody discharge

What is the classic presentation of upper respiratory tract involvement?

Granulomatosis with polyangiitis
Retinal Vasculitis

Of the three, which does the Uveitis book describe as “the most characteristic clinical feature” of GwP?

Sinus dz

Primarily Arterial: Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
- Behçet’s

Primarily Venous: Think of these 2 diseases:
- SLE
- PAN

What is the classic triad of granulomatosis with polyangiitis (GwP)?
Necrotizing vasculitis of:
- the upper and lower respiratory tract
- the kidneys
- small and medium-sized arteries and veins

What is the classic presentation of upper respiratory tract involvement?
Sinusitis with bloody discharge

What is the classic presentation of lower respiratory tract involvement?
A variety of pulmonary S/S: Cough (+/- hemoptysis), wheezing, etc

What is the specific pathologic renal condition caused by GwP?
Glomerulonephritis
Primarily Venous:
Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
- Retinal Vasculitis

Primarily Arterial:
Think of these 3 diseases:
- PAN
- SLE
- Behçet’s

Both Arterial and Venous:
Think of these 3 diseases:
- Granulomatosis with polyangiitis

What is the classic triad of granulomatosis with polyangiitis (GwP)?
Necrotizing vasculitis of:
--the upper and lower respiratory tract
--the kidneys
--small and medium-sized arteries and veins

What is the classic presentation of upper respiratory tract involvement?
Sinusitis with bloody discharge

What is the classic presentation of lower respiratory tract involvement?
A variety of pulmonary S/S: Cough (+/- hemoptysis), wheezing, etc

What is the classic finding on CT?
Bony destruction of the sinuses

What specific pathologic renal condition is caused by GwP?
Glomerulonephritis
Primarily Venous:
Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
- Retinal Vasculitis

Primarily Arterial:
Think of these 3 diseases:
- PAN
- SLE
- Behçet’s

Both Arterial and Venous:
Think of these 3 diseases:
- Granulomatosis with polyangiitis

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Retinal Vasculitis

A) CT scan of the sinus in a patient with GwP, showing nasal septum perforation (arrow) and maxillary sinusitis with some degree of maxillary sinusitis and atrophy, with osteosclerosis and bony thickening of the paranasal sinuses. B) CT scan of the sinus in a patient with GwP showing sinusitis and sinus wall erosion leading to the formation of a communication (fistula) between right maxillary sinus, nasal cavity and orbit (double-headed arrow)

GwP: Sinusitis
Primarily Venous:
Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
- 2

Primarily Arterial:
Think of these 3 diseases:
- PAN
- SLE
- Behçet's

Both Arterial and Venous:
Think of these 3 diseases:
- Granulomatosis with polyangiitis

What is the classic triad of granulomatosis with polyangiitis (GwP)?
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What specific pathologic renal condition is caused by GwP?
Glomerulonephritis

What is the classic finding on CT?
Bony destruction of the sinuses

Arterial:
What is the classic presentation of upper respiratory tract involvement?
Sinusitis with bloody discharge

What is the classic presentation of lower respiratory tract involvement?
A variety of pulmonary S/S: Cough (+/- hemoptysis), wheezing, etc

Granulomatosis with polyangiitis

Retinal:
What is the classic finding on CT?
Cavitary lung lesions

Retinal Vasculitis

Next Q
**Primarily Venous:**
Think of these diseases:
- Sarcoid
- Multiple sclerosis

**Primarily Arterial:**
Think of these diseases:
- Behçet’s
- Granulomatosis with polyangiitis
- PAN
- SLE

**Arterial:**
Think of these diseases:
- Retinal Vasculitis
- 2

**What is the classic presentation of upper respiratory tract involvement?**
- Sinusitis with bloody discharge

**What is the classic presentation of lower respiratory tract involvement?**
- A variety of pulmonary S/S: Cough (+/- hemoptysis), wheezing, etc

**What is the classic finding on CT?**
- Bony destruction of the sinuses
- Cavitary lung lesions

**What is the classic triad of granulomatosis with polyangiitis (GwP)?**
- Necrotizing vasculitis of:
  - the **upper** and **lower respiratory tract**
  - the **kidneys**
  - small and medium-sized arteries and veins

