**Functional and Aesthetic Concerns of Patients Seeking Revision Rhinoplasty**

Kathy Yu, MD; Alyn Kim, MD; Steven J. Pearlman, MD

**Objectives:** To assess the subjective aesthetic and functional concerns of patients seeking revision rhinoplasty and to compare them with objective deformities found on evaluation by the surgeon.

**Methods:** This prospective study used a questionnaire to systematically target the aesthetic and functional concerns of 104 consecutive patients seeking revision rhinoplasty. Analysis of the subjective data revealed the frequency of each concern, which was then compared with objective deformities found on evaluation by the surgeon.

**Results:** The most common patient and surgeon aesthetic concerns were (1) tip asymmetry, (2) crooked middle third of the nose, and (3) upper third irregularity. A mean of 79% of patient concerns were also reported by the surgeon. Of the 64 patients describing subjective nasal obstruction, 60 (94%) had objective physical findings related to obstruction. The 3 most troublesome patient concerns were (1) tip asymmetry, (2) difficulty breathing or nasal blockage, and (3) crooked middle third of the nose.

**Conclusions:** Tip asymmetry was the most common deformity noted. Symptomatic nasal obstruction was the second most frequent reason for seeking revision rhinoplasty. Differences in patient and surgeon findings were largely due to differences in assessment skills and should be addressed by thorough explanation of nasal aesthetics.


Patients seeking revision rhinoplasty have numerous functional and cosmetic concerns. Revision rhinoplasty has been studied in several articles that report an incidence of 5% to 15%. However, most of these studies considered only the perspective of the evaluating surgeon and not the patient’s concerns. The goal of this article is to systematically present the most common reasons why patients seek revision rhinoplasty. Although objective quantitative measures and expert technique are important to the outcome, the subjective qualitative evaluation by the patient ultimately determines patient satisfaction and a successful outcome in aesthetic facial plastic surgery. To optimize patient satisfaction from revision rhinoplasty, the surgeon must be keenly aware of the functional and cosmetic deficiencies that the patient considers most problematic.

Multiple studies identify and evaluate objective “deformities” from the perspective of the surgeon and subsequently discuss revision techniques specific to the recognized deformity. These articles delineate the most common aesthetic abnormalities in multiply revised noses to be pollybeak, depressed tip, tip contour irregularity/asymmetry, tip bosses, overrotated tip, acute nasolabial angle, dorsal irregularity, dorsal saddle, open roof deformity, crooked nose, midnasal asymmetry, residual hump, retracted ala, retracted columella, hanging columella, wide base, and implant adjustment (Table 1). Although these analyses are important, they are all retrospective, objective in nature, and reported from the surgeon’s viewpoint. Thus, these studies may not reflect the patient’s primary reasons for pursuing revision rhinoplasty.

Other authors have researched the subjective concerns of patients after revision rhinoplasty using popularized outcome tools. Guyuron and Bokhari assessed general patient satisfaction after revision rhinoplasty using global assessment of 3 broad categories: satisfaction, breathing, and appearance. Most et al and Alsarraf designed the Rhinoplasty Outcomes Evaluation, a validated 6-question graded instrument that taps into the physical, mental, emotional, and social domains of pa-
patients after rhinoplasty surgery. Although this outcomes tool was initially widely used for primary rhinoplasties, Hellings and Nolst Trenité\textsuperscript{10} used the Rhinoplasty Outcomes Evaluation to evaluate long-term patient satisfaction after revision rhinoplasty. In patients with multiple revisions, they believed that these outcome factors provided the basis that motivates the patient to pursue his or her next surgery.

One factor that we expect to affect patients seeking revision rhinoplasty is nasal obstruction. Nasal obstruction occurs in 59% to 68% of patients after rhinoplasty and may become quite problematic.\textsuperscript{1,5} Previous researchers have found that nasal obstruction is most commonly caused by residual septal deviation, with the most symptomatic type involving the dorsal cartilaginous septum in the internal nasal valve region. The second most common cause of obstruction is nasal valve problems from either valve collapse or adhesions.\textsuperscript{5} Previous rhinoplasty, especially reduction rhinoplasty, is the most common cause of nasal valve obstruction\textsuperscript{7} and likely has a significant role in leading patients to pursue revision rhinoplasty.

