



# *Ophthalmology*

DR VISHNU

## ***Case 1***

- Your next patient is a 44 year old lady who presents to you complaining of double vision for some time. She is a known case of diabetes and hypertension
- Tasks
- Take history for 6 minutes
- Explain diagnosis and differentials

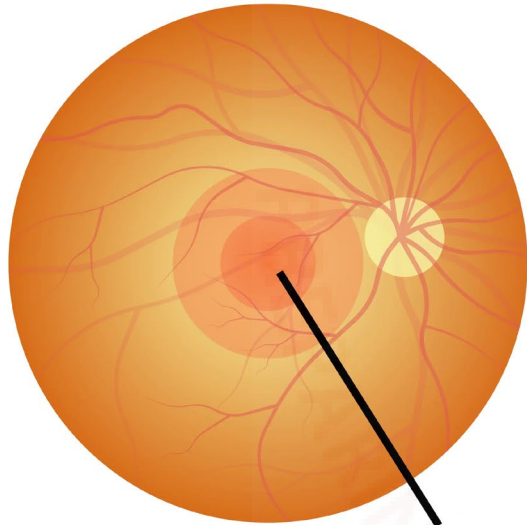
- Two types of diplopia - monocular binocular
- binocular there is problem with alignment & Individual eyes are totally fine
- cover test will be the key point
- monocular - diplopia persists on cover test
- binocular diplopia - Diplopia does not persist with covert test or diplopia disappears with cover test
- Monocular - MCG Macular degeneration ; cataract ; glaucoma ; Astigmatism; refractive error
- Binocular diplopia - brain tumours; Multiple sclerosis; meningitis; diabetic neuropathy; traumatic neuropathy; myasthenia gravis; thyroid ophthalmoplegia; Orbital tumours; orbital myositis;
- Determine if diplopia present with both eyes open or one eye is closed

## • History

- open ended question
- Explore complaint- diplopia- since when
- is it on and off for continuous
- is it getting worse with time
- Alleviating and aggravating factors
- Better with rest
- better with specific head position
- worse towards the end of the day
- Can you please describe it is it double images or just blurring of vision
- Pattern does it persist when you close one of your eye binocular verses monocular
- does it get worse on gaze specific to One side
- Is there separation of images is it vertical or horizontal
- Was on looking at distance or near objects
- how is it affecting your daily life

