The Rhytidectomy Scar: Analysis of Patient and Surgeon Perspectives

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Abstract

An understanding of patient preference is vital for surgeons to create outcomes that align with the goals of patients undergoing cosmetic surgery. This study analyzes the perception of the rhytidectomy scar from the perspective of cosmetic patients and surgeons. Cross-sectional surveys were administered in-person to cosmetic patients and online to facial plastic and reconstructive surgeons in the United States. Participants were presented with standardized lateral view photographs of preauricular scars for 10 patients at least 12 months post rhytidectomy procedure. A variety of rhytidectomy incisions were chosen to include pre- versus post-tragal incisions, blunted hair tuft, hypopigmentation, narrow versus wide scar healing. Participants were asked to rate the outcome of the preauricular rhytidectomy scar using the Likert scale from 1 to 10. Quantitative analysis indicates that while both surgeons and cosmetic patients viewed hypopigmented scars less favorably, surgeons were more concerned with pre-tragal incision and blunted hair tuft. Furthermore, the number of rhytidectomies performed by surgeons resulted in more critical analysis of the scars presented in this study. Qualitative analysis of the frequent use of "natural" in the patient comments suggests the importance of maintaining a sense of "normalcy" as well. In contrast, the surgeon comments are most frequently about the relationship between the scar and surrounding anatomical structures, suggesting a descriptive focus on the technicality of scar placement and subsequent anatomical result. Cosmetic patients are primarily concerned about scar appearance while surgeons are more focused on the technical orientation of the scar. An understanding and comparison of the language and perceptions of surgeons and cosmetic patients regarding rhytidectomy scars are vital in creating aesthetic results and managing patient expectations.

Keywords
- rhytidectomy scar
- facelift scar
- hypopigmented scar
- incision placement

Patients typically undergo rhytidectomy to improve age-related changes as viewed by themselves and others. The patient's perception of their surgical outcome determines the success of this procedure, and it is important to understand how a cosmetic patient conceptualizes the effects of rhytidectomy. Studies have shown that the cosmetic patient associates the physical changes of rhytidectomy with youth, attractiveness, and increased health.[1]

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Perceptions of rhytidectomy even affect the cosmetic patient's willingness to pay for the procedure across different economic markets.[2] However, there is a dearth of prior research on the cosmetic patient's perception specifically regarding variations on rhytidectomy incisions and resulting surgical scars. Previous research on skin scars demonstrated that patient-rated scar severity, but not physician-rated scar severity, correlated with psychosocial distress.[3] This suggests not only the psychosocial impact of scar visibility but also the importance of capturing the patient perspective given the potential disparity with the physician perspective. Studies have shown that understanding and incorporating the patient perspective provide more clinical data to guide treatment and improve the patient–physician relationship.[4]

In this study, the authors seek to analyze the cosmetic patient's assessment of the rhytidectomy scar and compare it to the perception of the rhytidectomy scar by facial plastic and reconstructive surgeons.

Methods

Participants

In-person surveys were administered to a sample of voluntary patients presenting for cosmetic consultation in the senior author's (T.C.K.) facial plastic and reconstructive surgery private practice population. Patients presenting with reconstructive issues were excluded. The survey for facial plastic surgeons was distributed online through the American Academy of Facial Plastic and Reconstructive Surgery (AAFPRS). Completed surveys were collected from 69 cosmetic patients, 18 years of age or older, and from 120 surgeons from March to April 2019 and October to November 2019, respectively.

Survey Instrument

Participants were presented with standardized lateral view photographs of 10 patients at least 12 months post rhytidectomy procedure. A variety of rhytidectomy incisions were chosen to include pre- versus post-tragal incisions, blunted hair tuft, hypopigmentation, narrow versus wide scar healing. All patients consented to have photos used in research studies, and photos were standardized for facial expression and lighting. For the cosmetic patients, one standardized set of printed photographs were used for all patients and surveys were printed out on paper for response. For the surgeons, Google Forms were used to electronically deliver the same patient photographs. Both sets of participants were asked to rate the outcome of the rhytidectomy scar using the Likert scale from 1 to 10, where 10 was the most favorable outcome. For each patient photograph, all participants were also asked the following question allowing for free-form response: "What characteristic influenced your choice?"

