Buccal Mucosa Graft for Urethral Reconstruction

Communication with nursing and anesthesia provide for the following:

a. Endotracheal tube taped to the side opposite the dissection.
b. Place throat pack.
c. Brief oral prep with dilute (20%) betadine solution (place dilute betadine solution in the mouth then suction it out)
d. Employ dilute betadine to also prep the face, endotracheal tube (along with balloon port) - prepping and draping in a manner as to permit sterile (cleaned/prepped) transfer of ETT from one side of the mouth to the other is important to facilitate harvest of bilateral grafts.
e. Needs:
   i. guarded bipolar cautery,
   ii. multiple 15 blades
   iii. ‘cutting block’ to thin the graft on a back table.
   iv. Molt and bite blocks (for oral opening)
   v. Army-Navy retractors, 3-0 Vicryl sutures

Procedure

a. After induction of general endotracheal anesthesia, with the head of bed toward anesthesia, a suture is placed immediately below stensens duct to keep it identified during the harvest and closure.
b. As Urology will generally be preparing for the resection, it is useful to inquire as to the proposed size of graft.
   i. The usual size of the graft harvested is approximately 6 x 3.5 cm. Up to 8 cm in length have been obtained in patients with larger oral cavities by extending the dissection into the tonsillar fossa.
   ii. Efforts should be made to obtain an appropriate sized graft, balancing the obtainable size of the graft with that requested by urology.
c. Stensen’s duct orifice is carefully identified and recorded both preoperatively and intraoperatively. The superior extent of the proposed flap must remain below this structure to avoid injuring the orifice or the duct itself. The buccal area is infused with 1% lidocaine with 1:100,000 epinephrine to a volume of 5 to 10 cc. Exposure is provided by the assistant retracting with tongue retractor, Army-Navy retractors, and/or Pierce cheek retractor.
d. The margins of the flap are created employing a fresh 15 blade (scalpel) incising an elliptical segment of buccal mucosa at least 5 mm above the gingivobuccal sulcus and sufficiently below Stensen’s orifice to reduce the risk of traumatizing it when suturing the donor site closed. The long axis of the graft extends parallel to the gingivobuccal sulcus and may extend to within 1 cm of the oral commissure if additional length is needed. The buccinator muscle is left undisturbed as the graft is harvested in an immediately subdermal plane. To harvest the graft:
   i. The periphery of the graft is outlined by sharp dissection through the dermis.
   ii. The anterior aspect of the developing flap is then grasped by an assistant with toothed forceps retracting the flap medially while it is raised using a sharp 15 scalpel blade. Alternatively, double-pronged hooks may elevate the tissue with dissection employing scissors.
   iii. The layer of dissection should be just below the dermis of the overlying mucosa, but superficial to the buccinator muscle and buccinator neurovascular bundle.
   iv. Dissection is carried posteriorly until the posterior extent of the flap is...
reached and the flap is then raised free from the oral cavity
v. Aggressive thinning of the flap to remove fat and connective tissue from the undersurface of the graft is done on a back table employing scissors and scalpel with loupes magnification
vi. The graft is turned over to the urology team for prepping for their urethroplasty.
vii. Hemostasis is then achieved at the graft site using bipolar cautery.
viii. After adequate hemostasis, the graft site is closed using interrupted 3-0 vicryl sutures. Vertical mattress sutures are first placed to provide a multi-layered closure by incorporating the underlying buccinator muscle to obliterate the dead space and obviate the need for a drain.
ix. Closure is carried out from anterior to posterior, with tails left in place to retract with each successive stitch, giving access as you move posteriorly.
x. Simple interrupted sutures through the mucosal layer only are then placed in between the vertical mattress sutures to complete closure
xi. Postoperative care should include TID rinsing of the oral cavity with peridex or 1/2 strength hydrogen peroxide and saline. Patient should be on soft diet after surgery. Follow up PRN or in 4-6 weeks if patient would like to have scheduled follow up.
xii. Depending on the graft size and obtainable closure, a portion of the defect may heal by secondary intention.

Anatomic Considerations:
go to: Buccal mucosa and Masticator space anatomy


Single-stage buccal graft success rate was 86.4% (19 of 22 cases)

Complications developed in four of 24 patients (16.6%), including superficial wound infection (one), superficial wound dehiscence (two), and abscess/fistula formation requiring reoperation (one).

Outcomes of buccal mucosal graft (Barbagli G, et al 2010)

85% had no pain;

65% had slight or moderate swelling

oral numbness at 1 week was common but only 3% at 3 months

97% of patients indicate that they would undergo mucosa graft harvest again as a technique

6 weeks post-op after harvest of a 6 1/2 cm by 2 1/2 cm left buccal mucosal graft for urethroplasty
Example dictation: After informed consent was reviewed, the patient was brought back to the operating room by Anesthesia and placed in the supine position. Urology was present for positioning. The head was prepped and draped following intubation with the tube off to the right corner of the mouth. A solution of dilute Betadine was used intraorally and topically on the face. A throat pack was placed followed by a Molt retractor. Retraction on the left buccal surface was performed using Army-Navy retractors and the entire buccal surface was injected with 1% lidocaine with 1:100,000 epinephrine in the quantity of 10 mL. At this point, a silk stitch was placed just adjacent to and inferior to the Stensen’s duct. This was positively identified via loupe magnification and expression of clear saliva on palpation of the parotid gland. A mucosal graft was then designed to lie below Stensen’s duct and to span from the oral commissure back to the retromolar trigone with a healthy cuff of nearly 1.5 cm of gingival buccal sulcus inferiorly. A 15-blade was used to incise sharply down through the mucosa and submucosa, but just superficial to the buccinator muscle. This graft was incised circumferentially and then starting anteriorly with a Cushing forceps for retraction. Trusler-Dean scissors were used for blunt and sharp dissection, focusing on leaving the buccinator muscle intact and down, and elevating a submucosal graft. This was carried out anteriorly to posterior and handed off to be kept on the back table for later preparation. Bipolar cautery was used to provide hemostasis in the muscle bed. On the back table, the graft was thinned, starting first with Stevens scissors followed by meticulous thinning using a 15-blade, with care not to create rents or thin excessively. This was then handed off to the Urology Team for reconstruction. Attention was returned back to the muscle bed where an initial stitch was placed at the wet oral commissure. Vertical mattress sutures were placed using 3-0 Vicryl with attention to obliterate any potential space by having the deep portion of the vertical mattress to include a bite of the buccinator at the midpoint of the defect. This was carried out in anterior-to-posterior fashion. Once the wound was closed, interrupted sutures just through the mucosal layer were placed, intervening the vertical mattress sutures. Again, great care was taken in the vicinity of Stensen’s duct and no sutures were placed in this vicinity, including no vertical mattress or deep sutures. The wound came together nicely, the silk stitch marking Stensen’s duct was removed, the throat pack was removed and the stomach suctioned using a flexible suction catheter. This portion of the procedure was ended and the patient was turned back over to Anesthesia from our standpoint. Urology continued their work.

References:

