1) The uveitis is profiled
2) The profiled case is meshed
3) A differential diagnosis list is generated
4) Studies are obtained to identify the etiology
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Uveitis

- Anterior
- Intermediate
- Posterior
- Panuveitis
Uveitis: **Anterior**

**Granulomatous**
- TB
- Sarcoid
- Syphilis
- HSV

**Nongranulomatous**

**Acute**

**Unilateral**
- HLA-B27 dz
- Posner-Schlossman
- Sarcoid
- Syphilis
- HSV/VZV
- TB

**Bilateral**
- ?
- ?
- ?
- ?
- ?
- ?

**Chronic**

**Acute**

**Unilateral**
- HLA-B27 dz
- Posner-Schlossman
- Sarcoid
- Syphilis
- HSV/VZV
- TB

**Bilateral**
- ?
- ?
- ?
- ?
- ?
- ?

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- TB
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- HSV

**Nongranulomatous**

**Acute**
- Unilateral
  - HLA-B27 dz
  - Posner-Schlossman
  - Sarcoid
  - Syphilis
  - HSV/VZV
  - TB
- Bilateral
  - TINU
  - Behçet
  - Drug rxn
  - Leptospirosis
  - Sarcoid
  - Syphilis
  - IBD/PA
  - TB

**Chronic**

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Uveitis: **Anterior**

**Granulomatous**
- TB
- Sarcoid
- Syphilis
- HSV

**Nongranulomatous**
- Acute
  - Unilateral
    - HLA-B27 dz
  - Bilateral
    - TINU
- Chronic

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**What does TINU stand for?**

Tubulointerstitial nephritis and uveitis (syndrome)

Who is the typical TINU pt?

A female age 16-30

TINU typically presents in three phases—what are they?

- First is a *systemic* phase: Fever, weight loss, fatigue, abdominal pain; this is followed by...
- The *nephropathy* phase: Proteinuria, hypergammaglobulinemia, anemia; followed by...
- The *uveitis* phase: A bilateral nongranulomatous anterior uveitis

What is the etiology of TINU?

It is unknown at this time
Uveitis: **Anterior**

- Granulomatous
  - TB
  - Sarcoid
  - Syphilis
  - HSV
- Nongranulomatous
  - Acute
  - Unilateral
    - HLA-B27 dz
  - Bilateral
    - TINU
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- TB
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Nongranulomatous

Acute
- Unilateral
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Bilateral
- Bilateral
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Acute
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Bilateral
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--First is a
- -
- -
--Second is a
- -
- -
--Third is a
- -
- -

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Uveitis: \textit{Anterior}

- **Granulomatous**
  - TB
  - Sarcoid
  - Syphilis
  - HSV

- **Nongranulomatous**
  - Acute
  - Unilateral
    - HLA-B27 dz
  - Bilateral
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--
--
Acute Chronic

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Granulomatous
- TB
- Sarcoid
- Syphilis
- HSV

Nongranulomatous

Acute
- Unilateral
  - Proteinuria, hypergammaglobulinuria, glycosuria; followed by…
- Bilateral
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  - TINU

Chronic

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  - TB
  - Sarcoid
  - Syphilis
  - HSV

- **Nongranulomatous**
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    - Unilateral
      - HLA-B27 dz
  - Bilateral
    - TINU

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**Uveitis: Anterior**

- Granulomatous
  - TB
  - Sarcoid
  - Syphilis
  - HSV
- Nongranulomatous
  - Acute
  - Bilateral
    - HLA-B27 dz
  - Chronic
    - TINU

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**How much time typically elapses between phases?**

---

1) The uveitis is profiled
2) The profiled case is meshed
3) A differential diagnosis list is generated
4) Studies are obtained to identify the etiology
5) Treatment appropriate for the etiology is initiated
Acute Chronic Uveitis:

1) The uveitis is profiled
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3) A differential diagnosis list is generated
4) Studies are obtained to identify the etiology
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Unilateral Bilateral
Granulomatous
- TB
- Sarcoid
- Syphilis
- HSV
Nongranulomatous
Acute
- HLA-B27 dz
Bilateral
- TINU

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--the uveitis phase: A bilateral nongranulomatous anterior uveitis
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How much time typically elapses between phases? A few weeks to a couple of months
An anterior uveitis is profiled and a differential diagnosis list is generated. Studies are obtained to identify the etiology, and treatment appropriate for the etiology is initiated.