The cosmetic patients were asked demographic data including age, sex, and whether they or acquaintances had undergone or were considering cosmetic surgery. Facial plastic surgeons were asked demographic data including age, sex, number of years in practice, location of practice, completion of an AAFPRS fellowship, and number of rhytidectomy performed per year.

Data Analysis

All statistical analyses were conducted using R (Vienna, Austria: R Foundation for Statistical Computing). Prior to analysis, patient photographs were subdivided based on similar characteristics including pigmentation of scar, relation of incision to tragus, and blunting of hair tuft. Primary univariate measures were conducted with responses from cosmetic patients and responses from surgeons to characterize overall ratings within each of the aforementioned photo characteristic subgroups. Subsequent intragroup rating differences were evaluated utilizing Welch's two sample *t*-test for unequal variances and Kruskal–Wallis rank sum test with Dunn's multiple comparison test. Additional comparisons were made between ratings of cosmetic patients and surgeons using Welch's *t*-test. Furthermore, the free-form responses were used in qualitative analysis using anthropologic frameworks.

Results

Demographic data for the cosmetic patients and surgeons is provided in ►**Tables 1** and **2**. Characteristics of the patient photographs are provided in ►**Table 3**.

Perception of Cosmetic Patients

Cosmetic patients perceived non-hypopigmented scars more favorably than hypopigmented scars [$p < 0.001$ with 95% CI ($-1.52e{-}08$, $-0.73e{-}08$)]. Similarly, cosmetic patients rated narrow scars more favorably than wider ones [$p < 0.001$ with 95% CI ($-1.87e{-}07$, $-0.82e{-}07$)]. However, there was neither any significant difference valuation of pre-tragal compared with post-tragal incisions nor any significant difference if blunted hair tuft was present.

Within the cohort of cosmetic patients, participant age or personal history of rhytidectomy was not a confounding factor. Compared with female participants, male participants rated non-hypopigmented scars and post-tragal incisions

Table 1 Patient demographic characteristics

Characteristics	*N* (%)
Age, mean (SD), y	53.77 (14.69)
Gender	
Female	65 (95.59)
Male	3 (4.41)
Prior facial cosmetic surgery	
Yes	14 (21.54)
No	51 (78.46)
Considering cosmetic surgery	
Yes	5 (7.69)
No	23 (35.38)
Undecided	37 (56.92)

Table 2 Surgeon demographic characteristics

Characteristics	*N* (%)
Gender	
Female	107 (89.17)
Male	13 (10.83)
Years in facial plastics practice	
< 5	28 (23.33)
5–10	20 (16.67)
11–15	8 (6.67)
16–20	17 (14.17)
21–25	14 (11.67)
> 25	33 (27.50)
Facial plastic surgery fellowship	
Yes	92 (77.31)
No	27 (22.69)
Facelift procedures performed per year	
< 5	19 (15.83)
5–10	14 (11.67)
11–15	14 (11.67)
16–20	8 (6.67)
21–25	14 (11.67)
> 25	51 (42.50)

