

Team Approach for Complex Tumors

Cranial base tumors are complex lesions that often cause a life threatening situation to patients. In most cases, these lesions are surrounded by structures that are critical to sustain life. These situations push the limits of surgical treatment and expose patients and their families to life-long complications that many times are severe. We at UCSF are committed to advance the surgical technique so that patients with skull base lesions have safer and more effective surgical treatments for their disease. We believe that the union of experience, technology and creativity from both neurosurgery and Otolaryngology experts is the best approach to find minimally invasive surgical strategies to successfully treat these lesions, while reducing the impact surgery has on patients and their families. We are excited to inform you of this collaboration.

The departments of Otolaryngology and Neurosurgery have jointly created The Skull Base & Cerebrovascular laboratory (SBCVL) to approach research on cranial base lesions through a multidisciplinary team. Neurosurgeons and Otolaryngologists are working side by side in the laboratory to design new strategies for treatment of challenging lesions. The SBCVL uses the best technology available to illustrate our surgical simulations and is equipped with the most advanced technology to recreate Operating Room scenarios where each variable is carefully examined. All procedures are recorded in 3D for posterior analysis and feedback during surgery. Each step of the dissection is carefully prepared for illustration so we have a comprehensive set of anatomical pictures to review the most critical parts of the surgical procedures with the invaluable sense



Dr. Arnau Benet Cabero

of depth. This is particularly important for endoscopic surgery, where the endoscope in the OR offers 2D images that difficult the perception of relative position between critical structures. In the laboratory, we developed a system to obtain high definition 3D images. This will allow us to optimize both our educational programs to residents and the research of new surgical pathways.

—by Arnau Benet Cabero; Director, Skull Base & Cerebrovascular Laboratory; and Assistant Professor, Departments of Neurological Surgery & Otolaryngology-Head and Neck Surgery

Dr. Jolie Chang

The department is pleased to announce the appointment of Jolie



L. Chang, MD, as assistant professor of General Otolaryngology in the Department of Otolaryngology-Head and Neck Surgery. Dr. Chang

graduated from Massachusetts Institute of Technology with a Bachelor and a Masters degree in electrical engineering and computer science. She earned her medical degree at UCSF School of Medicine and completed her residency in Otolaryngology, Head and Neck Surgery at UCSF Medical Center. Dr. Chang practices general head and neck surgery with interests in the treatment of benign salivary gland disorders, ear and hearing issues, and snoring and sleep apnea. After completing advanced training in Geneva, Switzerland, she performs minimally invasive therapy for salivary

stones and obstructions with the use of ultrasound and sialendoscopy at the UCSF Salivary Gland Surgery Center. She also performs surgery for middle ear disorders and for obstructive sleep apnea. Dr. Chang completed a Howard Hughes Medical Institute Research Training Fellowship for her work on hearing loss and its relationship with bone diseases. She also studies auditory function in Parkinson's disease along with outcomes and improvements for therapy of salivary gland obstruction and sialolithiasis. She has received numerous regional and national awards for her research which has been presented at national and international meetings.

Dr. Marika Russell

Dr. Marika Russell is an Assistant Professor in the Department of Otolaryngology – Head and Neck Surgery. She received her residency training here at UCSF, joining the faculty in July 2011. Her clinical practice is based at San Francisco

General Hospital (SFGH), where she maintains a clinical focus in endocrine surgery.

In August, Dr. Russell was appointed Medical Director for Surgical Specialties at SFGH. This is a key leadership position, which



will be instrumental as the hospital works to improve quality of care, access to care, and cohesiveness across specialties and primary

care. Dr. Russell will be working directly with hospital leadership to improve clinical operations and patient and staff experience across surgical specialties at SFGH. Her role also includes a focus on electronic health record implementation and development of quality improvement initiatives with use of timely, relevant, and actionable data. Dr. Russell will divide her time between this leadership position and her clinical activity in the department.

Resident Research Symposium

Resident research continues to thrive in the department. June witnessed another successful Resident Research Symposium, highlighting the outstanding scientific investigations in both the clinical and basic science arenas. The winners of prizes from the Symposium were Kevin Burke, MD (First Place: Viral Mediated Gene Therapy for Restoration of Hearing in VGLUT 3 Knockout Mice), Jolie Chang, MD (Second Place: Alpha-Synuclein, Parkinson's Disease, and Auditory Function), and Megan Durr, MD (Third Place: Validation of a Novel Sino-Nasal Endoscopy Scoring System: The DIP Score). Two residents received research awards at outside scientific meetings during the academic year: Jolie Chang, MD (International Sialendoscopy Meeting and Combined Otolaryngology Spring Meeting) and Kevin Huoh, MD (Combined Otolaryngology Spring Meeting, Western Section and Bay Area Resident Research Symposium).

