

Non-Surgical Rhinoplasty with the Dermal Fillers

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ABSTRACT

Background: The nose is a critical component to the perception of facial attractiveness. In recent years, a non-surgical nose job has become the preferred option for most patients and Maxillofacial surgeons.

Materials and Methods: Between May 2015 and May 2018, 50 patients (42 female, 8 male) that had undergone nonsurgical rhinoplasty with dermal fillers were included in the study. A brief review of the literature surrounding nonsurgical rhinoplasty using injectable fillers, as well as the authors' experience in this area, is provided.

Results: We recorded an extremely high satisfaction rate and did not observe any complications. All of the patients returned to their normal daily activities immediately after the procedure.

Conclusion: Non-surgical rhinoplasty with dermal fillers is an easy, safe, and comfortable technique. It is increasingly recognized as an essential component to complete facial aesthetic rejuvenation, Maxillo-facial surgeons should be familiar with how to safely and effectively perform augmentation with injectable fillers to achieve an optimal cosmetic outcome.

Keywords: Rhinoplasty, Non-surgical, cosmetic techniques, dermal fillers.

INTRODUCTION

The obsession with facial beauty is not limited to modern culture. Several studies have suggested that facial attractiveness is comparatively independent of culture.^{1,2} Attractive faces activate the reward centers in the brain,³ they motivate sexual behavior and the development of same-sex alliances,^{4,5} and they elicit positive behaviors in various situations.⁶ All facial parts are of absolute importance for the perception of facial beauty. However, the nose has a special importance because it occupies the central position in the face. The nose is also the most prominent anatomic part of the face; it cannot be hidden easily. Surgical intervention has been

indicated as popular procedure for correction of nasal shape defect among many patients, but non-surgical rhinoplasty can offer an alternative for those that require revision surgery such as saddle deformity, alar cartilage collapse or dorsal unevenness, who do not wish to subject themselves to the risks associated with surgery.⁷ Non-surgical rhinoplasty has many attractions, despite being a temporary treatment. The soft tissue augmentation can give a very natural contour, even in thin-skinned patients, without the complications of surgery.⁸ For patients, the main attractions of Non-surgical rhinoplasty are that there is very little downtime compared to a surgical approach, a lower risk of complications, as well as its affordability.⁹

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Non-surgical rhinoplasty involves the use of soft tissue augmenters such as hyaluronic acid (HA).⁹ The use of fillers in the nose is a more subtle treatment that allows for a limited augmentation and correction of some defects and can also give long lasting results of an average of 13.5 months, however there are reports of up to 30 months.¹⁰

Non-surgical rhinoplasty is a fast, simple, safe, and cost-effective procedure without tissue damage. Therefore, non-surgical nose augmentation with dermal fillers is becoming more popular among specialists, including Maxillofacial surgeons.

MATERIALS AND METHODS

Rhinoplasty with dermal filler is a simple, elective, day care procedure. The patients age ranged from 18 to 36 years. Informed consent was obtained from all individual participants included in the study. Through open discussion with our patients the nose deformity was marked prior to the procedure in front of the mirror. [Figure 1.] After marking the site, the nose of the patient was cleaned with betadiene and saline water. Local anesthetic agent was administered as 1cc of Lidocaine 1% with adrenaline 1:200000 at the tip and dorsum of nose (at the point of entry of cannula). In few cases topical local anesthetic cream with prilocaine and lidocaine (both 2.5%w/w) was applied before 60-90 of procedure. The specific choice of filler depends on the patient's anatomy, injector preference, and cost. In this study, we used a 27 gauge and 12.7 mm blunt cannula for filler injection. The entry point is made with a 21-gauge sharp needle on the tip of the nose. The cannula is slowly moved forward in the supraperiosteal layer until it reaches the point of deformity on the dermis. The cannula is kept parallel to the nasal spine. The skin of the nasal dorsum is raised gently with the thumb and second finger during cannula movement. After the cannula reaches near to the Nasion, a 0.1 to 0.2 cc volume of 23 mg/ml HA dermal filler is injected into the nasal dorsum in the supraperiosteal layer using a retrograde linear threading technique. The injection volume is 0.05 to 0.1 cc for the nasal tip. The cannula is removed following the tip injection. Afterwards, the same cannula is inserted perpendicular to the nasal tip through the same entry hole. Then it is gently moved forward from the tip to the columella and nasolabial angle. After



Fig 1: Photograph of the patient before non-surgical Rhinoplasty.



