How do you treat severe lagophthalmos with exposure?

a) temporary tarsorraphy
- for:
1) close with 6-0 nylon, tarsus to tarsus
2) remove 7-10 days after to prevent infection

b) permanent tarsorraphy
1) Divide ant and pos lamella with #11 blade for 3-4mm
2) scrape lateral 4 mm of mucosal margin surface of upper and lower lid
2) 1 double arned 5-0 vicryl mattress suture is placed in the the upper and lower tarsus in the lateral canthal region (needle away from the eye) and are tied laterally
3) close anterior lamella with 4-0 silk
4) can leave closed until problem (eg dry eye with ulcer) resolves

c) gold weight insertion
for: eventually, insert gold weight for CN 7 palsy
1) Incise in lid crease
2) dissect to tarsus
3) suture gold weight to tarsus with 7-0 silk partial thickness bites
4) close orbicularis with 7-0 vicryl and skin with 6-0 plain

Question: What are the causes of entropion?

Involutional, cictritial, spastic and

Question: What are the three causes of involutional entropion?
CPF laxity, horizontal lid laxity, overriding orbic
Repairs?

i) Quickert everting sutures
- temporary treatment
- Three 4-0 silk mattress (or 6-0 plain which can be left) sutures are introduced in a double-armed manner from the palpebral surface of the eyelid near the inferior fornix.
- The sutures are brought anteriorly along the anterior surface of (but not in) the tarsus, and exit the skin just inferior to the cilia.
- they are tied on the skin side (with bolsters for silk?)
- This rotates the eyelid margin away from the globe

ii) Lateral Tarsal Strip
- after clamping, skin incision is from the lateral canthus angling 15º below the horizontal for 1 cm
- medial cut edge of eyelid is grasped with a toothed forceps
- lower limb of the LCT is severed with scissors
- the lateral eyelid is divided at the gray line with a blade
- The lid-splitting incision is carried medially for 5 to 7 mm (depending on the amount of tightening desired).
- The anterior lamella (skin and muscle) is resected.
- The mucosa of the posterior lamella is removed by scraping with a scalpel.
- 2 4-0 Vicryl or 5-0 nylon or 4-0 Prolene suture on a P2 needle passed through tarsus and

periosteum
- secure lower eyelid 2 mm inside the lateral orbital rim.
- angle formed by suturing upper lid gray line to tarsal strip laterally with 6-0 plain
- skin closed with 6-0 plain or nylon

What are the complications of these surgeries?
Consecuctive ectropion, hematoma, eyelid retraction, exposure, granuloma, symblepharon, ptosis.

iii) LTS + reinsertion of lower lid retractors
- The lower eyelid retractors are approached from 1) the conjunctival or 2) skin surface
- The skin approach allows simultaneous correction of the overriding orbicularis
- The conjunctival approach avoids placing an incision in the eyelid skin

1) The conjunctival approach:
- The lower eyelid is first controlled with marginal 4-0 silk traction sutures.
- The eyelid is then everted over a Desmarres retractor.
- The conjunctiva is incised along the inferior border of the tarsus.
- the conjunctiva is dissected from the lower eyelid retractors.
- A white, horizontal line (the edge of the recessed lower eyelid retractor) can be identified.
- The lower eyelid retractor is reattached to the inferior border of the tarsus with .
- The conjunctiva is sutured to the inferior tarsal border with 7-0 vicryl.
- Alternatively, the lower eyelid retractor and conjunctiva are reattached by one suture that picks up the free edges of both.

2) The cutaneous approach for those who have no posterior lamellar forshortening:
- A subciliary incision is made 4mm below edge of tarsus.
- A skin-muscle flap is dissected inferiorly to the orbital rim off the tarsus
- The orbital septum is opened and the lower eyelid retractor is identified.
- A frank dehiscence may be seen.
- The lower eyelid retractor is dissected free
- Once freed, the lower eyelid retractor is sutured to the anterior, inferior surface of the tarsus with 6-0 vicryl
- The skin is closed with 6-0 plain.
Other repairs: Weis procedure, cauterization on skin side

ectropion repair
i) temporary: inverting sutures: opposite of Quickert:
- go from high on inner side (just below tarsus) towards inferior on skin surface with 2 double-armed chromic tied with cotton pledgets on lower skin surface
ii) permanent: LTS +/- inverting sutures
iii) ant/post lamellar graft for cicatricial

Punctal ectropion:
medial spindle procedure
- excise spindle section of conj. + lower eyelid retrators
- sew closed with 7-0 Vicryl or chromic including lower retractors

How do you repair?

A) small (<25%)
1) direct closure
2) lower crus lat. cantholysis to advance lateral lid

B) moderate (25-50%)
1) lower crus lateral cantolysis
2) semicircular flap (Tenzel)
or 3) tarsal-conjunctival flap from adjacent lower lid tarsus with skin graft (pre-auric.)
or 4) full-thickness (skin + muscle + tarsus + conj) graft from contralateral upper lid
or 5) tarsoconjunctival graft from contralateral *upper* eyelid with adjacent skin flap

C) large(>50%) - need advancement of tissues
1) upper lid tarsus-conj flap + skin graft (modified Hughes)
2) tarso-conjunctival graft from upper lid + adjacent skin flap
3) posterior lamellar graft (ear, palate) with adjacent skin flap
NB: either posterior or anterior lamella must have vasc. supply (1 graft, 1 flap) except for small full thickness graft which often don't do well

Large flaps
1) Mustarde - to anterior ear (for lower lid)
2) Cutler-Beard (for upper lid)
3) glabellar (for medial canthal area)

Describe the repair of an eyelid laceration.

