

The Merits of the External Rhinoplasty

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Abstract

Keywords

- ▶ external rhinoplasty
- ▶ open rhinoplasty
- ▶ endonasal approach
- ▶ closed technique

The authors present their views on the merits of external rhinoplasty in the context of a renewed awareness of the endonasal approach. Why do we continue to perform rhinoplasty via an open approach? The benefits of this technique such as its unparalleled exposure, the opportunity for technical precision, and the ability to better preserve nasal function are thoroughly explored. The criticisms of this technique are presented and discussed. The authors thoughts on rhinoplasty as a whole are examined.

Modern rhinoplasty can be approached via two distinct techniques: the external, *open technique* or the endonasal, *closed technique*. Understanding the nuances of rhinoplasty is accomplished neither easily nor quickly. The ultimate goal of the surgery is to do as little as possible to achieve the desired outcome. In this article, given this opportunity to share personal experiences and preferences, the authors hope to provide some clarity on the merits of open rhinoplasty.

A Look Back

The history of rhinoplasty is absolutely fascinating with evolving techniques, approaches, and controversies. Nasal reconstruction dates back millennia, mentioned first around 1500 BC in Hindu poetic myths and then described in India in the seventh century in the writings of Sushruta. In 1921, Rethi described a technique using a high columellar incision to approach the nasal tip; this incision and dissection were later extended by Sercer to provide exposure to the mesmerizing osseocartilaginous framework.^{1,2} His protégé, Padovan, further advanced the approach and presented his work in 1970 at the First International Symposium for the American Academy of Facial Plastic and Reconstructive Surgery in New York, NY.^{2,3} Although this technique was well established in Europe, it did not gain support in North America until the early 1970s when Wilf Goodman began to perform this operation and reported his experience in 1973 in the Canadian *Journal of*

Otolaryngology and then in *Laryngoscope* in 1974. His introduction of the external rhinoplasty was greeted with spirited controversy.^{4–13} Jack Anderson, who initially was critical of this approach, quickly saw its merits when introduced to it by his fellow at the time, Peter Adamson, and became one of its great promoters in the early 1980s. This innovation radically altered the philosophy and technicality of the operation and our visualization of nasal anatomy. Suddenly, the whole structure of the nose became visible. Despite the controversy, studies have shown that the external approach has become the preferred technique for rhinoplasty in many parts of the world.^{14–19}

Why External Rhinoplasty?

The external approach offers clear diagnostic and therapeutic advantages for many cosmetic and functional nasal deformities. This is facilitated by the unparalleled surgical exposure it provides, allowing for precise diagnosis and correction of deformities.

Unparalleled Exposure

Maximal surgical exposure to a small surgical field is possible using the external approach (▶ **Fig. 1**). An inverted-V mid columellar skin incision is used and connected to bilateral marginal incisions. This incision was first described by Rethi.^{20,21} The columellar flap is elevated in a fairly avascular

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Fig. 1 Exposure and view of the anatomy with an external approach.

plane over the osseocartilaginous structures. The fibrous connections, Pintanguy's ligament and the interdomal ligaments, are usually dissected as well, although we are seeing more conservative modifications that preserve some of these structures. The dorsal skin flap is elevated as far as necessary up to the nasofrontal angle and, voila, unparalleled exposure is obtained, setting up the surgeon for a successful rhinoplasty. This is true for both primary and secondary cases.⁴

The ability to inspect and appreciate the nasal framework in its natural state and its underlying anatomy (without tension or distortion) allows for a more accurate assessment and diagnosis of the deformity.^{2,4,14,22–27} The external approach provides excellent exposure of the bony and cartilaginous nasal vault, tip, septum, lobule, columella, and anterior nasal spine.^{14,28} We have frequently found, when the anatomical structures (and asymmetries) have been fully uncovered, it has been necessary to modify and accommodate the original surgical plan to better correct the defects than originally planned. This is something that is easier to do with the open approach. Increased usage of the open approach has also confirmed that anatomical asymmetries are the rule rather than the exception.

Furthermore, the external approach offers a completely different point of view, assessing and dissecting symmetrically and bilaterally from the midline. This is in contrast to the endonasal point of view, limited in that the surgeon's view is from lateral to medial most of the time and, where we find, it is nearly impossible to assess bilateral symmetry simultaneously. The authors find that evaluating symmetry and results can, more easily, be done by exposing the structures without distortion. This unfair advantage allows for precise understanding and surgical manipulation of the underlying anatomy. In addition, and of great relevance, the improved exposure

provides an opportunity to more easily teach rhinoplasty students and allow them to learn the operation with greater ease through direct visualization.^{2,4} It also enhances master rhinoplasty surgeons to achieve even better results.

