

NONSURGICAL RHINOPLASTY: SYSTEMATIC REVIEW

^{1*}Shabrina Nur Afiati, ¹Natalia Wijaya, ²Dini Marini

¹Faculty of Medicine, Trisakti University, Jakarta Capital Special Region, Indonesia

²Faculty of Medicine, Muhammadiyah University of Jakarta, Jakarta Capital Special Region, Indonesia

Correspondence Author:
Nurafiati.shabrina@gmail.com

ABSTRACT

Introduction: The surge in demand for nonsurgical rhinoplasty, driven by patients seeking alternatives to the enduringly popular surgical rhinoplasty, emphasizes the need for skilled facial plastic surgeons proficient in filler placement. Offering nonsurgical rhinoplasty by experienced surgeons enhances safety, contributes to surgical practice success, and serves as a cost-effective, low-risk alternative, especially when patients are considering future surgery. Systematic reviews play a crucial role in consolidating evidence, informing practitioners about the latest developments, and establishing best practices in both nonsurgical and surgical rhinoplasty, contributing to improved patient care.

Methods: The researchers in this study followed the 2020 Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guidelines to ensure that their work met the required standards. This was done to ensure the precision and reliability of the conclusions derived from the research.

Results: Our search produced 22 results. After looking at the titles and summaries, we found 10 papers that fit our criteria. At first, we excluded several articles because they were written in review style and case reports. But after reading the full papers carefully, we included five papers in our final analysis. These papers included a retrospective analysis, observational study, and retrospective analysis of a prospective clinical registry.

Conclusion: In conclusion, nonsurgical rhinoplasty, exemplified by a 14-year case series, is a highly gratifying and popular procedure, emphasizing an ascending technique for optimal outcomes. However, its potential complications necessitate experienced practitioners, urging caution and diligence. The systematic review supports the efficacy and safety of nonsurgical rhinoplasty using PDO sutures and fillers, especially in Asians, while emphasizing the importance of patient selection. Furthermore, the described "LG Nose Reshaping Technique" with hyaluronic acid proves safe and effective, warranting long-term studies, and the use of VYC-25L showcases high patient satisfaction and low adverse events when administered by skilled practitioners with optimized fillers.

Keywords: Hyaluronic acid, nonsurgical rhinoplasty, polydioxanone (PDO) threads

INTRODUCTION

The rising demand for nonsurgical alternatives, coupled with the enduring popularity of rhinoplasty (the third most common cosmetic surgical procedure), has led to a growing number of patients seeking nonsurgical rhinoplasty. It is crucial for facial plastic surgeons to be skilled and comfortable with filler placement in the nose for various reasons.¹ Surgeons with expertise in surgical rhinoplasty possess profound knowledge of nasal anatomy, which is essential for the safe and effective placement of fillers. The optimal approach to nonsurgical rhinoplasty involves thinking in terms of grafts used during rhinoplasty rather than just contour changes.²

As nonsurgical rhinoplasty is increasingly performed by nonsurgeon physicians and midlevel providers, offering this treatment by facial plastic surgeons provides patients with a safer alternative compared to less experienced injectors.^{3,4} Nonsurgical rhinoplasty contributes to the success of a surgical rhinoplasty practice. Patients considering nasal fillers may not be optimal candidates for surgery, and computer imaging can help them understand the benefits and limitations of nonsurgical versus surgical rhinoplasty. It also provides an opportunity for patients considering surgery in the future to "test drive" their new nose before making a long-term commitment.⁵

Another consideration is the duration of nasal fillers, lasting 1 to 2 years or more with a single session. This makes nonsurgical rhinoplasty cost-effective for patients, as multiple sessions over several years may still be more economical than surgical rhinoplasty.⁵ Additionally, the limited downtime and lower risk associated with nasal fillers make them an attractive long-term solution, especially for patients with smaller noses, lower dorsums, and shorter septums. Also rhinoplasty surgeons may find filler placement following rhinoplasty invaluable for smoothing minor nasal contour indentations and adjusting the tip, reducing the likelihood of revision rhinoplasty and its associated expenses, risks, and downtime.³⁻⁵

In the meantime, nonsurgical rhinoplasty offers a quick, safe, and effective treatment when the proper filler is judiciously placed. Despite rhinoplasty being one of the most popular surgeries worldwide, it remains a challenging surgical aesthetic procedure. The impact of the nose on facial beauty, coupled with anatomical variations and limited predictability, contributes to this complexity. Despite a decrease in overall aesthetic procedures in 2020 due to the pandemic, nonsurgical procedures, particularly fillers and hair removal treatments, continued to rise.^{1,4} The development of new hyaluronic acid dermal fillers with good efficacy and safety profiles has fueled the increasing popularity of nonsurgical rhinoplasty, providing patients with a cost-effective, low-risk, and shorter downtime alternative. Dermal fillers, particularly hyaluronic acid injectable fillers, have become the preferred choice for soft tissue contouring and volumizing, despite not being entirely free of complications. The use of HA dermal fillers for nonsurgical rhinoplasty is based on surgical concepts, with injections targeted at deep planes, though this technique is not without controversy.²⁻⁵

