For crying out loud: Diagnosis and management of epiphora



ADAM R. SWEENEY, M.D.

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EYELID - LACRIMAL - ORBIT

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Disclosures

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- Viridian Therapeutics

Consultant:

- Amgen

Please no recording or screen shots to respect patient confidentiality

Q's at the end please



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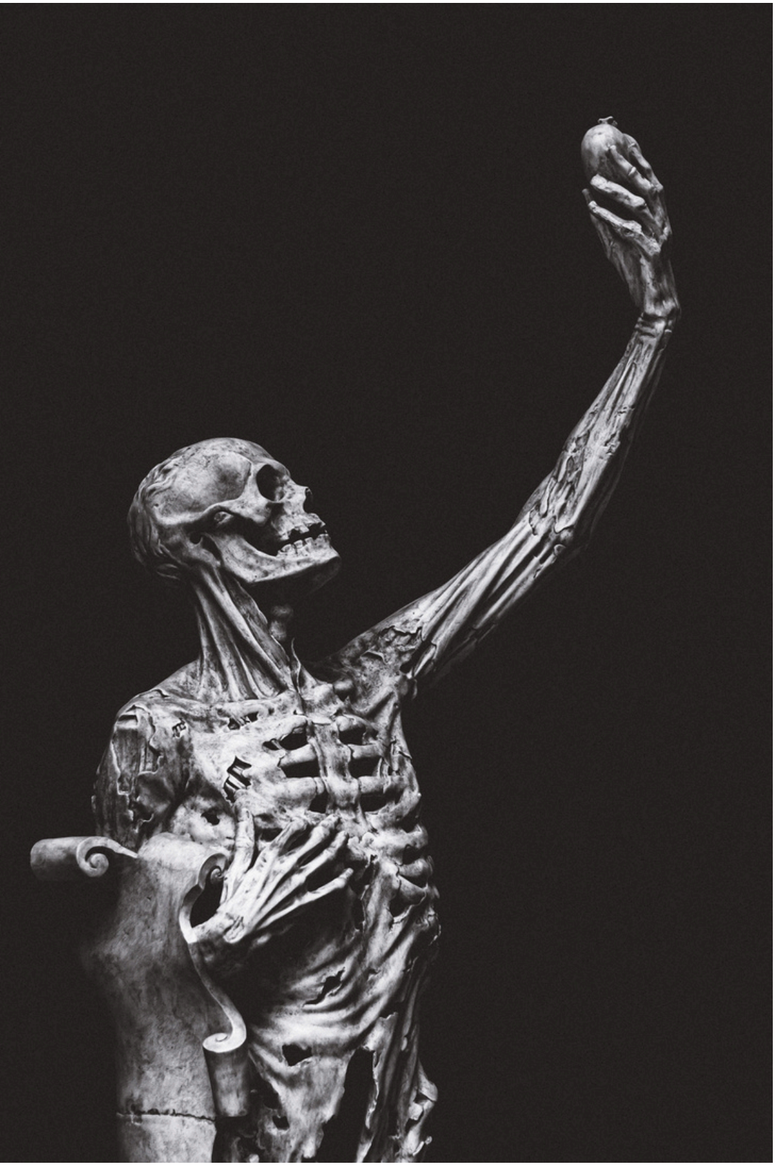
Fellowship - Oculoplastics
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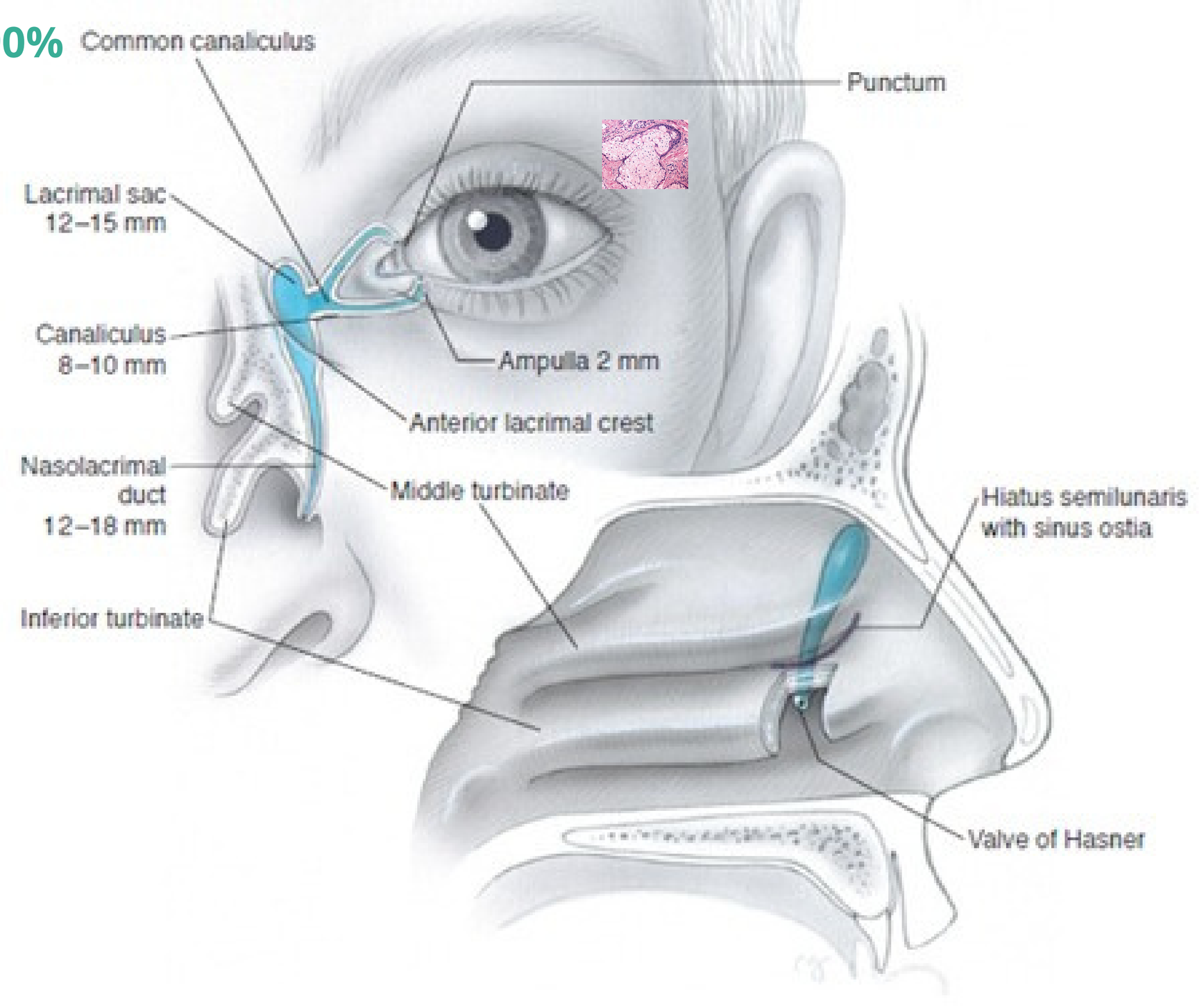
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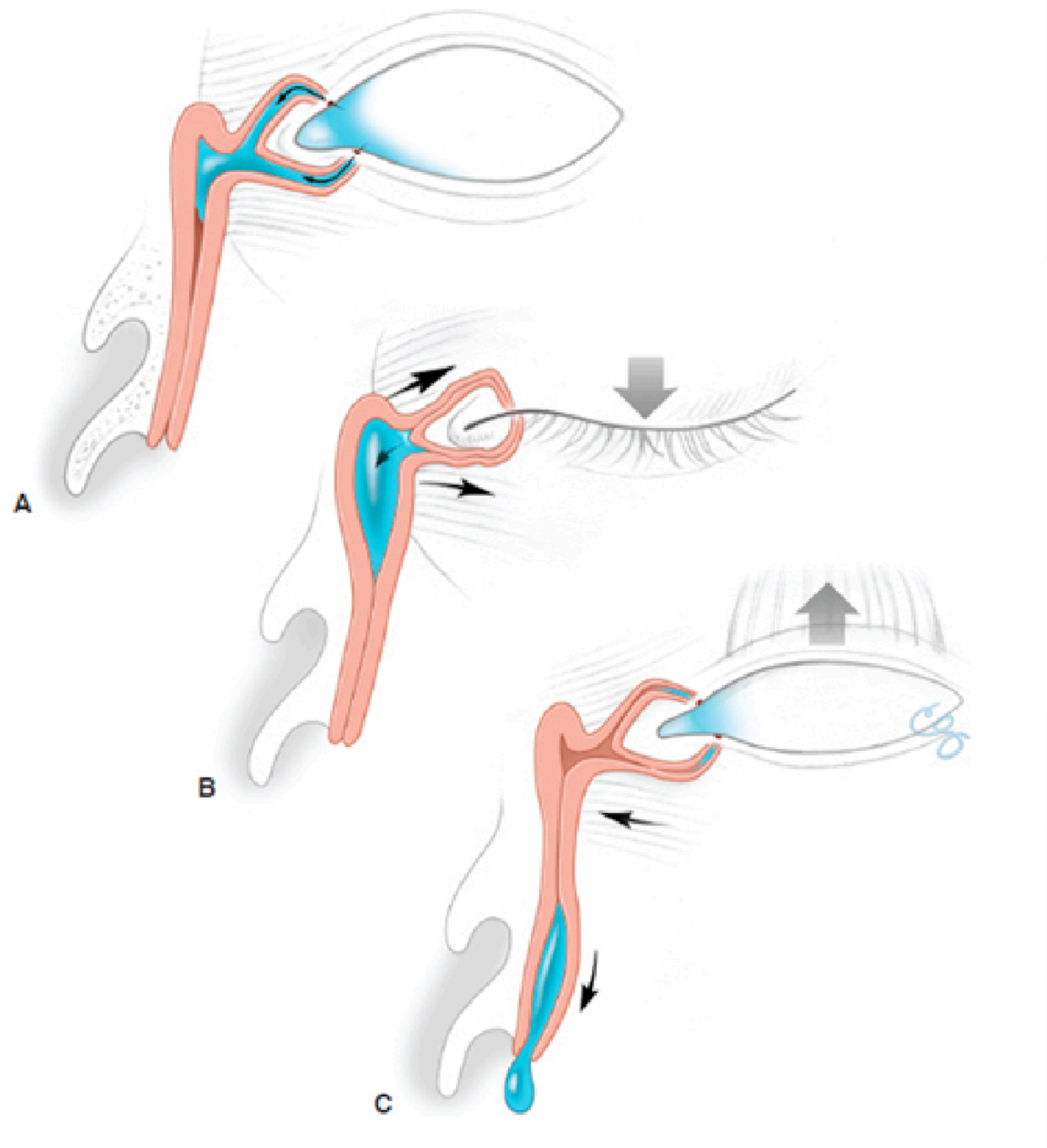
Eyelid, Lacrimal, Orbital Specialist
AKA: Hawaii's eye plumber





90%


Common canaliculus
Punctum
Lacrimal sac
12–15 mm
Canaliculus
8–10 mm
Ampulla 2 mm
Anterior lacrimal crest
Nasolacrimal
duct
12–18 mm
Middle turbinate
Hiatus semilunaris
with sinus ostia
Inferior turbinate
Valve of Hasner


A
B
C


HOT
COLD



What is epiphora?

