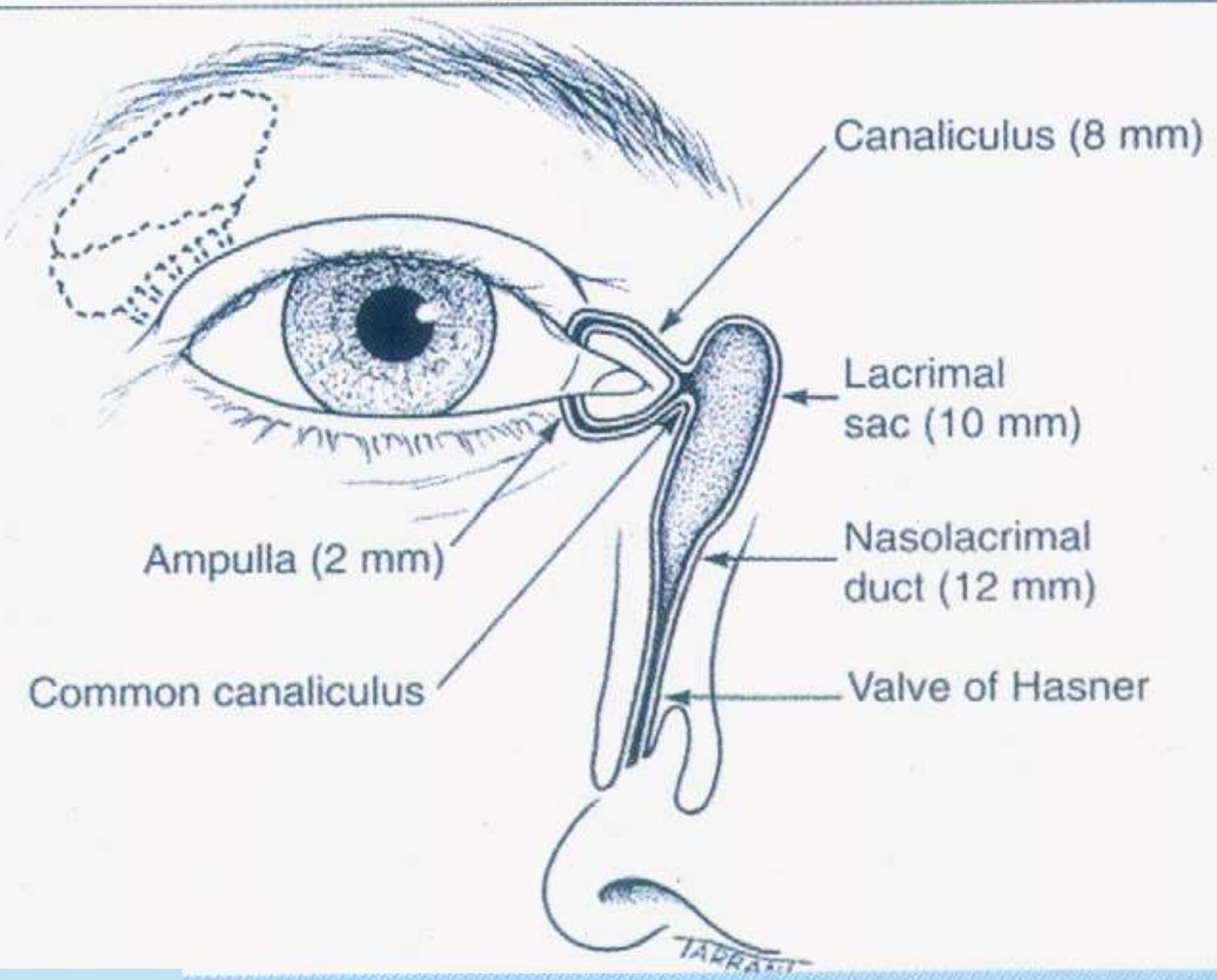


# **DISEASES OF LACRIMAL SYSTEM**

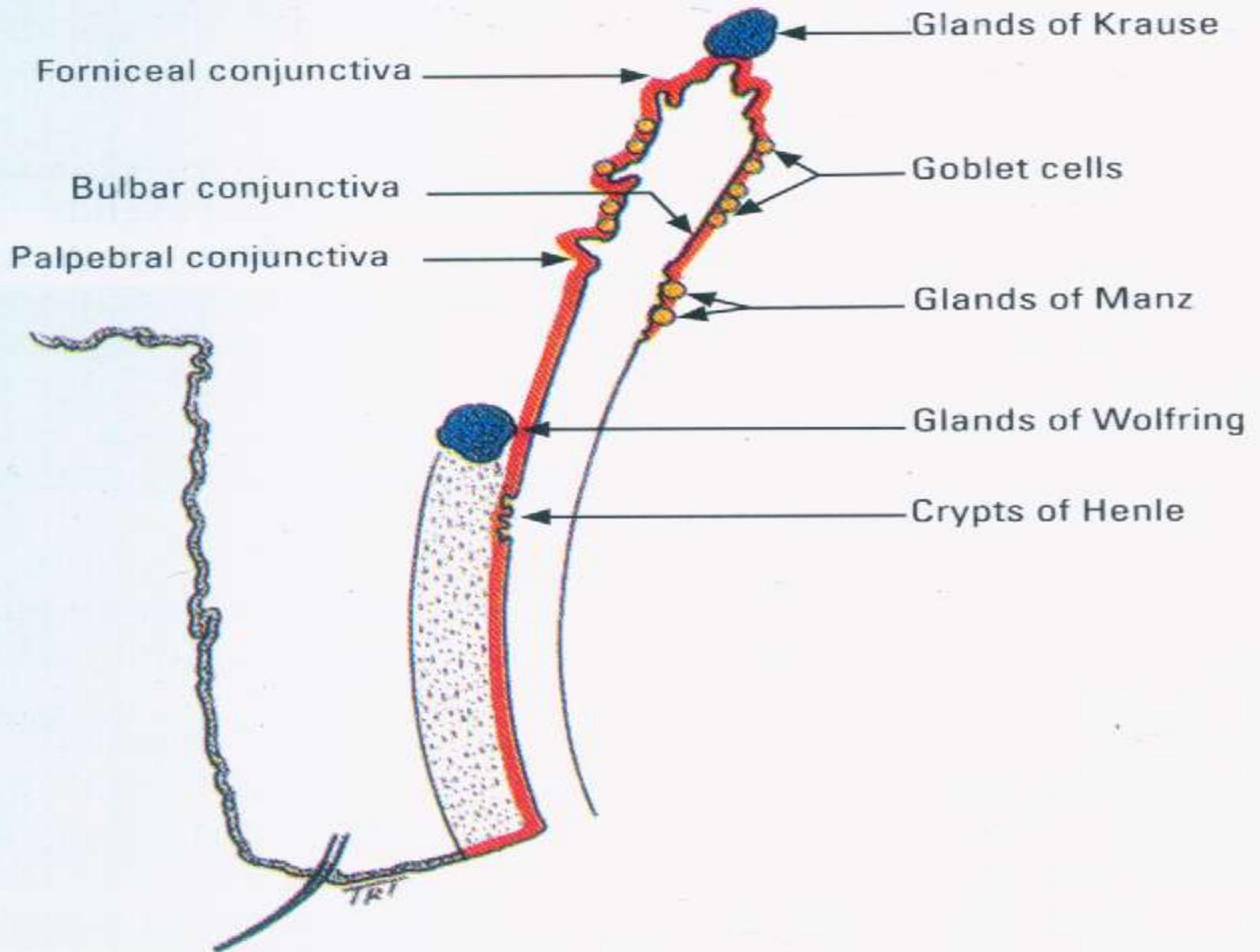
# ANATOMY & PHYSIOLOGY

## BRIEF REVIEW

- Secretory and drainage parts.
- Lacrimal gland [orbital and palpebral parts] and accessory lac glands of Krause and Wolfring Seven to twelve ducts open in the supero temporal part of bulbar conjunctiva.
- Streams running across the eye ball lead to a smaller meniscus along upper and another along the lower lid margin.
- Eye closure is from temporal to nasal side thus pushing the tears medially in lacus lacrimalis.
- Here starts drainage system.



Anatomy of the lacrimal drainage system



Anatomy of the conjunctiva and its glands

# Anatomy Continued-----

- Under basic and reflex control (secretomotor fibres from Saliv. N, N intermedius, before facial N genu into GSPN, through F. Lacerum and pterygoid canal joins Sphenopalatine G to synapse.)
- Post gang. join NV<sub>11</sub>, then zygomatico temporal and finally in Lacrimal nerve reach the gland substance.
- Basic sec from accessory lac glands and reflex from main lac glands
- 0.9 to 2.2uL/min. Cul-de-sac capa-30uL. Rate of tear sec more than 100uL/min tearing occurs.

## Drainage system

- Two punctae just medial to the cilia bearing area of the lids each leads to a canaliculus which runs nasally to unite as common canaliculus opening into Lac. Sac. Lodged in lac fossa and narrows inferiorly to naso lacrimal duct which opens in inferior meatus .

# FUNCTIONS:

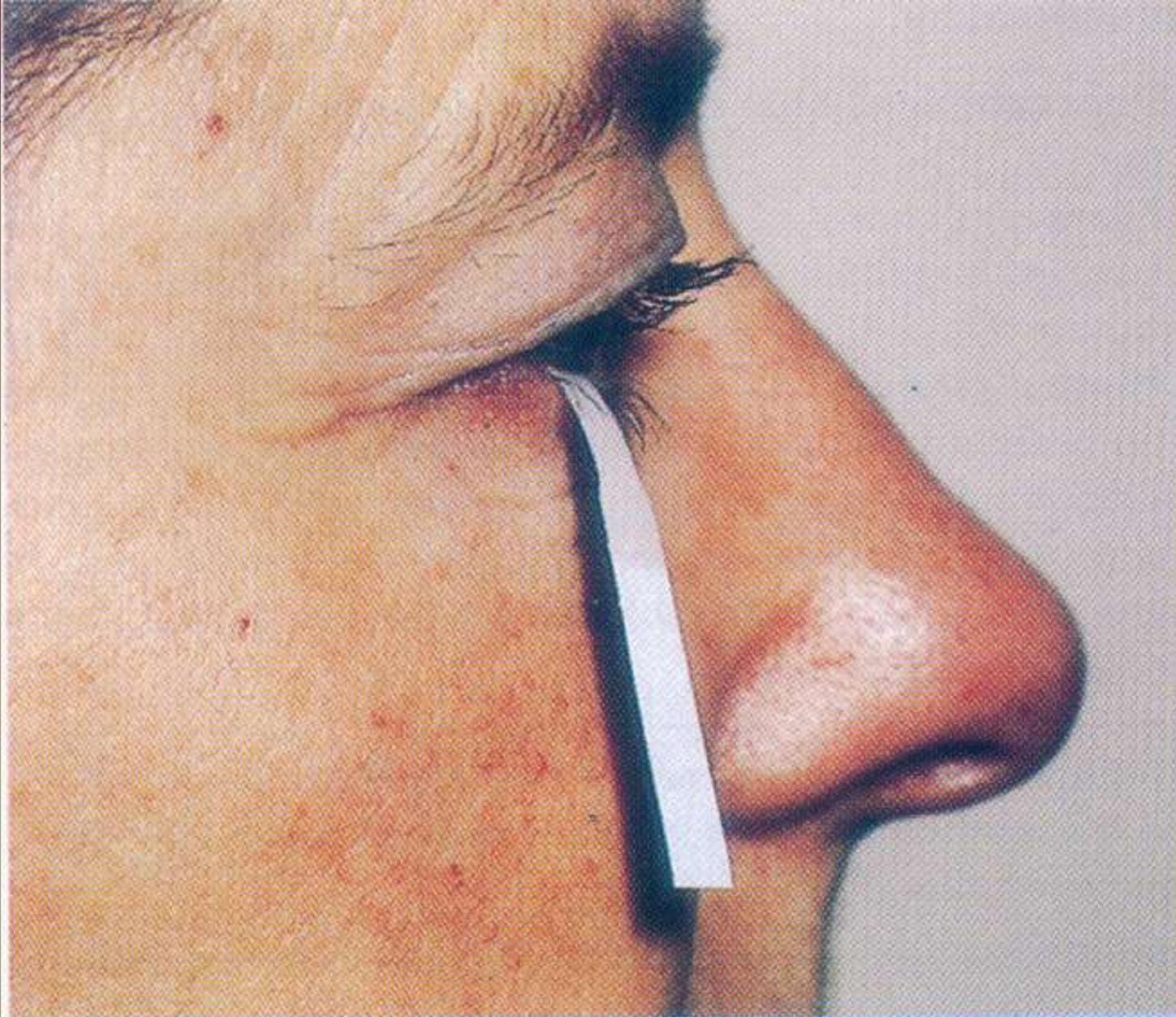
- Main component of tear film
- Washes away the irritants and sloughed out surface cells
- Contains some nutrients especially dissolved oxygen.
- Disinfection by wash away, and bacteriostatic and bacteriocidal components i.e lactoferrin, lysozyme and immunoglobulins and a buffering prealbumin.

# DISEASES OF LACRIMAL GLAND

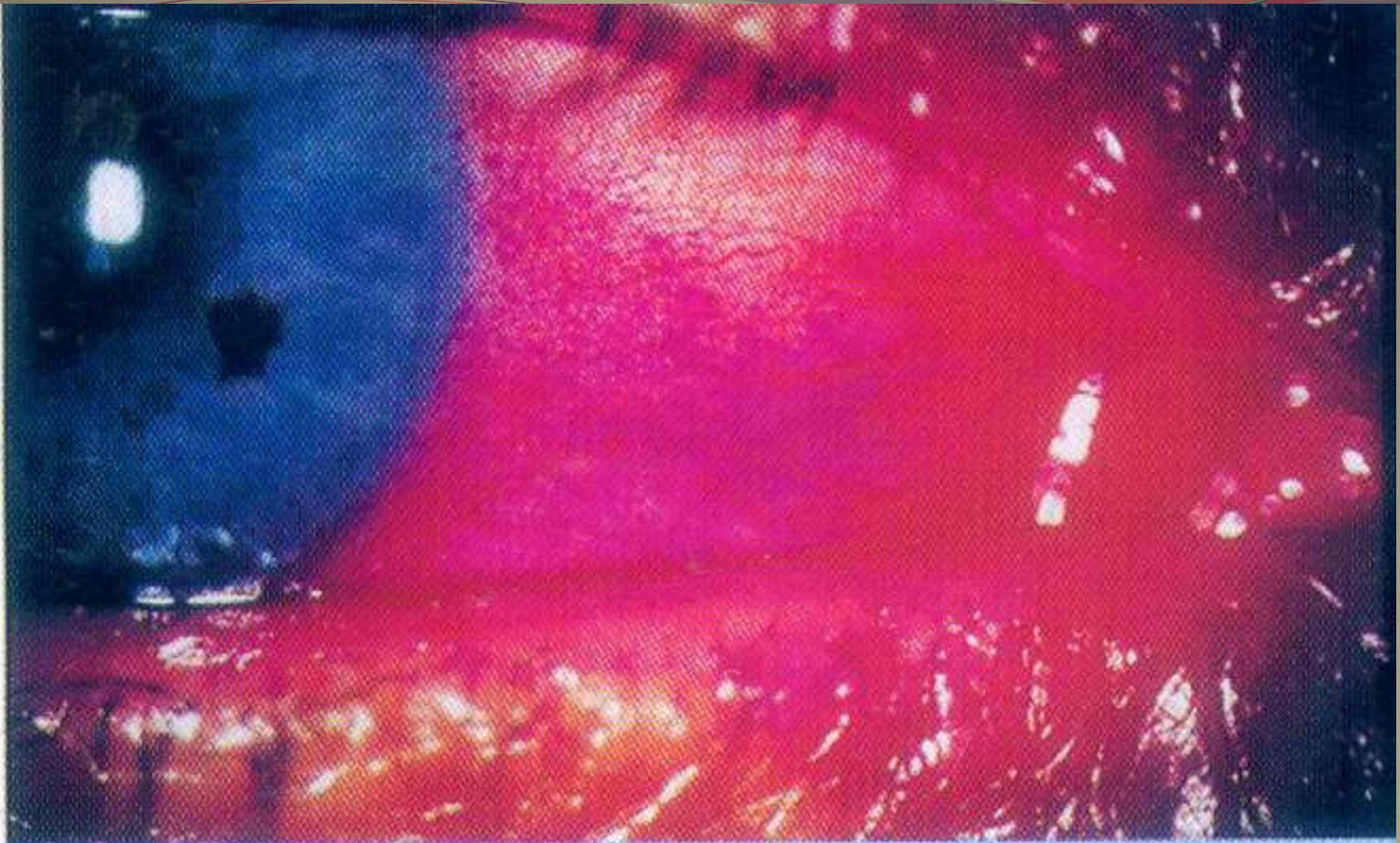
- Dacryoadenitis ; mumps, influenza, infectious mononucleosis.
- Mikulicz syndrome: lymphomatous inflammation of lac and parotid glands.
- Tumours :pleomorphic adenoma; middle ages tumor, slowly progressive, painless swelling.
- Dry eye.(Lac G atrophy, apalasia, exci, radiation)  
(Facial N, GSPN or sphenopalatine denervation)  
(systemic disease Sjogren, sarcoid, lymphoma, CTD and familial dysautinomia.)

