The Neo-Pitanguy Ligament: A 3-Flap Technique for Skin Tensioning

Ashkan Ghavami, MD
Neil M. Vranis, MD
Los Angeles, CA

Background: Creating a stable, long-lasting supratip break continues to be a challenge, particularly in patients with moderate to severe skin thickness. Multiple techniques have been previously described to address this, including Pitanguy ligament preservation, resuturing, and cartilage frame alterations to increase the tip-to-septal angle differential. Each has noteworthy limitations.
Methods: The senior author (A.G.) developed a novel technique that uses the native Pitanguy ligament augmented by 2 bilateral, medially based superficial musculoaponeurotic system/soft-tissue flaps. This reduces supratip dead space and prevents tissue glide while controlling supratip/tip shape and position.
Results: Twenty-six primary rhinoplasties in which the supratip and tip skin sleeve was of appropriate thickness were selected and followed up for 1-year postoperatively. The trilaminar neo-Pitanguy ligament technique was used in all patients. Every patient maintained a varied degree of supratip break at an average follow-up time of 14 months (range, 12 to 16 months). There was 1 revision requiring local anesthesia. No patients requested or were indicated for a return to the operating room. No cases of postoperative pollybeak deformity were observed.
Conclusions: The power of this novel supratip control technique is multidimensional. It allows the surgeon to precisely control the location of supratip break, creating a broad based, diamond-shaped supratip depression. Trilamination with 2 superficial musculoaponeurotic system/soft-tissue flaps provides added strength, control, and long-term stability compared with simple suturing. Soft-tissue tensioning above, around, and below the new tip complex prevents dorsal skin tissue glide and further secures the infratip/columella in the appropriate position. *(Plast. Reconstr. Surg.* 155: 619, 2025.)
CLINICAL QUESTION/LEVEL OF EVIDENCE: Therapeutic, IV.

Rhinoplasty is a challenging operation with revision rates reported as high as 15%.[1] The supratip deformity that can occur cephalad to and at the cephalic border of the domal highlight is referred to as a pollybeak deformity.[2,3] Instead of the ideal supratip diamond depression, this iatrogenic defect accounts for many of the suboptimal rhinoplasty results, which can influence patient dissatisfaction because of a suboptimal nasal tip–to-dorsum relationship and lead to a revision operation.[3–6] Patients with moderate to significantly thick skin have a higher probability of developing the pollybeak deformity after the index operation.[3,5,7–9] Previously published intraoperative maneuvers have been described in an effort to recreate the supratip break and mitigate postoperative deformities while controlling tip projection. Guyuron et al.[5] and Sheen[10] were the first to recognize that the pollybeak deformity is not always secondary to cartilaginous excess at the anterior septal angle or inadequate tip support, but can also be caused by an accumulation of fibrosis when there is skin redundancy that does not appropriately redrape tightly around the cartilaginous framework. Thus, attempts to obliterate the

From the Department of Surgery, Division of Plastic and Reconstructive Surgery, David Geffen School of Medicine at the University of California, Los Angeles.
Received for publication January 4, 2024; accepted September 4, 2024.

DOI: 10.1097/PRS.0000000000011738

Disclosure statements are at the end of this article, following the correspondence information.

Related digital media are available in the full-text version of the article on www.PRSJournal.com.

dead space in this region have included extended external pressure (ie, taping or splinting), suturing the dermis or subcutaneous tissue to the caudal septum, reconstruction/reapproximation of the Pitanguy ligament, direct full-thickness excision of the pollybeak, and aggressive sharp subcutaneous débridement.[2–5,11–15]

Historically, the interdomal ligament was described by Pitanguy himself in 1965 as a dermocartilaginous ligament located at the tip-dorsum junction.[16] Subsequent anatomical dissections have confirmed that the ligament is contiguous with the medial extension of the deep nasal superficial musculoaponeurotic system (SMAS) which originates at the confluence of the dermis with the superficial and deep layers of the SMAS and inserts on the depressor septi nasi muscles.[11,17–20] More recently, surgical and anatomical dissections have identified superficial and deep ligamentous components, with the latter (Pitanguy ligament) being considered more important in maintaining soft-tissue integrity and nasal tip support.[11,13,21,22] Conceptually, a benefit of dorsal preservation, 1 of the 3 tenets of "preservation rhinoplasty,"[23,24] is maintaining integrity of the nasal SMAS and the dynamic Pitanguy ligament to avoid postoperative supratip deformity issues.[23] Although this may hold significance in a "closed" preservation approach, more extensive tip tripod manipulation (ie, noses that require significant deprojection and/or tip rotation) by means of open structural or "hybrid preservation"[25] (open with dorsal preservation) changes the relationship of the new tip complex relative to the overlying skin sleeve. This inherently also changes the location of the supratip and, thus, the origin of the "old" native Pitanguy ligament.

The senior author (A.G.) developed a novel technique that is simple, effective, and reproducible by any skilled rhinoplasty surgeon who has a good grasp of the dynamic interplay between structural support, frame "tensioning," and redraping of the overlying skin sleeve. By creating a trilaminated, stronger "neo-Pitanguy ligament (NPL)" structure, the supratip break can be relocated where desired and maintained long term.

