

Transcutaneous Lifting of the Nose

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Standard closed and open rhinoplasties may have a number of drawbacks, including prolonged swelling, long-lasting downtime, and high cost. Today, microsurgeries are a more desirable option. The method presented in this article, transcutaneous lifting of the nose, is simple. Lifting of the nose is attained by traveling subcutaneously with a prolene thread, entering through a tiny incision at the columella, fixing the nasal tip at periosteum of the nasal bones, and then exiting by the same incision at the tip of the nose where a knot is placed. The procedure is truly transcutaneous, simple, and safe, with no downtime and low cost.

The history of using threads for facial beautification dates back to the ancient Egyptians who used resorcinol and gold threads beneath their facial skin; hence, Cleopatra's beauty is said to be attributed to gold threads.¹ Alcamo² used barbed sutures in 1956, and Buncke³ is known internationally as the founder of modern microsurgery and has described the potential application of these sutures in face-lift surgery.

The reintroduction of threads by Sulamanidze et al⁴ in 1996 revolutionized cosmetic surgery. The original procedure underwent a series of modifications and improvements using different forms of spiked threads for lifting the nose.

However, Hernández-Pérez and Khawaja⁵ described percutaneous eyebrow-lifting procedures and transcutaneous face-lifting in which threads were attached to the periosteum, providing stability to the lift.⁶ Nevertheless, the question remains whether to use anchored or nonanchored suture lifts. Recently, the trend has been shifting toward using anchored suture lifts.

Traditionally, open and closed rhinoplasties, with their multiple modalities, have had a number of drawbacks,

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The authors report no conflicts of interest in relation to this article.

including the need for general anesthesia, prolonged postoperative swelling, fracture or modification of bones and cartilages, prolonged downtime, and high cost. Today, microsurgical procedures have captured the attention of many surgeons.

During a medical meeting in 2004, we watched a plastic surgeon perform a simple rhinoplasty in which the nasal tip was lifted using threads that were attached to the periosteum of the nasal bones. After performing several of these procedures, we have made some modifications to the technique, which are explained in this article.

MATERIALS AND METHODS

The ideal candidate for transcutaneous lifting of the nose should have a long nose that curves somewhat at the tip. Ideal candidates' skin should not be thick or oily and dilated pores should not be present. Persons having short noses or wide nasal openings are not good candidates for the procedure; however, the procedure may be performed on adults of all ages. We examine patients beforehand to determine the safety of using lidocaine with epinephrine. Generally, a 6-hour fasting period is preferred before surgery. For patients who are nervous prior to surgery, a mild oral sedative, such as diazepam or lorazepam, is prescribed. If a patient's blood pressure is in the upper limit of the normal range, or if the systolic pressure has increased moderately from endogenous catecholamines, 0.1 mg of oral clonidine is given to the patient one hour before surgery.⁷ We advise patients against using aspirin,

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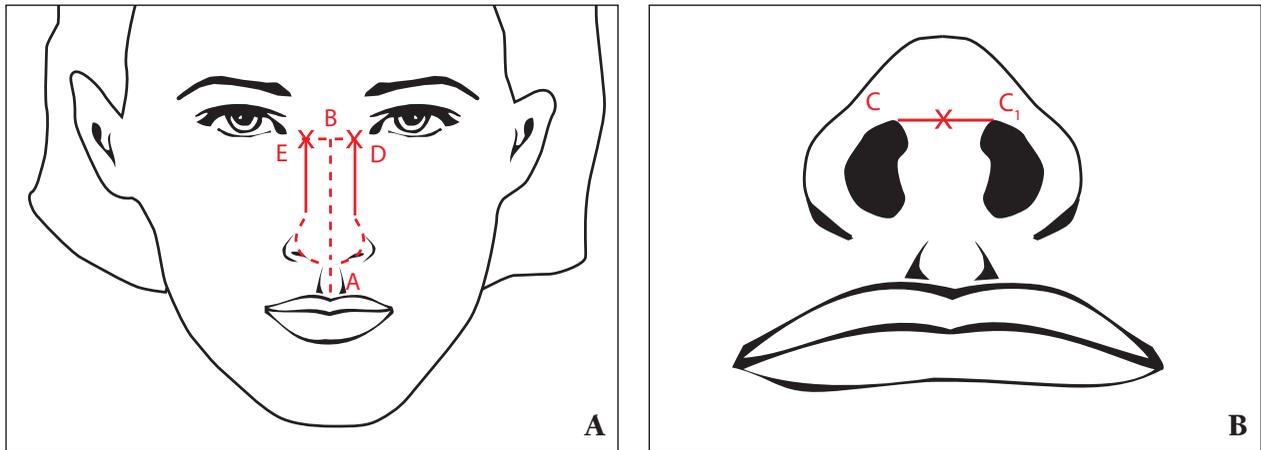


Figure 1. Lines drawn on the nose with a sterile surgical pencil before transcutaneous lifting of the nose to indicate the order of the areas where surgery will be performed (A), with a shorter horizontal line drawn in the columella between both nostrils (B). The resulting lines are A to B, C to D, E to D, C to E, and C to C₁.

