

Rhinoplasty Considerations in the Ethnic Patient Using a Case-Based Approach: The Latino Patient



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KEYWORDS

- Latino rhinoplasty • Mestizo rhinoplasty • Thick skin rhinoplasty • Mesorrhine noses
- Hybrid rhinoplasty

KEY POINTS

- Latino patients are also known as mestizo or Hispanic patients. Owing to the different migration patterns today, Latino patients are considered mixed race patients.
- Latino or mestizo patients tend to have poor osteocartilaginous frameworks and nasal tips with poor rotation and projection. It is not uncommon to find patients with small humps or pseudohumps
- In patients with mesorrhine noses and small cartilaginous humps, surface cartilaginous preservation techniques are being used conserving the cartilaginous middle third of the nose intact.
- Today, a hybrid approach is used with Latino patients. Preservation and structural techniques are used in combination to obtain consistent results. Tissue is preserved, remodeled, and structured when necessary. All techniques are performed using sutures, grafts, and powered instrumentation techniques.

INTRODUCTION

Latino is usually a term that is used interchangeably with mestizo or Hispanic, and basically means patients who are coming from Latin American countries. Owing to the different migration patterns in Latin America over the years, Latino or mestizo patients are a combination of races, mainly white, African origin, and native Indians. Because of this racial mixture, it becomes important to be able to perform an adequate anatomic diagnosis in each patient and plan surgery depending on the patient's individual findings.¹

Generally speaking, Latino patients tend to have weak bony and cartilaginous frameworks. The skin-soft tissue envelope (S-STE) tends to be thicker and tips are usually flimsy and bulbous with poor projection and rotation. It is common to find retrusive caudal septums, and availability of septal cartilage is limited, so surgery must be planned carefully.² In the cases where septal

cartilage is not enough for the grafting needs of the patient, other harvesting options include conchal ear cartilage and costal cartilage.

In this article 2 representative cases are presented: a mestizo patient with a small hump, wide dorsum, and bulbous undefined nasal tip and a patient with a relatively flat dorsum, and a bulbous, wide undefined nasal tip with poor projection and rotation.

CASE STUDY/PRESENTATION

Case 1: Mestizo patient undergoing primary rhinoplasty. Small osteocartilaginous hump and bulbous undefined asymmetric nasal tip.

Case Presentation

A 21-year-old patient was seen with complaints of nasal obstruction due to allergies, and dislike for the shape of her nose. The patient had a small osteocartilaginous hump with a relatively weak

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Facial Plast Surg Clin N Am 30 (2022) 513–520

<https://doi.org/10.1016/j.fsc.2022.07.005>

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underlying skeleton. Her nasal tip was asymmetric, with wide, bulbous alar cartilages with poor projection and rotation. The caudal edge of the septal cartilage was retrusive and deviated to the left creating tip asymmetry. The nasal spine was small, the nasolabial angle acute, the feet of the medial crura short, and when the patient smiled, the nasal tip would plunge downward (**Fig. 1**).

Computer imaging with simulation was performed. The patient insisted she wanted a natural result that showed better projection, rotation, and definition without looking operated. What bothered her the most was the “bump” of her dorsum on the lateral view and the fact that her nasal tip looked “round and big” and when she smiled it went down. It was agreed that the dorsal hump would be lowered, the nasal bones remodeled and narrowed, and the tip refined trying to improve rotation and projection.

Surgical Procedure

The procedure was performed under general anesthesia. An open rhinoplasty approach was used where an inverted V-shaped transcolumellar incision was connected to bilateral marginal incisions. Dissection was carried out in a subdermal plane up to the supratip region leaving the superficial musculoaponeurotic system (SMAS) attached to the cartilaginous structures of the nasal tip. A flap was created elevating the SMAS en bloc with the intercrural, interdomal, and Pitanguy ligaments in a subperichondrial plane off the medial crura, dome area, and lateral crura up to the supratip area, thus creating a superiorly pediculated SMAS-ligament flap. The nasal tip and cartilaginous middle third of the nose were dissected in a subperichondrial plane, and a wide dissection of the nasal bones was performed

in a subperiosteal plane. Using an intercrural approach, the caudal edge of the nasal septum was exposed. Bilateral mucoperichondrial septal flaps were elevated in a subperichondrial plane exposing the cartilaginous and bony components of the nasal septum.

