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

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

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

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

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

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

Toxoplasmosis is addressed in detail in its own slide-set
Retinal Vasculitis

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

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

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

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:
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- Multiple sclerosis

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

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

What is the name ‘Wegener’s granulomatosis’ no longer preferred?
Retinal Vasculitis

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Primarily Venous: Think of these 2 diseases:
- Sarcoid
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The term ‘Wegener’s granulomatosis’ has fallen out of favor.

Why 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
Behçet's

Both Arterial and Venous:
Think of these 3 diseases:
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
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
- Wegener’s
- MS (multiple sclerosis)

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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
- (multiple sclerosis)
- Wegener’s

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- SLE
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**Both Arterial and Venous:**

Think of these 3 diseases:
- Behçet's
- MS
- Wegener's

*Who is the classic lupus pt?*
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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?*
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*Why is lupus-associated retinal arteritis such an ominous finding?*
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Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
- Retinal Vasculitis

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

Arterial and Venous:
Think of these 3 diseases:
- Behçet’s
- Multiple sclerosis
- Wegener’s

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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)
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?
--
--

About 5-10% of lupus pts manifest retinal findings.

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

Primarily Arterial: Think of these 3 diseases: PAN

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

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

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
Retinal Vasculitis

SLE: Malar rash
Primarily Venous: Think of these 3 diseases: Sarcoidosis, 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, 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

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About 5-10%

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What proportion of pts will manifest ophthalmic findings?
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)

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With the big dogs: Plasmapheresis + IV cyclophosphamide acutely

What proportion of lupus pts manifest retinal findings?
About 5-10%
Primarily Venous:
Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
- 2

Retinal Vasculitis

Primarily Arterial:
Think of these 3 diseases:
- PAN
- SLE
- 2

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

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- 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)
- MS

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- Retinal Vasculitis

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

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?
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With the big dogs: Plasmapheresis + IV cyclophosphamide acutely.
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:
Sarcoid
Multiple sclerosis
Retinal Vasculitis

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

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

Who is the classic lupus pt?
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With the big dogs: Plasmapheresis + IV cyclophosphamide acutely

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
- 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

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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%

What retinal findings may occur?
Oclusive events: Asymptomatic cotton wool spots if ‘lucky,’ an infarcted macula if not
Retinal Vasculitis

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%

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
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:
- MS (multiple sclerosis)
- Wegener's
- MS

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 manifests 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

Is macular infarction also a classic manifestation of lupus retinopathy?
Primarily Venous:
Think of these 3 diseases:
Sarcoid
Multiple sclerosis
2
Retinal Vasculitis

Primarily Arterial:
Think of these 3 diseases:
PAN
SLE
2
Both Arterial and Venous:
Think of these 3 diseases:
Behçet’s
MS (multiple sclerosis)
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%

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
- Behçet’s (multiple sclerosis)

Both Arterial and Venous:
Think of these 3 diseases:
- Multiple sclerosis
- Wegener’s
- Lupus

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%

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

What retinal findings may occur?
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

CWS are the classic manifestation of lupus retinopathy!

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.

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?
A woman of childbearing age

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How does this explain the fact that CWS are vastly more common than macular infarction?

CWS are the classic manifestation of lupus retinopathy!

Occlusive events: Asymptomatic if ‘lucky,’ and non-visual if not

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

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

- **Both Arterial and Venous**:
  - Think of these 3 diseases:
    - Wegener’s
    - Behçet’s
    - MS (multiple sclerosis)

- **Primarily Venous**:
  - Think of these 3 diseases:
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    - Toxoplasmosis
    - Birdshot

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

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Multiple sclerosis
Retinal Vasculitis

Primarily Arterial:
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PAN
SLE
Wegener's

Both Arterial and Venous:
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Behçet's
MS
(Multiple sclerosis)

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Multiple sclerosis
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SLE
Sarcoid

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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: MS, Wegener's, Behçet's

In a nutshell, what is the pathophysiology of PAN?

Subacute episodes of focal necrotizing inflammation of arteries

Is it a common, or uncommon condition?

