

The N Point technique: A Next-Gen approach to natural under eye restoration

Noury Adel

Oral and Maxillofacial Surgery Specialist, Private practice, Cairo, Egypt.

Abstract

Objective: Under-eye rejuvenation with hyaluronic acid (HA) fillers remains a challenging aesthetic procedure due to the anatomical complexity and risk of complications. Various techniques have been proposed to address tear trough deformity, each with its advantages and limitations. This study presents a modified single-entry injection technique using a 23G 30 mm microcannula to enhance safety and aesthetic outcomes.

Methods: This prospective study included 60 Middle Eastern female patients who presented to our clinic seeking under-eye rejuvenation. A single entry point was established at the base of the V-shaped deformity, aligned with the mid-pupillary line. A 23G 30 mm cannula was introduced to administer HA filler at three strategic locations: (1) the sub-orbicularis oculi fat pad, (2) the orbital retaining ligament, and (3) multiple aliquots along the inferior orbital rim. This was followed by a superficial linear retrograde deposition along the tear trough. Patient satisfaction score, infraorbital improvement score and complications were assessed preoperatively and postoperatively at 14 days, 3 months, and 6 months. Statistical analysis was conducted to evaluate outcome measures.

Results: No major complications, including vascular occlusion, Tyndall effect, or delayed-onset nodules, were observed. All patients reported high satisfaction at the 14-day follow-up, which was sustained throughout the 6-month evaluation period. Statistical analysis confirmed a significant improvement in patient-reported outcomes.

Conclusion: The N-Point Technique for under-eye filler injection provides an effective and minimally invasive approach to treating infraorbital hollowness. By addressing both deep and superficial anatomical layers, this method enhances aesthetic outcomes while minimizing adverse effects. The technique offers a safe alternative for achieving natural and long-lasting under-eye rejuvenation.

Keyword: Under eye filler; Under eye deformity; Tear trough filler; Periorbital rejuvenation, Fillers; Hyaluronic acid.

Received: February 15, 2025

Revised: March 06, 2025

Accepted: March 18, 2025

Published: May 10, 2025

Citation: Adel N. The N Point technique: A Next-Gen approach to natural under eye restoration. *Pak J Med Surg Aesthet.* 2025;1(1):16-21.

Introduction

Facial rejuvenation aims to restore youthful contours and structural support to aging tissues. Various modalities, including surgical and nonsurgical interventions, have been introduced to achieve this

goal. Among these, injectable fillers have gained widespread popularity due to their minimally invasive nature. However, the lower eyelid remains one of the most challenging areas for filler injection due to its complex anatomy and the multifactorial nature of infraorbital groove formation. This groove results from a combination of volume depletion, skin laxity, skeletal remodeling, and the structural influence of retaining ligaments.¹⁻³

While surgical approaches can provide definitive correction, their associated downtime and potential complications make hyaluronic acid (HA) fillers the

Address or corresponding

Dr. Noury Adel (MSc, DHM),
Oral and Maxillofacial Surgery Specialist,
Private practice, Cairo, Egypt.
Ph: +201020237551
Email: dr.noury100@gmail.com

preferred option for under-eye rejuvenation. Despite their effectiveness, treatment of the infraorbital area presents unique challenges. The delicate nature of the skin, the dynamic interplay of periorbital muscles, and the intricate compartmentalization by ligamentous structures contribute to procedural complexity. Additionally, the presence of critical vascular structures poses risks of vascular occlusion and, in rare cases, blindness. Impaired superficial lymphatic drainage in this region further predisposes patients to malar edema, a common post-procedure concern.⁴

This study introduces a modified single-entry point technique for under-eye rejuvenation, designed to enhance volume restoration, provide structural support to retaining ligaments, and reinforce the inferior orbital rim. By refining filler placement strategies, this approach aims to improve aesthetic outcomes while minimizing complications.