# Tests for dry eye.

- Tear meniscus along lower lid margin less than 0.1mm.
- Mucous threads and particulate matter in tear film.
- Filaments upon cornea
- Schirmer test 1 less than 10mm (Normal 15 to 25mm)
- Basic tear sec less than 8mm (normal 8 to 15mm)
- Tear film breakup time-less than 10 seconds.
- Rose bengal stains red dead and decaying epithelium.



Schirmer test



Extensive staining with rose bengal

# Diseases of lacrimal passages

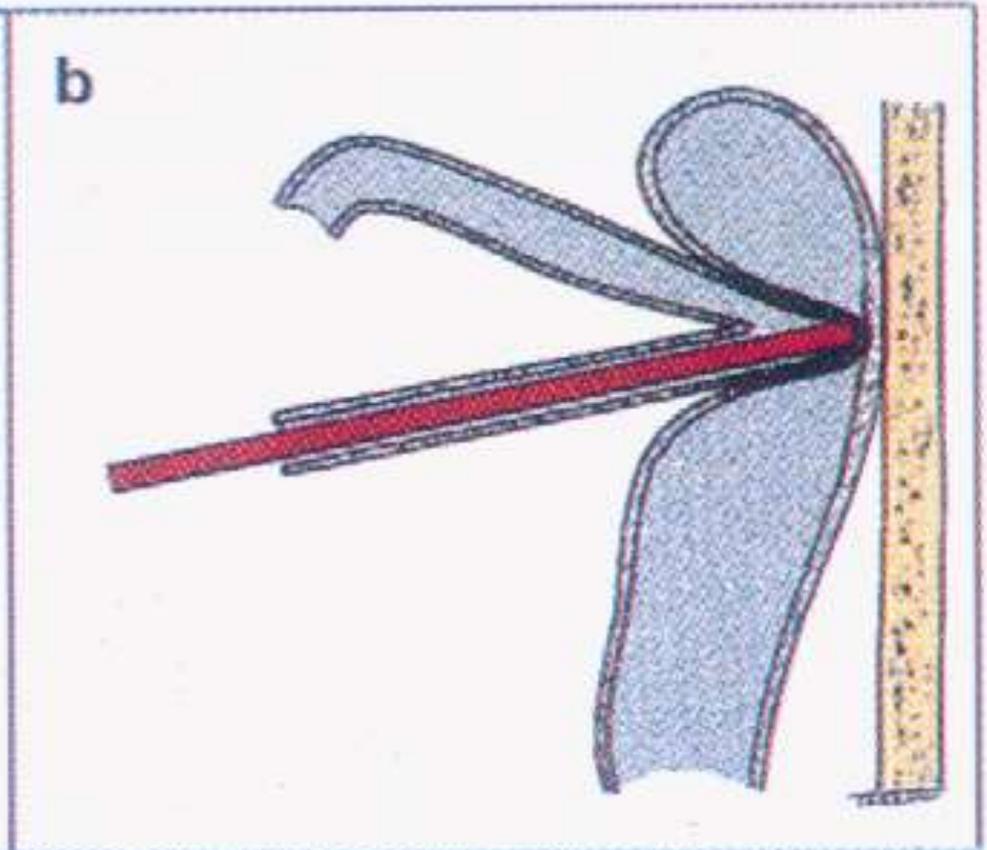
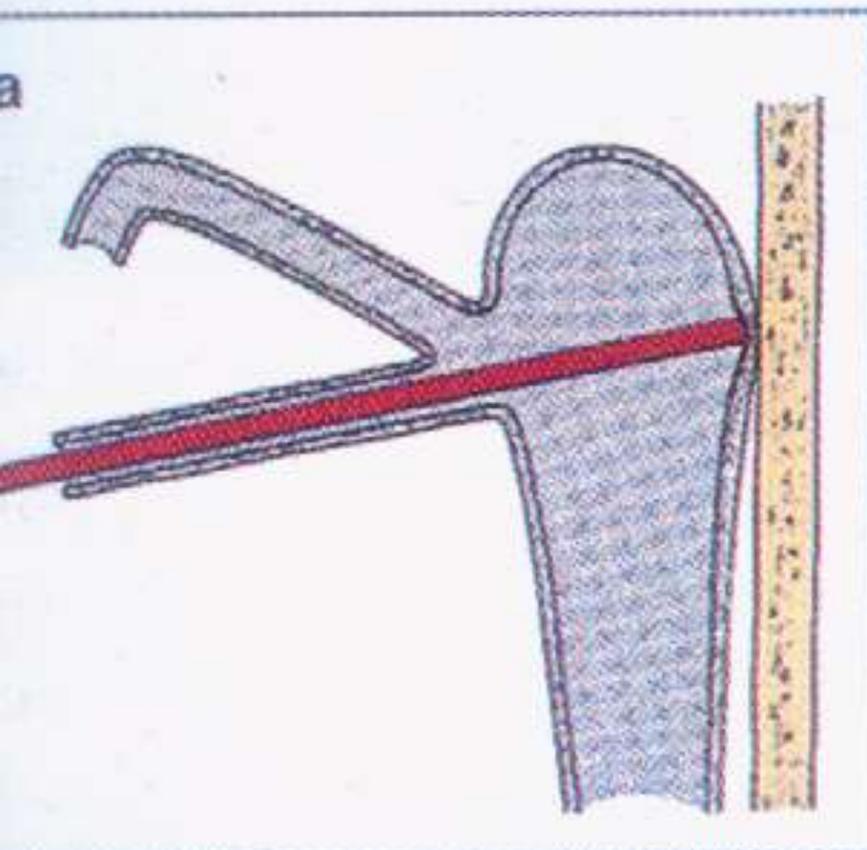
- Punctal stenosis.
- Punctal eversion.
- Canaliculitis
- Dacryocystitis: acute and chronic.
- Dacryolithiasis

