HEENT part 2: THE EYE

1. EQUIPMENT - ophthalmoscope, penlight, eye chart, 3x5 index card

2. ASSESS VISUAL ACUITY
   • Using standard Snellen chart, stand at 20 feet with
corrective lenses if worn, covering one eye at a time with
their palm. Determine smallest line read/w/o error.
   • Using a Pocket chart, viewed at 14 inches, the patient is
again asked to read the smallest line possible

3. VISUAL FIELDS - assess by confrontation (normal = 30°)
   • At eye level 3 feet in front of pt, have them fix central
gaze on your nose. Perform exam yourself
   simultaneously for a frame of reference.
   • Close opposite eyes (pt. right, Dr. left ) and raise 1 or 2
fingers on both sides within your visual field and ask
patient to count numbers. Move to upper & lower
quadrants changing finger numbers, then switch eyes.
   • Blind spot normal at 15-20° temporally; May also test
peripheral vision from behind with finger motions

4. OCULAR MOVEMENTS
   • Assess Eye Alignment - using penlight directly in front
of patient observe location of reflected light on cornea.
A deviation is indicative of a strabismus
   • Perform Cover Test - have pt fix gaze on distant object
while covering one eye with 3x5 card. Observe
uncovered eye simultaneously to note any compensatory
movement to focus on the distant object. If so, positive
for deviation.
   • Evaluate Gaze (“H in space”) - keeping pts chin
steady and centered, follow H in space pattern approx
10 inches in front of them, pausing at the endpoints.
Note: end-point nystagmus normal on lateral gaze

5. PUPILLARY ASSESSMENT (PERRLA)
   • Examine pupils for equal size and symmetry
   • Pupillary reflex - assessed by having pt focus in
distance and introducing light source from side. Should
note direct and consensual pupillary responses.
   • Accommodation - tested by introducing finger or object
within 5 inches of gaze, noting convergence and
pupillary constriction normally
   *Note: When pupils react to accommodation but not light
(Argyll-Robertson) consider syphilis, diabetes, CNS dz.
   * Anticholinergics cause dilated pupils. Opiates ➔ pinpoint

6. OBSERVE EYELIDS, CONJUNCTIVAE, & SCLERA.
   Look for xanthelasma (suggests ↑ cholesterol), drooping or
unequal palpebral fissures (due to ptosis), scleral yellowing
(implies jaundice), Kayser-Fleischer ring (copper), redness
of eyes, discharge, congestion of lacrimal glands.

7. NOTE:
   • Local injection ➔ foreign body, abrasion/conjunctival ulcer
   • Conjunctival Infection - tends to spare area around the
iris, mainly on periphery of sclera, worse on palpebral
   • Ciliary injection - inflammation or injury to cornea, iris
   or ciliary body found around iris ➔ sign of
inflammation of deeper structures.
   • Blepharitis - inflammation around margins of lid;
usually due to chronic Staph infections
   • External Hordeolum (Sty) - localized infection on the
external margin of the lid; painful & red on lower lid;
involves glands of Zeiss or Moll; more painful; Staph
auraeus is the most common pathogen

8. INTERNAL HORDEOLUM - Meibomian glands involved;
less painful; tend to become chronic- termed chalazion

9. EVERTTHE LIDS TO INSPECT FOR:
   • Foreign bodies - not uncommon
   • Papillary changes - red bumps under eyelid on palpebral
conjunctiva; see with bacterial or allergic conjunctivitis
   • Follicular changes - small pale round patches;
sometimes indication of Chlamydia & viral conjunctivitis

10. OPHTHALMOSCOPIC EXAM OF FUNDI
   • First note red reflex, then concentrate on visualizing the
optic disc and tracing its perimeter. Dial up and down 1
or 2 diopters in each direction on the fundoscope after
you have visualized an edge of the disc to fine tune disc
clarity.
   • Follow course of vessels from fundus backwards into all
four quadrants. Note where veins and arteries cross; look
for nicking and other abnormalities.
   • Note opacities of the lens and funduscular abnormalities
(arteriovenous nicking, hemorrhages, exudates, arteriolar
narrowing); check for papilledema. The fundoscopic
exam is especially important in dzs with microvascular
changes (Hypertension, Diabetes).