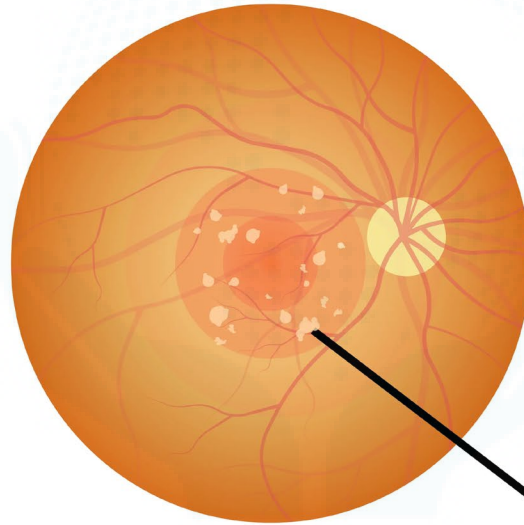
# Macular degeneration

Normal eye



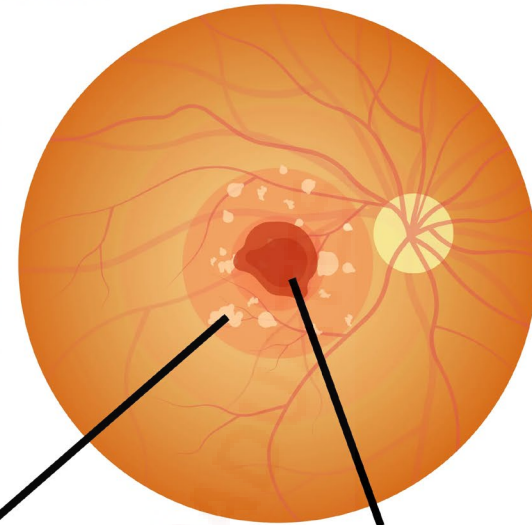
Macula

Dry AMD

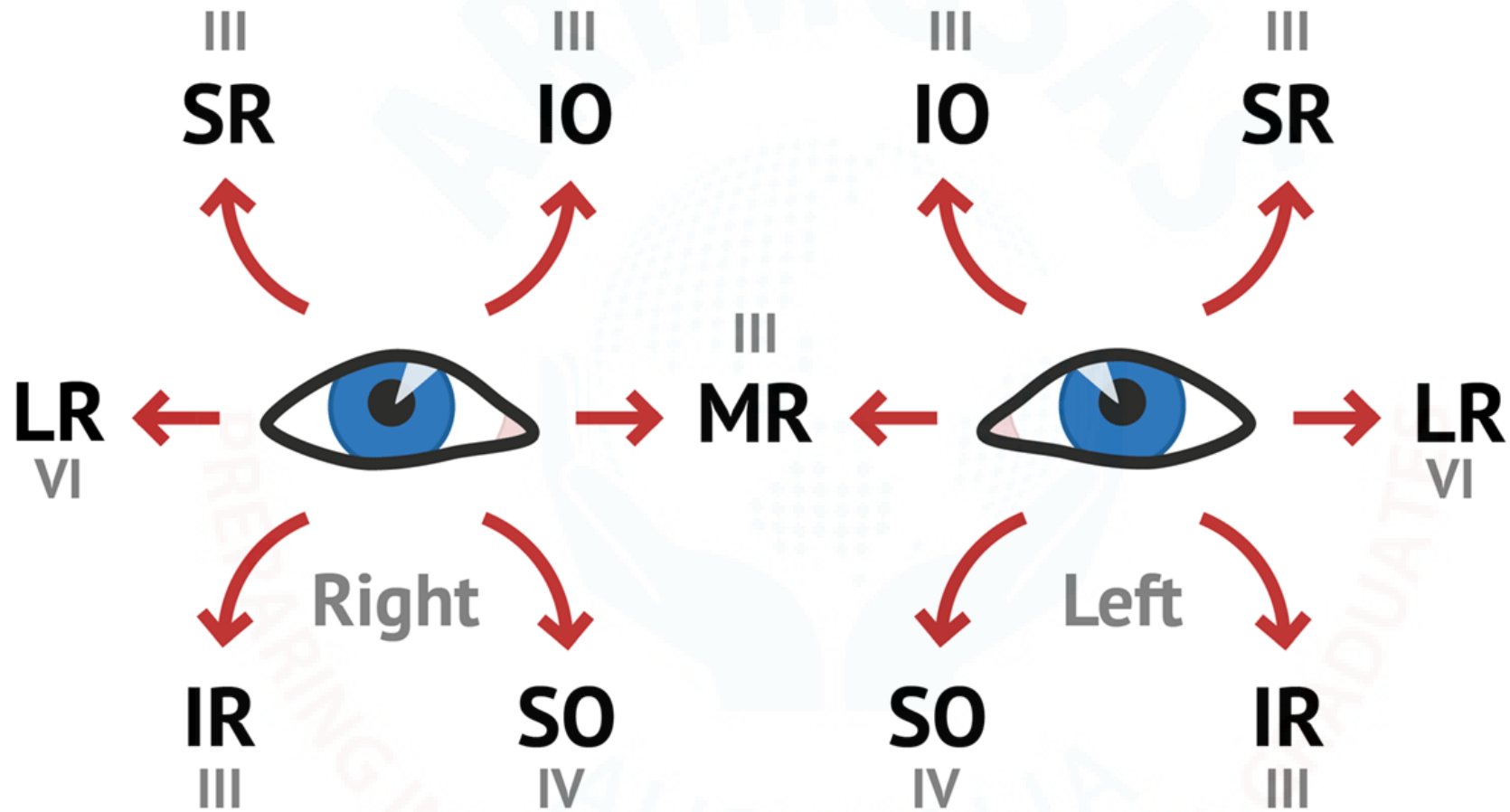


Protein deposits  
(drusen)

