for patients who had 3-dimensional pictures at either 7 or 14 days postoperatively and ≥2 additional pictures at the following time points 45, 90, 180, and >250 days postoperatively (N = 18). Three-dimensional metrics including volume, anterior–posterior projection, horizontal width and were calculated at each interval for the upper nasal two thirds and lower third, defined as nasal tip. Edema was defined as the change in nasal volume at postoperative intervals relative to the baseline image. 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 at postoperative intervals.

RESULTS: Maximum nasal volume occurs at 7–14 days postoperatively. The mean volume loss from 7 days postoperatively to >250 days postoperatively was 2.8 ± 0.7 ml. The distribution of edema changed over time, however, and was consistently greater in upper two thirds than the nasal tip. The anterior projection of the nasal tip was greatest at 1 week, whereas the width was minimum at 1 week. The projection decreased and width increased progressively from 7 to 90 days, with near resolution at >250 days.

CONCLUSIONS: Three-dimensional analysis reveals that nasal tip edema greater in the upper two thirds of the nose compared to the tip after rhinoplasty. Interestingly, 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, nasal tip edema is more noticeable but less in overall volume than the upper two thirds. 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. Evidence of persistent nasal tip edema serves as a therapeutic target for improving the patient postoperative course with new technology, including specialized splinting that includes support to the nasal tip as a modification to the traditional nasal splint. Further investigation into methods for improving postoperative nasal tip edema is ongoing.

Role of Tranexamic Acid in Rhinoplasty

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BACKGROUND: Tranexamic acid (TXA) has emerged as a lifesaving antifibrinolytic agent for treating traumatic hemorrhage. Despite its great popularity in other surgical specialties, published reports on TXA use in plastic surgery, especially in esthetic surgery, are limited and an optimal dosing regimen has not been yet described. The aim of this study was to evaluate the efficacy and safety profile of TXA in rhinoplasty.

METHODS: All study patients underwent rhinoplasty by a single surgeon using an intravenous bolus dose of 1 g TXA before skin incision. TXA was also added to local anesthesia (0.5 mg TXA in 5-ml saline 0.9% and 0.5 mg epinephrine in 10-ml lidocaine and 10-ml Marcaine) and injected locally before skin incision. The authors’ TXA administration protocols and techniques in rhinoplasty will be illustrated and described in detail.

RESULTS: Hospital records were reviewed for patient demographics, preoperative and postoperative hemoglobin and hematocrit, operative times, and Visual Analog Scale for pain at discharge. Postoperative periobital ecchymoses and edema and day of return to social activity were also recorded. Neither thrombotic events nor other TXA-related complications were recorded.

CONCLUSIONS: TXAs’ anti-inflammatory properties are cardinal in its role in esthetic surgery, in addition to its antifibrinolytic effects. Intravenous and local administration of TXA has a substantial effect in decreasing pain, periorbital edema, and ecchymosis and achieving a faster return to social activity in rhinoplasty patients. These findings may be enormously beneficial in rhinoplasty where postoperative edema may mask results and influence patient and surgeon perception of surgical outcome for several months after surgery.

Assessing Abdominoplasty Esthetics: Do Plastic Surgery Patients See Things Differently?

Presenter: Dylan Joseph Peterson, BA

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INTRODUCTION: Satisfaction is an important outcome for cosmetic plastic surgery procedures and hinges upon improvement of esthetics. Understanding the salient features that draw focus when assessing esthetics is important for maximizing perceived outcomes. Eye-tracking technology provides an unbiased method for determining the features that draw attention when evaluating esthetic plastic surgery. This study aimed to characterize viewing patterns of plastic surgery patients and laypeople when assessing pre- and post-abdominoplasty images.
METHODS: Twenty women who previously underwent cosmetic procedures and 20 women without a prior history of cosmetic procedures were shown 8 pairs of pre- and post-abdominoplasty images in both AP and lateral views (32 images total). Image pairs were randomized to whether pre- or postprocedural images came first. Participants viewed each image until they decided upon an esthetic rating (scored 1–10), whereas an eye-tracking device (Tobii X2-60, estimated accuracy: 6 mm; Tobii Inc.) recorded participants’ gaze. Groups were compared using 2-tailed, independent t tests.

