

3.3 Uveitis

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Introduction & classification

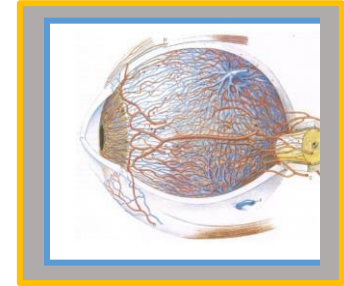
The outer coat of eye consists of sclera and cornea as seen in picture.

The middle coat of eye consists of iris, ciliary body and choroid. It looks like bunch of grape and is called uvea. Uvea is Greek word for bunch of grapes.

Inflammation of uvea is called uveitis.

Uveitis can be classified based on

1. Anatomy: Anterior, intermediate, posterior, panuveitis and vasculitis
2. Onset: Acute or chronic
3. Pathology: Granulomatous or non-granulomatous
4. Etiology: Infective or non-infective
5. Severity: Mild or severe

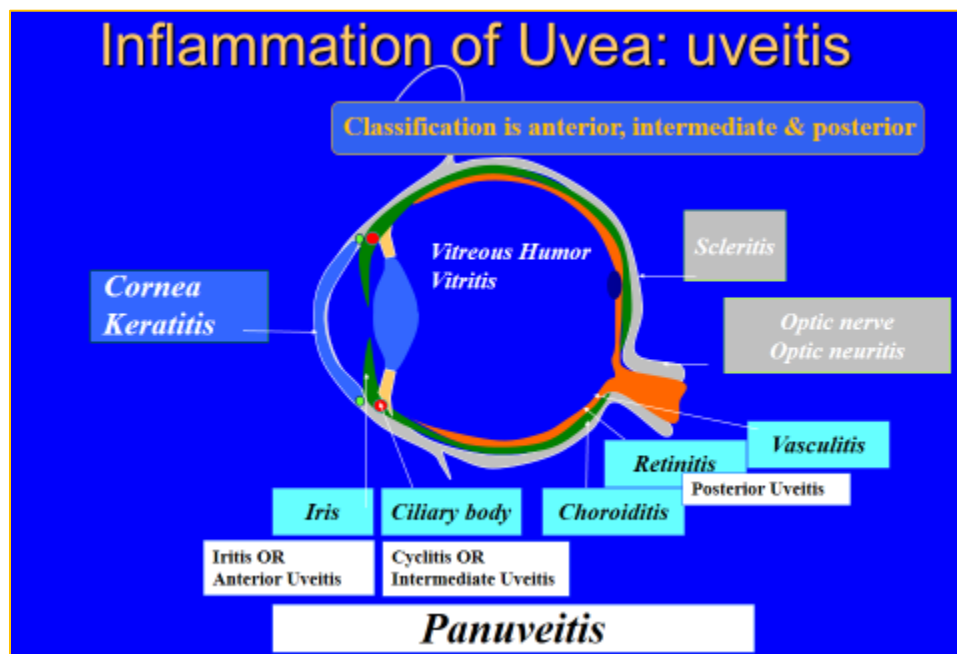


For clinical purposes clinical classification is used along with onset & pathology like

1. Anterior acute non granulomatous
2. Anterior acute granulomatous
3. Anterior chronic granulomatous
4. Intermediate uveitis
5. Posterior focal uveitis
6. Posterior multifocal
7. Vasculitis
8. Panuveitis

For memorizing and description etiological classification is used.