**What specific pathologic renal condition is caused by GwP?**
- Glomerulonephritis
Retinal Vasculitis

GwP: Cavitary lung lesions
Primarily Venous:
Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
- Retinal Vasculitis

Primarily Arterial:
Think of these 3 diseases:
- PAN
- SLE
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Both Arterial and Venous:
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A variety of pulmonary S/S: Cough (+/- hemoptysis), wheezing, etc

What specific pathologic renal condition is caused by GwP?
Glomerulonephritis

What lab findings result?
Hematuria and proteinuria
Primarily Venous: Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
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Primarily Arterial: Think of these 3 diseases:
- PAN
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Both Arterial and Venous: Think of these 3 diseases:
- Granulomatosis with polyangiitis
- Wegener’s
- Churg-Strauss

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- the **upper** and **lower** respiratory tract
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Cavitary lung lesions

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What is the classic presentation of *upper* respiratory tract involvement?
Sinusitis with bloody discharge

What lab findings result?
Hematuria and proteinuria

What specific pathologic renal condition is caused by GwP?
Glomerulonephritis

Two other manifestations are common as well—what are they?
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Two other manifestations are common as well—what are they?
--Rash
--Arthralgias

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What is the classic finding on CT?
Granulomatosis with polyangiitis

What proportion of GwP pts have ophthalmic involvement?
About half

What is the most common manifestation of that involvement? (It’s not retinal.)
Orbital inflammation

What is the next most common manifestation? (Still not retinal.)
Scleritis (including PUK)

Retinal Vasculitis
Primarily Venous:
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--Rash
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**Primarily Venous:**
Think of these 3 diseases:
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- Multiple sclerosis
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**Primarily Arterial:**
Think of these 3 diseases:
- PAN
- SLE
- Behçet's

**Arterial and Venous:**
Think of these 3 diseases:
- Granulomatosis with polyangiitis

**What is the classic triad of granulomatosis with polyangiitis (GwP)?**
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**What lab findings result?**
Hematuria and proteinuria

**What specific pathologic renal condition is caused by GwP?**
Glomerulonephritis

**OK then, what proportion of GwP pts manifest vasculitis?**
About 10%

**What is the classic presentation of upper respiratory tract involvement?**
Sinusitis with bloody discharge

**What is the next most common manifestation? (Still not retinal.)**
Scleritis (including PUK)

**What specific pathologic renal condition is caused by GwP?**
Glomerulonephritis

**What lab findings result?**
Hematuria and proteinuria

**Two other manifestations are common as well—what are they?**
- Rash
- Arthralgias

---

**Retinal Vasculitis**

**What is the classic presentation of retinal vasculitis?**
- CWS, or arterial occlusions (branch or central)
**Primarily Venous:**
Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
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**Primarily Arterial:**
Think of these 3 diseases:
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**Retinal Vasculitis**

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About 10%

**How does retinal vasculitis manifest?**

(It’s not retinal.)
- Orbital inflammation
- Sinusitis with bloody discharge

**What is the classic presentation of upper respiratory tract involvement?**
Sinusitis with bloody discharge

**What is the next most common manifestation? (Still not retinal.)**
Scleritis (including PUK)

**What is the classic finding on CT?**
- Bony destruction of the sinuses
- Cavitary lung lesions

**What specific pathologic renal condition is caused by GwP?**
Glomerulonephritis

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**What is the classic presentation of lower respiratory tract involvement?**
A variety of pulmonary S/S: Cough (+/- hemoptysis), wheezing, etc

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**What is the classic finding on CT?**

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--Arthralgias

What is the prognosis for untreated GwP?
Dismal—the 1-yr mortality rate is 80%

What is the treatment of choice?
Steroids + cyclophosphamide

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- Sarcoid
- Multiple sclerosis
- Retinal Vasculitis

**Primarily Arterial:**

Think of these 3 diseases:
- PAN
- SLE
- Behçet’s

**Arterial and Venous:**

Think of these 3 diseases:
- Granulomatosis with polyangiitis
- Behçet’s
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What is the classic triad of granulomatosis with polyangiitis (GwP)?
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What is the classic presentation of upper respiratory tract involvement?
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**What is the classic finding on CT?**
- Orbital inflammation

