ORAL PRESENTATION GROUP 1 – PRESENTATION 4

Discovering the True Resolution of Postoperative Swelling after Rhinoplasty Using 3-Dimensional Photographic Assessment

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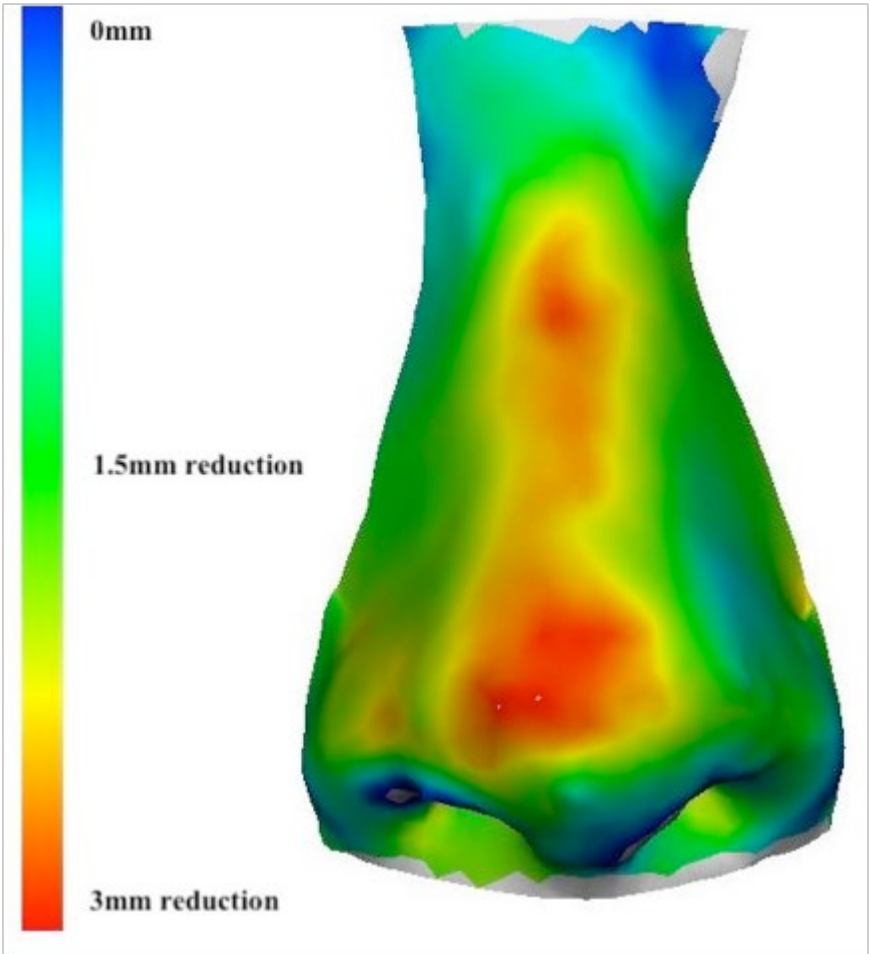
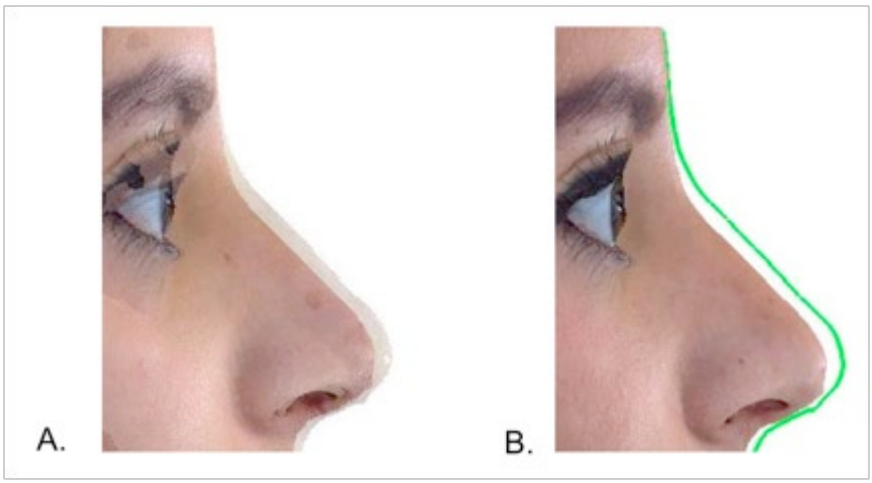
Goals/Purpose: While prolonged nasal edema is a well-known sequela after rhinoplasty, the anticipated time-to-resolution and anatomical distribution of edema remain largely anecdotal. Nasal swelling obscures the delicate contours and definition of the nose, and it is particularly noticeable in the nasal tip. This study aims to quantify the dynamics and anatomic distribution of postoperative edema after rhinoplasty.