The quality of research and training in scientific investigation is largely made possible with resources from the Sooy Education Fund and faculty mentors. All residents have the opportunity to undertake training in advanced clinical research methods by enrolling in UCSF's unique and invaluable Designing Clinical Research course. These funding sources also support the actual research itself, although three residents successfully secured additional funds by receiving highly-competitive grants: Jonathan George, MD, MPH (American Head and Neck Society); Megan Durr, MD (UCSF Clinical and Translational Science Institute); and Daniel Faden, MD (UCSF Clinical and Translational Science Institute).

The bar has been set high, but we look forward to another productive and exciting year for resident research.

—by Eric Kezirian, MD, MPH; Director, OHNS Resident Research; and Associate Professor, Department of Otolaryngology-Head and Neck Surgery

From left: Graduate Gerald Kangelaris, Rising Chief Kevin Burke, Graduate Kevin Huoh, Graduate Jolie Chang, Rising Chief Megan Durr, Rising Chief Jonathan George



2012 Sooy Lecture and Resident Graduation Dinner

On June 9th, the faculty, residents, alumni and friends of the department gathered for the 2012 Francis A. Sooy Lecture with guest speaker Stephen S. Park, MD, FAC, Director of the Division of Facial Plastic and Reconstructive Surgery at University of Virginia.

Dr. Park provided us with two amazing educational lectures based on his extensive clinical experience. In his "Pearls in Primary Rhinoplasty – avoiding landmines" lecture, he helped us recognize the consequences of over aggressive hump reduction and highlighted on ways to correct the twisted nose and develop an algorithm for an accurate repair during functional rhinoplasty. In his second lecture "Cutaneous Malignancies and their management in the 21st Century," he showed us the importance of an early biopsy of skin lesions, helped us gain familiarity with an algorithm for defect repair, and how to appreciate the nuances of complex nasal reconstruction. Dr. Park's medical mission as a facial plastic surgeon is to improve and enhance the quality of life for his patients through their face and his commitment to teaching was truly displayed through his presentations. It was an honor to have Dr. Parks as this year's Sooy Lecturer.

As tradition stands, the lecture was followed by the Department of Otolaryngology-Head and Neck Surgery's Annual Year-End Dinner. It was a memorable night honoring our graduating Chiefs Jolie Chang, Gerald Kangelaris and Kevin Huoh.

UCSF HeadsUp!

News from the UCSF Department of Otolaryngology – Head and Neck Surgery
FALL 2012 | VOL. 9, ISSUE 2

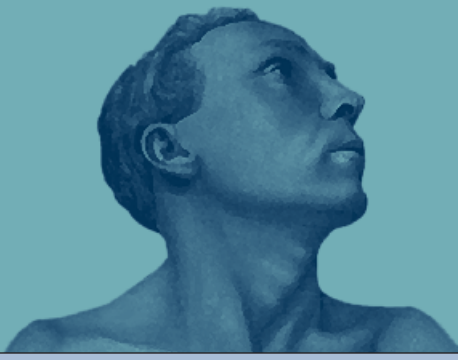
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Upcoming Events

For information on upcoming events and continuing education offerings, please visit <http://ohns.ucsf.edu> and <http://cme.ucsf.edu>.





HeadsUp!

News from the UCSF Department of Otolaryngology –
Head and Neck Surgery

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

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In This Issue:

Interim Chair's Message	1
Coleman Memorial Laboratory Moves to Mission Bay	1
New Bioabsorbable Steroid Eluting Stent	4
What Causes Chronic Sinusitis?	4
New Faculty Highlights	5
Annual Year-End Events	6

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please contact Development Director
Justin Marsh at 415/476-5885
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INTERIM CHAIR'S MESSAGE:

Department Expands and Excels

It is a very exciting time to be at UCSF. In my twenty years at the institution I have never seen so much positive change occurring as we work toward the opening of our brand new UCSF Benioff Children's Hospital and UCSF Cancer Hospital. Topping out ceremonies, institutional strategic planning meetings, gala benefits, and retreats are filled with tangible opportunities to effect positive and long lasting improvements in research, clinical care, and education.

Our research enterprise has recently made major strides. Christoph Schreiner and the Coleman Laboratory have moved to Mission Bay from Parnassus to beautiful and state of the art new quarters which are sure to enhance

Continued on page 2



The department welcomes Dr. Arnau Benet Cabero, pictured above in the Skull Base & Cerebrovascular Laboratory — find his and other new faculty profiles on page 5.

