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Harvesting hard palate mucosa: a new radio frequency technique

Advantages include less trauma, less bleeding, less scarring, less postop discomfort for the patient, self-sterilizing electrodes and quick execution.

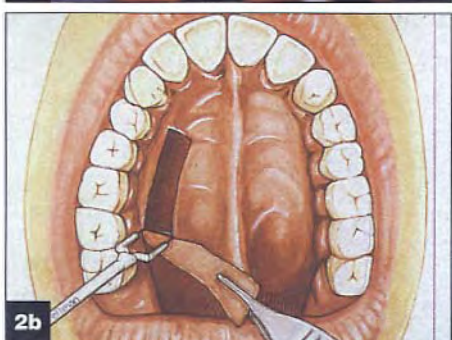
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The anatomy of an eyelid is generally divided into an anterior lamella (composed of skin and orbicularis muscle) and a posterior lamella (conjunctiva and tarsus). Several flaps and grafts have been sought to provide a nonkeratinized posterior eyelid part, including: tarsoconjunctival flaps



A bite block was used to keep the mouth open wide.



The Ellman Surgitron IEC unit was set in the "cut/coag" mode, as this waveform simultaneously cuts the graft and cauterizes the wound.

from the other eyelid, free tarsoconjunctival grafts, mucous membrane from the lip or mouth, periosteal flaps, preserved sclera, cartilage from the ear and nasal septal chondromucosa.

Eyelid reconstruction

In eyelid reconstruction, we found that a mucosal graft from the hard palate is a very good substitute for the tarsus and conjunctiva of the posterior lamella.

The hard palate mucosa was easily obtained using a radio frequency technique, and the donor site healed quickly and well in all patients.

Materials and methods

First, we prepared the recipient site in the eyelid of the patient already under general anesthesia. The operation was performed approximately 10 to 15 minutes after an injection of local anesthesia (3 to 4 mL of 2% lidocaine with 1:100,000 epinephrine and hyaluronidase) into the hard palate donor site. No special cleaning techniques were required within the mouth. A bite block was used to keep the mouth open wide (Figure 1).

During the surgery, care was taken to avoid the midline of the palate. A set of specialized cutting electrodes provided by Ellman International (Hewlett, N.Y.) was utilized. These patented micro-fine dissection instruments were used to facilitate the operation of removing mucosa, since each tip consists of a micro-thin wire cutting loop on an extra-long, malleable shaft. The horizontal portion of the tip is contoured to match the natural curvature of the hard palate, while the side cutting wires are angled at 90° to the horizontal to provide a rectangular perpendicular incision. The side wires are insulated, which guarantees the depth of the cut, and maintains the desired thickness, which in our case is 2 mm.

Leaving the palatal periosteum intact enhances the healing of the donor site. We set the Ellman Surgitron IEC unit in the "cut/coag" mode, as this waveform simultaneously cuts the graft and cauterizes the wound (Figure 2). The Ellman electrodes have been specially designed to cut grafts of 8, 10 or 12 mm widths, which gives us the flexibility to choose the necessary graft size (Figure 3).

After harvesting the graft – despite the coagulating effect of the radio waves – there may be some residual bleeding, which can be reduced by placing a piece of Surgicel (Johnson & Johnson, New Brunswick, N.J.) on the donor site.

We have used full-thickness grafts of palate mucosa for lining eyelid reconstruction in 16 patients over the last 3 years (Figure 4, 5). The patients averaged 55 years of age. During the 18-month follow-ups, we found that all implanted grafts had taken completely, without any sign of desquamation or

changes in consistency. The donor site was allowed to granulate, and the surface healed completely within 1 to 2 weeks. Although a soft diet was required in the first 2 to 3 postoperative days, no patient suffered any pain after re-epithelialization was complete (3 to 4 days).

Advantages

The use of an ultra high radio frequency technique matched with the patented electrodes is particularly adept at cutting soft tissue, because it is atraumatic as cells are vaporized in the path of radio waves. The electrodes do not



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Full-thickness grafts of palate mucosa were used for lining eyelid reconstruction in 16 patients over the last 3 years.

Another great advantage of this surgery is the quickness of execution, since the micro-fine electrodes cut far more rapidly than a traditional scalpel. Moreover, while cutting, the electrodes provide a cauterizing effect that diminishes bleeding and consequently allows for a clear operatory site and a reduction in stress for the operator. The electrodes are available in several widths (8, 10, and 12 mm) so that the mucosal graft may be sized accordingly. The shaft of the electrodes is long enough to allow for easy execution given the narrow operation field of the mouth. Moreover, the electrode shafts are malleable, to be modified easily based upon the anatomy of the mouth of each patient.

The minimal tissue trauma achieved with radiosurgery gives the patient less postop discomfort and rapid wound healing. This is both subjectively and objectively a remarkable result since traditional scalpel surgery results in notable difficulties in the ingestion of food postoperatively. We believe that radiosurgery has many advantages over traditional surgery with this kind of surgery, including: better handling, extreme rapidity and precision in cutting the soft tissue, maintenance of a clear surgical field, and an important diminishing of tissue damage, with a consequently quicker repair and less fibrous scarring. ■



create heat, since the heat is produced within the tissue itself.

The most important advantages are: less trauma, less bleeding, less scarring, less postop discomfort for the patient and self-sterilizing electrodes.

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