

The Preservation Rhinoplasty: A New Rhinoplasty Revolution

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Rhinoplasty surgery tends to evolve in generational epochs often associated with landmark publications and the simultaneous popularization of revolutionary surgical techniques. In 1978, Sheen published his monumental text *Aesthetic Rhinoplasty* which confirmed his status as the greatest rhinoplasty surgeon since Joseph.¹ Three critical concepts were summarized. First, rhinoplasty became a truly aesthetic operation which included preoperative analysis, operative planning, and surgical execution. Second, the reduction-only concept of Joseph was replaced with a balanced approach combining reduction and grafting in primary rhinoplasty. Third, the previously dismal results for secondary rhinoplasty were dramatically improved. Suddenly, the mark of a great rhinoplasty surgeon was no longer how quickly one could do a “nose job,” but rather the achievement of an attractive natural nose with normal function.

As the closed approach for rhinoplasty reached its apogee of influence, the open approach gained sudden popularity. Building on the work of Goodman,² Anderson,³ Daniel,^{4,5} Gunter,⁶ and others, rhinoplasty surgeons quickly adopted the open approach. This revolution occurred for three reasons. First, the open approach offered better visualization for analysis, surgery, and teaching. Second, new operations were developed including tip suturing, advanced septal reconstruction, and midvault reconstruction which were either impossible or technically challenging via a closed approach. Third, the open approach shortened the learning curve for the less experienced surgeon and could be applied to a wider range of ethnic groups with good results. Rhinoplasty surgery enjoyed a wave of popularity and became one of the most frequently performed aesthetic surgical procedures.

Despite the improved aesthetic and functional results, minor revisions and major secondary rhinoplasties

persisted. Recently, Toriumi has summarized his experience with open structure rhinoplasty in his monumental text *Structure Rhinoplasty: Lessons Learned in 30 Years*.⁷ This summary of 3 decades of passionate obsession with rhinoplasty surgery reveals the changes which occur with time and compromise even excellent early results using reduction techniques. The critical need for structure to resist the forces of contracture and provide essential support is undeniable. Equally, the use of multiple grafts derived from rib is illustrated in numerous difficult cases always stabilizing the base first and building outwards. Numerous refinements and new techniques are illustrated with superb documentation and follow up.

Despite this tour de force, one troubling question remains—why are we doing an operation that can produce such a destructive result that a rib graft reconstruction becomes necessary following a primary case performed by an experienced surgeon? My conclusion is that we must fundamentally change how we perform rhinoplasty surgery which leads to the next revolution—the preservation rhinoplasty. The fundamental goal is to replace resection with preservation, excision with manipulation, and secondary rib reconstruction with minimal revisions. The foundation of this preservation rhinoplasty rests on new anatomical studies, advanced tip suture techniques, and refinement of surgical techniques.

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During the last decade, major advances have occurred in our understanding of nasal anatomy and how it relates to nasal aesthetics and surgical techniques. Two of the most interesting are the composition of the soft tissue envelope, including the nasal ligaments and the osseocartilaginous vault. The nasal ligaments have long been overlooked yet they are critical for both functional and aesthetic reasons.⁸ For example, the vertical scroll ligament helps to stabilize the internal valve via the transversalis muscle while its surgical reattachment can accentuate the alar groove and maintain function.⁹ Anatomical dissections have shown convincingly that the bony hump is in reality a thin “bony cap” which can be easily rasped away while preserving the underlying cartilaginous vault.⁹ In addition, the key-stone area is in reality a semimobile chondrosseous “joint” which can be converted from convex to straight by resecting its underlying cartilaginous septal support.¹⁰

As open tip suture techniques reached their apogee, Cakir¹¹ realized that he could achieve comparable results with greater control and less morbidity if he used a closed approach. The goal was to preserve the nasal ligaments and manipulate the cartilages with minimal resection. He has found that the subperichondrial approach has less postoperative morbidity (swelling, numbness) and revisions are far simpler (less scar tissue) when compared to conventional techniques.¹² Two additional examples of this fundamental change in tip surgery are cephalic alar preservation and alar tensioning. Traditionally, excision of the cephalic lateral crus was an automatic step in rhinoplasty surgery. Yet, Ozmen et al¹³ and Gruber et al¹⁴ have demonstrated the benefits of preserving the entire lateral crus, which leads to less alar notching and a reduce need for alar rim grafts. Alar malposition has long been considered one of the most difficult tip deformities with the treatment of choice being alar transposition with lateral crural strut grafts. However, Cakir¹¹ and Davis¹⁵ have shown convincingly that alar transposition is not necessary and that medial tensioning will suffice without any alar resection or additional grafts.

The most fundamental component of traditional rhinoplasty is dorsal resection, which destroys the key-stone area and requires some immediate combination of osteotomies and midvault reconstruction. Currently, it is dorsal reconstruction in secondary cases that leads to the majority of rib graft reconstructions. Similar to Goodman's² popularization of Rethi's open approach, Saban¹⁶ has updated the push down operation leading to dorsal preservation. His technique of dorsal preservation minimizes the need for immediate midvault repair in primary cases and permits minor revisions rather than major rib graft secondaries.

Since we are only at the beginning of this revolution, time will be required to expand the indications, refine new surgical techniques, and solve the inevitable problems. The beneficiaries of this advancement will be our patients who will be given greater predictability with less

risk. Since the primary reason that patients do not seek rhinoplasty surgery is the fear of a bad result (“nose job” look), it will behoove surgeons to learn the preservation rhinoplasty as it reduces this risk and will lead to simple revisions rather than major secondary procedures.

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