Fig 2: Photograph of the patient after non-surgical Rhinoplasty.

the cannula reaches the nasolabial angle, the filler is injected in the supracartilaginous layer using a retrograde linear threading technique. Finally, the cannula is removed from the tip of the nose and proper shape is given to the nose to correct the defect as the filler is visco-elastic for 3-5 minutes. The results are immediate and if required, change in the shape can be done before the filler loses its viscoelasticity and becomes firm. This procedure can be repeated till desired corrections are successfully achieved. The patients are advised not to wear glasses and to avoid exercise for a week after nose job with the dermal filler. [Figure 2.]

RESULTS

Between May 2015 and May 2018, 50 patients (42 female, 8 male) were treated with non-surgical

minimal invasive Rhinoplasty at Dr. Prit's Cosmodent And Trichology Centre. In our study, the minimum age of patients is 18 years and maximum age is 36 years. None of the patients had prior nose surgery or a non-surgical nose job, nasal obstruction, or nasal deformity. The patient satisfaction score was obtained from patients after performing Non-surgical rhinoplasty. Patient were asked to give a score between 5 points to 0 point depending on their satisfaction or dissatisfaction with the results and also on basis of the complete procedure performed. The patient satisfaction score was 5 for forty-one patients; the satisfaction score was 4 for seven patients and 3 for two patients. We sought to achieve the most natural appearance of the nose and the face. However, two patients had very high and unrealistic expectations. Nevertheless, a very high patient satisfaction rate was noted in our study. No complications were observed during the procedure or the 6-month follow-up. The patients were informed that the results could last for approximately 12 months to 24 months. after the injection.

DISCUSSION

People's awareness of the fact that the nose is a crucial element in facial beauty and the emphasis on beauty in mass media make aesthetic rhinoplasty one of the most frequently requested aesthetic operations. Treatment of nose is well described in literature, historically the use of autologous fat, silicone, poly-tetrafluoroethylene and calcium hydroxyapatite are common. However, over the last seven to eight years with advances in the plastication methods involved in forming longer lasting Hyaluronic Acids with more cohesive structures, HA has become the mainstay of most Non-surgical rhinoplasty.¹¹ Hyaluronic Acids (HA) has low immunogenicity, is malleable, durable and has the advantage of being easily reversed with the use of hyaluronidase.¹² Collagen and calcium hydroxyapatite can also be used and have different fluid characteristics compared to hyaluronic acid that can be advantageous in forming a more rigid structure and is favoured by many practitioners. However, they are more difficult to correct if there are complications as they need to be physically removed and cannot be easily reversed by simply injecting a dissolving agent such as hyaluronidase.¹³

People of different races have different facial features. For instance, Asians usually have a flat nose with a wide alar base, wide nasal tip, and retracted columella, whereas Caucasians have a prominent dorsum and nasal tip. Therefore, the procedure varies depending on patients' expectations.¹⁴ We prefer to perform filler rhinoplasty on patients that have not had previous nose surgery to reduce certain risks, and there were no complications during the procedure and 6-month follow-up. Appropriate patient selection is crucial for successful outcomes. Hence, all the patients should be examined carefully to decide on the procedure.