Material and Methods

This prospective clinical study included 60 Middle Eastern female patients aged 22–35 years who presented to our clinic for under-eye rejuvenation using hyaluronic acid (HA) fillers. Patients were clinically assessed using Hirmand's classification,⁵ and those classified as Grade I, II, or III were included. Patients with poor skin quality, evaluated using the snap-back test, or those with excessive infraorbital fat prolapse were excluded from the study.

The following methods were implemented for preoperative and postoperative evaluation:

a) Patient Satisfaction Score (PSS): Each patient rated their satisfaction with their under-eye appearance using a 5-point scale that was previously described in one of our studies,¹¹ where:

- 1: Not satisfied
- 2: Slightly satisfied
- 3: Moderately satisfied
- 4: Satisfied
- 5: Very satisfied

The PSS was recorded at baseline (pre-injection) and at 14 days, 3 months, and 6 months post-treatment.

b) Infraorbital Improvement Score (IIS): A blinded panel of three independent evaluators, including two aesthetic specialists and one dermatologist, assessed standardized digital photographs using the Infraorbital Improvement Score (IIS). The score was based on volume restoration, contour smoothness, and reduction in shadowing, rated from 0 (no improvement) to 10 (excellent improvement).

c) Complication Monitoring: Any adverse events, such as bruising, vascular occlusion, malar edema, or nodular formation, were documented at each follow-up visit.

Injection Protocol

All patients were treated with Revanesse® Revise filler (Prolenium Medical Technologies, Inc., Aurora, ON, Canada). The procedure was performed as follows:

- **Anesthesia:** A small amount of plain lidocaine was injected at the designated entry site, located at the midline of the V-shaped under-eye deformity, approximately aligned with the mid-pupillary line.
- **Cannula Placement:** A 23G, 30 mm cannula (Soft Medical Aesthetics, France) was introduced through an entry point and advanced to the bone then used to deliver the filler in four structured steps:

1. Deep Plane Filler Placement:

- A microbolus was deposited in the sub-orbicularis oculi fat pad (SOOF) to restore lost volume.
- Another bolus was placed at the thickened portion of the orbital retaining ligament (ORL) to provide structural support.
- A sequence of microbolus injections was delivered along the inferior orbital rim, targeting:
 - Midway between the lateral limbus and lateral canthus.
 - Below the mid-pupillary line, angled while tenting the skin.

- Midway between the medial limbus and medial canthus, along the orbital rim.

2. Superficial Layering:

- Linear threading technique was used to deposit filler in a retrograde fashion along the tear trough area, ensuring smooth transitions and a natural contour.

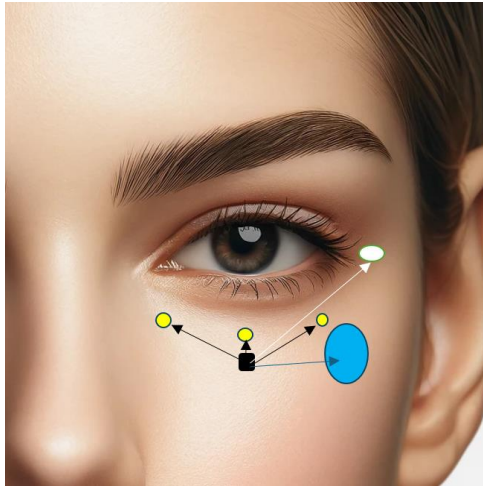


Figure 1 Artificial intelligence (AI) generated illustration depicting the N-point technique for under-eye filler injection. The blue circle marks the initial step-microaliquot injection at the lateral suborbicularis oculi fat (SOOF). The white circle denotes the second step-microaliquot injection at the lateral thickening of the orbicularis retaining ligament (ORL). The yellow dots represent the final step-microaliquot injection along the tear trough valley.

