Since the early 20th century, rhinologic surgeons have confronted the anatomic complexity of the paranasal sinuses. Today, sinus surgeons can supplement their personal expertise with specific anatomic information generated by computer-aided surgery (CAS) technology, which provides a means for the direct correlation of preoperative CT scans with intraoperative anatomy.

“The incorporation of CAS into functional endoscopic sinus surgery — which I have termed image-guided functional endoscopic sinus surgery, or IG-FESS — improves how these procedures are performed,” says Martin J. Citardi, M.D., F.A.C.S., a new staff member in the Section of Nasal and Sinus Disorders in the Clinic’s Department of Otolaryngology and Communicative Disorders. “The main concept behind IG-FESS is the integration of the CAS system into surgical planning and execution. IG-FESS goes beyond a simple ‘point-and-hunt’ approach,” he adds.

Currently, Dr. Citardi is using the CBYON (pronounced see-bee-yon) Suite (CBYON, Palo Alto, CA), a new CAS platform that was installed at the Clinic in early 2001. This system automatically correlates points in the CT scan volume and the operating field volume through the use of a special patient headset. Because the registration protocol is automatic, the initial set-up is simple and fast. The CBYON headset’s design also offers potentially greater accuracy than other available headsets.

Dr. Citardi uses the CAS software preoperatively and intraoperatively. The CAS workstation provides a means for detailed review of the preoperative CT scan. The CBYON Suite provides specific software engines for the creation of better image reconstructions.

“I get better understanding of three-dimensional anatomic relationships at the computer workstation,” he says. “Viewing printed CT films on light box is not a substitute.” Intraoperatively, the CAS system’s surgical navigation capacity can directly correlate points in the operating field volume with the preoperative CT images.

Without CAS, the surgeon must create mental models based on relatively limited CT image data and then relate those models to the intraoperative anatomy. “This mental extrapolation introduces potential sources for inaccuracy and error,” Dr. Citardi emphasizes.

The CBYON Suite provides intraoperative localization as well as other unique features. The CBYON Suite’s volume-rendering protocols generate precise three-dimensional models, including virtual endoscopic images. More importantly, the system can track the position of the tip of a standard rigid nasal telescope, and simultaneously generate the 3D CT view that corresponds directly to the view through the telescope.

“This feature may have important implica-
Dear Colleagues:

Now is a growing time for the Department of Otolaryngology and Communicative Disorders. We have been expanding our team of specialists to continue to provide the best patient care.

Martin Citardi, M.D., has joined us this year, and is featured in the front page article. In pediatric otolaryngology, Keiko Hirose, M.D., joins us to establish a neuropsychology laboratory, which will be the centerpiece of the Pediatric Section’s basic science effort. Peter Weber, M.D., an internationally recognized otologist with a wide-ranging interest in pediatric ear disease, will establish an active pediatric cochlear implant program. Steven Ball, M.D., will be joining our staff in regional practice.

The Clinic’s Department of Otolaryngology and Communicative Disorders has merged with the otolaryngology programs at Cleveland Clinic Florida. David Greene, M.D., heads the otolaryngology program in Naples. Gilberto Alemar, M.D., joins Weston this summer.

With our growing team of experienced physicians, we plan on continuing our groundbreaking efforts in both research and clinical excellence.

Our faculty is the anchor for any academic programs.

We look forward to our future bright with possibilities.

Sincerely,

Marshall Strome, M.D., M.S., F.A.C.S.
Chairman, Department of Otolaryngology and Communicative Disorders

Clinic’s Team Expands

Image-Guided Functional Endoscopic Sinus Surgery

(Continued from page 1)

“This software provides a way for target avoidance or anti-targeting: in this way, the risk for inadvertent orbital, optic nerve and anterior cranial base may be reduced,” Dr. Citardi adds. “Because this CAS system provides such precise anatomic information, the overall effectiveness and safety of the surgery is enhanced.”

For more information, call 216/444-4515, or 800/553-5056, ext. 44515.

How to Refer Patients

Physicians can schedule appointments for their patients in the Cleveland Clinic’s Department of Otolaryngology and Communicative Disorders by calling 216/444-6691 from 7 a.m. to 11 p.m., seven days a week, or toll-free at 800/553-5056, ext. 46691.

Visit our Web site at clevelandclinic.org/otol/
When nasal surgical procedures such as septoplasty or polypectomy and turbinate surgery are combined with endoscopic sinus surgeries, adhesions may result. Nasal splints, placed within the nasal cavity on both sides of the septum, separate and may protect mucus membranes. Splints are limited in size.

