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Precision supraperiopsteal microsroplet cannula technique (Shash technique) for tear trough filling

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Abstract

Background: Tear trough deformity is a common aesthetic concern producing a fatigued appearance due to shadowing along the nasojugal groove. Although hyaluronic acid fillers are widely used, complications such as Tyndall effect, edema, and contour irregularities remain challenging.

Objective: To evaluate the safety and clinical effectiveness of a supraperiosteal precision microdroplet cannula technique for tear trough correction.

Methods: This case series included 20 patients aged 20-50 years treated over a one-year period. Hyaluronic acid filler was administered using a 25G, 50-mm blunt cannula through a single lateral entry point over the zygomatic region. Microdroplets (~0.05 mL) were deposited in the supraperiosteal plane. Outcomes were assessed using photographic comparison and patient satisfaction (10-point scale) at two weeks. Complications were recorded.

Results: All patients demonstrated visible improvement. Mean satisfaction score was 8.25±0.97 (95% CI: 7.83-8.67). No Tyndall effect or prolonged edema was observed. Two patients developed nodules, which resolved with hyaluronidase.

Conclusion: The microdroplet cannula technique provides a controlled and safe approach to tear trough correction with favorable outcomes and minimal complications.

Keyword: Tear trough; Hyaluronic acid filler; Cannula technique; Microdroplet technique; Periorbital rejuvenation.

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Introduction

The tear trough deformity presents as a concavity extending from the medial canthus along the nasojugal groove, often creating a shadow beneath the lower eyelid that gives a fatigued or aged appearance. This anatomical feature was first described by Flowers.[1]

Its development is multifactorial, involving relative prominence of the orbital rim, thinning of the periorbital skin, volume loss in the medial cheek fat

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compartments, and tethering by the orbitomalar ligament.[2]

Hyaluronic acid fillers are widely used due to their safety and reversibility; however, outcomes are highly dependent on injection technique. Various approaches have been described, including superficial, sub-orbicularis, and supraperiosteal techniques.[3]

The aim of this study was to evaluate the safety and clinical effectiveness of a supraperiosteal microdroplet cannula technique in tear trough correction.

Methods

This case series included 20 patients presenting with tear trough deformity over one year. Patients aged 20-50 years were included; most were female.

Inclusion criteria: mild to moderate tear trough deformity.

Exclusion criteria: severe skin laxity, active infection, prior filler complications.

A single entry point was created laterally over the zygomatic bone. Through this point, a 25G, 50-mm blunt cannula was introduced and advanced in the deep supraperiosteal plane beneath the orbicularis oculi muscle.

Hyaluronic acid filler was injected in small aliquots of approximately 0.05 mL along the nasojugal groove from medial to lateral. The injections were spaced to avoid forming a continuous linear deposition.

After injection, gentle massage was carried out to distribute the filler evenly. Slight under-correction was intentionally maintained to minimize the risk of overfilling.

Patients were evaluated using standardized before-and-after photographs and patient satisfaction score on a 10-point scale at two week follow up to assess final outcomes.

Table 1 Patient demographic characteristics.

Total patients	20
Age range	20–50 years
Mean age	31.6 years
Female patients	16 (80%)
Male patients	4 (20%)
Follow-up	2 weeks

Table 2 Summary of clinical outcomes.

Immediate improvement	100%
Mean satisfaction score	8.25 ± 0.97
Satisfaction range	6-10
Nodules	10%
Tyndall effect	0%
Prolonged edema	0%

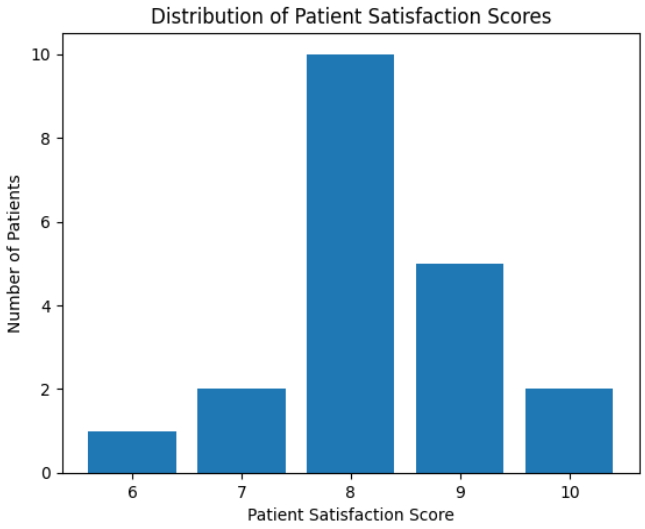

Figure 1 Distribution of patient satisfaction scores following treatment.

Results

The mean age was 31.6 years, and females constituted 80% of the study group **(Table 1)**. All patients showed improvement in tear trough contour immediately after treatment. Final aesthetic results were better appreciated at two weeks after resolution of mild swelling **(Figures 2,3)**.

The mean satisfaction score was 8.25±0.97, with a 95% confidence interval of 7.83-8.67. Scores ranged from 6 to 10, with a median score of 8 **(Table 2)**.

No cases of Tyndall effect or prolonged edema were observed. Two patients (10%) developed small

Figure 2 Before and after treatment demonstrating improvement in tear trough depth.

Figure 3 Representative patient showing smoother lower eyelid contour two weeks after treatment.

localized nodules beneath one eye; these resolved completely following hyaluronidase injection. No vascular complications or filler migration were noted.

Discussion

Tear trough correction remains challenging due to the delicate anatomy of the lower eyelid, including thin skin and sensitive lymphatic drainage. These factors increase the risk of complications such as edema and visible filler irregularities.

Earlier techniques commonly relied on superficial filler placement above the orbicularis oculi muscle. Although they can provide improvement, but they are associated with a higher incidence of complications, especially the Tyndall effect and contour irregularities.[4]

The approach used in this case series focuses on controlled filler placement in the supraperiosteal plane (Shash technique). Injecting the filler in small, spaced aliquots reduces the chance of visible accumulation beneath the thin eyelid skin. In addition, smaller volumes may reduce pressure on the lymphatic system, which could help in minimizing persistent edema.[5]

Systematic reviews have similarly reported swelling and nodules as among the most frequent complications following tear trough filler procedures.[6]

The use of a blunt cannula further enhances safety by reducing the risk of vascular injury compared to needle techniques.[7]

Previous studies have reported higher rates of edema and discoloration with superficial placement, whereas deeper techniques demonstrate improved safety profiles. In contrast to these reports, no cases of Tyndall effect or prolonged edema were observed in our series, likely reflecting the benefit of deep supraperiosteal microdroplet placement.

Current consensus recommendations emphasize conservative filler use, deeper injection planes, and staged correction.[6,8,9] The microdroplet approach aligns with these principles and represents a practical refinement rather than a completely new technique.

This study is limited by its small sample size and short follow-up period. Longer studies are required to evaluate long-term outcomes and delayed complications.

Conclusion

The supraperiosteal microdroplet cannula technique provides a controlled and reproducible method for tear trough correction. It offers high patient satisfaction with minimal complications and may be considered a valuable refinement in periorbital rejuvenation.

Declaration of patient consent The authors certify that they have obtained all appropriate patient consent.

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Conflict of interest The authors affirm that they have no conflicts of interest to disclose.

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