Achieving a Nasal Tip Lift With a Prolene 3-0 Suture

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A nasal tip lift is usually performed surgically by cutting the depressor septi muscle, resecting portions of the medial nasal cartilages in conjunction with solid or liquid implants, or utilizing botulinum toxin type A after paralyzing the depressor septi muscle. The author has devised a simple technique to lift the nasal tip by using a prolene 3-0 suture and local anesthesia. The procedure has minimal or no complications and can be easily repeated or revised.

Lifting the nasal tip is usually performed surgically after trimming or resecting portions of the medial nasal cartilages, by cutting the depressor septi muscle with the use of polytetrafluoroethylene sutures or patches, or solid or liquid silicone implants. The procedure is performed nonsurgically using botulinum toxin type A to paralyze the depressor septi muscle.[1-3]

Threads for augmenting facial rhytides, lifting the malar fat pad, brow suspension, and lifting the face and neck have been described in the literature.[4-7] The author has devised a simple technique of lifting the nasal tip using a prolene 3-0 suture under local anesthesia.

MATERIALS AND METHODS

Twenty participants, 15 females and 5 males, were included in this paired clinical trial. All participants were healthy and highly motivated, not suffering from any physical or mental disabilities or illnesses, and not taking allopathic or homeopathic medications. All the participants had realistic expectations and were aged 28 to 55 years. All female participants were nonpregnant and nonlactating. The participants were divided into 2 groups, group 1 and group 2. Group 1 included 8 females and 2 males, and group 2 included 7 females and 3 males. A consent form was signed by all participants, and the research protocol was approved by a local ethical committee. The study was carried out according to the World Medical Association Declaration of Helsinki and subsequent amendments. Preoperative photographs were taken of all the participants.

Chilled xylocaine 2% was injected at points A, B, and C in both groups. Point A was midway between the lowest point on the medial crus, and the highest point on the columella of the alar cartilage. In group 1, points B and C were on the medial nasal cartilages below the junction of the nasal bones and cartilages. In group 2, points B and C were on the lower periosteum of the nasal bones above the junction of the nasal bones and cartilages. The marked tracts from points A to B, B to C, and C to A were anesthetized. The depressor septi muscle and the overlying skin were also injected with chilled xylocaine 2%. A straight needle with an attached prolene 3-0 suture was passed subcutaneously at point A toward point B, where it exited. In group 1, the needle passed through points B and C deep through the nasal cartilage. In group 2, the needle was injected through the lower periosteum of the nasal bone. The needle then passed subcutaneously from points C to A, which was the starting point. The assistant held the 2 ends of the prolene 3-0 suture in one hand. The incision was made vertically at the junction of the skin and cartilage with a No. 11 scalpel blade. The incision was made directly above the depressor septi nasi muscle. With fine-tipped scissors, undermining was

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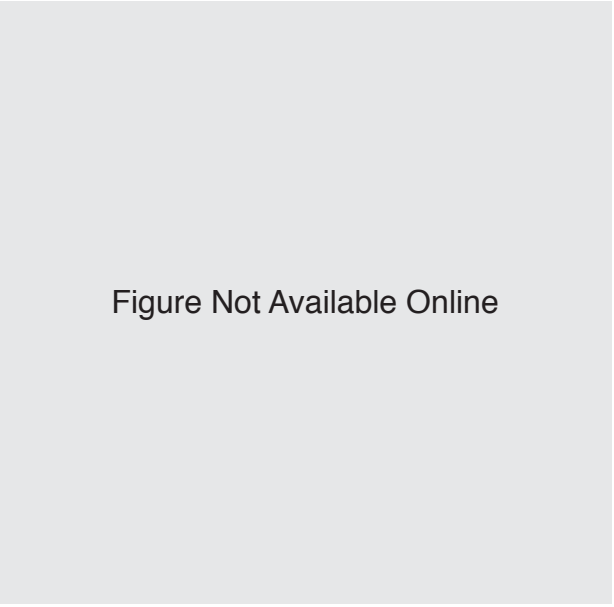

Figure 1. A female patient from group 1 before (A) and 2 years after a nasal tip lift with a prolene 3-0 suture (B).

