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The Division of Thoracic Surgery

The Division of Thoracic Surgery is a leader in treating the entire spectrum of thoracic diseases including lung cancer, benign and malignant esophageal disorders, and airway, mediastinal, diaphragmatic, and chest wall diseases. The Division offers particular expertise in minimally invasive thoracic procedures, including thoracoscopic (VATS) lobectomy. Excellence is emphasized in patient care, education, research, and community service.

Patient Care

The University of Cincinnati thoracic surgeons care for patients with a range of benign and malignant thoracic disease. They perform the highest volume of lung cancer surgery in Cincinnati and provide leadership in the application of minimally invasive techniques through video-assisted thoracoscopic surgery (VATS). Dr. Reed and Dr. Starnes also utilize sophisticated endobronchial and esophageal interventions for complex airway and foregut disorders. The Division of Thoracic Surgery maintains active clinical services at University Hospital, Cincinnati VA Medical Center, and University Pointe.

The Division specializes in the diagnosis and treatment of lung cancer and is dedicated to a multidisciplinary approach to the care of patients. The thoracic tumor boards at the University of Cincinnati and the Cincinnati VAMC are highly attended. They facilitate interdisciplinary collaboration between members of a variety of medical specialties, including Hematology-Oncology, Radiation Oncology, Pulmonary Medicine, Digestive Diseases, Radiology, and Pathology, in addition to Thoracic Surgery. Special attention is directed to patients who are at high risk for surgery due to underlying lung disease, thereby optimizing treatment strategies without denying them the opportunity of curative surgical therapy.

The Division offers a full range of lung cancer treatments from minor resections to highly complex thoracic operations. The Division recently published a study on the introduction of thoracoscopic (VATS) lobectomy into an academic practice. An important goal of the study was to evaluate the effectiveness and safety of incorporating a new technique into a program while also fulfilling their responsibility of teaching the technique to thoracic surgical trainees, as well as community thoracic surgeons. While some practices loosely define VATS lobectomy as any lobectomy using videoscopic assistance, the UC thoracic surgeons strictly abided by the accurate definition of thoracoscopic lobectomy: video-assisted lobectomy by anatomic hilar dissection with individual ligation of structures, complete lymph node sampling or dissection, and absolute avoidance of rib spreading. The percentage of cases performed thoracoscopically has increased from 18% four years ago to 84% in the most recent 50 lobectomies. UC thoracic surgeons have performed more than 200 VATS lobectomies.

A significant proportion of lung cancers require aggressive surgical resection in conjunction with additional therapeutic modalities, including chemotherapy and radiation therapy. The Division participates in a variety of multi-institutional, collaborative oncology groups. A noteworthy current trial sponsored by the Southwest Oncology Group (SWOG) examines the role of neoadjuvant chemotherapy and radiation therapy followed by surgery for patients with superior sulcus (Pancoast) tumors. The Division has enrolled a number of patients in this trial, performing the complex lung and chest wall resection after completion of neoadjuvant therapy. In collaboration with the Division of Radiation Oncology, Dr. Reed and Dr. Starnes also participate in an innovative trial, sponsored by the American College of Surgeons Oncology Group (ACOSOG), for lung cancer patients who are at high risk for surgery due to severe chronic obstructive pulmonary disease. In order to preserve lung function while still achieving sufficient local control of the cancer, patients are randomized to receive sub-lobar resection with or without brachytherapy.

The Division works closely with university and community medical and radiation oncologists to manage advanced lung cancers. This includes palliative therapy for patients with complications of unresectable lung cancer. For example, malignant pleural effusions are treated by VATS pleurodesis or placement of tunneled pleural (Pleurx®) catheters. Airway complications are managed by both endobronchial ablative therapy (resection, laser, photodynamic therapy - PDT, or argon plasma coagulation - APC) and stenting via flexible and rigid bronchoscopy.

