

INTRODUCTION TO SPECIAL SECTION ON

Treatment of Sinus and Nasal Disorders in the 21st Century

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ABSTRACT: In the modern history of the surgical treatment of sinus and nasal problems, there have been three revolutionary changes. The first was the introduction and refinement of endoscopic techniques in the 1980s. The second important development in the modern history of rhinology was the introduction of powered instrumentation in the 1990s. Now in the 21st Century we see a third turning point, which is the use of intraoperative image guidance in endoscopic sinus surgery. These three advances are being integrated to provide a new level of care for problems of the nose and sinuses and are the subject of this special section.

In the first articles, the author provides an overview of sinusitis and reviews many of the medical treatments available for the management of sinusitis. When anatomic abnormalities of the nose and sinuses contribute to sinusitis, and when medical therapy has failed, these anatomic or structural abnormalities can be surgically corrected. In the article entitled “Minimally Invasive Approach to Endoscopic Sinus Surgery,” we review this modern approach to the sinuses and discuss recent advances. We also provide an overview of rhinoplasty—surgery to reshape the nose—with special emphasis on the surgical anatomy and preoperative analysis of appearance. We conclude by reviewing some of the more common adjunctive cosmetic procedures performed with surgery of the nose and sinuses.

KEYWORDS: sinusitis, minimally invasive, endoscopic sinus surgery, rhinoplasty, image guidance, powered instrumentation, facial cosmetic procedures

I. INTRODUCTION

Great strides have been made in the treatment of nasal and sinus disorders in the last 2 decades. In the modern history of the surgical treatment of sinus problems, there have been three revolutionary changes. The first was the introduction and refinement of endoscopic techniques in the 1980s. The second important development in the modern history of rhinology was the introduction of powered instrumentation in the 1990s. Now in the 21st Century we see a third turning point, which is the use of intraoperative image guidance in endoscopic sinus surgery. These three advances are being integrated to provide a new level of care for problems of the nose and sinuses.

These and other advances have taken place as a result of the vision and industry of great leaders in the field of otolaryngology.¹⁻⁹ I have had the privilege of working directly with a number of these leaders, whose vision and mentorship have helped to set the stage and encourage the development of these advances. These leaders include Dr. Robert W. Cantrell, Dr. Paul A. Levine, Dr. Charles W. Gross, Dr. M. Eugene Tardy, Jr., Dr. Dean M. Toriumi, Dr. David W. Kennedy, and Dr. Donald Lanza. These and other leaders in our field continue to create a lasting legacy.

Many of the recent technological advances in nasal and sinus surgery have been possible because of strategic partnerships with industry and the application of new technology to the specific problems faced in this subspecialty. I had the great privilege to work with Dr. Robert Cantrell, Dr. Paul Levine, and Dr. Charles Gross at the University of Virginia in the early 1990s. The inspirational leadership of these surgeons made the University of Virginia an important center for advances in nasal and sinus surgery during that time. The research team of Dr. Gross led the way in identifying new powered instrumentation and in helping to introduce new uses for this technology. This research team was among the first to describe a minimally invasive, endoscopic approach to septoplasty, or straightening of a deviated septum. Also, we described a new endoscopic procedure—the modified transnasal Lothrop procedure—for severe frontal sinus problems, which has significantly improved the care of these difficult-

to-treat patients. These and other contributions from research efforts at the University of Virginia led to important improvements in the quality of surgical treatment of the sinuses. In part as a recognition of these efforts, Dr. Gross and I were invited to be guest editors of *Otolaryngology Clinics of North America* on the subject *Advances in Nasal and Sinus Surgery*, which was published in 1997.¹⁰

Because of national and international efforts within our subspecialty to educate physicians as part of the continuing medical education process, most otolaryngologists are aware of these technological advances. Advances in sinus and nasal surgery have been of special interest at continuing medical education meetings, particularly throughout the late 1990s and early 2000s. These advances have been the featured meeting topic during that time. I have had the great privilege to speak on the subject of powered instrumentation at numerous national Academy meetings and at smaller regional meetings. I have also had the great privilege to be an invited guest at a number of international conferences on this subject, including meetings in Canada, Sweden, and Japan. On my second trip to Japan, I was honored to be an invited guest of the Japanese Rhinologic Society Annual Meeting, where I spoke on the subject of advances in powered instrumentation and in image guided surgery. At all of these meetings, physicians have the greatest interest in this new technology and the benefits it can bring to their patients.

