Concurrent Rhinoplasty and Endoscopic Sinus Surgery: A Review of the Pros and Cons and a Template for Success

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KEYWORDS

• Endoscopic • Sinus surgery • Rhinoplasty
• Septorhinoplasty • Septoplasty • Sinusitis
• Facial plastic surgery • Concurrent

Key Points

- The performance of concurrent functional endoscopic sinus surgery (FESS) and rhinoplasty is relatively safe and the complication rates are similar to those when the procedures are performed independently.
- Many patients with functional or aesthetic nasal issues who present with nasal obstruction may also have concurrent sinonasal inflammatory disease. A thorough evaluation is required to identify any inflammatory issues such as allergic rhinitis or chronic rhinosinusitis (CRS).
- A comprehensive plan for patients with nasal obstruction must include both surgical and medical treatments including FESS, rhinoplasty, and antiinflammatory medications.
- Surgery for these patients should be performed in a careful, stepwise approach to address the nasal septum, inferior turbinates, paranasal sinuses, and external nasal structures. Careful attention is given to the internal and external nasal valves during rhinoplasty.

Since its introduction in 1986 FESS has emerged as the standard surgical treatment of chronic sinusitis.[1] Simultaneously, there has been an increased demand for facial plastic surgery, with many patients interested in improving facial aesthetics as well as their functional nasal issues. During this period, the importance of the nasal valve to functional nasal surgery outcomes has become more apparent. Effective reconstruction of the nasal valves, both internal and external, is critical to optimizing functional outcomes and quality of life.[2] Many of these rhinoplasty candidates have inflammatory rhinitis and CRS that contributes to their nasal breathing difficulties. These issues can be overlooked and failure to address them can lead to inadequate treatment of the patient's sinonasal complaints.

Historically, surgeons were wary of combining sinus surgery and rhinoplasty because of concerns of significant disruption of internal and

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external nasal structures as well as spread of infection to adjacent surgical sites. However, with the advent of minimally invasive techniques for performing FESS there is minimal disruption to nasal structures that support the external nose, and with present perioperative antibiotic therapy, contamination of the external nose from sinusitis is low.[3–5]

THE PROS AND CONS OF CONCURRENT FESS AND RHINOPLASTY

When considering whether to perform a concurrent FESS and rhinoplasty, the surgeon must weigh the potential risks and benefits of this type of procedure. Fakhri and Citardi[6] describe several potential considerations that argue against the simultaneous performance of these surgical procedures. Millman and Smith[7] describe a case of glabellar abscess, septic shock, and myocarditis after a FESS and rhinoplasty. Fakhri and Citardi[6] suggest that FESS on patients with CRS who are frequently infected may induce bacteremia and that performing osteotomies may allow for a periosteal breach of infection that could result in soft tissue infections. The use of allogenic or synthetic grafts may also increase risks of local infection. Postoperative bleeding and hemorrhage is an inherent risk to both rhinoplasty and FESS. Theoretically this risk may be additive when both procedures are performed at the same time. The potential sites of bleeding differ for each of these procedures and therefore the source of postoperative hemorrhage may be difficult to ascertain.[6]

Rhinoplasty causes intranasal as well as soft tissue postoperative edema, resulting in nasal and periorbital swelling. This edema could conceivably mask a postoperative orbital complication caused by a concurrent FESS.[6] In addition, this situation may make postoperative debridement, which is critical to successful endoscopic sinus surgery (ESS) to reduce crusting and scar formation, difficult. Postoperative debridement requires endoscopic manipulation of the nose and sinonasal passages in the immediate postoperative period. This exercise could cause movement or disruption of the grafts and osteotomies created during the rhinoplasty, leading to a worse aesthetic result. Friedman reported medial collapse of the ascending process of the maxilla after a combined FESS/rhinoplasty, causing collapse of the nasal valve and concavity of the nasal side wall.[8]

Increased risk of soft tissue and nasal infection remains a primary concern when performing concurrent FESS and rhinoplasty. **Table 1** outlines several recent studies that describe concurrent FESS/rhinoplasty. Many of the studies did not report intranasal or soft tissue infections, whereas those studies that did report this complication had a rate of 2% to 2.3%. This finding is consistent with the rates of postoperative rhinoplasty infections, typically reported at between 1.7% and 2.7%.[9–11] Lee and colleagues[12] reported a slightly higher postoperative infection rate, with 4 of their 55 (6%) patients developing cellulitis. Of their cases, 51% were patients who had gross sinonasal purulence evident at the time of surgery, indicating active or acute infection. This situation may have contributed to their higher reported incidence of cellulitis after FESS/rhinoplasty, although none of these patients had gross purulence at the time of surgery. Overall, the rate of postoperative infections in these studies is consistent with those published for FESS and rhinoplasty performed independently. This finding argues against the theory that performing the 2 procedures simultaneously increases the rates of postoperative sinusitis, vestibulitis, or cellulitis.

Three of the concurrent FESS/rhinoplasty studies in **Table 1** reported postoperative epistaxis or hemorrhage, with a rate between 0% and 6.6% across all studies. Postoperative synechiae were also reported in these studies at rates between 4.4% and 22%. Minor complications such as epistaxis, synechiae, and periorbital ecchymosis or emphysema after FESS are reported at rates between 2% and 21%.[13] Minor complications of rhinoplasty such as epistaxis have been reported at rates between 2% and 4%.[14–19] These rates are comparable with those reported in the studies in **Table 1**, which indicates that there is no additive risk of minor complications when performing concurrent FESS and rhinoplasty. The investigators of these studies advocate combining these procedures only in patients with less severe sinus disease arbitrarily assessed by Lund-Mackay scores less than 8.[3,4]

Displacement of nasal structure and grafts caused by endoscopic manipulation as well as inability to perform necessary postoperative FESS debridements secondary to increased intranasal edema has also been discussed as potential contraindications to performing concurrent FESS/rhinoplasty.[6] Although Friedman[8] described a case of posterior prolapse of the ascending process of the maxilla after simultaneous FESS and rhinoplasty, none of the larger case series has reported this problem. Of the studies outlined in **Table 1**, only Sclafeni and Schaefer[3] clearly describe their postoperative debridement regimen. They performed endoscopic debridement