

Tearing and 3 Step Testing

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Disclosure Information

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- I do not intend to discuss an unapproved/investigative use of a commercial product/device in my presentation.

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Goals

- 1) Discuss Lacrimal anatomy & Function
- 2) How to evaluate the Lacrimal system
- 3) Case Studies-putting it together

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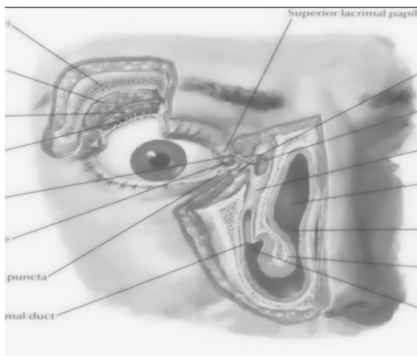
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Lacrimal Anatomy

- Two components to the system
 1. Tear production (Secretory)
 2. Tear drainage (Excretory)

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Tearing

- Patients with epiphora have an imbalance between
 - Tear production
 - And
 - Tear Drainage
- The Hard part is figuring out which one is the cause!

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Office Evaluation

History
&
Testing

The History

A good History is very helpful

- Symptoms
 - Acute vs Chronic onset
 - Unilateral vs Bilateral
 - simultaneous tearing OU – usually dry eye
 - Constant vs Intermittent
 - Constant-poor drainage
 - Intermittent often dry eye

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Symptoms & Cause

- Dry Eye Syndromes
 - Burning and irritation OU
 - Foreign Body Sensation, tearing
 - Tearing worse with:
 - Reading, watching TV, driving, heat, cold, smoke
- Blocked drainage/Poor Drain function
 - Chronic tearing
 - Constant
 - Unless they have a dry eye too

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Past History Helpful too

- Facial Trauma / Midface Fractures
- Surgery (eye, nose, facial, sinus, etc)
- Systemic Diseases
 - Thyroid issues (S/P RAI), Cancer s/p Chemotherapy, Sjogren's/Rheumatologic

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Things to Look For

- Examination- Gross Inspection
 - Height of tear meniscus
 - Tear Break up Time
 - Punctate keratopathy
 - Viscous mucous threads / filamentary keratitis
 - Exposure
 - Eyelid malposition, lashes

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Evaluation of Nasolacrimal system

- Inspect puncta
 - Are they present
 - Are they stenotic, scarred or obstructed
- Canaliculus through Nasolacrimal duct
 - Inspected with probing (0, 00, or 23g canula), irrigation and other tests

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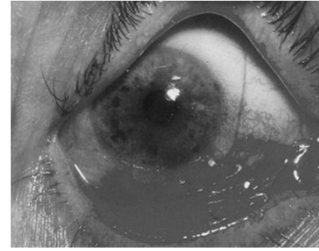
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Examination

- Swelling, erythema, crusting
- Palpate lacrimal sac
- ? Reflux from lacrimal drain
- R/O surface disease
- Blepharitis
- Eyelid Position & Tone

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Rose bengal red staining of cornea and conj in dry eye. Note the extensive stained mucoid material

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3 Step Testing

- 1) Functional Drainage
 - Dye Disappearance Testing
- 2) Secretory
 - Basal Tear Secretion testing (Schirmer with anesthesia)
- 3) Structural
 - Probe & Irrigate

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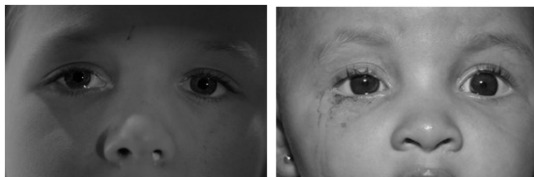
DDT

- Instill Fluorescein in tear lake and wait 3-5 minutes
 - Tear film should normally clear of dye quickly
- Delayed Dye Disappearance occurs from
 - Poor Tear Pump
 - Blocked tear drain
- Patients with dry eye have low tear film and the Dye level won't go up or down

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DDT



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Basal Tear Secretion Test

- Anesthetized version
 - Cul-de-sac should be dry
 - Insert strip 5mm into inferior fornix
- * Measures basal tear secretion
- < 5mm after 5 min is diagnostic
- 5-10mm borderline
- >10mm normal



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Basic Tear Secretion Test



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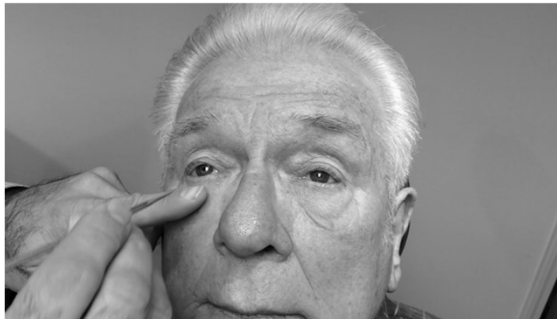
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Structural Tests

- Probing & Irrigation
 - Proximal (Puncta to Sac): Done in office
 - Distal (NLDO): done in OR
- DCG
 - With or without CT
 - Rarely order this any longer

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**IF 3 STEP TESTING IS
NORMAL...**

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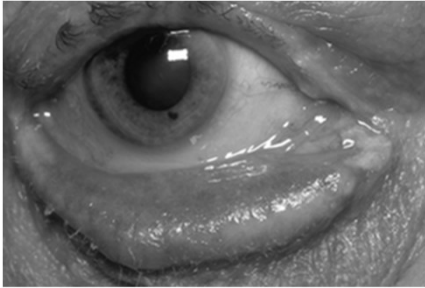
**Look for other reasons for
tearing....**

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...Eyelid issues

Ectropion



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Entropion



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Lid Retraction



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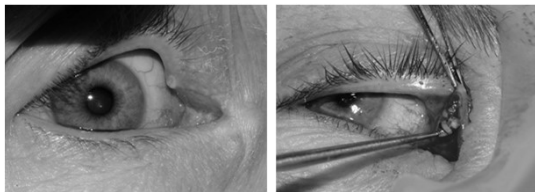
Floppy Eyelid Syndrome



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Canaliculitis & Dacryoliths



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Summary-My Approach

- Listen to history
- DDT (Functional test)
- External exam
- Slit lamp exam
- BTST (Secretory test)
- P & I (Structural test)

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Thank You!