Surgical Treatment for Sinusitis

When is surgery necessary?
Surgery becomes an option when medical therapy has failed or when the cause of the disease is clearly linked to an anatomic abnormality. Most doctors would like to see a 3-month trial of maximal medical therapy prior to considering surgery. There are different opinions to what constitutes maximal medical therapy. Most physicians would agree that treatment should consist of at least two 14-day courses of antibiotics and consistent use of a nasal steroid as well as some form of allergy treatment. Smoking cessation plays a large role in treatment.

What does surgery consist of?
Today, most sinus surgery is done with an endoscope, or a miniature camera. The surgeon can see what the inside of the nose looks like on a TV. This is a relatively new technique that was introduced in this country only 20 years ago. Surgeons have several different endoscopes with different angles in order to access difficult-to-see areas. For more complex cases, doctors sometimes ask that patients get a CT scan with a headset. This encodes each individual’s CT scan onto a headset that is then transported onto a computer in the operating room (like a GPS for the sinuses). This provides the doctor with an extra tool to use in the operating room as the physician can see exactly where he or she is on the CT scan during surgery. Usually surgery is done on an outpatient basis, with patients going home the same day. Packing is sometimes used in the nose to prevent bleeding and is removed one or two days later. Most surgeons perform two or three “cleanings” in the office following surgery, to allow the nasal cavity to heal properly.

Does sinus surgery work?
Usually yes. In a large review of studies of sinus surgery conducted in 2004, the authors concluded that there was substantial evidence that sinus surgery was generally successful. The problem is in how people measure success. Generally, we look for patient outcomes, or improvement of quality of life. A 2006 study also showed a significant improvement in patients’ headaches after sinus surgery—from a score of 4.7 to 0.8. Overall, the best predictor of improvement from sinus surgery is in selecting the right patient to undergo surgery. Patients with minimal disease or symptoms primarily related to headaches probably have much poorer outcomes than patients with severe disease and symptoms.

How come some people need multiple surgeries?
There are several reasons that sinus surgery “fails.” These include: surgical technique, lack of patient follow-up, inadequate patient selection, and bad disease. Surgical technique includes that the physician may not have removed enough tissue or opened
the passages wide enough. On the other hand, sometimes physicians are too aggressive and remove normal tissue which may create problems. This is particularly true of surgery done more than 20 years ago. Sometimes, though the surgery was done correctly, patients fail to follow up and scarring or recurrence that can be treated medically is missed and not addressed. As always, selection of the right patient is critical and choosing a patient that has minimal disease and headaches that are really caused by migranes will probably not have success from surgery. Finally, some patients just have bad disease. This includes patients with an underactive or overactive immune system or patients with bad polyps. Most patients with significant polyps will need multiple surgeries in their lifetime regardless of the surgeon’s skill.

What risks are there in surgery?
The most common complications include bleeding, infection, scar tissue formation, lack of improvement of symptoms, and possibly worsening of sinusitis from surgery (called iatrogenic created sinusitis). Other things that sometimes occur are a septal perforation (or hole placed in the mid portion of the nose caused by a septoplasty), numbness of the upper teeth or over the cheek, and epiphora (water eyes). Far less common but obviously more concerning is the small risk of injury to the eye, leak of brain fluid, or major vessel injury. Potential eye complications include diplopia (double vision) or even loss of vision completely. Brain fluid leak is something that needs to be recognized and repaired as it can lead to meningitis (or brain infection) and possibly death. It is important to gauge the skill level of your doctor and ask him or her about the risk of specific complications.

What advances are there in sinus surgery?
The main advance in surgery is the advent of the endoscope. This is a telescope that allows the doctor to navigate into the sinus with a bright light and a magnified picture. This was brought to the United States around 1986 and is now the preferred method of performing sinus surgery. Most modern hospitals now utilize video towers with high definition monitors in order to view the surgery as it is performed. Another major advance is something called image guidance. This is essentially a GPS for the sinuses. It allows the physician to determine where his or her instrument is at all times by watching where it is on the CT scan. This device, though thought to allow the doctor to do a more complete operation safely, does not replace the physician’s skill and knowledge of anatomy. Another advance includes the microdebrider which allows a physician to suction tissue into a rotating knife and cut the tissue at the same time. Additionally, the development of fine instruments that are designed in specific angles have enabled physicians to perform more meticulous dissection of the delicate sinuses. Recent studies that have focused on new technology in sinus surgery include the use of a CT or MRI scanner in the operating room, the use of a 3D camera, and new instruments such as small balloons or radiofrequency devices for dissection.
What does the future hold?
The most exciting advances are in the avenue of minimally invasive surgery. Currently, surgeons are resecting brain tumors through the nose. As instruments and technology continue to get better, we should be able to access areas of the brain presumed to be off-limits without a craniotomy to diagnose and treat diseases that were traditionally done by far more invasive techniques. In the future, they may be a role for robotic surgery in this area to improve precision.

What is image guidance?
Image guidance is our GPS for the nose. Generally, a patient gets a specific CT or MRI scan set up by their doctor for this device. They then may wear a headset or “mask” during surgery which will be registered to the scan that was done before surgery. The doctor can then track various instruments to see exactly where they are at all times and stay safe. Image guidance is a great tool but it is important to note that this does not replace the surgeon’s skill and experience.

What is balloon surgery?
Balloon surgery is when a doctor uses a small catheter-like device to dilate the sinuses. This is a relatively new technology and studies are on-going about the utility of this device. Currently, this is available to dilate only the peripheral sinuses (maxillary, sphenoid, and frontal) and does not address the ethmoid sinus. The ethmoid sinus is often the most severely diseased sinus and usually is addressed in sinus surgery. There are currently studies looking at whether dilating the peripheral sinuses and not addressing the ethmoid sinus may be appropriate. A doctor may choose to use a balloon in concert with a more traditional sinus surgery as an adjunct technique.

What is a rhinologist?
A rhinologist is an ear, nose, and throat doctor that specializes in treating the sinuses. These doctors generally have done a fellowship in studying advanced sinus treatment. This includes both surgical and nonsurgical techniques. A fellowship is generally a year or more long after finishing traditional training in general surgery and otolaryngology (head and neck surgery). The state of Connecticut currently has three fellowship-trained rhinologists.