90 Endoscopic Midforehead Techniques: Improved Outcomes with Decreased Operative Time and Cost

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The design and implementation of any surgical procedure should first optimize outcome. Secondarily, procedural steps can be refined to maximize efficiency and minimize cost. Novel techniques for hair confinement and flap fixation adhering to these constructs are presented.

Optimum hair confinement provides for improved wound visualization and shorter operative times. A 4-cm open-ended cylinder is fashioned from the barrel of a 3-cc plastic syringe. A series of small dental rubber bands are double wrapped onto the barrel and rest parallel to each other. The hair is wet, combed, and parted to expose the incision sites. Alongside of each incision, the hair is twisted into a tightly wrapped tuft. A small straight hemostat is then placed through the modified syringe barrel lumen and used to grasp the hair tuft 4 cm from the scalp. The hemostat is withdrawn pulling the hair tuft through the barrel. The hair tuft is pulled taut, and the syringe barrel is held firmly against the scalp. The most proximal band is advanced off the barrel, capturing the hair tuft near the scalp. The procedure is repeated until all the incision sites are exposed. A small scissor can be used to snip the band free at case conclusion.

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Numerous central flap fixation techniques have been described. Periosteal suture fixation bites placed anterior to the hairline may provide for better brow elevation while minimizing posterior shift of the hairline. The semicircular needle of the selected fixation suture is modified into the shape of a lazy "S" (author's preference 3-0 Mersilene with FS-1 needle) (Fig. 90.1). The needle is loaded into a Webster needle driver with the tip directed back toward the surgeons hand and parallel to the instrument. The suture end of the needle is directed 180° from this position, running away from the surgeon's hand and parallel to the instrument tip. The loaded needle driver is inserted into the parasagittal incision and directed down toward the brow (Fig. 90.2a). The needle tip is palpated and directed to enter the periosteum approximately 2 cm inferior to the hairline. As the needle driver is withdrawn, a large slip of periosteum is captured, and the needle directed to exit near the anterior apex of the incision and deep to the periosteum (Fig. 90.2b).

For bone fixation, a simple 1 × 4-mm titanium screw is used. It is placed near the posterior extent of the parasagittal incision with the screw head left slightly elevated (Fig. 90.3a). A #12 Frazier suction tip, just large enough to fit over the screw head, is essential to completing the fixation through a small 10-mm incision. The Frazier suction tip is placed over the screw head and angled approximately 30° anterior to a vector perpendicular to the cranium. While the assistant holds the suction tip in this position, the surgeon

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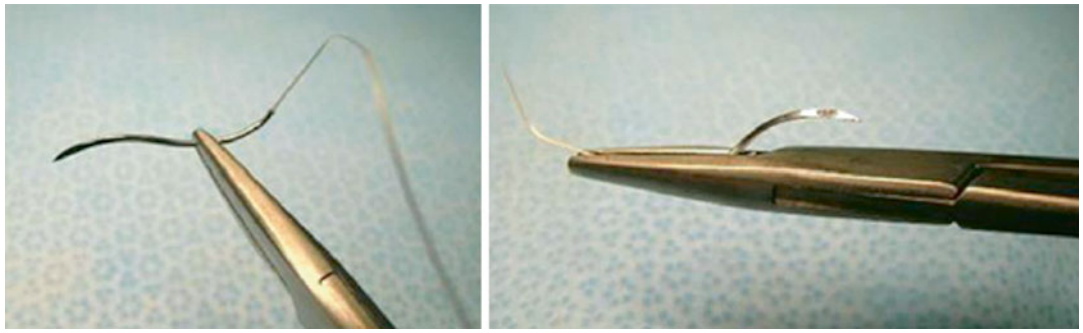

Fig. 90.1 S-shaped bend in needle (*left*), then loaded into needle holder (*right*)

