Nasal Length and Projection

Editor's note: I'd like to offer a special thanks to the moderator, Bahman Guyuron, MD (board-certified plastic surgeon, Lyndhurst, OH), and to the panelists, Henry Steve Byrd, MD (board-certified plastic surgeon, Dallas, TX); Ronald P. Gruber, MD (board-certified plastic surgeon, Oakland, CA); and Dean Toriumi, MD (board-certified otolaryngologist, Chicago, IL) for sharing their views and expertise for this discussion.

Dr. Guyuron: The main focus of this panel is the management of nasal length and projection. Dr. Gruber, how do you analyze a patient’s nose in terms of length and projection?

Dr. Gruber: In general, I take measurements with a video imager, which provides a one-to-one size. It is really by trial and error manipulation of the image using the video imaging system and then asking the patient what he or she thinks of my assessment that I determine a patient’s ideal nose length and projection. I no longer use specific numbers because the distances and angles on the nose are different for each patient. I have found that it is best to use my aesthetic judgment with regard to how the particular length and projection of the nose relates to the rest of the face.

Dr. Guyuron: Dr. Byrd, how do you determine the proper nasal projection and length for your patients?

Dr. Byrd: First, I measure the patient directly. Then I measure life-size photographs of the patient. I correlate the measurements on the photograph with the ones that I’ve taken of the patient to avoid measurement errors that can occur as a result of the way in which the pictures were developed. This is a way of confirming my measure-

ments. I determine the actual length of the nose by measuring roughly from the level of the supratarsal fold or 6 mm above the inner canthus down to the dome-projecting points. Basically I would like the nasal length to be equal to the chin vertical measured from where the lips come together (stomion) down to the undersurface of the chin (menton), or two thirds of the midfacial height. These are the ideal aesthetic relationships in the white female’s nose. From my perspective, a nose is long if it exceeds these relationships and short if it does not equal them. Thus my assessment of nasal length and projection are not based on a rigid number but rather on measurements that are proportionate to the face.

I have found that the projection of the nose from the facial plane should be two thirds of the nasal length. These parameters are based on studies that my colleagues and I have done in which we analyzed Ricket’s “golden” proportion and tried to simplify it into a useful, surgery-friendly formula. They are sort of a “poor man’s” way of taking a short cut to that golden proportion described by Ricket.

Dr. Guyuron: That proportion is based on existing facial structures. How do you assess the length of the nose when the patient has a short, lower face?

Dr. Byrd: One should look at nasal length on the basis of measurements derived from both the midface and the lower face because in a patient who has a maldevelopment of either the maxilla or the mandible, this approach allows you to use either cephalometrics or other methods to bring the face into proportion before pressing for nasal length. If the disproportion is localized to the maxilla, then the chin vertical parameter can be used. If the dis-


proportion is in the mandible, then the midface vertical parameter can be used. In some instances, if the patient has a dental facial deformity, I will use casts to determine where the maxilla and the facial structures should be and base the nose length and projection on that. If the patient has just microgenia or something fairly simple, then I will base the nose parameters on the maxillary aspect rather than on mandibular measurements. My staff and I try to use an approach that will ultimately provide the greatest facial balance.

**Dr. Guyuron:** The first patient (Figure 1) is a 23-year-old woman who desires improvement in the appearance of her nose. Dr. Toriumi, what is your assessment of her deformity, and how would you correct it?

**Dr. Toriumi:** Initially, I would look at all four views—that is, the frontal, lateral, three quarter, and basal. On the frontal view, I would divide the patient's face into an upper third, middle third, and lower third. Ideally, the length of the nose on frontal view should lie within the middle third. When you look at the frontal view of this patient, it is apparent that she has a relatively long forehead and her nose is short. When we look at her face from the lateral view—specifically her nasal projection in relation to her forehead and chin—it is evident that she has a flat forehead and her nose is overprojected. To assess her overall nasal length, I would measure the distance from the nasal starting point—the radix—down to the base of the nose in relation to the length of the forehead and the lower third of the face.

Several other anatomic points should be noted. One can see from the frontal view that her nasal base is slightly deviated. Intranasal examination would probably reveal a C-shaped deformity, with the caudal septum protruding into the right airway, tilting the columella back to the other side. In addition, this patient has a concavity of the middle vault on the right side of the nose.

