INTRODUCTION

The nasal dorsum plays an important role in the aesthetic evaluation of the nose and of the face as a whole. Dorsal height reduction results in the destruction of the nasal dorsum. This further results in the destruction of the internal valve and keystone areas, which are reconstructed with either spreader flaps or grafts for aesthetic and functional reasons.1–6 This often causes secondary deformities and problems with the nasal valve, which can occur over a long period after rhinoplasty and may require a surgical revision; these surgical revisions generally use rib cartilage.7–14

The question then becomes how a surgeon can reduce the dorsal profile line without resecting the dorsum. Although there are several techniques for doing so, all these have their associated advantages and disadvantages.15–22

It is difficult to preserve the whole dorsum of the nose for all primary rhinoplasties. But we can save the cartilaginous part of the dorsum—one of the most important parts of the anatomy of the nose.

The cartilaginous part of the dorsum (cartilaginous framework) is made up of the cartilaginous septum that forms one unit with the upper laterals (See figure, Supplemental Digital Content 1, for anatomical clarification of the cartilaginous framework. http://links.lww.com/PRSGO/B480).

However, the cartilaginous dorsum repositioning technique (CDRT) also allows us to reduce the length of the nose, which in turn allows us to preserve more of the nasal anatomy than we previously anticipated. At the same time, we are able to obtain great aesthetic results.

METHODS

Patient-related Information

From September 2018 to December 2019, the author performed 210 rhinoplasties using the cartilaginous framework repositioning technique (CDRT). Statistical analysis was also performed.

Results: CDRT resulted in relatively limited edema and more rapid patient recovery in comparison with the traditional rhinoplasty technique used. No serious complications were observed using this new technique.

Conclusions: This technique allows for the treatment of almost 90% of primary rhinoplasty patients, without destruction of the cartilaginous portion of the nasal dorsum and septum cartilage, and allows us to save nasal anatomy almost in its entirety. At the same time, we are able to obtain great aesthetic results. (Plast Reconstr Surg Glob Open 2021;9:e3151; doi: 10.1097/GOX.0000000000003151; Published online 21 January 2021.)
Preoperatively, all patients received detailed information regarding the study and provided written informed consent to undergo the surgery and to have their photographs published for educational purposes. An estimated 110 patients were available for a telephonic interview immediately after the surgery. The remaining patients were not available until the end of 1 year and could not be contacted due to a change in the phone number or address.

**Surgical Technique**

Step 1. Five minutes before the surgery, the nasal cavity was anesthetized with nasal cottonoids moistened with 0.05% oxymetazoline, while the nose was injected with a xylocaine 5.0 ml 2% and adrenaline (1:100,000) solution.

Step 2. A hemitransfixion incision was made along the caudal border of the nasal septum, which gave good access to all the septal parts.

Step 3. The septal strip, extending from the anterior nasal spine of the maxilla to the perpendicular plate of the ethmoid bone, was removed (the width of the septal strip removal is dependent on aesthetic factors) (See Figure, Supplemental Digital Content 2, for detailed cut locations. http://links.lww.com/PRSGO/B561).

Step 4. An incision was made in the posterior part of the septal cartilage. We did not touch the junction between the quadrangular cartilage and the perpendicular plate because this area is anatomically regular and serves as an important support point (SP). Furthermore, the Cottle’s maneuver can weaken the perpendicular plate:

It is important to consider the fact that this is the main SP (See figure, Supplemental Digital Content 3, which shows what the “Support Point” looks like. http://links.lww.com/PRSGO/B564).

**Fig. 1.** Preoperative and postoperative (6 months) photographs. Nasal hump, crooked nose, dropped tip. The CDR was used to reduce the hump. Refinement of the tip was carried out by the method of subperichondrial dissection. Preoperative photographs (A–C) and postoperative photographs (D–F).
Step 5. An intercartilaginous incision was made for access to the nasal dorsum. The dorsum was elevated in the submucoperichondrial and subperiosteal plane. The nasal bones and upper lateral cartilages were separated by breaking the connection between them, almost to the end of the upper lateral cartilages. The cartilaginous framework of the nose now moves freely (see Supplemental Digital Content 4, which shows schematically shows the movement of the cartilaginous framework on the “Support Point” after mobilization. http://links.lww.com/PRSGO/B562).

Step 6. The cartilaginous framework was displaced inferiorly and posteriorly, and moved back and forth (the mobilized septum cartilage may need to be moved either to the right or to the left of the SP, so that the cartilaginous framework moves posteriorly) (see Supplemental Digital Content 5).

Fig. 2. A 47-year-old man complained about nasal breathing problems and high dorsum. The CT scan findings revealed a significant s-shaped septal deviation. An endonasal approach was made; the CDRT was used to reduce the hump. The refinement of the tip was performed. The patient is shown preoperatively (A–C) and 4 months postoperatively (D–F).
Digital Content 5. Separation of the nasal bones from the cartilage framework does not require complete separation of the nasal skin. The figure shows the anatomy of this area. http://links.lww.com/PRSGO/B563.

Step 7. An infracartilaginous incision was made for tip rhinoplasty. Tip refinement was performed.

Step 8. The final corrections to the nasal shape were made by cutting away the extra portions of the nasal septum (anterior, posterior, and lower parts) and the caudal edge of the upper lateral cartilages (when necessary) (See Supplemental Digital Content 3. http://links.lww.com/PRSGO/B564). The adjustment of the 2 anatomical parts, that is, the dorsum and the tip, are important for aesthetic harmony.

Step 9. The bone part of nasal dorsum (see Supplemental Digital Content 6. View of the bone part of nasal dorsum, without cartilaginous part. http://links.lww.com/PRSGO/B560) is cut away, as has always been done, but without touching the cartilaginous part. Classical lateral and transverse osteotomies were performed to narrow the nose.

Step 10. The final bony profile refinements were made with crushed cartilage and bone for camouflage. The septum need not be attached to the anterior nasal spine. Splints played an essential role in keeping the septal cartilage in the median position, together with nasal dressings that were used.

RESULTS

Patients were examined 1, 2, 6, and 12 months after surgery. The results were evaluated based on the medical examination and following questions displayed in Table 1 and the photographs before and after surgery (Figs. 1, 2, and 3).
Patients were asked about “natural feeling”—when touching the dorsum of the nose, was the sensation of touch as it was before rhinoplasty? (ie, no pain, soft, and elastic).

During the 1.5-year follow-up for CDRT in 210 primary rhinoplasties, the main problems observed were camouflage-related issues or dorsum irregularity (8 patients), and the widening of the middle third segment (5 patients). These required a simple surgical revision.

We preserved not only the cartilaginous part of the nasal dorsum but also the entire nasal septum cartilage (only the extra parts were resected). We have been able to achieve the following goals: simplification of the technique, making it easier, and keeping the cartilaginous part of the nasal dorsum intact while reducing the dorsal hump.

CONCLUSIONS

The dorsal preservation results in more natural postoperative dorsum lines, a faster recovery, higher patient satisfaction, and excellent functional results. This technique allows for the treatment of almost 90% of patients, without destruction of the cartilaginous part of the nasal dorsum and septal cartilage. It allows us to save nasal anatomy almost completely. However, more studies are needed, mainly comparative ones, with larger groups of patients.

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