Wet eyes?
Welling up of tears?
Mucus accumulation?
Tears running down face?
A sudden realization?



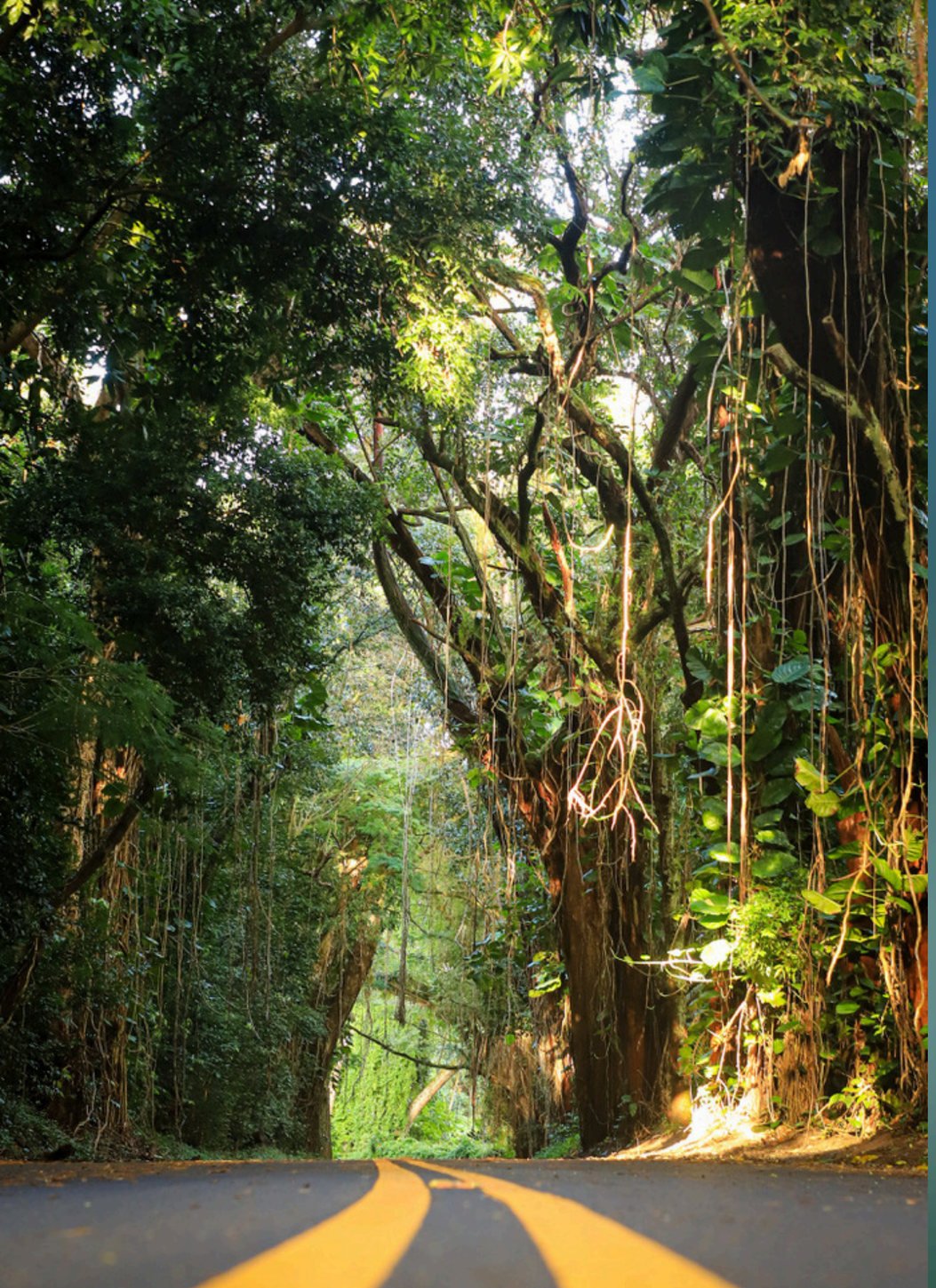
What is epiphora?

Excessive tearing of the eye with constant overflow of tears onto the face.

Lacrimal Disorders

- Punctal stenosis
- Punctal ectropion
- Canalicular stenosis/obstruction
- Common canalicular stenosis or obstruction
- Congenital nasolacrimal duct obstruction
- Lacrimal pump failure
- Primary acquired nasolacrimal duct obstruction
- Secondary nasolacrimal duct obstruction





Masquerades

- Dry eye
- Exposure keratopathy
- Eyelid malposition
- Trichiasis
- Other keratopathy
  - *EBMD*
  - *Pseudophakic bullous keratopathy*
  - *Fuchs*
- Secondary ocular surface irritation with reflexive tearing
  - *Allergic*
  - *Drops*
  - *Viral*

Exam

Tear level

Epiphora
Kleenex sign
Tear lake observation
Fluorescein staining

Eyelid anatomy

Punctum size and position
Pouting punctum
Eyelid position/tone
Lateral canthus higher than medial canthus
Orbicularis strength

Central lacrimal anatomy

Probe and irrigation
Discharge with palpation
Dacryocystitis

Distal lacrimal anatomy

Nasal endoscopy
External nasal exam

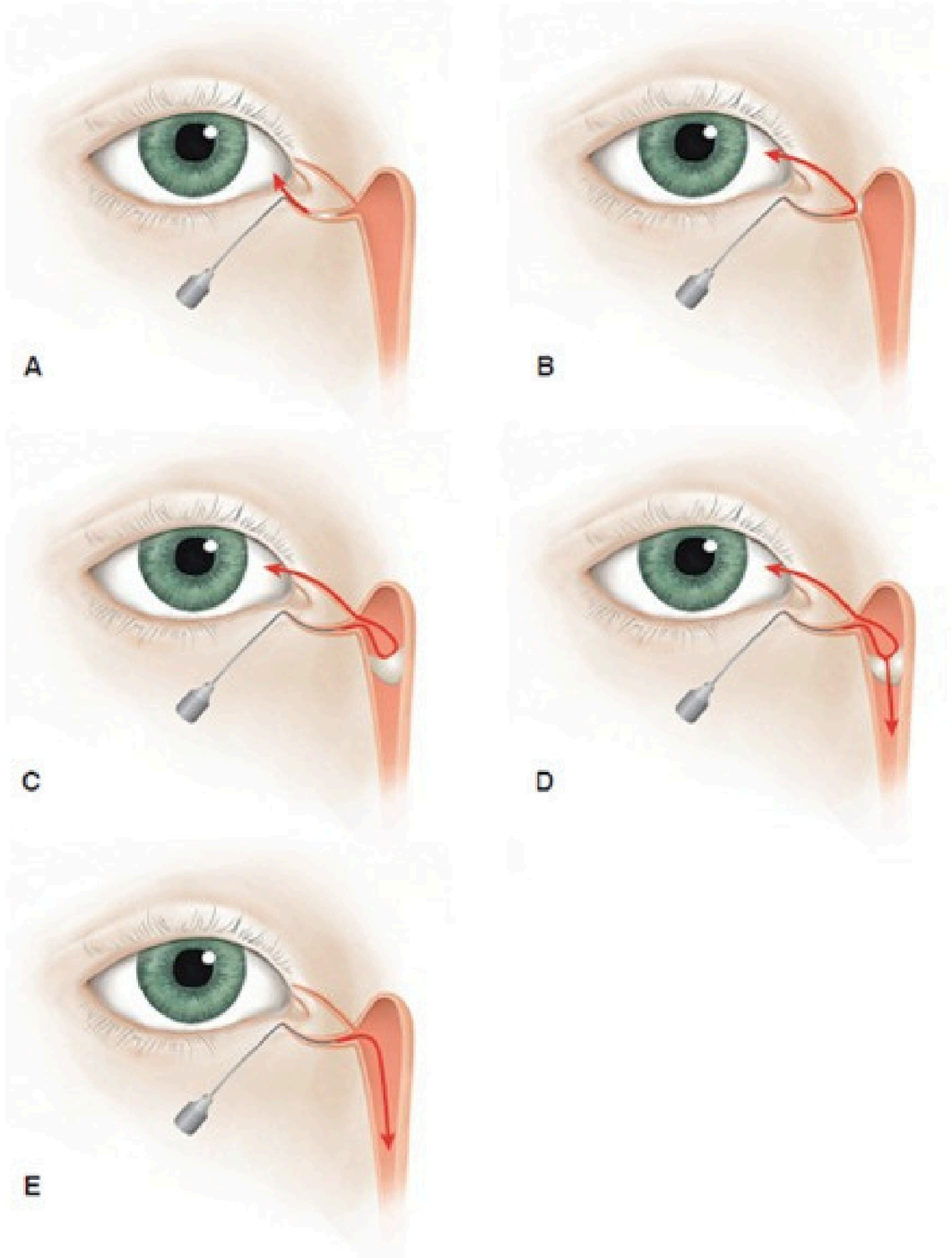




Probing and irrigation is gold standard in eval



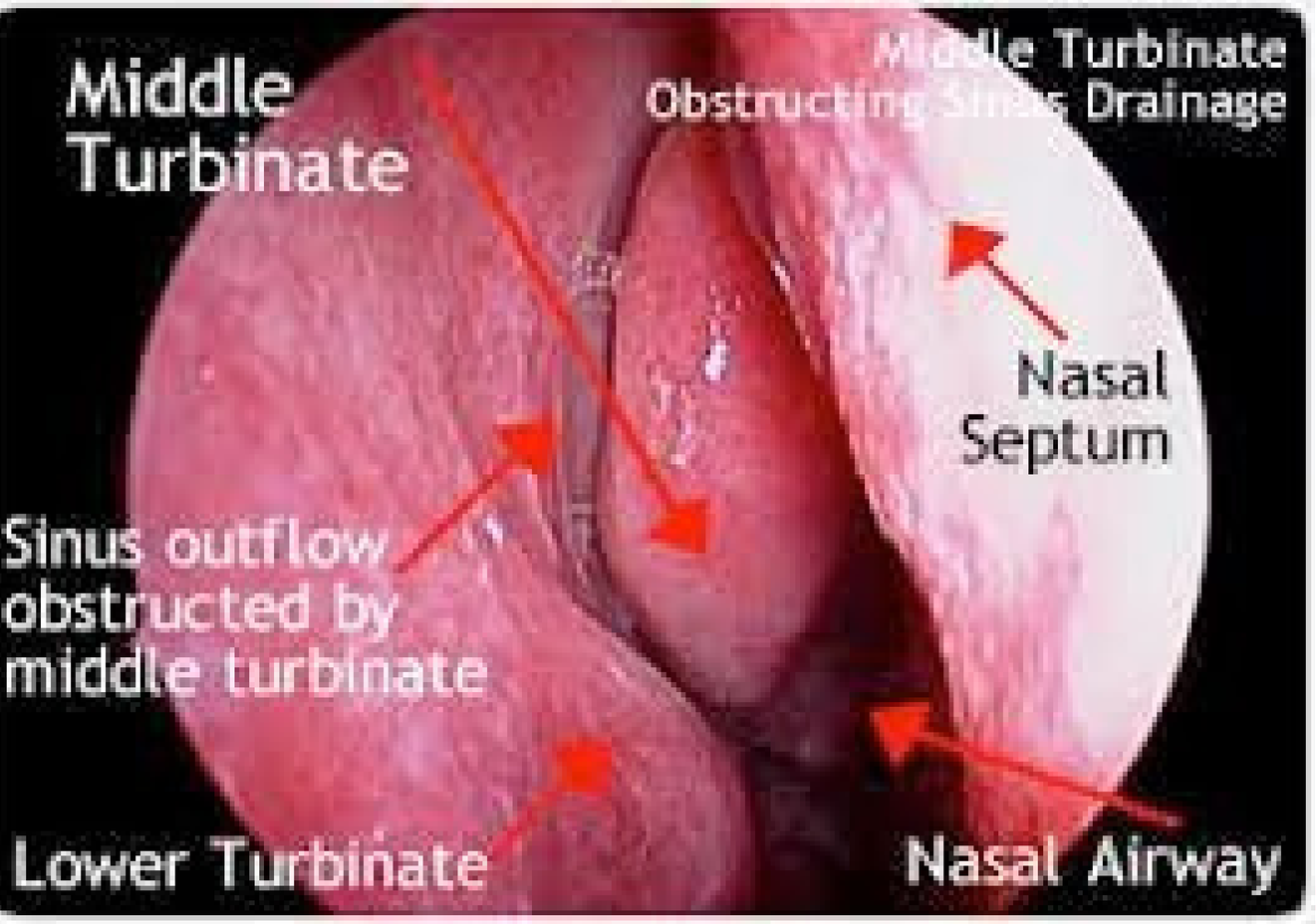
Probing and irrigation is a diagnostic procedure and not treatment