Additionally, within the topic of nonsurgical rhinoplasty and rhinoplasty procedures, there is a paramount need for systematic reviews. Systematic reviews serve the crucial purpose of synthesizing and critically analyzing existing literature on nonsurgical rhinoplasty, surgical rhinoplasty, and related topics. These comprehensive reviews aim to provide a consolidated and evidence-based understanding of the safety, efficacy, and outcomes associated with both nonsurgical and surgical interventions.

By systematically examining and comparing studies, systematic reviews contribute to the establishment of best practices, guidelines, and recommendations for facial plastic surgeons engaging in filler placement in the nose. The study may help practitioners stay informed about the latest developments, advancements, and controversies in the field, ultimately guiding clinical decision-making and enhancing patient care. Therefore can serve as valuable resources for education and training, ensuring that practitioners are well-equipped with the most up-to-date and relevant information when performing nonsurgical and surgical rhinoplasty procedures.

METHODS

Protocol

The researchers in this study followed the 2020 Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guidelines to ensure that their work met the required standards. This was done to ensure the precision and reliability of the conclusions derived from the research.

Criteria for Eligibility

For inclusion in the study, published articles had to meet particular requirements. They had to be research papers written in English, focusing on nonsurgical rhinoplasty. The studies had to meet the following criteria: articles need to have been published after 2019 but within the applicable timeframe for this systematic review. Articles falling into categories like editorials, lacking a DOI, review articles that were already published, or duplicating previously published journal papers were excluded from the assessment.

Search Strategy

We conducted a comprehensive literature search using PubMed, Wiley Journal Database, and ScienceDirect focusing on studies published from 2019 to 2024. The search terms employed were as follows ("nonsurgical"[All Fields] OR

"nonsurgically"[All Fields]) AND ("rhinoplasty"[MeSH Terms] OR "rhinoplasty"[All Fields] OR "rhinoplasties"[All Fields]). Moreover, we performed cross-referencing of relevant articles to reveal additional research. The evaluation of study quality, methodology, interventions, and results was undertaken independently by the researchers, resolving any differences through discussion and agreement. Furthermore, both researchers collected and compared discoveries from all studies, considering the potential for conducting a meta-analysis if deemed feasible.

Inclusion and exclusion criteria

Inclusion criteria for the studies were as follows: (1) original research that assesses nonsurgical rhinoplasty; (2) Randomized Controlled Trials (RCTs) or observational studies (cohort or case-control studies); (3) availability of relevant data. Exclusion criteria were as follows: (1) ongoing studies or studies without available data; (2) duplicate publications. In cases of duplicate publications, the most recent article was chosen; (3) Non-English language studies were excluded.

Data Retrieval

The authors conducted a thorough examination of relevant studies, specifically selecting those that met precise inclusion criteria. They focused on original, unpublished papers in English to ensure a refined and high-quality selection. The analysis covered essential information, such as study particulars, authors, publication dates, locations, and research methodologies, aligning with the study's objectives.