Youn et al. evaluated the anthropometric analysis of 242 patients that had undergone HA filler rhinoplasty. Transient complications such as bruising, headache, swelling, and erythema were reported in many patients. However, arterial occlusion was observed in only three patients. Needles were used instead of cannulas to perform filler injections in these patients. They suggested that filler rhinoplasty is as effective as surgical augmentation rhinoplasty based on anthropometric measures.¹⁵ Rho et al. used three-dimensional imaging to analyze facial anthropometric measures of 40 patients that had undergone filler rhinoplasty. Nasal volume increase, nose height increment, increase in nasolabial, nasofrontal, and nasomental angle, decrease in nose length, and nasofacial angle were observed. The results were similar to previously published studies including patients with surgical rhinoplasty.¹⁶

Surgical rhinoplasty is associated with many complications, such as breathing difficulties as a result of reduced nasal airway size, hyposmia, numbness, infection and dislocation of implants, atrophy, skin necrosis, fibrosis, subcutaneous cysts, and granulomas. Moreover, serious post-operative deformities including polly-beak deformity characterized by a deep radix and prominent cartilaginous dorsum, asymmetries, deviations, overresection and irregularities of the nasal dorsum, alar collapse, slit-like nostrils, wide nasal tip or bridge, pinched tip, and over-shortened nose have been reported. Therefore, 5 to 15% of patients undergo revision rhinoplasty following a primary surgical nose job.¹⁷

HA fillers are biocompatible and biodegradable; however, complications such as foreign body reactions and delayed hypersensitivity can be observed with their injection. Moreover, Chae et al. reported the migration of injected HA filler from the nose to forehead, clinically presenting as two soft, skin-colored, subcutaneous nodules¹⁸. Nevertheless, having full knowledge of the anatomical features of the nose, slow injection, avoiding excess pressure, using a small needle, and aspiration before injection minimizes the risk of complications.^{19,20} We used a 15 mg/ ml HA dermal filler on the nasal dorsum of our patients to reduce the risk of vessel compression and pressure necrosis. On the other hand, HA filler rhinoplasty can be completely reversed with hyaluronidase when needed. Signorini et al. recommend an injection of 10 to 20 U hyaluronidase for areas less than 2.5 mm and two to four injections of 10 to 20 U hyaluronidase for areas greater than 2.5 mm (20).

Serious adverse effects including ophtalmic artery emboli following nasal augmentation with calcium hydroxylapatite filler, central retinal artery occlusion, visual acuity loss, and brain infarctions after nasal filler injection of hyaluronic acid (HA) have been reported.^{21,22} Pressure necrosis of the nasal tip due to over injection or ischemic necrosis of the nasal area due to arterial embolism should also be kept in mind.²³ It has been suggested that skin necrosis of the nasal region is mainly caused by hydrophilic features of HA dermal fillers.²⁴ Recently, Signorini et al. classified the filler complications as early reactions and late reactions. Early reactions include pain, ecchymosis, erythema, bruising, bleeding, vascular infarction, soft tissue necrosis, infection, hypersensitivity, inappropriate placement, and distant spread. Late reactions include inflammatory reactions such as granuloma, nodules, dyspigmentation, and displacement of fillers.²⁰

In conclusion, rhinoplasty with HA filler is an easy, quick, and cost-effective procedure when compared with surgical rhinoplasty. The procedure can be performed safely on outpatient basis in Maxillofacial clinics. Appropriate patient selection and a proper injection technique is crucial for reducing serious complications.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

REFERENCES

1. Cunningham MR, Roberts AR, Barbee AP, Druen PB, Wu CH. "Their ideas of beauty are, on the whole, the same as ours": consistency and variability in the crosscultural perception of female physical attractiveness. *J Pers Soc Psychol* 1995;68(2):261-279
2. Langlois JH, Kalakanis L, Rubenstein AJ, Larson A, Hallam M, Smoot M. Maxims or myths of beauty? A meta-analytic and theoretical review. *Psychol Bull* 2000;126(3):390-423
3. Aharon I, Etcoff N, Ariely D, Chabris CF, O'Connor E, Breiter HC. Beautiful faces have variable reward value: fMRI and behavioral evidence. *Neuron* 2001;32(3):537-551
4. Berscheid E, Reis HT. Attraction and close relationships. In: Gilbert DT, Fiske ST, Lindzey G, eds. *The Handbook of Social Psychology*. New York, NY and London, UK: Oxford University Press; 1998;193-281
5. Rhodes G, Simmons L, Peters M. Attractiveness and sexual behaviour: does attractiveness enhance mating success? *Evol Hum Behav* 2005;26:186-201
6. Hosoda M, Stone-Romero EF, Coats G. The effects of physical attractiveness on job related outcomes: a meta-analysis of experimental studies. *Pers Psychol* 2003;56:431-462
7. Adamson PA1, Warner J, Becker D, Romo TJ 3rd, Toriumi DM., 'Revision rhinoplasty: panel discussion, controversies, and techniques', *Facial Plast Surg Clin North Am.*, 2014;22(1):57-96.
8. Pontius AT1, Chaiet SR, Williams EF 3rd., 'Midface injectable fillers: have they replaced midface surgery?', *Facial Plast Surg Clin North Am.*, 2013;21(2):229-39.
9. Jasin ME1., 'Nonsurgical rhinoplasty using dermal fillers', *Facial Plast Surg Clin North Am.*, 2013;21(2):241-52.