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**What proportion of GwP pts have ophthalmic involvement?**
- About half

**What is the next most common manifestation of that involvement?**
- Scleritis (including PUK)

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**What is the treatment of choice?**
- Steroids + cyclophosphamide

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**OK then, what proportion of GwP pts manifest vasculitis?**
- About 10%

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**How does retinal vasculitis manifest?**
- As CWS, or arterial occlusions (branch or central)

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**What is the classic finding on CT?**
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**What specific pathologic renal condition is caused by GwP?**
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Cyclophosphamide is an extremely harsh drug—why not tx with steroids alone?

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Retinal Vasculitis

In broadest terms, how would you describe sarcoid?

Primarily Venous:
Think of these 2 diseases:

Sarcoid

Multiple sclerosis
In broadest terms, how would you describe sarcoid?

It is a multi-organ disease characterized by the presence of noncaseating granulomas.

What is the cause? As of this writing, it is unknown.

What organ/system is most commonly involved in sarcoid? The lungs.

Which other organ systems can be involved? Pretty much all of them.

What percentage of sarcoid pts have ocular involvement? About 50.

Who is the typical sarcoid pt in the US? An African-American.

During what age-range does dz onset typically occur? Usually 20 to 50.
In broadest terms, how would you describe sarcoid?
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Primarily
Arterial:
Think of these 3 diseases:

PAN
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Both Arterial and Venous:
Think of these 3 diseases:

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Multiple sclerosis
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In broadest terms, how would you describe sarcoid? It is a multi-organ disease characterized by the presence of noncaseating granulomas.

What is the cause? As of this writing, it is unknown.

What organ/system is most commonly involved in sarcoid? The lungs.

Which other organ systems can be involved? Pretty much all of them.

What percentage of sarcoid pts have ocular involvement? About 50.

Primarily Venous: Think of these 2 diseases:
- **Sarcoid**
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**Retinal Vasculitis**

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How about world-wide? Which ethnic group has the highest prevalence of sarcoid?
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- SLE
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**Both Arterial and Venous:**
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**What is the classic CXR finding?**
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**If CXR is read as normal, but clinical suspicion for sarcoidosis remains high, what other imaging modality should be considered?**
Thin cut CT of the chest

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Retinal Vasculitis
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Primarily Arterial:
Think of these 2 diseases:
- SLE
- PAN

Both Arterial and Venous:
Think of these 2 diseases:
- Behçet’s
- Granulomatosis with polyangiitis

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis

What percentage of sarcoid uveitis pts have posterior manifestations?
Retinal Vasculitis

- Primarily Arterial: Think of these 2 diseases:
  - SLE
  - PAN
- Both Arterial and Venous: Think of these 2 diseases:
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What are the two most common posterior manifestations?
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What percentage of sarcoid uveitis pts have posterior manifestations?
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What are the two most common posterior manifestations?
--Granulomas of the choroid, retina and/or optic nerve
--Retinal vasculitis
Choroidal granulomas in sarcoid
Choroidal granulomas in sarcoid. Note the ‘punched out’ appearance
Retinal Vasculitis

ONH granuloma in sarcoid
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Is the vasculitis primarily an arteritis, a phlebitis, or both?
Sarcoid tends to cause a phlebitis (more specifically, a periphlebitis)

What is the classic appearance of sarcoid periphlebitis?
Small yellowish-white nodular granulomas accumulate along venules in a pattern referred to as candle-wax drippings

What French term for candle-wax drippings is encountered frequently in the ophthalmic literature?
Taches de bougie
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- "216"

What is the first-line med for sarcoid uveitis?
- Steroids
  - Topical, periocular or systemic?
  - Yes

What other treatment is important to include, and why?
- Cycloplegia (if there is a significant anterior component), both for comfort and to prevent synechiae

If steroid therapy fails to yield adequate control, what is the next step?
- Immunomodulatory therapy (eg, methotrexate, azathioprine or cyclosporine)