RESULTS: The average improvement in rating between pre- and postprocedural images was 30.4% higher in the patient group than in the lay group (P < 0.05). The patient group spent 22.6% less time evaluating the images on average (P < 0.05); however, the patient group spent proportionally more time fixated on features of interest (20.4% of their time spent viewing images on average versus 10.0%; P < 0.001). Specifically, the patient group spent proportionally more time fixated on the umbilicus (25.6% versus 11.6%; P < 0.001) and scar line for AP views (13.2% versus 5.1%; P < 0.001) and more time fixated on the abdominal curvature for lateral views (7.6% versus 3.6%; P < 0.001). There was no significant difference between the groups in terms of fixation on the flanks or back curvature. Both groups tended to fixate on the umbilicus first for AP views (63.0% of all samples) and the abdominal curvature for lateral views (35.5% of all samples). Overall, each group had similar viewing patterns in terms of the time it took to first fixate on a particular feature and number of times they fixated on each feature. There was no correlation between the time a participant spent viewing an image and the esthetic rating the participant gave it.

CONCLUSIONS: Eye tracking enables determination of features which draw gaze and attention and may be used to help assess surgical outcomes. With this technology, we found that women who previously underwent cosmetic procedures view postprocedural images more favorably and require less time to assess images. However, these women were more targeted viewers, spending proportionally more time fixated on key features, such as the umbilicus, scar line, and abdominal curvature, than women who have not undergone cosmetic plastic surgery. Finally, the umbilicus was the most heavily fixated upon feature for both groups in our study, suggesting that it strongly draws focus and therefore is a structure surgeons should dedicate increased care and attention on during abdominoplasty procedures.

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**PURPOSE:**

1. Dispelling previous myths that immature scars could not be treated with microneedling.

2. Microneedling scars as early as 6 weeks following wound closure is safe.

3. Microneedling improves scars esthetics. Scar formation involves the remodeling of extracellular matrix proteins.

Wound contraction and hyperproliferation can result in hypertrophic or keloid scars with features linked to poor cosmetic results. Currently early intervention with microneedling in immature scars is not the standard of care and some recommend waiting upward of 1 year before microneedling treatment. Our hypothesis is that mechanical stimulation of the myofibroblasts at the early tissue formation stage can positively influence the extracellular matrix to influence cell activity to produce collagen, matrix metalloproteinases, and cytokines which lead to flat scars with minimal discoloration as a result of small parallel collagen bundles.

METHODS AND MATERIALS: Subjects were enrolled between 6 weeks and 4 months following closure of their wounds. Once enrolled, the patients were treated with 3 microneedling treatments 1 month apart and a final evaluation at 2 months following the last treatment. The treatment areas included facelift, breast mastopexy, and tummy tuck scars. The patients consented to participate in the Institutional Review Board–approved study. Twenty-five patients were enrolled, and data were analyzed using analysis of variance and post hoc testing.

RESULTS: The Vancouver Scar Scale demonstrated a statistically significant improvement when compared from the initial evaluation to the final evaluation at the 2-month follow-up following the 3 treatments (7.00 versus 3.08; P < 0.001). The Patient and Observer Scar Assessment Scale showed statistically significant improvement when initial evaluation was compared to the 2-month follow-up (23.72 versus 11.76; P < 0.001).

CONCLUSIONS: Early microneedling on immature scars is safe and has demonstrated improvement in both Vancouver Scar Scale and Patient and Observer Scar Assessment Scale scores when initial evaluation is compared to 2-month follow-up.

**Microneedling of Immature Scars Is Safe and Improves Scar Esthetics**

**Presenter:** Vinod K. Chopra, MD

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**Lipoabdominoplasty and Oblique Flankplasty: An Alternative to Fleur De Lys Abdominoplasty and Lower Body Lift**