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- AQ4—Sentence OK as edited, with “infections” rather than “injections” (“...intravascular infections using 30-gauge needles”)?
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A Safe Nonsurgical Rhinoplasty Procedure

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Summary: Nonsurgical rhinoplasty procedures are not without risks: although rare, intravascular injections of hyaluronic acid can lead to serious complications. Very few authors have reported using cannulas for filler injection in the nose. The purpose of this article is to describe how the authors perform nonsurgical rhinoplasty using a single entry point and cannulas, significantly reducing vascular and infection risks. The procedure described in this article can be applied to all indications of nonsurgical rhinoplasty. The key point of the authors' procedure is the definition of a single, medial entry point. Using a 5-cm, 25-gauge, dome-shaped cannula, all nasal regions can be reached, from the anterior nasal spine to the nasion. The authors' nonsurgical rhinoplasty procedure using cannulas reduces complications and provides results similar to those achieved with needles. (*Plast. Reconstr. Surg.* 150: 00, 2022.)

Nonsurgical rhinoplasty has evolved greatly over the past decade. Various dermal fillers can now be used to perform nonsurgical rhinoplasties. To date, hyaluronic acid is the first-line product. Its high tolerability, ease of use, absorbability, and the availability of hyaluronidase ensure safety and comfort of use.¹ However, nonsurgical rhinoplasty is not without risks: although rare, intravascular injections have been reported in the literature and can lead to serious complications such as skin necrosis or blindness.^{2,3} Bruising and local infections related to multiple skin punctures by needles are also frequently described. An increasing number of studies have been published focusing on nonsurgical rhinoplasty. Surprisingly, very few authors have reported using cannulas for filler injection in the nose.⁴ The purpose of this article is to describe how we perform nonsurgical rhinoplasty using a single entry point and cannulas, significantly reducing vascular and infection risks.

TECHNICAL DESCRIPTION

Indications

The procedure described below can be applied to all indications of nonsurgical rhinoplasty:

dorsal hump camouflage, profile line projection, nasal tip definition, nasolabial angle opening, of correction of columella shape or nasal tip dissymmetry. Steps 3 to 6 are performed on request, depending on nasal deformities. We mostly use 24 mg/ml of high-G' hyaluronic acid containing 0.3% lidocaine. Hundreds of patients have received our protocol, which we have been performing for years.

Technique

Step 1: Definition of a Single Entry Point

After careful skin disinfection, the key point of our procedure is the definition of a single, medial entry point. The location of the entry point may vary slightly according to the shape of the nose but is located at the supratip lobule. Using a 5-cm, 25-gauge, dome-shaped cannula, all nasal regions can be reached, from the anterior nasal spine to the nasion (Fig. 1).

Step 2: Creating a Skin Puncture for Cannula Insertion

Topical anesthetic can be used, on request, at this step. We use a 25-gauge needle to make a breach in the skin and leave the needle in place for 1 minute.

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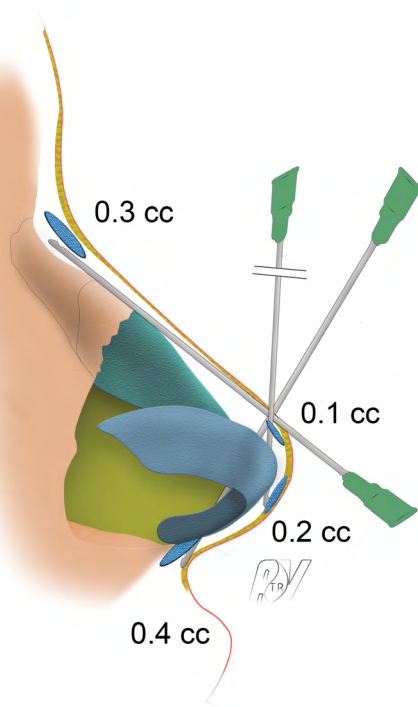


Fig. 1. A single entry-point at the supratip lobule allows a 5-cm cannula to reach the radix, anterior nasal spine, and nasal tip. Doses may vary according to the patient's nasal shape.

Step 3: Treatment of the Nasal Base

If increased tip rotation and nasolabial angle opening are required, we recommend performing this step at the beginning of the procedure. From the entry point, the cannula is inserted between the medial crura of the lower lateral cartilages as far as the anterior nasal spine through the Pitanguy ligament. Hyaluronic acid is injected until the nasolabial angle opening planned before injection is obtained. Usually, large volumes (0.3 to 0.5 cc) of hyaluronic acid are needed at this step, as the injection is relatively deep. [See **Figure, Supplemental Digital Content 1**, which shows nonsurgical rhinoplasty using 0.8 cc of hyaluronic acid. Immediate result in a patient without prior surgery. (*Left*) Before; (*right*) after. The pollybeak deformity was corrected using 0.6 cc at the anterior the nasal spine to open the nasolabial angle; 0.2 cc was added in the tip to increase its projection, <http://links.lww.com/PRS/F111>.]

Step 4: Treatment of the Profile Line

The cannula is gradually inserted from the supratip lobule to the radix under the subcutaneous-fatty plane and above the perichondrium and periosteum; 0.1 to 0.4 cc is generally needed in

the radix for hump camouflage. The profile line is harmonized depending on the patient's dysmorphism. Two fingers are positioned laterally while injecting to avoid lateral dispersion of the hyaluronic acid.