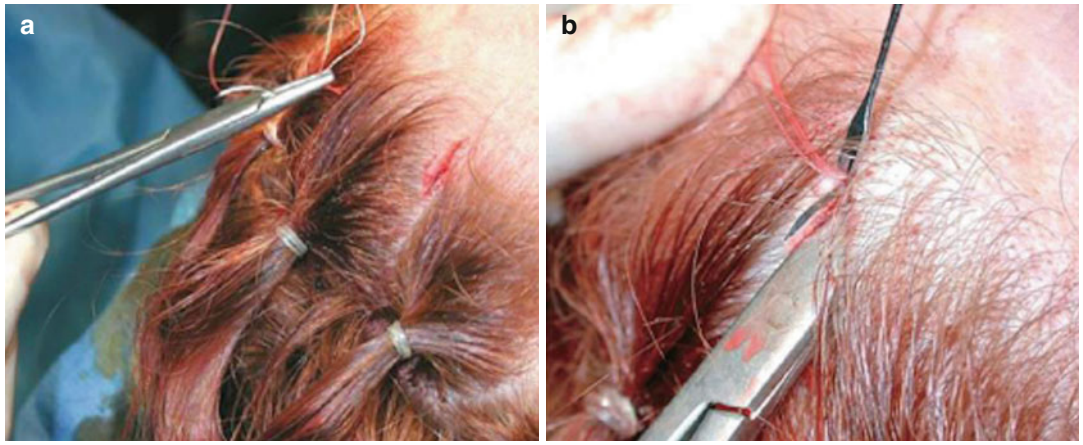

Fig. 90.2 (**a**) Needle loaded to tag periosteum anterior to incision. (**b**) Needle on withdrawal ready to be retrieved

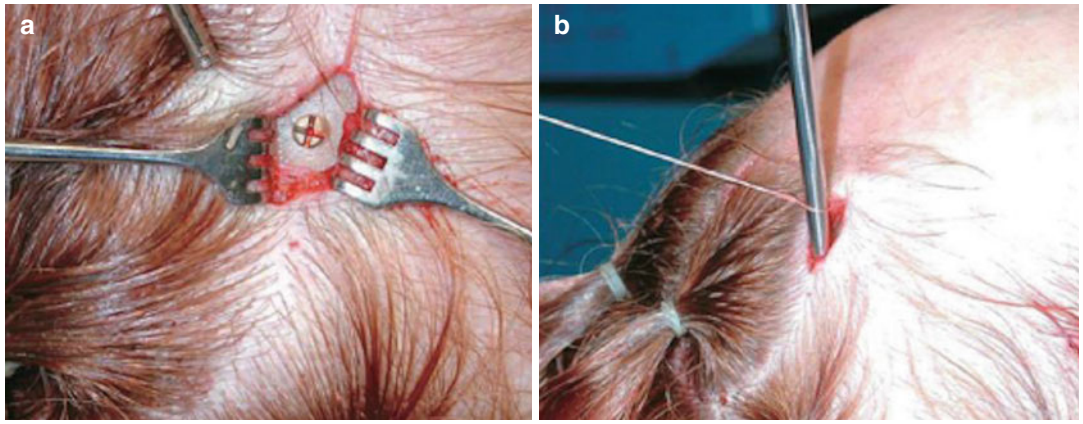

Fig. 90.3 (**a**) Titanium screw placed through parasagittal incision. (**b**) Fixating suture tied over Frazier suction used to seal suture over screw

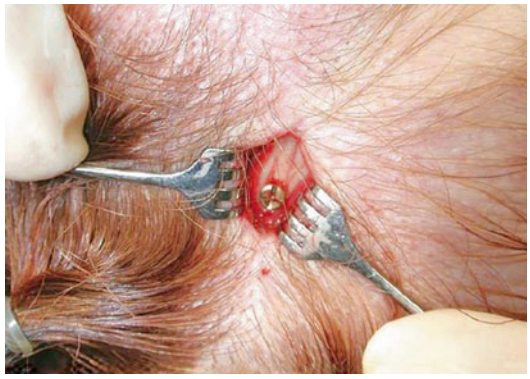

Fig. 90.4 Mersilene suture shown seated over titanium screw

ties the previously placed fixation suture around it (Fig. 90.3b). The knot is rotated into the wound. The suction tip is angled posteriorly and gently twisted on the screw head. This encourages the suture loop to slip off and anchor on the exposed screw head. The rotational arc of the suction tip acts as a lever arm, adding a small amount of additional suture tension to suspend the flap (Fig. 90.4).

Hair confinement improves wound exposure while minimizing the amount of hair that is dragged in to the wound. This confinement technique is quick and does not require special instrumentation. Rubber band removal at case completion is easily completed with scissors.

The central flap fixation technique allows for anterior and inferior placement of the periosteal fixation sutures. This translates to a more direct pull on the brow and better lift. Additionally, it may minimize posterior shift of the hairline.

Using simple titanium screws and the lever arm, suture capture technique decreases cost, operative time, and wound size. Titanium screws are readily available and easy to place. Securing a suture over the small screw head can be difficult. The addition of a Frazier suction tip to guide the suture loop on to the screw head allows for a small incision and decreased operative time.