The harmonious balance of patient input and surgeon insight provides a united surgical plan that is vital to attaining favorable postoperative results. The goal of this study is 2-fold: to determine in a systematic manner the most common subjective aesthetic and functional reasons that prompt patients to seek revision rhinoplasty and then to compare these with objective abnormalities found on preoperative examination by the surgeon.

**METHODS**

This study was compliant with all rules and regulations of the Institutional Review Board of St Luke’s Roosevelt Hospital, New York, New York. We performed a prospective review of all the patients seen in consultation for revision rhinoplasty by one of us (S.J.P.) between January 1, 2008, and June 30, 2009. After giving verbal consent for participation, 104 patients completed a detailed, multifaceted questionnaire targeting the aesthetic and functional concerns relevant to the typical patient seeking revision rhinoplasty (Figure). Most of the criteria for a valid questionnaire were established (see the “Comment” subsection). Patients ranked their top 3 reasons for seeking revision rhinoplasty and indicated reasons for not returning to their original surgeon.

The most frequently cited reasons for seeking revision rhinoplasty (aesthetic and functional combined) were calculated. We then turned our attention to aesthetic concerns. Subjective patient aesthetic concerns and objective aesthetic abnormalities noted on physical examination were systematically recorded. Findings were tabulated according to the following subdivisions of the nose: upper third (bony), middle third, lower third (tip), nostrils, and columella. For each subdivision, choices for patient findings included too high, too low, too wide, too narrow, too prominent, underprojected, crooked, irregular/asymmetrical, too long, too short, and poorly defined. Of note, an inverted-V deformity was recorded as the middle third being too narrow. An overprojected tip was recorded as the tip being too prominent. An increased nasolabial angle was recorded as the tip being too high, and a decreased nasolabial angle as too low. A retracted ala was interpreted as the nostrils being too high. Excess columellar show indicated that the columella was too prominent. A long or wide columella–infracanthal lobule indicated that the columella was too long or too wide, respectively.

The 3 most common patient aesthetic concerns were noted. This process was repeated for the surgeon’s findings. Means and standard deviations were calculated for all anatomical sub-sites. The differences in frequency of patient vs surgeon concerns were then compared for significance by calculating a $P$ value for each sub-site using a 2-tailed test.

Patient and surgeon findings were then compared. The frequency of patient and surgeon agreement by anatomical sub-site was arranged in a table labeled as concomitant patient and surgeon findings. Patient aesthetic concerns that were unaddressed by the surgeon were arranged in a similar manner. The percentage of patient concerns addressed by the surgeon was calculated for each individual by dividing the total number of individual patient findings that were also concomitant surgeon findings by the total number of individual patient findings and then multiplying by 100. In addition, the percentage of surgeon findings noted by the patient was calculated for each individual patient by dividing the total number of individual patient findings that were also concomitant surgeon findings by the total number of surgeon findings per individual patient and multiplying by 100. Both of these values were averaged for all the patients in the study.

We then turned our attention to patients who noted subjective nasal obstruction. Their specific concerns were (1) sensation of nose blockage, (2) mouth breathing, (3) snoring, (4) blockage with exercise, (5) dependence on nasal spray use, and (6) the need to “pull the cheek out” to breathe. Objective intranasal findings conducive to nasal obstruction included (1)
Revision Rhinoplasty Questionnaire

In order to help us achieve the nose you find most pleasing, please take a few moments to circle all of the following options that apply.