Coleman Memorial Laboratory Moves to Mission Bay

The John C. and Edward Coleman Memorial Laboratory of the Department of Otolaryngology – Head and Neck Surgery (OHNS) is one of the oldest endowed research laboratories at UCSF. It has been dedicated to the research of hearing disorders and deafness and their amelioration since its establishment in 1921. Over the last quarter-century epoch, scientists of the Coleman Memorial Laboratory have published more than 500 scientific papers, and have been awarded the rights to more than 50 U.S. and many international patents. Members of its research team have received numerous prizes and honors and more than 50 former lab members have attained faculty

appointments in leading universities and health centers around the world. Nearly a half million hearing-, language- and reading-impaired children and adults have benefited from new hearing substitution devices, in particular the multi-channel cochlear implant, and neuroscience-based remedial training strategies developed in our laboratories.

Since 1966 the Coleman Memorial Laboratory has been housed in the Health Science East Tower on the Parnassus Campus. In June of this year, it has moved into its new premises in a new neuroscience building at UCSF's Mission Bay campus. The five-story building is

Continued on page 3



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Interim Chair's Message

Continued from page 1

productivity and collaboration. Dr. Brian Malone, a young neuroscientist mentored by Christoph, has just been awarded his first NIH R-21 grant to support his work in auditory cortex processing. Dr. Young-Wook Jun has also been successful in funding his nanoparticle research. In addition to an NIH R-21 grant, he has attracted strong industry support from Samsung. Dr. Larry Lustig has just published a seminal article in *Neuron* [July 26;75(2):283-293] outlining his work in virally mediated gene therapy to restore hearing in the mouse model. Dr. Andrew Goldberg and Dr. Steve Pletcher have just published a transformative and landmark report examining the cause of chronic rhinosinusitis in a paper published in *Science Translational Medicine* [September 12, 2012;4(151):151ra124]. Emily Cope, PhD, a post-doctoral researcher has joined Susan Lynch's laboratory in collaboration with our Rhinology Division to pursue this fascinating mechanism. In addition, we welcome Dr. Arnau Benet who was jointly recruited by our skull base division and the Department of Neurological Surgery to accomplish anatomic research, support technique oriented investigations, and provide professional educational collaboration. Finally, I must mention that one of our residents, Meagan Durr, just published a wonderful clinical study which outlines the creation of an endoscopic scoring system to evaluate the disease state of sinusitis in the ambulatory setting: The DIP Score! Check it out in the *IFAR* journal [IntForum Allergy Rhinol. 2012 Aug 27. doi: 10.1002/alr.21074. [Epub ahead of print] PubMed PMID: 22927217.] The DIP score is something you can use in your practice right now!

Going Paperless

This summer was the Summer of Apex Implementation for the department (rather than the Summer of Love). Medical Records has gone paperless with implementation of a system known as Epic, which went live on September 18. We could not have done it without our new and fabulous Clinical Administrative Director Joyce Komori. Joyce is a nurse who trained at the University of Pennsylvania and she has been instrumental in managing our clinic in an expert and professional manner. We are so pleased to welcome her to the department. Likewise, we welcome Jolie Chang, MD, to the department. Dr. Chang completed her residency here at UCSF just last June and has joined us to concentrate on general otolaryngology/head and neck surgery including sialendoscopy, sleep apnea surgery, and other aspects of general practice. Dr. Chang has a fantastic career ahead of her at UCSF and we are so pleased to have her onboard. Likewise, Marika Russell, MD, has just been appointed to be the Medical Director of Surgical Specialties at San Francisco General Hospital. This is a highly influential administrative position that will be deeply involved in facilitating integrated care and quality assurance. Dr. Marika Russell is also a busy head and



Interim Chairman Andrew H. Murr, MD (right), with Sooy lecturer Stephen S. Park, MD, FACS — read about the 2012 Sooy Lecture and Resident Graduation Dinner on page 6.

neck endocrine surgeon at SFGH and has pioneered a joint endocrine/head and neck surgery conference that promotes state of the art care for people with thyroid or parathyroid surgical problems. Our new microvascular facial plastic surgeon, Daniel Knott, brings an extraordinary skill set to our head and neck and skull base surgery practice. In fact, he managed over 70 free flaps in his first year at UCSF. I am also excited to share the news that we have been fortunate in recruiting our new Director of Audiology. Dr. Andrew Dundas will be joining us on December 1. Dr. Dundas has worked at Starkey and at Cleveland Clinic and is a worthy successor to Dr. Robert Sweetow, who will still be available to help him with the transition. Finally, we just returned from the Academy meeting in Washington, D.C. where the department was pursuing formal recruitment in many areas including head and neck endocrine surgery, pediatric otolaryngology/head and neck, facial plastic surgery with a free tissue microsurgical focus, vestibular otology, and general otolaryngology with an interest in underserved communities and outcomes research.