Despite the revolutionary changes in this important field, this technology is not universally applied. It has been estimated that as of September, 2002, only 20% of sinus surgeons have access to image guidance systems. Also, many outside the field do not have access to this information. To this end, efforts must be made to update both physicians and the larger community, so that more individuals with problems of the nose and sinuses have access to the most updated treatment protocols and technology.

A number of websites seek to provide detailed information on the subject of nasal and sinus disorders. Examples include the website of the Rhinologic Society, www.american_rhinologic.org, and the website of the University of Pennsylvania, www.entconsult.org. Websites such as www.nosesolutions.com, created

in partnership between industry and the medical community, is another educational effort to reach the larger community. Private websites such as www.sinustreatmentcenter.com and www.therhinoplastycenter.com also exist to provide detailed information about these important areas.

In the articles in this special section, we seek to provide important knowledge about advances in the care of problems of the nose and sinuses. In the first article we provide an overview of sinusitis. We describe the modern definition of sinusitis and the normal physiology of the sinuses and discuss the causes of sinusitis, with attention to the role of allergies, acid reflux, and other related disorders. In this article we also review the current approach to the diagnosis of sinusitis.¹¹

Treatment of sinusitis is aimed at eliminating causative factors and controlling the inflammatory and infectious components. Ideal management includes preventative measures, including the use of specific medications in proper dose and duration. In the article entitled *Medical Treatment of Sinusitis*, we review many of the medical treatments available for the management of sinusitis.¹²

When anatomic abnormalities of the nose and sinuses contribute to sinusitis and when medical therapy has failed, these anatomic or structural abnormalities can be surgically corrected. Endoscopic techniques allow sinus specialists to diagnose and treat these problems more easily than in the past, allowing them to be more proactive in the management of anatomic nasal abnormalities. In the article entitled *Minimally Invasive Approach to Endoscopic Sinus Surgery*, we review this modern approach to sinus treatment and discuss recent advances. Specifically,

we discuss the utility of powered instrumentation and image guidance in endoscopic sinus surgery.¹³

Rhinoplasty—surgery to reshape the nose—is a common procedure for both cosmetic and functional requests. In the article entitled *Rhinoplasty*, we provide an overview of this common surgical procedure, with special emphasis on the surgical anatomy and preoperative analysis of appearance. A review of the surgical techniques at the disposal of the rhinoplasty surgeon is also provided and illustrated with patient examples.¹⁴

Nasal obstruction may require treatment with rhinoplasty techniques. One cause of nasal obstruction is known as *nasal valve collapse*. This refers to narrowness and weakness at the nasal valve, the narrowest part of the nasal airway. Alar batten grafts are a surgical technique especially useful in addressing nasal valve collapse caused by a weak nasal sidewall. In the article *The Treatment of Nasal Obstruction From Nasal Valve Collapse with Alar Batten Grafts*, we review the senior author's experience with the use of alar batten grafts for nasal valve collapse.¹⁵

A number of patients undergoing nasal procedures such as endoscopic sinus surgery and rhinoplasty ask whether facial cosmetic procedures can be performed at the same time. The report *Adjunctive Cosmetic Procedures During Rhinoplasty and Sinus Surgery* outlines some of the more common adjunctive procedures.¹⁶

It is our goal in this special section to provide an overview of the state of the art in the treatment of chronic sinusitis and other problems of the nose and sinuses. It is our hope that in these articles we can celebrate the journey and disseminate knowledge about new technology and advances in treatment of sinus and nasal disorders.

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