PATIENTS AND METHODS

The study was conducted in accordance with the Declaration of Helsinki on research and human rights. All 6 standard rhinoplasty views were photographed in the preoperative and postoperative settings using a Cannon T6 camera. Primary rhinoplasty patients with moderately thick to thick skin, those who desired a well-defined tip along with a supratip breakpoint aesthetic, and patients with skin sleeve excess created by significant frame reduction were candidates for this technique. After assessment of skin quality and thickness, rhinoplasty surgeons will often categorize or assign a value to describe the phenotypic findings.[26] A 5-point rating scale based on pore size, appearance, and skin pinch palpation is used to assign a numerical value for skin thickness. The scale is defined as follows: (1) extremely thin skin with clear visibility of medial and lateral crura; (2) thin skin with visible lateral crura; (3) moderate skin thickness without cartilage edge visibility; (4) thick soft-tissue envelope with large pores and greater than 4 mm of pinch thickness; and (5) extremely thick soft-tissue envelop with a component of rosacea. A value of 3 of 5 or greater is considered moderately thick, whereby the curves and edges of the underlying lower lateral cartilages are blunted. This represents a cohort of patients who are soft-tissue dominant with regard to the soft-tissue/cartilage ratio. A retrospective review was conducted to include all cases that used the NPL over a 1-year period. Indications and advantages of the technique are listed in Table 1. Patients with thin skin, less than 2 of 5, were excluded from this study, as this technique is not applicable in that cohort. Patient preoperative and postoperative photographs in addition to medical records were evaluated for tip rotation, tip projection, and supratip contours.

Table 1. Inclusion Criteria and Indications

Primary rhinoplasty
Skin/soft-tissue thickness[a]
Soft–tissue–dominant patients (ratio of soft tissue to cartilage)
Patient request for defined tip with supratip break aesthetic
SEG[b] required to maintain tip position
Anticipated skin sleeve inelasticity

SEG, septal extension graft.
[a]Skin envelop thickness is rated on a 5-point scale by the senior surgeon (≥3 of 5 thickness).
[b]SEG is used in all primary rhinoplasties.

Surgical Technique

After infiltration (hydrodissection) composed of a standard mixture—local anesthetic and a vasoconstrictive agent—the nose is opened using an inverted-V transcolumellar incision connected to bilateral infracartilaginous vestibular incisions. The dissection can be performed in either the subperichondrial plane or the sub-SMAS plane,[26] preserving lateral SMAS attachments. Superiorly, at the rhinion, the dissection transitions to a

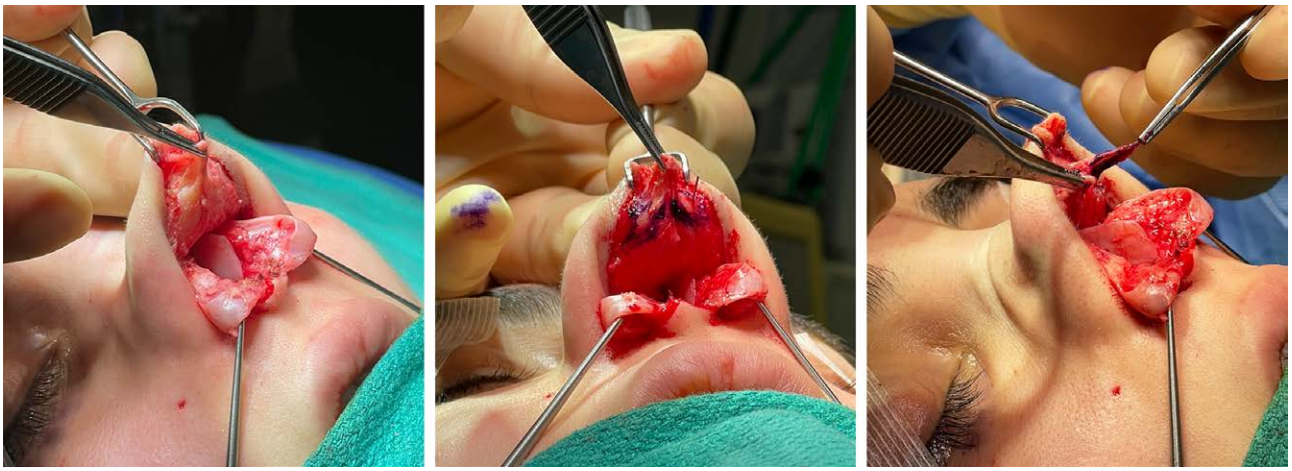

Fig. 1. Development of the trilaminated NPL with bilateral SMAS flaps. Identify the native Pitanguy ligament during an open rhinoplasty (*left*). Design medially based SMAS flaps in purple ink (*center*). After elevating 1 of the nasal SMAS flaps with a base attached to the left of the native Pitanguy ligament (*right*).

subperiosteal plane and terminates cephalad to the radix. The native Pitanguy ligament is delineated at the onset of the undermining with meticulous circumferential dissection, separating it from the anterior septal angle and crural attachments. It is sharply transected inferocaudally to maximize the length of native ligament, which remains attached to the overlying skin envelope. The medial crura are separated to gain access to the anterior septal angle and to visualize but not denude the anterior nasal spine. Standard rhinoplasty maneuvers are executed to address the dorsum, nasal bones, midvault, and tip cartilages according to the preoperative plan and patient expectations. Routinely, a septal extension graft (SEG) is secured to the caudal aspect of the L-strut before creating a refined diamond-shaped tip. A columellar strut is also used to fill the dead space between the medial crura and the SEG.