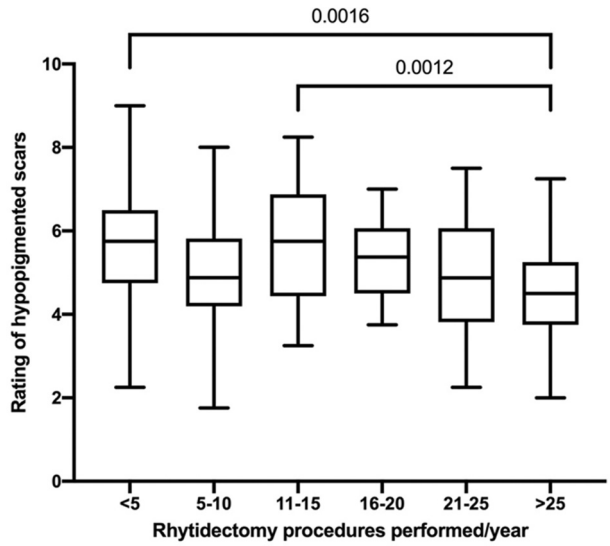

Fig. 1 Rating of hypopigmented scars decreases with surgeon rhytidectomy volume. Box and whisker plot of the effect of rhytidectomy volume on surgeon ratings of hypopigmented scars. Overall Kruskal-Wallis chi-squared = 15.33, $p = 0.01$.

more favorably with statistical significance [$p = 0.04$ with 95% CI (0.16, 2.67) and $p = 0.014$ with 95% CI (0.60, 2.84)].

Perception of Surgeons

Similar to the cosmetic patient cohort, surgeons view non-hypopigmented scars more favorably than they do hypopigmented scars [$p < 0.001$, 95% CI (−2.16e−16, −1.69e−16)] and narrow scars more favorably than wide scars [$p < 0.001$, 95% CI (−2.18e−16, −1.62e−16)]. In contrast to the cosmetic patient cohort, surgeons rated post-tragal incisions more favorably than pre-tragal incisions [$p < 0.001$, 95% CI (−2.16e−05, −1.69e−05)]. Furthermore, surgeon's preference regarding blunted hair tufts was statistically significant, with less favorable ratings.

When comparing ratings within the surgeon's cohort, there are statistically significant differences in how wide and hypopigmented scars, pre-tragal incision, and blunted hair tufts were rated based on number of rhytidectomies performed by surgeons. With pre-tragal incisions, there is no clear trend of the number of rhytidectomies performed; however, lower ratings of wide scars, hypopigmented scars, and blunted hair tufts correlated with higher number of rhytidectomies performed by surgeons (►**Figs. 1–23**). Furthermore, there are statistically significant differences in how incisions that did not blunt the hair tuft were rated based on surgeons' number of years in practice, but there are no discernable trends in the correlations.

Table 3 Characteristics of patient photographs

	Gender	Relationship to tragus	Blunted hair tuft	Pigmentation	Scar width	Extension into neck
Photo 1	Male	Pre-tragal	No	Normal	Narrow	No
Photo 2	Female	Post-tragal	No	Normal	Narrow	No
Photo 3	Female	Pre-tragal	Yes	Hypo-pigmented	Wide	No
Photo 4	Female	Pre-tragal	No	Hypo-pigmented	Narrow	No
Photo 5	Female	Pre-tragal	Yes	Hypo-pigmented	Narrow	Yes
Photo 6	Female	Post-tragal	No	Normal	Narrow	No
Photo 7	Female	Post-tragal	No	Normal	Narrow	No
Photo 8	Female	Post-tragal	Yes	Hypo-pigmented	Narrow	No
Photo 9	Female	Post-tragal	Yes	Hypo-pigmented	Wide	Yes
Photo 10	Male	Post-tragal	Yes	Normal	Narrow	No

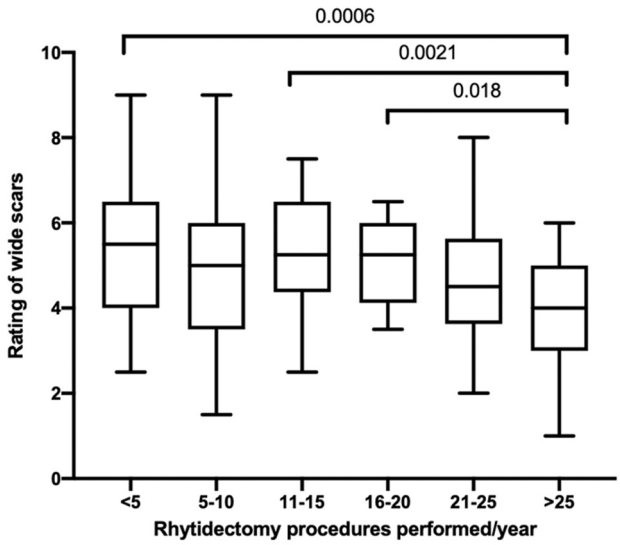

Fig. 2 Rating of wide scars decreases with surgeon rhytidectomy volume. Box and whisker plot of the effect of rhytidectomy volume on surgeon ratings of wide scars. Overall Kruskal-Wallis chi-squared = 16.72, $p = 0.005$.