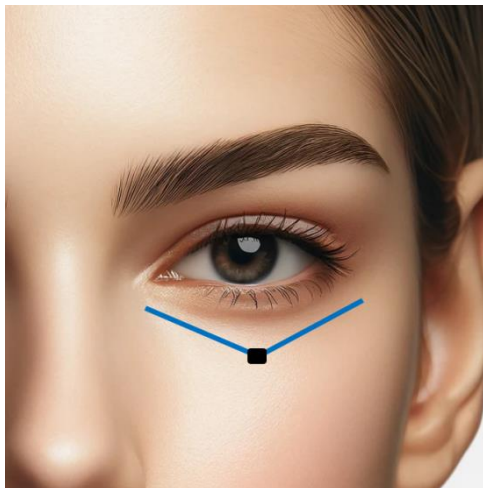


Figure 2 Artificial intelligence (AI) generated illustration depicting the final step in the N-point technique for under-eye filler rejuvenation which is injecting superficial linear threads of filler in a retro grade fashion at the tear trough area.

Statistical Analysis

Statistical analysis was conducted using SPSS software. The following tests were applied:

- Paired t-tests to compare pre- and postoperative PSS and IIS scores.
- Repeated measures ANOVA to analyze changes over time (baseline, 14 days, 3 months, and 6 months).
- Wilcoxon signed-rank test for non-parametric data distribution.
- Descriptive statistics (mean±standard deviation) for all quantitative variables. A p-value <0.05 was considered statistically significant.

Results

None of the patients experienced serious complications during or after the procedure. There were no cases of vascular occlusion, malar edema, or nodular formation in any of the treatment sessions. Additionally, no Tyndall effect was observed at any follow-up visits (**Figure 4**).

All patients reported a significant improvement in their satisfaction with their under-eye appearance following the procedure. The mean PSS scores increased from 1.52 ± 0.63 at baseline to 4.78 ± 0.41 at the 14-day follow-up and remained high at 6 months (4.65 ± 0.49). Statistical analysis using repeated measures ANOVA showed a significant difference ($p < 0.001$) across all time points (**Table 1; Figure 3**).

The IIS, as evaluated by a blinded panel, showed a

Table 1 Patient Satisfaction Scores (PSS).

Time Point	Mean PSS	SD	P-Value	Significance
Baseline	1.52	0.63	<0.001	Highly Significant
14 Days	4.78	0.41	<0.001	Highly Significant
3 Months	4.72	0.45	<0.001	Highly Significant
6 Months	4.65	0.49	<0.001	Highly Significant

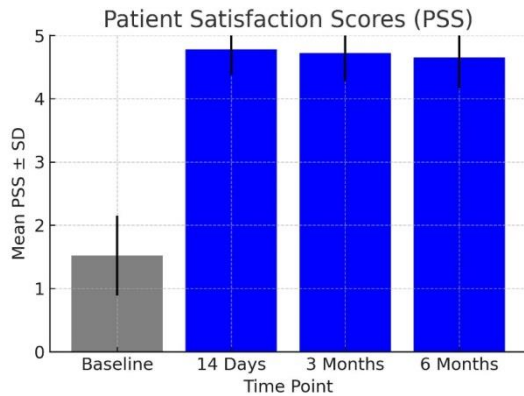


Figure 3 Patient satisfaction score among different time intervals.



Figure 4 Pre & Postoperative results for the N point technique.

significant improvement in infraorbital contour and shadowing. The mean score improved from 2.14 ± 0.75 (baseline) to 8.62 ± 0.58 at 14 days and remained stable at 8.34 ± 0.61 at 6 months (**Table 2; Figure 5**).

No serious complications were reported. Minor bruising was observed in 3 out of 60 patients (5%), which resolved within 7 days. No patients experienced vascular occlusion, malar edema, or persistent nodules (**Table 3**).

Repeated measures ANOVA confirmed significant improvement ($p < 0.001$) in PSS and IIS over time. Paired t-tests comparing each time point to baseline

were statistically significant ($p < 0.001$). No significant difference ($p > 0.05$) was found between 3-month and 6-month IIS scores, suggesting sustained results.