Opportunity for Technical Precision

The direct visualization and exposure provided by the external approach allow for more options in the application of our surgical skills in altering the osseocartilaginous framework to achieve the functional and aesthetic results we (and patients) desire. It improves the surgical control over the corrective maneuvers employed to modify the nasal structures. It also allows for precise bimanual surgical correction^{7,21,28–30} and remodeling of the osseocartilaginous framework symmetrically in its natural position. It is impossible to underestimate the benefits of the external approach, when exposing the nasal tip, which allows us to visualize both alar cartilages and their relationship to the caudal septum and the dorsal structures together.

There are some things that, in our opinion, simply cannot be done as easily with the endonasal approach. We believe that there are many advantages when correcting nasal tip deformities, proper placement and suture fixation of grafts, columellar and lateral crural struts, as well as with intraoperative diagnosis and management of deformities when performing revision rhinoplasty.^{4,31,32} The critical issue here is how much exposure is needed for reliable execution of these and other steps—sutures can be placed, grafts trimmed and positioned exactly, and asymmetries can be corrected without distortion of surrounding tissues.^{4,25,31} This includes the placement and securing of spreader grafts, dorsal grafts, and columellar struts among others. Most surgeons agree that these are most easily and precisely accomplished by an external approach. There is no question that, in the hands of expert endonasal surgeons, these maneuvers are perfectly achievable as well. But we also feel that reaching that level of consistent expertise may be harder for most rhinoplasty surgeons. Take, for instance, the placement of columellar struts or caudal septal extension grafts. The exposure afforded by the external approach allows us to secure these grafts to the caudal septum, to mobilize and secure the medial crura when modifying tip projection and/or rotation, and to adjust the columellar-lobular angle with better exposure and ease of tissue manipulation.^{4,33,34} It allows for all surgical maneuvers (except for lateral osteotomies) to be performed with increased precision and under direct visualization.^{9,12,19,22,24,27,35–37} Additionally, scar tissue and redundant subcutaneous tissue are more easily excised, when indicated, using this approach. Not surprisingly, revision rates for primary external rhinoplasty are less than those for endonasal rhinoplasty.^{4,38–40}

Preservation of Nasal Function

Emphasizing the importance of structure and its necessity for successful rhinoplasty follows the dictum “form follows function”^{14,28}. The preservation or improvement of proper nasal

function has become a mandatory consideration in well-performed rhinoplasty.^{41–46} We believe that, following the concepts of open structure rhinoplasty, this open approach helps us to more easily improve or restore a better airway in our patients. Similarly, authors have suggested that avoiding incisions in the inter-cartilaginous region may prevent disruption of the caudal end of the nasal valve region, which is critical to the overall functional and aesthetic result.^{14,47,48} In addition to the possible disruption of the valve region by some of the incisions required, and occasional scarring that can occur, in the endonasal approach, the external approach allows for easier recognition of certain deformities in the pyramid that can be addressed to prevent valve collapse.^{14,20,22,49–51} The evolving standard to achieve improved functional results and prevent late complications continues to support the popularity of open rhinoplasty.

Critics of External Approach

Opponents of external rhinoplasty initially criticized this technique, citing possible disadvantages such as columellar scarring, reduction in tip support, extended operative time, and excessive postoperative tip swelling.

Many rhinoplasty surgeons avoided the external technique over concerns of visible scarring and necrosis. However, based on our experiences and the literature, this concern is unwarranted.^{1,3,48,50,51} Even in revision surgery, scarring can be kept at a minimum if meticulous technique, proper incision placement and design, and fine suturing materials are utilized. Large cohort studies suggest imperceptible scars in the vast majority of cases.⁴⁸ We use an inverted-V incision at the lower third of the columella and close this incision with 6–0 fast absorbing gut or a 6–0 monofilament nylon suture material. We regularly have very good results, with high patient and surgeon satisfaction with the scar (→Figs. 2 and 3). In the thousands of rhinoplasties, we have performed over the past 25 years, we have had to revise only a handful of columellar scars, and this has usually been due to localized infections. In our experience, we have encountered two cases of columellar skin necrosis, one in a nasal reconstruction of a patient with granulomatosis with polyangiitis and the other in a patient who had undergone external beam radiation to



Fig. 2 Columellar scar, 5 weeks postoperative.



Fig. 3 Columellar scar, 6 months postoperative.

the nose to treat a septal cancer. This is similarly cited in the literature.^{14,52} Not surprisingly, the issue regarding the columellar scar is slowly being put to rest.