Aesthetic Concerns (Nasal Appearance):

1. Upper portion of nose:
   a. Too high (hump/bump)
   b. Too low (‘caved-in’ appearance)
   c. Too wide
   d. Too narrow
   e. Crooked
   f. Irregular (not smooth)
   g. Other
2. Middle portion of nose:
   a. Too high
   b. Too low
   c. Too wide
   d. Too narrow
   e. Crooked
   f. Irregular (not smooth)
   g. Other
3. Tip of nose:
   a. Too wide
   b. Too narrow/pinched
   c. Too high (points upward)
   d. Droopy (points downward)
   e. Too prominent (sticks out too far)
   f. Asymmetrical
   g. Poorly defined
   h. Other
4. Other:
   a. Nostrils too wide
   b. Nostrils too narrow
   c. Columella (soft tissue portion between nostrils) too long
   d. Columella too short
   e. Other

Functional Concerns (Breathing Issues):

5. If your first surgery was for breathing problems, is it now:
   a. Better
   b. Worse
   c. The same
6. If your breathing was normal before the first surgery, is it now:
   a. Better
   b. Worse
   c. The same
7. Do you have any of the following symptoms?
   a. Nose blocked
   b. Mouth breathing
   c. Snoring/sleeping issues
   d. Blocked only with exercise
   e. Dependence on nasal sprays (over the counter or prescription)
   f. “I need to pull my cheek out to breathe”
   g. Other
8. How many previous nasal operations have you had?
   a. 1
   b. 2
   c. 3 or more

From the previous choices, please select 3 concerns that contribute most to your decision to pursue a revision rhinoplasty. Please indicate which choices above are of most concern (eg, 2b).

1. __________________________________________________________
2. __________________________________________________________
3. __________________________________________________________

☐ Dr. Pearlman did my original surgery.
☐ Someone else did my primary rhinoplasty.

If so, why didn’t you return to the original surgeon?
1. Surgery was too long ago.
2. The doctor is no longer in practice.
3. I moved from another state/region.
4. I felt that since surgery wasn’t successful, I would not go back.
5. My doctor was not receptive to my concerns with my nose.
6. Other

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In addition, most of the patients objectively found to have a crooked middle third (72%) agreed with this finding when assessing their own features.

Upper third irregularity was the third most common aesthetic concern among patients seeking revision rhinoplasty (36%) and the second most common surgeon finding (48%). In the 37 patients with subjective concerns of upper nasal irregularity, the surgeon identified the same finding in 29 (78%). In addition, most of the patients objectively found by the surgeon to have an upper third irregularity (74%) agreed with this finding when assessing their own features. The most common patient aesthetic concerns that were not validated by surgeon examination were (1) wide middle third and (2) poorly defined tip (Table 3).

Table 3. Frequency of Patient and Surgeon Aesthetic Concerns in 104 Patients by Nasal Anatomical Site

<table>
<thead>
<tr>
<th>Concern</th>
<th>Upper Third</th>
<th>Middle Third</th>
<th>Tip</th>
<th>Nostrils</th>
<th>Columella</th>
<th>Length of Nose</th>
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</tbody>
</table>

Abbreviation: NA, not applicable.
a The most frequent patient findings.
b Surgeon findings not directly addressed in the patient questionnaire.

Table 4. Frequency of Concomitant Patient and Surgeon Findings in 104 Patients by Nasal Anatomical Site

<table>
<thead>
<tr>
<th>Finding</th>
<th>Upper Third</th>
<th>Middle Third</th>
<th>Tip</th>
<th>Nostrils</th>
<th>Columella</th>
<th>Length of Nose</th>
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<td>19</td>
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<tr>
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<td>Too prominent</td>
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<td>NA</td>
<td>18</td>
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<tr>
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<tr>
<td>Crooked</td>
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<td>32a</td>
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<td>58a</td>
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<td>NA</td>
<td>NA</td>
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</table>

Abbreviation: NA, not applicable.
a The most frequent concomitant findings.

In addition, most of the patients objectively found to have a crooked middle third (72%) agreed with this finding when assessing their own features.

Upper third irregularity was the third most common aesthetic concern among patients seeking revision rhinoplasty (36%) and the second most common surgeon finding (48%). In the 37 patients with subjective concerns of upper nasal irregularity, the surgeon identified the same finding in 29 (78%). In addition, most of the patients objectively found by the surgeon to have an upper third irregularity (74%) agreed with this finding when assessing their own features. The most common patient aesthetic concerns that were not validated by surgeon examination were (1) wide middle third and (2) poorly defined tip (Table 3).

