EPIPHORA: A STRATEGY FOR SOLVING THE COMMON COMPLAINT

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OBJECTIVES

• Recall normal anatomy of tear production and drainage
• Identify causes of overproduction of tears
• Identify causes of reduced drainage of tears
• List treatment options to prevent epiphora
Dry eye is a multifactorial disease of the tears and ocular surface that results in symptoms of discomfort, visual disturbance, and tear film instability with potential damage to the ocular surface. It is accompanied by increased osmolarity of the tear film and inflammation of the ocular surface.

Lemp MA. The Definition and Classification of Dry Eye Disease. DEWS. The Ocular Surface. 2007; 5(2)

TEARLAB

CAUSATIVE MECHANISMS

TEAR HYPEROSMOLARITY
• RESULTS IN AN INFLAMMATORY CASCADE THAT DAMAGES THE OUTER SURFACE AND RELEASES INFLAMMATORY MEDIATORS INTO THE TEARS

TEAR FILM INSTABILITY
• CAN ARISE SECONDARY TO TEAR HYPEROSMOLARITY OR CAN BE THE INITIATING EVENT IN THE DISEASE PROCESS

Lemp MA. The Definition and Classification of Dry Eye Disease. DEWS. The Ocular Surface. 2007; 5(2)
**LISSAMINE GREEN STAINING**

+ SEVERITY

**SJOGREN’S SYNDROME NEW DIAGNOSTIC CRITERIA (2 OF 3)**

- Positive serum anti-SSA and/or anti-SSB OR (positive RF AND ANA ≥ 1:320)
- Ocular staining score (OSS) ≥ 3
- Presence of focal lymphocytic sialadenitis with focus score ≥ 1 focus/4 mm² in a labial salivary gland biopsy


**FLUORESCEIN STAINING**

**CONSECUTIVE PATIENTS WITH “PRIMARY” SS (N=163)**

- 98% history of dry eye for average 10.4 years
- 25% extraglandular ocular manifestations
- 13% vision-threatening findings
- 42% extraglandular systemic manifestations

Sjogren’s Syndrome has been shown to be an independent risk factor for the development of non-Hodgkin’s lymphoma (NHL).

Afflicting about 5%
Estimated to be 7-19 fold higher risk compared to general population

Fragkioudaki et al. Medicine. 2016 95:25

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**Sjogren’s Syndrome**

- **35% EDE**
- **10% ADDE**
- **25% EDE & ADDE**
- **30% Neither**

**Dry Eye Disease**

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**Dry Eye Treatment**

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**Obese Male/Red Watering Eyes Every Morning**

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**OBESE MALE/RED WATERING EYES EVERY MORNING**

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**Fleshy Eyelid Syndrome**

- Most common in obese males with sleep apnea
- 5.7% (N=12/209) patients with sleep apnea have HTG

Lee PW et al. J Gastrointest 2011; 20(9): 513-8
LACRIMAL LAKE DISRUPTION

CONJUNCTIVOCHALASIS

- Often overlooked
- Two mechanisms for causing epiphora
  1) More common: interference by the redundant conjunctiva with the inferior tear meniscus
  2) Less common: occlusion of the inferior punctum by the redundant conjunctiva


CONJUNCTIVOCHALASIS

Friction Exposure Inflammation Worse Reflex Tearing


CONJUNCTIVOCHALASIS

TREATMENT
- Artificial tears
- Steroids
- Surgery


PUNCTAL STENOSIS

EPIPHORA WITH MUCOPURULENT DISCHARGE, REDNESS, PAIN

"If the literature accurately reflects clinical practice, it would appear that it is more common to misdiagnose patients with canaliculitis than to identify this condition."


Think CANALICULITIS IF...
- Chronic purulent conjunctivitis
- Hordeolum
- Chalazion
- Dacryocystitis
- Blepharitis


Canaliculitis
- Primary
  - Actinomyces (30%)
  - Strep (12%)
  - Staph (10%)
  - Fungal (5%)
- Secondary
  - Punctal Plugs


Conservative treatment rarely effective
- DCR
- Immunosuppressive/antibiotic injection
- Canaliculoplasty
- Condyloma

Conservative
Aggressive
**INTRACANALICULAR CONCREATIONS (DACRYOBLITHS, SULFURE GRANULES, CASTS)**

“Concretions present may prevent antibiotics from eradicating bacterial source by virtue of obstruction of flow and protection of bacteria within stones. Thick mucopurulent and particulate discharge and abscess-like accumulation of infected debris are responsible for resisting penetration of topical and systemic antibiotics, canalicular stasis and infection.”