1. Non infective (see slide on next page)
2. Infective (see slide on next page)



Clinical classification

Clinical Classifications

1. Anatomical	2. Onset	3. Pathological	4. Etiology	5. Severity
Anterior	Acute	Granulomatous	Non Infectious	mild
Intermediate	Chronic	Non Granulomatous	Infectious	Moderate
Posterior				Severe
Vasculitis				
Panuveitis				

- Anterior Acute non granulomatous: Ankylosing spondylitis
- Anterior Chronic non granulomatous: Juvenile arthritis, Fuch's uveitis
- Anterior Chronic Granulomatous: Sarcoidosis, TB
- Intermediate: Sarcoidosis
- Posterior focal: Toxoplasmosis, Toxocariasis
- Posterior multifocal: APMPE, Birdshot choroidopathy, White dot
- Vasculitis: Sarcoidosis, TB, VKH
- Panuveitis: Sarcoidosis, TB, VKH, Sarcoidosis

Classification for memory

Non Infectious causes anterior, intermediate, posterior & panuveitis

Infectious causes panuveitis

- Classification for remembering causes**
- **Non infectious** Anterior
 - Anterior non granulomatous
 - HLAB27 related
 - Reiters
 - Lens induced
 - Chronic non granulomatous
 - Juvenile idiopathic arthritis
 - Fuchs uveitis syndrome
 - Chronic Granulomatous
 - Panuveitis (Sarcoidosis, TB, Syphilis)
 - **Non infectious** intermediate +
 - Parsplanitis
 - Multiple sclerosis
 - **Non infectious** posterior +
 - Collagen vascular disease
 - SLE, PAN, polyangitis
 - Susac syndrome
 - Inflammatory chorioretinopathies
 - Birdshot, APMPE, Sepsiginous, AMP, PIC, APPE, AZOOR
 - **Non infectious** panuveitis +
 - Sarcoidosis, Behcet disease, Vogt Koyanagi Harada syndrome, Sympathetic ophthalmitis
 - **Infectious** Bacterial (Post & Ant)
 - Tuberculosis
 - Syphilis
 - Lyme disease, Whipple disease
 - Leptospirosis, Ocular nocardiosis
 - **Infectious** viral
 - Herpes family
 - Rubella
 - **Infectious** Fungal (Mainly posterior uveitis)
 - POHS
 - **Infectious** protozoal (Mainly posterior uveitis)
 - Toxoplasmosis
 - **Infectious** Helminthics (Mainly posterior uveitis)
 - Toxocariasis
 - Cystecercosis
 - Onchoerciosis

Symptoms

Symptoms of uveitis are like most symptoms of inflammatory disease.

Inflammation is characterized by

Rubor / redness: which in eye in conjunctival congestion

Tumour / swelling: which is not seen in eye and only congestion are seen.

Callor / heat: which cannot be felt in eye.

Dollar / pain: which is present in form of photophobia and ocular pain.

Functio laesa / loss of function: which in eye is loss of vision.

Symptoms depend upon severity of disease and can be mild to severe.

Symptoms

- Symptoms of acute anterior uveitis are
- Photophobia
- Blurry or decrease vision
- Pain
- Redness
- Blurred vision and
- Lacrimation
- Symptoms of choric anterior uveitis are minimal.

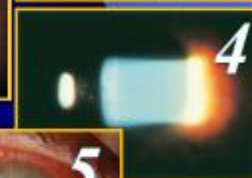
The inflammatory response (inflammation) occurs when tissues are injured by bacteria, trauma, toxins, heat, or any other cause. The damaged cells release chemicals including histamine, bradykinin, and prostaglandins. These chemicals cause:

1. Blood vessels dilate to look
2. cell infiltrate &
3. Exude fluid into the tissues. **CAUSING**
 - Rubor (Redness)
 - Tumor (Swelling)
 - Calor (Heat)
 - Dolor (Pain)
 - Functio laesa (Loss of function)

Signs: Anterior uveitis

Clinical signs: Anterior uveitis

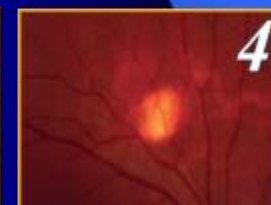
- **Vision** decreased (cells & hypopyon)
- **Conjunctiva:** ciliary congestion 1
- **Cornea**
 - Keratic precipitates: cell deposit on endothelium 2
- **Anterior Chamber**
 - Cells: Leakage of cells, mean active inflammation 3
 - Flare: Leakage of proteins 4
 - Exudate / membrane
 - Hypopyon 5
- **Iris**
 - Synecheai
 - Heterochromia: Difference in color
 - Nodules on iris mean granulomatous Busacca/Koeppe
 - Atrophy of iris
 - New vessels on iris
- **Pupil-** posterior synechia, adhesion
- **IOP:** High or low