β -blockers, nonsteroidal anti-inflammatory drugs, or herbal remedies before surgery.

A surgical pencil is used to mark the area prior to surgery. First, a straight line is drawn from the vertex of the Cupid's bow through the entire dorsum of the nose (A) to the junction of the nasal and frontal bones (B) (Figure 1A). Then, a shorter horizontal line is drawn in the columella between both nostrils at the closest point to each other (C) (Figure 1B). A new line is drawn to the right side of the surgeon, starting at the middle of the intercolumnellar line and proceeding cephalad, bordering the cartilaginous dome, parallel to and approximately 8 mm away from the previous line, finishing at the level of the nasal frontal junction (D). Now a new line is drawn starting at the intercolumnellar point located to the left side of the surgeon, which is exactly parallel to the midline (E). Finally, the upper lines are joined with a transverse line. The resulting lines are A to B, C to D, E to D, C to E, and C to C₁.

Local anesthesia consists of lidocaine 1% with epinephrine in a 1:400,000 dilution. It takes approximately 15 minutes for the vasoconstrictive effect of epinephrine, and povidone-iodine or chlorhexidine is used for asepsis. Using a number 11 scalpel, 3 tiny incisions are made, with one incision in the columella between points C to C₁, one incision at point D, and one at point E.

The surgical instruments used in the procedure are Adson-Brown forceps, a scalpel number 3 with a blade number 11, a Perican needle, 18 G/80 mm, prolene threads 2-0, a 2 mm/8 to 10 cm cannula (typically used for fat transfer), Kelly-Murphy forceps, and fine-tipped tenotomy scissors.

Using a Perican needle, we enter through the columella incision proceeding cephalad and subcutaneously to the right side of the surgeon (Figure 2). When the tip of the

needle exits, the thread is inserted into the eye of the needle and then the needle is pulled backwards until it exits at the columella incision. One tail of the thread should be at the columella at point C, with the other tail at point D. The needle is then pushed deeply from point E, anchoring it at the periosteum. The needle exits at point D. With the thread inserted into the eye of the needle, we pull the needle backwards and exit at point E. Both tails of the thread should now be outside of the skin, with one tail at the columella at point C and the other tail at point E (Figure 3). Then, we reinsert the needle at the columella, proceeding cephalad and subcutaneously, exiting at point E. The thread is then brought from point E to the columella, with both tails of the thread appearing at the columella.

As an assistant pulls down the 2 tails of the thread, the cannula is inserted, proceeding cephalad up to the level of the nasal frontal junction at points E and D, while carefully undermining the skin. Then, while an assistant continues



Figure 2. Patient during transcutaneous lifting of the nose, with a Perican needle inserted through the columella incision.

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Figure 3. Patient during transcutaneous lifting of the nose, with both tails of the prolene thread shown outside the nose. One thread is located at the columella and the other thread is located parallel to the right eye.

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Figure 4. Patient during transcutaneous lifting of the nose, with both tails of the prolene thread at the columella. As the thread is being pulled, the depressor of the nasal tip is cut using tenotomy scissors.

to pull the thread, the depressor of the nasal tip muscle is cut using tenotomy scissors (Figure 4). As the thread is tied, the nasal tip is raised and the knot is hidden inside the incision. The nasal tip should be raised 30% more than the required level because it descends to the desired position over a 2-week period, during which time postoperative swelling diminishes. Toward the end of the 2-week period, a subcision is performed using Kelly-Murphy forceps in order to free the tiny folds at points D and E.

Three layers of a flesh-colored micropore filter are placed over the nasal dorsum, which is kept intact for approximately one week. Postoperatively, we prescribe 500 mg of cefadroxil monohydrate to be taken every 12 hours for 5 days, along with 15 mg of prednisone once daily for 3 days, and acetaminophen as needed.