FUNCTIONAL CONCERNS

Sixty-four of the 104 patients (62%) experienced subjective concerns of nasal obstruction: nose blocked in 38, mouth breathing in 27, snoring/sleeping problems in 24, blockage with exercise in 3, nasal spray use in 12, the need to pull the cheek out to breathe in 5, and other (crusting) in 1. Sixty of these 64 patients with subjective nasal obstruction (94%) also had concurrent objective intranasal findings noted by the surgeon. Seventy-four of the 104 patients (71%) had objective intranasal findings conducive to nasal obstruction: septum deviation in 39, internal valve collapse in 20, external valve collapse in 2, large turbinates in 11, septal perforation in 10, synchiae in 8, and spurs in 2. Sixty of these 74 patients with
Distortion of the nasal anatomy, especially after multiple revision rhinoplasties, continues to provide a challenge even for the experienced surgeon. In addition, patients undergoing revision rhinoplasty experience psychological implications of previously failed rhinoplasties, making satisfaction with postoperative results even less likely. To optimize patient satisfaction from revision rhinoplasty, the surgeon must be keenly aware of the functional and aesthetic deficiencies that the patient considers most problematic.

When surveyed regarding their overall most troublesome concerns and top reasons for seeking revision rhinoplasty, patients reported aesthetic and functional concerns. The most frequently cited reason for seeking revision rhinoplasty and the most frequent aesthetic finding by patients and the surgeon was tip asymmetry. The second most troublesome concern was difficulty breathing or nasal blockage. More than half of all patients reported functional concerns, which proved to be a major factor in pursuing revision rhinoplasty. The third most frequently cited reason for seeking revision rhinoplasty was a crooked middle third.

In terms of aesthetics, tip asymmetry was the most frequent patient aesthetic concern and the most common surgeon aesthetic finding. This could be owing to a variety of causes leading to uneven width or length of the lower lateral cartilaginous framework from previous surgery, or it could be due to asymmetrical scarring from the skin soft-lateral cartilaginous framework from previous surgery, or of causes leading to uneven width or length of the lower lateral cartilaginous framework from previous surgery, or it could be due to asymmetrical scarring from the skin soft-lateral cartilaginous framework from previous surgery, or of causes leading to uneven width or length of the lower lateral cartilaginous framework from previous surgery, or it could be due to asymmetrical scarring from the skin soft-

The most commonly cited reasons for not returning to the original surgeon were that (1) the surgery was not successful (n=59) and (2) the physician was not receptive to the patient’s concerns (n=24). Other reasons were that the physician was no longer in practice (n=14), the surgery was too long ago (n=11), the patient had moved from another region (n=10), and other (n=6).

In terms of aesthetics, tip asymmetry was the most frequent patient aesthetic concern and the most common surgeon aesthetic finding. This could be owing to a variety of causes leading to uneven width or length of the lower lateral cartilaginous framework from previous surgery, or it could be due to asymmetrical scarring from the skin soft-

The second and third most common patient aesthetic concerns were a crooked middle third and upper third irregularity. Patients who have undergone rhinoplasty frequently present with an asymmetrical or crooked middle nasal vault, which can distort the harmonious balance of the face and would be a reasonable cause for concern. However, not all patients with these findings reported them as being problematic. Many patients with a crooked middle third or upper third irregularity misreported these concerns as a widened middle or upper third. In addition, in patients with objective findings of upper third irregularity, it went unnoticed by 25% of the patients. This could be owing to the addition of tactile to visual input that the surgeon consistently uses while examining the patient during preoperative consultation, which increases the likelihood of detecting irregularity.

CONCERNS NOT REPORTED BY THE SURGEON

From this study, it is evident that the surgeon addressed most (79%) of the patients’ aesthetic concerns. The discrepancy between patient concerns and surgeon findings arose for a variety of reasons. One of the main reasons is the surgeon’s use of a conventional set of anatomical boundaries, specifically regarding the upper vs middle third of the nose. Patients often do not have intricate knowledge of nasal anatomy to properly distinguish between nasal thirds.