PAINFUL EYE SYMPTOMS (Non-visual)
• Foreign body sensation (foreign body, Corneal abrasion)
• Burning (uncorrected refractive error, conjunctivitis,
Sjorgen’s syndrome)
• Throbbing, aching (Acute iritis, Sinusitis)
• Tenderness (Eyelid inflammations, conjunctivitis, iritis)
• Headache (refractive errors, migraine, sinusitis)
• Drawing sensation (uncorrected refractive error)

PAINLESS EYE SYMPTOMS (Non-visual)
• Itching (Dry eyes, eye fatigue, allergies)
• Tearing (emotional states, hypersecretion, blockage)
• Dryness (Sjorgens syndrome, ↓ secretionism as of aging)
• Grittiness (conjunctivitis)
• Fullness of eyes (Proptosis (bulging), lids - aging changes)
• Twitching (Fibrillation of orbicularis oculi)
• Eyelid heaviness (fatigue, eyelid edema)
• Dizziness (Refractive error, cerebellar dz, vestibular dz)
• Excessive blinking (Local irritation, facial tic)
• Eyelids stick together (Inflammatory dz of lids or
conjunctivae)

COMMON VISUAL EYE SYMPTOMS
• Loss of Vision (Optic neuritis, detached retina, retinal
hemorrhage, central retinal vascular occlusion, acute narrow
and angle glaucoma, CNS dz)
• Spots (no pathological significance - may precede a retinal
detachment or may be associated with ingestion of fertility
drugs)
• Flashes (Migraine, retinal or posterior vitreous detachment)
• Loss of visual field or presence of shadows or curtains
(retinal detachment, retinal hemorrhage)
• Glare, photophobia (iritis, meningitis)
• Distortion of vision (Retinal detachment, macular edema)
• Difficulty seeing in dim light (Myopia, Vitamin A
deficiency, Retinal degeneration)
• Colored halos around lights (Acute narrow angle
glaucoma, Opacities in lens or cornea)
• Colored vision changes (Cataracts, Drugs (digitalis
increases yellow vision))
• Double vision (Extraocular muscle paresis or paralysis)

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### DIFFERENTIATION OF WHITISH LESIONS OF THE FUNDS

<table>
<thead>
<tr>
<th>ETIOLOGY</th>
<th>COTTON-WOOL SPOTS</th>
<th>FATTY EXUDATES</th>
<th>DRUSEN/COLLOID BODIES</th>
<th>CHORIO-RETINITIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>Diabetes mellitus</td>
<td>Retinal venous occlusion</td>
<td>Normal with aging</td>
<td>Toxoplasmosis</td>
</tr>
<tr>
<td>AIDS</td>
<td>Retinitis proliferans</td>
<td>Hyperensive retinopathy</td>
<td>SARCOIDOSIS</td>
<td></td>
</tr>
<tr>
<td>Diabetic retinopathy</td>
<td>Dermatomyositis</td>
<td>Papilledema</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### DIFFERENTIAL DIAGNOSIS OF THE RED EYE

<table>
<thead>
<tr>
<th>PRESENTATION</th>
<th>ACUTE CONJUNCTIVITIS</th>
<th>ACUTE IRIS</th>
<th>NARROW ANGLE GLAUCOMA</th>
<th>CORNEAL ABRASION</th>
</tr>
</thead>
<tbody>
<tr>
<td>History</td>
<td>• Sudden onset</td>
<td>• Rapid onset</td>
<td>• Trauma</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Exposure to conjunctivitis</td>
<td>• Sometimes hs of previous attacks</td>
<td>• Pain</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(bacterial, viral or allergic)</td>
<td>• ↑ incidence among Jews, Swedes and Inuit Eskimos</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vision</td>
<td>Normal</td>
<td>Impaired if untreated</td>
<td>Can be affected if central</td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td>Gritty feeling</td>
<td>Moderate</td>
<td>Exquisite</td>
<td></td>
</tr>
<tr>
<td>Bilaterality</td>
<td>Frequent</td>
<td>Occasional</td>
<td>Usually unilateral</td>
<td></td>
</tr>
<tr>
<td>Vomiting</td>
<td>Absent</td>
<td>Absent</td>
<td>Absent</td>
<td></td>
</tr>
<tr>
<td>Cornea</td>
<td>Clear (epidemic keratoconjunctivitis has corneal deposits)</td>
<td>Variable</td>
<td>“Steamy” (like looking through a</td>
<td>Irregular light reflex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>yellow window)</td>
<td></td>
</tr>
<tr>
<td>Pupil</td>
<td>Normal, reactive</td>
<td>Small, irregular, non-reactive</td>
<td>Partially dilated, oval, nonreactive</td>
<td>Normal, reactive</td>
</tr>
<tr>
<td>Iris</td>
<td>Normal</td>
<td>Normal (seeing rainbows can be an early sx of an attack)</td>
<td>Difficult to see owing to corneal edema</td>
<td>Shadow of corneal defect may be projected onto the iris with penlight</td>
</tr>
<tr>
<td>Ocular</td>
<td>Mucopurulent or watery</td>
<td>Watery</td>
<td>Watery</td>
<td>Watery or mucopurulent</td>
</tr>
<tr>
<td>Discharge</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systemic</td>
<td>None</td>
<td>Few</td>
<td>Many</td>
<td>None</td>
</tr>
<tr>
<td>effect</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prognosis</td>
<td>Self-limited</td>
<td>Poor if untreated</td>
<td>Poor if untreated</td>
<td>Good if not infected</td>
</tr>
</tbody>
</table>