Uncommon

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
In a nutshell, what is the pathophysiology of PAN?
Subacute episodes of focal necrotizing inflammation of arteries
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

In a nutshell, what is the pathophysiology of PAN?
Subacute episodes of focal necrotizing inflammation of arteries

Once considered a single entity, PAN is now subdivided into two conditions—what are they?

PAN is strongly associated with seropositivity for what virus?
- Hepatitis B

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

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
In a nutshell, what is the pathophysiology of PAN?
Subacute episodes of focal necrotizing inflammation of arteries

Once considered a single entity, PAN is now subdivided into two conditions—what are they? ‘Classic’ PAN, and microscopic polyangiitis (MP)
Primarily Venous:
Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
- Retinal Vasculitis

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

Retinal Vasculitis

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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?
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:
- Multiple sclerosis (MS)
- Wegener’s
- In a nutshell, what is the pathophysiology of PAN?
  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.
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Retinal Vasculitis

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

Both Arterial and Venous:
Think of these 3 diseases:
Behçet's
Wegener's
In a nutshell, what is the pathophysiology of PAN?
Subacute episodes of focal necrotizing inflammation of arteries

Is it a common, or uncommon condition?
Uncommon

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

Retinal Vasculitis
Primarily Venous:
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Primarily Arterial: Think of these 3 diseases: PAN, SLE, Multiple sclerosis

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

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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:
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- MS (multiple sclerosis)
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What is the typical presentation of PAN? (Note: It's not ocular.)
Constitutional symptoms: Fever, fatigue, weight loss. Renal vasculitis resulting in secondary HTN is common.

What proportion of PAN pts develop ocular involvement?
About 20%
Primarily Venous:
Think of these 3 diseases:
- Sarcoid
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What is the 5 year survival rate of treated PAN?
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- 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

Retinal Vasculitis
Primarily Venous:
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Multiple sclerosis
Retinal Vasculitis

Primarily Arterial:
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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:
Think of these 3 diseases:
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What process mediates damage caused by acute, severe HTN?
Acute, severe HTN

What process mediates damage caused by acute, severe HTN?

Vasospasm
of arterioles
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
Retinal Vasculitis

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
  - Cotton-wool spots
  - Retinal hemorrhages
  - Macular star

Choroidopathy
  - Leads to...
  - ?

Optic Neuropathy
  - Leads to...
  - ?
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
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...

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

An ancient trading route extending from the eastern Mediterranean to the Far East

Regions/countries 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:
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Primarily Venous:
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Retinal Vasculitis
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- PAN

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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?

Which of these areas has the highest rate of BD?
The Middle East; Turkey; China; Korea; Japan
Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
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Both Arterial and Venous:
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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?

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

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Who is the typical Bechet’s disease (BD) pt?
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What the classic nonocular complaint in BD?
Retinal Vasculitis

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What the classic nonocular complaint in BD?
Recurrent oral ulcers
Behçet: Oral aphthae
Retinal Vasculitis

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What the classic nonocular complaint in BD?
Recurrence oral ulcers

Are the oral ulcers painful?
Retinal Vasculitis

Both Arterial and Venous:
Think of these 2 diseases:

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Think of these 2 diseases:
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What the classic nonocular complaint in BD?
Recurrence oral ulcers

Are the oral ulcers painful?
Yes, very
**Retinal Vasculitis**

- Primarily Arterial: Think of these 2 diseases:
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- Both *Arterial* and *Venous*: Think of these 2 diseases:
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**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?**
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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

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
-- Genital ulcers
-- Arthralgias

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 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 the above, what other nonocular findings are common?
- Genital ulcers
- Arthralgias

What is the classic rash?
Skin rash
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

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 skin rash (erythema nodosum), other nonocular findings are common?

What is the classic rash?
Erythema nodosum

Where is the classic location?
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
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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?