Discussion

The use of hyaluronic acid (HA) fillers for infraorbital rejuvenation has been widely explored, with multiple techniques proposed to address tear trough deformities. Various injection strategies exist, each aiming to restore lost volume and enhance the under-eye region while minimizing complications.^{6,7} In this study, we implemented a modified N-point technique utilizing a 23G 30 mm microcannula, selected for its maneuverability and improved safety profile. While the use of micro cannulas is often favored over needles to reduce the risk of vascular complications, it is essential to acknowledge that no technique is entirely free of risk.¹¹

Our approach differs from conventional methods by adopting a multilayered filler placement strategy, targeting both deep and superficial fat compartments. The deep injections provided structural support by augmenting the supra-periosteal region, enhancing projection, while the superficial layer helped smoothen the transition between the infraorbital area and the mid face. Additionally, filler deposition along the thickening of the lateral orbital retaining ligament was utilized to reinforce the ligamentous structure, effectively improving hollowing, particularly in cases where the deformity extended laterally. The concept of multilayered filler injection has been previously explored in facial rejuvenation, demonstrating aesthetic improvement and long-term stability of results.⁸

Table 2 Infraorbital Improvement Scores (IIS).

Time Point	Mean PSS	SD	P-Value	Significance
Baseline	2.14	0.75	<0.001	Highly Significant
14 Days	8.62	0.58	<0.001	Highly Significant
3 Months	8.5	0.60	<0.001	Highly Significant
6 Months	8.34	0.61	<0.001	Highly Significant

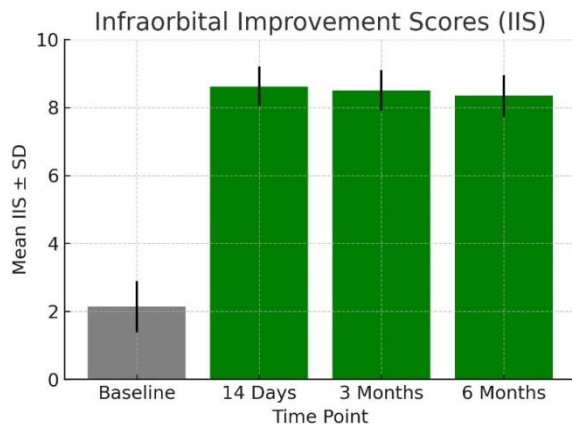


Figure 5 Infraorbital Improvement Scores (IIS) among different time intervals.

Table 3 Complications rate.

Complication	Incidence, n (%)
Bruising (resolved in 7 days)	3 (5%)
Malar Edema	0 (0%)
Vascular Occlusion	0 (0%)
Nodular Formation	0 (0%)
Tyndall Effect	0 (0%)

A key observation in this study was the absence of serious complications typically associated with infraorbital filler injections. Commonly reported adverse effects, such as the Tyndall effect, nodular formations, delayed inflammatory reactions, vascular occlusion, and filler migration, were not encountered among our patients. Of particular concern in periorbital filler procedures is blindness, a catastrophic yet rare complication that has been linked to inadvertent intravascular injection. Several management protocols, including retro bulbar hyaluronidase injection, supraorbital injection of hyaluronidase, intra-arterial hyaluronidase administration through the facial artery and intra-arterial administration of hyaluronidase into the ophthalmic artery via catheterization have been described in the literature for addressing vascular compromise. The absence of such complications in our study suggests that the precise placement of filler and careful technique selection play a pivotal role in enhancing safety.

