

DCR FROM ZERO TO HERO



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CHALLENGES

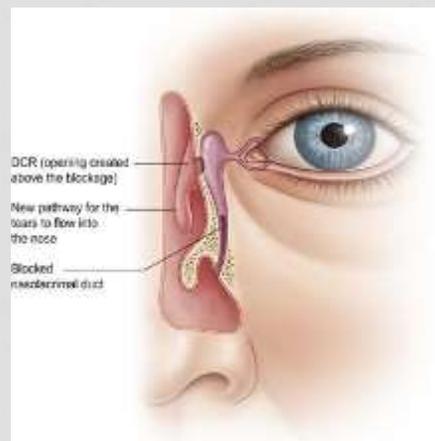
- Steep learning curve
- Good orientation of the anatomy
- Time consuming
- Bloody surgery
- Supposed to be a successful surgery
- Many many things can go wrong!!

EXTERNAL DCR

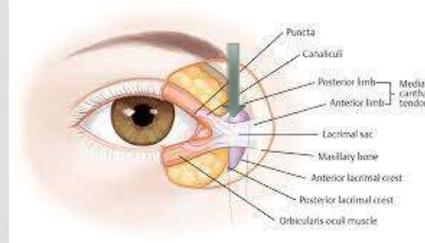
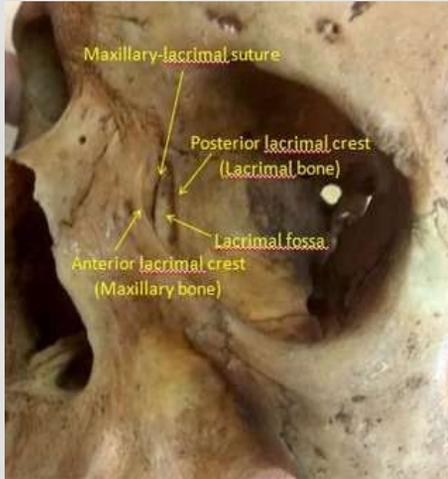
- External dacryocystorhinostomy (DCR) is the standard treatment for nasolacrimal duct obstruction, with success rates consistently above 90%
- An ideal DCR technique
 - Large bony ostium
 - Good mucosal anastomosis
 - Good external scar

IDEA

- A DCR procedure involves removal of bone adjacent to the nasolacrimal sac and incorporating the lacrimal sac with the lateral nasal mucosa in order to bypass the nasolacrimal duct obstruction.
- This allows tears to drain directly into the nasal cavity from the canaliculi via a new low-resistance pathway



ANATOMICAL CONSIDERATIONS



EQUIPMENT FOR EXTERNAL DCR

- Moffett's solution / Cocaine drops or paste (not essential but useful)
- Chlorhexidine skin preparation solution
- Turban head drape
- 15 blade
- Cotton buds
- Gauze
- Periosteal elevator
- Kerrison bone punch
- Lacrimal probes
- Punctum dilator
- St Martin forceps
- Adson forceps
- Needle holder
- Wescott scissors
- 6-0 polyglactin 910 suture on half circle needle
- 6-0 polypropylene suture



STEPS

- Anesthesia
- Skin incision
- Anatomical identification
- Sac reflection
- Osteotomy formation
- Flaps creation
- Intubation
- Closure
- Post-operative care

ANASTHESIA

Based on the surgeon and patient's preference.

- General anesthesia
- LA with monitored sedation

CONTROL OF BLEEDING

- General measures

Pre-operative control of blood pressure

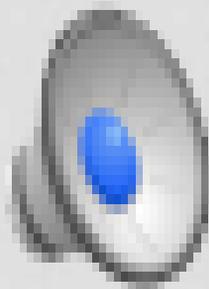
Cessation of anticoagulation

Reverse-Trendelenburg position of approximately 10 to 15 degrees position

Use of suction.



POINT OF INJECTIONS IN LOCAL ANASTHESIA



GENERAL ANAESTHESIA

- Hypotensive anaesthesia
- Airway protection (either self or via an endotracheal tube with cuff or throat pack) is important to prevent aspiration
- Laryngeal mask Vs endotracheal intubation

BLEEDING POINTS

Bleeding is most frequently occurring complication in Ex DCR procedure 5.8% -9.3%.

Source of bleeding are

Skin

Orbicularis,

Angular veins

Bone suture line

Perivascular plexus around the lacrimal sac

Nasal mucosal lining.

Excessive bleeding can lead to poor visualization of proper anatomy during surgery which can adversely result in failure of surgery.