This deformity is pushing the cephalic margin of the left lateral crura to the left, creating a fullness in the left supraalar region. The patient also has blunting of the nasolabial angle, which needs to be corrected. This patient has the appearance of someone with a "tension nose deformity." To manage her problem, I would try to achieve symmetry of the nasal base and decrease the tip projection. Assessing the skin thickness would be of utmost importance. I believe that this patient has medium thick skin, which is favorable for rhinoplasty. I would begin by performing a transfixion incision to access the septum and correct the septal deformity. Through the transfixion incision I would trim the posterior septal angle to deproject the nose and create a more acute nasolabial angle.

Several other anatomic points should be noted. One can see from the frontal view that her nasal base is slightly deviated. Intranasal examination would probably reveal a C-shaped deformity, with the caudal septum protruding into the right airway, tilting the columella back to the other side. In addition, this patient has a concavity of the middle vault on the right side of the nose.

To manage her problem, I would try to achieve symmetry of the nasal base and decrease the tip projection. Assessing the skin thickness would be of utmost importance. I believe that this patient has medium thick skin, which is favorable for rhinoplasty. I would begin by performing a transfixion incision to access the septum and correct the septal deformity. Through the transfixion incision I would trim the posterior septal angle to deproject the nose and create a more acute nasolabial angle.

Several other anatomic points should be noted. One can see from the frontal view that her nasal base is slightly deviated. Intranasal examination would probably reveal a C-shaped deformity, with the caudal septum protruding into the right airway, tilting the columella back to the other side. In addition, this patient has a concavity of the middle vault on the right side of the nose.

This deformity is pushing the cephalic margin of the left lateral crura to the left, creating a fullness in the left supraalar region. The patient also has blunting of the nasolabial angle, which needs to be corrected. This patient has the appearance of someone with a "tension nose deformity." To manage her problem, I would try to achieve symmetry of the nasal base and decrease the tip projection. Assessing the skin thickness would be of utmost importance. I believe that this patient has medium thick skin, which is favorable for rhinoplasty. I would begin by performing a transfixion incision to access the septum and correct the septal deformity. Through the transfixion incision I would trim the posterior septal angle to deproject the nose and create a more acute nasolabial angle.

Several other anatomic points should be noted. One can see from the frontal view that her nasal base is slightly deviated. Intranasal examination would probably reveal a C-shaped deformity, with the caudal septum protruding into the right airway, tilting the columella back to the other side. In addition, this patient has a concavity of the middle vault on the right side of the nose.

This deformity is pushing the cephalic margin of the left lateral crura to the left, creating a fullness in the left supraalar region. The patient also has blunting of the nasolabial angle, which needs to be corrected. This patient has the appearance of someone with a "tension nose deformity." To manage her problem, I would try to achieve symmetry of the nasal base and decrease the tip projection. Assessing the skin thickness would be of utmost importance. I believe that this patient has medium thick skin, which is favorable for rhinoplasty. I would begin by performing a transfixion incision to access the septum and correct the septal deformity. Through the transfixion incision I would trim the posterior septal angle to deproject the nose and create a more acute nasolabial angle.

Several other anatomic points should be noted. One can see from the frontal view that her nasal base is slightly deviated. Intranasal examination would probably reveal a C-shaped deformity, with the caudal septum protruding into the right airway, tilting the columella back to the other side. In addition, this patient has a concavity of the middle vault on the right side of the nose.

This deformity is pushing the cephalic margin of the left lateral crura to the left, creating a fullness in the left supraalar region. The patient also has blunting of the nasolabial angle, which needs to be corrected. This patient has the appearance of someone with a "tension nose deformity." To manage her problem, I would try to achieve symmetry of the nasal base and decrease the tip projection. Assessing the skin thickness would be of utmost importance. I believe that this patient has medium thick skin, which is favorable for rhinoplasty. I would begin by performing a transfixion incision to access the septum and correct the septal deformity. Through the transfixion incision I would trim the posterior septal angle to deproject the nose and create a more acute nasolabial angle.