Probe and irrigation

Goal: identify the level of lacrimal obstruction

Punctum
Fistula
Canaliculus
Common Canaliculus
Nasolacrimal duct
Mucus*



Nasal Endoscopy

Goal: identify nasal pathology and or blockage

Mass, severe rhinitis, and turbinate hypertrophy/malposition, septal deviation.

Identify secondary aquired nasolacrimal duct abnormalities

- Destructive process: granulomatosis with polyangiitis (Wegeners)
- Sarcoidosis
- Radiation
- Prior surgery

Additional testing

Basic secretion test
Filter paper inferotemporal fornix for 5 minutes w/ anesthesia

Schirmer I
Filter paper inferotemporal fornix for 5 minutes w/o anesthesia

Schirmer II
Filter paper inferotemporal fornix for 5 minutes w/o anesthesia w/ nasal agitation

Jones 1

Drop of fluorescein and nasal agitation

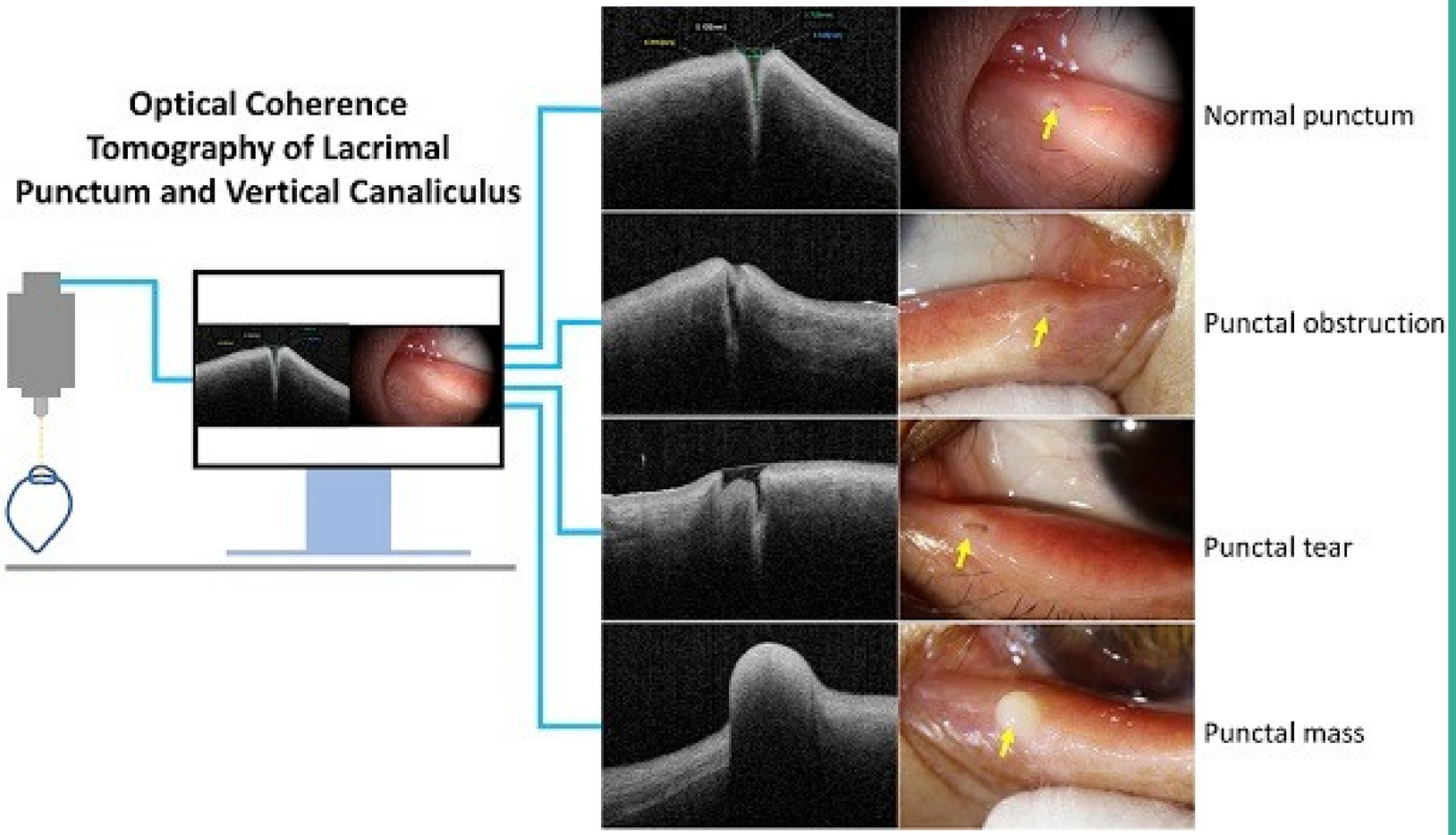
Jones 2
Looking for dye detected in the nose after P&I

CT
Dacryocystography (pressure radiotracer)
Dacryoscintigraphy (physciologic radiotracer)



Addressing disease states

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Punctal and canalicular stenosis

Jun Hu Int J Med Sci 2021

Risk Factors

Iatrogenic
- Punctal or canalicular plugs
- Repeated P&I
- Radioactive Iodine
- Chemotherapy*
- Inflammatory drops

Misc:
Herpes
Trachoma
Laceration/trauma
Papilloma
Tumors

Autoimmune
- OCP
- SJS
- Chronic blepharitis
- Lichen planus
- IgG4

*5-fluorouracil, docetaxel, paclitaxel (Esmaeli, Ophthalmology 2001)

#1 way to avoid causing iatrogenic tearing





Small punctal plugs

Use the biggest fit possible

The prevalence of canaliculitis after SmartPlug insertion was found to be 7.23%
Rabia Bourkiza, Orbit 2012

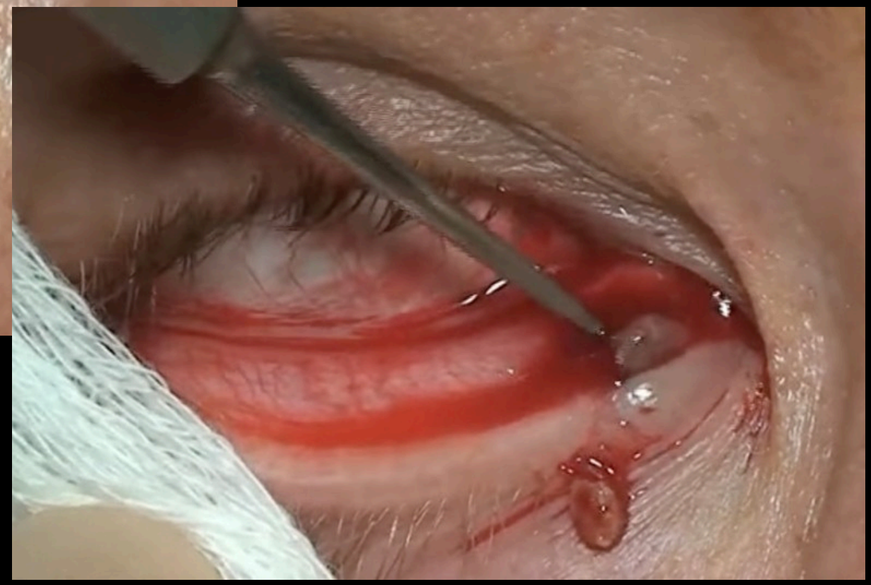
Punctoplasty



Three snip punctoplasty

Canaliculotomy





Incision to
nasolacrimal sac,
curretage of stones

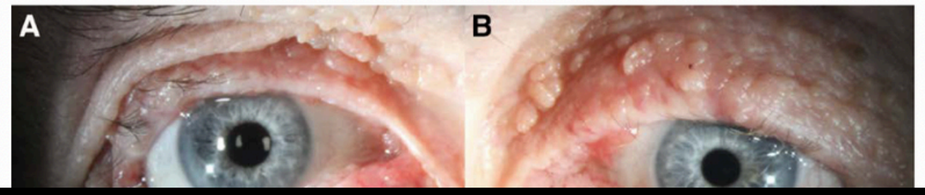
May uncover underlying etiology

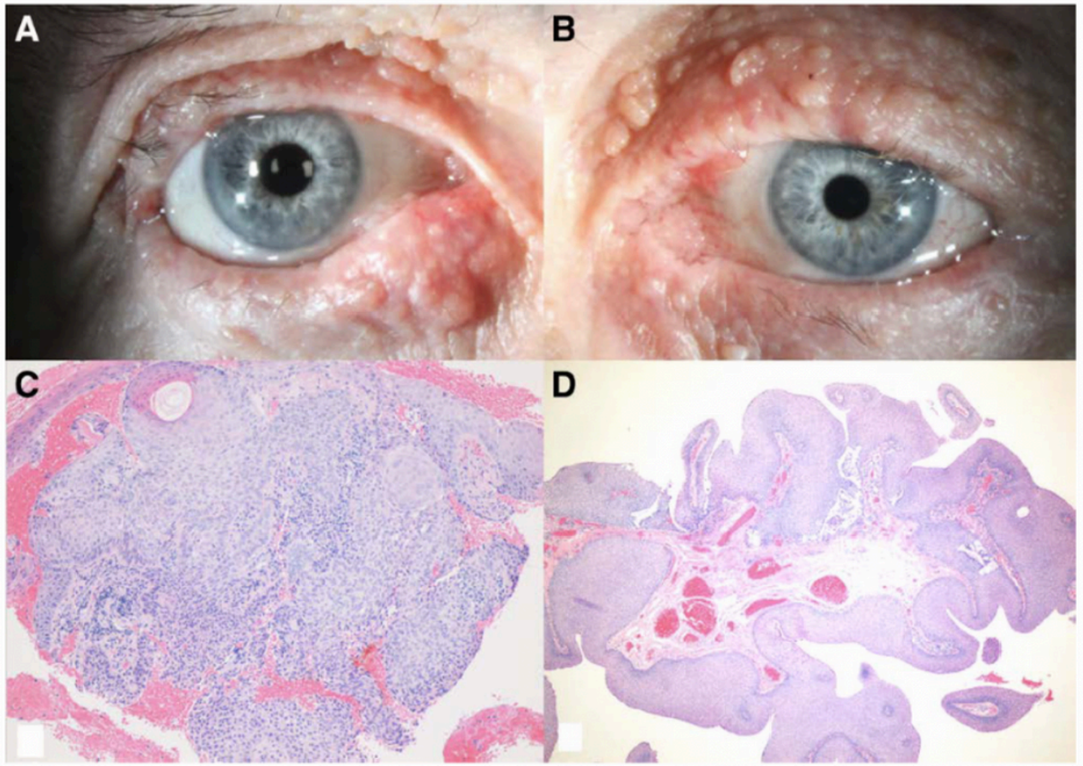
Multiple Eyelid Neoplasms in Cowden Syndrome