Creation and repositioning of the trilaminated NPL is based on indications, described above, and patient desires, which are discussed during the preoperative consultation. Two 27-gauge hypodermic needles are passed transcutaneously at the level of the new supratip break in the craniocaudal dimension. The transverse distance between the 2 needles approximates the width of the newly created dorsal aesthetic lines. Gentle inferior retraction is placed on the native Pitanguy ligament while countertraction on the nasal skin flap is maintained. A medially based 0.4 × 0.6-mm SMAS/soft-tissue flap is elevated on each side of the intact Pitanguy ligament with their respective bases remaining attached to the dermis adjacent to the Pitanguy ligament (Fig. 1). The lateral extent of each flap correlates to the position of the hypodermic needles and thus the width of the desired supratip break. As the nasal skin flap is lifted, the trilaminar structure (two flaps coupled with the Pitanguy ligament) is disassociated from the dermis in the anterior to posterior direction until the level of the needle that corresponds to the new location of the supratip break in the craniocaudal dimension (Figs. 2 and 3). Ultimately, when traction is placed on the NPL, a wide and evenly distributed force is exerted on the skin, exactly where the surgeon wishes to place the supratip break. If executed properly, the traction maneuver should reveal a "diamond-shaped" shadowing/depression with the greatest degree of depression centrally as viewed from the external skin surface. The dermal-NPL dissociation will also generate additional working length for the flap. The NPL is incrementally shortened, in cases where this additional length generates a superfluous amount of soft-tissue blunting the desired supratip break shadows.

The NPL is suture fixated to the caudal septum, the junction of the caudal SEG and anterior septal angle, and/or to the medial crura/SEG association. One way to accomplish this is by passing a suture in the caudal-to-cranial direction between the columellar strut/SEG and medial crura, taking a bite of the trilaminar ligament and then passing the suture in the reverse direction (cranial to caudal) emerging between the SEG and the contralateral medial crus to secure the flap in the desired trajectory. In effect, this will lasso the sturdy midline cartilaginous structures (Figs. 4 and 5). In patients with a delicate

Fig. 2. Repositioning of the trilaminated NPL is shown. (*Left*) Two 27-gauge hypodermic needles are used to mark the lateral point of the supratip break, which correlates to the medial extent of the NPL flaps (*right*). Note the change in supratip position in the craniocaudal dimension (*purple line*, old; hypodermic needles, new).

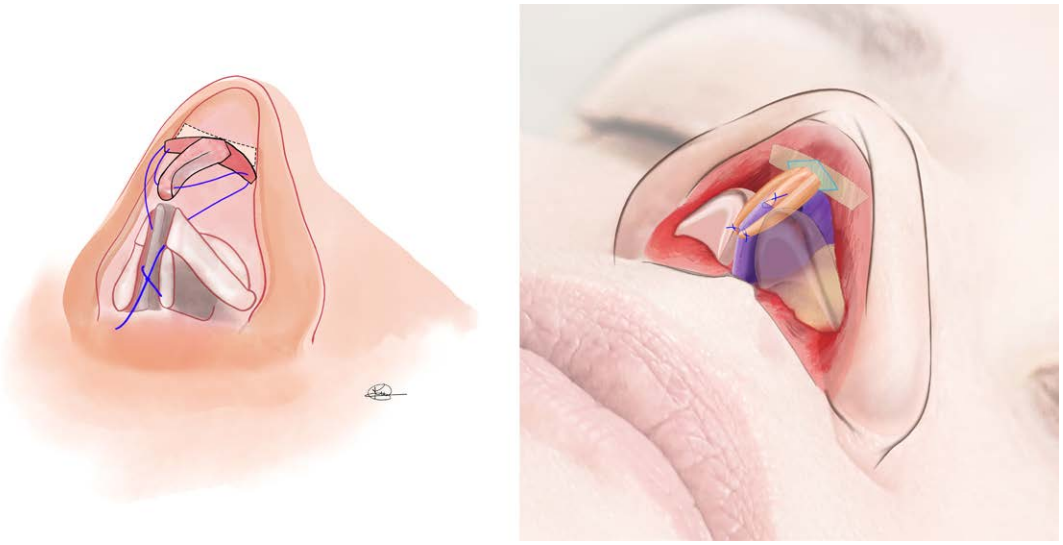

Fig. 3. These illustrations depict how the two medially based lateral SMAS/soft-tissue flaps are dissected from the undersurface and hinge medially to join the native Pitanguy ligament. There are 2 ways to secure the NPL: (*left*) the NPL can be treated as a single entity and suturing it to the sturdy midline cartilaginous support (ie, columellar strut and/or septal extension graft); or (*right*) the tensioning of each of the 3 NPL prongs to the superior and posterior aspects of the septal extension graft can be individually customized. Also note that the base of the NPL is in the shape of a diamond (*green*) such that the exerted internal, inferior traction translates to a broad-based, gentle supratip diamond depression externally. (Illustrations created by Kate Mackley are licensed under CC BY 4.0.)

