Uveitis
What is the uvea?

- a highly vascularized section of the eye beneath the sclera
- Supplies most of the ocular structures with nutrients
- via the anterior and posterior branches of the ophthalmic artery
Uvea
Uvea

- made up of the iris, ciliary body and choroid
- iris controls the amount of light entering the eye
- the ciliary body produces aqueous humor and controls the outflow by contracting and widening the trabecular meshwork
The choroid provides nourishment to the outer retinal layers and absorbs excess light.
Uveitis

- Inflammation of any of these structures is called uveitis.
- Synonym of uveitis is iritis, which is more anatomically specific.
- Yet terms are used interchangeably.
Nongranulomatous Anterior Uveitis

- most common form of uveitis
- can present as bilateral or unilateral, chronic, or acute, idiopathic, infectious, immunological, or neoplastic
CLASSIC SYMPTOMS

- Redness
- Extreme photophobia
- Pain often described as a dull ache or a headache in the eye and becoming a sharp pain with change in lighting
SYMPTOMS IN CHRONIC DISEASE

Symptoms may be absent and only clinical signs present
DETERMINING THE CAUSE

- A good medical and ocular history can reveal the cause
- Lab testing is necessary in repeat cases with no obvious underlying systemic cause
- Sometimes the cause is unknown
- 38% of cases are idiopathic
CLINICAL SIGNS

- red eye with circumlimbal flush
- pupil may be mid-dilated
- cells in the anterior chamber, to see slit lamp must be on high mag with brightest light narrow small beam used
- flare may or may not be present
CILIARY FLUSH
ANTERIOR CHAMBER CELLS
DIAGNOSIS

- anatomy involved determines the diagnosis
- if cells and inflammation are only in the anterior chamber than it is anterior uveitis or iritis
- cells also in the vitreous it is iridocyclitis
- only ciliary body involved - cyclitis
INTERMEDIATE UVEITIS or Pars planitis is when the middle portion of the ciliary body is inflamed.

White blood cells collect in the inferior portion of the retina looks like snow banks.
PARS PLANITIS
DIAGNOSIS

- Posterior uveitis— the retina, choroid, vitreous, and sometimes sclera are inflamed
- Pan-uveitis involves the entire uvea and surrounding tissue
RISK

- the further back the uveitis proceeds in the eye
- the more likely it is associated with systemic disease
- the more difficult it is to treat
- the greater the risk of complications
TYPES OF UVEITIS

- Granulomatous more severe
  - iris granulomas
  - Koepppe nodules on the pupillary margin
  - Busacca nodules in the iris stroma
  - Keratic precipitates KPs on the endothelium that are large, globular and greasy known as mutton fat KPs
Koepppe Nodules
BUSACCA NODULES
MUTTON FAT KPS
HYPOPYON

May form if the inflammation is not treated
HYPOPYON
COMMON GRANULOMATOUS UVEITIDES

- Tuberculosis, Lyme’s disease, and Sarcoidosis
NON-GRANULOMATOUS

- Less severe
- smaller KPs, fewer iris nodules, less likelihood of forming synechiae
HISTORY

- Thorough history and careful slit lamp examination can lead to the correct diagnosis even before blood work.
- 38 percent of cases are idiopathic.
NON-GRANULOMATOUS

- First episode of unilateral uveitis
- Blood work does not need to be done
- IF additional episodes occur and a cause has not been determined, blood work is necessary to find the underlying cause
Complete blood count with differential CBC—
gives a general look at their health status

can help with diagnosis of leukemia, infection and anemia
C-REACTIVE PROTEIN

- marker for inflammation
- does not pinpoint location of inflammation
ERYTHROCYTE SEDIMENTATION RATE

- Detects inflammation
- Used in conjunction with CRP
ANTINUCLEAR ANTIBODY

- Checks for certain autoimmune disorders
  - Lupus, scleroderma, juvenile arthritis polymyositis, IBS, psoriasis
RHEUMATOID FACTOR