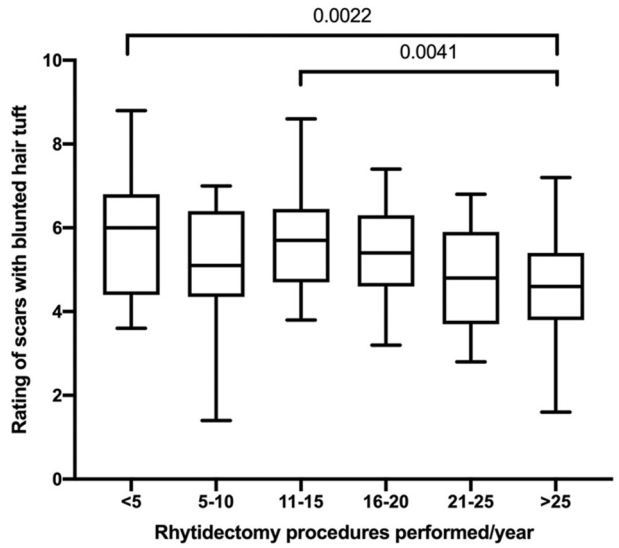

Fig. 3 Rating of blunted hair tuft decreases with surgeon rhytidectomy volume. Box and whisker plot of the effect of rhytidectomy volume on surgeon ratings of images with a blunted hair tuft. Overall Kruskal-Wallis chi-squared = 13.97, $p = 0.02$.

Comparison of Observer and Surgeon

When directly comparing the surgeon and cosmetic patient cohorts, surgeons rate hypopigmented scars significantly lower than that of observers [$p < 0.01$, 95% CI (−0.61e−7, −1.33e−7)], but there was no difference in valuation of the non-hypopigmented scar. Additionally, surgeons rate pre-tragal incisions and blunted hair tuft significantly lower than observers [$p < 0.001$, 95% CI (−0.54e−0.6, −1.28e−0.6) and $p < 0.001$, 95% CI (−0.43e−0.6, −1.1e−0.6), respectively]. Surgeons also rated both wide [$p < 0.001$, 95% CI (−0.38e−04, −1.46e−04)] and narrow scars [$p < 0.001$, 95% CI (−0.12e−03, −0.62e−03)] significantly lower than do observers, with an appreciably greater discrepancy in ratings for wide scars.

Qualitative Analysis

The free responses from cosmetic patients and surgeons were used for qualitative analysis. In the responses of 69 cosmetic patients, the word "noticeable" was used 35 times while it was used 21 times in the responses of 120 surgeons. The repetition of words such as "noticeable," as well as "visible" and "natural" in the cosmetic patients' comments suggests the importance of maintaining a sense of "normalcy" as well. In contrast, the surgeons' comments are most frequently about the relationship between the scar and surrounding anatomical structures, such as relationship to tragus and to hair tuft. In the responses of 120 surgeons, the word "placement" was used 58 times while it was used one time in the responses of 69 cosmetic patients. This discrepancy in language suggests a focus on the technicality of scar placement and subsequent anatomical result in comparison to the global perspective of the scar relative to the person's overall appearance, which is more aligned with the cosmetic patients' comments.