In addition to their high volume of pulmonary surgery, the Division of Thoracic Surgery also concentrates on esophageal disease. The UC Esophageal Center, a multidisciplinary program devoted to the management of the wide array of benign and malignant esophageal disorders, was recently established at the Barrett Cancer Center. Directed by Dr. Reed, this collaborative effort brings together esophageal experts from a variety of disciplines, including



Thoracic Surgery, Surgical Oncology, General Surgery, Digestive Diseases, Hematology-Oncology, and Radiation Oncology.

Drs. Reed and Starnes have unique experience in several less common thoracic conditions. Dr. Starnes offers special expertise in the treatment of mediastinal tumors. She has exceptional knowledge of mediastinal germ cell tumors and thymomas. She also has an interest in VATS resection of posterior mediastinal tumors. Dr. Reed is an expert in airway disorders. He provides treatment for patients with benign tracheal disease such as stenosis, tracheoesophageal fistula, and tracheoinnominate fistula. He also performs operations for the resection of tracheal and bronchial tumors. They also both offer VATS sympathectomy for hyperhidrosis and VATS splanchnicectomy for debilitating pancreatic pain.

Members of the Division of Pulmonary, Critical Care, and Sleep Medicine at UC are world renowned experts in two rare diseases, lymphangioleiomyomatosis (LAM) and pulmonary alveolar proteinosis (PAP). They collaborate clinically and scientifically with the Division of Thoracic Surgery. Patients with pleural complications of LAM such as pneumothorax and chylothorax frequently require surgical intervention. The UC thoracic surgeons employ VATS approaches to the management of these complicated patients. For patients with PAP, sequential whole lung lavage is performed in the operating room under single lung isolation.

Education

Surgical training is an important role of the Division of Thoracic Surgery. The ACGME-accredited residency in thoracic surgery has graduated two trainees, Dr. John Mehall in 2007 and Dr. Jeffrey Garrett in 2008. Two residents, Dr. Julian Guitron and Dr. Lynn (Chip) Huffman, continue in the residency at this time, and Dr. Dana Booth will begin in 2009. This program provides three continuous years of clinical training in cardiac and thoracic surgery. The thoracic residents receive unique training in minimally invasive thoracic surgery. Their experience was a critical focus of the study on the safe introduction of thoracoscopic lobectomy into an academic training program, presented at the Western Thoracic Surgical Association 2007 meeting, and published in 2008 in the *Journal of Thoracic and Cardiovascular Surgery*.

The Division also trains general surgery residents who rotate on the service at the University Hospital during their fourth year and at the Cincinnati VAMC during their fifth year. All graduates of the UC surgery residency finish with an operative thoracic surgical experience far in excess of requirements. Medical students from the University of Cincinnati College of Medicine rotate on the service as part of their third year surgery clerkship, and during elective fourth year subinternships. Medical students also participate in the outpatient Thoracic Surgery Clinics as part of the Clinical Oncology Elective.

The Division of Thoracic Surgery is also dedicated to training specialists in other fields. For example, it provides an elective rotation for Pulmonary Medicine fellows. Dr. Reed and Dr. Starnes frequently lecture at teaching conferences or grand rounds in Pulmonary Medicine, Head and Neck Surgery, Radiation Oncology, and Internal Medicine. Finally, they have spoken, and been shadowed, during the UC Summer Surgery Experience for undergraduate students contemplating a career in medicine. Additionally, Dr. Starnes and Dr. Reed have served as mentors for a unique program developed by the American Association for Thoracic Surgery, where first-year medical students from throughout the United States spend eight dedicated weeks on a cardiothoracic surgery service.

Research

The Division continues to expand its expertise in research. Dr. Starnes directs the American College of Surgeons Oncology Group (ACOSOG) lung cancer trials at University Hospital and the Cincinnati Veterans Affairs Medical Center. UC thoracic surgeons also participate in a number of trials sponsored by the Southwest Oncology Group (SWOG). The Division of Thoracic Surgery, in collaboration with oncology, offers clinical trials for every stage of lung cancer.

