CHAIRMAN’S CORNER

The Completion of Another Successful Year

As this academic year comes to a close and we celebrate the graduation of our three chief residents, I would like to share with you some of our accomplishments for the year.

- Robert Jahrsdoerfer, MD, is the President-Elect of the Triological Society.
- Paul Levine, MD, is the President of the American Head & Neck Society.
- George Hashisaki, MD, is the Secretary/Treasurer of the Virginia Society of Otolaryngology-Head & Neck Surgery.
- Charles Gross, MD, and Paul Levine, MD, were named among America’s Top Doctors and Robert Jahrsdoerfer, MD, was named as one of the Best Doctors in America for 2002.
- Stephen Early, MD, was named among the Top 100 doctors in Central Florida before joining the department.
- Stephen Park, MD, was the Associate Editor for the textbook Facial Plastic Surgery.
- Stilianos Kountakis, MD, received the AAO-HNS Honor Award for administrative and educational service to the academy.
- The department collectively published over 50 publications and gave over 40 local, regional and national presentations.

As the summer comes to an end, please accept our wishes for a enjoyable and successful autumn.

Paul A. Levine, MD
Robert W. Cantrell Professor and Chair

ADVANCES IN RESEARCH

Hair Cell Regeneration Update

Sensory hair cell regeneration and stem cell research holds hope for millions of Americans who are affected by persistent loss of hearing or balance. The Department of Otolaryngology—Head and Neck Surgery is internationally known for research in these areas. In the 1970s, investigations of the hearing organs in sharks led Jeffrey Corwin, Ph.D., Director of Research in Otolaryngology and Professor of Otolaryngology and Neuroscience, to propose that sensory hair cells could be replaceable through regeneration. At first, some scientists were skeptical, but there are few skeptics now. In the time since, Dr. Corwin and scientific colleagues here and elsewhere have shown that fish, amphibians and birds can regenerate lost hair cells and experience remarkable recovery of hearing and balance sensitivity after suffering the kinds of damage that cause permanent sensorineural losses in our own ears.

Sensorineural hearing deficits are often given the misnomer “nerve deafness,” yet in most cases the nerves are fine. The problem is loss of the sensory hair cells that are essential for hearing and balance. Those losses have remained clinically irreversible, because sensory cell production normally ends before birth in the ears of humans and other mammals. But research is yielding reasons for hope that those conditions will someday become treatable and possibly preventable. In laboratory experiments Dr. Corwin and his colleagues discovered that some regeneration can occur in the hearing organs of mammalian embryos and in the balance organs from the ears of mature mammals, including those from adult humans, but the natural regenerative responses of mammalian ears are very limited.

Now, tests of potential drug treatments, work with stem cells, and gene transfer methods are contributing to the work that Dr. Corwin and his colleagues hope to eventually translate into clinical treatments to restore the functions of damaged ears. This year Dr. Corwin chaired the first Auditory Stem Cells Workshop for the National Institutes of Health, and that led to initiation of a new program on “Cellular Repair Studies of the Auditory and Vestibular Systems” supported by the National Institute on Deafness and other Communication Disorders. Scientists throughout the world now are working toward the goal of developing regenerative treatments to restore hearing and balance. Dr. Corwin recently spoke in Stockholm at the Nobel Conference, “To Restore Hearing” where he reported Dr. Mireille Montcouquiol’s discovery of a sequential two-drug treatment that dramatically increases the entry of mammalian balance organ cells into the path to cell regeneration.

This is an exciting time for researchers as new methods are revealing the cellular basis of regeneration, that should one day allow treatment for many conditions that have long been considered irreversible.
A child is born with an obvious congenital nasal deformity (Figure 1). He is a full-term infant boy born to a healthy 25-year-old woman with no family history of congenital deformities. Initial respiratory distress required oral intubation for four days with subsequent improvement and discharge to home after two weeks. CT scan of the head revealed a soft tissue deformity of the nose that did not communicate with the orbit, sinus or intracranial cavity. He continued to gain weight and develop normally, and at four months of age, was taken to the operating room.

Nasal endoscopy revealed patent but narrowed anterior choanae as well as some mild thickening of the nasal septum on the left side. An elliptical incision was made around the midline cleft, and the soft tissues debulked, especially over the upper lateral cartilages. The dorsal nasal septum could be easily palpated in the midline, deep to the cleft. The nasal bones and the upper lateral cartilage were laterally displaced, as were the domes of the lower lateral cartilages. Fibrous tissue between the domes was resected, and an interdomal suture was placed to improve alignment and increase projection. Nasal bones were not in-fractured. Skin edges were reapproximated vertically as a midline closure (Figure 2).

