Chapter 8
Gundersen's Conjunctival Flap

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Abstract The Gundersen's conjunctival flap involves the transposition of conjunctiva over a deepithelialized cornea. Patients with refractory infectious ulcerations, ocular surface disorders with persistent epithelial defect, neurotrophic ulcer, severe dry eye conditions, exposure keratopathy, refractory stromal thinning, peripheral ulcerative keratitis, bullous keratopathy in an eye with poor visual potential, or Mooren's ulcer can be considered for this procedure. Patients should have been evaluated and deemed appropriate for such surgical intervention. Patients should have been educated about the risks and benefits of the procedure, including alternatives.

Keywords Gundersen's conjunctival flap • Flap • Conjunctiva • 360° peritomy • Conjunctival flap

Indications

Refractory infectious ulcerations, ocular surface disorders with persistent epithelial defect, neurotrophic ulcer, severe dry eye conditions, exposure keratopathy, refractory stromal thinning, peripheral ulcerative keratitis, bullous keratopathy in an eye with poor visual potential, and Mooren's ulcer.

Essential Steps

1. Retrobulbar or subconjunctival and topical anesthetic
2. Placement of a superior rectus traction suture (a long 4-0 silk, double armed; remove needles)
3. Removal of corneal epithelium and scarification of the peripheral cornea with a 75 (3 mm) blade
4. Passage of absolute alcohol on an amputated Weck-Cel sponge over the cornea, to kill any remaining epithelial cells
5. Superior conjunctival incision
6. Dissection of conjunctiva from Tenon's capsule

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7. Creation of a thin "bucket handle" flap that is—ideally—still vascularized at 3 and 9 o'clock
8. Perimetry incision
9. Rotation of flap over the cornea
10. Suture into place

Complications

– Flap retraction
– Button holes
– Epithelial inclusion cysts, or epithelium growing in sheets under the flap
– Subconjunctival hemorrhage
– Recurrence of infection

Template Operative Dictation

Preoperative diagnosis: *Corneal ulcer*, *refractory infectious* (*OD*/*OS*)

Procedure: Gundersen's conjunctival flap (*OD*/*OS*)

Postoperative diagnosis: *Same*

Indication: This is a ____-year-old (*male*/*female*) who was previously diagnosed with _____ that has been present for ___ (*months*/*years*). Despite aggressive medical treatment for _____, and in attempts to preserve vision/integrity of the globe by promoting healing, surgical options were discussed with the patient. After a detailed review of risks, benefits, and alternatives, the patient elected to undergo the procedure.

Description of the procedure: The patient was identified in the holding area, and the (*right/left*) eye was marked with a marking pen. The patient was brought into the OR on an eye stretcher in the supine position. After proper time-out was performed verifying correct patient, procedure, site, positioning, and special equipment prior to starting the case, local anesthetic was injected in the standard (*retrobulbar*/*peribulbar*) fashion using ____ml of *4% lidocaine with sodium hyaluronidase*. The (*right*/*left*) eye was prepped and draped in the usual sterile fashion. The operating microscope was centered over the (*right*/*left*) eye and an eyelid speculum was placed.

A #____ Beaver Blade was used to remove the corneal epithelium. Absolute alcohol was applied to the cornea to loosen adherent epithelium. After ensuring the complete removal of the epithelial layer, the peripheral cornea was scarified with a *75* (*3 mm*) blade, to increase the likelihood of flap adhesion. Then, a *4*-0 *silk* traction suture was placed through the superior conjunctiva and Tenon's capsule, as far superiorly as possible. The globe was then rotated inferiorly. The conjunctiva was ballooned with local anesthetic with epinephrine to aid in separating the conjunctiva from Tenon's capsule. This was performed at a site distant from the center of the graft so that the conjunctival hole was not overlying the cornea. Westcott scissors

were then used to make a _2_mm snip incision in the conjunctiva as superiorly as possible, and the conjunctiva was dissected from Tenon's capsule to the limbus at the *3* and *9* o'clock positions. Following the dissection, a 360° perimetry was made separating the conjunctiva from the limbus, and the traction suture was removed. The conjunctival flap was then rotated over the cornea, and sutured into place using at least _#_ interrupted _8_-0 Vicryl sutures. Special care was taken to pass all sutures through the conjunctival graft and episclera, ensuring a secured graft placement, and a low tension environment.

Eyelid speculum and drape were removed. A drop of atropine 1 % was instilled. Antibiotic eye ointment was placed in the inferior fornix and a shield was placed over the eye. The patient was transferred to the post anesthesia care unit in stable condition.