The new nasal splints* designed by Isaac Eliachar, M.D., are larger than alternative devices, yet are malleable and flexible, facilitating introduction into the nasal cavity affording decreased discomfort.

Unique features of the new splint:
- The splint incorporates a tube-like air passage, providing unobstructed air flow through the nose. The central wall of the Eliachar nasal splint has a very large surface area that can extend from the floor of the nose to its vault, and from the caudal end of the septum to the choana.
- A lateral wing extends upward from its mid-surface. This wing-like extension cradles the middle turbinate preventing adhesion formation to the lateral nasal wall. This extension can also be slipped into the maxillary sinus through the surgically widened antrostomy to maintain patency and promote drainage.
- It is rigid enough to provide support for the septum, yet flexible enough to roll upon itself for introduction. The trimmed stent may be manipulated within the nose despite the labyrinthine nature of the nasal and paranasal sinus cavities.

The splint has been applied in a large series of patients with no untoward side effects or complications. For more information, please call 216/444-8231, or 800/553-5056, ext. 48231.

* Produced and marketed by Hood Laboratories Inc., Pembroke, MA

A New Versatile Post-Operative Intranasal Splint

Follow-up Published in NEJM

The 40-month follow-up of the first-ever laryngeal transplantation was published in the May 31 issue of The New England Journal of Medicine. Marshall Strome, M.D., chairman of the Department of Otolaryngology and Communicative Disorders, and his team performed the transplant in January 1998. Follow-up results show that laryngeal transplantation is feasible. Dr. Strome and his team are currently searching for candidates for a second transplant. They propose that potential candidates for transplantation include aphonie candidates with laryngeal trauma, patients with large benign chondromas requiring laryngectomy, and patients who have undergone laryngectomy for cancer and who remain disease-free after five years. For more information, please call 216/444-6686 or 800/553-5056, ext. 46686. Dr. Strome continues to decrease the dosage of immunosuppressants following the transplant. Once the lowest dosages are attained, consideration will be to stoma closure.

New Training Affiliation Established in Audiology

A training affiliation between the Section of Communicative Disorders-Audiology and the Department of Speech and Hearing Sciences at The Ohio State University (OSU) was established during the past academic year by Cleveland Clinic audiologists Sharon Sandridge, Ph.D., and Craig Newman, Ph.D.

“This affiliation is geared at providing graduate audiology students with exceptional academic, clinical and research experiences outside of the typical university setting,” Dr. Newman says.

One aspect of this training affiliation involves teaching graduate audiology courses via distance-learning technology. Drs. Sandridge and Newman lectured from the Audiology Research Lab at the Clinic to OSU students in a classroom in Columbus using WebCT, a software program designed for the distance-learning classroom.

“Although being physically removed from the students at times was challenging, I think the students found that interacting with seasoned professionals with practical clinical experience and theoretical background far outweighed the occasional challenge of not being face-to-face,” Dr. Sandridge says.

In addition, Drs. Sandridge and Newman provide doctoral-level students an opportunity to spend time at the Clinic to focus on:
- developing advanced clinical decision-making skills in audiology,
- acquiring teaching skills relevant in a medical setting,
- designing clinical research projects,
- and learning about the business practices of a large medical institution.

Elizabeth Adams, the first doctoral student to take advantage of this arrangement, says, “My clinical and research skills have improved beyond my expectation. The diversity of patients seen at the Clinic, the clinical expertise of the audiology staff, and the research opportunities have all added to my incredibly positive experience.” For more information, please call 216/445-8520 or 800/553-5056, ext. 58520.
Innovative Immunotherapy for Recurrent and Metastatic Squamous Cell Head and Neck Cancer

The treatment of recurrent and metastatic head and neck cancer continues to be very challenging. Advances in chemoradiation regimens have allowed for significant improvements in organ preservation, and when combined with surgery and reconstruction, has led to improvements in patient quality of life, but without commensurate benefits in survival. Alternate therapeutic approaches to improve survival are urgently needed. One of these approaches, immunotherapy, exploits the patient’s own immune system to generate a defense mechanism for controlling and eradicating tumors.

Since 1994, a team of investigators at The Cleveland Clinic has been studying and developing an immunological strategy, “adoptive immunotherapy,” in which the number of the patient’s T lymphocytes is being stimulated and expanded in test tubes. These activated T cells are then used as drugs to combat the patient’s own tumor cells. A phase I clinical trial on patients with confirmed recurrent and metastatic head and neck cancer has been conducted by a team of Clinic investigators: Suyu Shu, Ph.D.; and Julian Kim, M.D., of the Center for Surgery Research; and Marshall Strome, M.D.; Benjamin Wood, M.D.; and Ramon Esclamado, M.D., in Otolaryngology.