Using powered instrumentation (cylindrical cutting burs and diamond burs), the bony cap of the nasal bones was removed exposing a small cartilaginous hump. Bony irregularities were evened out. With this maneuver a bony hump was converted to a small cartilaginous hump. The cartilaginous hump was then treated using a cartilaginous pushdown technique. A subdorsal or intermediate rectangular strip (Tetris approach) was performed and a 3-mm strip was resected starting at a point where the upper lateral cartilages meet the dorsal portion of the nasal septum and extended posteriorly toward the subdorsal area of the cartilaginous dorsum. Release of the lateral keystone area was performed, and the small cartilaginous hump was pushed down resulting in a straight dorsum. Dorsal work was completed with medial and lateral osteotomies to narrow the dorsum. Internally at the level of the septum, the subdorsal strip was sutured to the remaining septum with 4-0 polydioxanone (PDS) sutures fixing it in place. Once the subdorsal strip was stabilized, cartilage was harvested for grafts preserving an inverted L of 15 mm of cartilage dorsally and caudally. The deviation at the caudal edge of the septum was corrected and the strip secured to the nasal spine with a 4-0 PDS suture fixing it securely in the midline.

The nasal tip was approached using structural techniques. An overlapping septal extension graft (OSEG) was placed on the right side of the caudal edge of the nasal septum, and stabilized on the contralateral side with a rectangular bolster graft (**Fig. 2**). The alar cartilages were sutured to the OSEG using lateral crural tensioning techniques



Fig. 1. (A–D) Preoperative images of mestizo patient showing a small osteocartilaginous hump; bulbous, undefined and asymmetric nasal tip; and a weak underlying osteocartilaginous framework.

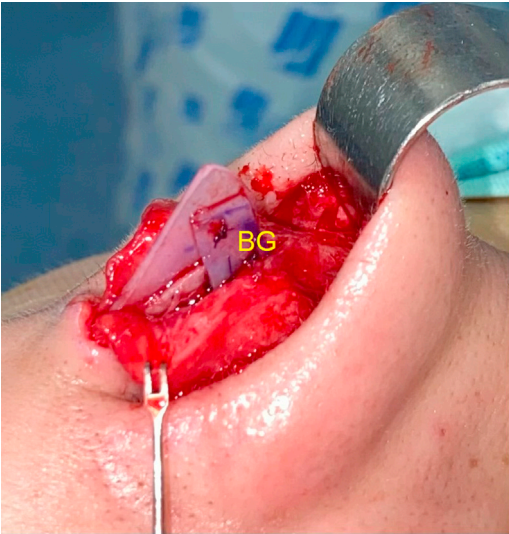


Fig. 2. Image of an OSEG in place. It is a straight piece of cartilage that is carved according to patient's needs and placed overlapping the caudal edge of the nasal septum and sutured in place. To create additional stability, a contralateral rectangular piece of cartilage is sutured in place stabilizing the graft to the caudal end of the septum (bolster graft- BG). These grafts can be fashioned from septal cartilage, conchal cartilage, or rib cartilage.

thus defining rotation and projection of the nasal tip.³ The width of the lateral crus of the alar cartilages was reduced using a lateral crural turn in flap.^{4,5} On the right side the lateral crus was repositioned in a more symmetric fashion previous placement of a lateral crural strut graft. Additional refinement techniques of the nasal tip were performed with oblique domal sutures, dome aligning sutures, and lateral crural spanning sutures. Final refinement of nasal tip area was achieved injecting a combination of finely diced cartilage (FDC) with cartilage paste (CP) and covering all tip work with the superiorly pediculated SMAS flap. The FDC and CP were used to fill in concavities in the supratip area and increase refinement in the nasal tip area over the domes. Before closing, the SMAS flap was pulled down covering the nasal tip area and sutured in place; this created a nice supratip break and helped camouflage work done in the nasal tip (**Fig. 3**).