Granulomatous:
- TB
- Sarcoid
- Syphilis
- HSV

Nongranulomatous:
- Acute
  - Unilateral
    - HLA-B27 dz
  - Bilateral
    - TINU
- Chronic

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What is the etiology of TINU?
Uveitis: **Anterior**

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- TB
- Sarcoid
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Nongranulomatous

**Acute**
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**What is the etiology of TINU?**
It is unknown at this time

**Urine levels of what specific gammaglobulin is usually elevated?**
β2-microglobulin. (This is a ‘buzzword’ for TINU, so try to remember it)

**Do TINU pts spill glucose because their serum glucose is elevated?**
No, it is a normoglycemia glycosuria; ie, they spill glucose not because serum levels are high (like poorly-controlled diabetics do), but rather because the nephritis impairs glucose filtration/reclamation
Uveitis: Anterior

Granulomatous
- TB
- Sarcoid
- Syphilis
- HSV

Nongranulomatous

Acute
- Unilateral
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Uveitis: **Anterior**

1. **Granulomatous**
   - TB
   - Sarcoid
   - Syphilis
   - HSV

2. **Nongranulomatous**
   - Acute
     - Unilateral
     - HLA-B27 dz
   - Bilateral
     - TINU

3. **Chronic**

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Uveitis: **Anterior**

**Granulomatous**
- TB
- Sarcoid
- Syphilis
- HSV

**Nongranulomatous**

**Acute**
- Bilateral
  - HLA-B27 dz
- TINU

**Chronic**
- Unilateral

---

**What does TINU stand for?**
- *Urine levels of what specific gammaglobulin is usually elevated?*
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Uveitis: *Anterior*

- **Granulomatous**
  - TB
  - Sarcoid
  - Syphilis
  - HSV

- **Nongranulomatous**

  - **Acute**
    - Unilateral
      - HLA-B27 dz
    - Bilateral
      - TINU

  - **Chronic**

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What is the etiology of TINU?
- It is unknown at this time

How is the diagnosis of TINU made?
- Formally, it can be made only via renal biopsy
- If TINU is suspected, what steps should the ophtho take?
  1. Treat the uveitis with topical steroids and cycloplegia
  2. Order labs:
     - Serum creatinine and BUN (will indicate impaired renal function)
     - ESR (will be significantly elevated)
     - H/H (anemia will be present)
     - Urinalysis (will be abnormal as described previously)
  3. Refer to Nephrology
Uveitis: **Anterior**

- **Granulomatous**
  - TB
  - Sarcoid
  - Syphilis
  - HSV

- **Nongranulomatous**
  - Acute
    - Unilateral
    - Bilateral
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      - TINU
  - Chronic

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**Uveitis:** Anterior

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- TB
- Sarcoid
- Syphilis
- HSV

**Nongranulomatous**

**Acute**
- Unilateral
- Bilateral

**Chronic**

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**Unilateral Bilateral**

- Granulomatous
- Nongranulomatous

**TINU**
- Leptospirosis
- Behçet
- Drug rxn
- Posner-Schlossman
- Syphilis
- Sarcoid
- HSV
- TB

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Uveitis: Anterior

Granulomatous
- TB
- Sarcoid
- Syphilis
- HSV

Nongranulomatous

Acute

Unilateral
- HLA-B27 dz

Bilateral
- TINU

Chronic

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Acute Chronic Uveitis:

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Unilateral Bilateral
Granulomatous
- TB
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- Syphilis
- HSV
Nongranulomatous
- Acute
- Unilateral
  - HLA-B27 dz
- Bilateral
  - TINU
- Chronic
  - HLA-B27 dz

What does TINU stand for?
Tubulointerstitial nephritis and uveitis (syndrome)

Who is the typical TINU pt?
A female age 16-30

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1. Systemic phase: Fever, weight loss, fatigue, abdominal pain
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**Granulomatous**
- TB
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- HSV

**Nongranulomatous**

**Acute**
- Unilateral
  - HLA-B27 dz
- Bilateral
  - TINU

**Chronic**

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**TINU has a very strong HLA association—what is it?**
HLA-DRB1*0102
Uveitis: **Anterior**