# INVESTIGATIONS FOR LAC. PASSAGES

- Punctal examination
- Lid dynamics
- Palpation of lac fossa & Regurgitation test
- Dye disappearance test
- Diagnostic probing and syringing
- Jone's dye tests
- Contrast dacryocystography
- Digital subtraction macrodacryocystography
- Lacrimal scintillography



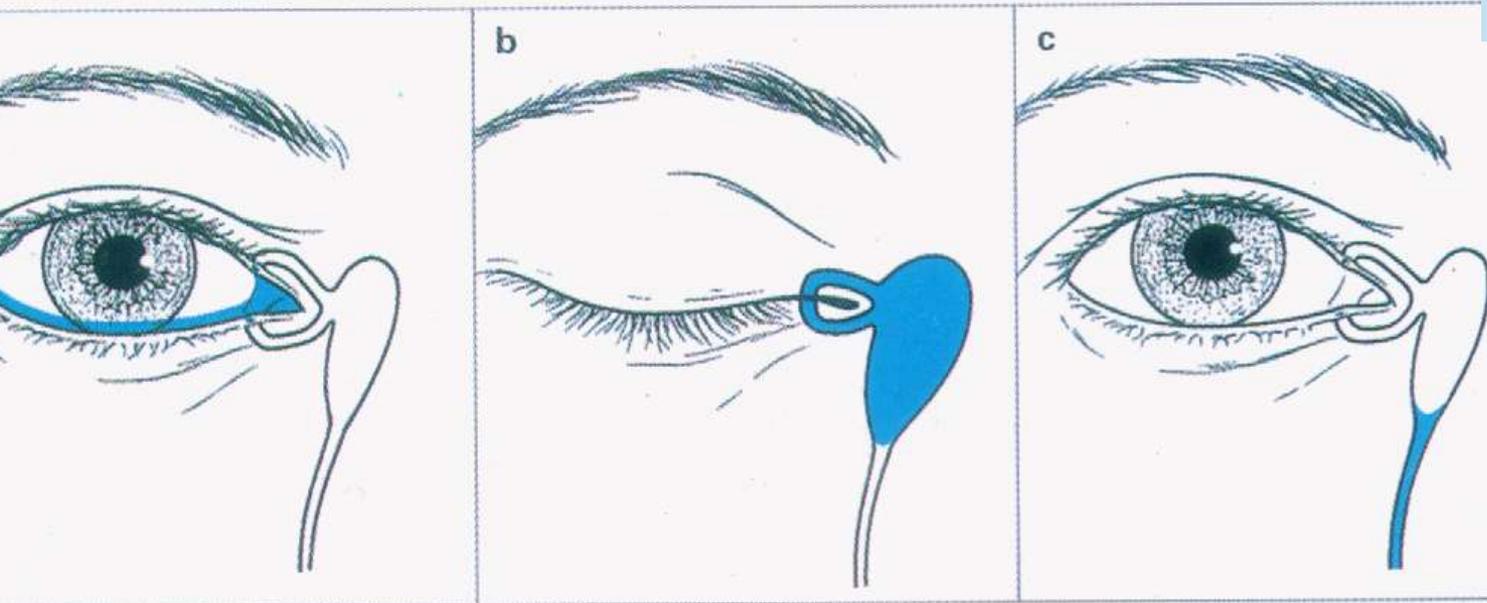
Expression of mucopurulent material



a) Hard stop; (b) soft stop



Prolonged retention of fluorescein-stained tears



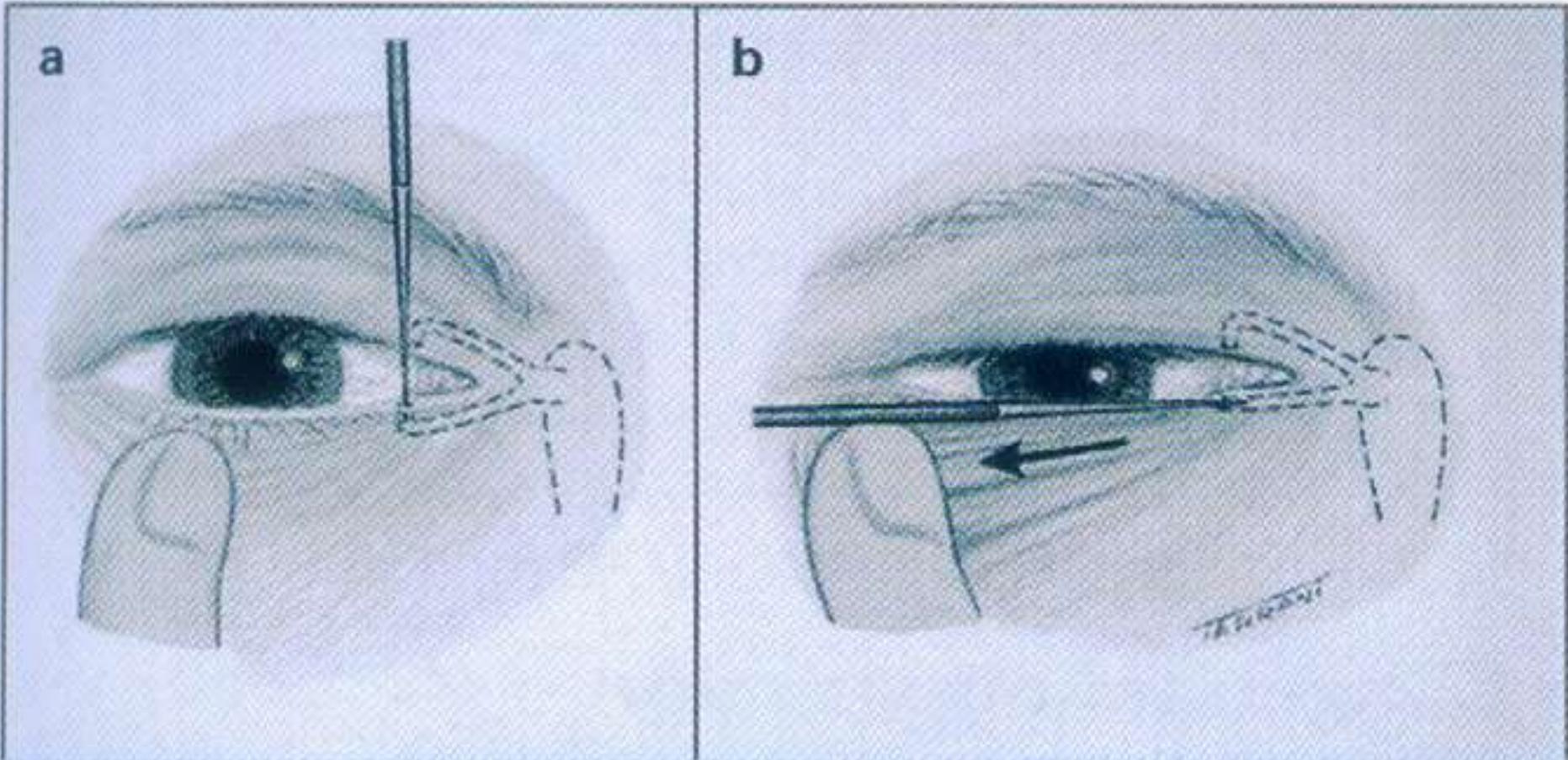
Physiology of the lacrimal pump mechanism