Midline clefts commonly occur in combination with other clefts and are often associated with hypertelorism, facial dysplasia and intracranial abnormalities. Like our case, involvement of the soft tissues alone is more common than clefts involving bony defects. Classification systems abounded until Tessier established the simplest, most well-defined system (Figure 3). Facial clefts are defined anatomically by relationship to the orbit, and numbered starting at 0 for midline clefts and proceed laterally, and cranial clefts are numbered laterally around the orbit and proceed back to the midline.

Our patient demonstrates a Tessier type 0 facial cleft with involvement of soft tissues alone and no genetic history. The exact mechanism for the formation of facial clefts has not been clearly defined. Speculation exists for internal factors such as vascular insufficiency and/or a metabolic derangement, as well as external disturbances such as amniotic banding, hematoma or oligohydramnios. Embryologically, facial clefting occurs from a disturbance between the 4th and 8th week of intrauterine growth. During this period, the five primordial facial processes form all of the structures of the face, including the palate, maxilla and zygomatic bone. Clefts develop along the fusion planes of these different processes; nasal clefts result from the failure of the medial nasal processes to fuse.

Severity can range from a midline nasal groove with mild hypertelorism to complex abnormalities involving cranium bifidum, median encephalocele, and absent prelabium and premaxilla, with severe functional and neurological deficits. Compromise of nasal patency is not uncommon and must be addressed acutely, albeit temporarily, in the newborn.

Surgical management of midline clefts depends on the severity. When the lesion involves the soft tissue structures only, conservative resection is followed by reconstruction designed to approximate the correct anatomy of the nose. Associated problems include sepal deformities, stenosed nasal apertures, flaccidity of the nasal valve and collapsed nasal alae.

Timing of surgery depends on several factors. Reconstruction of minimal irregularities may be postponed until adulthood to ensure full development of the nasal framework. Excessive dissection and devascularization of nasal growth centers may stunt the normal growth and leave a “juvenile” nose. A large pediatric series has been reported, however, where nasal deformities were corrected surgically without interference of normal nasal growth.

Moreover, long-standing nasal airway impairment can result in habitual mouth breathing and associated craniofacial features. Early conservative debulking and structural realignment may allow for the most normal nasal growth through pubertal years.
The treatment of recalcitrant frontal sinus disease is a challenge for any physician. Fortunately, new techniques have been developed that improve an otolaryngologist’s chances for successful surgical therapy. Techniques of functional endoscopic sinus surgery have revolutionized the surgical standard of care for chronic sinusitis. At the University of Virginia Medical Center, we continue to refine the procedures developed by Dr. Charles Gross over the last ten years. An endoscopic surgical approach for frontal sinusitis is used that further advances care in demanding cases. The frontal drill-out procedure, or modified Lothrop procedure, involves an endonasal creation of a wide drainage ostium for the frontal sinuses without the need for sinus obliteration or external incisions.

A patient who benefited from such treatment was a male in his late 20s who suffered from nasal obstruction, congestion, pressure and pain. He had frequent post-nasal drip and thick drainage despite maximal medical therapy. Complicating his history was extensive facial and nasal trauma from an automobile accident nine years earlier. His endoscopic exam revealed extensive nasal polyposis with obstruction and copious nasal secretions.

Initially, he underwent functional endoscopic sinus surgery with nasal polypectomy. Despite a good response to the surgery with control of disease in his maxillary and ethmoid sinuses, he had persistent mucosal disease in his frontal sinuses with polypoid tissue in his frontal recesses. These findings are demonstrated in the CT scan image (Figure 1).

With the aid of a stereotactic image guidance system, the patient then underwent a frontal drill-out procedure to address this frontal sinus disease. The technique involves resection of a window of nasal septum. A specially designed endonasal drill shaves away bone in the region of the nasal beak to enter the frontal sinus. This opening is connected across the frontal sinus septum to enlarge the ostium to include the adjacent frontal sinus. A large window to the frontal sinuses results. Mucociliary clearance is preserved, and vastly improved aeration and drainage of the frontal sinuses is seen. The endoscopic photograph (Figure 2) illustrates open frontal sinuses in our patient six months after surgery.

**Clinical Pearl**

**Novel Therapies for Frontal Sinus Disease**

Stilianos E. Kountakis, MD

During the week of May 5-10, 2002, members of the department performed ear surgery on needy patients in the Dominican Republic. Dr. George Hashisaki, Dr. Brian McKinnon and former OR nurse Sue Weed, returned to Santo Domingo as part of our ongoing Project Ear mission. Working with a Dominican otolaryngologist, Roberto Batista, M.D., Project Ear fills a need for otologic services for indigent patients.

The team was able to complete 22 ear surgeries over four days. These surgeries were a mix of tympanoplasties and/or mastoidectomies for chronic otitis media or cholesteatoma. We were able to perform the surgeries at a large government-supported hospital, Plaza de la Salud.

We used instruments, otologic drills and two operating microscopes that are on continuous loan from Project Ear to Dr. Batista.