Granulomatous
- TB
- Sarcoid
- Syphilis
- HSV

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Acute
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A female age 16-30

**TINU typically presents in three phases**—what are they?
- **First is a systemic phase:** Fever, weight loss, fatigue, abdominal pain; this is followed by...
- **the nephropathy phase:** Proteinuria, hypergammaglobulinuria, glycosuria; followed by...
- **the uveitis phase:** A bilateral nongranulomatous anterior uveitis (Note that because not all pts read the book, some will present in the 'wrong' order)

**What is the etiology of TINU?**
It is unknown at this time

**How is the diagnosis of TINU made?**
Formally, it can be made only via renal biopsy

**If TINU is suspected, what steps should the ophtho take?**
1) Treat the uveitis with topical steroids and cycloplegia
2) Obtain labs:
   - Serum creatinine and BUN (will indicate impaired renal function)
   - ESR (will be significantly elevated)
   - H/H (anemia will be present)
   - Urinalysis (will be abnormal as described previously)
3) Refer to Nephrology

**TINU has a very strong HLA association--what is it?**
**HLA-DRB1*0102**
Uveitis: **Anterior**

**Granulomatous**
- TB
- Sarcoid
- Syphilis
- HSV

**Nongranulomatous**

- Acute
  - Unilateral
  - HLA-B27 dz
  - Bilateral
  - TINU

- Chronic

**What does TINU stand for?**
Tubulointerstitial nephritis and uveitis (syndrome)

**Who is the typical TINU pt?**
A female age 16-30

**TINU typically presents in three phases—what are they?**
-- First is a **systemic** phase: Fever, weight loss, fatigue, abdominal pain; this is followed by...
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-- the **uveitis** phase: A bilateral nongranulomatous anterior uveitis (Note that because not all pts read the book, some will present in the 'wrong' order)

**What is the etiology of TINU?**
It is unknown at this time

---

**What is the first-line systemic treatment for TINU?**
**PO steroids**

If TINU is suspected, what steps should the ophtho take?
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Acute Chronic

Uveitis: **Anterior**

1) The uveitis is profiled
2) The profiled case is meshed
3) A differential diagnosis list is generated
4) Studies are obtained to identify the etiology
5) Treatment appropriate for the etiology is initiated

Granulomatous

- TB
- Sarcoid
- Syphilis
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Nongranulomatous

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What is the first-line systemic treatment for TINU? **PO steroids**
Acute Chronic Uveitis: **Anterior**

1) The uveitis is profiled
2) The profiled case is meshed
3) A differential diagnosis list is generated
4) Studies are obtained to identify the etiology
5) Treatment appropriate for the etiology is initiated

**Granulomatosus**
- TB
- Sarcoid
- Syphilis
- HSV

**Nongranulomatosus**

**Acute**

Unilateral
- HLA-B27 dz
- Posner-Schlossman
- Syphilis

Bilateral
- TINU
- Behçet

**Behcet disease** is addressed in its own slide-set

**Chronic**

Leptospirosis
- Sarcoid
- Syphilis
- IBD/PA
- TB
Uveitis: **Anterior**

Granulomatous
- TB
- Sarcoid
- Syphilis
- HSV

Nongranulomatous

Acute

Chronic

Unilateral

Bilateral

Of the following drug-delivery routes, which have been associated with drug-reaction uveitis?
--Systemic? yes/no
--Topical? yes/no
--Intravitreal? yes/no

1) The uveitis is profiled
2) The profiled case is meshed
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Uveitis: **Anterior**

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      - TINU
      - Behçet
      - Drug rxn
  - Chronic

**Of the following drug-delivery routes, which have been associated with drug-reaction uveitis?**

- Systemic
- Topical
- Intravitreal

**All of them!**
Uveitis: **Anterior**

- **Granulomatous**
  - TB
  - Sarcoid
  - Syphilis
  - HSV
- **Nongranulomatous**
  - **Acute**
  - **Bilateral**
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    - HLA-B27 dz
    - Posner-Schlossman
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---

Of the following drug-delivery routes, which have been associated with drug-reaction uveitis?

---

- --Systemic?
- --Topical?
- --Intravitreal?