What is the classic rash?
Erythema nodosum

Skin rash

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

Erythema nodosum in Behçet
Retinal Vasculitis

Primarily Arterial: Think of these 2 diseases:
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- PAN

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- Behçet’s
- Granulomatosis

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

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An individual of ‘Silk Road’ descent age 25-35

What is the classic nonocular complaint in BD?
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--Genital ulcers
--Arthralgias
Retinal Vasculitis

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- Granulomatosis

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- 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

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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%
Retinal Vasculitis

Both Arterial and Venous:
Think of these 2 diseases:

Arterial:
- PAN

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%

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

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

**What are the classic nonocular complaints in BD?**
- Recurrent oral ulcers

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

**Is ocular involvement common in BD?**
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**Does BD pose a significant threat to long-term ocular health, and/or vision?**
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Granulomatosis Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:

SLE
PAN

Both Arterial and Venous:
Think of these 2 diseases:

Behçet's
Grumulomatosis

Primarily Venous:
Think of these 2 diseases:

Sarcoid
Multiple sclerosis

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

What the Recurre

Does BD pose a significant threat to long-term ocular health, and/or vision?
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What is the most common form of ocular involvement? (It's not retinal vasculitis.)
Granulomatosis Retinal Vasculitis

Retinal Vasculitis

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

Both Arterial and Venous:
Think of these 3 diseases:
- Wegener's
- Sarcoid
- Multiple sclerosis

Primarily Venous:
Think of these 3 diseases:
- Behçet's
- 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 classic finding.

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

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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

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:
  - 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 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?

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

Retinal Vasculitis

Primarily Arterial:
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  - SLE
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Both Arterial and Venous:
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Primarily Venous:
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What is ocular involvement common in BD?

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

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

BD: Occlusive vasculitis
Granulomatosis Retinal Vasculitis

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

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

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

What is ocular involvement common in BD?
- 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 are the nonocular findings common in BD?
- In addition to oral ulcers:
  - Skin rash
  - Genital ulcers
  - Arthralgias

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
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What is the HLA association for BD?

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Granulomatosis Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:

- PAN
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Behçet’s

Retinal Vasculitis

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Think of these 2 diseases:

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Primarily Venous:
Think of these 2 diseases:

- Granulomatosis
- Sarcoid

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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
Granulomatosis 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:

SLE
PAN

Sarcoid
Multiple sclerosis

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

Retinal Vasculitis

Behçet’s

Acute nongranulomatous anterior uveitis, often with a hypopyon

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Genital ulcers
Arthralgias

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

- 
- 
-
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 (GPA)?
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:

Primarily Venous: Think of these 2 diseases:

Both Arterial and Venous: Think of these 2 diseases:

What is the classic presentation of upper respiratory tract involvement?
- Behçet’s
- Granulomatosis with polyangiitis

What is the classic triad of granulomatosis with polyangiitis (GPA)?
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:
- PAN
- SLE

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

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

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

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:

What is the classic triad of granulomatosis with polyangiitis (GPA)?
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What is the classic presentation of upper respiratory tract involvement?
Sinusitis with bloody discharge
Primarily Venous: Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis

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

What is the classic triad of granulomatosis with polyangiitis (GPA)?
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?
Primarily Venous:
Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
- 2

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

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

- Behçet's
- Granulomatosis with polyangiitis

What is the classic triad of granulomatosis with polyangiitis (GPA)?
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
Primarily Venous:
Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
- Retinal Vasculitis

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

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

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

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 triad of granulomatosis with polyangiitis (GPA)?
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A variety of pulmonary S/S: Cough (+/- hemoptysis), wheezing, etc

Retinal Vasculitis
Retinal Vasculitis

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

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

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

What is the classic triad of granulomatosis with polyangiitis (GPA)?
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Sinusitis with bloody discharge

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A variety of pulmonary S/S: Cough (+/- hemoptysis), wheezing, etc

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A variety of pulmonary S/S: Cough (+/- hemoptysis), wheezing, etc

Beck's
Granulomatosis with polyangiitis

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

Sinus dz

Primarily Arterial: Think of these 2 diseases:

- Sinusitis
- Granulomatosis with polyangiitis

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

What is the classic triad of granulomatosis with polyangiitis (GPA)?
Necrotizing vasculitis of:
-- the upper and lower respiratory tract
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Primarily Venous: Think of these 2 diseases:

- Behçet’s
- Sarcoid

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 lower respiratory tract involvement?
Primarily Venous:
Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
- Retinal Vasculitis

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

Arterial:
Think of these 2 diseases:
- Sinusitis with bloody discharge
- Granulomatosis with polyangiitis

What is the classic finding on CT?