Postoperative Outcome

The 1-year postoperative result is shown. The patient has a nice straight dorsal line with a small supratip break. There is marked improvement in the rotation, projection, and definition of the nasal tip. On the frontal view the dorsal tip esthetic lines

look narrower and the nasal tip has more definition and refinement (**Fig. 4**).

Discussion

Latin or mestizo patients have diverse nasal characteristics. Patients frequently have a modest osteocartilaginous skeleton, and surgery must be planned carefully. Harvesting options must be planned and executed precisely because the amount of cartilage available to harvest from the septum will be limited. The combination of powered instrumentation and cartilage preservation techniques to treat small osteocartilaginous humps has become a very important tool because in this way the middle third of the nose is preserved and grafts are mainly used to structure the nasal tip. Most preservation approaches that are used by the author for this type of patients are surface preservation techniques (remodeling of bony cap, resection of bony cap) or subdorsal approaches (Tetris, subdorsal Z-flap). These techniques leave enough cartilage available for harvesting once the L strut is reconstituted leaving at least 1 cm of cartilage dorsally and 1 to 1.5 cm caudally.⁶⁻⁹

Today, we are using almost exclusively septal extension grafts to define tip position. In primary patients, cartilage is harvested from the patient's nasal septum, and it is usually enough to be able to design an adequate SEG, a contralateral bolster graft, and any additional structural grafts for the nasal tip (lateral crural strut grafts or articulated alar rim grafts). Because projection is very important in most mestizo nasal tips, the graft is placed overlapping the patient's caudal septum and further stabilized using a contralateral bolster graft. Once the pedestal is stabilized, and the amount of tip projection defined, tip refinement is performed. Today most techniques are aimed at structuring and straightening the lateral crus of the alar cartilages; this can be done with tensioning techniques or placement of grafts. The final objective is a tip that looks more defined, less bulbous, but that will not lose support over time.¹

Final refinement techniques of the nasal tip are done with grafts, sutures, or replacement of ligament structures of the nose. Small pieces of cartilage that are left over after grafts are carved are finely diced and/or scraped to create FDC paste. This cartilage paste is placed using a cartilage injector or a 1-mL tuberculin syringe in areas that need to be evened out or filled in or in areas that need more definition like the dome area in the nasal tip.

The superiorly pediculated SMAS flap is a flap that is used in patients who have normal skin

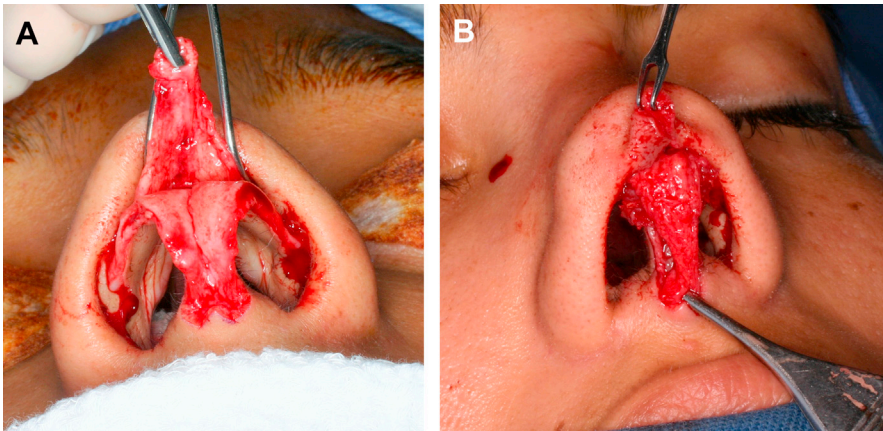


Fig. 3. (A) Image of the superior pediculated SMAS flap. The flap is created elevating the SMAS and the ligament structures of the nose in one block up to the supratip area (B). At the end of surgery the SMAS flap is lowered covering the nasal tip area. This flap serves 2 purposes: to eliminate dead space formation in supratip area and to camouflage nasal tip area.

