Patient Complaints With Primary Versus Revision Rhinoplasty: Analysis and Practice Implications

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Abstract

Background: Rhinoplasty patients often present with specific concerns and are frequently exacting in their demands and expectations of the surgical experience.

Objectives: The authors assess the presenting complaints expressed during the rhinoplasty consultation process and compare the presentations of primary versus revision rhinoplasty patients.

Methods: A retrospective review of 400 consecutive rhinoplasty patients was performed. Demographic information and patient concerns regarding nasal appearance and function were recorded. Complaint frequencies (as well as rank order) were compared between primary and revision patients. Statistically significant associations were compared in more detail through logistic regression models.

Results: Primary rhinoplasty patients were significantly more likely to cite “too large” and “dorsal hump” as motivating concerns. Conversely, revision rhinoplasty patients were far more likely to cite concern regarding a “crooked nose,” “tip asymmetry,” “wide or large nostrils,” “dorsal sloop,” and “columellar show.” Revision rhinoplasty patients also complained of issues such as “alar retraction,” “pointy tip,” and “nasal scarring,” which were almost negligible in frequency in the primary rhinoplasty group.

Conclusions: Patients presenting for primary rhinoplasty commonly seek a smaller, more refined nasal appearance. Patients with prior rhinoplasty operations are far more likely to raise concern regarding crookedness or asymmetries. By comparing the presentations of primary and revision rhinoplasty patients—and delineating the common indications for revision operations—novice rhinoplasty surgeons may be able to avoid certain pitfalls at the outset, thereby reducing their revision rates. The data may also assist surgeons in developing a more targeted approach to the consultation process in the revision setting.

Keywords

rhinoplasty, primary surgery, revision surgery, patient satisfaction

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The current climate of aesthetic surgery is characterized by a plethora of practitioners; patients in the market for a cosmetic surgeon are fortunate to have an abundance of options available to them. Perhaps as a result of this competitive marketplace, our patient population is becoming increasingly informed and discerning. Rhinoplasty patients in particular are able to articulate specific concerns and are often exacting in their demands and expectations. These increased demands not only relate to the technical ability of the surgeon but extend to the entire surgical experience.

The importance of understanding patient concerns regarding nasal appearance is essential to developing a technical plan, cultivating a trusting surgeon-patient relationship, and ultimately generating a positive outcome. Rhinoplasty, more than any other cosmetic facial procedure, involves complex patient psychology. Many patients...
have always been dissatisfied with some aspect of their nasal form, a situation which differs substantially from consultations with patients presenting with signs of facial aging, wherein they are generally seeking rejuvenating procedures to restore previously satisfactory appearances.

Patients seeking primary rhinoplasty are motivated by psychological undercurrents that mold their perception of their nasal appearance as well as influence their goals and expectations from surgery. This psychology becomes paramount in revision rhinoplasty patients, as they are dissatisfied by what they perceive to be a complicated or less-than-satisfactory surgical result. It is imperative for the rhinoplasty surgeon to empathize with and understand the concerns of these patients to foster a healthy relationship with them, as well as gauge whether patient motivations and expectations are reasonable and realistic.

Our study is novel in its approach to understanding these patients insofar as it explores the presenting complaints expressed during the rhinoplasty consultation process. The existing body of rhinoplasty literature is heavily populated with studies relating to methodology and outcomes, yet it is sparse in information about the concerns that are motivating rhinoplasty patients to seek operative intervention in the first place. Our ability to capitalize on our large rhinoplasty patient population enables useful comparisons to be made between primary and revision patients, yielding meaningful information for the astute surgeon intent on achieving a more complete understanding of his or her patients. Furthermore, through our comparison of the presentations of primary and revision rhinoplasty patients (and description of the common indications for revision operations), novice rhinoplasty surgeons may be better able to avoid certain pitfalls at the outset, thereby reducing their revision rates. They may also be able to develop a more targeted approach to the consultation process in the revision setting.

METHODS

A retrospective chart review was performed of 400 consecutive rhinoplasty patients who presented to the senior author’s (PAA) practice from 2000 to 2009. This population consisted of 308 primary and 92 revision rhinoplasty patients. The author’s private facial plastic surgery practice focuses on rhinoplasty and is recognized as a major center for revision rhinoplasty referral. Data collection included patient demographics and patient concerns regarding nasal appearance and function; the relative importance of each complaint (as indicated by the patient) was also recorded.

SAS statistical software (version 8.1, SAS, Inc., Cary, North Carolina) was used to compare complaint frequencies as well as rank order between primary andrevision rhinoplasty patients. Chi-square and Fisher exact tests were applied to compare all frequencies between the two groups. Statistically significant associations were compared in detail through logistic regression models with treatment (primary and revision) and patient age incorporated as predictors.