The most common concern of the patient that was unaddressed by the surgeon was a widened middle third (Table 5). Only 32% of the patients who noted a wide middle third were validated by surgeon agreement. Many of the patients who noted a wide upper or middle third were found to have not a wide but rather a crooked or asymmetrical nasal vault. Asymmetry can create the illusion of a widened nasal vault, a finding that is better discerned by the surgeon’s skilled visual inspection and palpation. This discrepancy may also arise from the surgeon’s cautionary recognition that overresection of the cartilaginous dorsum or upper lateral cartilages in an at-

Table 5. Frequency of Patient Concerns Not Reported by the Surgeon by Nasal Anatomical Site

<table>
<thead>
<tr>
<th>Concern</th>
<th>Upper Third</th>
<th>Middle Third</th>
<th>Tip</th>
<th>Nostrils</th>
<th>Columella</th>
<th>Length of Nose</th>
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Abbreviation: NA, not applicable.

a Statistically significant.
tempt to narrow the middle third may result in an inverted-V deformity.

Poor tip definition was the second most common concern that was unaddressed by the surgeon. Only 58% of the patients who noted poor tip definition were validated by surgeon agreement. A wide nasal tip, on the other hand, was a common finding during the surgeon’s evaluation of patients seeking revision rhinoplasty. What patients perceive as “poor tip definition” was actually “excessive tip width” secondary to lack of lower lateral cartilage integrity causing splay and poor definition. In fact, 43% of patients with subjective concern of poor tip definition were found by the surgeon to have a wide nasal tip. In addition, tip asymmetry was often perceived by the patient as poor definition. Twenty-three percent of patients with a concern about a poorly defined tip had deep alar creases, that created a pinched appearance and the illusion of tip width. Tortun12 describes patients with deep alar creases noting a poorly defined or bulbous tip when, in fact, the tip is narrow. We conclude that these differences in patient perception and physician report result not from a lack of acknowledgment of the patient’s concern but from a fundamental difference in evaluation of aesthetics of the tip. This also adds emphasis to the importance of the surgeon’s explanation of perceptual differences when evaluating patients for rhinoplasty.

Another common concern that was not completely validated by the surgeon was that of a low middle third, which gives the patient a “caved-in appearance.” These patients often had a prominent tip, creating the illusion of a low dorsum. In addition, the patient’s definition of upper vs middle third often differed from the surgeon’s definition of these locations. Again, this may be secondary to the surgeon’s more objective boundaries of upper vs middle third of the nose.

In addition to recognition of most of the patients’ concerns, the surgeon also noted significantly more areas that could benefit from improvement than the patient did. Patients noted only 55% of the surgeon’s findings to be of concern. This is consistent with the finding by Tobin and Webster12 that patients are often less critical of postoperative appearance than are surgeons. Their study demonstrated that surgeons are more critical of their own work, followed by the work of other surgeons. The lower percentage of surgeon findings noted by the patients in the present study may also be owing to the more comprehensive review of nasal anatomy by the trained eye of the surgeon, who follows a systematic method of evaluating the nose against a classical standard. Patients, on the other hand, may have more subjective and varied opinions on their ideal appearance. What is noted to be an abnormality by the surgeon may not be a concern of the patient simply because it is not perceived by the patient as a problem. This was the case for the findings of upper nasal irregularity, narrow middle third, wide tip, narrow tip, tip asymmetry, and columellar show.

The reason most frequently cited by patients for not returning to their original surgeon was that “because the surgery was not successful, I would not go back.” This finding suggests that patients’ assessment of the technical ability of their surgeon is a common reason for seeking a new physician. This was an expected finding. The second most common reason was that “the original surgeon was not receptive to the concerns” of the patient. This finding suggests that many patients addressed their concerns with the primary surgeon and felt that their needs were not acknowledged. This was unexpected, however, given that surgeons tend to be more critical of their results than are their patients.12 It is possible that (1) the surgeon recognized the patient’s concerns but did not feel comfortable operating on the patient again, (2) patients could not express their dissatisfaction thoroughly because of difficulty discerning the concerning aspects of nasal anatomy, or (3) the surgeon is not listening appropriately. This finding should drive us to further improve patient satisfaction with rhinoplasty.