Between 1996 and 1998, of the 17 patients enrolled, 15 were successfully treated with T-cell immunotherapy. On average, T-cell growth was 37-fold, and the median number of cells for patient treatment was \(7.5 \times 10^9\). The treatment produced very limited toxic side effects — primarily fever and emesis that resolved in less than 24 hours. Three patients demonstrated stabilization of previously progressive disease. Two patients experienced favorable clinical courses after T-cell treatment, including one patient with no evidence of disease for at least four years after surgical resection of a spine tumor. These results have recently been published in Arch. Otolaryngology Head and Neck Surg. (126:1225-1231, 2000).

This experimental treatment has progressed to a phase II clinical trial to seek statistical evidence of survival benefits. Laboratory research has suggested that a specialized dendritic cell to present tumor antigens may result in the most potent immune responses. However, most of the current technologies for dendritic cell immunotherapy have involved loading dendritic cells with tumor cell lysate, defined proteins or peptides. Since the nature of tumor antigens associated with head and neck cancer has not been chemically or molecularly defined, immunization procedures using whole tumor cells will include all the antigens in the tumor.

Attempts have been made to generate dendritic and tumor cell hybrids with chemical fusion resulting in cell death and low fusion rate. Recently, the Clinic’s team has demonstrated the feasibility of producing dendritic-tumor hybrid cells by electrofusion. This technique has produced at least 10 percent of fusion hybrids and in vitro analyses revealed their high immunogenicity. Clinical trials using these hybrid fusion cells are being planned. For information, call 216/444-9310 or 800/553-5056, ext. 49310.
The Section of Pediatric Otolaryngology is now fully integrated into the Department of Otolaryngology and Communicative Disorders, as well as an important part of the pediatric services provided by the Cleveland Clinic Children’s Hospital, including the Children’s Hospital new 17-bed Level III Neonatal Intensive Care Unit.

The section has seen a dramatic growth in the demand for patient care over the last three years. The spectrum of clinical problems is diverse: About one-third of the children seen are healthy and have typical ear, nose and throat diseases. Another third have similar common pathologies, but these are chronically ill or syndromic children who have more complex management issues. The final third are children who have surgically challenging illnesses.

Research
Clinic pediatric otolaryngologic researchers are looking at the indications for tracheotomy in critically ill children in the ICU setting to see how long a child can be intubated without suffering airway complications. The findings demonstrate that children respond like neonates to careful airway management with an endotracheal tube and only require tracheotomy for specific airway lesions, which are generally unrelated to the need or the length for intubation.

Intracapsular Tonsillectomy
Several years ago there was a burst of enthusiasm for laser ablation for chronic cryptic tonsillitis, which resulted in very little post-operative pain and no problems with bleeding. This suggested that partial tonsillectomy may be a less-painful alternative to traditional total tonsillectomy for children suffering from obstructive sleep-disordered breathing.

Outcomes of research in sleep apnea are ongoing, and the program hopes to host a resident and a fellow starting in 2002.

Recently, the otolaryngology program in Florida unified with the Cleveland Clinic’s Department of Otolaryngology and Communicative Disorders in Cleveland, Ohio.

“This partnership will lead to tremendous advances in the science of surgical management of sleep apnea and to education of future leaders in this field,” Dr. Greene says.

For the 12th year in a row, U.S. News & World Report has rated The Cleveland Clinic one of America’s best hospitals. Fifteen specialties, including otolaryngology (ranked in the top 10), were honored as among the best in the country.

Pediatric Otolaryngology Fully Integrated

The Section of Pediatric Otolaryngology is now fully integrated into the Department of Otolaryngology and Communicative Disorders, as well as an important part of the pediatric services provided by the Cleveland Clinic Children’s Hospital, including the Children’s Hospital new 17-bed Level III Neonatal Intensive Care Unit.

Pediatric otolaryngologic researchers are looking at the indications for tracheotomy in critically ill children in the ICU setting to see how long a child can be intubated without suffering airway complications. The findings demonstrate that children respond like neonates to careful airway management with an endotracheal tube and only require tracheotomy for specific airway lesions, which are generally unrelated to the need or the length for intubation.

Intracapsular Tonsillectomy
Several years ago there was a burst of enthusiasm for laser ablation for chronic cryptic tonsillitis, which resulted in very little post-operative pain and no problems with bleeding. This suggested that partial tonsillectomy may be a less-painful alternative to traditional total tonsillectomy for children suffering from obstructive sleep-disordered breathing.