Helps to diagnose rheumatoid arthritis and Sjogren’s
RAPID PLASMA REGAIN

- Used to screen for syphilis

- can be thrown off by Lyme’s, connective tissue disease, pregnancy and viral infections

+ RPR confirmed with Fluorescent treponemal antibody absorption test
ANGIOTENSIN CONVERTING ENZYME

Used to diagnose sarcoidosis and helps to monitor the disease
Chest X-ray

- when looking for sarcoidosis or TB
- Usually ordered if other lab work and clinical exam indicate the necessity
HLA-B27

- Human Leukocyte B27
- found on the surface of white blood cells and is associated with a number of autoimmune diseases
- Reiter syndrome and ankylosing spondylitis
- can sometimes be the sole determining factor in some uveitis cases
PURIFIED PROTEIN DERIVATIVE

PPD checks for latent Tuberculosis
LYME TITER

and Enzyme linked immunosorbent assay together with anti-Borellia burgdorferi immunoglobulins M and G are used to detect the presence of LYME disease
First, unilateral non-granulomatous are idiopathic, due to a viral or sinus infection, or due to trauma.

Lab testing not needed, treat and observe.

If the traumatic uveitis is mild, it does not need treatment.
TREATMENT GOALS

- Decrease Pain
- prevent posterior synechiae and therefore pupillary block
- prevent peripheral anterior synechiae and angle closure
- Re-establish the blood-aqueous barrier
CYCLOPLEGICS

- important to all four goals
- act on the vasculature to stabilize the blood aqueous barrier, preventing further leakage
- Decreases pain by immobilizing the iris
- helps to prevent synechiae formation
CORTICOSTEROIDS

- reduce the body’s inflammatory response,
- reduce capillary permeability and vasodilation
SURGICAL OPTIONS

- Peripheral iridotomy or periocular implant
TREATMENT

初始剂量的类固醇应该频繁使用以迅速抑制炎症，并然后缓慢减量以防止反弹性炎症发生。

一个常见的错误是医生没有频繁地开始使用类固醇。

例外是外伤性葡萄膜炎，短疗程-无减量-外伤性已消失。


TREATMENT COMPLICATIONS

- Increased IOP and posterior subcapsular cataracts
- Increased IOP my not be from the steroid
- usually in iritis the IOP is lower but it can be higher
OTHER CAUSES FOR INCREASED IOP

- Clogging of trabecular meshwork with inflammatory cells
- Trabecullitis, inflamed, swollen meshwork fibers
- Posterior synechiae or peripheral anterior synechiae
- Sick eye returning to normal
REASONS FOR LOWER IOP

- Increase in the endogenous prostaglandins augments uveoscleral outflow
- Decrease in aqueous humor production by the inflamed ciliary body
TREATING THE ELEVATED IOP

- Treat with an aqueous suppressant
  - Beta blocker, carbonic anhydrase inhibitor
- Do not use prostaglandin analogs or miotics; they can increase inflammation
- Miotics increase the risk for synechiae formation
Treating Anterior Uveitis

- One drop of 1% prednisolone acetate every 2 hours for several days or until the cells in the anterior chamber are less than grade 2.

- Then planned tapering—VERY important to taper if the steroid is dropped too quickly; the patient will have a rebound inflammation.
Severe Cases

- Durezol can be used qid or q2h
- Oral steroids may be needed in severe cases or a steroid injection into the eye
Cycloplegics

- 5% homatropine bid or atropine bid for several days
Intermediate and Posterior Uveitis

- If mild, can be treated with durezol
- More severe cases may require a steroid implanted into the back of the eye
Steroid Implants

- **Retisert** – Fluocinolone acetonide – the drug reservoir is inserted into the sclera and can last 2.5 years

- Side effects, increased IOP, cataract progression, and eye pain
Steroid Implants

- Ozurdex- dexamethasone- allergan
- Implanted transconjunctivally