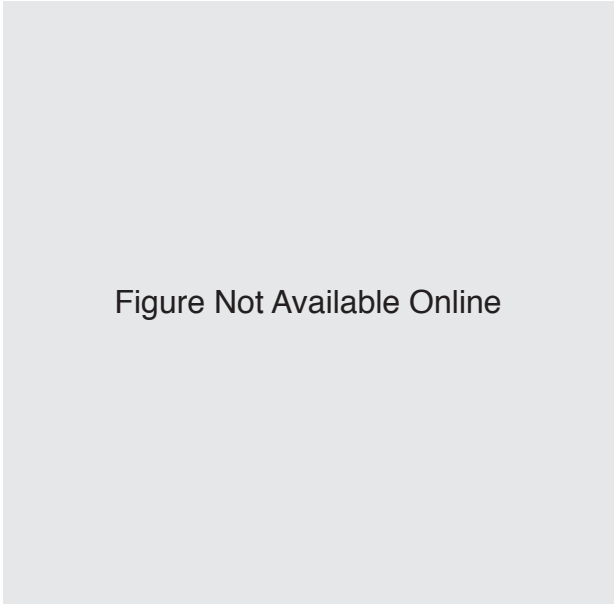

Figure 2. A female patient from group 2 before (A) and 2 years after a nasal tip lift with a prolene 3-0 suture (B).

performed directly above all the bellies of the depressor muscle, first on the incision side and later on the nonincision side. Undermining above the bellies of the depressor septi nasi muscle was followed through to the junction of the medial crura of the alar cartilage. Undermining above the depressor septi superiorily was stopped well short of the 2 ends of the prolene 3-0 suture held by the assistant. With the scissors held transversely at a 90° angle, the 2 bellies of the depressor septi nasi muscle were cut. The muscle was first cut transversely on the incision side, and then on the other side. The entire depressor septi nasi muscle was cut transversely below the 2 ends of the prolene 3-0 suture. Traction was applied to the 2 ends of the prolene 3-0 suture, which were tied together with 4 or 5 knots and then cut short. The knots were automatically buried when the skin was pinched between the thumb and index finger. If difficulty was experienced in burying the knots, a small vertical incision was cut just below the knots, which were tucked into the incision. The position of the buried knots changed when traction was applied because of the original knot tied midway between the junction of the medial crus and the highest point on the columella of the alar cartilage. Because the suture was attached at points B and C and the nasal tip lifted, the position of point A became more elevated. Exact position of point A depended on the amount of traction applied.

Postoperatively, antiseptic ointment was applied over the entry points, exit points, and incision sites. Sterile tape was applied at points A, B, and C, and incision sites. After the procedure, cold compression was intermittently applied for 2 hours and was advised for the next 48 hours. The antibiotic cefadroxil monohydrate was started one day presurgery and was continued for 7 days postoperatively. Analgesics, anti-inflammatory enzyme tablets, mild antiseptic cleaning, and antibiotic ointment application was suggested for 2 to 3 days at the entry points, exit points, and incision sites. Results were analyzed by the physician, patient, and nurse. Results were categorized as +++, excellent; ++, good; +, satisfactory; and −, poor. Follow-up occurred at 1, 3, and 6 months and at 1, 2, and 5 years postprocedure. Final results were analyzed after comparing preoperative photographs of the participants with postoperative photographs taken after 2 years. Satisfaction rate of the participants was also noted and categorized as highly satisfied, satisfied, and dissatisfied.

Postoperative complications and side effects were also noted in both groups. Results were subjected to a Wilcoxon signed rank test.

RESULTS

In group 1, results were excellent (+++) in 6 participants (5 females and 1 male) and good (++) in 4 participants (3 females and 1 male) (Figures 1 and 2). Participant satisfaction rate in this group was highly satisfied and satisfied, respectively.