# CONCEPT OF LACRIMATION AND EPIPHORA

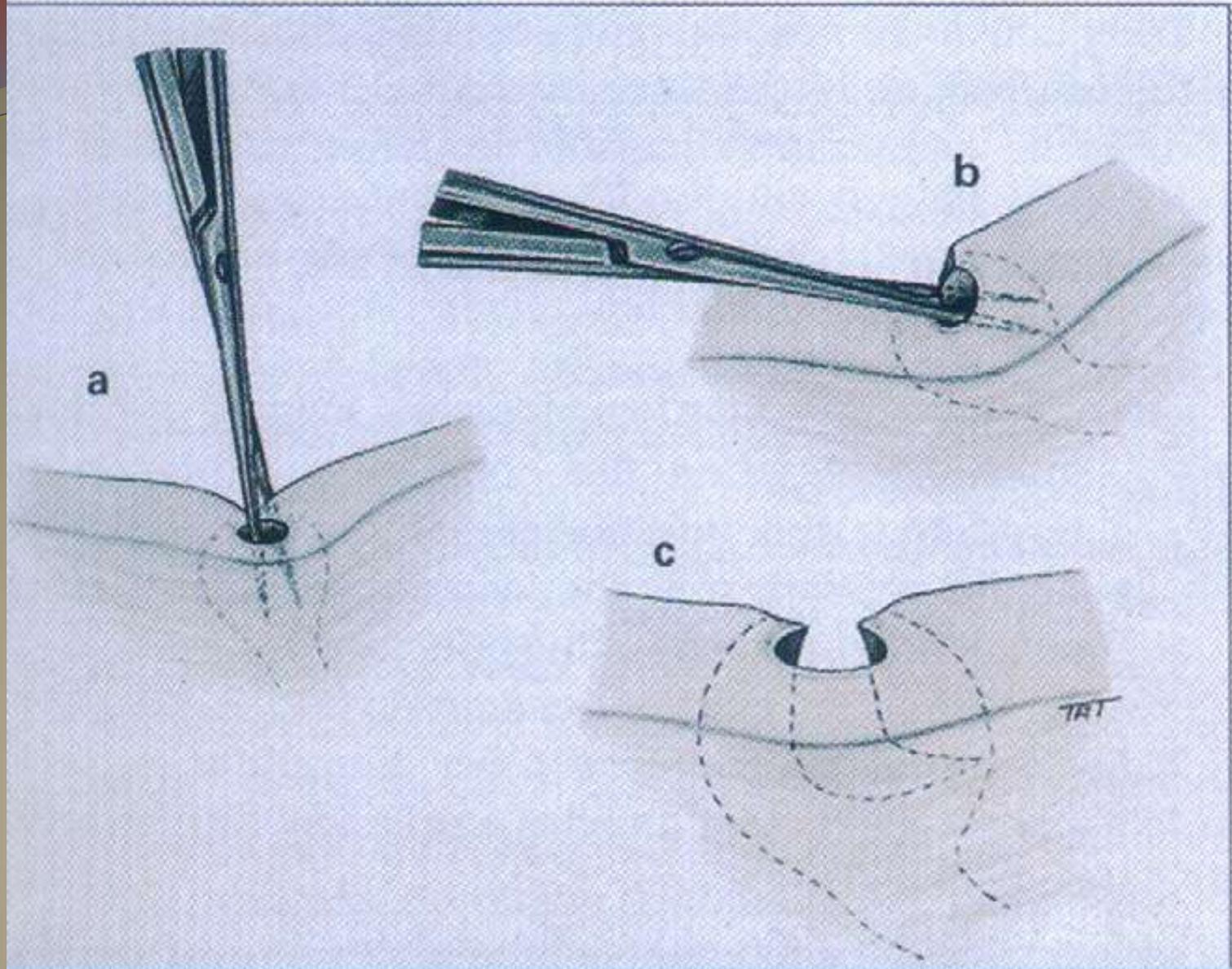
- Lacrimation: Excessive reflex secretion leading to watering i.e weeping, conjunctivitis, keratitis, episcleritis and scleritis, uveitis, a c glaucoma.
- Epiphora:
- Obstructive and pump failure.

# Punctal stenosis.

- Congenital agenesis
- Acquired; trachoma, HZO, S J synd, OCP, acid, alkali, thermal and radiational burns, concretion, FB, cilium, topical drugs(iud), 5-FU.
- Punctal dilation/one or two snip procedure



Technique of dilating the inferior punctum



Two-snip procedure for punctal stenosis. (a) Vertical cut; (b) horizontal cut; (c) final result

# Punctal eversion

- Malpositioned puncta. Visible without everting the lid. Punctal stenosis is also present.
- Treatment: p. dilation and RPC or tarsoconjunctivoplasty.
- Ectropion repair may be required.

# Acute dacryocystitis

- Acute inflammation of sac or pericycstic area leading to acute pain, swelling, redness and watering from the eye.
- No interference like syringing, probing etc.
- Broad spectrum antibiotic both systemic and local, analgesics, nsaid, hot fomentation until the acute phase resolves and DCR performed.