Wet AMD



Blood / fluid leak  
in the macula



## • **Differential diagnosis**

- brain tumours- early morning headaches
- early morning nausea and vomiting
- any neurological deficit in the body - This question also covers multiple sclerosis
- Any weakness or numbness
- any speech problems/ balance problems
- myasthenia gravis - Double vision was at the end of the day
- weakness in the muscles at the end of the day
- thyroid any weather preference
- any history of thyroid
- Migraine nausea; vomiting sensations ;
- Are you light and sound sensitive
- any flashing lights or zigzag lines
- Family history of migraine

- Trauma- any head injuries
- Any falls lately
- Eye problems
- Pain in the eye
- Any redness in the eye
- any fever / Pain in the eye for painful ophthalmoplegia
- fever for orbital cellulitis
- second important part diabetes and hypertension positive
- Since when
- what treatment ; are you compliant
- follow up with specialist or GP
- Complications → diabetes complications → any blurring of vision; sensory neuropathy; numbness or pins and needle sensation in legs
- hypertension complications → chest pain; shortness of breath; any swelling in the legs

- Other causes-
- Macular degeneration
- Difficulty in seeing and recognising faces
- do you see wavy lines
- Any problem with changing lanes while driving
- Amsler grid test
- glaucoma While driving Do you have to turn over your head to see signs
- Cataract any halos around the lights
- do colour looks faded for you
- any problems in seeing colours
- Close with SADMA; past medical history; family history

- Positive findings Diplopia better When close one of the eye; Not compliant with diabetic medications;
- Most likely you have a condition called binocular diplopia
- It means both eyes are totally normal but there is alignment and movement problem between both eyes
- I was thinking of mention ....all the diagnosis that you are thinking
- Most likely Cause in your cases nerve problems because of your uncontrolled diabetes
- If binocular diplopia, mention binocular diplopia differentials first then monocular
- if it is monocular mention the MCG 1st and then binocular differentials next

## ***Case 2***

- Your next patient is 25 year old Jenna, who presents to your general practise complaining of red sore eyes
- Tasks
- take history for six minutes
- explain most probable diagnosis and differentials

- **History** open ended question- address the concern- any pain now would you like a painkiller
- Explore the chief complaint - pain and redness –
- since when
- is it on and off or continuous
- is it getting worse
- which one came 1<sup>st</sup> or they together
- Redness- pattern- is it one eye or both eyes
- is the redness in eye or eyelids
- pain - SIQORAA
- Ophthalmology questions- general symptoms –
- any blurring of vision or any double vision
- Discharge if yes – CCVO

- Fever
- Any swelling in the eyelids
- Photophobia- does bright light hurt your eyes
- differentials for painful red eye
- conjunctivitis
- bacterial - any thick pus discharge; are your eyelid sticky in the morning
- viral - keratoconjunctivitis; Pre auricular lymphadenopathy - lumps and bumps in the face or front of the ear
- Allergy- any itchy eyes; watery eyes; runny or Itchy nose; any sneezing
- Endophthalmitis- Do you use contact lens

- Foreign body in the eye-
- UV Keratitis - What is your occupation; Any welding
- Penetrating injuries or corneal ulcers - any trauma or injury to eye your face
- orbital cellulitis - swelling of eyelids; any fever; pain on movements of the eyes
- Uveitis- do you see any flashes of floaters in the eye; Any dots Flashing or floating in your visual field ; Associated joint pain
- Glaucoma - Any previous history of red sore eye; any nausea vomiting
- Blepharitis; stye; chalazion → any rashes on the eyelids
- any swelling on the eyelids

- Travel history- if yes then explore- Bushwalking
- insect bite
- Street food and unbottled water
- Sexual activity for chlamydia gonorrhoea
- swimming in the freshwater
- Did you consult your gp
- Symptoms of travel related infections- Tiredness; rash; lumps and bumps; body aches

- old case- patient wearing sunglasses; as if there is any photophobia or not; Feverish; there is a rash but it is not itchy; no photophobia; just embarrassed about red eyes; Recently travelled to Brazil; bilateral red painful eyes; clear water discharge; no blurring of vision; positive body aches;
- - Most likely viral conjunctivitis inflammation of the outer layer of the eyes and inner layer of the eyelids
- However I am concerned about your recent travel and some special infections like dengue fever and zika virus
- Differential diagnosis - Bacterial Or allergic conjunctivitis; orbital cellulitis; endophthalmitis; foreign body or trauma; uv keratitis; uveitis or scleritis; glaucoma; blepharitis; stye; chalazion; dry eye

- Dengue can cause severe illness including fever, severe joint and muscle pain, rash, and in severe cases, hemorrhagic fever.
- Zika often presents with milder symptoms similar to dengue, such as fever, red eyes, headache, joint pain, and a rash.