In group 2, results were excellent (+++) in 5 participants (4 females and 1 male). Satisfaction rate was high in this category. In the other 5 participants, results were good (++) in 3 participants (2 females and 1 male) and satisfactory (+) for 2 participants (1 female

and 1 male). The participants were satisfied in these 2 categories.

Postoperative follow-up after 2 and 5 years demonstrated a continuation of the results. Complications, such as loosening of knots, were not noted in any participants in groups 1 or 2. Minor bruising and postoperative edema was considered a normal occurrence. Bruising was minimal in participants and edema was temporary, mild, and subsided rapidly with anti-inflammatory enzymes and cold compression.

THE DEPRESSOR SEPTI NASI MUSCLE

The membranous, or fibrous, septum is the segment of soft tissue in the columellar vestibule that bridges the lower border of the septal cartilage to the rim of the columella. This segment bridges at the superior border of the medial crura of the alar cartilage and comprises 2 layers of vestibular skin separated by loose areolar tissue. The depressor septi nasi muscle extends from the maxilla above the central and lateral incisors to the membranous septum and attaches to the inferior border of the septal cartilage.[8] Each depressor muscle usually consists of 2 bellies. One originates from the maxilla above the central incisors and the other originates from the maxilla above the lateral incisors. These 2 bellies merge before attaching to the membranous septum.[8] The depressor septi nasi muscle keeps the fibrous nasal septum and the nasal tip depressed.[8] Therefore, paralysis of the depressor muscle leads to elevation of the membranous nasal septum and the nasal tip.

Surgical elevation of the nasal tip has been traditionally performed after resecting the medial nasal cartilages or by sectioning the depressor septi muscle. This was a technique practiced by Pierre Fournier, MD, a French plastic surgeon. Lifting the nasal tip has also been performed using polytetrafluoroethylene patches or solid silicone implants. The author has used polytetrafluoroethylene sutures and silk threads with a Khawaja-Hernández needle or Keith needle to elevate the nasal tip. In addition, the author has also utilized many liquid fillers such as silicone. Botulinum toxin type A paralyzes the depressor septi muscle, thereby elevating the nasal tip temporarily; however, the injection needs to be repeated after several months to maintain the elevation.

Cueteaux and Shiffman[9] used an 18-gauge, double-pointed needle, hook needle, and Wullstein dissector for a nasal tip lift using a prolene 3-0 suture. They introduced the needle at the nasal tip and exited at the nasofrontal angle on one side. On the other side, they introduced the needle periosteally and exited again at the starting point. The author has used a similar technique using a 16-gauge lumber puncture needle, but without a hook needle. However, edema was more prolonged using this technique and hematomas were reported.[9]

A suture nasal tip lift using a prolene 3-0 suture is a simple surgical technique to lift the nasal tip. Complications are rare and patient satisfaction rate is high. The ideal patient for a nasal tip lift with a prolene 3-0 suture has a long nose with a pointed, drooping, or projected nasal tip. However, participants who have a broad nose and broad nasal tip can also benefit from this procedure because it can elevate and sharpen the nasal tip. The procedure outlined previously can also be followed prior to the suture lift for participants who have thick skin and desire a more dramatic lift. Undermining the skin with fine-tipped scissors or a 16- to 18-gauge needle is unnecessary.

CONCLUSION

The results were mostly excellent for both groups and long-term follow-up demonstrated that the results had remained intact. This showed that the lift remains stable whether the needle is passed through the cartilage or periosteum of the nasal bone. Postoperatively, fibrosis around the knots and tracts occurs. The fibrosis and knots at the nasal tip prevent depressor septi muscle regeneration. However, fibrosis and scarring in the needle tracts, cartilage, and periosteum of the nasal bone provide stability to the lift. The lift measurements depend on the patient's desired outcome, shape of the nasal tip, and experience of the surgeon. However, it is best to keep the lift mild to moderate in order to prevent elongated nasal vestibules, transverse wrinkles on the nasal dorsum of the nose, and an apelike nose. Complications are rare; however, in the event the participant is dissatisfied, the procedure can be easily repeated or revised.

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