What about biologics--are they useful in controlling sarcoid uveitis?
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Wegener's
Retinal Vasculitis

What is the first-line med for sarcoid uveitis? Steroids

*Topical, periocular or systemic?*
All three can be considered

What other treatment is important to include, and why?
Cycloplegia (if there is a significant anterior component), both for comfort and to prevent synechiae

If steroid therapy fails to yield adequate control, what is the next step?
Immunomodulatory therapy (eg, methotrexate, azathioprine or cyclosporine)

Retinal Vasculitis

What about biologics--are they useful in controlling sarcoid uveitis?
Yes, specifically with infliximab (Remicade)
Primarily Venous:
Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis

Primarily Arterial:
Think of these 3 diseases:
- PAN
- SLE
- Behçet’s

Both Arterial and Venous:
Think of these 3 diseases:
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For more on Sarcoid, see its self-titled slide-set
Who is the typical multiple sclerosis pt?

Who is the typical multiple sclerosis pt?
Who is the typical multiple sclerosis pt?
A young to middle-age white female

Specific age range per:
--the Uveitis book: 20-50
--the Neuro-Oph book: 25-40
--EyeWiki: 15-45

Retinal Vasculitis
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A young to middle-age white female

Is there a geographic association?

Primarily
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Retinal Vasculitis

In a nutshell, what pathologic process is the culprit in MS?
Autoimmune destruction of myelin, leading to axonal damage

In general terms (ie, not ophthalmic), how does MS present?
With multiple neurologic deficits that relapse and remit—the infamous 'lesions separated in space and time'
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Is there a geographic association?
Yes, it is more common among individuals who live relatively far from the equator
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What is the cause?

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Is ophthalmic involvement common in MS?
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SLE
Behçet’s

Both Arterial and Venous:
Wegener’s
Retinal Vasculitis

Retinal Vasculitis

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- 2

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Think of these 3 diseases:
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- Systemic lupus erythematosus (SLE)
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Both Arterial and Venous:
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Retinal Vasculitis

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5-10%
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Is MS more common in males or females?
It is more common in females, the ratio is 3:2

Is there a difference in presentations for male vs female pts?
Yes, female pts present with more cognitive symptoms and depression

In a nutshell, what pathologic process is the culprit in MS?
Autoimmune destruction of myelin, leading to axonal damage

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Multiple sclerosis

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Per the Neuro-Oph book: 25%
Per EyeWiki: 20%

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Is optic neuritis in MS present unilaterally, or bilaterally?
It is almost always unilateral

Venous:
Think of these 2 diseases:

- Sarcoid
- Multiple sclerosis

Optic neuritis

Retinal Vasculitis

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How common is uveitis in MS?
Estimates vary widely, ranging from <1% to 30%. Which form of uveitis is most likely in MS?
Intermediate. If you encounter an intermediate-uveitis pt on the OKAP, think MS first (and sarcoid a distant second).

At long last, a retinal vasculitis question: What proportion of MS pts manifest evidence of phlebitis?
5-10%

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Per the Neuro-Oph book: 0.4-26%
Per the Uveitis book: ‘Up to 30%’
Per EyeWiki: 1-2%

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Both Arterial and Venous:
Think of these 3 diseases:
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Does intermediate uveitis in MS present unilaterally, like optic neuritis does?
Just the opposite—it is almost always bilateral

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Two more conditions worth discussing (by way of a hint: both names are eponyms)
Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
- SLE
- PAN
- Susac syndrome

Both Arterial and Venous:
Think of these 2 diseases:
- Behçet’s
- Granulomatosis with polyangiitis

Primarily Venous:
Think of these 2 diseases:
- Sarcoid
- Multiple sclerosis
- Eales disease

Two more conditions worth discussing (by way of a hint: both names are eponyms)
What is Susac syndrome?

Susac syndrome

What is Eales disease?

Eales disease

Retinal Vasculitis

Granulomatosis with polyangiitis

Retinal Vasculitis

Both Arterial and Venous:

Think of these 3 diseases:

SLE Sarcoid Toxoplasmosis

Primarily Arterial:

Think of these 3 diseases:

Primarily Venous:

Think of these 3 diseases:

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What is Eales disease?