Pitanguy ligament, the newly created SMAS flaps can be sutured together, further reinforcing the strength of the trilaminated ligament. Once the rhinoplasty is completed (Fig. 6), intranasal Doyle splints are placed intranasally, and externally, the nose is taped and covered with an Aquaplast splint. In 1 week, the splint is removed and the patient is instructed on how to tape the nose for an additional week. (**See Video 1 [online]**, which demonstrates NPL creation, in particular, the bilateral SMAS flap dissection. In addition, this video demonstrates how internal NPL tensioning translates to external skin depression at the supratip. **See Video 2 [online]**, which demonstrates the NPL tensioning. Note the length of each lateral SMAS flap that can be obtained. **See Video 3**

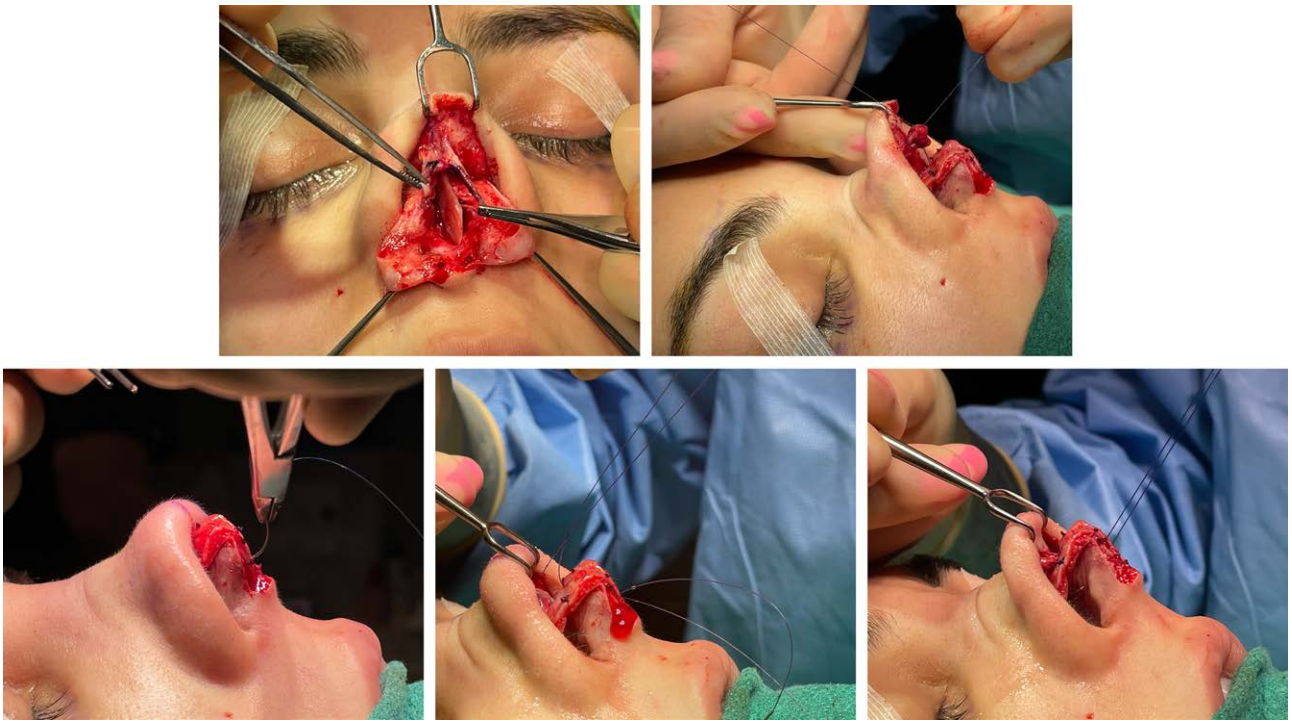

Fig. 4. Intraoperative series depicting the securing of the trilaminated NPL. Adson forceps hold each of the nasal SMAS flaps flanking the Pitanguy ligament; note that the trilaminated structure shares a common dermal attachment at the desired position of the new supratip break (*above*, *left*). A 5-0 polydioxanone suture grasps the stout trilaminated NPL and is secured to the SEG (*above*, *right*). An alternative method to accomplish this is by passing a suture in the caudal-to-cranial direction between the columellar strut/SEG and medial crura, taking a bite of the trilaminar ligament and then passing the suture in the reverse direction (cranial to caudal) emerging between the septal extension graft and the contralateral medial crus to secure the flap in the desired trajectory. In effect, this will lasso the sturdy midline cartilaginous structures (*below*) and provide compressive tension forces on the supratip and the infratip/columella.

[online], which demonstrates suturing of the NPL into appropriate position [part 1]. **See Video 4 [online]**, which demonstrates suturing of the NPL into appropriate position [part 2]. **See Video 5 [online]**, which demonstrates that the NPL is tensioned to the junction of the caudal L-Strut and SEG with a robust effect on skin sleeve to allow for soft-tissue redraping, prevention of dorsal tissue glide, and creation of the supratip diamond. **See Video 6 [online]**, which demonstrates that, once the NPL is secured into position, the columellar incision is closed in standard fashion. **See Video 7 [online]**, which demonstrates the conclusion of the case, after all incisions are closed; a diamond-shaped supratip depression can be appreciated in the anatomically correct location.)