For each route, does it cause a unilateral, or a bilateral uveitis?
Uveitis: **Anterior**

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- Bilateral
  - TINU
  - Behçet
  - Drug rxn

**Chronic**

**Of the following drug-delivery routes, which have been associated with drug-reaction uveitis?**
--Systemic? Can be **either**
--Topical? **Unilateral**
--Intravitreal? **Unilateral**

**For each route, does it cause a unilateral, or a bilateral uveitis?**
Uveitis: **Anterior**

Granulomatosus
- TB
- Sarcoid
- Syphilis
- HSV

Nongranulomatosus

Acute
- TINU
- Leptospirosis
- Behçet
- Drug rxn

Chronic
- HSV
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**Of the following drug-delivery routes, which have been associated with drug-reaction uveitis?**
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Many systemic drugs have been implicated in causing uveitis, but four are notorious for doing so. What are they?
- 
- 
- **Hints forthcoming…**
Of the following drug-delivery routes, which have been associated with drug-reaction uveitis?

--Systemic
--Topical
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Many systemic drugs have been implicated in causing uveitis, but four are notorious for doing so. What are they?

the most notorious of all—if you only remember one, make it this one

a class of drugs used most often in elderly women

another drug class; of the four, is the most commonly Rx’d, but the least likely to cause uveitis

of the four, the only one that is also delivered intravitreally
Uveitis: **Anterior**

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- Nongranulomatous

**Acute**
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- **Granulomatous**
  - TB
  - Sarcoid
  - Syphilis
  - HSV

- **Nongranulomatous**
  - Acute
  - Unilateral
    - HLA-B27 dz
    - Posner-Schlossman
    - Sarcoid
  - Bilateral
    - TINU
    - Behçet
    - Drug rxn
  - Chronic

1) The uveitis is profiled
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**Of the following drug-delivery routes, which have been associated with drug-reaction uveitis?**
- Systemic
- Topical
- Intravitreal

**What is rifabutin used to treat?**
*Mycobacterium avium* complex infections in AIDS pts

**Many systemic drugs have been implicated in causing uveitis, but four are notorious for doing so. What are they?**
- **Rifabutin**
- Bisphosphonates
- Sulfonamides
- Cidofovir

---

Is it associated with development of a hypopyon?

Yes! Always consider rifabutin when evaluating hypopyon uveitis.
Uveitis: **Anterior**

- **Granulomatous**
  - TB
  - Sarcoid
  - Syphilis
  - HSV

- **Nongranulomatous**

  **Acute**
  - Unilateral
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**Many systemic drugs have been implicated in causing uveitis, but four are notorious for doing so.**

- **Rifabutin**
- Bisphosphonates
- Sulfonamides
- Cidofovir

**How long after initiation of treatment does the uveitis typically occur?**

- Weeks to months

**Is it associated with development of a hypopyon?**

- Yes! Always consider rifabutin when evaluating hypopyon uveitis.
Uveitis: *Anterior*

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- TB
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- What are they?
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**Bisphosphonates**

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Uveitis: **Anterior**

1. Acute
2. Chronic

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- Acute
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Acute Chronic

Uveitis: Anterior

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**Chronic**

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What are bisphosphonates used to treat?

Many systemic drugs have been implicated in causing uveitis, but four are notorious for doing so.

**What are they?**
- Rifabutin
- **Bisphosphonates**
- Sulfonamides
- Cidofovir

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Of the following drug-delivery routes, which have been associated with drug-reaction uveitis?
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What are bisphosphonates used to treat?
The most common indication is osteoporosis prevention. They are also used to treat hypercalcemia associated with various conditions.

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**Which bisphosphonate is most strongly associated with uveitis?**

Many systemic drugs have been implicated in causing uveitis, but four are notorious for doing so.

- Rifabutin
- Bisphosphonates
- Sulfonamides
- Cidofovir
Uveitis: \textit{Anterior}

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IV pamidronate

Of the following drug-delivery routes, which have been associated with drug-reaction uveitis?

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- What are they?
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**Systemic**

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**Is it associated with development of a hypopyon?**
No. But it is associated with conjunctivitis, episcleritis, and scleritis.
Acute Chronic

Unilateral Bilateral

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- **Systemic**
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Many systemic drugs have been implicated in causing uveitis, but four are notorious for doing so.