## ***Case 3***

- Your next patient is 67 year old man who presents to the ED with complaints of vision loss. this is the third time he is getting these symptoms. his vision has improved and normal now
- Tasks
- Take history for six minutes
- diagnosis and differentials

- **Differential diagnosis**

- **EYE**

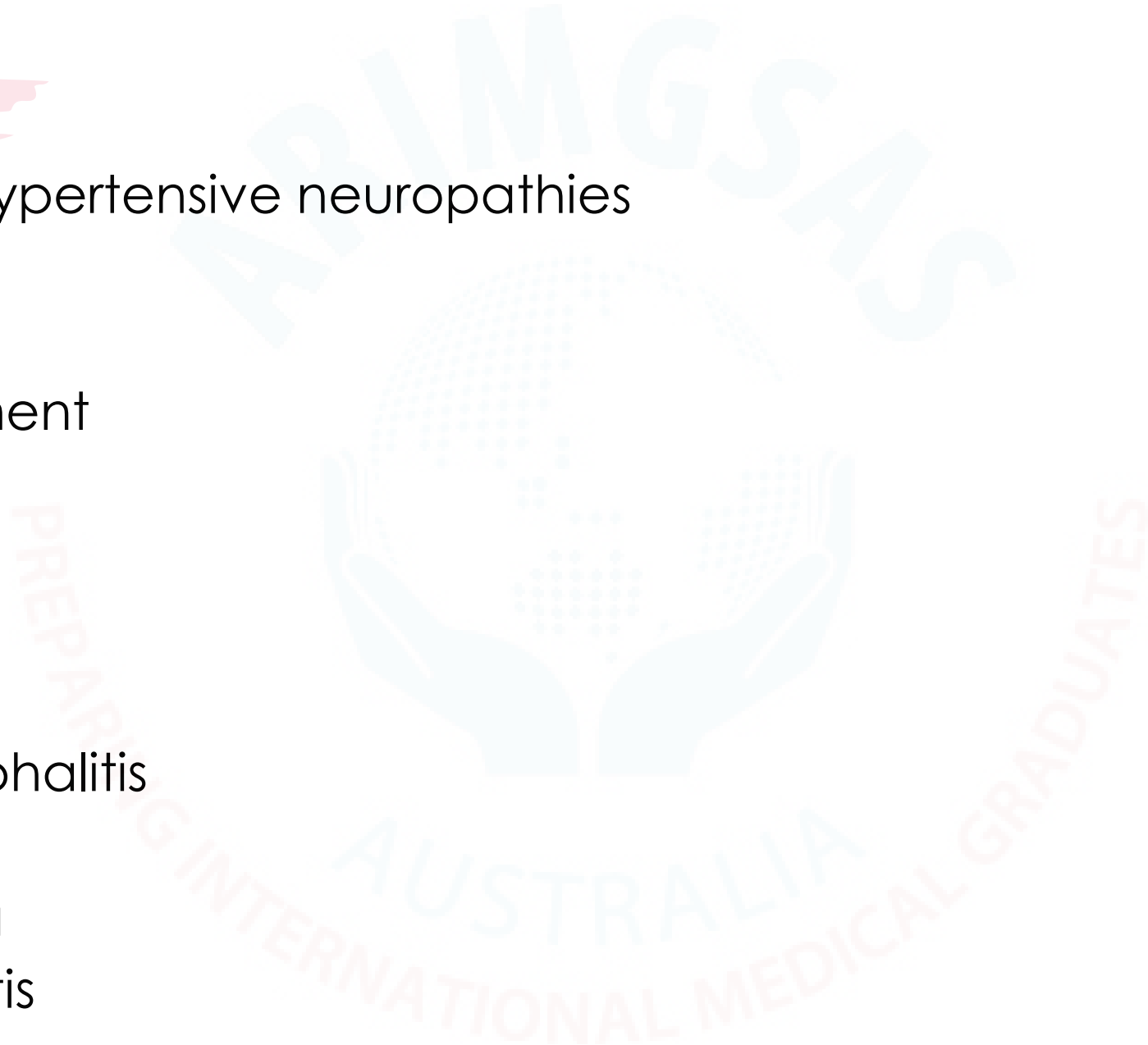
- glaucoma
- diabetic and hypertensive neuropathies
- optic neuritis
- CRAO & CRVO
- retinal detachment