RESULTS

The trilaminate NPL technique was used in 26 primary rhinoplasties with a skin thickness of 3 of 5 or higher. All 26 patients were women in this preliminary study. Study dates ranged from March of 2021 to February of 2022. The mean patient age was 28 years (range, 21 to 45 years). Ethnic demographics in the primary rhinoplasty cohort included White ($n = 4$), African American ($n = 2$), Hispanic ($n = 8$), and Middle Eastern ($n = 12$) descent. An SEG was used in all cases ($n = 26$ [100%]) and a columellar strut was also placed in all 26 patients. The mean follow-up was 14 months (range, 12 to 16 months). One patient required a revision that was performed in the office under local anesthesia for an unrelated cosmetic issue (ie, posterior columellar prominent bulge). Zero patients required a return to the operating room. All patients healed well from the operation. There were no patients who displayed an overrotated tip, defined as greater than 110 degrees. The same postoperative protocol was used in all patients. All patients had at least 1 steroid injection in the postoperative period to decrease inflammation and accelerate tip edema resolution. This mixture consisted of 5-fluorouracil, 10 mg/mL triamcinolone,

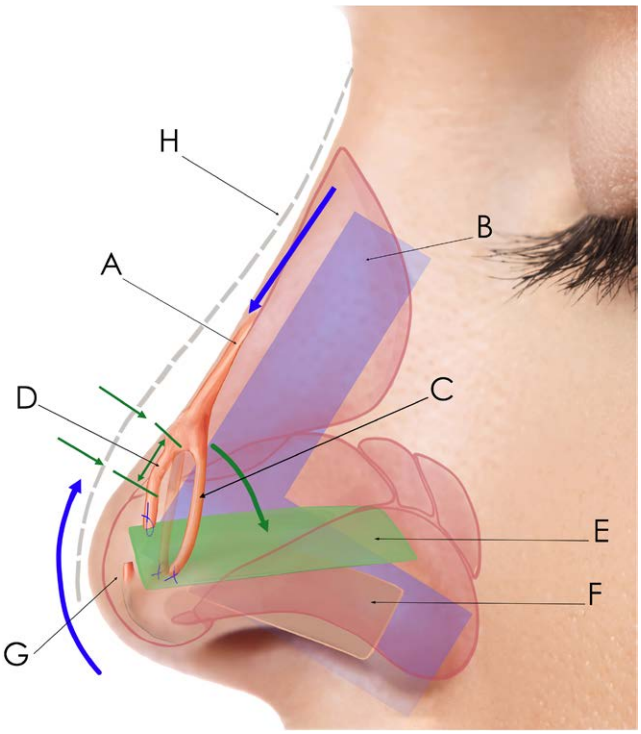

Fig. 5. In most patients, the base of the NPL (*D* and *C*) is dissected from the caudal-to-cranial direction to reposition the point of maximal traction/dermal attachment (*small green arrows*) which translates to the new external diamond-shaped supratip depression compared with the native profile contours (*H*). As the NPL is tensioned (*thick green arrow*) with suture to the sturdy midline structures (ie, SEG [*E*], L-strut [*B*], and/or columellar strut [*F*]), there is an inferior tension force placed on the dorsal skin with increased rotational force on the tip (*blue arrows*). This also minimizes cephalad skin glide and retraction. (Illustration created by Kate Mackley is licensed under CC BY 4.0.)

Fig. 6. The external supratip diamond depression can be appreciated once the NPL is secured to the sturdy, midline, cartilaginous structures (ie, L-strut, septal extension graft, columellar strut).

Table 2. Postoperative Management

Characteristic	No. of Patients
No. of postoperative injections[a]	
1	16
2	7
3 or more	3
Timing of postoperative injections[a]	
4 weeks	26
4–8 weeks	10
8–12 weeks	3
>12 weeks	1

[a]Injections consisted of 5-fluorouracil, 10 mg/mL triamcinolone, and 1% lidocaine with epinephrine (1:100,000).

and 1% lidocaine with epinephrine (1:100,000) and was administered at an average of 10 weeks postoperatively (range, 4 to 16 weeks) (Table 2). Liberal use of postoperative injections to optimize recovery time for patients has been routine in this rhinoplasty practice, even before implementation of the NPL technique. There was no evidence of pollybeak deformity, and all patients displayed a desirable supratip break that lasted until the long-term follow-up appointment (Fig. 7). No patients complained of dissatisfaction with tip and supratip aesthetics or sought revision, except for the patient stated above.

DISCUSSION

An aesthetically pleasing nasal tip and its relationship to the dorsal profile view includes a certain degree of supratip break to accentuate the delicate transition from the cephalad tip-defining points to the caudal dorsal midvault. The magnitude of the supratip break is determined by a reconciliation between the patient desires, surgeon's aesthetic preferences, and anatomical possibilities. Trilamination with the 2 SMAS flaps supplements strength for lasting supratip stability and skin sleeve tensioning. This novel technique also allows for supratip repositioning as dictated by the dynamic changes that occur after manipulating projection, position, and shape of the tip tripod in three-dimensional space. It provides additional control of the soft-tissue tension and a marriage of overlying skin with the new cartilaginous framework (Figs. 5 and 6).

Excessive projection of the caudal septum, underprojected domes, and/or tripod insufficiency can lead to a pollybeak deformity. However, the more challenging scenario is the iatrogenic development of a supratip deformity in the healing phase despite optimization of cartilage shape

Fig. 7. (*Left*) Preoperative lateral view of a female patient who underwent primary rhinoplasty. (*Right*) The 1-year postoperative view shows a refined tip with a delicate supratip break in the appropriate position relative to the tip and dorsum.

and position during the operation. This phenomenon has challenged rhinoplasty surgeons for decades and can often be attributable to the limitations in the supratip skin/soft-tissue adherence and tension. Some surgeons have even abandoned structural rhinoplasty and instead shifted toward preservation rhinoplasty techniques in the hopes that preservation of the Pitanguy ligament will prevent this problem.[11,27–29] Meticulous measurements of the dermocartilaginous ligament width performed by Pitanguy[21] demonstrated high variability, as the ligament ranged from 2 to 4 mm in thickness.