What are sulfonamides?

Most are antimicrobials. They are commonly used to treat bacterial UTIs, but have efficacy against toxoplasmosis, pneumocystis and other bugs. Some have been found to be effective anti-seizure meds. At least one is a diuretic.

What is the name for the syndrome of these significant side effects?

Stevens-Johnson syndrome (SJS)
Acute Chronic Uveitis:

1) The uveitis is profiled
2) The profiled case is meshed
3) A differential diagnosis list is generated
4) Studies are obtained to identify the etiology
5) Treatment appropriate for the etiology is initiated

Unilateral Bilateral

Granulomatous
- TB
- Sarcoid
- Syphilis
- HSV

Nongranulomatous

Acute
- HLA-B27 dz
- Posner-Schlossman
- Sarcoid

Chronic
- TINU
- Behçet
- Drug rxn

Many systemic drugs which have been associated with drug reaction uveitis:
-- Rifabutin
-- Bisphosphonates
-- Sulfonamides
-- Cidofovir

Of the following drug-delivery routes, which have been associated with drug reaction uveitis?
-- Systemic
-- Topical
-- Intravitreal

What are sulfonamides?
Most are antimicrobials. They are commonly used to treat bacterial UTIs, but have efficacy against toxoplasmosis, pneumocystis and other bugs. Some have been found to be effective anti-seizure meds. At least one is a diuretic.
Uveitis: **Anterior**

- Granulomatous
  - TB
  - Sarcoid
  - Syphilis
  - HSV
- Nongranulomatous
  - Acute
    - Unilateral
      - HLA-B27 dz
      - Posner-Schlossman
      - Sarcoid
      - Syphilis
  - Bilateral
    - TINU
    - Behçet
    - Drug rxn
  - Chronic

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Of the following drug-delivery routes, which have been associated with drug-reaction uveitis?

- Systemic
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Many systemic drugs have been implicated in causing uveitis, but four are notorious for doing so.

What are sulfonamides?

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Which sulfonamide is the most infamous for its ability to induce significant ophthalmic side effects?
Uveitis: **Anterior**

**Granulomatous**
- TB
- Sarcoid
- Syphilis
- HSV

**Nongranulomatous**

**Acute**
- Unilateral
  - HLA-B27 dz
  - Posner-Schlossman
  - Sarcoid

- Bilateral
  - TINU
  - Behçet
  - **Drug rxn**

**Chronic**

---

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Which sulfonamide is the most infamous for its ability to induce significant ophthalmic side effects?
Trimethoprim-sulfamethoxazole
Uveitis: **Anterior**

**Granulomatous**
- TB
- Sarcoid
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- HSV

**Nongranulomatous**

**Acute**
- Unilateral
  - HLA-B27 dz
  - Posner-Schlossman
  - Sarcoid
- Bilateral
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**Chronic**

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- Systemic
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- Rifabutin
- Bisphosphonates
- Sulfonamides
- Cidofovir

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Which sulfonamide is the most infamous for its ability to induce significant ophtalmic side effects?
- Trimethoprim-sulfamethoxazole

What is the name for the syndrome of these significant side effects?
- Stevens-Johnson syndrome (SJS)
Acute Chronic

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SJS is also known as...

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Stevens-Johnson syndrome (SJS)
Acute Chronic

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- Sulfonamides
- Cidofovir

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**SJS is also known as...** **erythema multiforme major**

**Severe cases may meet the definition of...**

**What is the name for the syndrome of these significant side effects?**
**Stevens-Johnson syndrome (SJS)**
Uveitis: **Anterior**

- **Granulomatous**
  - TB
  - Sarcoid
  - Syphilis
  - HSV

- **Nongranulomatous**

  - **Acute**
    - Unilateral
      - HLA-B27 dz
      - Posner-Schlossman
      - Sarcoid
    - Bilateral
      - TINU
      - Behçet
      - **Drug rxn**

  - **Chronic**

---

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- Systemic
- Topical
- Intravitreal

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- SJS is also known as **erythema multiforme major**
- Severe cases may meet the definition of **toxic epidermal necrolysis (TEN)**

---

What is the name for the syndrome of these significant side effects?

