DISEASES OF LACRIMAL SYSTEM
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 pf 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

- Canaliculus (8 mm)
- Lacrimal sac (10 mm)
- Ampulla (2 mm)
- Nasolacrimal duct (12 mm)
- Valve of Hasner
- Common canaliculus
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 NV11, then zygomatico temporal and finally in Lacrimale 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 inferiopr 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 tarsoconjunctivo-plasty.
- Ectropion repair may be required.
Acute dacryocystitis

- Acute inflammation of sac or pericystic 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 mucoid 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.
Technique of probing of the nasolacrimal duct
Bilateral chronic dacryocystitis. Right: Operated dacryocystectomy; Left: Acute exacerbation of the infection (By courtesy of MS Bajaj)
THANK YOU