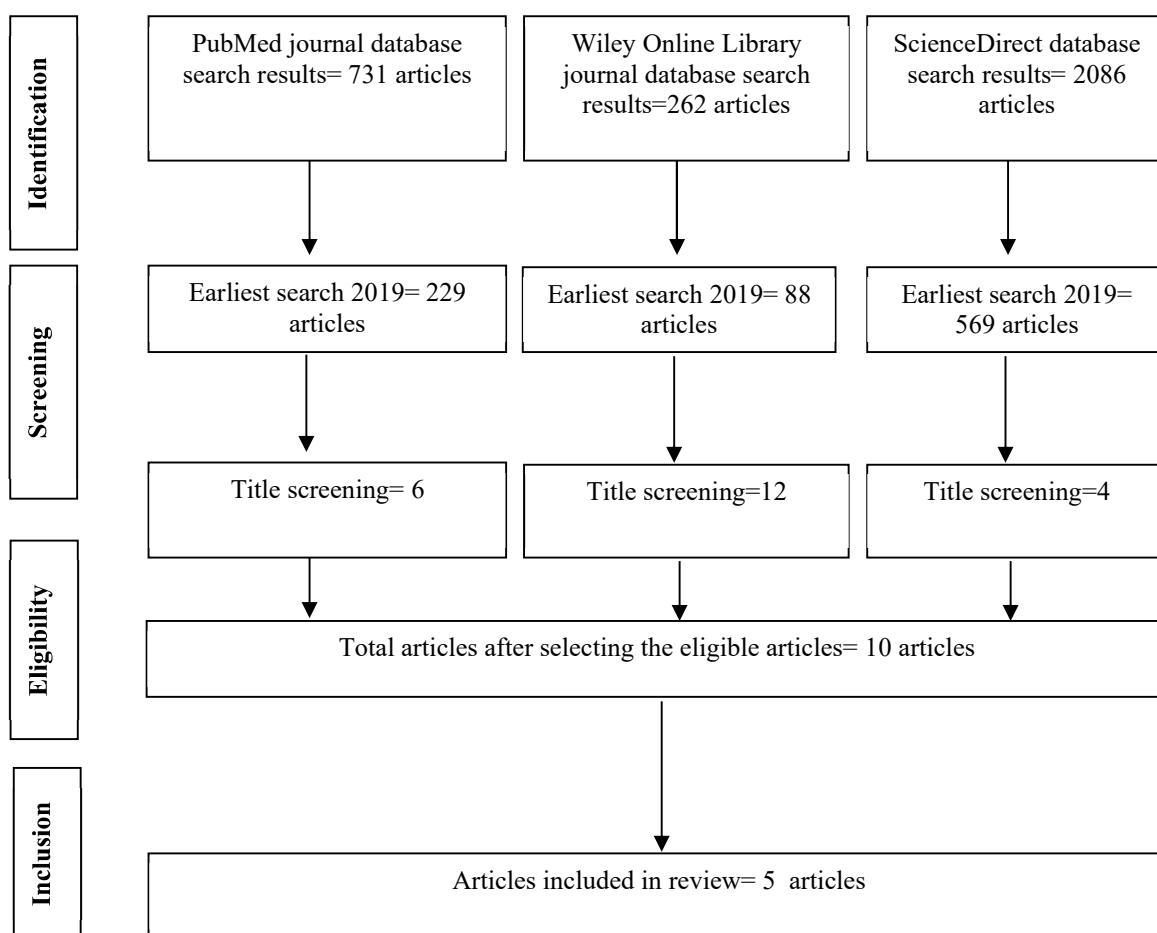


Figure 1. Article search flowchart

RESULT

Our search produced 22 results. After looking at the titles and summaries, we found 10 papers that fit our criteria. At first, we excluded several articles because they were written in review style and case reports. But after reading the full papers carefully, we included five papers in our final analysis. These papers included a retrospective analysis, observational study, and retrospective analysis of a prospective clinical registry.

Author	Origin	Method	Sample Size	Result
Kassir R et al, 2021. ³	USA-India	Retrospective analysis.	2130 patients underwent non-surgical rhinoplasty	Since 2006, 2130 patients underwent non-surgical rhinoplasty; 2023 patients were female (95%), and 107 were male (5%). The proportions by site injected were tip 95%, columella 58%, dorsum 83%, radix 62%. Sixty-two percent (1321) repeated the procedure after 1 year. Two percent of patients had persistent tip redness which recovered. There was no skin necrosis or ocular complications.
Kang et al, 2019. ⁶	Korea	A retrospective analysis.	total of 31 patients who underwent nonsurgical rhinoplasty and who also made regular follow-up visits were included in the study.	A total of 31 patients were evaluated, and 93.5% considered the results satisfactory. Consensus ratings at the 6-month follow-up were largely categorized as very much improved (38.7%), much improved (35.5%), and improved (25.8%). An average increase of 6.3 (percentage increase by 7.6) in the nasolabial angle ($p < .05$) was measured at follow-up. The incidence of the complications was low, and the ones reported were minor.
Segreto F et al., 2019. ⁷	Italy	Observational study.	A total of 70 consecutive patients underwent nonsurgical rhinoplasty using the same type of HA.	No complication was experienced. Two (2.8%) patients required a retouch after 15 days for further dorsal correction. There was a statistically significant difference between preoperative and postoperative values in all domains and overall scores of the rhinoplasty module of FACE-Q.
Giammarioli et al., 2023. ⁸	Italy	Retrospective analysis of a prospective clinical registry.	One-hundred-and-one patients (91 women) were included in the study.	One-hundred-and-one patients (91 women) were included in the study. Fifty-six (56%) patients underwent a unique treatment-session and 44 (44%) subjects needed an additional touch-up. Eighty-five (84.2%) patients were very satisfied with the treatment results. Six (5.9%) patients reported moderate adverse events, which were successfully controlled with medical therapy.
Jalali A., 2024. ⁹	Canada	Retrospective analysis.	A total of 492 patients were included (984 treatment sessions including touch-ups).	Of the patients, 467 (94.9%) were female and the mean age was 30.0 years. All treatments were associated with early transient edema; other adverse events included bruising ($n = 123$; 25%), residual asymmetry ($n = 18$; 3.7%), and suspected localized vascular occlusion ($n = 3$; 0.6%). The latter cases were easily resolved with hyaluronidase injection plus oral steroid and aspirin. No patients experienced infection, necrosis, blindness, lumps, granuloma, or delayed-onset nodules. Mean Rasch-transformed FACE-Q scores were 90.2% for Satisfaction with Nose and 99.2% for Satisfaction with Outcome.