Clinic physicians have done more than 150 of these minimally invasive procedures using an endoscopic shaver and have found that the children have less post-operative pain, they recover quicker and have fewer post-operative hemorrhages. The tonsillar capsule is left intact and acts as a biologic barrier to exposure and injury of the pharyngeal muscles. The decreased post-operative bleeding is most likely due to the way the tonsil is resected, from the airway out toward the capsule, thus staying within the arborization of the tonsillar feeding vessels.

Ultrasound Detection of Fluid Viscosity in Otitis Media
Researchers have received an NIH grant to develop and clinically test a small, thin ultrasound probe that potentially could differentiate the variable consistencies of middle ear fluid.

For more information on any of this research, call 216/445-5022, or 800/553-5056, ext. 55022.
Meet Our Staff

Marshall Strome, M.D.
Chairman
Otolaryngology and Communicative Disorders
Clinical Interests: Head and neck surgery with special interests in laryngology, thyroid and parathyroid surgery
Phone: 216/444-6686; Fax: 216/445-9409

Tom Abelson, M.D.
Solon Family Health Center
Clinical Interests: Voice medicine, pediatric otolaryngology, sinus disease, general otolaryngology
Phone: 440/519-6950; Fax: 440/519-1364

Steven Ball, M.D.
Strongsville Family Health and Surgery Center
Phone: 440/878-2500; Fax: 440/878-2750

Martin Citardi, M.D.
Subspecialty: Rhinology (nasal & sinus disorders)
Clinical Interests: Revision sinus surgery, frontal sinus surgery, sinonasal neoplasia, computer-aided sinus surgery, endoscopic orbital decompression, endoscopic CSF leak repair
Office: 216/444-4515; Fax: 216/445-9409

Isaac Eliachar, M.D.
Section Head, Laryngotracheal Reconstruction
Clinical Interests: Head and neck reconstructive surgery, laryngotracheal stenosis and reconstruction, general otolaryngology, nose and sinus, sleep apnea, tracheostomy, middle ear surgery, pediatrics
Phone: 216/444-8231; Fax: 216/445-9409

Ramon Esclamado, M.D.
Vice Chairman
Section Head, Head and Neck Surgery
Clinical Interests: Head and neck surgery, microvascular reconstruction, laryngotracheal reconstruction
Phone: 216/444-6695; Fax: 216/445-9409

Edward Fine, M.D., Ph.D.
Westlake Family Health Center
Clinical Interests: Laryngology, sinonasal disease, facial cosmetics and reconstruction
Phone: 440/899-5630; Fax: 440/899-5636

Richard Freeman, M.D., Ph.D.
Westlake Family Health Center
Clinical Interests: General otolaryngology, head and neck surgery, sinonasal disease
Phone: 440/899-5635; Fax: 440/899-5636

David Greene, M.D.
Cleveland Clinic Florida in Naples and Weston
Head, Department of Otolaryngology
Clinical Interests: Sleep apnea and snoring surgery, rhinoplasty, facial plastic surgery, sinus surgery, laser surgery, facelift, blepharoplasty, skin cancer surgery and reconstruction
Phone: 941/348-4000; Fax: 941/348-4355

Catherine Henry, M.D.
Clinical Interests: Medical otolaryngology, preventive medicine, women's health issues, asthma
Joint Appointment: General Internal Medicine
Phone: 216/445-8464; Fax: 216/445-9409

Keiko Hirose, M.D.
Clinical Interests: Pediatric ear surgery, hearing loss evaluation, cochlear implantation, basic science research in causes of deafness, general pediatric otolaryngology
Phone: 216/444-6689

Douglas Hicks, Ph.D.
Section Head, Speech and Language Pathology
Director, Voice Center
Clinical Interests: Voice science, voice disorders, care of the professional voice
Phone: 216/444-5773; Fax: 216/445-9409
Also coming to the Cleveland Clinic Florida in Weston: Gilberto Alemar, M.D.

