MAYO CLINIC

Cosmetics and function: quality of life changes after rhinoplasty surgery

Amy Saleh, M.D., Younes Ahmed, M.D., Oren Friedman, M.D.
Department of Otorhinolaryngology
Mayo Clinic, Rochester, MN

BACKGROUND

The focus on outcomes based research has exploded in the last decade. In nasal surgery, outcomes primarily rely on subjective patient satisfaction with function and appearance of the nose postoperatively; often, the two being intimately related. Because of this, many instruments have been developed to measure a patient's improvement in quality of life after surgery. In the rhinoplasty field, these include the Nasal Obstruction Symptoms Evaluation (NOSE) scale which evaluates nasal function, and Rhinoplasty Outcome Evaluation (ROE) which evaluates nasal shape. Patient satisfaction regarding the nasal shape and function after rhinoplasty surgery have been studied separately before, but no study to date has combined the patient perception of quality of life changes regarding both shape and function in the same patient population.

METHODS

- Retrospective chart review with prospective follow up
- All patients who underwent rhinoplasty or septorhinoplasty in the last 5 years by the senior author were identified.
- Patients who underwent any additional nasal surgery (eg FESS) simultaneous with rhinoplasty were excluded.
- 370 patients were invited to participate, 126 agreed and 113 returned the questionnaires
- Patients were provided with the ROE and NOSE questionnaires for preoperative and postoperative evaluation.
- McNemar's test was used to compare between pre and post-operative clinical evaluations.
- Paired and student t-tests were used to evaluate pre and postoperative scores for the NOSE and ROE respectively.
- Two group t-tests were used for comparative analysis after dividing the patients in 2 groups based on whether or not dorsal reduction, osteotomies, or the open vs closed approach were used.

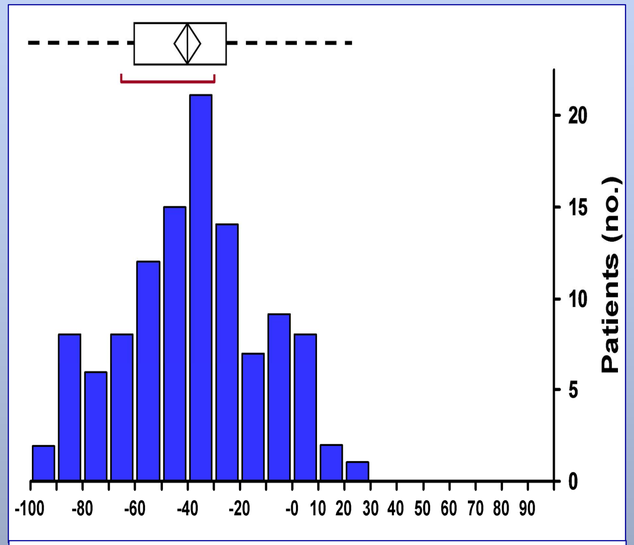


Fig.1: Histogram showing the distribution of the difference of pre and post-operative NOSE scale. (Horizontal axis represents the difference between pre and postop. NOSE scoring; the larger the negative values the greater the improvement. Vertical axis represents the number of patients). The mean nose difference (improvement): -40.49

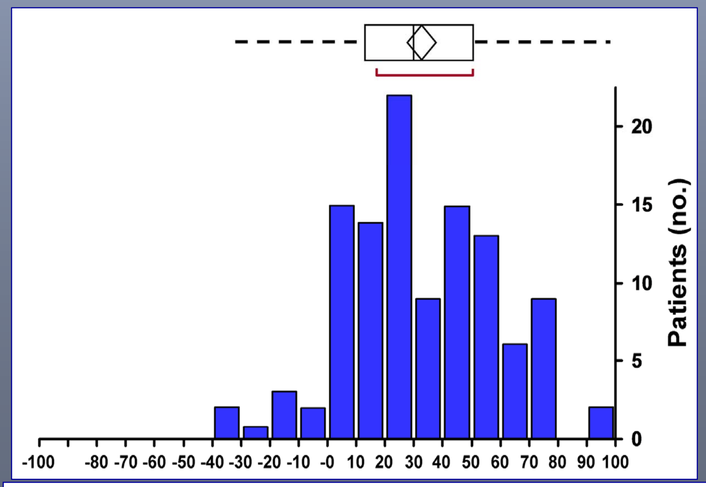


Fig.2: Histogram showing the distribution of the difference of pre and post-operative ROE scale. (Horizontal axis represents the difference between pre and post-operative ROE scoring; the larger the positive values the greater the improvement. Vertical axis represents the number of patients). The mean ROE difference (improvement): 31.65

RESULTS

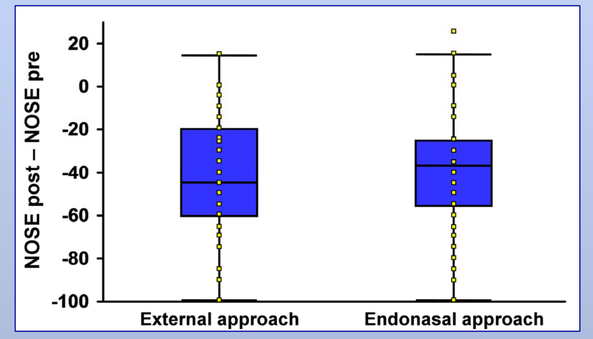
- 113 patients participated in this study
- 51.33% male and 48.67% female
- Mean age was 47.56 years with SD 17.27 and range (18 to 91)
- All patients were Caucasian save one
- Mean period of follow-up was 35.6 months with standard deviation (SD) of 14 months and range 11 to 64 months
- Pre and post-operative NOSE scores showed a median difference was -40 with quartiles being -25 and -60 (p value < .0001). Less than 10% of the patients reported worsening of the scores.
- Pre and post-operative ROE scores showed a median difference of 29.2 with quartiles being 12 and 50 (p value < .0001). Less than 10% of the patients reported worsening of the scores.
- No significant difference in improvement in scores when groups were divided based on whether or not dorsal reduction, osteotomies, or open vs closed approach were performed or whether it was a primary vs revision rhinoplasty.

