OCULAR EMERGENCIES

When you get the call!

Weeding out the true emergencies.

Making the commitment.

DISCLOSURE

- SPEAKER / CONSULTANT: ALLERGAN
- SPEAKER / CONSULTANT: VISTAKON (CL)
- SPEAKER: ABBOTT MEDICAL OPTICS

OCULAR ADNEXA

- Orbital Cellulitis
  - Eyelid edema, erythema, warmth, bruised appearance w/o trauma.
  - Pain, decreased eom, fever
  - W/U
    - History
    - CEE (? RAPD)
    - CT w/ w/o contrast orbits / sinuses
    - CBC w/ diff.
**OCULAR ADNEXA**

- Orbital Cellulitis
  - Immediate Hosp.
  - Neuro. Consult if susp. Meningitis
  - Tx: IV antibiotics
    - Ceftriaxone and/or Vancomycin
  - ENT Consult


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**Periorbital vs. Orbital Cellulitis**

<table>
<thead>
<tr>
<th>Pathogenesis</th>
<th>Periorbital</th>
<th>Orbital</th>
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</thead>
<tbody>
<tr>
<td>Trauma</td>
<td>Sinusitis</td>
<td></td>
</tr>
<tr>
<td>Bacteremia</td>
<td>Sinusitis</td>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th>Age (mean)</th>
<th>Periorbital</th>
<th>Orbital</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 months</td>
<td>12 years</td>
<td></td>
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<table>
<thead>
<tr>
<th>Clinical Findings</th>
<th>Periorbital</th>
<th>Orbital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proptosis, chemosis, ophthalmoplegia, Decreased Va</td>
<td>Periorbital induration, erythema, warmth, tenderness</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bacteria</th>
<th>Periorbital</th>
<th>Orbital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staph. Aureus, group A Strep.</td>
<td>S. pneumoniae, nontypeable Haemophilus influenzae, Moraxella catarrhalis, group A Streptococcus, Staphylococcus aureus, anaerobes</td>
<td></td>
</tr>
</tbody>
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**CHEMICAL BURN**

- Acid
  - Copious Irrigation
  - Ringers lactated soln. or Saline
  - Morgan Lens
  - PH level
  - Va
  - Hx
  - Triage ***
  - Treatment

- Alkaline
  - Ammonia, Lye, Lime, MgOH₂
  - Normalize PH
    - SLE = prognosis
  - Goals:
    - Patient comfort
    - Promote epithelialization
    - Prevent infection
  - ?? STEROIDS ??
**ALKALI BURN**

**CHEMICAL BURN**

Thoft’s Classification

- **Grade I** Cornea epithelial damage, no ischemia (good prognosis)
- **Grade II** Cornea hazy but iris details seen, ischemia < 1/3 of limbus (good prognosis)
- **Grade III** Total loss of corneal epithelium, stromal haze blurring iris details, ischemia 1/3–1/2 of limbus (guarded prognosis)
- **Grade IV** Cornea opaque obscuring view of iris, ischemia > 1/2 of limbus (poor prognosis)

**CORNEAL ULCER**

- **Bacterial**
  - C. L. wear
  - 10x > EW
  - P. aeruginosa
  - Staph
  - MRSA, MRSE
  - Tx: 4th Gen. Fluoroquinolones
  - Tobramycin ung. qhs
  - Fortified Vanco., Tobr.

- **Viral**
  - HSK (epithelial)
  - NO STEROIDS
  - Oral Antivirals
    - Acyclovir 400mg 5xd
    - Valcylovir 500mg bid
  - HEDS I
    - No benefit to treatment of HSK
    - Benefit b/c of treatment failures
    - HEDSII
      - >1 recurrence in
        - 4% Acyclovir grp.
        - 9% Placebo grp.

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**CORNEAL ULCER**

- **Viral**
  - HSK (epithelial)
    - H.E.D.S.
      - Hx Stromal inc. risk of recurrence.
      - Supp. Tx: benefit for stromal disease.
      - 19% Tx Grp.
      - 32% Placebo Grp.

- **Corneal Ulcer**
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    - C. L. wear
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**CORNEAL ULCER**

- Viral
  - HSK (Stromal)
  - Combo Tx
  - Valtrex 500mg bid
  - Acyclovir 400mg 5x/d
  - Co-manage
  - Hx Stromal Dz inc. incidence of recur. stromal Dz.


