

UVa Health System T O D A Y

A2

UVa electrophysiologists offer radiofrequency ablation as a potentially curative option for AF. UVa helped pioneer this minimally invasive outpatient procedure (23 or fewer hours) and have achieved excellent outcomes after performing more than 300 procedures.

CURATIVE THERAPY FOR ATRIAL FIBRILLATION

A4

Joseph Han, M.D., a UVa sinus surgeon, specializes in handling an array of difficult sinus cases and employs endoscopic surgery – a still-emerging specialty in which access to the site of the nasal or sinus problem is gained through the nose rather than through open surgery.

EFFECTIVE SURGERY FOR COMPLICATED SINUS PROBLEMS

A6

While taking on even the most challenging cases, UVa's In Vitro Fertilization Program consistently attains success rates that surpass national averages. Its experienced team of specialists employs the latest advances in reproductive medicine, including pre-implantation genetic diagnosis to help minimize miscarriage and maximize success.

ACHIEVING SUCCESSFUL PREGNANCIES

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Learn about Winter-Spring 2005 conferences sponsored by UVa on topics including, new approaches to cancer therapy, information mastery, allergy and pediatrics.

UPCOMING UVA-SPONSORED CME CONFERENCES



Complex sinusitus



UVA CHILDREN'S HOSPITAL UNVEILED

The UVA Children's Medical Center has officially become the UVA Children's Hospital. The new name is "more consistent with industry standards, a more distinct name and, in fact, a better reflection of how we deliver care for children here," says Margaret Van Bree, MHA, DrPH, chief operations officer of the UVA Medical Center.

At UVA Children's Hospital, more than 500 health care professionals in areas from emergency medicine to surgery and neurology to ENT specialize in the care of pediatric patients. They use special instruments sized for children, have honed superior surgical and anesthesiology skills by concentrating on children, and conduct research focused on advancing pediatric treatments.

The name change comes as the UVA Medical Center is completing the planning process of a new 172,000-square-foot center that will consolidate UVA's extensive pediatric outpatient and rehabilitation services. The \$48 million facility will be located on UVA's main Medical Center campus and have a dedicated over-head link to University Hospital. Construction is expected to begin in the second half of 2007.



If untreated, atrial fibrillation raises the risk of blood clots and stroke. Fifteen percent of strokes occur in people with atrial fibrillation. By 2040, an estimated 5 million Americans will have atrial fibrillation.

ABLATION THERAPY OFFERS POTENTIAL CURE FOR ATRIAL FIBRILLATION



Dr. J. Michael Mangrum directs UVa's Atrial Fibrillation Center offering a wide range of diagnostic and therapeutic options, including highly effective radiofrequency ablation for eliminating this common arrhythmia.

Atrial fibrillation, the most common abnormal heart rhythm found in 2.4 million Americans, traditionally is managed with medications, which can be ineffective for many patients. At UVa Health System, new treatments are showing to be a better option. UVa offers radiofrequency ablation of the abnormal atrial tissue using catheters as a potentially curative therapy that can supersede medication. UVa's electrophysiologists helped pioneer this outpatient procedure (23 or fewer hours) and have achieved excellent outcomes. After ablation, patients may be cured or live free of symptoms. The majority have more energy, can exercise and travel again, and resume activities of daily living.

Ablation is one part of UVa's Atrial Fibrillation Center with a dedicated multidisciplinary medical team that offers the entire range of available diagnostic and therapeutic options, including medications, ablative therapies, implantable devices and surgery. The AF team welcomes the opportunity to provide consultations or second opinions. Whether your patient has had an initial AF event or has paroxysmal, persistent or permanent AF, we can help establish the best course of care.

EXCELLENT OUTCOMES

While national success rates for ablation hover at about 70 percent, UVa last year had a success rate of 93 percent in preventing further episodes of paroxysmal AF for six months after the procedure. UVa electrophysiologists have performed more than 300 AF ablation procedures and employ a state-of-the-art computer system that can construct actual heart anatomy and map its electrical activity. UVa's early successes with this technology led the manufacturer to name UVa as one of the world's 10 centers of excellence for ablation. One component of this powerful mapping system is a catheter (EnSite Array™) that is placed in the heart chamber without contacting the heart walls. Operating as a miniature radio antenna, the catheter receives electrical signals from all around the heart chamber and relays them to a computer to identify the arrhythmia source within seconds.

