Comparing Notes

One of the more difficult and controversial aspects of forehead and brow lift is fixation with control and stabilization of the result. Aesthetic Surgery Journal has invited Robert W. Bernard, MD; Robert S. Hamas, MD; Peter McKinney, MD; and Malcolm D. Paul, MD to share their preferred brow lift techniques. Here are their responses to questions posed by “Comparing Notes” editor, Alan H. Gold, MD. (Aesthetic Surg J 2003;23:217-219.)

What are your indications for endoscopic vs. coronal brow/forehead lift?

Robert W. Bernard, MD, White Plains, NY: I see no indication to use a coronal incision. I can accomplish my goals using several small scalp incisions and an endoscope. Alopecia, sensory changes, and scar depression, which were not uncommon with a coronal approach, are no longer problems when the procedure is performed endoscopically. But under certain circumstances, I might confine my procedure to a lateral brow lift without using an endoscope.

Robert S. Hamas, MD, Dallas, TX: I perform endoscopic lifts using a technique that does not raise the hairline. However, I would consider a coronal (scalp excision) lift for someone with thick, heavy, sebaceous skin that is unlikely to shrink postoperatively.

Peter McKinney, MD, Chicago, IL: I continue to recommend the endoscopic approach for most patients; I perform open lifts in only about 10% of patients. In choosing endoscopic vs. open forehead lift, I consider tissue character, asymmetry and hairline position. If no hairline shift is desired, I work endoscopically; otherwise, I use an open approach to shift the hairline forward or back. For me, the term open is more accurate than coronal since I frequently vary incision placement. If tissue is inelastic with deep furrows, an open forehead lift is required. If tissue is elastic with moderate to minimal furrows, then I prefer an endoscopic approach. Generally, an open approach allows for better control in asymmetric skin excision. Because of muscle pull and patient muscle habits, an endoscopic forehead lift will not provide lasting correction for asymmetry without an additional direct excision. In males, the scar can be placed in the skullcap area and the temporal hair in a U-shape, but this puts most of the excision more dorsal than if performed at the hairline. This results in less power in the lift.

Malcolm D. Paul, MD, Newport Beach, CA: I have performed only one coronal brow lift in the past 7 years, and that was secondary to a failed endoscopic brow lift. My indication for a coronal brow lift would be a patient with heavy forehead tissues and deeply etched transverse frown lines who would be willing to accept the scar. My male patients will not accept the coronal lift scar and prefer less correction with the endoscope vs. more correction with a longer scar.

If you perform coronal lifts, what is your preferred plane of dissection? Are you always subperiosteal in an endoscopic lift, or do you ever change planes intentionally?

Dr. Bernard: When I perform an endoscopic brow lift, I stay in a subperiosteal plane.

Dr. Hamas: I stay entirely subgaleal for endoscopic lifts. The lift of the lateral brow is most important, and that dissection can only be subgaleal. Therefore, I see no reason to switch to the subperiosteal plane in the center where the lift will be minimal.

Dr. McKinney: My preferred plane of dissection for an endoscopic approach is subperiosteal until I reach the brow area, where the periorbital is spread from lateral canthus to lateral canthus which releases it by 15- to 20-mm. If there are deep furrows in the forehead then I also release the periorbium in the midforehead. If I use an open approach, I prefer the subgaleal plane since it is faster with minimal bleeding. I do not feel that the difference in planes accounts for the greater holding capacity of the open technique.

Dr. Paul: I am always subperiosteal in performing the endoscopic brow lift laterally over the orbital rims, but may be subperiosteal or subgaleal, medially, depending on the degree of medial brow correction that I am seeking. If I stay subgaleal I get less medial brow elevation and medial brow spread.

How long do you think it takes to achieve sufficient nat-
ural adherence to stabilize the degree of forehead/brow lift?

Dr. Bernard: This question is best answered by a recent Aesthetic Surgery Education and Research Foundation funded study by Boutros, Bernard, Galiano, and McCarthy\(^1\) that showed it takes at least 30 days for the periosteum to adhere with reasonable tensile strength, with increasing tensile strength leveling off at about 60 days.

Dr. Hamas: The subgaleal plane is adherent in about 2 weeks. Until then, I have patients immobilize frontalis and orbicularis muscles as much as possible by not squinting or raising their brows.

Dr. McKinney: The clinical opinion among orthopedic surgeons, supported by experimental data from rabbits, is that it takes 6 weeks for the periosteum to adhere and gain strength. Therefore, whatever fixation is used, it should last for 6 weeks.

Dr. Paul: Sufficient natural adherence occurs in 7 to 10 days and the brow will remain elevated if the release is adequate laterally.

Is there any regression after the initial lift, and do you overcorrect to compensate for this?

Dr. Bernard: I never overcorrect, and I have not had to reoperate to address undercorrection.

Dr. Hamas: There are a few millimeters of regression as swelling subsides and tissues relax. I try to compensate for this with slight overcorrection.