Preventing iatrogenic supratip deformity has encouraged many surgeons to trial various techniques focused on eliminating the dead space between tip cartilages and the dorsum.[5] Even direct skin excision has been described,[30] but the noticeable midline external scar on the dorsum of the nose limits its utility. A less conspicuous suture technique was originally described by Guyuron et al.[5,31] and later modified by Hoehne et al.[4] They describe internal suturing of the SMAS or dermis at the desired location of the new supratip break position and suspending it to the caudal aspect of the medial crura or caudal septum. After the skin is partially closed, the amount of tension placed on the suture while tying the knot determines the depth of the supratip.[4] Other authors have published different versions (eg, externally placed sutures) for dead-space obliteration and skin/soft-tissue redraping.[14] Although these techniques eliminate dead space and attempt to minimize tissue glide, the nonanatomical methods have several disadvantages. A single suture placed on a curved dorsum has the tendency to create an unnatural dimple or even a flattened, irregular appearing supratip break.[2,4] This may be beneficial at the lateral sidewall and alar crease junction, where sharp contours are appropriate, but the midline dorsum ought to maintain gentle curves. We advocate for creating a soft, concave diamond-shaped subunit at the supratip break/depression between adjacent subunit prominent highlights. This deviates from the previous publications that illustrate the polygons of the nose coming together as a single point at the confluence of 8 adjoining polygons.[32] We introduce the new terminology of a "supratip diamond" depression that is just cephalad to the tip complex diamond often referenced. Conceptually, the projecting nasal tip diamond[32] is an aesthetically significant nasal contour demonstrating convexity, whereas the supratip diamond is concave. Together, these 2 can be

Table 3. Advantages of the Trilaminated NPL

Property/ Advantage	Goal/Effect
Broad dermal attachment	1. More natural supratip contour vs. a single "breakpoint" 2. Customization in relocation and/or creation of supratip
Trilamination	1. Stout enough to hold suture; avoids cheese-wiring 2. Can tension and secure each limb individually (internal tripod concept) 3. Allows for 2 points of tension countertension[a]
Repositioning of dermal attachment	1. Precise and expansible control of supratip position 2. Controlled tensioning and redraping of skin sleeve over the dorsum
Securing to medial tip anchor	1. Minimizes inadvertent influence on columellar positioning and tip rotation 2. Provides additional support and buttresses the SEG to septum interface

[a]Cephalad SEG/septal junction and caudal SEG/medial crura.

Table 4. Technical Considerations of the NPL

Establishment of a precise supratip break location/relocation
Meticulous dissection to develop soft-tissue flaps for trilamination
Placement of a sturdy SEG
Two- or 3-suture technical variation for securing the NPL
Proper tensioning of supratip break skin/soft tissue
Trilamination to increase ligamentous stability and prevent suture failure

thought of as a "double diamond"—a depression/shadow next to a projection/highlight.

Postoperative edema and blood accumulation impedes long-term control of any skin-to-suture techniques. Placing additional sutures confers increased risk for scarring, focal ulceration, surgical stigmata, and compromise to the distal end of the skin flap in open procedures. In addition, securing the SMAS to the unpredictably mobile medial crura may also have an unwanted rotational effect on the nasolabial angle or deformational implications to the columella. The authors do acknowledge this potential issue and advocate for placement of a sturdy septal extension graft to maximize tip position and stability.

In 2018, superiorly based SMAS flaps that include the Pitanguy ligament to redrape over the newly created tip while obliterating the dead space and accentuating the supratip break were described independently.[11,33] The flaps are sutured to the base of the medial crura, mimicking the anatomical trajectory of a native Pitanguy ligament, or can be draped over the medial crura to camouflage irregularities. Subsequently, in 2020, a technique called the "Pitanguy ligamentous flap" was published.[2] In patients with moderate to thick skin and patients undergoing a revision rhinoplasty, subperichondrial dissection was performed down to the level of the interdomal ligament on opening the nose and posteriorly until the maxillary crest. The flap is harvested, and interdomal and intercrural ligaments are left in continuity with the Pitanguy ligament, effectively lengthening the ligament. With this technique, the origin of the ligament on the dermis remains unchanged regardless of the new tripod shape and dimensions. The authors acknowledge that the dissection adds substantial complexity and time to the operation.[2]

We agree that resuspension of the Pitanguy ligament eliminates dead space, predictably minimizes tissue glide (especially when removing splints/patient taping), and provides the appropriate degree of tension buttresses to the tip to create a lasting supratip break and prevent the development of an iatrogenic postoperative supratip deformity.[13] When the dorsal height and tip rotation have changed during a rhinoplasty, the location of the supratip must also change in three-dimensional space. Some authors address this discrepancy by creating a "window" within the ligament, essentially splitting or lengthening the Pitanguy ligament.[29] However, we believe our technique gives the surgeon total control to reposition the origin of the flap in a way that does not rely on the native ligament position.