UVa physicians employ another tool, Ensite NavX™. This system uses six surface electrode patches placed on the patient that emit an electrical signal detected by catheters inside the heart. A computer then determines the relative position of the catheters and constructs a 3-D

While national success rates for ablation hover at about 70 percent, UVa last year had a success rate of 93 percent in preventing further episodes of lone, paroxysmal AF for six months post-procedure.

computer model of the heart chamber. "We believe these are the best systems available for heart geometry construction, catheter navigation and mapping electrical activity of the heart. We have had very positive patient outcomes using this technology," says J. Michael Mangrum, M.D., director of UVa's Atrial Fibrillation Center.

DEVICE THERAPY

Another key to managing AF is placing the proper cardiac device, if necessary, after a different type of ablation treatment (AV node ablation) aimed at controlling heart rate only. In September, a UVa patient became the first in the United States to receive a new pacemaker approved by the U.S. Food and Drug Administration to treat patients with both AF and heart failure. "The nodal ablation procedure combined with the sophisticated pacing technology in this new device may enhance the lives of thousands of patients with cardiomyopathies and atrial fibrillation," says Mangrum, who performed the ablation and implanted the new pacemaker. "UVa's Atrial Fibrillation Center is a worldwide leader in the research and development of techniques to treat a-fib and heart failure. We are proud that UVa was chosen as the site for the first U.S. implant of its latest device."

Mangrum is one of five UVa physicians – all fellowship trained in electrophysiology – who perform ablation and other AF procedures. His colleagues include:

- ▶ John P. DiMarco, M.D., Ph.D.,
- ▶ J. Paul Mounsey, MBChB, Ph.D.,
- ▶ John D. Ferguson, M.D., MBChB,
- ▶ James P. Hummel, M.D.

RESOURCES FOR PHYSICIANS AND PATIENTS

Because AF is often a lifestyle-altering condition, UVa has created an in-depth patient education program. Patients receive a personalized portfolio about AF and can get the latest information about AF at UVa's Atrial Fibrillation Center website available at www.uvaheart.com. As a referral and consultation destination, UVa stays in close contact with referring physicians and shares information as soon as possible.

For more information or to arrange a consultation, call 866-607-AFIB (2342).

OPEN ATRIAL FIBRILLATION CLINICAL TRIALS AT UVA

Atrial Fibrillation Ablation in Patients with Structural Heart Disease: Addition of Linear Lesions to Pulmonary Vein Isolation

Pulmonary Vein Ablation in Normal Hearts: Ectopy-Driven Ablation vs. Isolation of All Veins

Optimal Atrial Lead Placement for AF Suppression

Atrial Tachyarrhythmia Suppression Strategy in ICD Subjects (ASSIST)

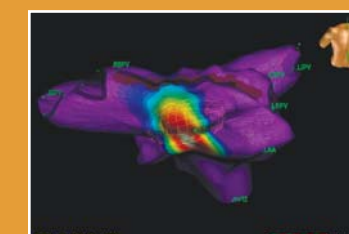
For more information, call 866-607-AFIB (2342).

PRECISION CARDIAC MAPPING

Before an ablation procedure, UVa's electrophysiologists employ either EnSite Array™ or EnSite NavX™, advanced mapping technologies by Endocardial Solutions Inc. The EnSite Array catheter, covered by a wire mesh with 64 electrodes, receives electrical signals from throughout the heart chamber. It collects more than 3,000 points of electrical activity in a single heartbeat. The computer processes the signals and creates a 3-D graphical display of the arrhythmia that shows how the irregular heartbeat moves through the chamber.

Similar to a weather map, the graphical display created from the catheter shows the intensity and location of an arrhythmia.