For the last 3 years, we have performed this procedure on 74 patients who consisted of 62 women and 12 men ranging in age from 17 to 74 years. We conducted a survey among the last 50 patients 2 weeks after surgery to determine the patients' degrees of satisfaction. The degrees of satisfaction were indicated using plus signs, with + indicating fair; ++ indicating good; and +++ indicating excellent. We also used the scale to indicate the level of surgical discomfort and the level of postsurgical discomfort, with + indicating a minimal amount of discomfort, ++ indicating a fair amount of discomfort, and +++ indicating a high amount of discomfort.

We also distributed questionnaires to the patients and asked them whether they would recommend the procedure to their friends. We carefully noted any complications, and made our final follow-up at 6 months.

RESULTS

On degrees of satisfaction, 46 of the 50 patients reported their results as excellent (+++) (Figures 5 and 6). Of the

remaining 4 patients, 3 patients reported their results as good (++), and 1 patient reported their result as fair (+). Regarding surgical discomfort, 2 patients reported a high amount of discomfort (+++), 5 patients reported a fair amount of discomfort (++) , and 43 patients reported a minimal amount of discomfort (+). Such discomfort was mostly related to the infiltration of the anesthesia. On the questionnaire, 38 patients reported that they would recommend the procedure to their friends.

COMMENT

Postoperative pain is moderate and lasts approximately 2 to 3 days, with only mild analgesics required to control it. Edema is mild and self-limited. Small folds appearing at the incision sites are removed through subcision at the end of the surgery. In 3 patients, we noted the re-appearance of some pain and minor inflammation at the incision sites between the second and third weeks. The

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Figure 5. Patient before (A) and 3 months after transcutaneous lifting of the nose (B).

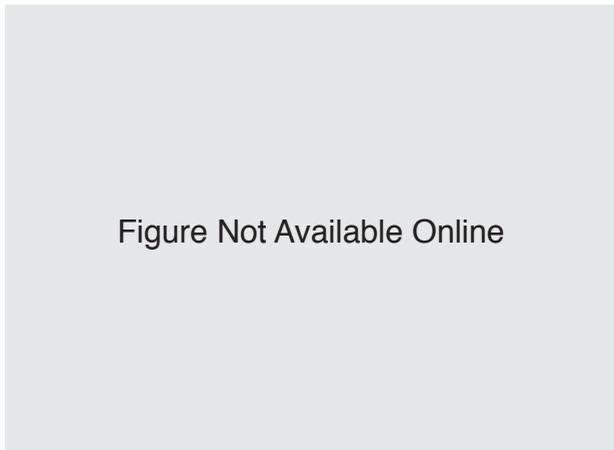


Figure 6. Patient before (A) and 6 months after transcutaneous lifting of the nose (B).

inflammation responded to oral anti-inflammatory drugs and antibiotics.

Of the 74 patients who received transcutaneous lifting of the nose, it was necessary to repeat the procedure in only 2 patients. In one patient, the nose appeared slightly deviated; therefore, we had to ensure that lines C to D and C to E were strictly central and parallel. In the other patient, the nasal tip sagged either because of its own weight or from the knots loosening. If sagging is anticipated, it is better to use 2 prolene threads instead of one for added security. It is important to gently and carefully undermine the nasal skin with the cannula and to cut the depressor of the nasal tip.

It is important to ensure that the knots are securely tied, that there is no chance of the knots slipping or loosening, and that they are buried completely within the incision. It is also important to ensure that the ends of the prolene threads do not pinch the skin.

One of the authors has used polytetrafluoroethylene threads extensively, along with silk threads, for elevating the nasal dorsum and sharpening the nasal tip using the Khawaja-Hernández needle.^{8,9} To elevate the nasal tip, botulinum toxin injections into the depressor muscle of the nasal tip have been used; however, the results are short lived and the injections must be repeated.¹⁰ Moreover, the lift provided from botulinum toxin injections

is mild to moderate. Cutting the depressor muscle of the nasal tip has also been used to elevate the nasal tip; however, the muscle regenerates and the process must be repeated.

A stable nasal lift may be achieved by using prolene threads, wherein the threads are attached to the periosteum of the nasal and frontal bones and knots are tied at the nasal tip, along with cutting the nasal tip depressor muscle. Fibrosis occurs along the thread pathways and fibrosis around the knots interferes with regeneration of the depressor muscle of the nasal tip, thereby providing stability to the lift.

CONCLUSION

Transcutaneous lifting of the nose is a simple, safe, ambulatory, low-cost procedure with pleasing results. Complications are minimal and short lived. The procedure is worth recommending as part of the armamentarium of cosmetic surgeons.

Acknowledgment—The authors would like to thank Julio Barba, MD, from whom they learned the original technique for performing transcutaneous lifting of the nose.

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