thickness or thin skin. The flap is created when the skin flap of the open rhinoplasty approach is created. A skin flap (epidermis and dermis) is elevated over the nasal tip leaving the SMAS and all the nasal tip ligaments attached to the cartilaginous nasal structure. The SMAS flap is then created, elevating the SMAS with the intercrural, interdomal, and the Pitanguy ligaments en bloc up to the supratip area. Dissection is then continued under the flap over the bony and cartilaginous structures of the nose. At the end of surgery, the flap is pulled down over the nasal tip area and sutured back in place over the medial crura. This flap helps reduce dead space formation in the supratip area and helps re-create a nice supratip break. Additionally, it creates a nice smooth cover over the nasal tip structures hiding any irregularities.¹⁰

Case 2: Primary rhinoplasty with low dorsum and relatively thick S-STE.

Case Presentation

A 23-year-old female patient is seen who wants to improve the form and function of her nose. She has a long history of allergies and nasal obstruction that have not been properly treated. She feels her dorsum is “flat,” dislikes her wide bulbous nasal tip, and thinks the skin over her nasal tip and ala looks overly thick. On examination, the patient has a slight septal deviation with severe turbinate hypertrophy and a retrusive caudal septum. Her dorsum is relatively flat and wide. The nasal tip shows wide, flattened alar cartilages; a retrusive caudal septum; a relatively short columella; and a wide nasal base. The S-STE is thick. A nasal computed tomographic scan was performed that showed severe inferior turbinate hypertrophy with blockage of the middle meatus and thickening of the mucosa of the maxillary sinus bilaterally.



Fig. 4. (A–D) One-year postoperative images showing a nice straight dorsal profile with a nasal tip with improved definition, rotation, and projection.

Pictures were taken that show a relatively small nose with a small bony and cartilaginous structure. The frontal view shows a wide dorsum with a wide nasal tip. The middle third of the nose looks depressed. On the lateral and oblique views, a low dorsum is visible with an important depression in the radix and supratip area and a small pseudohump. The nasal tip is round and bulbous with poor projection and rotation. The nasolabial angle is acute. The base view shows a wide nasal base with flaring inverted ala (Fig. 5).

Computer imaging and simulation was performed. Harvesting options were discussed. It was agreed that the patient needed a surgery that would create more definition of her nasal tip. The dorsum would be augmented and narrowed, and the tip would be projected and refined. Because of the racial characteristics of the patients and the need for an important amount of cartilage for grafting, it was explained to the patient that the available septal cartilage would not be enough and other grafting options had to be explored. Rib cartilage and ear cartilage grafting options were explained to the patient with its advantages and disadvantages. It was finally decided that ear cartilage would be used for dorsal augmentation and septal cartilage would be used for structural grafts in the nasal tip area.

Operative Procedures

The surgery was performed under general anesthesia. Conchal cartilage was harvested using an anterior approach, harvesting cymba and cavum concha leaving the cartilage of the root of the helix intact. The skin flap was sutured in place placing bolster sutures in the conchal area to prevent hematoma formation. Vaseline gauzes were placed covering the concha serving as a slight pressure dressing. Next the functional aspect of the nose

was approached. An endoscopic sinus surgery was performed with endoscopic turbinectomy. Rigorous hemostasis was performed.

An open rhinoplasty approach was used where an inverted V-shaped transcolumellar incision was connected to bilateral marginal incisions. The skin flap was elevated in a subdermal plane leaving the SMAS and ligament structures attached to the cartilaginous structures of the nasal tip up to the supratip area. The SMAS covering the nasal tip area was then resected en bloc with the nasal tip ligaments (intercrustral, Pitan-guy) taking care not to extend dissection into the supralar groove or the middle third of the nose (Fig. 6). Once the SMAS was resected, the skin flap elevation was continued over the cartilaginous middle third of the nose and the bony dorsum in a subperichondrial and subperiosteal plane, exposing the bony and cartilaginous dorsum.