The EnSite NavX visualization and navigation technology allows physicians to create detailed models of heart anatomy, navigate the heart and view catheter movement in real time without the use of the Array catheter. This technology involves applying six surface electrode patches on the patient. An electrical signal is transmitted between the patches. The catheter senses the electrical signal and sends the information to a computer to pinpoint the catheter's position within the heart. A resulting 3-D computer model of the heart lets the physician provide highly accurate ablation therapy as it identifies key structures of the heart.



EnSite Array™



EnSite NavX™



Difficult Sinusitis Cases Tackled Successfully

Few doctors associate chronic fatigue with sinusitis. Take the case of a Virginia man who was so tired, he told his physician, that he couldn't mow his lawn. The doctor couldn't pinpoint the cause so he sent him to a rheumatologist. No luck. Similar trips to an internist and an infectious disease specialist yielded nothing for more than a year.

Fortunately, the patient was referred to Joseph Han, M.D., a UVa endoscopic sinus surgeon. Han suspected a sinus condition and ordered a CT scan, which showed that the patient's sinuses were not draining and had become infected. He prescribed an antibiotic for a sinus infection and prednisone to relieve inflammation. The patient's condition improved, but as Han expected the patient's symptoms returned three months later. Han then operated on the patient, opening up the sinus passageways that allow air and mucus to flow freely to and from the nose. Since then, the patient's quality of life has improved dramatically. "No one expects that sinus problems could be so debilitating," Han said.

Sinusitis is a common problem. More than 30 million cases of chronic sinusitis are reported each year in the U.S., and patients spend more than \$4 billion annually on medicine to combat sinus problems.

EXPERT IN DIFFICULT SINUS CASES

Han's expertise comes from the array of difficult sinus cases he has handled. Most of his patients have already had sinus surgery and have conditions that involve the frontal sinuses. He often sees patients who had primary surgery that didn't adequately open up the sinus or resulted in scar tissue that blocked the sinus. Han also sees patients with non-typical



Joseph Han, M.D., a sinus surgeon in UVa's Department of Otolaryngology - Head & Neck Surgery, specializes in complicated sinus cases, particularly those involving the frontal sinuses.

sinus problems requiring endoscopic surgery, a still-emerging specialty in which access to the site of the nasal or sinus problem is gained through the nose rather than through open surgery requiring skin incision. These patients may have tumors or cerebral spinal fluid leaking into the sinus, or they may need anterior skull-based surgery. "These revision surgeries are very difficult," Han said, because the anatomy of the nose is completely changed by the initial surgery. To help overcome this challenge, UVa is fortunate to have a CT image-guided system — similar to a global positioning system of the head — that allows Han to gain a clearer picture of where he is operating within the affected sinus. Despite the delicate and dangerous nature of the surgery — because of the sinus's proximity to the eyes and brain — about 90 percent of Han's patients improve after the revision surgeries, resulting in fewer infections, less sinus pressure and better breathing through the nose.



This CT image shows a blocked sinus. Dr. Joseph Han often sees patients who had primary surgery that did not adequately open up the sinus or resulted in scar tissue that blocked the sinus. About 90 percent of Dr. Han's patients improve after undergoing revision surgeries, resulting in fewer infections, less sinus pressure and better breathing through the nose.

INVESTMENT IN EMERGING TECHNOLOGIES

To expand its patient services and expertise in advanced treatment of difficult sinus cases, UVa opened a sinus laboratory in October. The lab is one of only two of its kind in the nation. Thanks to the donations from General Electric and Linvatec, which outfitted the lab with over \$1 million in equipment, UVa will develop new endoscopic techniques for sinus and anterior skull base surgery. Regional otolaryngologists will be welcome to the lab to fine-tune their surgical skills while learning new techniques.

For more information on UVa's sinus program or to refer a patient to Dr. Han, call 434-924-5700 or 800-552-3723.

As with much in modern medicine, sinus treatment is still evolving. UVa researchers are at the forefront of advances in this field by looking for the chemical signals that cause inflammation that leads to sinus problems. They are extracting sinus tissue from patients, growing cell cultures and introducing various irritants to find the specific cause of a patient's sinus inflammation. "We want to find out what is causing the problem and how to stop it at the very beginning," said Han, "rather than just fixing the end result."