Gordon Hughes, M.D.
Director, Residency Program
Clinical Interests: Ear surgery for deafness and infection, facial paralysis, immunology of the ear, pediatric ear diseases, vertigo diagnosis and management, tumors of the ear
Phone: 216/444-5375; Fax: 216/445-9409

John G. Oas, M.D.
Section Head, Vestibular and Balance Disorders
Clinical Interests: Otolith disorders, benign paroxysmal positional vertigo, adult and pediatric vestibular and balance disorders, cervicogenic dizziness, vestibular rehabilitation
Phone: 216/444-7001; Fax: 216/445-9409

Steve Hunyadi Jr., M.D.
Independence and Solon family health centers
Clinical Interests: General otolaryngology, sinonasal disease and allergy, head and neck surgery, plastic and reconstructive surgery
Independence phone: 216/986-4000
Solon phone: 440/519-6885; Fax: 440/519-1364

George Ozbardakci, M.D.
Lorain Family Health and Surgery Center
Clinical Interests: Sinus problems, hearing loss, hearing aids, snoring, sleep apnea, tonsils and adenoids
Phone: 440/204-7400; Fax: 440/204-7396

Robert Katz, M.D.
Section Head, Community Otolaryngology
Solon Family Health Center
Clinical Interests: Pediatric otolaryngology, otology, head and neck surgery, general otolaryngology
Phone: 440/519-6950; Fax: 440/519-1364

Sharon Sandridge, Ph.D.
Clinical Interests: Electrophysiologic assessment, state-of-the-art amplification options including assistive listening devices and digital hearing aids, tinnitus and older adults.
Phone: 216/445-8517; Fax: 216/445-9409

Peter Koltai, M.D.
Section Head, Pediatric Otolaryngology
Clinical Interests: Laryngotracheal reconstruction, post-traumatic craniofacial reconstruction, chronic middle ear disease, chronic sinusitis, head and neck neoplasms
Phone: 216/445-5022; Fax: 216/445-9409

Suyu Shu, Ph.D.
Research Interests: Cellular immunology, cancer immunotherapy, molecular biology
Joint Appointment: Director, Center for Surgery Research
Phone: 216/445-3800; Fax: 216/445-3805

Donald Lanza, M.D.
Section Head, Nasal and Sinus Disorders
Clinical Interests: Treatment of recalcitrant sinusitis, revision sinus surgery, assessment and treatment of nasal obstruction, cerebrospinal fluid rhinorrhea, tumors of the anterior skull base
Phone: 216/444-4939; Fax: 216/445-9409

Peter Weber, M.D.
Clinical Interests: Surgery for pediatric and adult ear disease including cochlear implants, implantable hearing aids, infectious cholesteatomas, acoustic neuromas, ear tumors, skull base lesions, facial nerve disorders and vertigo.
Phone: 216/444-6689

Craig Newman, Ph.D.
Section Head, Audiology
Clinical Interests: Geriatric communication disorders, tinnitus, evoked potentials, hearing aids, outcomes research
Phone: 216/445-8520; Fax: 216/445-9409

Benjamin G. Wood, M.D.
Clinical Interests: Oncologic surgery of the head and neck, skull base surgery, nasal/paranarial sinus surgery
Phone: 216/444-5700; Fax: 216/445-9409
Sam Kinney, M.D., Retires

Sam Kinney, M.D., came to The Cleveland Clinic in 1976 and served as head of the Section of Otolaryngology and Neurology. He also was a member of the Clinic's Board of Trustees. At the national level, Dr. Kinney served as vice chairman of the Trilologic Society and as president of the Alumni Group of the House Ear Research Institute, the Northeastern Ohio Otolaryngology and Head and Neck Surgery Society, the Centurions of the Deafness Research Foundation, and the Aesculapian Society. Locally, he was president of the Medical Arts Club of Cleveland.

Perhaps his greatest legacy is the mark he left on the residents who have completed their training at the Cleveland Clinic Department of Otolaryngology and Communicative Disorders. He was a superb otologist, educator, writer, researcher and role model. He published more than 90 articles.

In Memoriam

Dr. Eugene Batza, a widely recognized speech pathologist and audiologist, died this year at the age of 83. Dr. Batza worked in the Cleveland Clinic Department of Otolaryngology and Communicative Disorders from 1964 through 1982. In addition to his professional accomplishments, including many publications and presentations, Dr. Batza studied opera in New York, was an accomplished pianist, sang with Fred Waring and the Pennsylvanians and played in the Cleveland Clinic band. Gene Batza will be missed by The Cleveland Clinic family.

The Department of Otolaryngology and Communicative Disorders had 38 scientific publications and more than 20 in press this year. The staff served as visiting professors and lecturers more than 50 times.

Advances in Endoscopic Management of Nasal and Sinus Disorders Conference

Nov. 1 - 3, 2001, at The Cleveland Clinic

For more information or to register, please call 215/444-4831 or toll-free 888/216-4012.

© 2001 The Cleveland Clinic Foundation