An obliterative retinal vasculopathy

Does it present unilaterally, or bilaterally?

Bilaterally

Who is the classic patient?

Young-adult male from India

What is the classic retinal finding?

Peripheral neovascularization

Classic association?

Tests positive for TB

What is Susac syndrome?

An obliterative retinal vasculopathy

Does it present unilaterally, or bilaterally?

Bilaterally

Who is the classic patient?

Young-adult female

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Multiple BRAOs occurring at non-branch points

Classic association?

Sensorineural hearing loss
Granulomatosis with polyangiitis

Behçet’s

Retinal Vasculitis

Both Arterial and Venous:

Think of these 3 diseases:

SLE
PAN
Sarcoid

Primarily Arterial:

Think of these 3 diseases:

Toxoplasmosis

Primarily Venous:

Think of these 3 diseases:

Susac syndrome
Eales disease

What is Susac syndrome?
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Granulomatosis with polyangiitis (GPA) and Behçet’s disease can present with retinal vasculitis.

**Retinal Vasculitis**
- **Both Arterial and Venous**

Think of these 3 diseases:
- SLE
- PAN
- Sarcoid

**Primarily Arterial**
Think of these 3 diseases:
- Toxoplasmosis

**Primarily Venous**
Think of these 3 diseases:
- Susac syndrome
- Eales disease
- Primarily Venous

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**Eales disease**
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**Susac syndrome**
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  - Multiple BRAOs occurring at non-branch points
- Classic association?
  - Sensorineural hearing loss
Retinal Vasculitis

2. Granulomatosis with polyangiitis

3. Behçet's disease

4. Retinal Vasculitis

Both Arterial and Venous:

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- SLE
- PAN
- Sarcoid

Primarily Arterial:

Think of these 3 diseases:

- Toxoplasmosis

Primarily Venous:

Think of these 3 diseases:

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Behçet's

Retinal Vasculitis

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**Susac syndrome**

**Eales disease**
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Bilaterally

What is Eales disease?
An obliterative retinal vasculitis

Does it present unilaterally, or bilaterally?
Bilaterally


**Retinal Vasculitis**

- **What is Susac syndrome?**
  - An obliterative retinal vasculitis

- **Does it present unilaterally, or bilaterally?**
  - Bilaterally

- **Who is the classic patient?**
  - Young-adult female

- **What is Eales disease?**
  - An obliterative retinal vasculitis

- **Does it present unilaterally, or bilaterally?**
  - Bilaterally

- **Who is the classic patient?**
  - Young-adult male from India

- **What is the classic retinal finding?**
  - Peripheral neovascularization

- **Classic association?**
  - Tests positive for TB

- **What is Susac syndrome?**
  - An obliterative retinal vasculitis

- **Does it present unilaterally, or bilaterally?**
  - Bilaterally

- **Who is the classic patient?**
  - Young-adult female

- **What is the classic retinal finding?**
  - Multiple BRAOs occurring at non-branch points

- **Classic association?**
  - Sensorineural hearing loss
**Granulomatosis with polyangiitis**

**Behçet's**

**Retinal Vasculitis**

**Both Arterial and Venous:**

Think of these 3 diseases:

**SLE**

**Sarcoid**

**Toxoplasmosis**

**Primarily Arterial:**

Think of these 3 diseases:

**Susac syndrome**

**Eales disease**

Who: Young adult **females**

What is **Eales disease**?
An obliterative retinal vasculitis

Does it present unilaterally, or bilaterally?
Bilaterally

Who is the classic patient?
Young-adult male from India

What is the classic retinal finding?
Peripheral neovascularization

Classic association?
Tests positive for TB

What is **Susac syndrome**?
An obliterative retinal vasculitis

Does it present unilaterally, or bilaterally?
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Who is the classic patient?
Young-adult female

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Classic association?
Sensorineural hearing loss
Retinal Vasculitis

What is Susac syndrome?
An obliterative retinal vasculitis

Does it present unilaterally, or bilaterally?
Bilaterally

Who is the classic patient?
Young-adult female

Susac syndrome
Who: Young adult females

What is Eales disease?
An obliterative retinal vasculitis

Does it present unilaterally, or bilaterally?
Bilaterally

Who is the classic patient?