EFFECTIVE SURGICAL OPTION FOR COPD

The misconception that not much can be done for patients with severe chronic obstructive pulmonary disease (COPD) still persists. However, for patients with severe emphysema who meet certain criteria, lung volume reduction surgery (LVRS) can improve both their shortness of breath and exercise capacity. The UVa Department of Surgery and Division of Pulmonary and Critical Care Medicine offer LVRS as part of a comprehensive program designed to improve the quality of life for patients with COPD.

UVa began offering surgical approaches to COPD in the 1990s and has performed more than 60 LVRS procedures and 220 lung transplants. Centers for Medicare and Medicaid Services (CMS) recently began reimbursing for LVRS because of its value to patients. Results of the National Emphysema Treatment Trial (NETT) indicate LVRS benefits emphysema patients who have significant limitation of activity and a heterogeneous pattern of disease on a CT scan. In many patients, outcomes such as mortality, exercise capacity and quality of life were better in patients undergoing LVRS along with medical therapy than medical therapy alone.

During LVRS, surgeons remove 20-30 per-



Image shows a normal (top) airway and one damaged by COPD.

cent of the damaged lungs. By reducing lung size, the remaining lung and surrounding muscles (intercostals and diaphragm) are able to work more efficiently and make breathing easier.

BEST CANDIDATES FOR LVRS

LVRS should be primarily reserved for patients with severe emphysema, FEV₁ (forced expiratory volume) of less than 35 percent, and those with worse disease in the upper lobes. For patients with worse disease in the lower lobes, LVRS may be beneficial in those with significant exercise limitation. Ideally, patients

should have successfully stopped smoking and be on a course of oxygen therapy before evaluation for LVRS. "Careful patient selection and accurate localization of the diseased target areas is essential," says David Jones, M.D., assistant professor of surgery. "Our skilled anesthesiologists, precise operative approach and dedicated postoperative support help patients recover and improve the quality of their day-to-day lives."

NEW COPD TREATMENTS

In addition to surgery, UVa offers a full spectrum of services for COPD patients. "Our program includes tailored patient education, monitoring and prevention efforts, cutting-edge pharmacologic treatments, access to clinical trials highlighting new pharmaceutical agents, and rehabilitation," notes Jonathon Truweit, M.D., chief of the UVa Division of Pulmonary and Critical Care Medicine.

Truweit adds that a promising new minimally invasive alternative to surgery for COPD — a small interbronchial valve inserted directly into the lung — will soon be tested at UVa as part of a national clinical trial.

For a consultation or to refer a patient with COPD, call Dr. Truweit at 434-924-5219, ext. 3.



ACHIEVING SUCCESSFUL PREGNANCIES EVEN AGAINST DIFFICULT ODDS

As co-director of UVA Health System's In Vitro Fertilization (IVF) Program, one of the first things Christopher Williams, M.D., asks couples is: "How are you doing with the stress?" This is because they come to him often discouraged and frustrated. "Most people expect when they get older they will have a spouse and two kids. When this basic expectation doesn't happen, it can be crushing," he says. "Often couples have been trying for many years before coming to us. They've seen other doctors and have had other treatments. For many, it's been a heart-wrenching process."

Fortunately, even the most intractable complications — advanced maternal age, recurrent pregnancy loss and significant medical problems — have been successfully handled with the help of UVA's IVF Program. "We care for all patients regardless of diagnosis or age. We don't turn anyone away," Williams adds.

HISTORY OF EXCELLENCE

The program was founded 19 years ago by co-director Bruce G. Bateman, M.D., head of UVA's Division of Reproductive Endocrinology and Infertility, and Ted S. Thomas, Ph.D., HCLD, IVF Laboratory director and head of the Human Gamete and Embryology Laboratory.