The septum was dissected through an intercrustral approach. Bilateral anterior, inferior, and posterior tunnels were dissected. Septal cartilage was identified, deviations corrected, and cartilage harvested leaving a complete L-strut of 10 mm dorsally and caudally. A septal quilting suture was performed with 5-0 fast-absorbing vicryl closing the septal area.

Bilateral medial and lateral osteotomies were performed narrowing the lateral bony vault and preserving the middle cartilaginous vault intact. The septal cartilage that was harvested, was used to design an OSEG, bilateral articulated alar rim grafts, and a small shield graft. The OSEG was placed defining the projection of the nasal tip and stabilized further with a contralateral bolster graft. Lateral crural tensioning was performed stabilizing the newly created domes and lateral crura against the OSEG.

Once the tip and pedestal were stabilized, and the projection of the nasal tip defined, the dorsal



Fig. 5. (A–D) Preoperative photographs of a Latino patient with a nose with platyrrhine features. She has a small pseudohump with a low dorsum and wide flattened middle third of the nose. The nasal tip is bulbous with poor definition and projection, the columella is short, and the nasal base is wide.



Fig. 6. Resected SMAS from nasal tip area. In patients with very thick S-STE, resecting the SMAS is a good option to thin out the S-STE and help in the nasal tip definition. The resected SMAS can then be used as a graft in other areas of the nose.

height was addressed. The conchal cartilage was finely diced and mixed with fibrin glue (Tisseel) and immediately placed in a template or mold designed from a 3-mL syringe cut lengthwise. The cartilage pieces were firmly pressed together with 2 fingertips to take out any excess glue and make sure the tiny cartilage pieces were tightly pressed together. Using this template, the diced cartilage glue graft was fashioned according to

patient's individual needs, defining length, width, and height of the graft. Once the graft was ready, it was taken out of the template and final refinements were made before being placed over the patient's dorsum. When the graft was finally shaped and ready to be inserted, the dorsal portion was covered with a thin piece of perichondrium that was glued in place covering most of the dorsal portion of the graft. The graft was then carefully inserted over the dorsum making sure the height was adequate for the patient's nasal tip position (**Fig. 7**).

Final refinement of the nasal tip was achieved with the placement of articulated alar rim grafts, and a small shield graft. The SMAS that was resected at the start of the surgery was used as a graft. One piece was placed in front of the nasal spine, and another piece was used to cover the leading edge of the shield graft over the nasal tip.

Postoperative Outcome

The patient's 9-month postoperative follow-up shows adequate dorsal augmentation with nice dorsal tip esthetic lines. Definition of her nasal tip was improved, and the nasal base looks more symmetric (**Fig. 8**).

The patient's skin was thick, oily, and acne prone. As soon as tapes were removed, the patient was placed on a skin regime with facial scrubs, skin toner, and sun block. In addition, the patient was started on a low-dose isotretinoin scheme 20 mg twice a week during 6 months. The patient was monitored periodically with hepatic function tests and birth control measures were enforced.

