

Andrew S. Eiseman

Care must be taken when creating the incisions during endoscopic forehead elevation. Although the incisions are usually hidden within the hairline, meticulous surgical technique can limit both alopecia and scarring. Usually five incisions are made: one central, two paracentral, and two in the temporal region (Fig. 88.1). All five incisions are made 1–2 cm within the hairline and are usually 1–2 cm in length.

Central Incision

The central incision is usually placed directly above the center of the glabella. It is 1–2 cm within the hairline and is usually made in a radial fashion 1–2 cm in length. The hair is either parted with the surgeon's fingers or can be confined with sterile clips, rubber bands, or surgical staples. The incision is made with a number 15 blade scalpel parallel to the direction of the follicles to prevent damage and alopecia. It is carried down to the level of the bone through the periosteum. Spot hemostasis can be accomplished with a bipolar cautery on as low a setting as required to stop bleeding. Minimizing cautery around the

incision and the hair follicles can minimize thermal damage and postoperative alopecia. If preoperative alopecia in the area of the central incision exists, the incision can be placed within a forehead furrow in a horizontal direction.

Paracentral Incisions

The paracentral incisions are usually placed 2.5–3.5 cm lateral to the central incision. These incisions are used at the end of the surgery for fixation and therefore correspond to the area where maximal elevation of the brow is desired. For

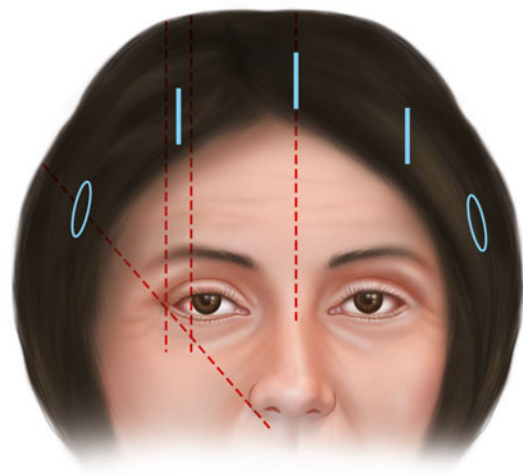


Fig. 88.1 Usual five-incision configuration for endoscopic brow lift

A.S. Eiseman, MD
Department of Ophthalmology,
Medical University of South Carolina,
Storm Eye Institute, Charleston, SC, USA
e-mail: Eiseman@musc.edu

women, maximal elevation is usually desired between the lateral limbus and the lateral canthal area. For men, the maximal elevation is usually desired near the center of the cornea and pupil. These incisions are made the same way the central incision is made. A radial incision is made with a blade down to the level of the bone. The incisions are placed 1–2 cm within the hairline and are 1–2 cm in length. If a patient has preoperative alopecia in the area of the paracentral incisions, these incisions can be made along the temporal fringe of hair or along a horizontal forehead furrow.

Temporal Incisions

The temporal incisions are also placed 1–2 cm within the hairline and are made perpendicular to a line drawn from the nasal ala to the lateral canthus of the eye. These incisions are usually made a little longer than the other incisions and are 2.0–2.5 cm in length. They are created with a scalpel parallel to the hair follicles. The initial incision is made through the skin and dermis only. Two skin hooks are then used to elevate the skin away from the deeper structures, and a blade is used to carefully cut through the wispy tissues down to the level of the shiny deep temporal fascia. The temporal incisions must be made carefully and cleanly to prevent disruption of the superficial temporal fascia that will be anchored to the deep temporal fascia to provide lateral brow lift. Also, a clean incision allows easier identification of the different tissue planes that is very important to prevent superficial dissection and damage to the facial nerve. To ensure that the deep temporal fascia has been found, a small nick can be placed in it to allow identification of the red temporalis muscle beneath. Once the temporalis muscle has been identified, gauze, cotton-tipped applicators, or the blunt back of the blade holder can be used to dissect a small pocket

directly above the deep temporal fascia. Further dissection to create the temporal pocket is carried out directly above the deep temporal fascia to minimize risk to the overlying facial nerve.

Prevention of Alopecia

Alopecia around the incision sites is a concern and can be minimized by adhering to several techniques:

1. Instrument compression at the incision sites can cause alopecia. To minimize this, the incisions can be made slightly larger, especially when new to the endoscopic technique. Additionally, care should be taken when the instruments are torqued forward since this is also placing pressure on the incisions. To minimize this, ensure that the patient's head is placed at the end of the table (Kopelman 1996).
2. Compression at the site of fixation and anchoring to the scalp can occur, especially if 14-mm fixation screws are used. To minimize this, a two-layered closure of the galea and scalp is recommended as well as using additional fixation points to distribute the tension (Kopelman 1996). Alternatively, internal fixation devices that are either permanent or dissolvable can be utilized.
3. Excessive cautery can cause alopecia by thermally damaging the follicles. This can be minimized in several ways. First, the patient should discontinue the use of all anticoagulants to include aspirin and nonsteroidal anti-inflammatory agents for at least 2 weeks before surgery to limit the amount of bleeding. Second, adequate use of local anesthetic containing epinephrine can reduce operative bleeding and require less cautery. Finally, if cautery is required during the case, minimizing its use around the follicles and using the lowest power necessary can limit its damage.

4. Cutting across follicles with the blade can cause alopecia. Care should be taken when performing the incisions to stay parallel to the follicles to minimize damage.
5. Follicular shock (telogen effluvium) is a more diffuse temporary loss of normal club hairs possibly related to undermining of the scalp with disruption of the hair follicle blood supply and traction on the scalp (Kopelman 1996). Keeping the dissection subperiosteal minimizes but does

not completely remove this as a risk for alopecia. The hair usually grows back, but careful preoperative counseling about the risk of alopecia is important.

Reference

- Kopelman JE. Endoscopic forehead and eyebrow elevation. American Academy of Ophthalmology. 1996; Skills Transfer Course: 44–5.