LOCAL INFILTRATION

- Aid in achieving meticulous hemostasis.
- Equal mixture of 1-2% lidocaine, with 1:200,000 epinephrine

- Injection points:
 - medial canthus
 - lower lid incision site
 - nasal mucosa

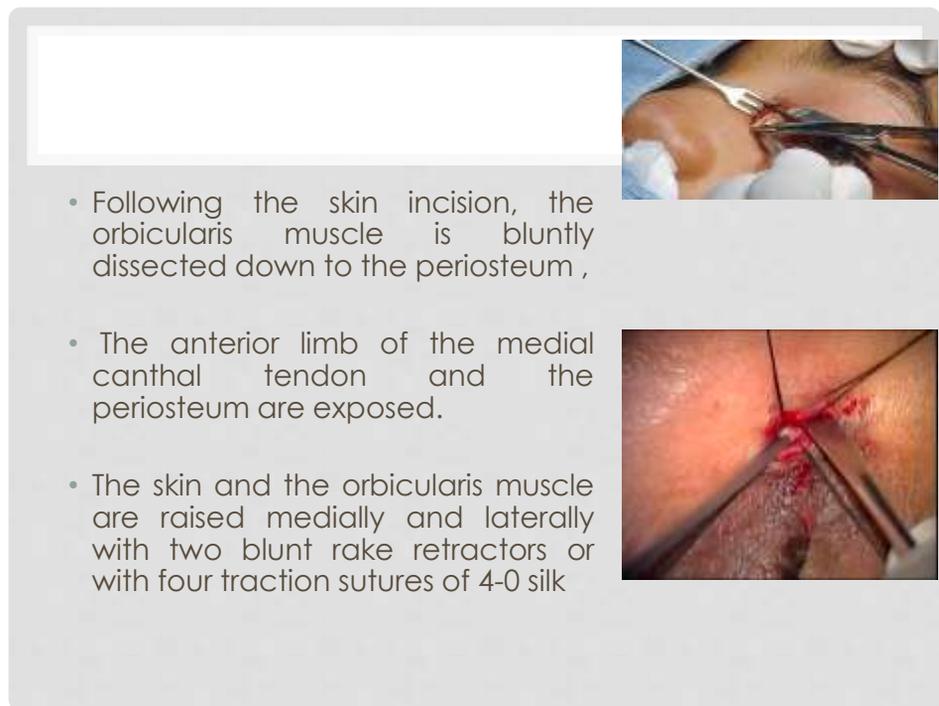
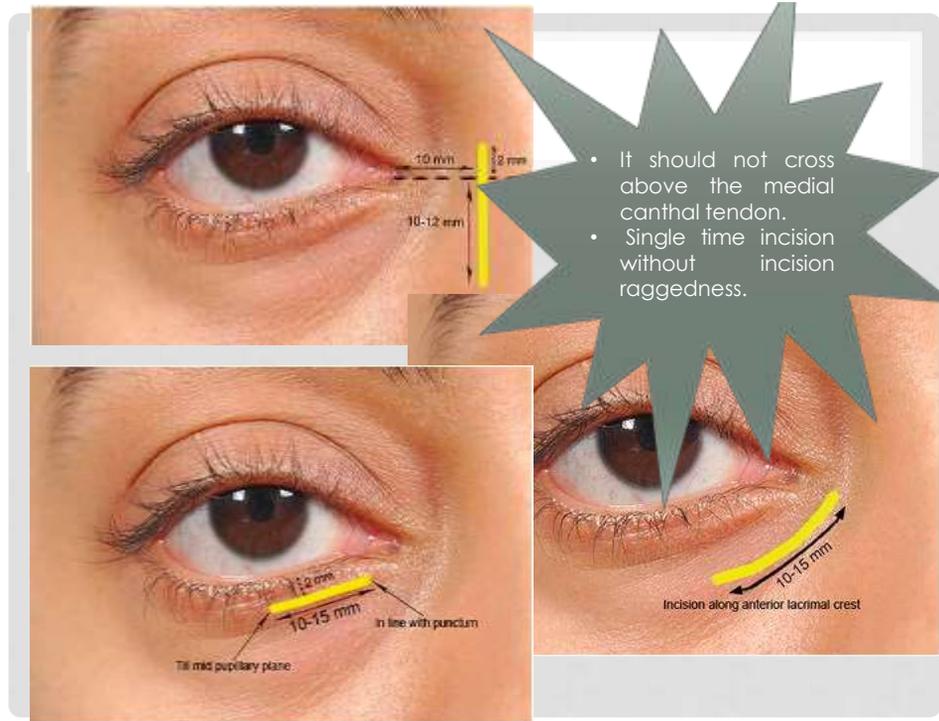
- Nasal packing soaked in 4% cocaine, lidocaine, or afrin (oxymetazoline) provides additional nasal anesthesia and mucosal vasoconstriction to the middle meatus.

- Once the nasal mucosa is visible intraoperatively, further LA can be injected under direct visualization to provide analgesia and hemostasis.

INCISION SITE

- Surgical site scar is a major drawback of external DCR

- Incision site
- Meticulous tissue handling



- After that, the periosteum is incised, starting by disinsertion of the anterior limb of the MCT and continuing down the anterior lacrimal crest.
- The periosteum is raised widely, anteriorly alongside the nose and posteriorly to elevate the lacrimal sac laterally within the lacrimal sac fossa. The lacrimal fossa is exposed in its entirety



- Then, an osteotomy, approximately 15 x 15 mm wide, in the lateral nasal wall is created with dental drill and the nasal mucosa exposed.
- The bony window includes the entire anterior lacrimal crest, lacrimal fossa, and superomedial wall of the nasolacrimal canal. The next step is to fashion the mucosal flaps



- A “00” Bowman probe is inserted through the inferior canaliculus into the lacrimal sac, tenting up the medial wall of the sac. The medial face of the sac is opened with a no.11 blade from the upper fundus down to the proximal nasolacrimal duct.
- A vertical incision is made in the lacrimal sac to create anterior and posterior flaps, about two-thirds anterior, one-third posterior. Same vertical incision is made in exposed nasal mucosa to create anterior and posterior flaps, about two-thirds anterior, one-third posterior



External Dacryocystorhinostomy with and Without Suturing the Posterior Mucosal Flaps

Gazmend Kaçaniku¹ and Ilir Begolli²

Results:

The success rate was evaluated by lacrimal patency to irrigation and relief of epiphora. Patency achieved in groups A and B was 94.4% and 96.2%, respectively. There was no statistically significant difference in success rate between the groups.

Conclusion:

Our study suggests that external dacryocystorhinostomy with suturing anterior and posterior flaps have no advantage over dacryocystorhinostomy with suturing only anterior flaps. Anastomosis by suturing only anterior flaps and excision of the posterior flaps is easier to perform and may improve the success rate of external dacryocystorhinostomy.

Comparing the Success Rate of Dacryocystorhinostomy With and Without Silicone Intubation: A Trial Sequential Analysis of Randomized Control Trials

ChuanQi Xie,^{1†} Lingling Zhang,² Yang Liu,¹ Hong Ma,¹ and Shuzhen Li¹

This cumulative meta-analysis suggested that compared with DCR without intubation, DCR with intubation had a much better rate of success after surgery, especially in the EX-DCR subgroup. The difference was statistically significant [RR, 1.06; 95% CI, 1.01-1.11]. This result is completely opposite that of the previous meta-analysis and had low statistical power, which may explain why the result is obtained, it is important to consider the possibility of a type II error, and treatments that may be of



- Anterior mucosal flaps are sutured with three interrupted 6-0 Vicryl sutures or transverse mattress,
- Sufficient tension to prevent sagging of the flaps and to obstruct the internal ostium or scarring the posterior flaps anastomosis.
- In the modified technique of external dacryocystorhinomy the posterior nasal and lacrimal sac flaps are excised.
- Upon completion of the mucosal anastomosis, the surgical wound is closed in two layers. Deep tissues, including orbicularis and subcuticular layers, are closed with several interrupted 6-0 Vicryl sutures and skin with prolene 6-0 sutures.

TIPS FOR CLOSURE

- Proper closure of skin can reduce the chance of skin scarring.
- Avoid cautery over the skin
- Caution not to bury the skin edges into the incision rather hip up incision margins can reduce the skin scarring.
- Orbicularis muscle should not be suture within the incision line rather it should be sutured separately as a subcutaneous layer.

POST-OPERATIVE CARE

- No or minimal bleeding at end of surgery
- Systemic antibiotics
- Nasal decongestant
- Combined antibiotic steroids drops and ointment
- Patient is typically discharged same day
- Follow up second day, 1 week, 1 month, 3 months and 6 months
- Tube removal 3-6 months

TAKE HOME MESSAGE

- Take your time
- Do not compare yourself to others.
- Remember it's a functional surgery, functional success comes first.
- Practice makes perfect
- Always consult your seniors when things don't go as expected



Thank you