- 5-0 or 6-0 interrupted Vicryl should be placed *in the tarsus* 1 to 2 mm from the eyelid margin
- In the upper eyelid this should be a partial-thickness bite, while in the lower eyelid this may be a full-thickness bite since corneal abrasions are less likely from lower eyelid sutures.
- This initial suture is placed to result in the correct approximation of the margin edges.
- After placement of this initial suture, interrupted 6-0 silk sutures are placed in the eyelid margin.
- One suture is placed in the mucocutaneous margin, one in the gray line, and one in the posterior eyelash line.
- The suture bites should be approximately 2 mm from the edge of either side of the laceration and 2 mm deep.
- Before the margin sutures are tied, additional Vicryl can be placed intratarsally. Three such sutures are usually sufficient in the upper eyelid tarsus, and two are placed in the lower eyelid tarsus.
- Absorbable sutures should be used to reapproximate the orbicularis muscle after the tarsal sutures are tied.
- The skin is closed with 6-0 or 7-0 silk or nylon, sutures
- In children, 6-0 mild chromic or fast-absorbing gut sutures can be used for skin closure.
- leave amrgin sutures for 10-14 days; others: 1 week

With canalicular laceration
Identification of the proximal cut end:
- the medial end of the canaliculus can usually be found by following the probe and examining the other side of the laceration looking for the characteristic shape and glistening epithelium of the canaliculus

- Allowing tissue swelling to subside with time, applying ice compresses, and injecting hyaluronidase solution with massage may restore normal contour and alignment so that the lacrimal laceration may be identified.
- If the opening cannot be identified, irrigation of the opposite canaliculus with air and flooding the field with water can demonstrate air bubbles emerging from the laceration site.
- Milky corticosteroid suspensions or diluted fluorescein can also be irrigated through the opposite canaliculus and subsequently visualized at the laceration opening.
- Injection of methylene blue is not advised because it stains the tissues and may further obscure the anatomy.

Stenting the canaliculus

- canalicular lacerations should be stented as part of their repair.
- Both monocanalicular and bicanalicular stents have been described.
- Bicanalicular stents usually consist of silicone tubing (Crawford tubes) attached to metallic probes, which are passed through the upper and lower canaliculi, across the lacerated portion of the canaliculus, and down the nasolacrimal duct into the nose.

These tubes are very easy to pass through the lacrimal system and retrieve from the nose with a Crawford hook

- The probes are then removed and the ends of the silicone shortened and sutured or tied to themselves and to a larger bolster to prevent the tube from being inadvertently pulled out of the canaliculi.

The nose must be anesthetized with either topical cocaine (4% or 10%), 4% topical lidocaine, or benzocaine spray for successful passage of the tubes.

. In general, the repaired canaliculus should remain stented for at least 3 months and if possible longer to prevent a stricture from forming within the repaired canaliculus.

Suturing the wound

- some surgeons recommend directly suturing the edges of the canaliculus to each other using 8-0 absorbable sutures
- Placing mattress sutures anterior, posterior, and, if possible, inferior to the sides of the canaliculus without actually suturing the edges of the canaliculus together is usually sufficient for canalicular re-formation over a silicone stent (Double-armed 6-0, 7-0, or 8-0 polyglactin 910)
- 5-0 or 6-0 polyglactin sutures can be used to close the deep tissue layers and orbicularis muscle.
- If possible, one of these sutures should be used to connect the medial end of the tarsus to the lateral end of the cut medial canthal tendon.
- This will aid in holding the eyelid in place against the globe.
- In deep lacerations, every attempt should be made to place this suture into the deep portion of the medial canthal tendon, which inserts onto the posterior lacrimal crest.
- The skin is closed with nonabsorbable 6-0 or 7-0 sutures.

Describe how to perform an enucleation.

Indications

1) tumor
2) severe trauma (symp. ophthalmia risk)
3) endophthalmitis (prevents infection form reaching orbit

Procedure

- general anesthesia
- 360 degree peritomy
- remove muscles with 5-0 vicryl attached to muscles and clamp sutures (Bulldog?)
- free attachments
- cut nerve in 1 swoop

- insert gaze to prevent bleeding
- measure implant
- insert medpor implant with dacron shell (other options: Allen, hydroxyappetite)
- attach muscles to shell
- sew Tenon's closed with running 6-0 Vicryl need good closure
- close conj (8-0 plain or vicryl?)

Indications
1) eye with intraocular malignancy
2) eye suspected of malignancy which is NLP
3) chronically painful eye with poor vision
4) severe trauma (sympathetic ophthalmia)

Describe how to perform an evisceration.
Indications
blind painful eye (eg, neovascular glaucoma) no chance of malignancy
- cut off cornea
- scoop out uvea
- insert small implant
- tie sclera over implant

Post-op: prosthesis over implant with scleral shell

Describe a retrobulbar alcohol injection.
Indications
1) blind painful eye

Procedure
1) 2 cc anesthetic (lidocaine + marcaine)
2) 0.5cc 100% alcohol

Post op: prosthesis on top

Complications
1) swelling
2) Persistent anesthesia of periorbital region
3) ptosis
4) extraocular muscle palsy