The patients ranged in age from 6 to 70 years, and all were so appreciative of the medical care. Dr. Batista provides all of the preoperative evaluation and postoperative care for these patients at no charge. We observed extensive chronic ear disease and large smiles during this fulfilling trip.
The 26th Annual Fitz-Hugh Symposium, held in Charlottesville in June, was a great success. Guest of Honor Stanley Shapshay, MD, from Boston University was joined by Jim Netterville, MD, of Vanderbilt University and Tucker Woodson, MD, of the Medical College of Wisconsin. The symposium focused on the evaluation and treatment of obstructive sleep apnea as well as laryngeal disorders. The lecture series was complemented by a cadaveric dissection lab that was unanimously thought to be informative and beneficial to all participants.

In addition, the yearly resident research competition was held. Dewayne Bradley, MD, took first prize with his research investigating the role of leukotrienes and their association with chronic hyperplastic sinusitis. Pierre Musy, MD, was the runner-up with his presentation of the efficacy of fine needle aspiration in the evaluation of head and neck tumors. David Chi, MD, won the annual resident temporal bone dissection contest, while Dewayne Bradley, MD, was awarded 2nd place.

The Fitz-Hugh, as always, was a great opportunity to meet again with alumni and colleagues from around the state. We look forward to the 27th Annual Fitz-Hugh Symposium in June of 2003 with David Schueller, MD, joining us as the Guest of Honor.
**FELLOW AND RESIDENT ACCOLADES**

**Brian J. McKinnon, MD,** recently finished his fellowship with our department in otology and neurotology and was selected for promotion to the rank of Commander with the U.S. Navy. He will be joining the combined ENT program at National Naval Medical Center, Bethesda, and Walter Reed Army Medical Center. Dr. McKinnon recently represented the department at the Remote Area Medical (RAM) Clinic which took place in late July and gives medical care to indigent patients in Southwest Virginia. Along with a team of nurses, Dr. McKinnon saw 167 patients over a three-day period.

**Tuan Pham, MD,** completed his residency in head and neck oncology and facial plastic and reconstructive surgery and will be returning to Perth, Western Australia.

**Matt Gerber, MD,** received a second-place award for his resident paper, presented at the Virginia Society of Otolaryngology-Head & Neck Surgery.

**David Crouse, MD,** (PGY4) received the Pullen Award from the first-year medical students which is given to the best mentor. Additionally, Dr. Crouse received the 2002 Award for Excellence in Teaching, a hospital wide award that was presented by the Dean of the School of Medicine.

**RESIDENT UPDATE**

The Department wishes the best of luck to our Chief Residents in their future endeavors.

**Pablo Arango, MD,** will be joining New York Ear, Nose & Throat Associates in Queens, New York. Dr. Arango's focus will be general otolaryngology, rhinology and facial cosmetic surgery.

**David H. Chi, MD,** will be going to the University of Pittsburgh for a fellowship in pediatric otolaryngology. Dr. Chi will be moving to Pittsburgh with his wife, Cathy, and their 18-month old son, Ethan.

**Matthew J. Gerber, MD,** will join Raleigh Ear, Nose & Throat, Head & Neck Surgery Inc. where he will be practicing general otolaryngology with a focus in otology, rhinology, and head and neck surgery. Dr. Gerber and his wife, Kathryn, are expecting their second child in late August.

**UPCOMING EVENTS**

**September 12, 2002**
Gene Tardy, MD, FACS
Visiting Professor
Topics include facial plastic surgery and rhinoplasties.
Call (434) 982-1885 for details.

**September 24, 2002**
6:00-8:00 PM
UVA Otolaryngology Alumni Reception
American Academy of Otolaryngology-Head & Neck Surgery Meeting
San Diego, CA

**Samuel S. Becker, MD,** graduated from Amherst College in 1991 and worked as an artist for six years, earning his Master's in Fine Arts from Boston University, before pursuing medicine at the University of California in San Francisco. Dr. Becker is currently living in Charlottesville with his wife, Jennifer, and their 1½ year old daughter, Emily. If you see a resemblance to one of our past residents, Dan Becker, MD, (1995) it is no surprise, Sam is Dan's younger brother.

**Robert J. Caughey, MD,** graduated from the University of Virginia with a degree in Chemistry in 1998. Dr. Caughey attended medical school at the University of Pittsburgh and recently moved back to Charlottesville with his wife, Anne.

**Tamer Ghanem, PhD, MD,** graduated from the University of Utah in 1993 with a degree in Chemistry. He subsequently pursued his PhD in Bioengineering, which he received in 2001, while attending medical school at the University of Utah. Dr. Ghanem now lives in Charlottesville with his wife, Nermeen Elnabtity.
In summary, we present an unusual case of a bifid nose, Tessier type 0, repaired at four months of age by resecting excess soft tissue and repositioning existing cartilaginous structures in order to encourage normal nasal development.

References: