

Traditional rhinoseptoplasty vs Preserving rhinoplasty – Literature Review

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ABSTRACT

The nasal pyramid is an essential structure in the physiognomy of the individual, and the external appearance of the nose is very important in the modern society in which we find ourselves. That is why the anatomical diversity of the nasal pyramids has led to the development of various surgical technique for reshaping the nasal structures.

Rhinoseptoplasty has changed considerably in recent decades, from a standardized reduction procedure to a procedure focused on very differentiated problems, reductions, relocations and augmentations of frequently combined tissues

Most surgeons around the world have agreed on a new concept of surgery, that of preserving different structures of the nose given the fact that the principle of preservation is better than that of resection, with a more natural result.

Material and method. *Review of the two surgical concept of rhinoplasty regarding the main advantages and disadvantages of each type of rhinoseptoplasty surgery.*

Results and conclusions. *Proper patient selection is important for good results. Before surgery, nasal analysis should performed clinically and photographically to determine the necessary corrections.*

Rhinoplasty is still one of the most challenging procedures in facial plastic surgery. With the right surgical experience and proper surgical techniques the results are most often good and the patients are satisfied.

Keywords: structural traditional rhinoseptoplasty, preservation rhinoseptoplasty, nasal dysmorphia

INTRODUCTION

Nasoseptal dysmorphia can be alterations of shape and position (lateral deviation) or development problems, in deficit (hypoplasia) or in excess (hyperplasia), accompanied by functional and aesthetic prejudice. Functional prejudice of nasoseptal dysmorphia could be: breathing disorders, sight disorders, sound disorders [2,3,6].

Rhinoseptoplasty techniques have been perfected over time, following two main surgical approaches: radical, structural rhinoplasty (resection/reconstruction) and conservative (preservative rhinoplasty) [2,13,20].

For most surgeons, the concept of “preservation” in rhinoseptoplasty and especially the preservation of the back of the nose is new. Preservative rhinoplasty refers to the preservation of several anatomical structures, including the nasal bones, lateral cartilage, and nasal ligaments where possible. The methods used were developed many years ago by the pioneers of rhinoplasty surgery. However, with the apparition of open-procedure rhinoplasty, many of these techniques have been forgotten or replaced by more aggressive resection techniques [4,25].

In 1946, Cottle and colleagues described the push-down technique, in which the continuity of the nasal

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dorsum was preserved by the bony and cartilaginous portion of the key points. The aim of this technique was to prevent the collapse of the lateral cartilage and the stenosis of the nostrils. Classical/traditional rhinoseptoplasty uses surgical technique in which external (open technique) or internal (closed technique) incisions are made in the nose to remove the hump.

MATERIAL AND METHOD

The principles in preservative rhinoseptoplasty consist of 3 (three) parts: Lifting the skin in a subperichondro-subperiosteal plane, resulting in less edema, minimal remodeling of scars and long-term avoidance of soft tissue degradation [4,12,20].

Compared to other rhinoseptoplasty techniques in which the nasal dorsum was removed by resection techniques, which required revisions and the use of grafts, the technique of preserving the back minimizes the need for revision and preserves the anatomy and shape of the nose without massive damage [12].

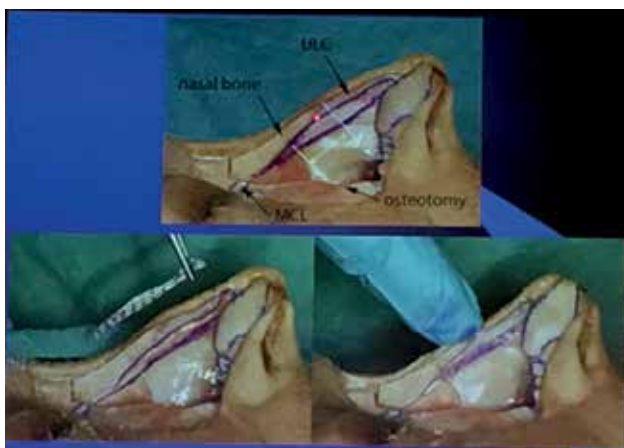


FIGURE 1. Maintaining the alar cartilage with a minimal incision, while achieving the desired shape, using sutures [4]

The technique of preserving the nasal dorsum can be performed under an open or closed approach. The most commonly used technique for this type of rhinoseptoplasty is “push-down” or “let-down”. Lateral and transverse osteotomies are used in this type of technique because it is necessary to mobilize the entire nasal pyramid. The push-down technique is used in case of a minimal reduction of the nasal dorsum (up to 4 mm) with lateral osteotomies performed percutaneously. The let-down technique is used when a reduction of more than 4 mm is desired. (Figure 2) [4,10,22].

Currently, the main focus is on establishing indications and contraindications, as well as improving the technique and minimizing complications. Most surgeons lift the soft tissue covering in the submusculo-aponeurotic plane, being relatively avascular and less disruptive, but it is still associated with significant

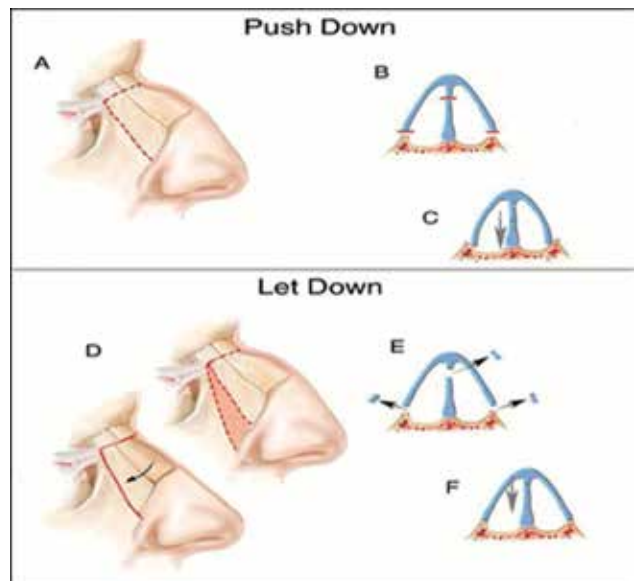


FIGURE 2. Lateral and transverse osteotomies used in preservative rhinoseptoplasty

postoperative swelling, scarring, numbness, and prolonged recovery.

The preservation technique uses subperichondro-subperiosteal dissection which results in minimizing scarring, swelling and avoiding long-term thinning of the skin.

Currently, most rhinoplasty surgeons use the standard technique of reducing the nasal dorsum/hump (the hump is removed or grated) resulting in the destruction of the K area (keystone region, Figure 3), thus requiring out of both functional and aesthetic reasons, reconstructions with grafts or flaps. Zone K is located at the junction of the cartilaginous and bony portions of the nasal dorsum. Its importance for the stability and structure of the nose is given by the number of complications that can arise from poor handling of this area. The key region is the nasal bones, the superior lateral cartilage, the quadrilateral cartilage, and the perpendicular blade of the ethmoid [22,25].

In classical (traditional) rhinoseptoplasty, patients are required to wear a splint on their nose for a period of 7 to 10 days, followed by a period of up to 2 weeks in which the patient has swelling and bruising [16].

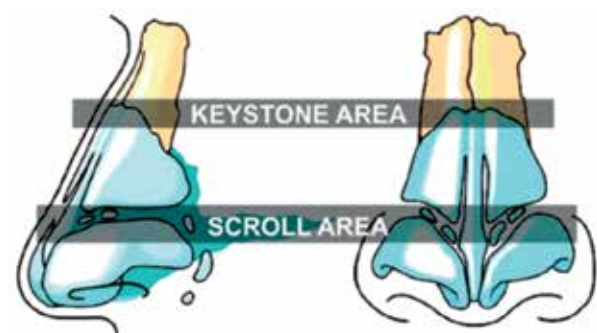


FIGURE 3. Anatomy of the nasal pyramid, “K” zone

The technique of preserving the nasal dorsum completely avoids violating the anatomy of the dorsal portion, and the principle is to remove a septal or bone band from under the hump, and the reduction of the dorsal portion is done by pushing down, compared to removing the hump from above.

Complete lateral, transverse, and radix osteotomies are required. The postoperative result of a conservation rhinoseptoplasty is a natural one, without disturbing the anatomical structures, without the need for reconstruction. It is easy to perform and faster, but requires a deepening of the anatomy of the underlying area, precise analysis and precise surgical execution to preserve the osteocartilaginous arch. The preservation technique can be performed by both open and closed approach [4,22,23].

The preservation of the alar cartilages can be achieved by subperichondral dissection, thus making them more flexible and various suturing techniques. In the case of other standard rhinoplasty techniques, incisions combined with excisions, sutures and grafts are used to achieve the desired shape. Initially, in these types of techniques, the results are satisfactory, but they deteriorate over time [4,22].

Preservative rhinoseptoplasty is also advancing in the surgery of preserving the tip of the nose, allowing the preservation of the entire alar cartilage or the remodeling of the cartilage of the tip and the maintenance or repair of the nasal ligaments that allow the skin to attach to the cartilage. In some cases, the skin of the nose may not be removed/raised, which causes a decrease in swelling and bruising [4,22].

Who is this type of rhinoseptoplasty for?

The main indications refer to patients with a nose with or without a moderate hump, a deviated nose, a tense nose with elongated vertical nostrils, older patients with a “hump” and fine skin and those with severe birth defects.

The relative indications refer to those patients who have a deformed nasal septum and there is a risk of destabilization of the septum, patients who have deep radix with a convex profile or those patients who have a wider nasal dorsum [4,22,24,25].

Contraindications to this technique are: secondary (revision) rhinoseptoplasty, in which the nose anatomy is much altered, anterior submucosal resection of the nasal septum, nose with an excessive “hump”, large nasal trauma with excessive deviation of the nasal septum, nose with bone pyramid much collapsed, nose that needs augmentation, as well as to less experienced surgeons.

The advantages of this technique are numerous. The preservation technique tries to keep the skin with all the ligaments and neurovascular structures intact,

which will lead to the reduction of morbidity both in the short and long term.

Keeping the nasal spine as natural as possible eliminates the need for reconstructions and the number of grafts. The surgery is faster, simpler, with a faster recovery and easier to review.

Preservative rhinoplasty allows patients to breathe freely because the risk of postoperative bleeding is reduced due to the fact that the surgical technique is less invasive compared to other classic/traditional surgical techniques [4,22,24].

Disadvantages

The main disadvantage is the need for the surgeon to change his existing routine technique. A learning curve is needed to master new surgical techniques. Applicability is limited.

The approach and extension of septal surgery is different and more demanding. Large and multiple osteotomies are used. There is an increase in the malleability of the alar cartilages and a deeper subperichondral dissection of the cartilages is required [4,23,22,25].

The complications and morbidities associated with preservative rhinoseptoplasty are much lower compared to classical rhinoseptoplasty. The most important complications are asymmetries, recurrence of the “hump” of the nose, collapse of the nostrils that can be easily corrected intraoperatively or in the immediate postoperative period.

Residual deformity or deviation may occur in the septum, a complication that can be avoided by repositioning the osteocartilaginous fragments and anchoring them by sutures that should not be very tight [4,22,23,24,25].

Discussions and conclusions

Compared to other standard rhinoseptoplasty surgical techniques, the technique of preserving the nasal dorsum prevents dorsal irregularities, nasal valve collapse and v-inverted deformity. There is also no need for additional grafts and no resection of much of the nasal septum.

An important aspect in the case of preservative rhinoplasty is that it does not require revision treatment or a minimal revision is required, it is a surgery without massive bleeding that does not require surgical reoperation and without septal perforation.

Preserving the nasal dorsum is an excellent technique for keeping the normal anatomy and naturalness of the nose intact. However, more complex nasal deformities will require traditional structural resection techniques to get the best results and may not fit patients with very thin skin or soft tissue. In some cases a combined approach may be used.

This new technique is also suitable for first-time patients. In the case of a revision rhinoplasty, this new preservation technique may be limited because the patient may have had a reduction in the available cartilage through previous surgery.

The patient should be informed of the usual technique used. Structural rhinoplasty (classical), resection leads to the need for reconstruction of the tip. Preservative rhinoplasty has the main advantage of maintaining the natural shape of the osteo-cartilaginous pyramid with the possibility of flattening or bending. The

nose preserves the natural anatomy and in case of revision any classical rhinoplasty or even another preservation technique can be performed. Information on their specific case will be provided. Multiple computer simulations will be performed with the side view.

Final printed documents to plan the surgery according to the patient's wishes and surgical possibilities are needed. Photographic examples need to be presented to the patient to correlate the data between the simulation and the final surgical results. The learning curve of this new technique is quite long and never ends.

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