The Education Front

Education is always in the forefront of our mission. We just received our ACGME accreditation feedback after our recent site visit which included a program commendation. Our new PGY-1 residents have begun their otolaryngology internship. They are a strong group: Nicholas Dewyer from University of Michigan, Matthew Tamplen from UCLA, and Jonathan Overdevest from University of Virginia. We welcome them to the team. The summer and early fall is otolaryngology sub-internship season and we have had many outstanding Sub-I's who are extremely interested in our program. Meanwhile, on the undergraduate medical education front, Dr. Anna Meyer has just begun as a small group leader in the Foundations of Patient Care course at UCSF, a major responsibility. From a CME perspective, we have some extremely high quality offerings coming up and I hope you will be able to attend at least one. Please visit our website at <http://ohns.ucsf.edu> to get more details about these and for the weekly educational offerings that include Grand Rounds as well as endowed lectures with visiting professors throughout the year.

Coleman Memorial Laboratory Moves to Mission Bay

Continued from front page

located on the north side of Koret Quad, and houses clinical and research programs of the UCSF Department of Neurology, the Institute for Neurodegenerative Diseases (IND), and the Center for Integrative Neuroscience. The Coleman Memorial Laboratory has been part of the UCSF Center for Integrative Neuroscience (CIN; a former W.M. Keck Foundation Center) since 1991. Approximately 100 investigators and 500 employees are working in the 237,000-square-foot facility, making it the second-largest building at Mission Bay. The building has been named the Sandler Neuroscience Center in honor of the continued commitment of Herbert and Marion Sandler and the Sandler Foundation to the research mission of UCSF. They have provided UCSF with a challenge gift of \$20 million for major support for neuroscience and neurological disease research.

The principal investigators of the Coleman Lab, Drs. Andrea Hasenstaub and Christoph Schreiner,

are occupying more than 3000 square feet of research and office space in the new building, resulting in a significant increase in the foot print of the Coleman Laboratory with a greatly improved research capacity.

Over the past five decades, the John C. and Edward Coleman Memorial Laboratory has focused its research initiatives on the search for the physiological and anatomical principles of brain organization that are the bases for how hearing sensation is established, transformed, and learned. From those principles, a series of groundbreaking treatments for hearing loss and related neurological disorders of language, cognition, and movement control have been developed.

A collaborative group of investigators from the fields of Neuroscience, Engineering and Clinical Otolaryngology continue to work on the basic and translational aspects of hearing science to advance our understanding of the hearing process and to continue to help patients with communications

disorders. The research groups in the Coleman Laboratory continue to collaborate on a number of projects aimed at developing an integrative, multi-level understanding of hearing function, with an emphasis on basic principles of cortical organization and plasticity. In addition, the laboratory continues to pioneer novel techniques to explore the causes and central nervous consequences of hearing loss and to restoring hearing in deafness. It has also broadened the scope of projects to include the development of perceptual training strategies designed to overcome impairments in hearing, in communication, in cognitive abilities, and in fluent motor control of speech and body movement in children with language impairments, in dyslexic children, in autistic syndrome children, in aging populations with and without significant hearing loss, and in aphasic and other hearing- and communication-related stroke patients. Our main objective for research development in UCSF Otolaryngology – Head and Neck Surgery is to further elaborate, and to insure the continuity of this powerful basic research and translational research capability, addressing additional areas of human communication that have long been neglected, while sustaining a continuing, sharp focus on driving research findings from the laboratory out into the world to help people in need. Basic science can inform patients and clinicians about mechanisms underlying the development and deterioration of hearing processes over the course of a lifetime. With initiatives like these, UCSF Otolaryngology – Head and Neck Surgery research is well positioned to unlock mysteries of brain impairments in hearing disorders and to develop new treatments for our patients. With further help from our friends, alumni, and philanthropic donors, we are confident that we will continue to build on the success of these recent exciting discoveries.

The new neurosciences building will greatly enable entirely new research initiatives being undertaken by collaborative groups of the OHNS and CIN faculty, such as the plan to use optogenetics – an emerging field that combines optical and genetic techniques – to manipulate neural activity in many different kinds of animals in order to study the fundamental brain mechanisms of learning.



New Bioabsorbable Steroid Eluting Stent

If you have attended some of the recent rhinology meetings, you may have seen some talks or displays about a new type of treatment technology: a bioabsorbable steroid eluting stent for use after sinus surgery. I have been fortunate to work as a consultant with the company that developed this technology over approximately the last eight years: IntersectENT in Palo Alto.