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 (GPA)?
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Retinal Vasculitis
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- Multiple sclerosis
- Retinal Vasculitis

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- SLE
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Arterial:
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--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

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

What specific pathologic renal condition is caused by GPA?
Glomerulonephritis

Next Q
A) CT scan of the sinus in a patient with GPA, 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 GPA 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)

GPA: Sinusitis
Primary 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 triad of granulomatosis with polyangiitis (GPA)?
Necrotizing vasculitis of:
-- the upper and lower respiratory tract
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What specific pathologic renal condition is caused by GPA?
Glomerulonephritis

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

Retinal Vasculitis

What is the classic finding on CT?
Cavitary lung lesions
Primarily Venous:
Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
- Retinal Vasculitis

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

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

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

What specific pathologic renal condition is caused by GPA?
Glomerulonephritis

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 is the classic finding on CT?
Cavitary lung lesions
Retinal Vasculitis

GPA: Cavitary lung lesions
Primarily Venous:
Think of these 3 diseases:
1. Sarcoid
2. Multiple sclerosis
3. Retinal Vasculitis

Primarily Arterial:
Think of these 2 diseases:
1. PAN
2. SLE

Both Arterial and Venous:
Think of these 3 diseases:
1. Behçet's
2. Granulomatosis with polyangiitis

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

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?
Cavitary lung lesions

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

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

What lab findings result?
Hematuria and proteinuria

Retinal Vasculitis

Retinal
**Primarily Venous:**

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

**Primarily Arterial:**

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- PAN
- SLE
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**Both Arterial and Venous:**

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What is the next most common manifestation? (Still not retinal.)
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GPA: PUK
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- 2
- 2

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Orbital inflammation

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161

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About
10% of GPA pts have ophthalmic involvement?
What
proportion
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Cavitary lung lesions
How does retinal vasculitis manifest?
AsisCWS,
or arterial
occlusions
(branch
central)
What
the most
common
manifestation
of or
that
involvement?
(It’s not retinal.)
What is the classic finding on CT?
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Both Arterial
Primarily
Primarily
lower respiratory tract involvement?
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Think
of these 2
3
diseases:
Think of these 2
3Scleritis
diseases:
(+/hemoptysis),
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(including
PUK)
What is the classic presentation of
SLE
upper respiratory tract involvement?
Sinusitis PAN
with bloody discharge

Behçet’s
Granulomatosis
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Think of these 2
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Sarcoid
Multiple sclerosis

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Both Arterial and Venous: Think of these 3 diseases:
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- Wegener's
- Churg-Strauss

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Dismal—the 1-yr mortality rate is 80%

What is the treatment of choice?
Steroids + cyclophosphamide

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- Dismal—the 1-yr mortality rate is 80%

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

What is the classic finding on CT?
- Orbital inflammation

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- Orbital inflammation

What is the classic triad of GPA?
- Necrotizing vasculitis of:
  -- the upper and lower respiratory tract
  -- the kidneys

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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

What is the classic triad of granulomatosis with polyangiitis (GPA)?
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What is the classic presentation of upper respiratory tract involvement?
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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 specific pathologic renal condition is caused by GPA?
Glomerulonephritis

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What lab findings result?
Hematuria and proteinuria

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

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Cyclophosphamide is an extremely harsh drug—why not tx with steroids alone?

Steroid monotherapy?

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

How does retinal vasculitis manifest?
As CWS, or arterial occlusions (branch or central)
(It’s not retinal.)
Orbital inflammation

What is the next most common manifestation?
Scleritis (including PUK)

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Because steroid monotherapy for GPA is associated with an increased risk of mortality

Steroid monotherapy? No!