Adam R. Sweeney, M.D., and Debra J. Shetlar, M.D.†‡*

**Division of Oculoplastics, Department of Ophthalmology, Baylor College of Medicine, Houston, Texas; †Division of Oculoplastics, Department of Ophthalmology, Michael E. DeBakey VA Medical Center, Houston, Texas; and ‡Department of Pathology & Immunology, Baylor College of Medicine, Houston, Texas, U.S.A.*

A 74-year-old male with a history of Cowden syndrome and multiple bodily skin lesions presented for several year history of bilateral worsening epiphora and eye irritation. Twenty years prior, the patient had numerous eyelid lesions biopsied—all were consistent with trichilemmoma on pathology. On examination, there was an elevated tear lake in both eyes, an ulcerative lesion on the right lower eyelid, and multiple large pedunculated, fleshy lesions on all eyelids, most markedly in the medial canthi blocking the tear drainage pathways (Fig. A, B). Biopsy revealed bilateral 10 to 13 mm pedunculated lesions growing through the puncta and into the canaliculi. Pathology demonstrated squamous cell carcinoma of the right lower eyelid ulcerative lesion (Fig. C) and squamous papilloma of all the pedunculated lesions (Fig. D). Cowden syndrome is an autosomal dominant with a mutation of the tumor suppressor gene phosphatase and tensin homolog. Patients develop numerous skin hamartomas and are also at risk of various malignancies including breast adenocarcinoma, thyroid adenocarcinoma, and squamous cell carcinoma. Patients classically develop trichilemmomas; however, careful surveillance should be directed at lesions with concerning features of carcinoma. The collection and evaluation of patient information for this report was compliant under the Health Insurance Portability and Accountability Act of 1996.





B, Right and left eyelids, respectively, with multiple lesions. Panel **C**, H&E of squamous cell carcinoma of the ri
H&E of squamous papilloma invading the canaliculi with fronds of acanthotic epithelium overlying fibrovascula



Punctal ectropion, Megalocaruncle, Conjunctivochalasis

Malposition of the punctum to the tear lake

Tearing
Mucus production
+/- lid laxity
Drops typically worsen disease

Repair

Lateral tarsal strip

Full lid tightening procedure to correct for primary laxity

Caruncle debulking

Excise mass until punctum is opposed to tear lake

Can be combined with ectropion repair or conjunctivoplasty

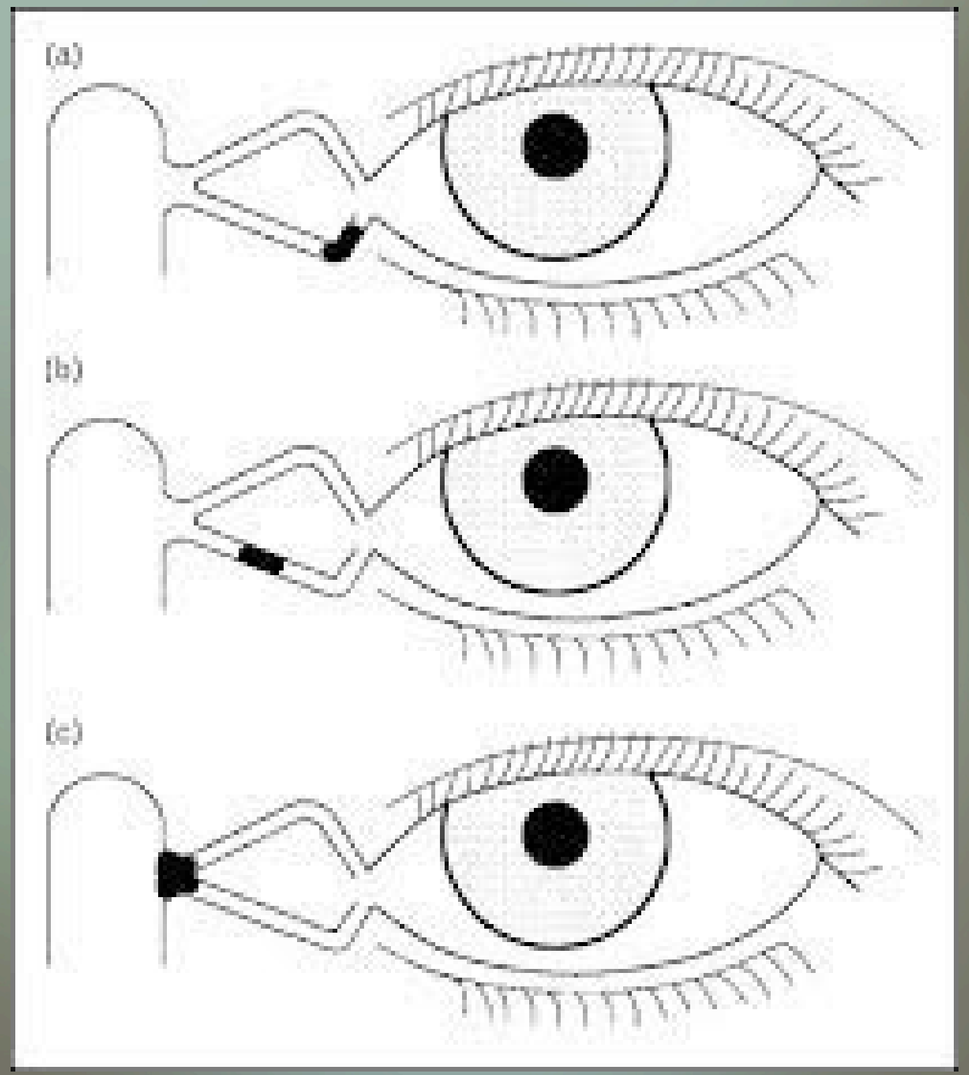
Medial spindle

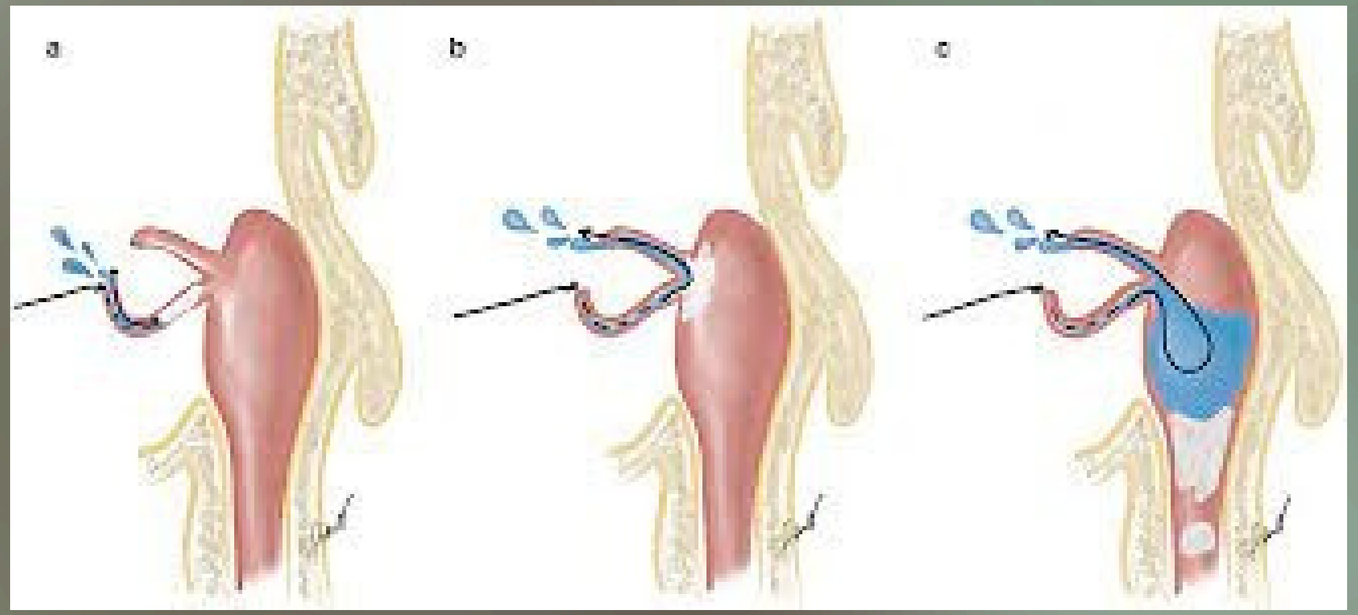
For patients with good lid tension but medial ectropion. Suture only technique.