A retrospective analysis by Kassir et al spanning from 2006 to 2019 was conducted on patient records, aiming to assess various facets of nonsurgical rhinoplasty procedures. Parameters examined included patient demographics (age and sex), choice of filler and volume, self-assessed satisfaction rates, recorded complications, filler repetition rates, and incidents of conversion to surgical rhinoplasty.³

Inclusion criteria encompassed individuals over 18 seeking nose appearance improvement, while exclusion criteria comprised pregnancy, autoimmune conditions, severe uncontrolled comorbidities (e.g., diabetes mellitus, hypertension), and patients with unrealistic expectations or body dysmorphia. Procedural considerations involved meticulous skin disinfection with chlorhexidine, injections performed by the senior author using needles (26-28G), aspiration to prevent intraarterial injection, and limited injections along the midline and bone/cartilage regions.³

Since 2006, a total of 2130 patients underwent nonsurgical rhinoplasty, demonstrating a consistent yearly increase. However, 214 were lost to follow-up, leaving a cohort of 2023 females (95%) and 107 males (5%). Injection indications varied across regions, with the tip (95%), columella (58%), dorsum (83%), and radix (62%) being the primary focus. Touch-up procedures were performed on 5% (108) of patients within two weeks, primarily for minor modifications or additional volume in the radix. Patient satisfaction, assessed through self-assessment, was uniformly high. Notably, 62% (1321) opted for a repeat procedure after one year, while 33% (710) eventually underwent full surgical rhinoplasty by the senior author.³

Complications were limited, with 2% experiencing persistent tip redness, likely attributed to external vascular compression rather than intraarterial occlusion. The redness spontaneously recovered within a duration of 5 to 60 minutes, and no cases required hyaluronidase.³

A retrospective analysis of medical records was conducted over a 2-year period, spanning from February 2016 to October 2018. The authors systematically compiled and examined data from consecutive patients who underwent nonsurgical rhinoplasty at 4 SEASONS Dermatologic Clinic, utilizing medical grade PDO thread and hyaluronic acid (HA) filler. The evaluation encompassed patients' sex, age, and preoperative and postoperative clinical photographs. Objective assessments were performed using serial photography, while subjective evaluations were based on patient self-assessments.⁶

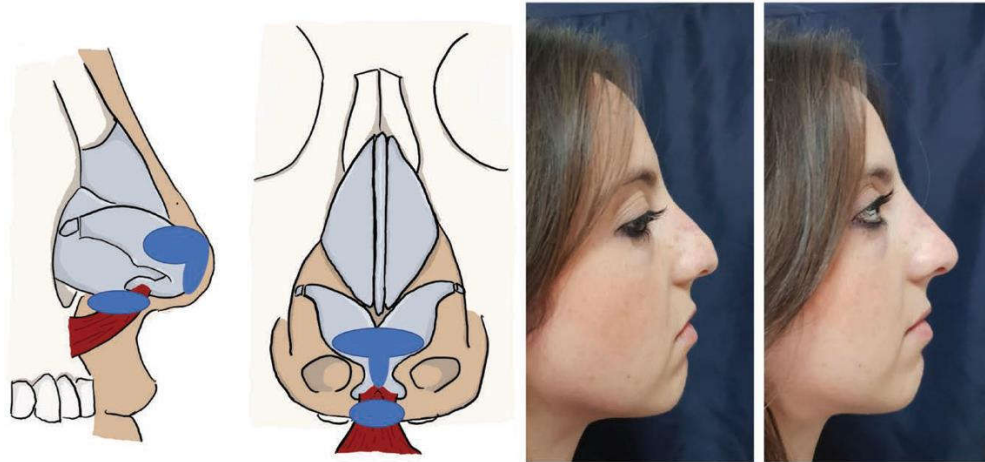


Figure 2. Anchor injection: the most versatile graft in tip reshaping with nonsurgical rhinoplasty. It allows to increase tip and lobule projection and to define the supratip break and the lobulocolumellar angle. The patient also underwent HA retrograde injection from the nasal spine to the columellar base, as described in the text, that may be considered as a midway between columellar plumping graft and strut. A total of 0.35 cm³ of HA were used for tip contouring (including the nasolabial angle injection).