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What lab findings result?
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- Rash
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What proportion of GPA 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)

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

What is the treatment of choice?
Steroids + cyclophosphamide

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Steroid monotherapy? No!
In broadest terms, how would you describe sarcoid?

Primarily

Venous:
Think of these 2 diseases:

Sarcoid
Multiple sclerosis

Retinal Vasculitis

Primarily Arterial:
Think of these 3 diseases:

PAN
SLE
Behçet's

Retinal Vasculitis

Primarily Venous:
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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? It is a multi-organ disease characterized by the presence of noncaseating granulomas.

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What organ/system is most commonly involved in sarcoid?
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What percentage of sarcoid pts have ocular involvement?
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How about world-wide? Which ethnic group has the highest prevalence of sarcoid?

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Retinal Vasculitis

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Who is the typical sarcoid pt in the US?
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During what age-range does dz onset typically occur?
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What is the single-best screening test for sarcoid?
Chest X-ray.

What is the classic CXR finding?
Bilateral hilar adenopathy.

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.

What is the only way to definitively diagnose sarcoidosis?
Via biopsy demonstrating the presence of noncaseating granulomas.
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- Sarcoid
- Multiple sclerosis
- Retinal Vasculitis

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Both Arterial and Venous: Think of these 3 diseases:

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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

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

What is the single-best screening test for sarcoid?
Chest X-ray

What is the classic CXR finding?
Bilateral hilar adenopathy

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

What is the only way to definitively diagnose sarcoidosis?
Via biopsy demonstrating the presence of noncaseating granulomas
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Via biopsy demonstrating the presence of noncaseating granulomas.
Retinal Vasculitis

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

Both Arterial and Venous: Think of these 3 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:
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What percentage of sarcoid uveitis pts have posterior manifestations? About 20
Retinal Vasculitis

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What percentage of sarcoid uveitis pts have posterior manifestations? About 20

What are the two most common posterior manifestations?
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Primarily Venous:
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What percentage of sarcoid uveitis pts have posterior manifestations? About 20

What are the two most common posterior manifestations?
--Granulomas of the retina, optic disc and/or optic nerve
--Retinal
Retinal Vasculitis

Primarily Arterial: Think of these 2 diseases:
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Both Arterial and Venous: Think of these 2 diseases:
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What percentage of sarcoid uveitis pts have posterior manifestations? About 20

What are the two most common posterior manifestations?
--Granulomas of the choroid, retina and/or optic nerve
--Retinal vasculitis
Retinal Vasculitis

Choroidal granulomas in sarcoid
Choroidal granulomas in sarcoid. Note the ‘punched out’ appearance
ONH granuloma in sarcoid
ONH granuloma with neuroretinitis
Primarily Venous:
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What percentage of sarcoid uveitis pts have posterior manifestations?
About 20%

What are the two most common posterior manifestations?
- Granulomas of the choroid, retina and/or optic nerve
- Retinal Vasculitis

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

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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?
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- [216]

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Arterial and Venous:
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**Both Arterial and Venous:**
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- Wegener's
- Retinal Vasculitis

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**Retinal Vasculitis**

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

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**Topical, periocular or systemic?**

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For more on Sarcoid, see its self-titled slide-set
Who is the typical multiple sclerosis pt?

Primarily Venous: Think of these 3 diseases:
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Both Arterial and Venous:
- Think of these 3 diseases:
  - Wegener's
  - Retinal Vasculitis
  - 2nd 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'

Is there a geographic association?
- Yes, it is more common among individuals who live relatively far from the equator

What is the cause?
- It is unknown at this time

Is there a genetic component?
- Yes, but it is complex and multifactorial. Further, environmental factors mos def play a role as well.
Primarily Venous:
Think of these 3 diseases:
- Sarcoid
- Multiple sclerosis
- 2

Primarily Arterial:
Think of these 3 diseases:
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Both Arterial and Venous:
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- Retinal Vasculitis
- 2

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

Who is the typical multiple sclerosis pt?
Specific age range per:
-- the *Uveitis* book: 20-50
-- the *Neuro-Oph* book: 25-40
-- EyeWiki: 15-45

Retinal Vasculitis

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It is unknown at this time

Is there a genetic component?
Yes, but it is complex and multifactorial. Further, environmental factors mos def play a role as well.