Conjunctivoplasty

Conservative removal of excess conjunctiva
Care to avoid tension

Canalicular obstruction



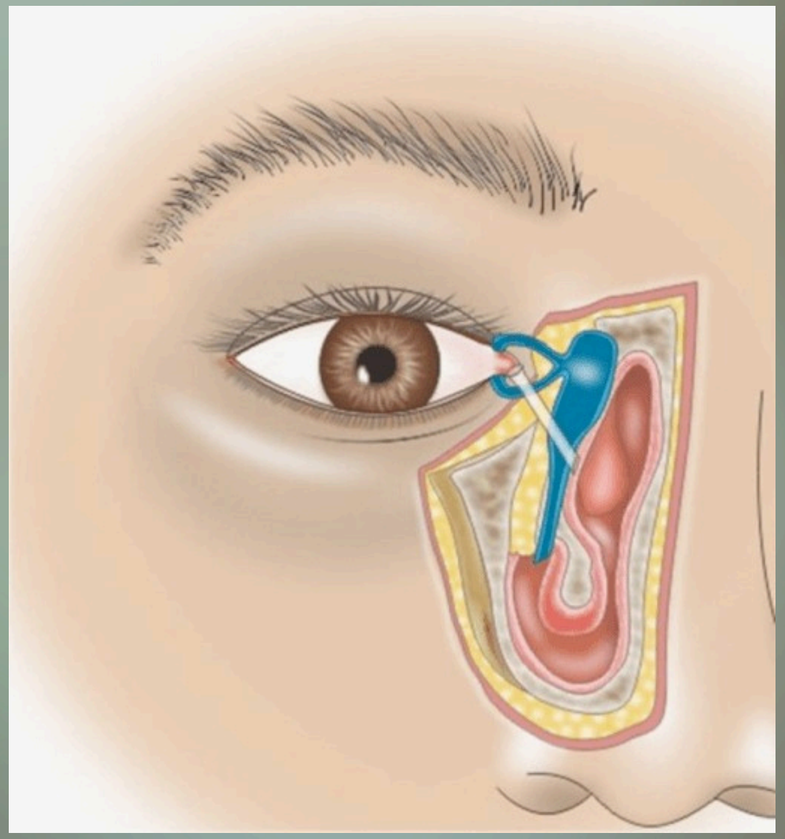


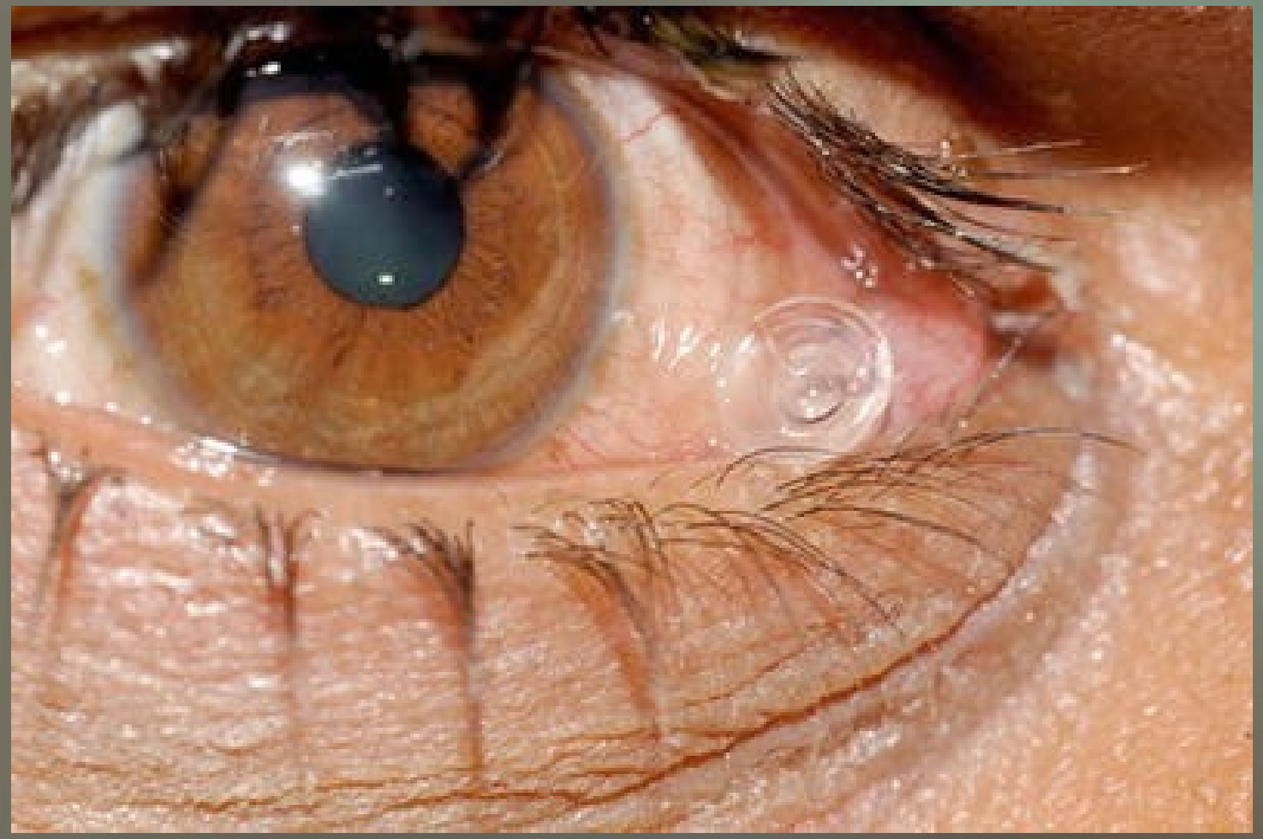
Iatrogenic
- Punctal or canalicular plugs
- Repeated P&I
- Radioactive Iodine
- Chemotherapy*
- Inflammatory drops

Misc:
Herpes
Trachoma
Laceration/trauma
Papilloma
Tumors

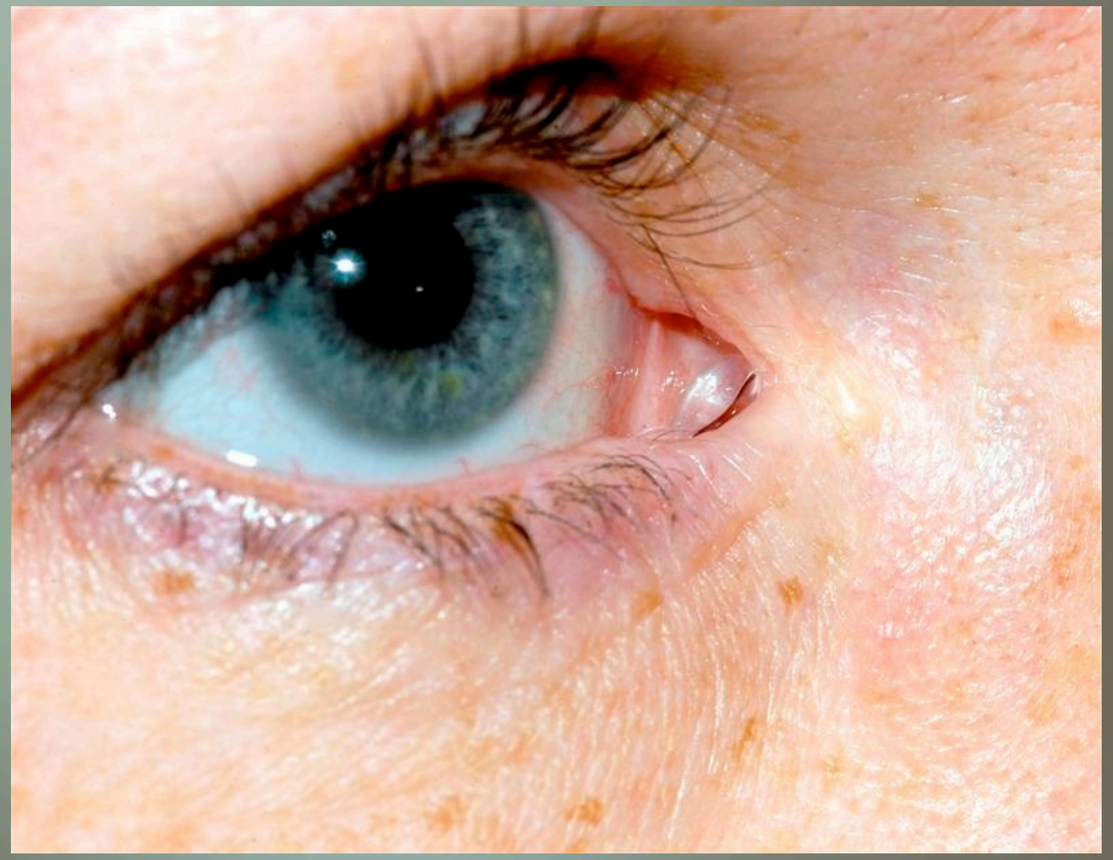
Inflammatory
- OCP
- SJS
- Chronic blepharitis
- Lichen planus
- IgG4

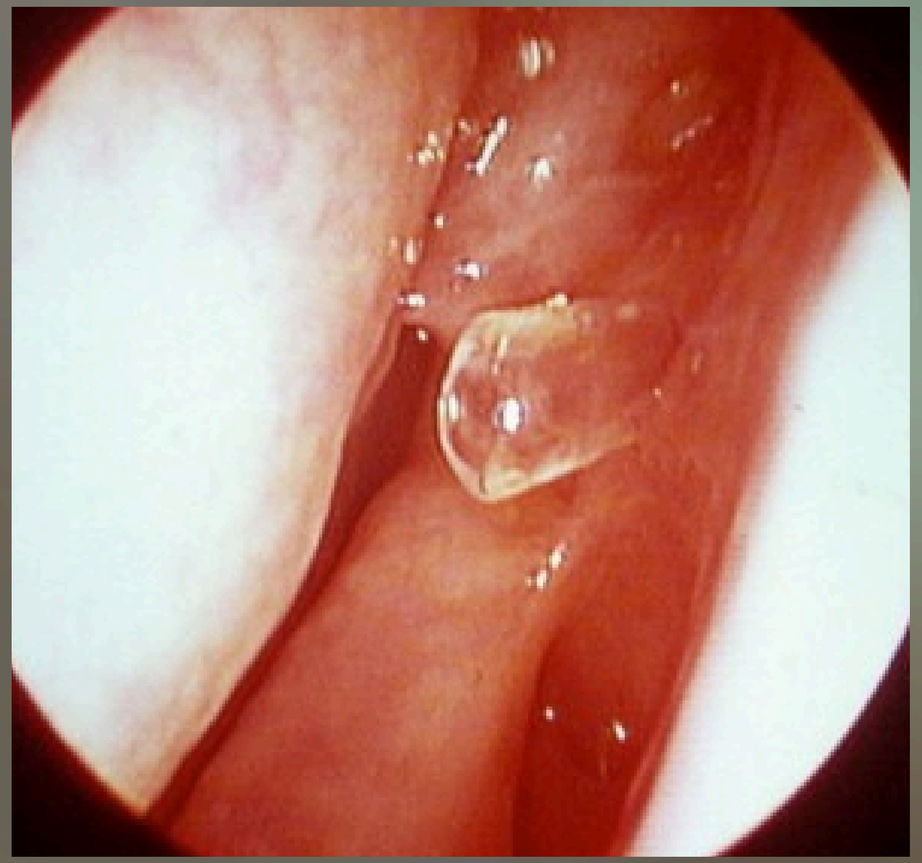
CDCR - Repair of canalicualr obstruction





CDCR - Repair of canalicualr obstruction





Etiology

Involutional stenosis(idiopathic)

Trauma

Docetaxel and Paclitaxel
5-Fluorouracil
Radioactive iodine 131 therapy
Phospholine iodide ophthalmic drops

HSV infections
Sarcoidosis
Granulomatosis with polyangiitis (GPA)
Eosinophilic angiocentric fibrosis (EAF)/IgG4-related disease

Lymphoma
Squamous cell carcinoma
Inverting papilloma
Sinonasal tumors

Periorbital radiation therapy for malignancies
Nasal pathology
Cocaine inhalation abuse
Chronic sinusitis/rhinitis
Lacrimal plugs (displaced,especially intracanalicular)

Nasolacrimal duct obstruction

Diagnosed by probe and irrigation

Signs + symptoms

Constant epiphora

Start unilateral -> bilateral in about 30%

Does not get better with cessation of AC, breaks from wind or cold

Blurred vision: Elevated marginal tear strip bothersome with downgaze reading

Eyelash mattering and crusting

Mucus production

Wakes up with mucus

Mucus is clear to green

Mucus with probe and irrigationj and palpation

Nonpainful

No inflammation

No pain

No mass

Bloody tears

Concern for carcinoma

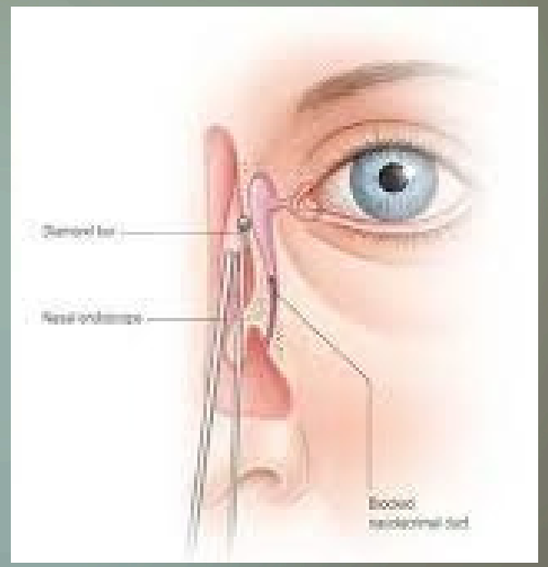


Probing and irrigation is a diagnostic procedure and not treatment

Treatment

DCR

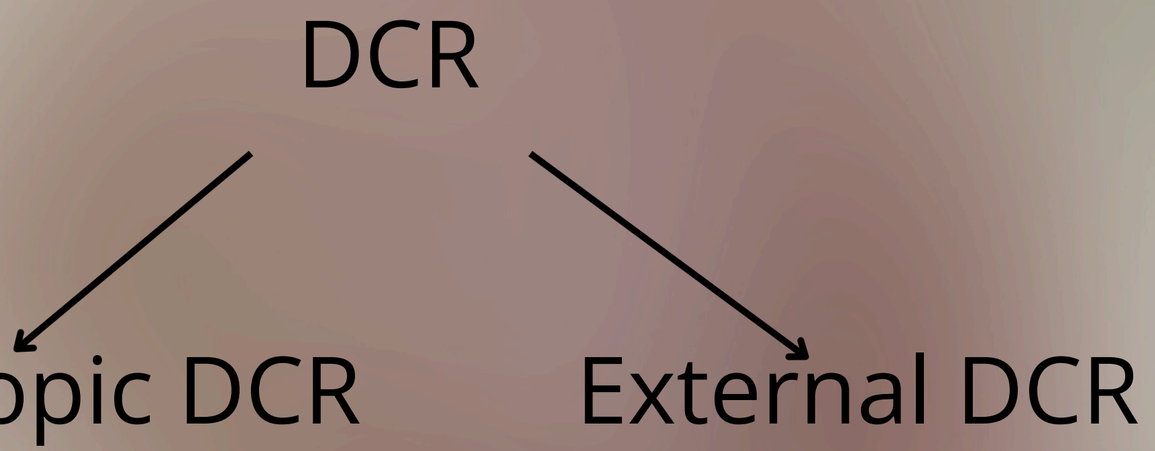
Endoscopic DCR



External DCR

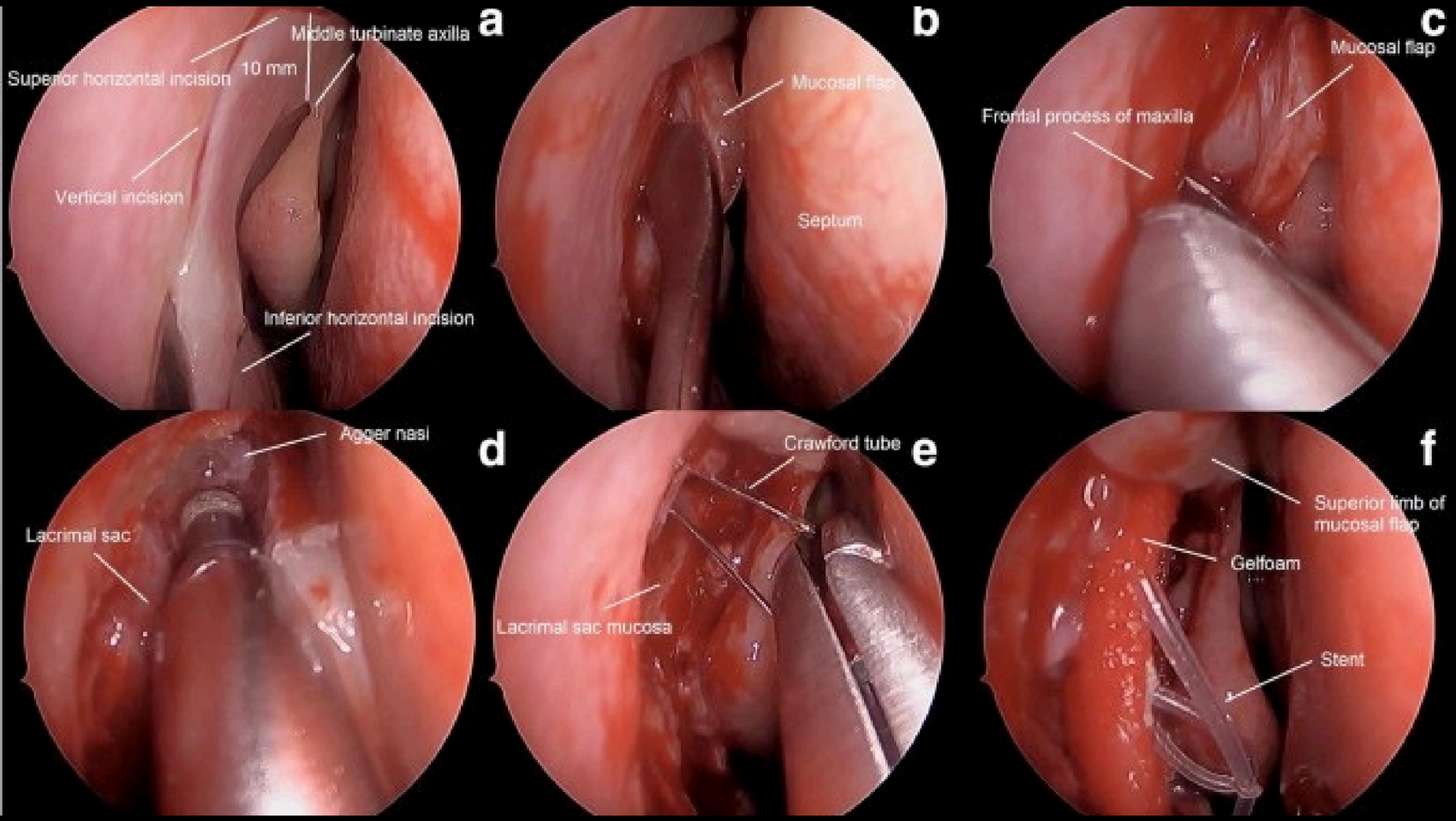


Treatment



As endonasal/endoscopic surgical techniques have improved, success rates for endoDCR have also improved, and recent papers report 86%–99% success, compared to 85%–95% for external DCR.

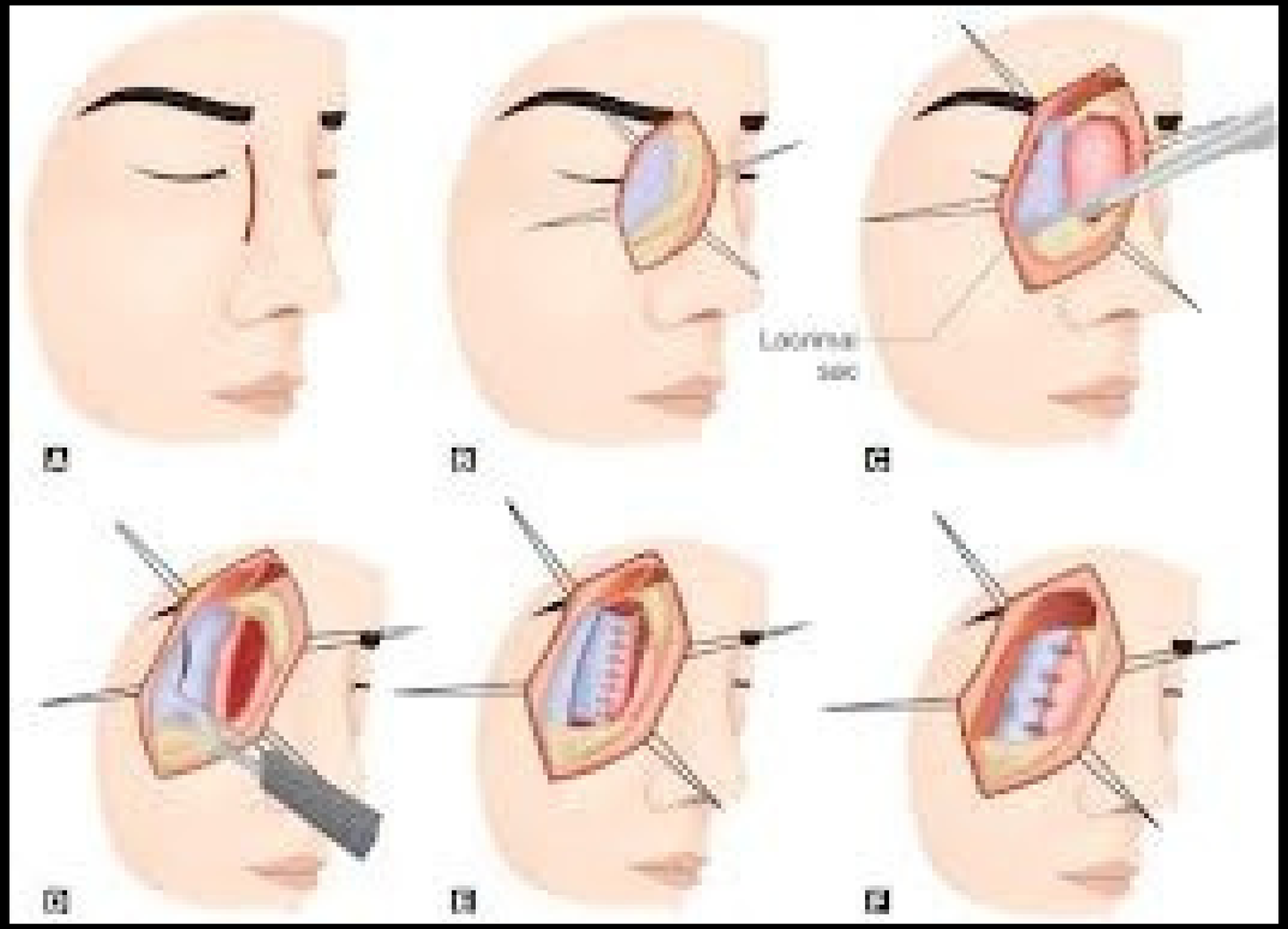
Treatment



EndoDCR advantages over external DCR

- Useful in younger patients
- Patients with flat nasal bridge - scar
- Avoids trauma to lacrimal pump
- Direct visualization
- Faster recovery time