10. Schuster B1, 'Injection Rhinoplasty with Hyaluronic Acid and Calcium Hydroxyapatite: A Retrospective Survey Investigating Outcome and Complication Rates.', Facial Plast Surg. 2015;31(3):301-7.
11. Tezel A, Fredrickson GH., 'The science of hyaluronic acid dermal fillers', *J Cosmet Laser Ther.*, 2008;10:35-42.
12. Hirsch RJ, Brody HJ, Carruthers JD., 'Hyaluronidase in the office: a necessity for every dermasurgeon that injects hyaluronic acid', *J Cosmet Laser Ther.*, 2007;9:182-185.
13. Smith KC1, 'Reversible vs. nonreversible fillers in facial aesthetics: concerns and considerations', *Dermatol Online J.*, 2008;8:14-15.
14. Liew S, Scamp T, de Maio M, Halstead M, Johnston N, Silberberg M, et al. Efficacy and safety of a hyaluronic acid filler to correct aesthetically detracting or deficient features of the Asian nose: a prospective, open-label, long-term study. *Aesthet Surg J.* 2016;36:760-72.
15. Youn SH, Seo KK. Filler rhinoplasty evaluated by anthropometric analysis. *Dermatol Surg.* 2016;42:1071-81.
16. Rho NK, Park JY, Youn CS, Lee SK, Kim HS. Early changes in facial profile following structured filler rhinoplasty: an anthropometric analysis using a 3-dimensional imaging system. *Dermatol Surg.* 2017;43:255-63.
17. Rettinger G. Risks and complications in rhinoplasty. *GMS Curr Top Otorhinolaryngol Head Neck Surg.* 2007;6:Doc08.
18. Chae SY, Lee KC, Jang YH, Lee SJ, Kim DW, Lee WJ. A case of the migration of hyaluronic acid filler from nose to forehead occurring as two sequential soft lumps. *Ann Dermatol.* 2016;28:645-7.
19. Redaelli A, Limardo P. Minimally invasive procedures for nasal aesthetics. *J Cutan Aesth Surg.* 2012;5:115-20.
20. Signorini M, Liew S, Sundaram H, De Boulle KL, Goodman GJ, Monheit G, et al. Global aesthetics consensus: avoidance and management of complications from hyaluronic acid fillers: evidence- and opinion-based review and consensus recommendations. *Plast Reconstr Surg.* 2016;137:961e-71e.
21. Cohen E, Yatziv Y, Leibovitch I, Kesler A, Cnaan RB, Klein A, et al. A case report of ophthalmic artery emboli secondary to calcium hydroxylapatite filler injection for nose augmentation: long-term outcome. *BMC Ophthalmol.* 2016;16:98.
22. Lin YC, Chen WC, Liao WC, Hsia TC. Central retinal artery occlusion and brain infarctions after nasal filler injection. *QJM.* 2015;108:731-2.
23. Bray D, Hopkins C, Roberts DN. Injection rhinoplasty: non-surgical nasal augmentation and correction of post-rhinoplasty contour asymmetries with hyaluronic acid: how we do it. *Clin Otolaryngol.* 2010;35:227-30.
24. Sung HM, Suh IS, Lee HB, Tak KS, Moon KM, Jung MS. Case reports of adipose-derived stem cell therapy for nasal skin necrosis after filler injection. *Arch Plast Surg.* 2012;39:51-4.