Another critique of the external approach is the perceived prolonged postoperative edema. Cadaveric studies have shown that the main vasculature of the nose runs along the musculoaponeurotic layer, or in it, parallel to the alar margin, compared with vertically in the columella. This suggests that it is the dissection above the musculoaponeurotic layer that disrupts and perhaps prolongs postoperative tip edema.^{14,28,53} Dissection in the areolar tissue plane below the musculoaponeurotic layer or a subperichondral dissection will minimize tip edema by avoiding damage to the venous and lymphatic vasculature. We believe that proper surgical technique, careful tissue dissection and handling, limiting operative time and doing just the necessary steps will limit postoperative swelling more than choice of incisions (→Figs. 4–19).

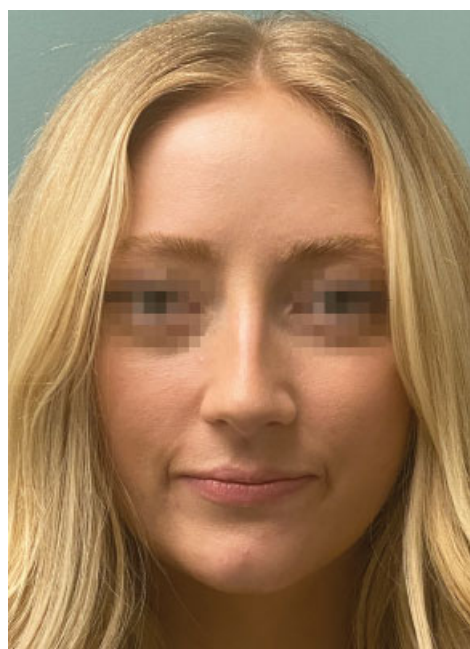


Fig. 4 Preoperative frontal view.



Fig. 5 Preoperative oblique view.



Fig. 7 Preoperative basal view.

It has been our observation in our own patients (the senior author performs both open and endonasal rhinoplasty) that surgical time, postoperative edema or scarring, and loss of tip support are a function of the individual surgeon's technique and not the operative approach per se. More extensive dissection of the skin off the osseocartilaginous framework has been attributed to the external approach. We would like to posit

that, in some endonasal cases (i.e., total endonasal release, open approach without external incision), the nasal dissection can be quite extreme and significantly more operative time is taken than via an external incision to do the same work.^{54,55} The extent of undermining performed is independent of the approach. In fact, in endonasal cartilage delivery approach, there are more incisions than in the external approach.



Fig. 6 Preoperative lateral view.

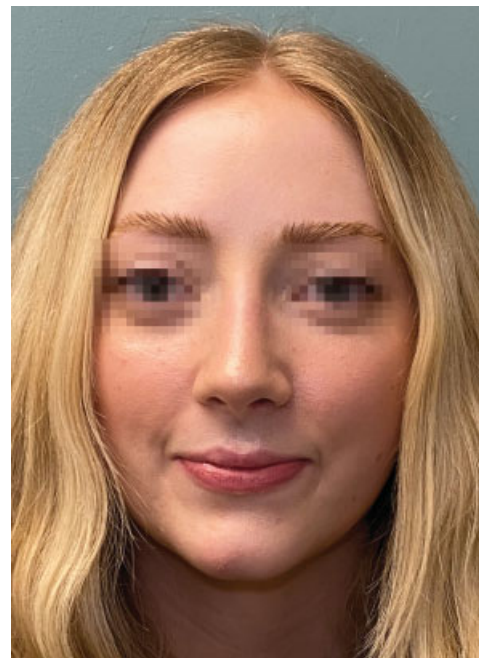


Fig. 8 Frontal view, 1 month postoperative endonasal approach.



Fig. 9 Oblique view, 1 month postoperative endonasal approach.



Fig. 11 Basal view, 1 month postoperative endonasal approach.



Fig. 10 Lateral view, 1 month postoperative endonasal approach.



Fig. 12 Preoperative frontal view.

Endonasal Approach: Is It a Lost Art?

Despite our individual preferences, the endonasal approach should be considered by open approach surgeons in some cases. In our practice, the endonasal approach is performed in select cases or when there is a strong patient preference. Patient involvement in the decision-making is imperative.^{56,57} It's still comforting to patients to be offered the opportunity to have a surgery without any external incisions and zero chance of an external scar. In our experience, we prefer to use the

endonasal approach when grafting is foreseen to be fairly minimal, and the nasal tip does not need much modification. We also find that many revision operations can be done endonasally, especially when one is mostly modifying the dorsum and/or tip position, thus avoiding unnecessary dissection. We do feel that complex deformities, the need for extensive grafting, and many secondary rhinoplasties should be approached via an open technique. Surgical treatment of nasal deformities should be tailored to the needs of the individual



Fig. 13 Preoperative oblique view.