Treatment



Advantages of external DCR

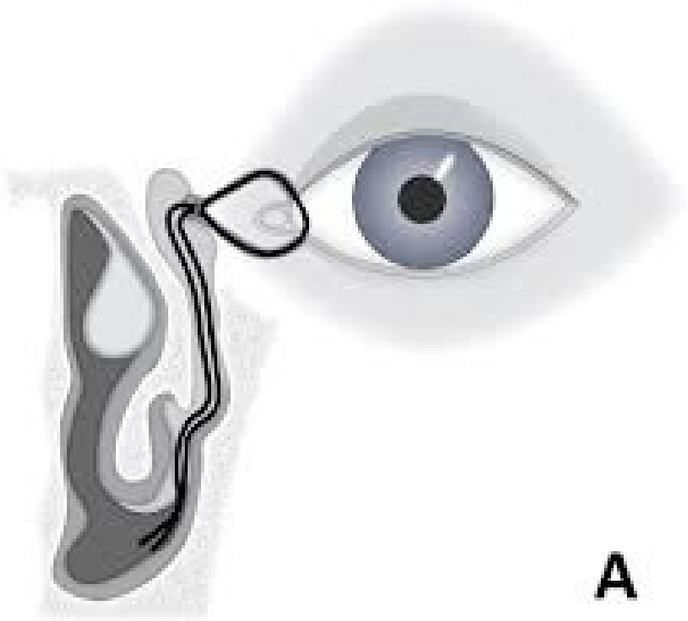
- Useful in septal deviation
- Direct visualization
- Thick bone
- Bigger ostium

Functional NLDO





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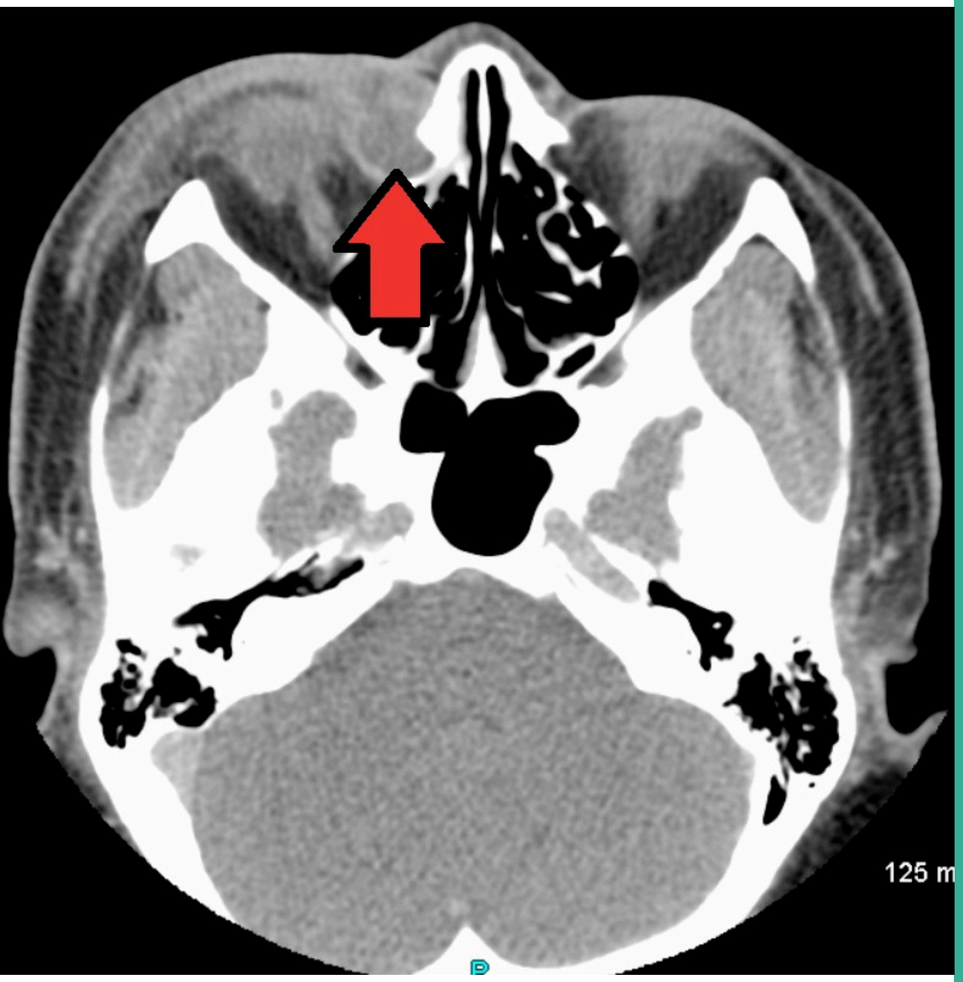


Treatment

Steroid nasalspray(fluticasone)
Stenting
Allergic swelling changes
Avoidance of triggers
DCR



Dacryocystitis



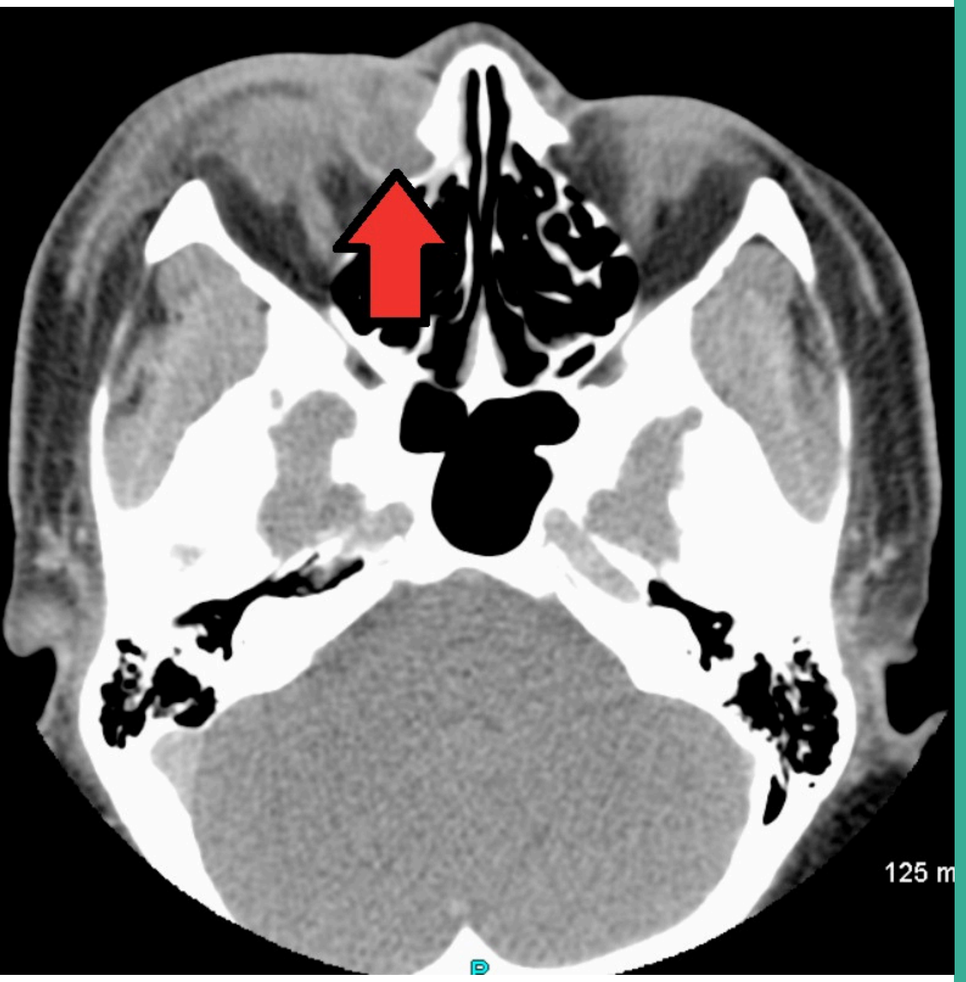
Diagnosis

Chronic untreated epiphora -> worsening until developed tear stasis -> infection

Fever/Chills

If no orbital signs, can diagnosis clinically

If orbital involvement signs, need a CT



Treatment

If no orbital involvement: Oral antibiotics

If orbital involvement: IV antibiotics + drainage

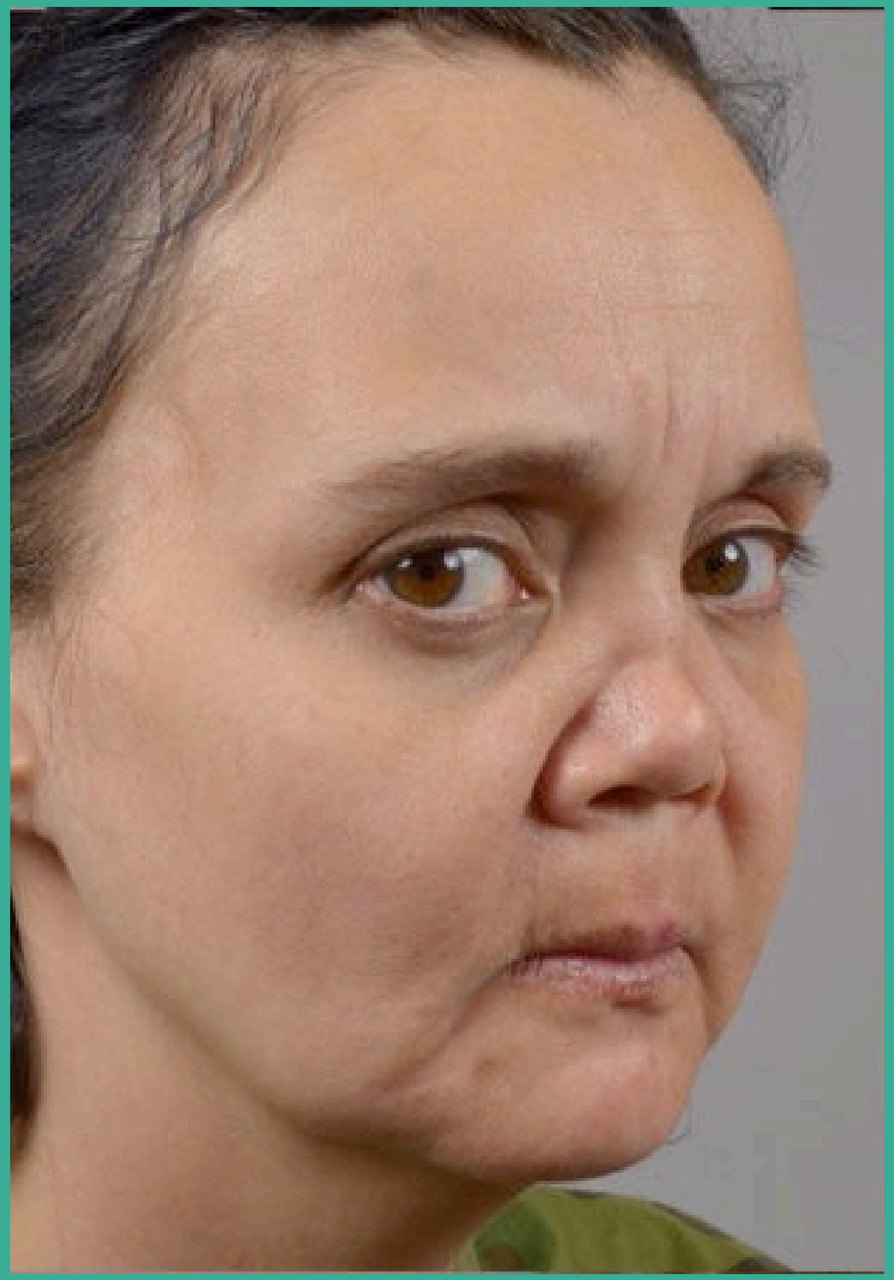
All patients should have DCR or dacryocystectomy in near future to prevent recurrence

Last resort is to drain externally (fistula)

Don't Miss



Don't Miss



Don't Miss

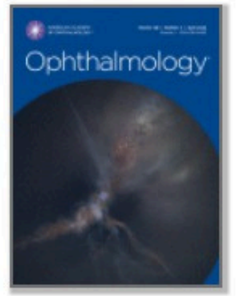




ELSEVIER

Ophthalmology

Volume 109, Issue 8, August 2002, Pages 1575-1582



Functional and anatomic results after two types of endoscopic endonasal dacryocystorhinostomy: Surgical and holmium laser [1]

Presented in part at the Oxford Ophthalmological Congress, Oxford, England, July 2000.