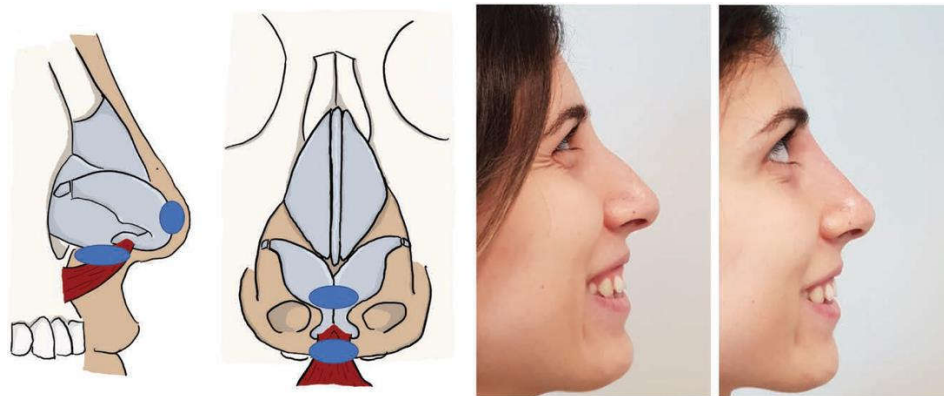


Figure 3. Onlay tip injection: it slightly increases tip projection. These patients also underwent HA retrograde injection from the nasal spine to the columellar base, as described in the text. A total of 0.25 cm3 of HA were used for tip contouring (including the nasolabial angle injection).

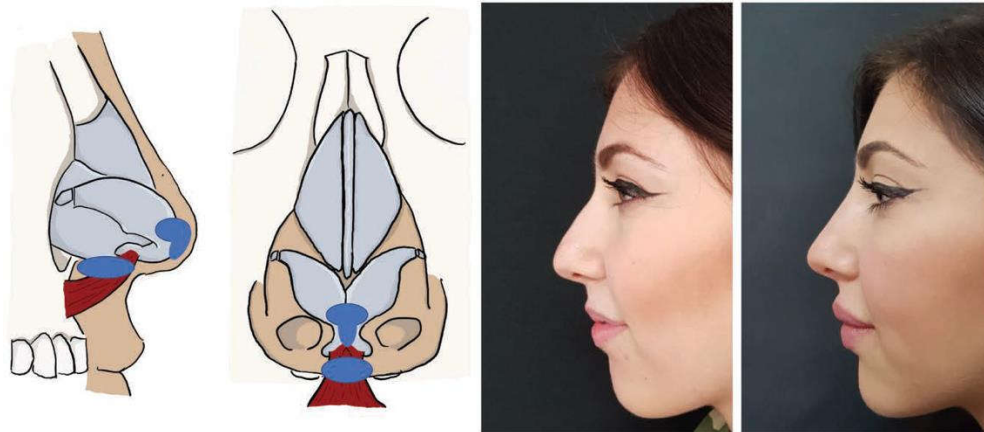


Fig. 5. Shield injection: it increases tip projection, improves the infratip lobule, and defines the tip and the lobulocolumellar angle. A total of 0.3 cm3 of HA were used for tip contouring (including the nasolabial angle injection).

The study included 31 patients who underwent nonsurgical rhinoplasty with multibidirectional wedge-shaped PDO sutures and filler, and who consistently attended follow-up visits. Two of these patients were male, and the average age of the study population was 33.2 years, ranging from 19 to 56 years.⁶

At the 6-month follow-up, a notable 93.5% of patients expressed satisfaction with the results. Among them, 45.2% considered the outcome excellent, 38.7% very good, and 9.7% good. Objective evaluations revealed a significant improvement, with 38.7% categorized as "very much improved," 32.2% as "much improved," and 25.8% as "improved." The mean measurement of the nasolabial angle showed a statistically significant increase from 88.5° before the procedure to 94.8° at the 6-month follow-up after nonsurgical rhinoplasty with PDO threads and fillers ($p < .05$). The treatment proved well-tolerated, causing minimal discomfort. Only two patients (6.5%) experienced procedure-related complications, with one reporting a tingling sensation (3.2%) and the other a depressed scar (3.2%). Importantly, significant adverse events such as vascular compromise or foreign-body granuloma were not observed in this study.⁶

Between January 2016 and June 2018, a total of seventy consecutive patients underwent nonsurgical rhinoplasty in Segreto et al study. The treatment excluded individuals with pregnancy, breastfeeding, autoimmune diseases, local infections, herpes, or inflammation. Juvederm 4 (Allergan plc, Dublin, Ireland) was uniformly employed, and all injections were administered by the same author. The FACE-Q rhinoplasty module was utilized for preoperative and 15-day postoperative assessments.⁷

The patient cohort consisted of nine males and sixty-one females, with an average age of 27 (± 4.5) years. Four patients underwent correction following surgical rhinoplasty for issues like inverted-V deformity and dorsal asymmetry. The injected hyaluronic acid quantity varied from 0.2 to 0.9 cm3, and a minimum one-year follow-up was conducted for all patients, during which no complications were reported. Two patients (2.8%) sought a touchup after 15 days, expressing a desire for additional dorsal correction. Notably, a statistically significant improvement was observed across all domains of the rhinoplasty module in the FACE-Q, as well as in the overall scores.⁷