The premise of the technology is simple: an engineered expansile matrix of PLG is coated with 370 micrograms of mometasone. The coated stent is inserted with a delivery device into the ethmoid cavity at the time of functional endo-

scopic sinus surgery. The PLG is designed to have an immediate stent function to prevent adhesions and scarring in the post-operative period. In addition, the mometasone coating is gradually released over about a month as the stent matrix dissolves.

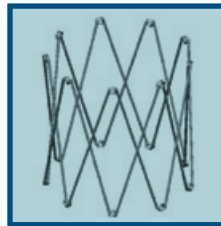
Clinical studies have shown that the product has efficacy in prospective, double blind, randomized, controlled studies. In addition, the papers describing this technology have been in the forefront of clinical methodology to evaluate a treatment of this type. Many physicians have worked with IntersectENT to help

assure that the investigations conducted to evaluate the stent technology are as valid as possible. The product was approved for use

by the FDA in August, 2011. The studies that have been published are the first level 1A data in the literature showing efficacy of a treatment for chronic rhinosinusitis.

We now have availability of this bioabsorbable stent in our operating rooms at UCSF so we will begin to acquire first hand clinical experience with its use in actual practice.

—by Andrew H. Murr, MD



What Causes Chronic Sinusitis? *Getting closer to the answer...*

Bacterial rhinosinusitis (sinusitis), which affects more than 15% of the U.S. population annually, is one of the most common problems presented to the primary care and results in more than \$5.8 billion in direct health care expenditures.¹ Despite the common nature of the disease and dollars spent, the etiology of this disease remains unclear. UCSF rhinology faculty Andrew Goldberg and Steve Pletcher as well as past



resident Fred Roediger have partnered with Susan Lynch, PhD and her lab at UCSF to examine the role of bacteria in chronic sinusitis. Their findings were published in an article by Abreu et al. in *Science Translational Medicine*.² Using genetic techniques to identify bacteria, this collaborative group demonstrated that the normal sinus is not sterile; the average normal sinus harbors 1,200 different types of bacteria. In the infected sinus, the same number of bacteria are detected, but the diseased sinus harbors only 900 distinct bacterial types. The authors postulate that the loss of a diverse bacterial community creates the environment of persistent inflammation clinicians describe as chronic sinusitis. A specific

species of bacteria, corynebacterium tuberculo-*stearicum* seems to increase in abundance and was a common feature of diseased sinuses, while the probiotic species, *Lactobacillus Sakei*, was notably absent.

The authors further theorized that reconstitution of a healthy bacterial community, or microbiome, would return the sinus environment to its previous state of good health. To test this theory, a mouse was used to develop a model for sinusitis in humans. While instillation of the pathogenic species in the mouse was associated with mild sinus inflammation, instillation following treatment with antibiotics to deplete the sinus microbiome of the mouse amplified the inflammatory effect many fold. Use of antibiotics prior to exposure to pathogenic bacteria allowed the pathogen to grow unhindered by competition from the components of a healthy bacterial community. In another striking finding, co-instillation of a pathogenic bacteria and *L. Sakei*, a probiotic species identified as depleted in human patients with chronic sinusitis, protected the sinus from infection. This new paradigm may alter the way we evaluate and treat

chronic sinusitis and offer therapeutic interventions not previously conceived to reconstitute a healthy bacterial community and perhaps prevent infection in the first place.

In July, funds from the Rebecca Susan Buffett Foundation were used to hire Emily Cope, PhD, as a post doctoral candidate to further investigate the relationship between chronic sinusitis and the sinus microbiome. The combination of a well developed laboratory under the direction of Dr. Sue Lynch in conjunction with the addition of this dedicated researcher offers promise to take these findings from bench to bedside and offer a completely different approach to treatment of chronic sinusitis and other inflammatory disorders of the head and neck.

1. N. F. Ray, J. N. Baraniuk, M. Thamer, C. S. Rinehart, P. J. Gergen, M. Kaliner, S. Josephs, Y. H. Pung, *Healthcare expenditures for sinusitis in 1996: Contributions of asthma, rhinitis, and other airway disorders. J. Allergy Clin. Immunol.* 103, 408–414 (1999).

2. Abreu NA, Nagalingam NA, Song Y, Roediger FC, Pletcher SD, Goldberg AN, Lynch SV. *Sinus Microbiome Diversity Depletion and Corynebacterium tuberculo-*stearicum* Enrichment Mediates Rhinosinusitis. Sci Transl Med.* 2012 Sep 12;4(151):151ra124.