RESULTS

Among the 400 total patients included in the study were 308 primary (77%) and 92 revision (23%) rhinoplasty patients. Revision patients were slightly older than primary patients (35.5 vs 31.3 years, \(P = .003\)). Of the total population of patients, 77% were female, with no difference between the primary or revision rhinoplasty subgroups \((P = .87)\). The mean number of prior operations among the 92 revision rhinoplasty patients was two, ranging from one to five (Figure 1). Of the 400 patients, 336 (84%) were Caucasian, 19 (4.75%) Indian, 18 (4.5%) Hispanic, 15 (3.75%) Middle Eastern, eight (2%) African-American, and six (1.5%) Asian.

The most common concerns voiced by patients requesting rhinoplasty surgery were similar among the primary and revision patients (Table 1). Primary rhinoplasty patients most commonly cited “dorsal hump” as one of their concerns (50%), followed by “too large” (44%), “bulbous tip” (41%), and “nasal airway obstruction” (33%). Revision rhinoplasty patients most commonly cited “crooked nose” as their primary concern (38%), followed by “nasal airway obstruction” (36%), “bulbous tip” (33%), and “too large” (25%). Though the most common reasons for rhinoplasty were similar between groups, the frequencies of several complaints differed substantially (Table 2). In general, primary rhinoplasty patients were significantly more likely to cite “too large” (44% vs 25%, \(P = .001\)) and “dorsal hump” (50% vs 17%, \(P < .0001\)) as motivating concerns prompting rhinoplasty surgery (Figure 2). Conversely, revision rhinoplasty patients were far more likely to cite concern regarding a “crooked nose” (38% vs 22%, \(P = .001\)), “tip asymmetry” (22% vs 6%, \(P = .0001\)), “wide or large nostrils” (19% vs 7%, \(P = .001\)), “dorsal sloop” (11% vs 3%, \(P = .003\)), and “columellar show” (11% vs 3%, \(P = .003\)). Revision rhinoplasty patients also complained of issues such as “alar retraction,” “pointy tip,” and “nasal scarring,” which were almost negligible in frequency in the primary rhinoplasty group (Figure 2).

Logistic regression analysis was used to examine differences in the frequencies of the following complaints in greater detail: “dorsal hump,” “too large,” “crooked nose,” “wide/large nostrils,” and “tip asymmetry” (Table 3). Age was also included in the models as a predictor variable to control for variation attributable to this source, but it was not found to be a statistically significant predictor. Odds ratios (OR) and 95% confidence intervals (95% CI) were calculated only for statistically significant predictor variables. Compared to revision rhinoplasty patients, primary patients were four times more likely to cite “dorsal hump” \((OR = 4.3, 95\% CI = 2.4-7.8, P < .0001)\) and more than twice as likely to cite “too large” \((OR = 2.6, 95\% CI = 1.5-4.5, P = .0004)\) as presenting complaints for requesting rhinoplasty. However, primary rhinoplasty patients were much less likely than revision patients to cite “crooked nose” \((OR = 0.43, 95\% CI = 0.26-0.71, P = .001)\), “wide/large nostrils” \((OR = 0.33, 95\% CI = 0.16-0.67, P = .002)\), or “tip asymmetry” \((OR = 0.23, 95\% CI = 0.12-0.47, P < .0001)\).
Chauhan et al

DISCUSSION

Among the 400 consecutive rhinoplasty operations in this series, nearly one in four were revision procedures (23%). This figure is somewhat higher than the often-cited range of 5% to 15%.

This is perhaps attributable to the fact that the senior author’s scope of practice has evolved in this direction, as his center has become recognized for referral of complex revision cases. Efficacious management of the patient dissatisfied with his or her previous rhinoplasty result is contingent not only on operative skill but also heightened sensitivity and conscientiousness during the initial phases of developing the surgeon-patient relationship. Interpreting the underlying psychology and preconceptions of the dissatisfied rhinoplasty patient will aid the clinician in fostering and maintaining this relationship, contributing in a significant manner to a successful outcome.