- **Neuro**

- Stroke/ TIA
- brain tumours
- migraine
- Meningo-encephalitis

- **OTHERS**

- Hypoglycaemia
- temporal arthritis



- Amaurosis fugax- General term for any transient vision loss
- **History** -hemodynamic stability- open ended question - address any concern
- explore complaint vision loss
- when did it happen
- how long lasted
- is it on and off or continuous
- Is it fully improved now
- Pattern- is it in one eye or both eyes
- total vision loss or just blurring of vision
- Loss of entire field of vision or just a part of it
- alleviating and Aggravating factors
- **Differentials**
- TIA/ stroke- Neurological deficits; any slurred speech; any balance or walking problem; any weakness and numbness in arms and legs
- Key point here CVS risk factors ABCDEF

- Red flags- brain tumors- Any early morning headache; nausea vomiting; headaches increase on sneezing or coughing; Any neurological deficits
- temporal arteries - any headaches; any tender cordlike structure on the side of your head; Any stiffness in your shoulders or hip joint
- eye problems- any pain in the eye;
- any fever;
- redness in the eye;
- discharge;
- does bright lights hurt your eye;
- do you see any small dots flashing or floating in your eyes

- Optic neuritis- colour vision- Is there any difficulty in seeing and recognising colours;
- retinal detachment - did you lose your vision suddenly ; Can you describe vision loss as curtain falling
- Migraine- nausea, vomiting, family history of migraine
- hypoglycaemia – did you miss any meals
- meningitis or encephalitis- fever; sore neck; rashes; confusion
- Physical examination- Transient ischemic attack- Do echo and Doppler of Carotid
- General appearance
- GCS of the patient
- level of consciousness
- vital signs pulse rate and rhythm for atrial fibrillation

- Neuro examination
- fundoscopy
- Both upper and lower limb neurological examination
- cranial nerves examination
- Full CVS examination
- Carotid bruits
- Diagnosis- transient chemical attack or mini stroke
- Lack of blood supply to brain that is resolved after short period of time
- recent slurred speech and weakness which became completely better
- Cardiovascular risk factors give whatever positive
- Differentials as the list discussed before

## *Case 4*

- 24 year Jenna scheduled Telephone appointment with you. she is concerned about her left eye. (Sometimes pain sometimes swelling might be the chief complaint)
- Tasks
  - take history for five minutes
  - diagnosis and differentials
  - provide your management

- Open ended question - address the concern - about eye
- Explore pain SIQORAA
- site - one eye or both eye
- intensity
- quality Dull or throbbing
- onset - since when; on and off or continuous; worse with time; alleviating and aggravating factors
- symptoms- eyelids -any swelling or redness in the eyelids; Is it entire eyelid or just specific point; any discharge From eye; are your eyelid sticking early in the morning;
- eyes - any redness in the eye; blurring of vision or double vision; photophobia- does bright light hurt your eyes; do you see small dots flashing or floating in the eye

- Endophthalmitis - do you use contact lens
- uv keratitis - Any welding occupation
- foreign body- Any injury or trauma to face - it covers corneal ulcer and penetrating injury
- **Orbital cellulitis** - any pain on moving of eyes; Any nasal congestion; nasal discharge; secretion behind the throat for sinusitis ; any fever or chills
- glaucoma - Any nausea or vomiting ; family history of glaucoma
- Any visual field defects while driving- do you have to turn your head to see the signs
- Blepharitis; chalazion; stye - Any rashes or skin lesions on eyelid
- uveitis any joint pain / diarrhea
- Migraine - Any headache; family history of migraine;
- travel history - any contact with sick people
- Closure with SADMA; past medical and family history