- **Stevens-Johnson syndrome (SJS)**
**Acute Chronic Uveitis:**

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  - Sarcoid
- Bilateral
  - TINU
  - Behçet
  - **Drug rxn**

**Chronic**

**Of the following drug-delivery routes, which have been associated with drug-reaction uveitis?**
- 
- Systemic
- Topical
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---

Many systemic drugs have been implicated in causing uveitis, but four are notorious for doing so.

**What are they?**
- Rifabutin
- Bisphosphonates
- Sulfonamides
- Cidofovir

---

**What are sulfonamides?**
Most are antimicrobials. They are commonly used to treat bacterial UTIs, fungal infections, and other bugs. At least one is a diuretic.

**What sulfonamide is the most infamous for its ability to induce significant ophthalmic side effects?**
Trimethoprim-sulfamethoxazole

**What is the name for the syndrome of these significant side effects?**
Stevens-Johnson syndrome (SJS)

**Stevens-Johnson syndrome (SJS)** is also known as...
- Erythema multiforme major
- Severe cases may meet the definition of...
- Toxic epidermal necrolysis (TEN)

---

Three other drugs/drug classes are most commonly implicated.

**What are they?**
- NSAIDs
- Anticonvulsants
- Sulfonamides
- Allopurinol within 8 weeks of the start of drug use

---

Mnemonic forthcoming...
Uveitis: **Anterior**

### Acute
- TB
- Sarcoid
- Syphilis
- HSV

### Chronic
- TINU
- Behçet
- Drug rxn

### Unilateral
- HLA-B27 dz
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**What is the name for the syndrome of these significant side effects?**
Stevens-Johnson syndrome (SJS)

--N
--A
--Sulfonamides
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---

Many systemic drugs have been implicated in causing uveitis, but four are notorious for doing so.

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What are they?

Severe cases may meet the definition of...toxic epidermal necrolysis (TEN)

---

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Stevens-Johnson syndrome (SJS)
Acute Chronic Uveitis:

Anterior

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Granulomatous
- TB
- Sarcoid
- Syphilis
- HSV

Nongranulomatous
- IBU/PA

Unilateral
- HLA-B27 dz
- Posner-Schlossman
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Bilateral
- TINU
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- Sulfonamides
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Most are antimicrobials. They are commonly used to treat bacterial UTIs, but have efficacy against toxoplasmosis, pneumocystis and other bugs. At least one is an anti-seizure med. Which one?

What is the name for the syndrome of these significant side effects?

Stevens-Johnson syndrome (SJS)

Severe cases may meet the definition of toxic epidermal necrolysis (TEN)

Three other drugs/drug classes are most commonly implicated. What are they?
- NSAIDs
- Anticonvulsants
- Sulfonamides
- Allopurinol

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- Sarcoid
- Syphilis
- HSV

Nongranulomatous

Acute
- HLA-B27 dz
- Posner-Schlossman
- Sarcoid
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Chronic
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Because of its potential nephrotoxicity, cidofovir is rarely given systemically anymore. (For this reason, we will cover it with the Intravitreals)
Uveitis: **Anterior**

Granulomatous
- TB
- Sarcoid
- Syphilis
- HSV

Nongranulomatous

Acute
- Unilateral
  - HLA-B27 dz
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Chronic

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**Granulomatous**
- TB
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- Unilateral
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  - Sarcoid
- Bilateral
  - TINU
  - Behçet
  - **Drug rxn**

**Chronic**

*Of the following drug-delivery routes, which have been associated with drug-reaction uveitis?*

-- Systemic
-- **Topical**
-- Intravitreal

*Many topical drugs have been implicated in causing uveitis, but two are notorious for doing so. What are they?*

--

*Hints forthcoming…*
Uveitis: **Anterior**

- **Granulomatous**
  - TB
  - Sarcoid
  - Syphilis
  - HSV

- **Nongranulomatous**
  - Acute
  - Bilateral
    - HLA-B27 dz
    - Posner-Schlossman
    - Sarcoid
  - Unilateral
    - Syphilis
    - Sarcoid
    - TB
    - TINU

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**Of the following drug-delivery routes, which have been associated with drug-reaction uveitis?**
- Systemic
- Topical
- Intravitreal

**Many topical drugs have been implicated in causing uveitis, but two are notorious for doing so. What are they?**
- Metipranolol -- a glaucoma drug not commonly prescribed in the US
- Prostaglandin analogues -- a class of glaucoma drugs VERY commonly prescribed in the US