**CORNEAL ULCER**

- Fungal
  - So. SW US
  - May follow veg. Trauma
  - Feathery infiltrate
  - Elevated
  - Multifocal
  - Deep penetration
  - Hypopyon

**CORNEAL ULCER**

- Fungal
  - Most Common Org.
    - Fusarium
    - Aspergillus
  - Tx
    - Natamycin (Fus.)
    - Amphotericin B (Asp)
    - Imidazoles
      - Mic., Keto., Itra., Diflucan

**CORNEAL ULCER**

- Fungal Keratitis ranges 2% - 35% N to S
  - Fusarium more common in So. U. S.
  - Candida and Aspergillus more common in No. U. S.
  - Trauma, CL wear

**CORNEAL ULCER**

- Amoeba
  - Acanthamoeba
    - 70% of cases = C. L. wear
    - Severe pain**
    - Pain ≠ Picture
  - Tx
    - Antifungal Therapy
      - Brolene (Propamidine)
      - Baquacil
  - Rub and Rinse
  - No Swimming !!!!
  - No Topping Off !!!!

**Pseudo-dendrites**
Radial Keratoneuritis

CORNEAL ULCER
- Amoeba
  - Acanthamoeba
    - Tx
      - Antifungal Therapy
      - Baquacil
    - Rub and Rinse
    - No Swimming!!!!
    - No Topping Off!!!!

FOREIGN BODY
- Superficial
  - Va, IOP, DFE, OU
  - Corneal
    - Metallic
      - ?Seidel test
      - Spud
      - Brush

FOREIGN BODY
- Superficial
  - Conjunctiva
    - ? Seidel test
    - Cotton swab
    - Spud

FOREIGN BODY
- Superficial
  - Residual SCH

FOREIGN BODY
- Penetrating
  - Usually metal
  - Complications
    - Cat
    - RD
    - Endophthalmitis
FOREIGN BODY

Penetrating

FOREIGN BODY

ANGLE CLOSURE GLAUCOMA

Primary Angle Closure
- Intense Pain
- Nausea
- Photophobia
- Decreased Va
- Mid-dilated pupil
- Injection

ANGLE CLOSURE GLAUCOMA

Testing
- Va
- IOP
- Gonio OU

Gonio

SL
TM
SS
CBB

ANGLE CLOSURE

Gonioscopy
ANGLE CLOSURE GLAUCOMA

- Treatment
  - Aqueous suppressants
  - Oral CAIs
  - Oral Osmotics (No more Osmoglyn)
  - Pilocarpine 2% - 4%*
  - LPI

SECONDARY ANGLE CLOSURE

- Neovascular GL
  - D. M.
  - HTN
  - CV Dz

- Posterior Mass Lesion
  - Gonio

SECONDARY ANGLE CLOSURE

- Posterior Mass Lesion

UVEITIS

- Acute Anterior
  - Trauma
  - Idiopathic (55%)
  - IOP
  - DFE
  - Tx
    - PF aggressively
    - Cycloplegics
    - Aqueous sup. if IOP rises.

UVEITIS

- Intermediate
  - J. I. A.
  - Lyme Dz.
  - Masquerade syn.
    - Lymphoma

- Endophthalmitis
  - S/P Surgery
  - IO FB
  - Days to months p/o
  - Prompt Dx and Tx is most imp.
  - Exp. w/ IOLs soaked in antibiotics
  - Incidence ~0.87% - 0.2%

S = Sclera
C = Cornea
AC = Anterior Chamber
I = Iris
L = Lens
Ciliary Body
Tumor
UVEITIS
- Posterior
  - Si / Sx = Decreased Va, Floaters
  - Toxoplasmosis Chorio-Retinitis
  - Most Common

- Panuveitis
  - Sympathetic Ophthalmia
  - VKH
  - Sarcoidosis

HYPHEMA
- Hx of trauma
- Must check for SC Dz
- Complete Eye Exam
- NO GONIO OR S. D.
- Tx
  - Atropine tid
  - Steroid gtts.
  - Aqueous sup.
    - >20 if SC +
    - >30 if SC –

- Tx
  - No ASA prod.
  - Hosp. if non-compliant or bleeding disorder
  - Clotting Factors
    - Amicar (Aminocaproic Acid)
    - DDAVP (Desmopressin Acetate)
    - Hemophilia

"8 BALL" HYPHEMA
ACUTE DIPLOPIA

History
- Duration?
- Progression
- Assoc. Sx
- Vertical or Horizontal
- Diurnal variation
- Med. Hx

ACUTE DIPLOPIA

History
- Worse at D or N
- Worse w change in gaze / head tilt
- ? Ptosis
- Is one image tilted
- Diplopia present monocularly?