Several other anatomic points should be noted. One can see from the frontal view that her nasal base is slightly deviated. Intranasal examination would probably reveal a C-shaped deformity, with the caudal septum protruding into the right airway, tilting the columella back to the other side. In addition, this patient has a concavity of the middle vault on the right side of the nose.

This deformity is pushing the cephalic margin of the left lateral crura to the left, creating a fullness in the left supraalar region. The patient also has blunting of the nasolabial angle, which needs to be corrected. This patient has the appearance of someone with a "tension nose deformity." To manage her problem, I would try to achieve symmetry of the nasal base and decrease the tip projection. Assessing the skin thickness would be of utmost importance. I believe that this patient has medium thick skin, which is favorable for rhinoplasty. I would begin by performing a transfixion incision to access the septum and correct the septal deformity. Through the transfixion incision I would trim the posterior septal angle to deproject the nose and create a more acute nasolabial angle.

Several other anatomic points should be noted. One can see from the frontal view that her nasal base is slightly deviated. Intranasal examination would probably reveal a C-shaped deformity, with the caudal septum protruding into the right airway, tilting the columella back to the other side. In addition, this patient has a concavity of the middle vault on the right side of the nose.

This deformity is pushing the cephalic margin of the left lateral crura to the left, creating a fullness in the left supraalar region. The patient also has blunting of the nasolabial angle, which needs to be corrected. This patient has the appearance of someone with a "tension nose deformity." To manage her problem, I would try to achieve symmetry of the nasal base and decrease the tip projection. Assessing the skin thickness would be of utmost importance. I believe that this patient has medium thick skin, which is favorable for rhinoplasty. I would begin by performing a transfixion incision to access the septum and correct the septal deformity. Through the transfixion incision I would trim the posterior septal angle to deproject the nose and create a more acute nasolabial angle.

Several other anatomic points should be noted. One can see from the frontal view that her nasal base is slightly deviated. Intranasal examination would probably reveal a C-shaped deformity, with the caudal septum protruding into the right airway, tilting the columella back to the other side. In addition, this patient has a concavity of the middle vault on the right side of the nose.

This deformity is pushing the cephalic margin of the left lateral crura to the left, creating a fullness in the left supraalar region. The patient also has blunting of the nasolabial angle, which needs to be corrected. This patient has the appearance of someone with a "tension nose deformity." To manage her problem, I would try to achieve symmetry of the nasal base and decrease the tip projection. Assessing the skin thickness would be of utmost importance. I believe that this patient has medium thick skin, which is favorable for rhinoplasty. I would begin by performing a transfixion incision to access the septum and correct the septal deformity. Through the transfixion incision I would trim the posterior septal angle to deproject the nose and create a more acute nasolabial angle.

Several other anatomic points should be noted. One can see from the frontal view that her nasal base is slightly deviated. Intranasal examination would probably reveal a C-shaped deformity, with the caudal septum protruding into the right airway, tilting the columella back to the other side. In addition, this patient has a concavity of the middle vault on the right side of the nose.

This deformity is pushing the cephalic margin of the left lateral crura to the left, creating a fullness in the left supraalar region. The patient also has blunting of the nasolabial angle, which needs to be corrected. This patient has the appearance of someone with a "tension nose deformity." To manage her problem, I would try to achieve symmetry of the nasal base and decrease the tip projection. Assessing the skin thickness would be of utmost importance. I believe that this patient has medium thick skin, which is favorable for rhinoplasty. I would begin by performing a transfixion incision to access the septum and correct the septal deformity. Through the transfixion incision I would trim the posterior septal angle to deproject the nose and create a more acute nasolabial angle.
Examination of the nasal tip indicates that this patient may have cephalic positioning of the lateral crura; the degree of that deformity would have to be determined once the nose was opened. I would perform a conservative cephalic trim of the lateral crura and insert a transdomal suture and columellar strut to achieve symmetry of the lower third of the nose. Then I would assess the nasal projection and the relationship of the tip-defining point to the supratip region, as well as her overall profile alignment. If the projection and length were acceptable, then I would suture the upper lateral cartilages back to the septum. It might be necessary to trim the caudal margin of the medial and intermediate crura to reduce the lobule fullness or to correct a hanging columella deformity.