FUNCTIONAL CONCERNS

Subjective nasal obstruction was experienced by more than half of the patients (62%) seeking revision rhinoplasty. This is consistent with previous data provided by Foda5 and Thomson and Mendelsohn1 that 59% to 68% of patients persistently note nasal obstruction after primary rhinoplasty. From the present results, the top 3 patient concerns in order of frequency were (1) sensation of nasal blockage, (2) mouth breathing, and (3) snoring. We found a strong correlation (94%) between patients undergoing revision rhinoplasty with subjective nasal obstruction and the presence of 1 or more objective intranasal findings on physician examination contributory to nasal obstruction. Difficulty breathing and nasal obstruction were the second most frequent reasons for seeking revision rhinoplasty. Functional concerns remain a significant factor in patient satisfaction and should be adequately addressed with thorough intranasal evaluation.

On intranasal examination, the most common cause of nasal obstruction in patients undergoing revision rhinoplasty was a persistently deviated septum, which was most likely due to incomplete or lack of treatment for a deviated septum during the original rhinoplasty. The second and third most common physical examination findings leading to persistent nasal obstruction were external and internal nasal valve collapse. The causes of postoperative valve collapse are numerous and beyond the scope of this article. This is consistent with the findings of Foda,3 who on intranasal examination of patients, noted nasal obstruction after primary rhinoplasty. The most common finding by Foda was residual septal deviation, with the most symptomatic type involving the dorsal cartilaginous septum in the internal nasal valve region. The second most common finding was nasal valve problems from either valve collapse or adhesions. These data highlight the importance of considering functional changes when addressing patients for revision rhinoplasty.

SURVEY VALIDITY

A valid survey is acceptable to the study population, easily completed, accurate, valuable when completed, sensitive to change, and reproducible.13,14 Acceptability and ease of completion of the survey were demonstrated by the 100% completion rate. Accuracy was demonstrated by the high percentage of patient concerns that were also
inherent value in evaluating a patient for revision rhinoplasty because the survey highlights the patient's main concerns. Sensitivity to change was less relevant because this survey sought to identify patients' reasons for seeking revision rhinoplasty and not to assess quality of life before and after a procedure. Based on these criteria, the questionnaire used in this study meets most of the criteria for a valid survey. Reproducibility was not tested but remains a potential area of further research.

In conclusion, tip asymmetry is the most common reason for seeking revision rhinoplasty. It is also the most frequent aesthetic deformity noted subjectively by the patient and objectively by the surgeon. Crooked middle third and upper third irregularity were other common deformities noted by the patient and surgeon. Discrepancies between patient concerns and physician observations were largely owing to differences in subjective perception by the patient vs skilled, objective visual and tactile evaluation by the surgeon. Overall, there were more objective surgeon findings than subjective patient concerns. More than half of the patients undergoing revision rhinoplasty have symptoms of nasal obstruction, the second most frequently cited reason for seeking revision rhinoplasty. Almost all of these patients had intranasal findings of obstruction. In conclusion, this study sheds light on the major concerns of patients seeking revision rhinoplasty and compares them with the surgeon's objective findings. These findings emphasize the importance of physician awareness of patients' concerns, understanding the causes of postsurgical nasal obstruction, and clearly explaining nasal aesthetics to patients seeking revision rhinoplasty.

Accepted for Publication: November 13, 2010.

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Author Contributions: Dr Pearlman had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Study concept and design: Yu and Pearlman. Acquisition of data: Yu, Kim, and Pearlman. Analysis and interpretation of data: Yu, Kim, and Pearlman. Drafting of the manuscript: Yu, Kim, and Pearlman. Critical revision of the manuscript for important intellectual content: Yu, Kim, and Pearlman. Statistical analysis: Kim. Administrative, technical, and material support: Pearlman. Study supervision: Pearlman.

Financial Disclosure: None reported.

Previous Presentation: This study was presented at the Fall Meeting of the American Academy of Facial Plastic and Reconstructive Surgery; October 1, 2009; San Diego, California; and is published after peer review and revision.

REFERENCES