Despite taking even the most difficult cases, the program has achieved consistently high success rates in reports by the Centers for Disease Control and Prevention (CDC)/Society for Assisted Reproductive Technology (SART). "The IVF Program's success is due in a significant part to the superior quality of the laboratory and the ability of Dr. Thomas and his team to optimally culture embryos," Williams says. See www.uvaivf.org for detailed information on UVA's pregnancy success rates.

CUTTING-EDGE TECHNOLOGY

With an embryo transfer technique, called blastocyst transfer, UVA's multiple-birth rate is low. "We are continually working on reducing the number of embryos we transfer while maximizing success rates," Williams says. Traditionally, three or four embryos are transferred two or three days after conception. UVA doctors seek to transfer two embryos while maintaining an excellent chance for conception. In an increasing number of cases, UVA's laboratory extends the embryo culture until the blastocyst



Ted S. Thomas, Ph.D., HCLD, directs UVA's IVF lab, equipped with a high quality inverted Nikon microscope, capable of producing near 3-dimensional images of oocytes and sperm.



This image depicts the microinjection of a sperm into an egg during an intracytoplasmic sperm injection (ICSI) procedure used when the fertilizing ability of the sperm is compromised — the underlying problem in about half of UVA's cases.



Bruce G. Bateman, M.D., and Christopher D. Williams, M.D., co-direct UVA's IVF Program.

stage of embryonic development (five or six days post conception), allowing for more growth, greater selective capability and fewer embryos transferred per patient. When blastocysts are available for transfer, usually only two are placed back into the patient's uterus.

Preimplantation genetic diagnosis (PGD) and egg freezing — emerging technologies — became available at UVA this fall. Through egg freezing, women with cancer and other serious illnesses can conceive after chemotherapy or radiation. With PGD, doctors extract a cell from the embryo to determine chromosomal normality prior to embryo transfer back to the uterus, minimizing miscarriage and maximizing pregnancy success. For those who have had a previous tubal ligation, UVA uniquely offers a minimally invasive outpatient tubal reanastomosis surgery. "Some patients may want to choose this approach over IVF due to cost savings and the need for only one visit to UVA," Williams says.

He adds: "For 20 years, our team has forged wonderful relationships with referring doctors. Doctors send us patients as a consult, we help them become pregnant and send them back to their doctor for the pregnancy. It's a seamless relationship."

For more information or to refer a patient, call 434-243-4590 or email Dr. Williams at chrishwilliams@virginia.edu.

Accreditation:

The University of Virginia School of Medicine is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians. Specific information about the designated number of AMA Category 1 hours for conferences can be obtained by calling 434-924-5310.

UVA HEALTH SYSTEM CONTINUING MEDICAL EDUCATION

Winter-Spring 2005 Conferences

CURRENT APPROACHES IN CANCER THERAPY: 14TH ANNUAL CASE MANAGEMENT SEMINAR

Kingsmill Resort
Williamsburg, Virginia
February 26

INFORMATION MASTERY: PRACTICING AND TEACHING EVIDENCE-BASED MEDICINE IN THE REAL WORLD

Jordan Hall Conference Center, UVA Medical Center
April 8-9

SWINEFORD ALLERGY CONFERENCE

Jordan Hall Conference Center, UVA Medical Center
April 15-16

KEATS SOCIETY MEETING (RADIOLOGY)

Boar's Head Inn
April 23

25TH BIRDSONG PEDIATRIC CONFERENCE

The Homestead Resort
Hot Springs, Virginia
April 29-May 1

ANESTHESIA: CHANGES IN OUR PRACTICE AND PROFESSION

Jordan Hall Conference Center, UVA Medical Center
April 29-May 1

THE 29TH ANNUAL FITZ-HUGH SYMPOSIUM

Jordan Hall Conference Center, UVA Medical Center
June 3-4

All conferences offered in Charlottesville, Virginia, unless otherwise noted.

For updated and further information, please call 434-924-5310 or write to Continuing Medical Education, P.O. Box 800711, Charlottesville, VA 22908-0711. For full conference brochures, driving directions and information about overnight accommodations, as well as online CME opportunities, visit www.cmevillage.com on the UVA Health System website.

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