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Surgical Approaches to Sinus Disease: The Debate Continues

Part 2 of 2 articles

By Thomas R. Collins

PHILADELPHIA—Surgeons are faced with many options for approaching diseases of the sinus; the right approach is not always clear-cut. Five experts reviewed several approaches at Rhinology World held here recently, with some favoring a more aggressive approach, some preferring to be less aggressive, and others highlighting new technology. Part 1 of this article discussed functional endoscopic sinus surgery (FESS) and sphenoidectomy; the dialogue continues here.

Minimally Invasive Surgery

Reuben Setliff, MD, of the Setliff Sinus Institute in Sioux Falls, SD, spoke in favor of minimally invasive sinus surgery and questioned the need for more aggressive approaches.

“All of my colleagues who came in here in aggressor mode, I would encourage you to take your Xanax,” he told the audience, who chuckled in response.

He questioned the need for enlarging

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the ostium, presenting cases showing that even when the opening was small, there was little evidence of severe problems in the sinus. “The evidence is strong,” he said. “Small ostia function well, or sinus disease would be epidemic.” He called that “the 800-pound gorilla that’s been in the room for 25 years.”

He described less-invasive techniques he uses, in which he employs a guiding model that includes “landmarks” and “transition spaces.” These include the inferior third of the uncinat process, the medial wall of the bulla, the superior third of the uncinat process, the basal lamella, the infundibulum, and the hiatus semilunaris superior.

In maxillary sinus surgery, for example, he turns his attention to the uncinat process, not the ostium. “The target is the inferior third of the uncinat process, which is landmark number one. And the rationale is that the maxillary sinus is victimized by the uncinat process and the infundibulum, which is space number one, and not the size of the ostium,” Dr. Setliff said. “The goal is to visualize the ostium. We leave it alone—visualize the ostium, and by working on the uncinat process, enhance to the fullest its direct entry into the nasal cavity....In other words, you convert it from an infundibular entry to a direct entry.”

He said his less-invasive techniques have worked well. “The literature is relatively silent on the issue of the necessity of enlarging the ostium of the maxillary, frontal, or sphenoid sinuses, regardless of the technique used,” Dr. Setliff said.

Balloon Catheterization

Michael Setzen, MD, Clinical Associate Professor of Otolaryngology at New York University School of Medicine, said that balloon sinus catheterization is a worthwhile option in handling chronic sinusitis—it is minimally invasive, is safe, helps with a quicker recovery, can be used as part of FESS, and is effective.

He said it can be used in cases of frontal, sphenoid, or maxillary rhinosinusitis or a combination of these. It can be particularly useful in a debilitated or elderly patient, or in a patient in an intensive care unit or with a bleeding disorder.

The tool can also be used to get access to the frontal sinus, Dr. Setzen noted. But it should be used only after maximum medical treatment has failed, he said, including antibiotics, decongestants, nasal



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—Michael Setzen, MD

sprays, and antihistamines.

He said that the use of balloon sinus catheterization fits well with the trend toward a more conservative approach to surgery. "With the balloon, very little is removed," Dr. Setzen said. "This technology will make us more and more conservative."

Drawbacks to the balloon sinus catheter are radiation exposure, extra expense, the time it takes to learn how to use it, and the additional staffing required.

In a 2007 study, 115 patients (involving 358 sinuses) were treated with balloon dilation and evaluated for safety, for how well the sinus ostia were kept open, and to see how well the technology helped relieve patients' symptoms.



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—Bradley F. Marple, MD

The patency rate was 98% after 24 weeks, and patients showed improvements in symptoms.

In 53 patients who were given the Lund-MacKay test, used to assess before their procedure and after, there was marked improvement. The preoperation score was 8.89, compared with 1.95 afterward. Sixty-five patients took the Sino-Nasal Outcomes Test (SNOT-20), scoring an average of 2.14 before their procedures, 1.01 after six months, and 0.91 after one year. Both these findings were statistically significant.

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Among 61 patients who had a two-year follow-up, the SNOT-20 score fell from 2.17 before the procedure to 0.87 after two years. For 32 patients followed up with the Lund-MacKay test after two years, the preoperation

score was 9.66 and was 2.69 two years later.

In a multicenter registry of 1036 patients who received a balloon catheter sinusotomy, there were no major adverse events related to the use of the catheters. The revision rate was 1.3% after an average follow-up of 40.2 weeks, sinus symptoms were improved in 95.2% of the patients, and 73.8% of the patients were free of sinus infections during the follow-up period.

Dr. Setzen said that balloon technology is a valuable option for sinus surgeons. "It's minimally invasive, it's safe and effective, and it can be used in conjunction with traditional endoscopic procedures," he noted.

Indications and Contraindications for Balloon Technology

Frederick Kuhn, MD, founder of the Georgia Nasal and Sinus Institute in Savannah, sang the praises of balloon technology, not only how well it works but how it allows for anatomy to be preserved.

"The nasal and sinus anatomy and physiology are a really very elegant design," Dr. Kuhn said. "We did not design them, and therefore we really do not have free license to destroy the

anatomy or function just because we're able to."

He said he would be inclined to use balloons in primary surgery of patients without polyps; those with moderate disease; those with isolated frontal, maxillary,

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and sphenoid disease; those with difficult frontal sinusitis; intensive care patients with acute sinusitis; and those with acute frontal sinusitis.

A case in which balloons should not be used, he illustrated, involved a female patient with relatively moderate disease, who got worse after six weeks on antibiotics, then improved after three weeks on prednisone and antibiotics, but became worse again when that treatment was stopped. She was diagnosed with probable chronic eosinophilic sinusitis. A balloon would not work in such a case because it would not address the inflammation, Dr. Kuhn said.

A balloon was used to widen the frontal sinus opening and mucus spontaneously started draining out—and the untreated ethmoid sinuses also cleared after the frontal sinus disease resolved.

Dr. Kuhn also reported good results using balloons in office procedures. He helped lead a study of drug-eluting balloon catheter-like spacers. They were inserted into 22 ethmoid sinuses of 13 patients and were left for either 14 or 28 days. They were filled with 0.31 mL of 40 mg/mL of triamcinolone.

Patients reported SNOT-20 scores that were 1.12 points lower after the procedure than before. Scores on the Lund-MacKay

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He also presented a case in which a balloon probably should have been used. The patient had no ethmoid disease and no right maxillary sinus disease, only left maxillary sinus disease. The patient, who had a history of pneumonia, was told she needed endoscopic surgery or she would develop pneumonia again within three months. But after the surgery, she suffered severe skull base osteoneogenesis, the left uncinat process was still in place, and she still had maxillary sinus disease.

"It's very clear to me that a left maxillary sinus balloon with extensive sinus irrigation probably would have sufficed for her treatment and protected her from all of the other unnecessary surgery she had," Dr. Kuhn said.

He also mentioned the case of a 76-year-old male with a history of chronic frontal sinusitis. He was treated medically and his condition improved, but three months later it had become worse. "Had we done functional endoscopic sinus surgery, it would have required a septoplasty plus an ethmoidectomy in order to perform the frontal sinusotomy," Dr. Kuhn said.

scale test were 1.22 points lower. Both were significant results. There were no major complications in any of the patients.

Keep Goals in Mind

Ultimately, surgeons should step back and reconsider their goals, said Bradley F. Marple, MD, Professor of Otolaryngology at University of Texas Southwestern Medical School in Dallas.

"Maybe we shouldn't be looking for ways to recruit more patients for surgery," he said, "but maybe we should be looking for ways to select the patients who would benefit from surgery and provide the right surgical intervention." ENT

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