Giammarioli and Liberti's retrospective analysis of a prospective clinical study included 101 participants, comprising 91 (90.1%) women and 10 (9.9%) men, with a mean age of 30.1 years (95% CI: 28.3–38.9). The average total volume of hyaluronic acid (HA) filler administered was 0.65 ± 0.15 mL, ranging from 0.3 to 1.2 mL. A total of 55 patients (54.5%; 95% CI: 41.4%–71.6%) underwent a retouch, typically performed at the one-month mark following the initial treatment.⁸

In terms of patient satisfaction, 85 participants (84.2%) were very satisfied with the treatment outcomes. Figure 3 illustrates the distribution of patient satisfaction levels. Pre- and post-treatment photographs of three highly satisfied patients (two women and one man) are displayed in Figures 4–6. After one year, 87 patients (86.1%) remained satisfied with the aesthetic outcomes, and 91 (90.1%) expressed a willingness to undergo a new rhinofiller treatment. In the second year, the amount of filler used ranged between 0.3 and 0.5 mL, given the substantial remaining filler from the initial session.⁸

Regarding retouch procedures, after one year of follow-up, touch-ups were performed on 44 subjects (44%) 30 days post the initial treatment. The mean amount of HA injected during retouch procedures was 0.23 ± 0.1 mL, ranging from 0.10 mL to 0.50 mL, particularly focused on the nose radix to address more frequent phlogistic phenomena. In terms of safety, 76 patients (75.3%) reported mild edema, all of which resolved without treatment. Hematoma/bruising was reported by 25 patients

(24.8%) but was successfully resolved with medical therapy. Six patients (5.9%) experienced moderate adverse events, including two with infections resembling folliculitis, two with late erythema on the nose tip causing a more pronounced superficial vascular pattern, and two reporting late edema during systemic infectious processes. These latter cases were successfully resolved with oral corticosteroids.⁸

This retrospective analysis focused on 492 consecutive patients who underwent nonsurgical rhinoplasty with VYC-25L (Juvéderm® Volux™ XC, Allergan Aesthetics, an AbbVie Company). The treatments were administered by a single injector at a single center between January 2020 and July 2022. Each patient received both the initial treatment and subsequent touch-up injections 4–6 weeks later, resulting in a total of 984 treatment sessions provided. Of the subjects evaluated, 467 (94.9%) were female, with a mean age of 30.0 years. The cohort exhibited significant ethnic diversity, with less than half being Caucasian (n = 195; 39.6%), while the rest had East Asian, Indian, or Middle Eastern heritage. The mean follow-up duration was 11.1 months.⁹

Regarding complications, all treatments were associated with transient edema lasting approximately 7–10 days. Other adverse events included bruising (n = 123; 25.0%), residual asymmetry (n = 18; 3.7%), and suspected localized vascular occlusion (n = 3; 0.6%). The cases of vascular occlusion, all in patients receiving nasal tip injections, were successfully resolved with appropriate treatment, including hyaluronidase injection, a single dose of prednisone (40–50 mg), and aspirin. Notably, there were no instances of infection, necrosis, blindness, lumps, granuloma, or delayed-onset nodules.⁹

The analysis also revealed high levels of patient satisfaction with the treatment, as assessed through the FACE-Q Satisfaction with Nose and FACE-Q Satisfaction with Outcome questionnaires. Mean Rasch-transformed scores were 90.2% and 99.2%, respectively, equating to untransformed scores of 39/40 for Satisfaction with Nose and just under 24/24 for Satisfaction with Outcome.⁹

DISCUSSION

Non-surgical rhinoplasty has gained rapid popularity as a relatively recent technique. Case series describing its application have increased over time, with notable growth since 2010. The surge in its adoption is attributed, in part, to the influence of social media platforms like Instagram, where instant results are showcased, motivating prospective patients. In this series, spanning 14 years and comprising 2130 cases, stands as one of the largest published on non-surgical rhinoplasty to date. A steady annual increase in procedures mirrors the technique's growing acceptance observed in other studies.³

Anatomical knowledge is crucial in non-surgical rhinoplasty to mitigate risks. The nose poses unique challenges due to its vascular anatomy, necessitating precise injection techniques to ensure safety. Understanding the soft tissue layers and vascular supply guides injection site selection, with midline and periosteum/perichondrium injections deemed safest. Hyaluronic acid (HA) fillers, particularly Restylane, are commonly used due to their ease of use, reversibility, and ability to hold shape. Injection techniques typically involve addressing the tip and dorsum, with the ascending technique focusing on tip, base, dorsum, and radix injections.³