Acute dacryocystitis

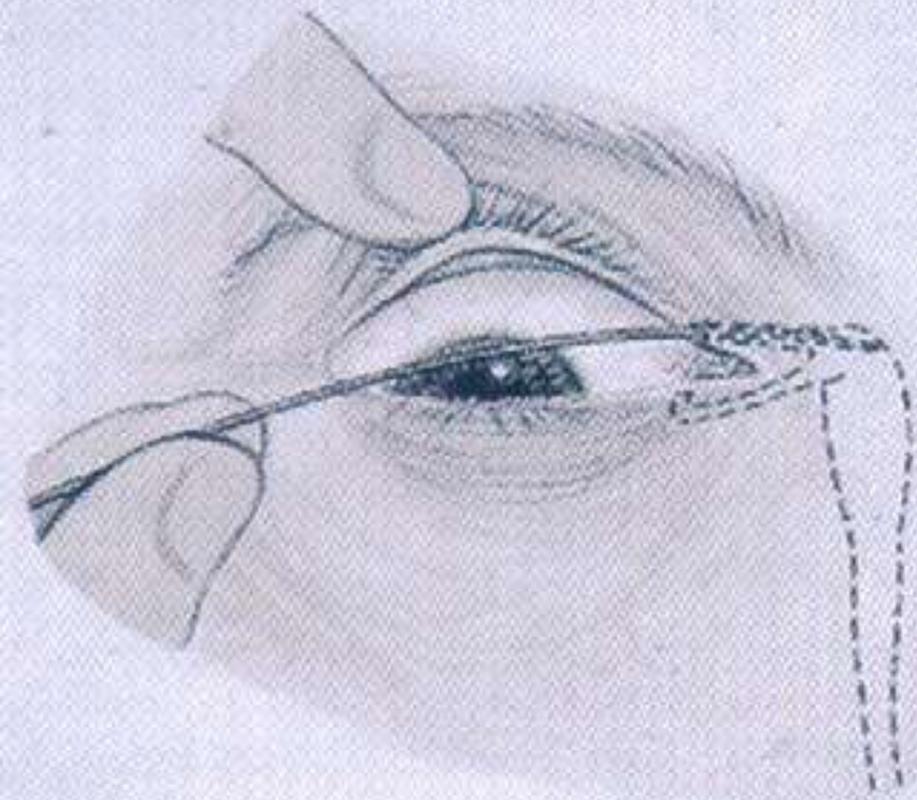


Lacrimal sac abscess

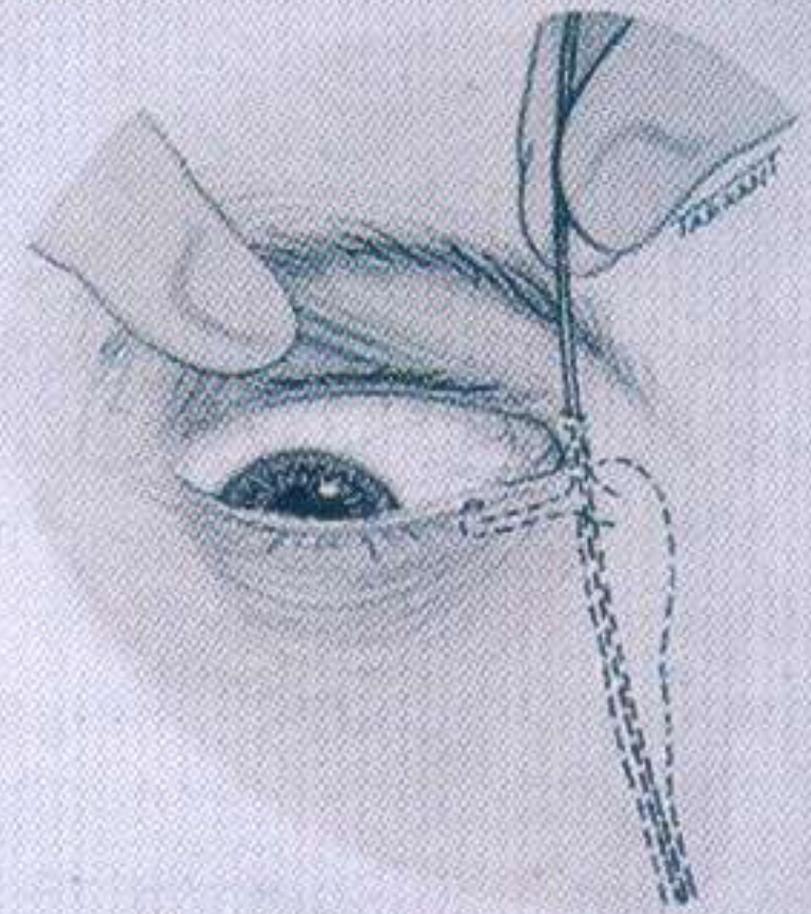
# Chronic Dacryocystitis

- Painless epiphora, fullness of lac fossa and pressure leads to regurgitation of purulent or muciod fluid.
- Obstruction at the junction of sac and nld.
- Nasal pathology may be the cause i.e polyp, inf turbinate hypertrophy, dns,etc.
- Congenital ch dacryocystitis in Cong bnld.Probing at the age of one year.
- DCR for those more than two years at the age of 4 years. And for adults.

a



b



Technique of probing of the nasolacrimal duct



Mucocele

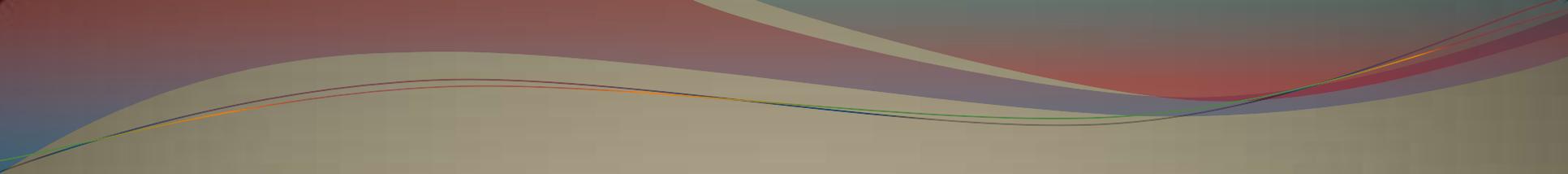


Bilateral chronic dacryocystitis. Right: Operated dacryocystectomy; Left: Acute exacerbation of the infection (By courtesy of MS Bajaj)









*THANK YOU*