Potential complications of intracranial or orbital penetration exist and are comparable to those of FESS.

Postprocedure morbidity and recovery times are less than for FESS.

Long-term efficacy is currently being studied.
respond to medical therapy, and is usually for those who have endoscopic or CT evidence of significant mechanical obstruction of the sinus ostia in the form of polyps or inflamed mucosa [3]. The goal of surgery is to reopen the sinus ostium and to allow the return of ciliary function. Many patients with recurrent acute rhinosinusitis respond well to medical therapy, but sinusitis frequently recurs after treatment. In many cases, patients have no obvious underlying mechanical obstruction affecting the ostia, or they may have mild mucosal thickening in-between episodes of infection. Often some of these patients are not considered surgical candidates because their CT findings may not justify the morbidity and risk associated with endoscopic sinus surgery. On the other hand, many are considered candidates because of the failure to control disease, but they decline surgery because of the morbidity and the risks involved. Of the 37 million Americans affected by sinusitis each year (both acute and chronic) [4], approximately 31 million are affected by chronic symptoms, and approximately 330,000 undergo sinus surgery annually [5]. Thus, over 30 million Americans continue to suffer symptoms and their associated effects on their quality of life. Some of these patients may be candidates for a minimally invasive technique to improve sinus health. Many patients who would currently undergo functional endoscopic sinus surgery (FESS) may benefit from the less invasive sinuplasty technique. Sinuplasty may also be a valuable tool in conjunction with classic FESS, to cannulate the frontal sinus in difficult situations, such as revision surgery.

An FDA-approved balloon catheter system has recently been introduced as a potential minimally invasive, ambulatory strategy for the treatment of CRS. The system follows the principles of over-the-wire, catheter-based balloon dilatation, commonly used in vascular and urologic surgery, as well as in interventional cardiology. What this system accomplishes specifically for CRS is the dilatation of the sinus ostia by advancing balloon catheters under fluoroscopic guidance to the narrowed segment, and inflating them with high pressure. This system is designed for the insertion of special catheters for sinus lavage, drainage, and antibiotic irrigation as well. The dilatation of the ostium also allows for biopsies in situations where intrasinus masses may represent a neoplasm.

Sinuplasty is a new approach that dilates the natural ostia without tissue removal but with some possible tissue injury. It is not a substitute for FESS, but may be an attractive option in select patients. This chapter describes patient selection and operative technique for functional endoscopic dilatation of the sinuses (FEDS). Obviously, only long-term studies will be able to determine its efficacy and establish its ultimate place in the treatment scheme of CRS. We describe the technique for fluoroscopic-guided sinuplasty with the Relieva™ sinus balloon catheter system (Acclarent, Menlo Park, CA, USA).

Patient Selection and Preoperative Work

Patient selection, as with any other surgical intervention, is an essential starting point in testing the efficacy of any new procedure. Appropriate medical clearance and documentation of rhinosinusitis with a detailed history and a thorough otolaryngologic examination and noncontrast CT of the sinuses needs to be obtained prior to intervention, which is standard to FESS as well.

In addition to its potential value in the treatment of CRS, sinuplasty has been found, in our experience, to have two other applications. Frequently, intubated patients with multiorgan disease, or trauma patients in the intensive care unit, are febrile. When work-up points to the sinuses as a potential source of infection, otolaryngologists are often consulted to obtain direct sinus cultures in these patients. Access to the sinuses and direct cultures by sinus irrigation can be performed with sinuplasty. In addition, patients sometimes have sphenoid sinus opacification that requires biopsies and/or cultures. The sphenoid ostium is easily dilated with sinuplasty, so access to the sinus with a 4-mm endoscope can be performed. The frontal and maxillary ostia can be dilated so that fluoroscopically guided biopsies of sinus neoplasms are also possible.

Sinuplasty can be performed in combination with classic FESS under general anesthesia in the operating room, particularly in cases of difficult revision surgery, and in more extensive endoscopic procedures, even in the setting of distorted postoperative anatomy. Fluoroscopically guided cannulation of the frontal sinus with a guide wire can be very helpful in revision frontal sinus surgery.

Indications/Contraindications

Sinuplasty is indicated for patients meeting criteria 1, 2, and 3; or 1, 2, and 4.

1. In patients with a history of chronic recurrent rhinosinusitis
2. In patients who fail medical therapy in the form of antibiotics, topical nasal steroids, and allergic management
3. Patients with a persistently abnormal CT scan, after at least four continuous weeks of antibiotic treatment.