Step 5: Correction of the Middle Third

Middle third correction is mostly needed in secondary cases. [See **Figure, Supplemental Digital Content 2**, which shows nonsurgical rhinoplasty using 1 cc of hyaluronic acid aiming to correct nasal deformities 2 years after a surgical rhinoplasty (immediate result). (*Left*) Before; (*right*) after. The patient wanted to correct the narrowness of the middle third, the deviation, and the slight saddle nose deformity. Most of the hyaluronic acid was smoothly spread in the middle third to correct the surgical appearance, <http://links.lww.com/PRS/F112>.] After step 4, the cannula can be lateralized to correct lateral defects and restore the Sheen lines.

Step 6: Treatment of the Nasal Tip

For tip injections, 26-gauge, 18-mm, dome-shaped cannulas are used. Two types of injection allow better projection and definition of the nasal tip and creation of a supratip break, namely, a single medial injection or two lateral injections, above the domal notches (**Fig. 2**).

Cephalic rotation can also be increased by injecting the infratip lobule (**Fig. 1**). Most often, less than 1 cc is needed for the entire procedure. Do not hesitate to massage hyaluronic acid

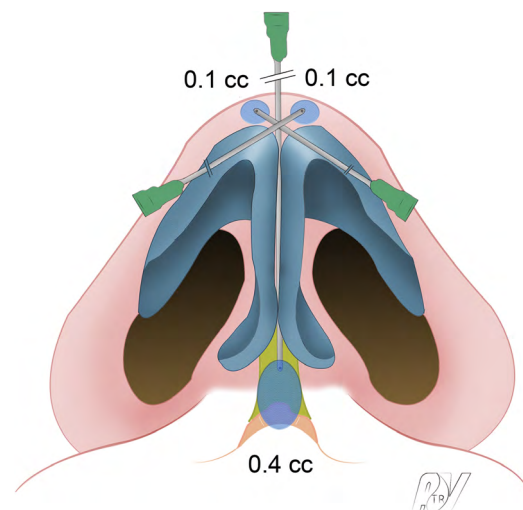


Fig. 2. The basal view shows how the cannula is inserted between the medial crura of the alar cartilages to reach the anterior nasal spine. Tip injection can be achieved with hyaluronic acid deposit above the domal notches. Doses may vary according to the patient's nasal shape.

to harmonize and sculpt the shape of the nose. Patients must avoid wearing glasses that press on injected areas for 10 days. This procedure can be personalized to correct abnormalities after rhinoplasty (Fig. 3).

DISCUSSION

The main complications related to nonsurgical rhinoplasties are intravascular injections, bruising, and local infections. These complications can be limited using our protocol.



Fig. 3. Nonsurgical rhinoplasty (1 cc) using a cannula to correct nasal deformities 15 years after a surgical rhinoplasty. (Left) Before; (right) after. Major modifications are visible on the oblique view (immediate result). In this case, with the single entry point, 0.7 cc was injected in the middle third and in the keystone area for correction of the inverted V and dorsum asymmetries; 0.2 cc was injected in the tip on the left side and 0.1 cc laterally for alar retraction.

Anatomical studies confirm that vessel position is highly variable and cannot be predicted, even by highly trained practitioners. Moreover, in revision cases, there is an increased risk of vascular compromise.⁵ Precautions (slow injection with a reflux maneuver on the syringe, medial injection) are not sufficient to avoid all complications. As evidence, vascular issues are reported in the literature, including serious cases with extensive skin necrosis or blindness.⁶ In a large retrospective study, Harb and Brewster reported 0.48 percent rate of intravascular **infections** using 30-gauge needles.² Although rare, these situations are dramatic for patients seeking aesthetic improvement through minimally invasive procedures. Dome-shaped cannulas with a diameter greater than or equal to 25-gauge allow nontraumatic dissection, circumventing vessels.⁷ This technique considerably limits the risk of intravascular injection, and the therapeutic benefits remain identical. Bruising is related to skin perforation. The large number of entry points needed when using needles may lead to multiple hematomas. As reported in facial rejuvenation procedures,⁸ the use of cannulas reduces bruising and hematomas. Logically, decreasing the number of entry points also limits the potential risk of local infection.

The dome-shaped cannula allows easy and natural access to the appropriate dissection plane, where the cannula glides smoothly and nontraumatically. We recommend beginning the procedure by injecting the nasolabial angle. This makes it possible to modify the tip position. Next, the profile line and middle third can be perfectly adjusted depending on the new tip position. Finally, if needed, tip definition and projection are adjusted at step 6.

We have been performing this procedure for decades and have experienced no major complications (e.g., skin necrosis or blindness). Edema or irregularities are very seldom reported by patients, and gentle massaging is sufficient to correct these minor complications. Hyaluronidase can be injected in the event of major overcorrection. If nonabsorbable fillers (e.g., calcium hydroxylapatite) dramatically increase the difficulty level when performing secondary rhinoplasty, a prior hyaluronic acid injection could also

lead to various problems, including difficulty in dissolving all the filler with hyaluronidase, leaving pockets that could distort the long-term outcome, or potential infection because of biofilms occupying the filler deposits.

CONCLUSION

Our nonsurgical rhinoplasty procedure using cannulas reduces complications and provides results similar to those achieved with the use of needles.

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PATIENT CONSENT

Patients provided written informed consent for the use of their images.

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