Eales disease
Who:
Retinal Vasculitis

What is Susac syndrome?
An obliterative retinal vasculitis

Does it present unilaterally, or bilaterally?
Bilaterally

Who is the classic patient?
Young-adult female

Eales disease
Who: Young adult males

What is Eales disease?
An obliterative retinal vasculitis

Does it present unilaterally, or bilaterally?
Bilaterally

Who is the classic patient?
Young-adult male from India

Susac syndrome
Who: Young adult females
Retinal Vasculitis

**Granulomatosis with polyangiitis**
**Behçet’s**

**Retinal Vasculitis**

**Both Arterial and Venous:**

Think of these 3 diseases:

**SLE**
**Sarcoid**

Primarily Arterial:

Think of these 3 diseases:

**Primarily Venous:**

Think of these 3 diseases:

Who:

Young adult males

What:

Peripheral neo

Associated with:

TB positivity

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**Susac syndrome**

Who: Young adult females

What:

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**Eales disease**

Who: Young adult males

What is Susac syndrome?
An obliterative retinal vasculitis

Does it present unilaterally, or bilaterally?
Bilaterally

Who is the classic patient?
Young-adult female

What is the classic retinal finding?

---

What is Eales disease?
An obliterative retinal vasculitis

Does it present unilaterally, or bilaterally?
Bilaterally

Who is the classic patient?
Young-adult male from India

What is the classic retinal finding?

Peripheral neovascularization

Classic association?
Tests positive for TB

What is Eales disease?
An obliterative retinal vasculitis

Does it present unilaterally, or bilaterally?
Bilaterally

Who is the classic patient?
Young-adult male from India

What is the classic retinal finding?

Peripheral neovascularization

Classic association?
Tests positive for TB
Retinal Vasculitis

**Susac syndrome**
- Who: Young adult females
- What: Multiple BRAOs

**Eales disease**
- Who: Young adult males

**What is Eales disease?**
- An obliterative retinal vasculitis
  - Does it present unilaterally, or bilaterally?
    - Bilaterally
  - Who is the classic patient?
    - Young-adult male from India
  - What is the classic retinal finding?
    - Peripheral neovascularization
  - Classic association?
    - Tests positive for TB

**What is Susac syndrome?**
- An obliterative retinal vasculitis
  - Does it present unilaterally, or bilaterally?
    - Bilaterally
  - Who is the classic patient?
    - Young-adult female
  - What is the classic retinal finding?
    - Multiple BRAOs occurring at non-branch points
Susac syndrome. Note the area of infarct doesn’t correspond to a branch-point blockage
Susac syndrome. Note the multiple areas of arteriolar inflammation and blockage at non-branch points
Granulomatosis with polyangiitis
Behçet's

2
Retinal Vasculitis

Both Arterial and Venous:
Think of these 3 diseases:

- SLE
- Sarcoid
- Toxoplasmosis

Primarily Arterial:
Think of these 3 diseases:

Primarily Venous:
Think of these 3 diseases:

SUSAC syndrome
Who: Young adult females
What: Multiple BRAOs

Eales disease
Who: Young adult males
What:

What is Susac syndrome?
An obliterative retinal vasculitis
Does it present unilaterally, or bilaterally?
Bilaterally
Who is the classic patient?
Young-adult female
What is the classic retinal finding?
Multiple BRAOs occurring at non-branch points

What is Eales disease?
An obliterative retinal vasculitis
Does it present unilaterally, or bilaterally?
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Who is the classic patient?
Young-adult male from India
What is the classic retinal finding?
Peripheral neovascularization
Classic association?
Tests positive for TB
Retinal Vasculitis

**Granulomatosis with polyangiitis**

**Behçet’s**

**2**

**Retinal Vasculitis**

Both Arterial and Venous:

Think of these 3 diseases:

- SLE
- Sarcoid
- Toxoplasmosis

Primarily Arterial:

Think of these 3 diseases:

- Susac syndrome
- Eales disease
- Classic association?
  - Tests positive for TB

Primarily Venous:

Think of these 3 diseases:

- Peripheral neo
- Who: Young adult females
- What: Multiple BRAOs

**Susac syndrome**

Who: Young adult females
What: Multiple BRAOs

**Eales disease**

Who: Young adult males
What: Peripheral neo
Retinal Vasculitis

Eales disease: Peripheral neo
Retinal Vasculitis

Granulomatosis with polyangiitis
Behçet’s

2 Retinal Vasculitis

Both Arterial and Venous:
Think of these 3 diseases:

SLE
Sarcoid
Toxoplasmosis

Primarily Arterial:
Think of these 3 diseases:

Ehlers-Danlos
SAPHO
Takayasu’s

Primarily Venous:
Think of these 3 diseases:

Susac syndrome
Eales disease
Central retinal artery occlusion

Who:
Young adult males

What:
Peripheral neovascularization

What is Susac syndrome?
An obliterative retinal vasculitis

Does it present unilaterally, or bilaterally?
Bilaterally

Who is the classic patient?
Young-adult females

What is the classic retinal finding?
Multiple BRAOs occurring at non-branch points

Classic associations (Note: there are two)?

Susac syndrome
Who: Young adult females
What: Multiple BRAOs
Associated with:

Eales disease
Who: Young adult males
What: Peripheral neovascularization

What is Eales disease?
An obliterative retinal vasculitis

Does it present unilaterally, or bilaterally?
Bilaterally

Who is the classic patient?
Young-adult male from India

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Peripheral neovascularization

Classic association?
Tests positive for TB
**Retinal Vasculitis**

**Susac syndrome**  
**Who:** Young adult females  
**What:** Multiple BRAOs  
**Associated with:** Hearing loss; encephalopathy

**Eales disease**  
**Who:** Young adult males  
**What:** Peripheral neo

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**What is Susac syndrome?**  
An obliterative retinal vasculitis

**Does it present unilaterally, or bilaterally?**  
Bilaterally

**Who is the classic patient?**  
Young-adult female

**What is the classic retinal finding?**  
Multiple BRAOs occurring at non-branch points

**Classic associations (Note: there are two)?**  
Sensorineural hearing loss; encephalopathy

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**What is Eales disease?**  
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Tests positive for TB
**Retinal Vasculitis**

- **Susac syndrome**
  - **Who:** Young adult females
  - **What:** Multiple BRAOs
  - **Associated with:** Hearing loss; encephalopathy

- **Eales disease**
  - **Who:** Young adult males
  - **What:** Peripheral neo
  - **Associated with:**

- **What is Susac syndrome?**
  - An obliterative retinal vasculitis
- **Does it present unilaterally, or bilaterally?**
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**Granulomatosis with polyangiitis**

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**Both Arterial and Venous:**

Think of these 3 diseases:

- SLE
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**Primarily Arterial:**

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- Susac syndrome
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- **Classic associations (Note: there are two)?**
  - Sensorineural hearing loss; encephalopathy
Retinal Vasculitis

**Susac syndrome**
- **Who**: Young adult females
- **What**: Multiple BRAO
- **Associated with**: Hearing loss; encephalopathy

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**Classic associations (Note: there are two)?**
Sensorineural hearing loss; encephalopathy

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**Eales disease**
- **Who**: Young adult males
- **What**: Peripheral neo
- **Associated with**: TB positivity

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**Classic association?**
Tests positive for TB
Retinal Vasculitis

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**Primarily Arterial:**
Think of these **2** diseases:
- SLE
- PAN

**Both Arterial and Venous:**
Think of these **2** diseases:
- Behçet’s
- Granulomatosis with polyangiitis

**Primarily Venous:**
Think of these **2** diseases:
- Sarcoid
- Multiple sclerosis

---

**Susac syndrome**
*Who:* Young adult females
*What:* Multiple BRAOs
*Associated with:* Hearing loss; encephalopathy

**Eales disease**
*Who:* Young adult males
*What:* Peripheral neo
*Associated with:* TB positivity

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**High-yield points to remember about these two conditions**