**Drug rxn**
Uveitis: **Anterior**

**Granulomatous**
- TB
- Sarcoid
- Syphilis
- HSV

**Nongranulomatous**

**Acute**

**Unilateral**
- HLA-B27 dz
- Posner-Schlossman
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**Bilateral**
- TINU
- Behçet
- **Drug rxn**

**Chronic**

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  - Sarcoid

**Bilateral**
- TINU
- Behçet
- **Drug rxn**

**Chronic**

---

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**What are they?**

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---

**Is anterior uveitis common among metipranolol pts?**
Uveitis: **Anterior**

- **Granulomatous**
  - TB
  - Sarcoid
  - Syphilis
  - HSV

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**Acute**

- Unilateral
  - HLA-B27 dz
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**Chronic**

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**Is anterior uveitis common among metipranolol pts?**
No, it is quite uncommon. Further, it was associated with a formulation no longer commercially available in the US.
Acute Chronic

Uveitis: **Anterior**

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Many topical drugs have been implicated in causing uveitis, but four are notorious for doing so:
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Is anterior uveitis common among metipranolol pts?
No, it is quite uncommon. Further, it was associated with a formulation no longer commercially available in the US.

What is unusual about the uveitis it induces?
Uveitis: **Anterior**

1. **Granulomatous**
   - TB
   - Sarcoid
   - Syphilis
   - HSV

2. **Nongranulomatous**

   **Acute**
   - Unilateral
   - Bilateral
     - HLA-B27 dz
     - Posner-Schlossman
     - Sarcoid
     - Syphilis

   **Chronic**

3. **TINU**
4. *Leptospirosis*
5. Behçet
6. *Drug rxn*
7. *Posner-Schlossman*
8. *IBD/PA*

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- Systemic
- Topical
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**Is anterior uveitis common among metipranolol pts?**
No, it is quite uncommon. Further, it was associated with a formulation no longer commercially available in the US.

**What is unusual about the uveitis it induces?**
It is granulomatous, complete with mutton-fat KP and posterior synechiae.
**Uveitis: Anterior**

- **Granulomatous**
  - TB
  - Sarcoid
  - Syphilis
  - HSV

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  - **Acute**
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    - Bilateral
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      - Posner-Schlossman
      - Sarcoid
      - Syphilis
      - IBD/PA

  - **Chronic**

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It is **granulomatous**, complete with mutton-fat KP and posterior synechiae.

What other topical glaucoma med also causes a granulomatous uveitis (hint: It's not on the list above)?
Brimonidine
Uveitis: **Anterior**

- **Granulomatous**
  - TB
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  - HSV
- **Nongranulomatous**
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    - Behçet
    - **Drug rxn**

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- **Systemic**
- **Topical**
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**What are they?**
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- Prostaglandin analogues

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Uveitis: Anterior

Granulomatous
- TB
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Acute
- Unilateral
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  - TINU
  - Behçet
  - Drug rxn

Chronic

Of the following drug-delivery routes, which have been associated with drug-reaction uveitis?
- Systemic
- Topical
- Intravitreal

Is anterior uveitis a common complication of PGA use?

Many topical drugs have been implicated in causing uveitis, but four are notorious for doing so.

What are they?
- Metipranolol
- Prostaglandin analogues

No; it occurs in only ~1% of pts.
No
Yes
Uveitis: **Anterior**

### Granulomatous
- TB
- Sarcoid
- Syphilis
- HSV

### Nongranulomatous
- Acute
  - Unilateral
    - HLA-B27 dz
    - Posner-Schlossman
    - Sarcoid
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  - Bilateral
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**Is it associated with development of a hypopyon?**

No.