Half the patients seeking primary rhinoplasty cited “dorsal hump” (50%) as their chief concern. An aesthetically-pleasing dorsal nasal profile is the quintessence of a successful rhinoplasty operation. A pleasing profile is contingent on a thorough understanding of the underlying anatomy and a meticulous preoperative nasofacial analysis, which includes not only assessment of the presence of a true dorsal hump but also the presence of a pseudohump due to a deep radix or an underprojected tip. Therefore, achieving a good nasal profile depends directly on the anatomy of various nasal parts and indirectly on the interplay of facial parts (eg, the chin). Significant morbidity may occur from dorsal hump reductions performed without...
inherent challenges associated with successful performance more likely to complain of a dorsal sloop, attesting to the experience, revision rhinoplasty patients were significantly relationships of this structure. Possible sequelae of incorrect-performed hump reduction include contour deformities due to uneven resection, excessive or inadequate correction of the osseocartilaginous irregularity, an inverted-V deformity, and/or excessive midvault narrowing. In our experience, revision rhinoplasty patients were significantly more likely to complain of a dorsal sloop, attesting to the inherent challenges associated with successful performance of this maneuver. Thoughtful preoperative planning and intraoperative execution may minimize the risk of such complications, thus reducing the incidence of revision procedures related to these untoward outcomes.

Among primary rhinoplasty patients, “dorsal hump” was followed by “too large” (44%), “bulbous tip” (41%), and “nasal airway obstruction” (33%) as motivating concerns prompting rhinoplasty referral. In general, it appears that patients presenting for primary rhinoplasty are commonly seeking a smaller, more refined nasal appearance. Voiced concerns regarding dorsal humps, overall nasal size, and tip bulbosity imply a sense of facial disharmony and serve as motivation to seek surgical intervention. The complexities of tip refinement surgery continue to be a topic of avid discussion due to the nuances involved in preoperative analysis, intraoperative technique, and often-unpredictable postoperative healing. As in dorsal hump management, effective control of nasal tip contour is integral to the success of the rhinoplasty operation. Though this procedure is often performed with an emphasis on tip narrowing via cartilage resection and suturing techniques, experienced surgeons advocate structural stabilization and grafting to yield more natural contours that are better able to withstand the forces of scar contracture.

Revision rhinoplasty patients most commonly cited “crooked nose” as their primary concern (38%), followed by “nasal airway obstruction” (36%), “bulbous tip” (33%), and “too large” (25%).

As mentioned, the most common reasons for rhinoplasty were similar among primary and revision patients, but the frequencies of several complaints differed substantially between the groups. Patients who had undergone prior rhinoplasty operations were far more likely to raise concern regarding a “crooked nose” as well as “tip asymmetry.” These concerns attest to the technical challenges associated with profile- and tip-altering maneuvers. Successful management of a crooked nasal deformity subsequent to surgery (preexisting or as a complication) is contingent on careful preoperative deformity analysis. Recommended approaches involve addressing the nose in a systematic fashion, with an emphasis on reestablishing structural support and improving appearance while preserving or creating a functional nasal airway. Preoperative analysis is important to diagnose and treat turbinate hypertrophy and septal deviation. Furthermore, care should be taken at the time of the first operation to avoid collapse of the internal and external nasal valves and formation of synechia.

Revision patients from our series were also far more likely to complain of alar retraction, columellar show, and an excessively pointy tip. These concerns highlight the pitfalls of overzealous cartilaginous resection of the lateral crura as well as secondary influences of scar contracture and wound healing, which are often difficult to account for. These unsightly deformities can be technically challenging to repair, and many techniques have been proposed for correction, including lateral crural strut and intercartilaginous grafting as well as local rotation and transposition flaps.