Dr. Reed and Dr. Starnes also serve as investigators for a number of clinical research projects. They are currently enrolling patients in their study of the role of endoscopic ultrasound (EUS) and endobronchial ultrasound (EBUS) in mediastinal staging of lung cancer. In collaboration with

the Trauma Division, they are studying traumatic diaphragmatic injuries. They have also studied the role of VATS for the management of acute thoracic trauma. In collaboration with Interventional Radiology, they have evaluated the efficacy of tissue plasminogen activator (TPA) for the management of parapneumonic effusions.

Dr. Francis McCormack and his colleagues in Pulmonary Medicine have worked with Dr. Reed and Dr. Starnes to study the impact of pleural interventions for LAM on lung transplantation. In one project they defined management preferences for treating the pleural complications of LAM. In another study they determined lung transplant exclusion criteria. Together they are currently studying the surgical treatment of pneumothorax and associated recurrence rates.

An important ongoing divisional project has been the Thoracic Tumor Registry, directed by Dr. Starnes. It has accrued over 400 patients, with over 250 tumor specimens stored in the tissue bank. This valuable resource serves a key role in current and future translational and molecular studies of lung cancer. Dr. Starnes also directs the lung cancer outcomes database which has enrolled over 200 patients, and she serves as director of the multidisciplinary UC Lung Cancer Research Group.

Dr. Reed's laboratory is located at the Vontz Center for Molecular Studies. His research focuses on the retinoblastoma (RB) tumor suppressor in therapeutic response in lung cancer. His recent studies have been published in numerous peer-reviewed journals including *Cancer Research*, *Oncogene*, *Molecular and Cellular Biology*, *Journal of Surgical Research*, and *Annals of Thoracic Surgery*.

Dr. Starnes focuses on translational lung cancer research. She has established a productive collaboration with Dr. Marshall Anderson and Dr. Jorge Moscat from the Department of Cell and Cancer Biology to study molecular markers in early lung cancer as predictors of clinical outcome. Dr. Starnes also works with Dr. Tim LeCras from Cincinnati Children's Hospital Medical Center, looking at the role of pleiotrophin in lung cancer.



Community Connections

Community service is a critical mission for the Division of Thoracic Surgery. The primary service strategy has been through a focus on education. Dr. Starnes has spoken at a variety of community events on lung cancer in women and the impact of cigarette smoking on women's health. She has also led discussions at a number of community physician teaching events. Drs. Reed and Starnes have been active participants in the UC Cancer Center Community Education Day and the UC Lung Cancer Symposium. Cincinnati is the site of the annual International LAM Symposium. Dr. Reed has been an invited speaker at this event, delivering talks to patients and families, discussing surgical pleural interventions, as well as pneumothorax. He has also met with smaller patient and family groups for lunchtime table talks.

Dr. Reed and Dr. Starnes continue to act as spokespersons for lung cancer education through the news media, frequently giving interviews and offering thoracic expertise.



Faculty

Michael F. Reed, MD, FACS

Associate Professor of Surgery

Dr. Reed specializes in general thoracic surgery, focusing on lung cancer and esophageal disease. He has particular expertise in tracheal disorders and is an expert in minimally invasive thoracic surgery. He is certified by the American Board of Surgery and the American Board of Thoracic Surgery.

Sandra L. Starnes, MD, FACS

Assistant Professor of Surgery

Dr. Starnes specializes in general thoracic surgery with a focus on lung and esophageal cancer. She has a particular expertise in treating mediastinal tumors and focuses on minimally-invasive approaches to thoracic surgery. She is certified by the American Board of Surgery and the American Board of Thoracic Surgery.

Further information on the Division of Thoracic Surgery can be viewed on our website <http://surgery.uc.edu>.