William M.H Moore (FRCOphth) [a], Christopher R Bentley (FRCOphth) [a], Jane M Olver (FRCOphth) [a]

Symptomatic success was 83% after endosurgical and 71% after endolaser DCR

Outcomes of Endoscopic Dacryocystorhinostomy in Secondary Acquired Nasolacrimal Duct Obstruction: A Case–Control Study

Adam R. Sweeney, M.D., Greg E. Davis, M.D., M.P.H.†, Shu-Hong Chang, M.D.*, and Arash J. Amadi, M.D.**

**Department of Ophthalmology, Division of Oculoplastic Surgery, and †Department of Otolaryngology - Head and Neck Surgery, University of Washington, Seattle, Washington, U.S.A.*

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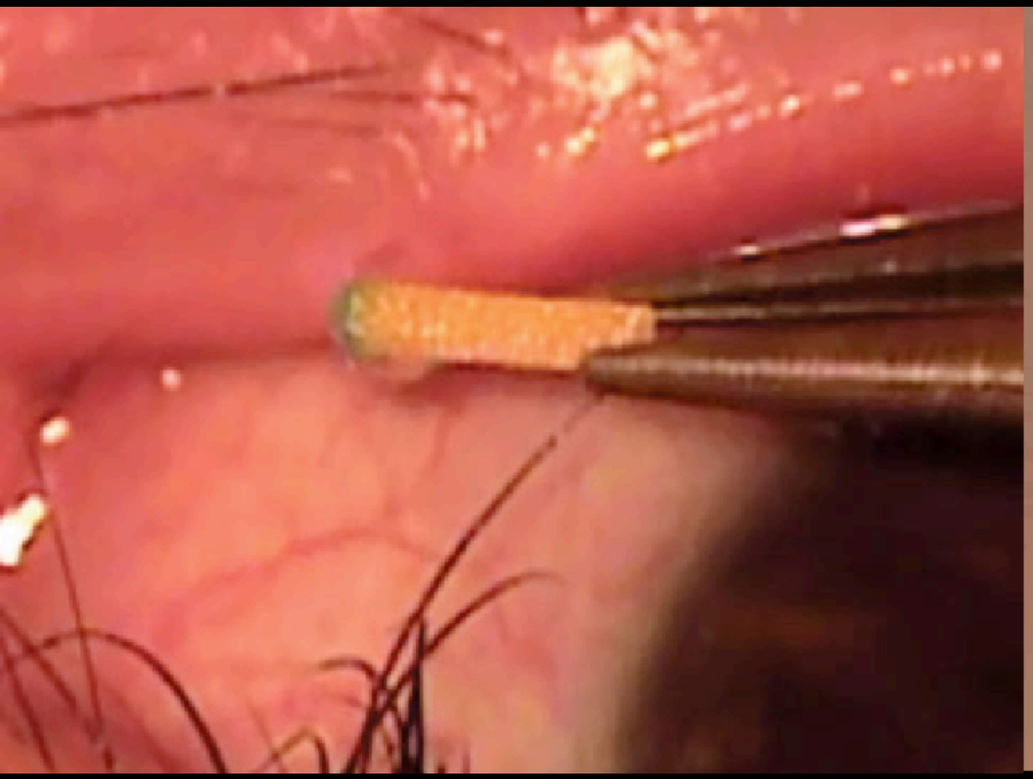
Introduction: Secondary acquired nasolacrimal duct obstruction (SANDO), where the obstruction is caused by a known process, is becoming more commonly treated by endoscopic dacryocystorhinostomy (endoDCR). This study evaluates outcomes of endoDCR for cases of SANDO in comparison to endoDCR outcomes treating primary acquired nasolacrimal duct obstruction (PANDO).

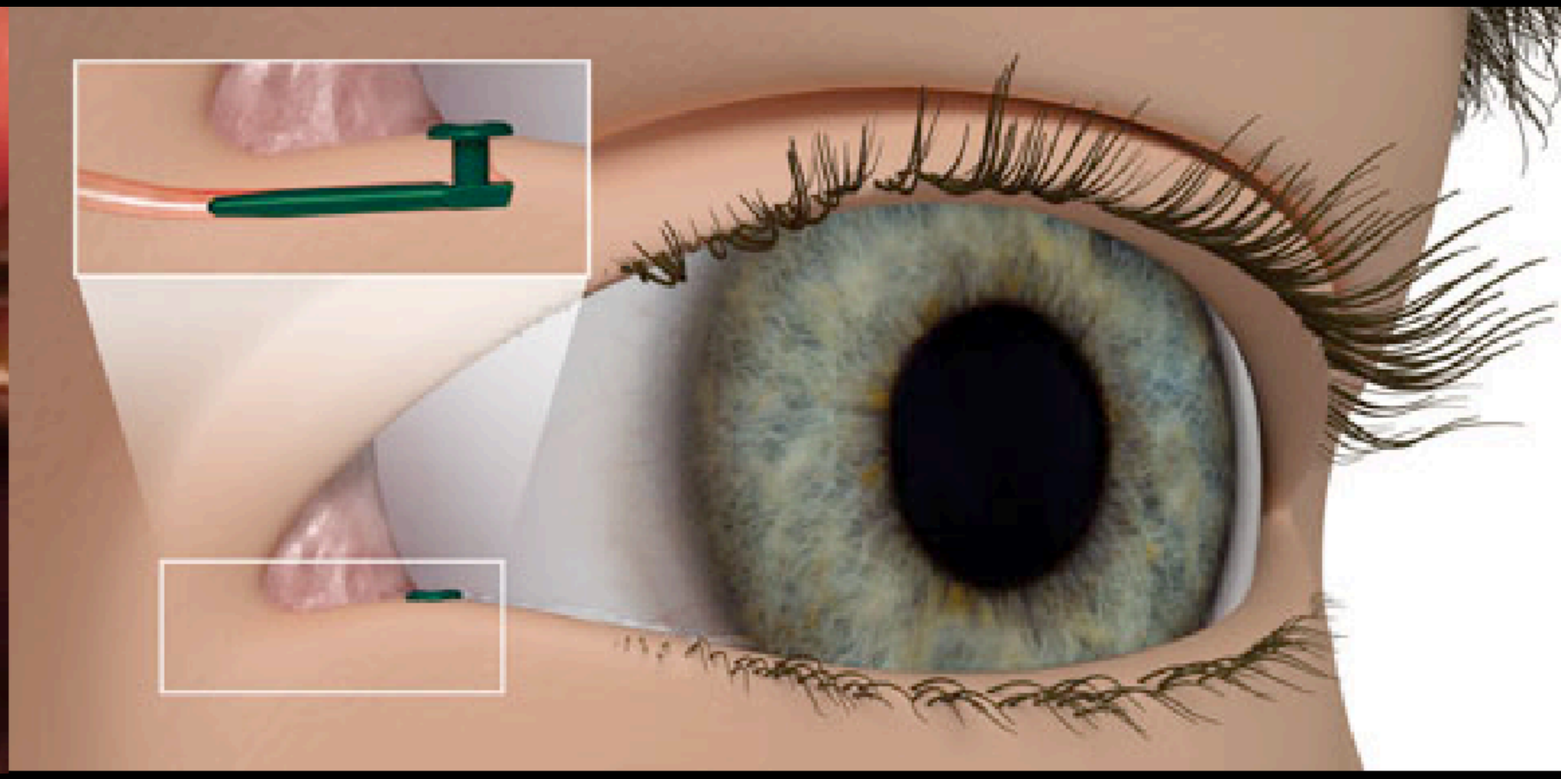
Methods: All patients undergoing endoDCR from 2006 to 2015 at a tertiary referral center were reviewed for etiology of nasolacrimal duct obstruction (NLDO) and success of procedure. Inclusion criteria were preoperative determination of NLDO via probing and irrigation, greater than 60-day follow up with assessment of duct patency via probing and irrigation after silicone tube removal, and postoperative survey for recurrent epiphora. Exclusion criteria were cases treating partial NLDO, patients undergoing concurrent conjunctivodacryocystorhinostomy, and patients lost to follow up or with incomplete records. Preanalysis

aggressive protocol for perioperative management of patients with pathologic nasal inflammation undergoing endoDCR.

(*Ophthal Plast Reconstr Surg* 2018;34:20–25)

Dacryocystorhinostomy (DCR) is the definitive surgical treatment for NLDO resulting from any etiology. External DCR has been practiced for over a century, with success rates approaching 98%.[1] Endoscopic DCR (endoDCR) has been increasingly utilized due to the advantages of faster rehabilitation, preservation of the lacrimal pump function, decreased invasiveness, and the absence of an external scar. Moreover, experienced surgeons in this technique describe decreased operative time compared with an external approach. Given these benefits, many surgeons now prefer endoDCR to that of external DCR for treating patients with PANDO, or NLDO secondary to





PGA eluting canalicular plugs

ORIGINAL INVESTIGATION

Newly Designed Universal Trans-punctal Rigid Lacrimal Microendoscope

MasashiMimura, M.D., Ph.D.†‡, Audrey C. Ko, M.D.*§, Ramzi M. Alameddine, M.D.*‖, Bobby S. Korn, M.D., Ph.D., F.A.C.S.*, Don O. Kikkawa, M.D., F.A.C.S.*, Hidehiro Oku, M.D., Ph.D.†, Bunpei Sato, M.D., Ph.D.‡, and Tsunehiko Ikeda, M.D., Ph.D.†*

**Department of Ophthalmology, Division of Oculofacial Plastic and Reconstructive Surgery, Shiley Eye Institute, University of California San Diego, La Jolla, California, U.S.A.; †Department of Ophthalmology, Osaka Medical College, Takatsuki City, Osaka, Japan; †Department of Ophthalmology, Osaka Kaisei Hospital, Osaka city, Osaka, Japan; and §Department of Ophthalmology, University of Iowa, Iowa, U.S.A.; and ‖Department of Ophthalmology, American University of Beirut Medical Center, Beirut, Lebanon.*

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When to refer to oculoplastics

Epiphora - untreatable DES

No imrovement with dry eye treatment

Tearing with eyelid malpositions

Epiphora without dry eye symptoms

Dislodged punctal plug + tearing

Any swelling



"When in doubt, rule it out"

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CONTACT
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asweeney340@gmail.com

Questions

Thank you!