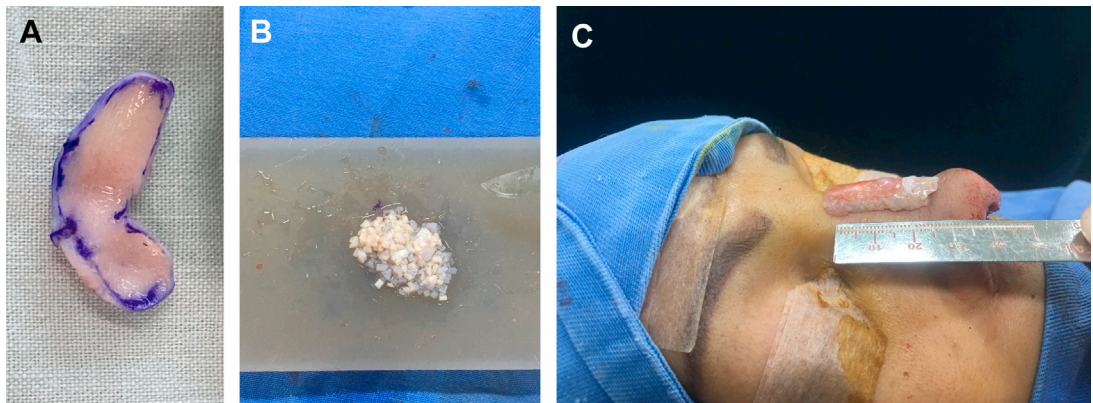


Fig. 7. Dorsal augmentation with finely diced cartilage (FDC) with fibrin glue (A). Conchal cartilage graft is harvested from the ear (B). The cartilage is diced finely making sure cartilage pieces will not be noticeable over the dorsal skin (C). Image of dorsal graft elaborated with FDC mixed with fibrin glue and its dorsal portion covered with perichondrium or fascia. The graft is tailored depending on the individual patient's needs. The side of the graft that is in contact with the dorsal skin is covered with perichondrium or fascia helping camouflage the finely diced cartilage pieces.



Fig. 8. (A).Nine-month postsurgical result. (B, C) Dorsum was augmented, and dorsal esthetic lines were improved. (D) The nasal tip looks more projected and refined. Nasal base is narrower, and ala configuration has been improved.

The skin evolution was favorable with complete control of her acne and sebum production.

Discussion

A percentage of mestizo patients require some form of dorsal augmentation. Many techniques can be performed to achieve this, but it is out of the scope of this article. The author for many years has been augmenting dorsums using the technique of FDC mixed with fibrin glue (diced cartilage glue graft) with excellent results.¹¹ This technique has a very low infection rate, and because it is not a solid piece of cartilage there is no warping. Some investigators have reported the visibility of cartilage pieces over the nasal dorsum especially in patients with thin skin.¹² To avoid this, the author for several years has covered the dorsal portion of the graft with a thin piece of perichondrium or fascia adding additional camouflage to this area of the nose. It does become important to discuss with the patient alternatives for cartilage harvesting because usually septal cartilage will not be enough to cover all of patients grafting needs especially if dorsal augmentation is going to be performed. Additional grafting sites are conchal cartilage or rib cartilage.

Skin thickness plays an important role in rhinoplasty results. For this reason it becomes important to prepare the skin for surgery and to control postsurgical skin inflammation and swelling; this can be done by prescribing cleansing agents that contain salicylic acid or benzoyl peroxide. When needed, scrubs can also be used. The objective is to remove the superficial dead skin and stimulate skin cell renewal. All patients should use sunblock, and direct sun exposure should be avoided. In all patients, a change in diet is stressed, because today we know that avoiding

hyperglycemic carbohydrates, trans fats, high-sugar diets, and milk and/or milk derivatives can help control acne flare-ups and inflammation.

Patients with thick skin or acne-prone skins should ideally be started on isotretinoin. Low-dose schemes are just as effective as normal dosing and have considerably less side effects (0.25 mg/kg–0.40 mg/kg). The dose can be given 2 to 3 times a week, and treatment should be continued at least during 4 to 6 months to have a permanent result on the skin. It does become imperative to make sure patients sign all pertinent consent forms and female patients guarantee they will not get pregnant during treatment. The question then becomes, when should patients be placed on isotretinoin? If patients are willing to wait for their surgery, they should be started on treatment before surgery (1–2 months) to condition skin properly. Isotretinoin is stopped 1 to 2 weeks before surgery and restarted as soon as tapes come off, 2 weeks after surgery. If patients want surgery immediately, isotretinoin is started as soon as tapes come off, which is usually 2 weeks after surgery. Today studies show that there is no reason to delay surgery when a patient is on treatment with isotretinoin and no studies confirm that the healing process will be impaired or that patients will have abnormal scarring.^{13,14}

SUMMARY

When performing rhinoplasty in Latino patients 3 questions must always be answered to be able to manage patients properly: What type of underlying skeletal framework does the patient have? What type of S-STE does the patient have covering this skeleton? Will the patient's septal cartilage be enough for all the grafts that will be

needed even if it is a primary rhinoplasty case? In cases in which the dorsum is low and augmentation is required, this is achieved using FDC combined with fibrin glue and covered on the dorsal side with perichondrium or fascia. These patients usually need additional cartilage that can be harvested from concha or from rib.

