For the Interventional Pulmonary Team, Less Is More

There once was a time when, if a surgeon wanted to know whether a patient's lung cancer had spread to nearby lymph nodes in the chest, the question could only be answered by analyzing a tissue sample obtained through a surgical incision. Now, thanks to advanced "interventional pulmonary" (IP) techniques, doctors at MSKCC with specialized training are able to make such assessments through less invasive approaches that are not readily available in many hospitals.

IP techniques, which have been in use for only about 20 years, have not only revolutionized the management of lung cancer and the complications of cancer treatment; they are also being used to improve the quality of life of our patients by relieving symptoms such as difficulty breathing. These high-tech services are provided by a multidisciplinary team of specialists at MSKCC that includes **Drs. Mohit Chawla**, **Robert Lee**, and **Nicholas Vander Els**.

"Interventional pulmonary approaches have not only revolutionized lung cancer staging, but all pulmonary medicine," said Dr. Chawla, Director of Interventional Pulmonology. These approaches are also being used to obtain tissue samples from small lung tumors in the most distant parts of the lung, making it possible to analyze (biopsy) the tumor and nearby lymph nodes in one procedure.

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> — **Dr. Mohit Chawla**, Director of Interventional Pulmonology

Interventional pulmonology is a subspecialty that requires an extra year of training beyond the traditional fellowships in pulmonary medicine and critical care medicine. The team at MSKCC collaborates closely with thoracic surgeons — partnering to create the Complex Airway Disease program — and interventional radiologists to find the best approach for each patient, often minimizing the need for multiple invasive procedures.

Special techniques are also used to drain fluid from around the lungs and to insert a tube-like "stent" to open up a narrowed or constricted breathing tube (bronchus). "If we can give patients time to be free of symptoms, feel better, and have improved quality of life, we may improve their strength enough so they can tolerate additional treatment, like chemotherapy, which could potentially extend their lives," Dr. Chawla added.

How does it work? Doctors have long used "bronchoscopy" to examine the inside of the lungs. A bronchoscope is a long tube with a camera that is inserted into the patient's mouth and down the throat into the bronchus. (The patient receives a sedative to ensure comfort during the procedure.)

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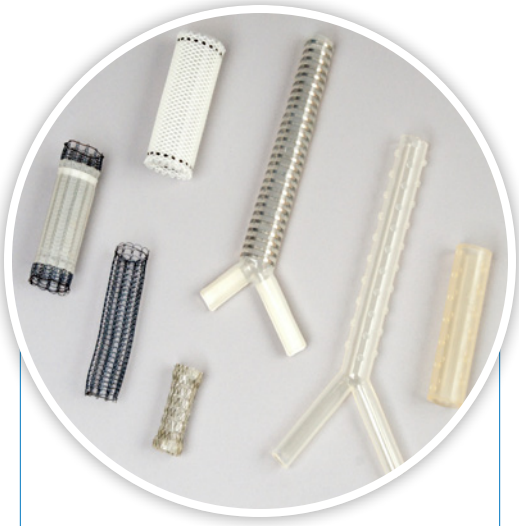
From left: **Drs. Robert Lee**, **Nicholas Vander Els**, **Diane Stover**, and **Mohit Chawla**.

With IP, the doctor can insert additional instruments through the bronchoscope not only to see inside the lungs, but also to take tissue samples or perform other procedures. Examples include:

- **Endobronchial ultrasound (EBUS)**, in which sound waves are used to guide the insertion of instruments to locate and biopsy enlarged lymph nodes near a lung tumor to see if they contain cancer cells. EBUS can also be used to check for the spread of cancers from other parts of the body to the chest lymph nodes. "EBUS spares patients from surgery, and therefore from incisions," said Dr. Vander Els. It is done as an outpatient procedure, so the patient does not have to stay overnight in the hospital.
- **Navigational bronchoscopy**, which combines data from computed tomography (CT) scans with electromagnetic navigational instruments to identify, biopsy, and sometimes treat small lung tumors. Navigational bronchoscopy can spare patients from surgery, increases access to tissue that can be removed to make an accurate diagnosis (compared to standard bronchoscopy), and is performed on an outpatient basis. "It's like a GPS system that directs the doctor to difficult-to-reach lung tumors deep inside the lungs," said **Dr. Diane Stover**, Chief of the Pulmonary Service. The procedure can also be done in patients with severe lung disease who may otherwise be at risk of complications if their doctors were to utilize standard surgical approaches.



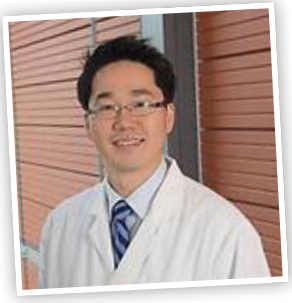
Interventional pulmonologists can insert tube-like stents, such as these, to open up a narrowed or constricted breathing tube, making it easier for patients to breathe and improving their quality of life.

- **Therapeutic bronchoscopy**, in which a bronchoscope is used as a conduit to insert instruments to treat a collapsed lung or blocked airway in cancer patients, or to insert an airway stent. MSKCC's IP specialists also apply laser ablation — the use of lasers to destroy tumor tissue and open up an airway — through the bronchoscope in some patients. "These patients would literally suffocate without a stent or other intervention to help them breathe," said Dr. Stover.
- **Treatment of pleural fluid and infections:** Fluid can sometimes develop around the lungs in patients with advanced cancers. Guided by ultrasound, IP specialists can drain fluid around the pleura (the tissues lining the lungs) and treat infections. A special catheter (tube) may be put in place to drain the fluid in these patients, who then learn how to manage the catheter themselves at home. "Before this approach, patients had to stay in the hospital for many days, and often had more pain," Dr. Stover explained.

"Interventional pulmonary procedures can immediately relieve symptoms in many patients and, in some cases, allow a patient to be taken off a ventilator," added Dr. Lee.

The IP team is conducting research into new approaches and devices. They also lead continuing medical education programs, including one last September that drew an international audience and internationally recognized speakers. Another is scheduled for March 2012.

Concluded Dr. Stover, "We look forward to continuing to build the interventional pulmonary program at MSKCC. Because this field is in its earliest stages, MSKCC will continue to be a forerunner in using these techniques to advance the care of our patients." ❖



Meet Dr. Robert Lee

Dr. Robert Lee was studying at Rutgers University to be a pharmacist when he decided to make a dramatic shift in his career plans. "Midway through college, I was blown away by the physiology and anatomy courses and the intricacies of how organ systems worked," he recalled. "So, I decided to go to medical school instead."

After completing his studies at the University of Medicine and Dentistry of New Jersey, he pursued a residency at Georgetown University Medical Center, where he was first exposed to interventional pulmonology. "I appreciated the potential of this field for relieving symptoms in patients through minimally invasive means," he noted. He completed fellowships in pulmonary medicine, critical care medicine, and interventional pulmonology at New York University and the Lahey Clinic of Tufts University School of Medicine before coming to MSKCC in July 2010.

Dr. Lee was drawn to MSKCC because of its renowned reputation, the variety of patients, and the opportunity to work with recognized leaders in the field. His goals are to provide excellent care for patients while developing new devices and innovative ways to make interventional procedures even more effective and useful.

He also enjoys the combination of the intellectual challenge and physical dexterity that interventional pulmonology provides. "I have always been good with my hands — I might have become a mechanic or a woodworker if I wasn't in medicine," Dr. Lee said. "Interventional pulmonology takes the fun of working with my hands and combines it with the problem-solving side of medicine. I like that very much." ❖