**Dr. Guyuron:** What would be an acceptable distance from the tip-defining point to the supratip area or septal angle for this particular patient?

**Dr. Toriumi:** After replacing the skin over the tip cartilages, I would like to see a slight supratip break. In most cases this would be about 6 mm between the dome and anterior septal angle.

**Dr. Guyuron:** What would be your next step if you redraped the skin and excessive tip projection still existed?

**Dr. Toriumi:** I would then consider dividing the dome and excising a small triangular segment of cartilage to drop the tip back further. However, I don’t believe that would be necessary for this patient, because bringing down her posterior and anterior septal angles would cause a significant drop in tip projection. Very precise tip projection and rotation can be achieved by performing direct cartilage excision in the dome region. Rather than suture the two ends together, I would probably overlap the edges of the cartilage slightly and try to regain a curvilinear soft contour to the dome region to prevent any notching or possible visibility of the cartilage edges.

**Dr. Guyuron:** Dr. Gruber, what are your thoughts about managing this patient’s problem?

**Dr. Gruber:** This patient has a severely overprojected tip that is at risk of being undercorrected. It’s not a matter of simply trimming the septum, as it might seem in this case. Moreover, correcting that obtuse columellar labial angle by resecting a portion of the anterior nasal spine area, which one needs to do to improve the lip, will aggravate the overprojection of the nose. Thus I would approach this patient’s problem by transecting the lower lateral cartilage very low near the base—that is, near the piriform aperture—undermine, and, if necessary, just remove a segment of cartilage. I would be inclined to transect and overlap the elements of either the middle or medial crus—depending on which is longer. I am very hesitant to actually amputate a dome. I believe that would create a problem, particularly with this patient’s skin thickness. I believe that sutures would help keep the overprojected tip down and avoid overcorrection.

**Dr. Guyuron:** The second patient (Figure 2) is a 43-year-old man who is dissatisfied with the position of his nasal tip and the excess nasal width. Dr. Gruber, what is your analysis of...
his problem in terms of projection and how would you correct it?

**Dr. Gruber**: Several pertinent factors will affect the ultimate treatment of this patient. First, his tip has no support; it has dropped and is falling off the end of his septum. He also has an acute columellar labial angle. In addition, his skin is very thick. This is a very big and thick nose, and the tip support is gone, which creates the perception of increased length. However, I suspect that the length of this nose will be quite normal once the tip is placed back in its proper position. This patient also has a minimal radix deficiency and not much of a dorsal hump. Although we’re not focusing on this aspect, he also has a very broad nasal base. Because of this heavy tip and thick skin, nothing that we do is going to yield a perfect result. This patient’s skin is so thick that I would be inclined to use a closed approach to surgery for fear that the fibrosis would offset any fine sculpturing from the open approach.

I believe this patient needs a transfixion, intercartilaginous incision, and the entire tip complex needs to be rotated and held with some very strong sutures to the cartilaginous septum near the septal angle. He also needs a little support for the tip in the form of an intercrural graft. Rather than use the usual approach, in which one drives the intercrural post between the medial crura, for this particular case I would create a “prop” between the anterior nasal spine and the medial foot plates. I don’t believe this patient would need a tip graft, but that would be an option in terms of getting the final desired result. The key step would be to get the tip back up and then use heavy sutures and an intercrural graft beginning at the anterior nasal spine.

**Dr. Guyuron**: Dr. Byrd, do you have any comments with regard to this patient’s problem and treatment?

**Dr. Byrd**: I have a few comments regarding things that one should not do in a patient like this. The surgeon should not sculpt the lower lateral cartilages thinking that he or she is going to achieve refinement. I also wouldn’t perform any of the respective procedures that we’ve become comfortable with to improve the nose of the thin-skinned, white woman; these techniques will have little to no effect in a patient such as this.

**Dr. Toriumi**: I believe that preoperative imaging would be important to assess the degree of change that this patient desires. This would help me to determine the type of technique that I would use. I agree that this patient has a deficiency in the radix and inadequate tip projection, which is due primarily to the lack of support in the lower third of the nose. Depending on the degree of change this patient desires, I would consider using a columellar strut sutured between the medial crura with very little cartilage resection. Then a tip graft could be used to increase tip projection.