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

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Retinal Vasculitis

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

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

Both Arterial and Venous:
Think of these diseases:
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- Retinal Vasculitis
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Is ophthalmic involvement common in MS?
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Estimates vary widely, ranging from <1% to 30%.

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5-10%.
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Very much so

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

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’

Is there a geographic association?
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It is unknown at this time

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

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Think of these 3 diseases:
- Wegener’s
- Retinal Vasculitis
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- Multiple sclerosis

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

Both Arterial and Venous:
Think of these 3 diseases:
- Wegener’s
- Retinal Vasculitis
- 2

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

Is ophthalmic involvement common in MS?
Yes

What is the most common presenting symptom in MS?
Optic neuritis

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’

Is optic neuritis in MS present unilaterally, or bilaterally?
Almost always unilateral

Does optic neuritis in MS present unilaterally, or bilaterally?

Primarily

Venous:

Multiple sclerosis

Sarcoid

Retinal Vasculitis
Who is the typical multiple sclerosis pt?

- A young to middle-age white female
- Is ophthalmic involvement common in MS?
  - Yes
- What is the most common presenting symptom?
  - Optic neuritis

Is there a geographic association?
- Yes, it is more common among individuals who live relatively far from the equator.

What is the cause?
- It is unknown at this time.
- Is there a genetic component?
  - Yes, but it is complex and multifactorial. Further, environmental factors most definitely play a role.

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?
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Is optic neuritis in MS present unilaterally, or bilaterally?
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Both Arterial and Venous:
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- Wegener's
- Retinal Vasculitis
- 248

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A young to middle-age white female

Is ophthalmic involvement common in MS?
Very much so

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Optic neuritis. 75% of pts will experience it at some point. It is a presenting symptom in 20-25%.

How common is uveitis in MS?

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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:
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Multiple sclerosis

Retinal Vasculitis
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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:

- Wegener's
- Retinal Vasculitis
- 2

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### Who is the typical multiple sclerosis pt?

- Young to middle-age white female

**Is ophthalmic involvement common in MS?**

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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

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Which form of uveitis is most likely in MS?
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Does intermediate uveitis in MS present unilaterally, like optic neuritis does?

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Does intermediate uveitis in MS present unilaterally, like optic neuritis does?
Just the opposite—it is almost always bilateral

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

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Retinal Vasculitis

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

Both Arterial and Venous: Think of these 3 diseases:
- Behçet’s
- Granulomatosis with polyangiitis
- ?

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

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

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

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

Both Arterial and Venous:
Think of these 2 diseases:
  - Susac syndrome
  - Eales disease

- Sarcoid
- Multiple sclerosis
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:

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

What is the classic retinal finding?

Multiple BRAOs occurring at non-branch points

Classic association?

Sensorineural hearing loss
Retinal Vasculitis

What is Susac syndrome?
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What is Eales disease?
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Susac syndrome

Eales disease

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Granulomatosis with polyangiitis
Behçet's
2
Retinal Vasculitis
Both Arterial and Venous:
Think of these 3 diseases:
SLE
PAN
Sarcoid
Toxoplasmosis
Primarily Arterial:
Think of these 3 diseases:
Primarily Venous:
Think of these 3 diseases:

Susac syndrome

What is Susac syndrome?
An obliterative retinal vasculitis

What is Eales disease?
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What is Susac syndrome?
An obli...
**Retinal Vasculitis**

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

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

**Susac syndrome**

- Young-adult female
- Multiple BRAOs occurring at non-branch points
- Sensorineural hearing loss

**Eales disease**

- Bilaterally
- Young-adult male from India
- Peripheral neovascularization
- Tests positive for TB
Granulomatosis with polyangiitis
Behçet's

Retinal Vasculitis

Both Arterial and Venous:
Think of these 3 diseases:

SLE
PAN
Sarcoid
Toxoplasmosis

Primarily Arterial:
Think of these 3 diseases:

Primarily Venous:
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Eales disease

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

What is Eales disease?
An obliterative retinal vasculitis

Does it present unilaterally, or bilaterally?
Retinal Vasculitis

2. What is Susac syndrome?
An obliterative retinal vasculitis

Does it present unilaterally, or bilaterally?
Bilaterally

What is Eales disease?
An obliterative retinal vasculitis

Does it present unilaterally, or bilaterally?
Bilaterally

What is Behçet’s disease?
An inflammatory vasculopathy

3. What is Retinal Vasculitis?

Primarily Arterial:

- SLE
- Sarcoid

Primarily Venous:

- Susac syndrome
- Eales disease

Peripheral neovascularization

Sensorineural hearing loss

Classic association?
**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

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**Susac syndrome**

- **Who:**

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**Eales disease**
What is Groanalomatosis with Polyangiitis?

What is Behçet’s disease?

What is Retinal Vasculitis?

What is Susac syndrome?
- An obliterative retinal vasculitis
- Presentation: Bilaterally
- Classic patient: Young-adult female
- Classic finding: Multiple BRAOs occurring at non-branch points
- Classic association: Sensorineural hearing loss

What is Eales disease?
- An obliterative retinal vasculitis
- Presentation: Bilaterally
- Classic patient: Young-adult male from India
- Classic finding: Peripheral neovascularisation
- Classic association: Tests positive for TB

What is Toxoplasmosis?
- Primarily arterial

What is Sarcoid?
- Primarily arterial
Retinal Vasculitis

**Susac syndrome**
*Who:* Young adult females

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

**Behçet's disease**

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**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

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**Eales disease**

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

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**Susac syndrome**

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

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

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

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**Peripheral Neovascularization**

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**Tests positive for TB**
**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
- Retinal Vasculitis

**Primarily Venous**:

Think of these 3 diseases:

- 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?** Young-adult male from India

- **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

Classic association?
- Sensorineural hearing loss
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

Susac syndrome
Who: Young adult females
What:

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?
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Does it present unilaterally, or bilaterally?
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Classic association?
Sensorineural hearing loss
Retinal Vasculitis

Susac syndrome
Who: Young adult females
What: Multiple BRAOs

Eales disease
Who: Young adult males

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Classic association?
Sensorineural hearing loss
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**

**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

Primarily Venous:

Think of these 3 diseases:

- Primarily arterial
- Primarily venous
- Associated with TB positivity

Who: Young adult males

What: Peripheral neovascularization

Classic association? Tests positive for TB

**Susac syndrome**

Who: Young adult females

What: Multiple BRAOs

**Eales disease**

Who: Young adult males

What:

**What is Susac syndrome?**

An obliterative retinal vasculitis

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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:

Primarily Venous:
Think of these 3 diseases:

Who: Young adult males
What: Peripheral neo

Susac syndrome
Who: Young adult females
What: Multiple BRAOs

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Multiple BRAOs occurring at non-branch points

Classic association?
Sensorineural hearing loss
Eales disease: Peripheral neo
Retinal Vasculitis

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

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

**Retinal Vasculitis**

3 diseases:
- SLE Sarcoid Toxoplasmosis
  Primarily Arterial
- Think of these 3 diseases:
- Primarily Venous
- Think of these 3 diseases:

**Who:**
- Young adult males

**What:**
- Peripheral neo 4

**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)?**

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Tests positive for TB

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Bilaterally

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Young-adult female

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

**Classic associations (Note: there are two)?**

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

Primarily Venous:

Think of these 3 diseases:

Who: Young adult males
What: Peripheral neo
Associated with:

Eales disease

Who: Young adult males
What: Peripheral neo

Susac syndrome

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

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Peripheral neovascularization

Classic association?
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:** TB positivity

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**Does it present unilaterally, or bilaterally?**
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**Classic associations (Note: there are two)?**
Sensorineural hearing loss; encephalopathy

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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

**Who:** Young adult

**What:** Peripheral neo

**Associated with:** TB positivity
Retinal Vasculitis

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

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

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

High-yield points to remember about these two conditions