Discussion

Commonality in Valuation

In analyzing the perceptions of rhytidectomy scar by cosmetic patients and facial plastic surgeons, certain aspects of the scar were valued similarly. Scars that were not hypopigmented and scars that were post-tragal were rated significantly favorably by both cohorts, though hypopigmented scars would also be less visible when placed post-tragal. Within the surgeon's cohort, as the number of rhytidectomies performed increased, hypopigmented scars and blunted hair tufts were increasingly perceived more negatively.

Surgical Techniques

This study's findings provide insight into surgical incision placement of the pre-auricular rhytidectomy incision. Given the importance of avoiding scar widening and hypopigmentation for both patients and surgeons, surgical techniques such as multilayer wound closure and minimal tension on the skin re-approximation are of paramount importance.[5] Patient factors such as skin type, sun exposure, tobacco use, vascular diseases, and medications also affect wound healing. For unfavorable scar healing, treatment options such as dermabrasion, laser, interlesional injections, and surgical scar revisions can be performed at a later time. While this study does not analyze the post-auricular incision, there are recommended techniques on incision placement to maximize aesthetic outcomes and minimize wound tension, such as but not limited to using W-plasty along the occipital hairline[6] and avoiding incision placement within the post-auricular sulcus.[7]

Differences in Language

Observers and surgeons differed in the overall language used in analyzing rhytidectomy scars. While surgeons

predominantly used technical terms and noted anatomical descriptions in the free-text responses, the narrative responses of the cosmetic patients focused on the desire to maintain looking "natural" after rhytidectomy. In the context of rhytidectomy scars, we interpret "normal" and "natural" as referring to scars that minimize the suggestion of surgical intervention. These scars tend to be not widened, not hypopigmented, and well-hidden in natural creases. These types of scars would also maintain preoperative anatomical appearances, such as preserving the patients' hair tufts.

Analysis of the concept of "normality" and its connotations extends to the 1930s in the work of anthropologist Ruth Benedict. Describing "normal" and "abnormal" as socially constructed frameworks, Benedict argues that the inability to function socially is tied to the concept of "abnormal."[8] This theory suggests that conforming to a society's concept of normal gives an individual more societal agency. Thus, it is understandable why patients use language to emphasize the "natural look," or maintaining appearances that minimize the suggestion of having undergone physically altering procedures. Therefore, the qualitative responses from patients are congruent with the quantitative analysis of their evaluation of rhytidectomy scars.

Nonetheless, this study findings do not imply that surgeons do not care about the "natural look," and while the results may not change how surgeons design the placement of rhytidectomy scars; this study demonstrates that it is worth examining how language and perspective are important considerations even when discussing surgeries or goals with patients.

Study Limitations

The study utilized the distribution of the survey at a facial plastic surgeon's office and via communication through the World Wide Web, there is invariably selection bias in the participant cohort. Based on the demographic profile, while only 35% of the patient participants pursued surgical options for themselves, all patient participants have some degree of experience with the appearance of their faces either with surgical or non-surgical interventions. Furthermore, the gender distribution in our study demographics is heavily skewed toward female participants and surgeons compared with that of the general population.[9] We also focus on assessing preauricular variations of rhytidectomy scars and do not include post-auricular scar appearance and other surgical outcomes such as improvement in facial contour. We were specifically analyzing the perception of scars that are not typically visible on frontal view, and we did not want the results of the rhytidectomy itself to influence rating of the perceived scar; therefore, only lateral views of the scar were provided in the survey. Additionally, preoperative photographs were not included for comparison in analyzing the scars.

Conclusion

In this study, we analyzed perceptions of rhytidectomy scars from the perspectives of cosmetic patients, representing the general population and facial plastic surgeons. The ratings from cosmetic patients were centered on general scar morphology, notably scar width and pigmentation, and concerns about maintaining natural-looking appearance post-procedure. Surgeons were more critical of the nuances of the incision placement; this technical orientation of evaluating scar outcomes is likely influenced by their surgical practice. Ultimately, an understanding of nuances in language and observer preference is vital for surgeons to create outcomes that align with the goals of patients undergoing cosmetic surgery.

Conflict of Interest
None declared.

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