Fig. 15 Preoperative basal view.

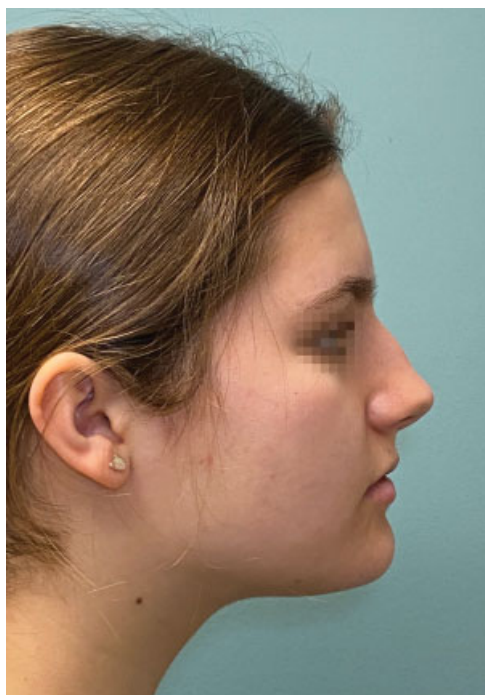


Fig. 14 Preoperative lateral view.

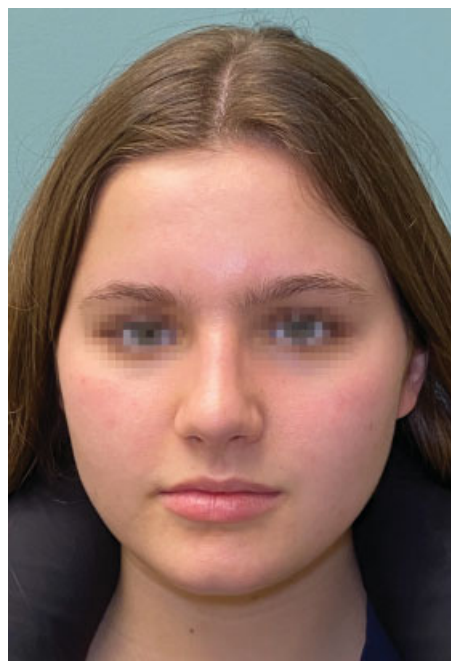


Fig. 16 Frontal view, 1 month postoperative external approach.

patient—there are certain deformities that may be best treated with one approach over another.

There is a need and a place for both the external and endonasal approach, the surgeon's experience and expertise,

and the patient's wishes defining the choice. Because the external approach is easier to teach and surgeons can master a slew of techniques easier and quicker, we echo previously discussed opinions recommending that less experienced



Fig. 17 Oblique view, 1 month postoperative external approach.



Fig. 18 Lateral view, 1 month postoperative external approach.

surgeons initially consider an external approach for a given case, unless the surgeon believes he or she can make the diagnosis and correct the deformities with an endonasal approach.¹⁴ As we all know, rhinoplasty is an operation that we never stop learning from and mastering, one that requires talent, an inquisitive mind, and a surgical lifetime of practice. We find that we are better able to teach our residents and fellows how to perform this operation, especially its nuances and challenges, when using the external approach.



Fig. 19 Basal view, 1 month postoperative external approach.

Conclusion

In our experience, external rhinoplasty is the technique of choice for most cases unless a comparable improvement can be obtained with the endonasal approach or there is a strong patient preference. Rhinoplasty is currently trending toward a less invasive, more “conservative” and preservation philosophy; we believe that external rhinoplasty is not in opposition to this. On the contrary, it makes it easier for the surgeon to try new techniques and assess their results. In our hands, the external approach gives our patients the best chance for an outstanding result with the least chance of revision surgery. Although much of our focus in this discussion has been directed to the approach in rhinoplasty, it of itself does not guarantee a better result. Most important in the performance of this art is the understanding of nasal anatomy, acquiring and mastering the toolbox of surgical maneuvers, and the lifelong learning that must accompany the commitment to perform rhinoplasty. Perhaps our stance is best described by recognizing the complex operation that rhinoplasty is and the unique training and experience that each surgeon has. The pendulum has swung widely toward the external approach, but is now probably swinging toward the middle, which, in our opinion, is a good thing. We appreciate this discussion is not free of emotions, and we predict future advances will continue to engage the rhinoplasty student and challenge our paradigms.

Conflict of Interest
None declared.

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