The trilaminar NPL flap harnesses multiple benefits and applications (Tables 3 and 4). Developing soft-tissue flaps reduces the paramedian volume/soft-tissue thickness. The technique encourages skin redraping to exacerbate visualization of tip contours, particularly in patients with soft-tissue dominance (high soft tissue–to-cartilage ratio). This is also important in patients with large noses that undergo a significant deprojection of the tip and dorsum resulting in soft-tissue redundancy (Fig. 8). The multivector tensioning approximates an upside-down cone as the broad base attachment (diamond-shaped insertion of the NPL to the deep dermis) funnels to a narrower deep point (suture secured to the SEG and caudal septum junction). Creating a wide ligamentous-dermal attachment allows for a broad distribution of pull across a wide surface area, creating a more natural supratip depression compared with the focal pull generated by suture techniques. Cephalad relocation (in most cases) reflects the new supratip location determined by the new dorsal-tip relationship. In addition, dead space obliteration by the NPL limits fluid

Fig. 8. (*Left*) Preoperative photograph of a female patient undergoing primary rhinoplasty demonstrates a large concave dorsal hump and supratip prominence. (*Right*) The 1-year postoperative view shows a significant reductive rhinoplasty for deprojection, a straight dorsum, and maintenance of tip rotation. Given the significant reduction in overall size of the rhinoplasty, an NPL was used to control soft-tissue supratip dynamics, provide an internal tension harness, and prevent a pollybeak deformity.

accumulation, leading to a known problematic sequela, fibrosis. Lastly, in patients with weak native ligaments, the addition of lateral flaps provides a stout structure that adequately holds suture and sufficiently advances dorsal skin for redraping and long-term efficacy.

The ability to individually modulate each limb (each prong can be sutured to various internal anchor points) improves control over the soft-tissue/frame relationship. The cephalic suture can be incorporated into the SEG "superior stabilization suture," as previously described by Rohrich,[34] while also reinforcing SEG stability.[3] The 2 nasal SMAS flaps can be fixed to each side of the caudal columellar strut/SEG. Concomitant use of an SEG is mandatory to create a biomechanical advantage[34] by providing a primary tension anchor at this cephalad point of fixation, with the caudal SEG and medial crura serving as the second anchor point (Fig. 4). The NPL effectively wraps around the SEG. The degree of tensioning is customized for each patient to achieve the desired degree of supratip depression.

All of the patients in this series were satisfied with the maintained supratip break after undergoing open primary rhinoplasty. They were specifically questioned about this region of their nose during the follow-up appointments. Discussion of the degree of supratip break and curvature to the dorsal profile is a routine part of the preoperative consultation process. There were no patients requesting a revision or alteration of their tip/supratip. We advocate caution in thin-skin patients, or in patients with a very delicate nasal SMAS layer, as aggressive dissection of the flaps may compromise the subdermal vascular plexus. Given the preliminary nature of this study, we initially focused on applying this technique in the primary rhinoplasty patient population. However, a future direction will include identifying candidates in the revision rhinoplasty cohort that may also benefit from this technique, albeit by use of residual nasal SMAS or scar tissue. In addition, future studies will be able to quantify the amount of supratip translocation that correlates to a certain degree of deprojection and rotation achieved during rhinoplasty procedures.

Given the nature of surgical technique studies in the field of rhinoplasty, there are certain limitations. A control group was not used; thus, direct comparisons cannot be made. However, the main purpose was to present a novel surgical technique, describe how it can be implemented, and demonstrate that it can be performed safely without an increase in complications or need for additional revision operations. We are unable to create an adequate control group, as all rhinoplasty operations have certain nuances and require different surgical maneuvers based on unique patient anatomy, surgeon preoperative analysis, and desired aesthetic outcome. Therefore, it is impossible and would be unethical to standardize all surgical maneuvers and only change one (ie, the use of NPL versus no NPL) for the sake of the scientific method.

CONCLUSIONS

Precise marriage of the soft tissue to the underlying cartilaginous framework is a concept that provides control, predictability, stability, and harmony in rhinoplasty. Creating a lasting supratip break in patients who are soft-tissue dominant has historically challenged surgeons. Pollybeak deformity is a common reason for revision rhinoplasty; thus, it is no surprise that numerous techniques have been previously described to mitigate its negative sequela. We present a safe, novel technique that can be efficiently executed in the operating room to simultaneously thin the overlying soft tissue, bolster the Pitanguy ligament, and allow for accurate repositioning of the newly created trilaminar structure to accentuate the supratip break and improve tip definition. Ultimately, once secured into position and traction is placed on the broad NPL base, the conical internal force trajectories translate to an external, natural appearing supratip diamond-shaped depression.

Ashkan Ghavami, MD
Department of Surgery
Division of Plastic and Reconstructive Surgery
David Geffen School of Medicine
University of California, Los Angeles
10833 Le Conte Avenue
Los Angeles, CA 90095
ashghavami@yahoo.com
Instagram: drghavami

DISCLOSURE

Dr. Ghavami receives royalties from Thieme Publishing and QMP, Inc. Dr. Vranis has no financial interests to disclose.

PATIENT CONSENT

Patients provided written informed consent for the use of their images.

ACKNOWLEDGMENT

The authors would like to thank Kate Mackley for creation of the medical illustrations.