### Table 2. Frequency of All Complaints Cited: Comparison Between Primary and Revision Patients

<table>
<thead>
<tr>
<th>Concern</th>
<th>Primary, n = 308</th>
<th>Revision, n = 92</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tip asymmetry</td>
<td>18 (6)</td>
<td>20 (22)</td>
<td>.0001</td>
</tr>
<tr>
<td>Nose too large</td>
<td>136 (44)</td>
<td>23 (25)</td>
<td>.001</td>
</tr>
<tr>
<td>Crooked nose</td>
<td>66 (22)</td>
<td>35 (38)</td>
<td>.001</td>
</tr>
<tr>
<td>Dorsal sloop</td>
<td>10 (3)</td>
<td>10 (11)</td>
<td>.003</td>
</tr>
<tr>
<td>Dorsal hump</td>
<td>154 (50)</td>
<td>16 (17)</td>
<td>&lt; .0001</td>
</tr>
<tr>
<td>Wide/large nostrils</td>
<td>20 (7)</td>
<td>17 (19)</td>
<td>.001</td>
</tr>
<tr>
<td>Nasal scarring</td>
<td>3 (1)</td>
<td>13 (14)</td>
<td>&lt; .0001</td>
</tr>
<tr>
<td>Pointy tip</td>
<td>1 (0.3)</td>
<td>6 (7)</td>
<td>&lt; .0001</td>
</tr>
<tr>
<td>Columellar show</td>
<td>10 (3)</td>
<td>10 (11)</td>
<td>.003</td>
</tr>
<tr>
<td>Alar retraction</td>
<td>1 (0.3)</td>
<td>4 (4)</td>
<td>.002</td>
</tr>
<tr>
<td>Nasal airway obstruction</td>
<td>100 (33)</td>
<td>33 (38)</td>
<td>.57</td>
</tr>
<tr>
<td>Broad bridge</td>
<td>56 (18)</td>
<td>17 (19)</td>
<td>.96</td>
</tr>
<tr>
<td>Bulbous tip</td>
<td>126 (41)</td>
<td>30 (33)</td>
<td>.14</td>
</tr>
<tr>
<td>Tip droopiness</td>
<td>62 (20)</td>
<td>15 (16)</td>
<td>.40</td>
</tr>
<tr>
<td>Tip depression with smiling</td>
<td>21 (7)</td>
<td>4 (4)</td>
<td>.38</td>
</tr>
<tr>
<td>Wide base</td>
<td>25 (8)</td>
<td>7 (8)</td>
<td>.86</td>
</tr>
<tr>
<td>Asymmetric nostrils</td>
<td>4 (1)</td>
<td>3 (3)</td>
<td>.45</td>
</tr>
<tr>
<td>Narrow/small nostrils</td>
<td>2 (1)</td>
<td>0 (0)</td>
<td>.44</td>
</tr>
<tr>
<td>Overprojected</td>
<td>36 (12)</td>
<td>13 (14)</td>
<td>.54</td>
</tr>
<tr>
<td>High profile</td>
<td>36 (12)</td>
<td>12 (13)</td>
<td>.74</td>
</tr>
<tr>
<td>Bifid columella</td>
<td>4 (1)</td>
<td>0 (0)</td>
<td>.27</td>
</tr>
<tr>
<td>Overrotated</td>
<td>7 (2)</td>
<td>3 (3)</td>
<td>.60</td>
</tr>
</tbody>
</table>

*P* values associated with χ² tests (and Fisher exact tests) comparing frequencies (proportions); the dark line separates statistically-significant differences (above) from nonsignificant differences (below) between the two groups.
Our extensive rhinoplasty experience enables meaningful comparisons to be drawn from our patient population. Few studies in the rhinoplasty literature have sought to identify the actual patient concerns prompting them to seek surgery. Constantian conducted an insightful review of differing characteristics in revision rhinoplasty patients, comparing those who had open versus endonasal approaches for the initial operation. He reported that both groups complained most commonly of low nasal bridges, nasal airway obstruction, “blunted” nasal tips, and nasal asymmetry. In that series, those patients who had prior open rhinoplasty procedures were significantly more likely to complain of an excessively narrow nasal tip, as well as nostril and alar distortion.

Rohrich et al performed an excellent review of all aspects of male rhinoplasty. Though they did not comment on specific presenting concerns, they did indicate that the consultative process can be more complex due to male patients typically having relatively nonspecific complaints, being more demanding patients, and being regarded as much less attentive during consultations. The authors highlighted the importance of paying due attention to the process of informed consent and verifying that these patients have clear and realistic expectations of the operation.

Both Thomson and Hellings have reported individual series citing the incidence of nasal airway obstruction as a leading indication for revision rhinoplasty, prompting assertions that skilled rhinoplasty surgeons should also demonstrate competence in management of the nasal airway. Indeed, in our series, “nasal airway obstruction” was the second-most-frequent concern among patients presenting for revision rhinoplasty, attesting to the importance of comprehensive functional as well as aesthetic management of nasal concerns.
Although complaints differ among racial groups of patients presenting for primary rhinoplasty, these differences are widely accepted and not the focus of this study. When it comes to differences between primary and revision rhinoplasty patients, there will probably still be differences between these groups. However, since the majority of the patients in this study were Caucasian, there were not enough patients in other groups to draw statistically significant conclusions regarding differences among races.

**CONCLUSIONS**

Rhinoplasty remains a complex operation due to the myriad of physical and psychological variables involved. A thorough understanding of patient motivations and expectations are essential to foster a robust therapeutic bond between surgeon and patient and to maximize the likelihood of a successful outcome. Revision rhinoplasty patients represent a unique challenge due to the inherent technical difficulties and complex psychological undertones resulting from their dissatisfied state. Thoughtful consideration of these elements and heightened sensitivity to patient concerns may help surgeons optimize outcomes and potentially reduce the incidence of revision procedures. The underlying technique-dependent reasons for postoperative deformities have yet to be elucidated and are an important future topic of study.

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**REFERENCES**