CONCLUSIONS

The modern technique of rhinoplasty that includes a functional and structural approach to the nose improves the patients' quality of life regarding both shape and function. Although the technique depends on providing strong structural framework by adding grafts vs. the traditional reduction technique there is significant improvement in patients' quality of life regarding the external appearance and function of the nose.

REFERENCES

1. Rhee, J.S. and B.T. McMullin, Measuring outcomes in facial plastic surgery: a decade of progress. Current openion in Otolaryngology & Head and Neck Surgery, 2008. 16: p. 387 - 393.
2. Meningaud, J.-P., L. Lantieri, and J.-C. Bertrand, Rhinoplasty: an outcome research. Plastic & Reconstructive Surgery, 2008. 121(1): p. 251 - 257.
3. Alsarraf, R., Outcomes research in facial plastic surgery: a review and new directions. Aesthetic plastic surgery, 2000. 24: p. 192 - 197.
4. Mckiernan, D.C., et al., Patient benfit from functional and cosmetic rhinoplasty. Clinical Otolaryngology and Allied Science, 2001. 26(1): p. 50 - 52.
5. Stewart, E.J., K. Robinson, and J.A. Wilson, Assessment of patient's benefits from rhinoplasty. Rhinology, 1996. 34(1): p. 57 - 59.
6. Baumann, I., Quality of life before and after septoplasty and rhinoplasty. Laryngo-Rhino-Otol, 2010. 89: p. 35-45.
7. Alsarraf, R., et al., Measuring cosmetic facial plastic surgery outcomes: a pilot study. Arch Facial Plast Surg, 2001. 3(3): p. 198-201.
8. Stewart, M.G., et al., Development and validation of the nasal obstruction symptom evaluation (NOSE) scale. otolaryngology head and neck surgery, 2004. 130: p. 157 - 163.
9. Hellings, P.W. and G.J.N. Trenite, long-term patient satisfaction after revision rhinoplasty. Laryngoscope, 2007. 117: p. 985 - 989.
10. Most, S.P., Analysis of outcome after functional rhinoplasty using a disease-specific quality-of-life instrument. . Arch Facial Plast Surg, 2006. 8: p. 306 - 309.
11. Guyuron, B. and F. Bokhari, Patient satisfaction following rhinoplasty. Aesthetic Plast Surg, 1996. 20(2): p. 153-7.
12. Rhee, J.S., et al., Nasal valve surgery improves disease-specific quality of life. Laryngoscope, 2005. 115(3): p. 437-40.
13. Stewart, M.G., et al., Outcomes after nasal septoplasty: results from the nasal obstruction septoplasty effectiveness (NOSE) study. otolaryngology head and neck surgery, 2004. 130: p. 283 - 290.



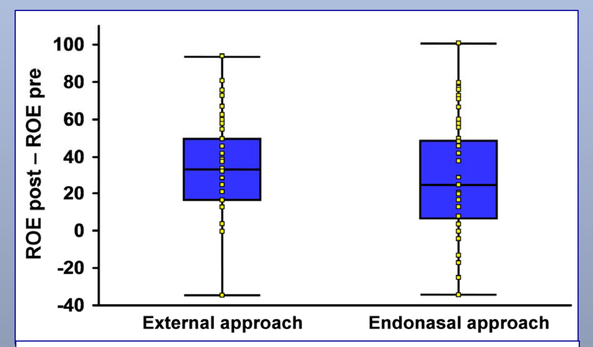


Fig.4: Side by side box plots comparing changes in NOSE and ROE scores between 2 groups external vs endonasal surgical approach showing no significant difference in improvement between the 2 groups. (P 0.29 for NOSE and 0.3 for ROE)

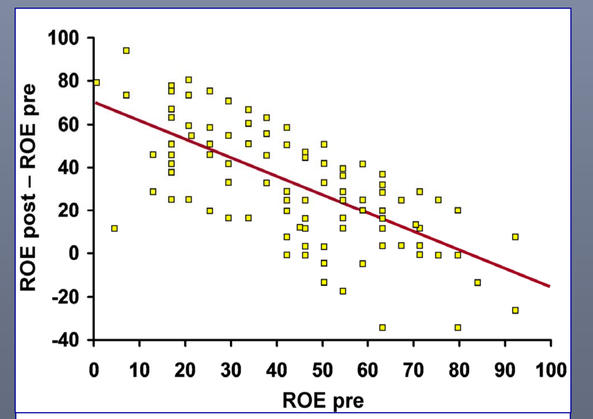


Fig 3: Scatter plot showing that lower preoperative ROE scores were significantly correlated with higher improvement difference (r = -0.69, P < 0.001)