- **Positives**

- **orbital cellulitis**

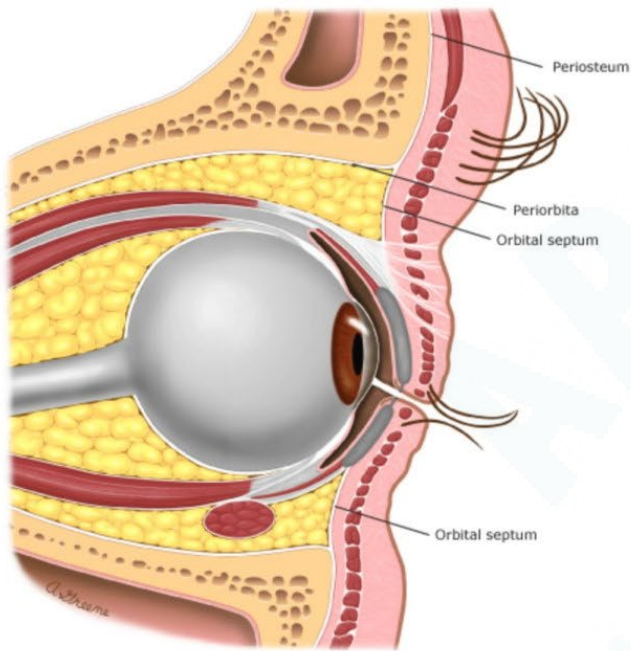
- pain in eye for the past two days
- redness positive
- feeling hot and cold
- swelling on the eyelid and swelling around the eyes- Which is almost closing the eyes
  
- Positive- gardening ; there was a scratch in eye - **ulcer**
  
- History of headaches- **migraine**
- Look Jenna features you described to me are concerning I'm worried about serious infection called Orbital Cellulitis
- this is severe infection of tissue around the eye; needs urgent treatment

## • **Differentials**

- all the list that we have mentioned before in the history
- Management - you need to go to the ED immediately
- They will examine your eye - On which there is pain on eye movements
- they will confirm the diagnosis
- They will do ct scan for eyes and sinuses
- they will give you iv antibiotics
- if not orbital cellulitis they will discharge and send you home
- another case lump on eye lid → painless Stye or chalazion →  
Differential diagnosis mainly skin cancer for BCC

## ***Periorbital vs Orbital Cellulitis<sup>1,4</sup>***

<b>Inflammation and/or infection of the eyelids and their surrounding soft tissue</b>	Inflammation and/or infection of the soft tissues of the orbit including fat, connective tissue, and muscles
Anterior to the orbital septum	Posterior to the orbital septum
Typically results of minor trauma or nearby local infection (URI, blepharitis, etc.)	Typically results from nearby paranasal sinusitis, traumatic inoculation, and more rarely hematological dissemination
Can present with eyelid erythema, edema, warmth, and less commonly, systemic symptoms	Can present with chemosis, ophthalmoplegia, proptosis, afferent pupillary defect, constricted extraocular movements, altered vision including color changes, and +/- systemic symptoms
Usually benign and can be treated with PO antibiotics outpatient	Life-threatening and requires IV antibiotics with severe cases requiring surgical drainage



Preseptal Cellulitis	Orbital Cellulitis
✓ Unlikely to have complications	✗ Can progress to loss of vision, brain abscess
Due to external source	Associated with paranasal sinusitis
<ul style="list-style-type: none"> <li>• Staph aureus</li> <li>• Strep pneumo + other Strep</li> <li>• Anaerobes</li> </ul>	<ul style="list-style-type: none"> <li>• Same micro as preseptal cellulitis plus fungal, mycobacterial</li> </ul>

Clinical Feature	Preseptal Cellulitis	Orbital Cellulitis
Eyelid swelling with or without erythema	Yes	Yes
Eye pain, tenderness	+/-	Yes, can have deep eye pain
<b>Pain with EOM</b>	<b>No</b>	<b>Yes</b>
Proptosis	No	Usually, can be subtle
Ophthalmoplegia, diplopia	No	May be present
Vision impairment	No	May be present
Chemosis	Rare	May be present
Fever	May be present	Usually
Leukocytosis	May be present	May be present