3rd n palsy

3rd n palsy (Adult)
- Undetermined 23%
- Vascular 21%
- Trauma 16%
- Aneurysm 14%
- Neoplasm 12%
- Other 15%

ACUTE DIPLOPIA

3rd n palsy (children)
- 45 % Congenital
- 18 % Traumatic
- 10 % Neoplasms
- 5 % Aneurysm
- 12 % other

4th n palsy

4th n palsy
- Vertical diplopia
- Worse on head tilt

ACUTE DIPLOPIA

Management
- < 10 y. o. = MRI
- > 10 y. o. w/ pupil involvement = MRI/MRA
- 10 – 55 y. o. w/ pupil involvement = STAT MRI / MRA, Med. eval.
- 10 – 55 y. o. w/o pupil involvement = Med. eval.
- > 55 y. o. = MRI or GCA eval.
ACUTE DIPLOPIA

4th n palsy

- 36% Undetermined
- 32% Trauma
- 17% Vascular
- 4% Neoplasm
- 8% Other

6th n palsy

- Lateral diplopia
- Worse on lateral gaze

6th n palsy

- 30% Undetermined
- 18% Vascular
- 18% Other
- 17% Trauma
- 15% Neoplasm
- 2% Aneurysm

6th n palsy

- < 14 y. o. = MRI but usually p viral.
- 15 – 40 y. o. = MRI, LP, if (-) then w/u for microvascular disease, and Syphilis.
- 40-60 y. o. = Usually vascular w/u FBS / HA, C, BP, then MRI.
- >60 y. o. = Vasc. but check GCA get Sed Rate, C Reactive Protein., temporal a. Bx.
RETINAL DETACHMENT

- Sx of flashes, floaters, or “curtains”
- High myopes
- Hx of peripheral retina degeneration
- Duration ?

RETINAL DETACHMENT

- Macula on = Good vision

RETINAL DETACHMENT

- Macula off = Poor vision

A. I. O. N.

- Ischemia of anterior optic nerve head
- Short posterior ciliary aa.

Causes
- Thrombosis (GCA)
- Embolism
- Transient poor or no circulation to o. n. h.

QUESTIONS FOR PATIENTS WITH NAION

- Was the loss of vision sudden or gradual?
- If the visual loss came on suddenly, at what time of the day did the patient discover it?
- Was there temporary blurring or loss of vision before the visual loss?
- Has the visual loss been stable?

QUESTIONS FOR PATIENTS WITH NAION

- Does the patient or anyone in the patient’s family have glaucoma?
- Does the patient smoke?
- Is there any pain associated?
- Has the patient had any heart trouble, stroke, high blood pressure, low blood pressure or shock, recent surgery or cataract surgery, or excessive bleeding?
A. I. O. N.

• Non-arteritic
  • Females = Males
  • Systemic Risk Factors
    • Young patients (< 45)
      • HTN, D. M., CVD
    • Middle age patients (45-64)
      • HTN, D. M., COPD, CVD, ICD, Thyroid Dz
    • Older patients (>65)
      • ICD, Thyroid Dz


A. I. O. N.

• Arteritic
  – Median age 74 years of age
  – Females >>> Males
  – Caucasians predom.

Arteritic

Testing
  – Sed. Rate
    • Age / 2 = Males
    • Age + 10 / 2 = Females
  – C Reactive Protein (CRP)
  – Lipid Profile
  – Temporal a. Bx

Epithelioid Giant Cell Inflammation Occluding Lumen
C. R. A. O.

**Symptoms**
- Sudden, painless, profound loss of vision.
- Unilateral
- Possible Hx of amaurosis fugax

**Signs**
- (+) R. A. P. D.
- Superficial whitening of posterior pole, cherry red spot.

**Exam**
- History (Age important)
- VA, P, Biomicroscopy, TA, DFE.

**Treatment**
- < 24 Hrs
  - Lower IOP
  - Ocular massage
  - Vasodilation
    - Inc. CO₂ (paper bag)

**Cilio-retinal a.**
- Good Va
- May still have (+) RAPD

**Management**
- Stat ESR if > 55 y. o.
- Blood Pressure
- Carotid Doppler studies
- Cardiac Eval.

**Follow Up**
- Every 1 to 2 weeks to check for NVI
- PRP response is approx. 66%

THANK YOU!

QUESTIONS?