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**Does it resolve rapidly upon cessation of the PGA?**

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  - **Chronic**

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  - **Chronic**

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**Hints forthcoming…**
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Many intravitreal drugs have been implicated in causing uveitis, but two are notorious for doing so. What are they?
-- we already mentioned this one…
-- a category of IVIT drugs VERY commonly employed in the US
Uveitis: *Anterior*

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- Anti-VEGF agents
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--- What is cidofovir?
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--- Is anterior uveitis common after intravitreal cidofovir?
--- Very—it occurs after roughly 25% of injections
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**Many intravitreal agents**

- **Cidofovir**
- Anti-VEGF agents

---

**Are notorious for doing so.**
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**Chronic**
- Drug rxn

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Acute Chronic

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Unilateral Bilateral

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What is the rate of anterior uveitis after intravitreal:

--- Ranibizumab? Between .1% and 1%
--- Bevacizumab? Same
--- Aflibercept? Much less data available; what’s there suggests the rate is lower than that of ranibizumab/bevacizumab

Is the uveitis usually mild, or severe?

Mild

Are anti-VEGF agents associated with development of a hypopyon?

In rare cases only (and these likely represent contaminants)

--- Granulomatous
  - TB
  - Sarcoid
  - Syphilis
  - HSV

--- Nongranulomatous

**Acute**

--- Unilateral
  - HLA-B27 dz
  - Posner-Schlossman

--- Bilateral
  - TINU
  - Behçet

**Chronic**
Uveitis: **Anterior**

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- TB
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- Syphilis
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Nongranulomatous:

Acute
- Unilateral
- Bilateral
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Chronic

**Which anti-VEGF agents have been implicated as causing uveitis?**
Pretty much all of them: Ranibizumab, bevacizumab and aflibercept (pegaptanib too)

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- TB
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- HSV

**Nongranulomatous**

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- TINU
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Acute Chronic Uveitis:

Anterior

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Granulomatous

- TB
- Sarcoid
- Syphilis
- HSV

Nongranulomatous

Unilateral Bilateral

- TINU
- Leptospirosis
- Behçet
- Drug rxn
- Posner-Schlossman
- Syphilis
- Sarcoid
- HSV
- Syphilis
- Sarcoid
- TB
- Syphilis
- Sarcoid
- IBD/PA

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- Ranibizumab? Between .1% and 1%
- Bevacizumab? Same
- Aflibercept? Much less data available; what’s there suggests the rate is lower than that of rani/bevacizumab

Is the uveitis usually mild, or severe?

Mild

Are anti-VEGF agents associated with development of a hypopyon?

In rare cases only (and these likely represent contaminants)
Uveitis: **Anterior**

- **Granulomatous**
  - TB
  - Sarcoid
  - Syphilis
  - HSV
- **Nongranulomatous**
  - Unilateral
    - HLA-B27 dz
    - Posner-Schlossman
  - Bilateral
    - TINU
    - Behçet

1) The uveitis is profiled
2) The profiled case is meshed
3) A differential diagnosis list is generated
4) Studies are obtained to identify the etiology
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**Of the following drug-delivery routes, which have been associated with drug-reaction uveitis?**
- Systemic
- Topical
- Intravitreal

**Many intravitreal drugs have been implicated in causing uveitis, but two are notorious for doing so.**
- Cidofovir
- Anti-VEGF agents (pegaptanib too)

**Which anti-VEGF agents have been implicated as causing uveitis?**
Pretty much all of them: Ranibizumab, bevacizumab and aflibercept

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**Acute**
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  - Behçet
  - Drug rxn
  - Leptospirosis

**Chronic**

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While leptospirosis can present as an acute bilateral anterior uveitis, it is far more likely to present as **panuveitis**, and will be covered as such in the review slides.
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  - Syphilis
  - HSV

- **Nongranulomatous**
  - **Acute**
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      - HLA-B27 dz
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      - Sarcoid
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  - **Chronic**

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Uveitis: Anterior

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- Syphilis
- HSV

Nongranulomatous
- Acute
- Chronic
- Unilateral
- Bilateral

Acute
- HSV
- Syphilis
- Sarcoid
- TB

Chronic
- Leptospirosis
- Behçet
- Drug rxn
- Posner-Schlossman

How common is uveitis in inflammatory bowel disease? How common is uveitis in psoriatic arthritis?

Only 2-10% of IBD pts develop anterior uveitis. It is somewhat more common in PA, with a rate as high as 25%.

What nonocular findings are common in psoriatic arthritis?
The name of the condition provides a helpful way to remember these:
- 'Psoriatic': Pts get a scaly, erythematous rash, along with nail changes
- 'Arthritis': The classic finding is sausage digits - swelling of the distal interphalangeal joints
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