**Dr. Guyuron**: The third patient (Figure 3) is a 16-year-old girl who would like the appearance of her nose improved. Dr. Toriumi, what is your assessment of this patient’s problems and how would you address them?

**Dr. Toriumi**: On frontal view, this patient’s nose is slightly widened in the bony vault. She has a little narrowing in the midvulture and bulbosity of the nasal tip. She also has a slight prominence of the infratip lobe. Examination of the lateral view shows relatively good tip projection, with some deficiency in the chin projection. The patient has a modest dorsal hump and a slightly long nose. Much of what I would do for her would depend on her stature. If she is short, then I would shorten her nose and rotate the nasal tip. If she is tall, then I would leave her nose a little more projected.

**Dr. Guyuron**: Let’s assume that this patient is 5 feet 4 inches tall. What
would be your management approach?

**Dr. Toriumi:** If she were 5 feet 4 inches tall, then I would make conservative changes to her nose. I would consider doing this through an endonasal approach—again, depending on the extent of changes she desires. One could deliver the cartilages, perform a conservative dorsal hump reduction, and use a transdomal suture to approximate her domes more closely and narrow the nasal tip area. In addition, one could shorten this patient's nose by reducing the caudal septum primarily in the anterior septal angle region. This would not only help shorten her nose but also increase tip rotation. It would also give her upper lip a slightly longer appearance and decrease the fullness of the lobule.

**Dr. Guyuron:** What would be the shape of your excision segment from the cartilaginous and membranous septums?

**Dr. Toriumi:** It would be a superiorly based triangle, so there would be a larger amount of cartilage excised near the anterior septal angle and a smaller amount excised near the posterior septal angle or nasal spine. With this approach I could increase the tip rotation and decrease some of the lobule fullness that we see on the frontal view.

**Dr. Guyuron:** Dr. Gruber, how would you improve this patient's nose?

**Dr. Gruber:** My treatment protocol for this patient would be relatively straightforward; her nose needs to be shortened and that would lengthen her upper lip. In her particular case, however, I would keep in mind the location of the root of the nose and place the nasion right at the pupil. Placing it lower than usual would help to shorten her nose.

**Dr. Byrd:** I would suggest a protocol similar to that described by Dr. Gruber. Examination of her nasolabial angle shows that the nose needs some shortening. However, if you try to shorten it through the usual maneuvers, it might introduce a distortion such as an overrotation or other problems. One could also lower the radix breakpoint and create the illusion of shortening. I would do precisely what Dr. Gruber described, which is bring the nasion down to about the supratarsal fold. This patient's deficient upper lip bothers me almost as much as her long nose. The upper lip is rolled up and short, which accentuates her problem. I believe that she would be very pleased if one could augment her vermillion and lengthen her upper lip.

**Dr. Toriumi:** Such distortion would be unlikely as long as any prominence of the medial crura and intermediate crura was corrected. If we performed an external rhinoplasty on this patient and raised the skin flap, we probably would see a prominent intermediate or middle crural segment, which is creating fullness in the lobule. That fullness could be corrected by trimming the caudal margin of the medial crura, middle crura, and caudal septum. We wouldn't be removing a tremendous amount of caudal septum but rather a small amount just to facilitate...
rotation and correction of the excessive columellar show. I believe that if one moves the columella up, it may cause a slight flaring of the nostrils but little, if any, distortion.

If you trim the caudal septum, the medial and middle crura are going to set back closer to this patient’s face. This maneuver will, in essence, decrease tip projection, which will produce some increased length to the upper lip and a little better shape to the nasolabial angle region. To account for this loss of tip projection, I would insert a transdomal suture to increase projection of the domes and rotate the nasal tip.

**Dr. Gruber:** I don’t know of any better way to shorten the nose, move the ala up, and lengthen the lip other than to mobilize the soft tissue, shorten the septum, and do all of the other things that we’ve described. I don’t recall encountering any significant disparity between the alar and the rest of the nose as a result of shortening it—at least not with a nose of this length. The degree of lip lengthening that can be achieved is limited, however, because no real lip exists there, and we’re expecting some of the columella to become lip.