Signs: Posterior uveitis

Clinical signs: Posterior uveitis

- **Vision**
- **Vitreous**
 - Cells
 - Haze
- **Vessels**
 - Sheathing 1
 - Closure 2
- **Retina**
 - Solitary lesion 3
 - Multiple lesions 4
 - White spots
- **Choroid**
 - choroiditis



Investigations: General

Ocular

- B scan
- FFA
- OCT/OCTA
- Aqueous tap
- Iris biopsy
- Vitreous biopsy

General

- Blood complete
- ESR
- X-ray chest

Specific

- X-ray sacroiliac joints
- HLA tissue typing
- Syphilis serology (RPR or VDRL)
- ACE
- ANA
- ANCA
- QuantiFERON-TB Gold
- HIV serology
- Serum lysozyme
- Serum protein electrophoresis

Treatment

- Attempt should be made to find out the underlying cause and treat the cause
- **Atropine/cyclopentolate** eye drops may be given
 - Reduces pain by relieving ciliary spasm
 - Dilates to prevent posterior synechiae
- Aggressive topical therapy with topical steroids
- **Systemic steroid & immunosuppressive** drugs as needed

Common diseases causing anterior uveitis

Ankylosing spondylitis: Acute anterior non-granulomatous

Systemic features:

Seen in young adult men, low back pain, abnormal sacroiliac joint area by x-ray, elevated ESR, positive HLA B27

Ocular features: It causes acute anterior non granulomatous inflammation.

Symptoms: as in uveitis

Signs: anterior uveitis signs with severe reaction at times.

Investigations: usually no investigations

Treatment is normally topical steroids and cycloplegics.

Juvenile idiopathic arthritis: Chronic non-granulomatous

Chronic asymptomatic in children with juvenile arthritis.

Symptoms: Asymptomatic so regular eye checkup is important.

Signs: Signs of uveitis including posterior synechei

Complications: Band keratopathy, secondary cataract and secondary glaucoma are common

Fuch's uveitis syndrome: Chronic non-granulomatous

FUS is also called fuch's heterochromic iridocyclitis.

Symptoms;

Signs:

Complications: secondary posterior subcapsular cataract and secondary glaucoma are common.

Common diseases causing posterior uveitis

Posterior focal uveitis

Toxoplasmosis:

Toxoplasmosis is most common cause of focal retinitis.

Toxoplasma is an intracellular protozoan.

Toxocariasis:

Toxocariasis is caused by common intestinal roundworm of dogs.

Posterior multifocal uveitis:

Birdshot chorioretinopathy:

APMPPE: Acute posterior multifocal placoid pigment epitheliopathy

PIC

AZOOR

Vasculitis:

Collagen vascular diseases like SLE, Polyarthriti nodosa

Sarcoidosis

Tuberculosis

Common diseases causing panuveitis

Sarcoidosis

Sarcoidosis is multisystem disease of unknown etiology. It causes granulomatous panuveitis.

Behcet disease

Behcet disease is multisystem disease of unknown etiology. It is characterized by

- Recurrent aphthous oral ulcers
- Genital ulceration
- Uveitis

Tuberculosis

Tuberculosis can cause panuveitis. It is becoming more common as compared to recent past.

Vogt Koyanagi Harada syndrome

VKH is common idiopathic autoimmune disease with multisystem involvement. VKH can be divided into Vogt-Koyanaghi disease with skin changes and Harada disease with neurological symptoms and exudative retinal detachments.

Sympathetic ophthalmitis

Sympathetic ophthalmitis is bilateral granulomatous uveitis which is seen after penetrating trauma. It causes panuveitis.