### RETINAL CHARACTERISTICS OF COMMON DISEASES

<table>
<thead>
<tr>
<th>CONDITION</th>
<th>PRIMARY FINDINGS</th>
<th>DISTRIBUTION</th>
<th>SECONDARY FINDINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>Microaneurysms</td>
<td>Posterior pole</td>
<td>Hard exudates +</td>
</tr>
<tr>
<td></td>
<td>Neovascularization</td>
<td></td>
<td>Deep hemorrhages</td>
</tr>
<tr>
<td></td>
<td>Retinitis proliferans *</td>
<td></td>
<td>Retinal venous occlusions</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Arteriolar narrowing</td>
<td>Throughout retina</td>
<td>Hard and soft exudates</td>
</tr>
<tr>
<td></td>
<td>Flame hemorrhages</td>
<td></td>
<td>Retinal venous occlusions</td>
</tr>
<tr>
<td></td>
<td>“Copper wiring”</td>
<td></td>
<td>Macular stars</td>
</tr>
<tr>
<td>Papilledema</td>
<td>Hyperemia of the disc</td>
<td>On or near disc</td>
<td>Hard exudates +</td>
</tr>
<tr>
<td>Retinal venous</td>
<td>Venous engorgement</td>
<td></td>
<td>Optic atrophy, late</td>
</tr>
<tr>
<td>Occlusion</td>
<td>disc elevation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Loss of spontaneous venous pulsations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retinal venous</td>
<td>Cotton wool spots</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occlusion</td>
<td>Hemorrhages</td>
<td>Confined to area drained by affected vein</td>
<td>Exudates +</td>
</tr>
<tr>
<td>Neovascularization</td>
<td>Embolus possibly visible</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retinal arterial</td>
<td>Pallor of retina</td>
<td>Confined to area supplied</td>
<td>Optic atrophy, late</td>
</tr>
<tr>
<td>occlusion</td>
<td>Embolus possibly visible</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arteriolar</td>
<td>Widening of light reflex</td>
<td>“Copper wiring”</td>
<td>Decrease in retinal pigment</td>
</tr>
<tr>
<td>sclerosis</td>
<td>Atriovenous nicking</td>
<td>Throughout retina</td>
<td></td>
</tr>
<tr>
<td>Blood dyscrasias</td>
<td>Diffuse hemorrhages</td>
<td>Venous dilation (common)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Venous dilatation (common)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sickle cell</td>
<td>Sharp cutoff of arterioles, Atriovenous anastamoses</td>
<td>Peripheral retina</td>
<td>Vitreous hemorrhages</td>
</tr>
<tr>
<td>disease</td>
<td>Neovascularization in “sea fan” formations</td>
<td></td>
<td>Retinal detachments</td>
</tr>
</tbody>
</table>

* Growth of light colored sheet of opaque connective tissue over inner surface of retina. Neovascularization of this tissue is seen. These vessels bleed easily.
+ Exudate is the term used for small intraretinal lesions caused by retinal disturbances in a variety of disorders.