REFERENCES

1. Cobo R. Correction of dorsal abnormalities in revision rhinoplasty. *Facial Plast Surg.* 2008;24:327–338.
2. Ercin BS, Bicer A, Bilkay U. Pitanguy ligamentous flap: a new method to prevent supratip deformity in rhinoplasty. *J Craniofac Surg.* 2020;31:731–736.
3. Rohrich RJ, Ghavami A. Rhinoplasty for Middle Eastern noses. *Plast Reconstr Surg.* 2009;123:1343–1354.
4. Hoehne J, Brandstetter M, Gubisch W, Haack S. How to reduce the probability of a pollybeak deformity in primary rhinoplasty: a single-center experience. *Plast Reconstr Surg.* 2019;143:1620–1624.
5. Guyuron B, Deluca L, Lash R. Cosmetic supratip deformity: a closer look. *Plast Reconstr Surg.* 1999;105:1140–1151.
6. Rohrich RJ, Shanmugakrishnan RR, Mohan R. Rhinoplasty refinements: addressing the pollybeak deformity. *Plast Reconstr Surg.* 2020;145:696–699.
7. Daniel RK. Middle Eastern rhinoplasty in the United States: part II. Secondary rhinoplasty. *Plast Reconstr Surg.* 2009;124:1640–1648.
8. Foda HMT. Management of the droopy tip: a comparison of three alar cartilage-modifying techniques. *Plast Reconstr Surg.* 2003;112:1408–1417; discussion 1418–1421.
9. Foda HMT. Rhinoplasty for the multiply revised nose. *Am J Otolaryngol.* 2005;26:28–34.
10. Sheen JH. A new look at supratip deformity. *Ann Plast Surg.* 1979;3:498–504.
11. Daniel RK, Palhazi P. The nasal ligaments and tip support in rhinoplasty: an anatomical study. *Aesthet Surg J.* 2018;38:357–368.
12. Çakir B, Öreroğlu AR, Daniel RK. Surface aesthetics in tip rhinoplasty: a step-by-step guide. *Aesthet Surg J.* 2014;34:941–955.
13. Çakir B, Öreroğlu AR, Doğan T, Akan M. A complete subperichondrial dissection technique for rhinoplasty with management of the nasal ligaments. *Aesthet Surg J.* 2012;32:564–574.
14. Zholtikov V, Kosins A, Ouerghi R, Daniel RK. Skin contour sutures in rhinoplasty. *Aesthet Surg J.* 2023;43:422–432.
15. Kosins AM. Preservation rhinoplasty: open or closed? *Aesthet Surg J.* 2022;42:990–1008.
16. Pitanguy I. Surgical importance of a dermocartilaginous ligament in bulbous noses. *Plast Reconstr Surg.* 1965;36:247–253.
17. Saban Y, Amodeo CA, Hammou JC, Polselli R. An anatomical study of the nasal superficial musculoaponeurotic system surgical applications in rhinoplasty. *Arch Facial Plast Surg.* 2008;10:109–115.
18. Pitanguy I. Revisiting the dermocartilaginous ligament. *Plast Reconstr Surg.* 2001;107:264–266.
19. Seyed Resuli A. Is Pitanguy's ligament a true ligament? A prospective cohort study. *J Surg Med.* 2020;4:251–254.
20. Daniel RK, Glasz T, Molnar G, Palhazi P, Saban Y, Journel B. The lower nasal base: an anatomical study. *Aesthet Surg J.* 2013;33:222–232.
21. Pitanguy I, Salgado F, Radwanski HN, Bushkin SC. The surgical importance of the dermocartilaginous ligament of the nose. *Plast Reconstr Surg.* 1995;95:790–794.

22. Saban Y, Daniel RK, Polselli R, Trapasso M, Palhazi P. Dorsal preservation: the push down technique reassessed. *Aesthet Surg J.* 2018;38:117–131.
23. Daniel RK, Kosins AM. Current trends in preservation rhinoplasty. *Aesthet Surg J Open Forum.* 2020;2:1–7.
24. Kosins AM, Daniel RK. Decision making in preservation rhinoplasty: a 100 case series with one-year follow-up. *Aesthet Surg J.* 2020;40:34–48.
25. Toriumi DM, Kovacevic M, Kosins AM. Structural preservation rhinoplasty: a hybrid approach. *Plast Reconstr Surg.* 2022;149:1105–1120.
26. Neves JC, Zholtikov V, Cakir B, Cośkun E, Arancibia-Tagle D. Rhinoplasty dissection planes (subcutaneous, sub-SMAS, supra-perichondral, and sub-perichondral) and soft tissues management. *Facial Plast Surg.* 2021;37:2–11.
27. Tuncel U, Aydogdu O. The probable reasons for dorsal hump problems following let-down/push-down rhinoplasty and solution proposals. *Plast Reconstr Surg.* 2019;144:378e–385e.
28. Nakamura F, Luitgards BF, Ronche Ferreira JC. Combining preservation and structured rhinoplasty: septal extension grafts and the interdomal hanger. *Plast Reconstr Surg Global Open* 2021;9:e3323.
29. Çakır B, Genç B, Finocchi V, Haack S. My approach to preservation rhinoplasty. *Facial Plast Surg Clin North Am.* 2023;31:25–43.
30. Gubisch W. Secondary correction of the dorsum including polly-beak deformity. In: *Mastering Advanced Rhinoplasty.* Cham: Springer; 2018:266–277.
31. Guyuron B, Lee M. An effective algorithm for management of noses with thick skin. *Aesthetic Plast Surg.* 2017;41:381–387.
32. Çakir B, Doğan T, Öreroğlu AR, Daniel RK. Rhinoplasty: surface aesthetics and surgical techniques. *Aesthet Surg J.* 2013;33:363–375.
33. Cobo R. Superiorly pediculated superficial musculoaponeurotic system ligament flap to control the supratip. *JAMA Facial Plast Surg.* 2018;20:513–514.
34. Rohrich RJ, Savetsky IL, Avashia YJ. The role of the septal extension graft. *Plast Reconstr Surg Global Open* 2020;8:e2710.