While debate exists over needle versus cannula use, researchers prefer needles for their direct injection capabilities. Safety measures like the 'pinch-push-pull' maneuver and strategic pressure application over vessels minimize risks. This series showed no serious complications, with redness over the tip resolving spontaneously. However, previous reports highlight potential risks, emphasizing the need for caution and adherence to safety protocols. Patient satisfaction was high, with a significant proportion opting for repeat procedures or subsequent surgical rhinoplasty, either as a preferred permanent solution or after trialing non-surgical rhinoplasty as a temporary measure. Novice injectors are advised caution and to prioritize experience in less risky areas before undertaking non-surgical rhinoplasty procedures.³

Achieving an ideal nasolabial angle is crucial for successful rhinoplasty, particularly in Asian patients where nasal tip augmentation is popular. While filler rhinoplasty is widely practiced, it has limitations in addressing the caudal aspect of the nose, prompting injections to the nasal tip. Cautious handling is necessary in the columella due to the increased risk of vascular compromise and potential intravascular filler injection, leading to skin necrosis. Polydioxanone (PDO) threads, known for their absorbable nature and safety profile, especially when barbed, have gained popularity in nasal tip augmentation and face lifting.⁶

Barbed PDO threads and fillers complement each other in nasal dorsum augmentation, acting like reinforced concrete. The threads enhance columellar length, tip projection, and nostril inclination, resulting in a long and narrow nose. PDO threads provide initial physical augmentation through a rigid framework and induce mild local reactions promoting tissue growth. The authors' preferred method involves using short PDO threads in a folded configuration to the columella with an 18-G cannula, maximizing results and supporting the nasal tip effectively. Patients and physicians expressed high satisfaction and improvement at the 6-month follow-up. While PDO threads have limitations in volumetric changes, combining them with fillers in nonsurgical rhinoplasty is recommended for enhanced outcomes. The combination requires less filler material and demonstrates a greater increase in the nasolabial angle compared to filler-only procedures.⁶

Self-retaining, multidirectional, wedge-shaped PDO sutures present a potential add-on to fillers in Asian rhinoplasty. The procedure is straightforward, cost-effective, and well-tolerated under local anesthesia, with minimal reported complications. The authors suggest a future prospective, long-term follow-up study to further evaluate the efficacy of their approach.⁶

Nonsurgical rhinoplasty has surged in popularity, offering a solution for defects in both nonoperated and surgically treated noses. However, complications like infection and vascular compromise, leading to severe outcomes, have been reported. Adequate knowledge of nasal anatomy is crucial, and the described maneuvers prioritize vascular safety and minimize the risk of hyaluronic acid (HA) displacement. The described techniques include the 3P maneuver and retraction–pinching, focusing on vascular safety and optimal reshaping with minimal injections. Careful attention is given to injection depth, waiting times, and monitoring for blanching during the procedure. Post-injection blanching may require action based on its persistence and can be managed with ebastine for post-treatment edema.⁷

When addressing postsurgical deformities, caution is exercised due to potential compromised vascularization and reduced tissue compliance. The choice of HA, specifically Juvederm Ultra 4, is based on parameters such as cohesivity, duration, and moldability, ensuring precise contouring with a low number of injections. Overcorrection of the dorsum is slight to compensate for immediate postinjection edema. The nonsurgical rhinoplasty technique presented in this study involves graft-based procedures with limitations, excluding nasal reduction and suitability for severely deviated or crooked noses. The effect is not permanent, necessitating retreatments, with potential longer-lasting results observed in subsequent treatments. The presented algorithm correlates defects with the type of graft, offering aesthetic remodeling in various cases.⁷

Minimally invasive aesthetic procedures, particularly HA filler injections, have gained significant popularity due to their effectiveness, predictability, and safety in addressing various aesthetic concerns. Non-surgical rhinoplasty, involving injectable temporary fillers, is used for correcting aesthetic defects or asymmetries in the nose, with primary application for those who haven't undergone previous procedures and secondary for corrections post-surgical rhinoplasty. Knowledge of nasal anatomy is crucial for optimal outcomes and avoiding adverse events.⁸

Special attention is given to the vasculature of the nose during non-surgical rhinoplasties to prevent vascular occlusions. The study aimed to evaluate the clinical outcomes and patient satisfaction of an innovative injection technique using a HA filler with 25 mg/mL of HA. The results indicated a very good safety profile, providing natural and predictable aesthetic results, with 98% of patients expressing satisfaction. HA injectable fillers, particularly Teosyal UltraDeep™, have become popular for soft tissue contouring. Factors like HA concentration, polymer chain length, and cross-linking technology impact filler properties. Teosyal UltraDeep™, with RHA patented technology, exhibits high projection capacity and increased durability. The study's clinical perspective showed good and predictable aesthetic results with an acceptable safety profile.⁸