Dr. McKinney: It is not possible to overcorrect with an endoscopic procedure; it achieves an elevation of about 7 mm, measured from midpupillary reflex to top of mid brow on a straight vertical, which regresses about 2 mm when the patient heals. About 5 mm of elevation is gained regardless of how much release is accomplished. With an open procedure about 12 to 15 mm of scalp is resected, which translates into the same 7 mm elevation, 2 mm settling, and final results of about 5 mm elevation. You can take off more with an open approach, achieving further elevation, but then you get a wide, depressed scar. If you move the scar further back you may resect more tissue, but this pulls the posterior flap more than it elevates the forehead.

Dr. Paul: There is regression after the initial lift, more so in men, but also in women. Less regression is seen with wider dissection laterally on the orbital rim and superolaterally on the deep temporal fascia. I do not overcorrect to compensate for regression; I rely on adequate mobilization and fixation.

What is your favorite fixation technique, and why? If you use “hardware,” when do you remove it?

Dr. Bernard: I use polygalactate resorbable screws as an anchor, and suture through the screw to the periosteum/galea with a 3-0 polydioxanone suture. This provides fixation for a sufficient period of time for the periosteum to adhere.

Dr. Hamas: I only use 3-0 Vicryl mattress sutures (a total of 6) from proximal dermis/galea to distal frontalis/galea. If the distal end of a suture can hold the distal soft forehead tissues, then the proximal end can hold the proximal soft tissues. Therefore, I have never used hardware or tunnels in the bone for proximal fixation.

Dr. McKinney: The simplest and most efficient fixation is a drill hole with a 3-0 Vicryl to the galea. This allows a 6 to 8 week, and longer, fixation period. If you feel uncomfortable with free hand drilling there is a mechanical guide available that prevents piercing into the inner table.

Dr. Paul: My preferred fixation method is the cortical tunnel. It is easy to perform, provides months of fixation, and does not require hardware removal. I also like using an absorbable device (Endotine device, CoApt Systems, Palo Alto, CA) since it has multivector fixation.

Do you use fibrin glue as supplemental fixation, for hemostasis, or not at all?

Dr. Bernard: Not at all.

Dr. Hamas: Not at all.

Dr. Paul: I have tried fibrin glue for fixation, but remain unconvinced of its efficacy. I have seen relapse with the use of the glue as the only method of fixation.

Do you use staples, sutures, or both for scalp repair? Why? Is alopecia a factor?

Dr. Bernard: I use one or two 4-0 plain gut sutures. I find that staples are sometimes difficult to remove if they become encrusted.

Dr. Hamas: Because of occasional alopecia, I no longer make scalp incisions. I now use only a 5 cm central hairline incision for the endoscopic approach.
**Dr. McKinney:** I use deep sutures from the galea to the bone for fixation and staples on the surface. There has been no incidence of alopecia since there is no tension, pressure on the scalp, or protruding hardware.

**Dr. Paul:** I use staples for scalp repair. I have seen temporary alopecia that clears with time and full strength Rogaine. Alopecia is related to the handling of the tissues. I have had to revise these scars in only 1 patient in the past 7 years.

*What complications have you seen with various forms of fixation?*

**Dr. Bernard:** I had only 1 patient whose screw fixation became infected. The infection responded promptly to antibiotics.

**Dr. Hamas:** I have had no complications from sutures.

**Dr. McKinney:** The major problem with screws is that, theoretically, they are removed too early, and there is potential for pressure alopecia. Protrusion of metal may be a temporary inconvenience, but I prefer a closed wound that requires no further care. Internal anchors are available, but the longevity of the apparatus and the strength are over-engineered beyond the 6-week period.

**Dr. Paul:** The most common problem that I have seen with removable screws is alopecia. But the problem seems to be minimal and reverses with time and full strength Rogaine treatment.

*What is your own reoperative rate on forehead/brow lifts for early brow height asymmetry adjustment and for recurring forehead/brow ptosis? How long do you tell patients that results will persist?*

**Dr. Bernard:** I have been using the technique I described, or some variation of it, for about 8 years. To date, I have not reoperated on any patients. There is little reason to believe that the results will not last as long as those we obtained with a coronal lift.

**Dr. Hamas:** I have reoperated only once after an endoscopic brow lift. The patient had heavy, thick, sebaceous skin and I subsequently performed a coronal scalp excision. I tell patients that brow lifts probably last from 10 to 12 years. However, they will not last as long in patients who stretch out their forehead tissues by hyperactively using their frontalis and orbicularis muscles for facial expressions.

**Dr. McKinney:** The reoperative rate is about 2% for endoscopic brow lifts, and near zero for coronal brow lifts, but if I had my choice I would reoperate on about 10% of endoscopic lifts because of recurrent brow ptosis. There are many fine surgeons who totally abandoned endoscopic lifts because they didn’t think that they held adequately. Certainly, the open procedure has a stronger pull, less recurrence, and is probably longer lasting but at the price of a noticeable scar and a hairline shift.

**Dr. Paul:** I have had less than a 1% reoperative rate. I occasionally use Botox to improve brow position in patients who show early relapse and to correct asymmetries. I tell patients that I may need to inject Botox to maintain their result.

*Note: Dr. Paul is on the Board of Directors for CoApt Systems, the company that makes the Endotine device.*

**Reference**


Reprint requests: Alan H. Gold, MD, 833 Northern Blvd., Suite 240, Great Neck, NY 11021

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