In those cases in which the patient has a small osteocartilaginous hump, the author today is using cartilaginous dorsal preservation techniques in an effort to preserve the middle third of the nose intact. In all cases, the tips in Latino patients are approached using a “structural preservation approach,” wherein little if any tissue is resected and cartilaginous structures are reinforced using structure techniques. For all patients, the skin is treated to control postsurgical inflammation and edema with topical treatments, diet, and when necessary oral treatment with isotretinoin. The final goal of surgery is to obtain consistent results that satisfy our patients and stand the test of time.

CLINICS CARE POINTS

- Today rhinoplasty in Latino patients is done with a combination of structural and preservation techniques
- Approach to the nasal tip in Latino Patients usually requires important structural techniques to obtain long lasting rotation and projection
- When needed, dorsal augmentation is performed using grafts of finely diced cartilage mixed with fibrin glue, giving patients natural long lasting results
- Cartilaginous dorsal humps today are being treated with cartilaginous dorsal preservation techniques
- Thick acne prone skin is managed medically with low dose oral isotretinoin during 4-6 months with good results

DISCLOSURE

The author has nothing to disclose.

REFERENCES

1. Cobo R. Management of the mestizo nose. *Otolaryngol Clin North Am* 2020;53:267–82.
2. Cobo R. Rhinoplasty in latino patients. *Clin Plast Surg* 2016;43:237–54.
3. Davis RE. Lateral crural tensioning for refinement of the wide and underprojected nasal tip: rethinking the lateral crural steal. *Facial Plast Surg Clin North Am* 2015;23(1):23–53.
4. Tellioglu AT, Cimen K. Turn-in folding of the cephalic portion of the lateral crus to support the alar rim in rhinoplasty. *Aesthetic Plast Surg* 2007;31(3):306–10.
5. Murakami CS, Barrera JE, Most SP. Preserving structural integrity of the alar cartilage in aesthetic rhinoplasty using a cephalic turn-in flap. *Arch Facial Plast Surg* 2009;11(2):126–8.
6. Kosins A. Expanding indications for dorsal preservation rhinoplasty with cartilage conversion techniques. *Aesthet Surg J* 2021;41(Issue 2):174–84.
7. Ferreira MG, Toriumi DM. A practical classification system for dorsal preservation rhinoplasty techniques. *Facial Plast Surg Aesthet Med* 2021; 23(Number 3):153–5.
8. Neves JC, Tagle DA, Dewes W, et al. A segmental approach in dorsal preservation rhinoplasty: the tetris concept. *Facial Plast Surg Clin North Am* 2021; 29(1):85–99.
9. Kovacevic M, Veit J, Toriumi DM. Subdorsal Z-flap: a modification of the Cottle technique in dorsal preservation rhinoplasty. *Curr Opin Otolaryngol Head Neck Surg* 2021;29(4):244–51.
10. Cobo R. Superiorly Pediculated Superficial Musculoaponeurotic System Ligament Flap to Control the Supratip. *JAMA Facial Plast Surg* 2018;20(6):513–4.
11. Tasman AJ, Diener PA, Litschel R. The diced cartilage glue graft for nasal augmentation morphometric evidence of longevity. *Facial Plast Surg* 2013;15(2):86–94.
12. Tasman AJ. Dorsal augmentation-diced cartilage techniques: the diced cartilage glue graft. *Facial Plast Surg* 2017;33(02):179–88.
13. Cobo R, Vitery L. Isotretinoin use in thick-skinned rhinoplasty patients. *Facial Plast Surg* 2016;32(6): 656–61.
14. Cobo R, Camacho JG, Orrego J. Integrated management of the thick-skinned rhinoplasty patient. *Facial Plast Surg* 2018;34(1):3–8.