**DACRYOCYSTITIS**

- TREATMENT
  - WARM COMPRESSES
  - TOPICAL/ORAL ANTIBIOTIC
  - NO SURGERY OR D & I IF ACUTE
- MOST COMMONLY RESULTS FROM A NLDO

**ACUTE DACRYOCYSTITIS**

- TREATMENT
  - WARM COMPRESSES
  - TOPICAL/ORAL ANTIBIOTIC
  - NO SURGERY OR D & I ACUTE
- MOST COMMONLY RESULTS FROM A NLDO

**NASOLACRIMAL DUCT OBSTRUCTION (NLDO)**

- Unilateral tearing
  - Involutional stenosis
  - Sinusitis
  - Valve of Hasner

- Adults
- Infants
Congenital NLDO is estimated to occur in 20% of infants and most commonly resolve in 1 year.


If NLDO persists:

- Probing often performed under general anesthesia in surgical facility; older infant more difficult to restrain to probe safely.

INFANTS 6-10 MONTHS OF AGE WITH NLDO MONITORED FOR 6 MONTHS

<table>
<thead>
<tr>
<th>Infants 6-10 months of age</th>
<th>Congenital NLDO</th>
<th>Monitored for 6 months</th>
<th>Resolved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unilateral</td>
<td></td>
<td></td>
<td>66% (N=67)</td>
</tr>
<tr>
<td>Bilateral</td>
<td></td>
<td></td>
<td>54% (N=23)</td>
</tr>
<tr>
<td>Both eyes</td>
<td></td>
<td></td>
<td>20% (N=5)</td>
</tr>
<tr>
<td>One eye</td>
<td></td>
<td></td>
<td>24% (N=6)</td>
</tr>
</tbody>
</table>

JONES I

Figure 13 Jones Dye Test I (Primary) - Positive
Figure 14 Jones Dye Test I (Primary) - Negative

DILATION

- Dilators
- Stainless Steel
- Punctal Plug Inserters
- May provide relief if problem is punctal stenosis

JONES II

Figure 5 Vertical Function of Dilator
Figure 6 Horizontal Path of Dilator
IRRIGATION

MATERIALS
• LACRIMAL CANNULA
• STERILE 3ML SYRINGE
• STERILE SALINE

DILATION & IRRIGATION

OUTCOMES
• IF OPEN LACRIMAL DRAINAGE SYSTEM, PATIENT WILL TASTE/FEEL SALINE
  • BLOCKAGE NOT PRESENT AND ANOTHER CAUSE OF EPIPHORA SHOULD BE EVALUATED
  • BLOCKAGE WAS RELEASED DURING D & I
  • POSSIBLE FUNCTIONAL BLOCKAGE

• IF BLOCKED, MAY HAVE DIFFICULTY DEPRESSING PLUNGER OR FLUID MAY REGURGITATE FROM INFERIOR OR SUPERIOR PUNCTA
  • INFERIOR REFUX: INFERIOR CANALICULUS BLOCKAGE
  • SUPERIOR REFUX: COMMON CANALICULUS OR LACRIMAL SAC
• IF THIS OCCURS, PRESS SUPERIOR PUNCTUM AGAINST ORBITAL RIM TO OCCLUDE AND IRRIGATE AGAIN
DILATION & IRRIGATION

OUTCOMES
• FUNCTIONAL BLOCKAGE
  • PATENT SYSTEM UNDER HIGH-PRESSURE IRRIGATION
  • PATHWAY COLLAPSES UNDER LOW-PRESSURE SITUATIONS OF NORMAL TEAR DRAINAGE
• JONES DYE TESTS USED TO HELP DIFFERENTIATE FUNCTIONAL BLOCKAGE VS. PATENT SYSTEMS

DACRYOCYSTORHINOSTOMY (DCR)

• SURGICAL PROCEDURE TO RESTORE THE FLOW OF TEARS FROM THE LACRIMAL SAC TO THE NOSE WHEN THE NASOLACRIMAL DUCT DOES NOT FUNCTION

SUMMARY
• CHECK FOR DISEASES THAT CAUSE REFLEX TEARING
• ASSESS NASOLACRIMAL DRAINAGE SYSTEM

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