Methods/Technique: Patients undergoing primary open rhinoplasty in 2018 were included in this study (n=18). Retrospective analysis of post-operative three-dimensional photographs was performed using Canfield Vectra VAM software. Three-dimensional changes to the nose were analyzed only for patients with 3D pictures at 7 or 14 days post operatively and at least 2 additional pictures at 45, 90, 180, and >250 days post operatively. (**Figure 1**) Three-dimensional metrics including volume, projection, and width were calculated at each interval for the upper nasal two thirds and lower third, defined as nasal tip. The distribution of edema was calculated as the percent of total nasal volume in the upper two thirds versus the lower third (nasal tip). Topographic color maps and mesh overlays were created for each interval to visualize changes to the nasal contour. (**Figure 2**)

Results/Complications: Maximum nasal volume occurs at 7-14 days post-operatively. The mean volume loss from 7 days post operatively to >250 days post-operatively was (2.8+/- .7cc). (**Figure 3**) The distribution of edema changed over time and was consistently greater in the nasal tip than the upper two-thirds. The proportion of overall nasal edema in the nasal tip compared to the upper two-thirds, and this proportion increased progressively over time. The projection of the nasal tip was greatest at 1 week, while the width was minimum at one week. The projection decreased and width increased progressively from 7 to 90 days, with near resolution at >250 days. The width of the nasal dorsum increased in a similar fashion.

Conclusions: Three-dimensional analysis reveals that nasal tip edema is more prominent, and has prolonged time to resolution, compared to the upper two thirds of the nose after rhinoplasty. The relative distribution of edema in the nasal tip increases over time. In this region where definition and delicate contours are obscured by minimal edema, this finding is significant. The behavior of overall nasal edema was comparable to prior published data. This study objectively quantifies the amount and duration of edema in the nasal tip after rhinoplasty that can guide patient and surgeon expectations.

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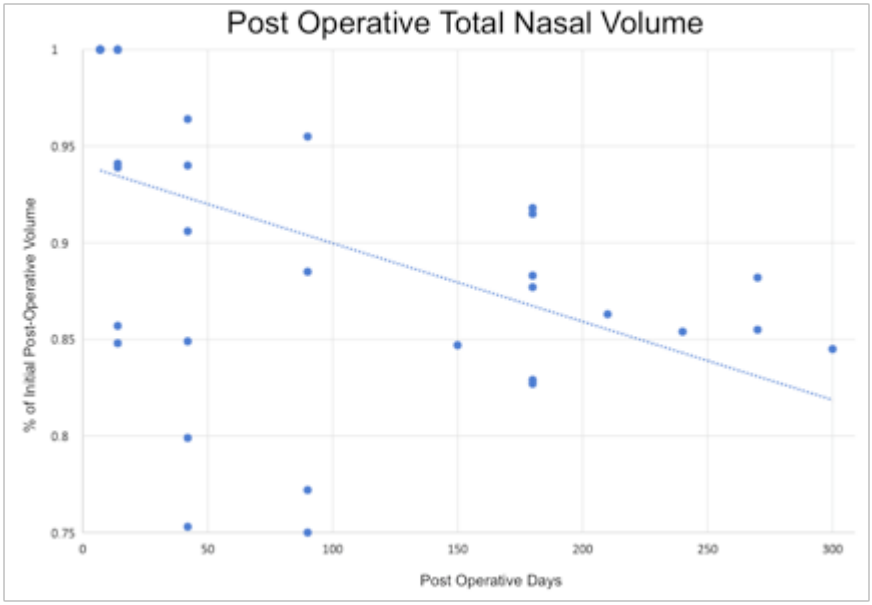
Post Operative Total Nasal Volume
% of Initial Post-Operative Volume
Post Operative Days
1
0.95
0.9
0.85
0.8
0.75
0
50
100
150
200
250
300