Another factor contributing to the favorable outcomes observed in this study was the choice of filler material. We utilized Revanesse Revise®, a formulation containing one of the lowest HA concentrations (12

mg/mL) available for aesthetic applications. The lower HA concentration is advantageous in the under-eye region, as it minimizes the risk of excessive swelling, delayed adverse reactions, and lymphatic impairment putting into consideration that patient selection is mandatory for the success of the procedure. None of our patients exhibited product-related complications, further supporting the suitability of this specific filler for delicate periorbital applications.^{9,10}

Despite the promising results, this study has several limitations. The sample size was relatively small, and the study population was limited to a specific demographic, potentially restricting the generalizability of findings. Furthermore, the absence of objective evaluation tools, such as 3D volumetric analysis or standardized imaging assessments, presents a challenge in quantitatively measuring outcome improvements. Future studies incorporating quantitative metrics and extended follow-up periods are warranted to further validate the efficacy and longevity of the proposed technique.

Conclusion

The proposed N-point technique has shown acceptable and natural results for the patients in addressing the infraorbital hollow with minimal side effects. We strongly recommend further studies to assess this technique with a longer follow up period and a large cohort in addition to using software analysis.

Declaration of patient consent The author certify that he has obtained all appropriate patient consent.

Financial support and sponsorship None.

Conflict of interest Author declared no conflict of interest.

References

1. Cotofana S, Schenck TL, Trevidic P, et al. Midface: clinical anatomy and regional approaches with injectable fillers. *Plast Reconstr Surg*. 2015;136(5 Suppl): 219S-234S.
2. Anido J, Fernández JM, Genol I, Ribé N, Pérez Sevilla G. Recommendations for the treatment of tear trough deformity with cross-linked hyaluronic

- acid filler. *J Cosmet Dermatol*. 2021;**20**(1):6-17.
3. Farkas JP, Pessa JE, Hubbard B, Rohrich RJ. The science and theory behind facial aging. *Plast Reconstr Surg Glob Open*. 2013;1(1):e8-e15.
4. Pessa JE, Garza JR. The malar septum: the anatomic basis of malar mounds and malar edema. *Aesthet Surg J*. 1997;**17**(1):11-17.
5. Hirmand H. Anatomy and nonsurgical correction of the tear trough deformity. *Plast Reconstr Surg*. 2010;**125**:699-708.
6. Sharad J. Treatment of the tear trough and infraorbital hollow with hyaluronic acid fillers using both needle and cannula. *Dermatol Ther*. 2020;**33**(3):e13353. doi: 10.1111/dth.13353
7. Shah-Desai S, Joganathan V. Novel technique of non-surgical rejuvenation of infraorbital dark circles. *J Cosmet Dermatol*. 2021;**20**(4):1214-1220. doi: 10.1111/jocd.13705.
8. Trévidic P, Kaufman-Janette J, Weinkle S, Wu R, Dhillon B, Antunes S, Macé E, Maffert P. Injection Guidelines for Treating Midface Volume Deficiency With Hyaluronic Acid Fillers: The ATP Approach (Anatomy, Techniques, Products). *Aesthet Surg J*. 2022 Aug 1;**42**(8):920-934. doi: 10.1093/asj/sjac007.
9. Anido J, Fernández JM, Genol I, Ribé N, Pérez Sevilla G. Recommendations for the treatment of tear trough deformity with cross-linked hyaluronic acid filler. *J Cosmet Dermatol*. 2021 Jan;**20**(1):6-17. doi: 10.1111/jocd.13475.
10. Wilde CL, Gupta A, Lee S, Ezra DG. Tear Trough Filler Using the Three-point Tangent Technique: Lessons from 1452 Tear Trough Applications. *Plast Reconstr Surg Glob Open*. 2023 Jun 9;**11**(6):e5060. doi: 10.1097/GOX.0000000000005060.
11. Adel N. Volumization and Global Biostimulation Using Calcium Hydroxyapatite Filler: A Dual Approach for Hand Rejuvenation. *Plast Reconstr Surg Glob Open*. 2023 Nov 17;**11**(11):e5396. doi: 10.1097/GOX.0000000000005396.