While complications of HA filler injections in non-surgical rhinoplasty are generally low and mild, the study acknowledges potential risks such as blindness and skin necrosis. The limitations of the study include its open-label design and the absence of objective morphometric measurement methods. However, patient satisfaction remains crucial in evaluating the success of elective aesthetic treatments.⁸

CONCLUSION

In conclusion, nonsurgical rhinoplasty emerges as a highly satisfying and increasingly popular procedure, providing immediate results with minimal downtime and a high degree of precision. The presented case series, spanning 14 years and incorporating one of the largest cohorts, advocates an ascending technique prioritizing tip injection followed by dorsum injection for optimal outcomes with minimal product usage and errors. However, it is crucial to acknowledge the procedure's potential complications when administered by inexperienced practitioners. Thus, nonsurgical rhinoplasty should be entrusted to seasoned professionals exercising due diligence in each case.

The systematic review underscores the effectiveness and safety of nonsurgical rhinoplasty employing multidirectional wedge-shaped PDO sutures in combination with fillers, particularly in Asian populations. While promising, appropriate patient selection, including those with no prior surgical rhinoplasty and individuals with flexible noses, is imperative for optimal results. Despite its suitability for Asians, the technique exhibits promise in other races, especially those with a droopy nasal tip. Further research is necessary to establish the method's recognition as a novel approach in Asian rhinoplasty, incorporating barbed PDO threads with fillers and long-term evaluations.

Additionally, the described nonsurgical rhinoplasty technique proves to be safe, effective, and reliable, with excellent patient-reported outcomes and the potential for correcting selected nasal defects at a reduced cost and minimal downtime. The "LG Nose Reshaping Technique," utilizing hyaluronic acid filler, demonstrates effectiveness, predictability, and a relatively high safety profile, warranting further studies for long-term outcome evaluation. Conclusively, the use of the high-G' HA filler VYC-25L, guided by a systematic treatment approach, stands out for its association with high patient satisfaction and low rates of clinically significant adverse events in a substantial patient cohort seeking nonsurgical rhinoplasty. These findings highlight the procedure's safety and efficacy, particularly when executed by highly skilled and well-trained practitioners employing optimized filler products.

REFERENCES

- [1] Rohrich R, Alleyne B, Novak M, Bellamy J, Chamata E. Nonsurgical Rhinoplasty. *Clin Plast Surg*. 2022;49(1):191-195. doi:10.1016/j.cps.2021.08.005
- [2] American Society of Plastics Surgeons. "2017 Plastic Surgery Statistics Report." 2017 Plastic Surgery Statistics, ASPS Public Relations. Available at: www.plasticsurgery.org/documents/News/Statistics/2017/plastic-surgery-statistics-report-2017.pdf.
- [3] Kassir R, Venkataram A, Malek A, Rao D. Non-Surgical Rhinoplasty: The Ascending Technique and a 14-Year Retrospective Study of 2130 Cases. *Aesthetic Plast Surg*. 2021;45(3):1154-1168. doi:10.1007/s00266-020-02048-8
- [4] Carson Huynh C, Hamamdjian C. Nonsurgical Rhinoplasty with Hyaluronic Acid. *Atlas Oral Maxillofac Surg Clin North Am*. 2024;32(1):43-47. doi:10.1016/j.cxom.2023.10.003
- [5] Mehta, Umang; Fridirici, Zachary (2019). Advanced Techniques in Nonsurgical Rhinoplasty. *Facial Plastic Surgery Clinics of North America*, 27(3), 355–365. doi:10.1016/j.fsc.2019.04.008
- [6] Kang, Seung & Moon, Seok & Kim, Hei. (2019). Nonsurgical Rhinoplasty With Polydioxanone Threads and Fillers. *Dermatologic Surgery*. 46. 1. 10.1097/DSS.0000000000002146.
- [7] Segreto F, Marangi GF, Cerbone V, Alessandri-Bonetti M, Caldaria E, Persichetti P. Nonsurgical Rhinoplasty: A Graft-based Technique. *Plast Reconstr Surg Glob Open*. 2019;7(6):e2241. Published 2019 Jun 25. doi:10.1097/GOX.0000000000002241
- [8] Giammarioli G, Liberti A. Non-surgical rhinoplasty technique: An innovative approach for nasal reshaping with hyaluronic acid fillers. *J Cosmet Dermatol*. 2023;22(7):2054-2062. doi:10.1111/jocd.15669
- [9] Jalali A. Nonsurgical rhinoplasty using the hyaluronic acid filler VYC-25L: Safety and patient satisfaction in a retrospective analysis of 492 patients. *J Cosmet Dermatol*. 2024;23(2):426-433. doi:10.1111/jocd.15997
- [10] DeVicor S, Ong AA, Sherris DA. Complications Secondary to Nonsurgical Rhinoplasty: A Systematic Review and Meta-analysis. *Otolaryngology–Head and Neck Surgery*. 2021;165(5):611-616. doi:10.1177/0194599820987827