

[I AM A SCIENTIST]

Scoping out ways to help patients

Doc brought bronchial thermoplasty to Singapore to help with severe asthma cases



Feng Zengkun

Associate Professor Lee Pyng, 48, is an expert in the use of semi-flexible scopes called flex-rigid scopes that are inserted into patients to look at what disease they have.

She also introduced a procedure in Singapore that has helped several people with severe asthma to cut down on their hospitalisations and medical bills.

The senior consultant at the National University Hospital and associate professor at the National University of Singapore's Yong Loo Lin School of Medicine was recently honoured with the Geoffrey McLennan Memorial Award for Advances in Interventional Pulmonology.

The award from the American Association of Bronchology and Interventional Pulmonology is given to people who have made significant contributions to the field.

Q: You specialise in bronchoscopy and pleuroscopy – scopes to examine people's airways, and the space between their lungs and ribcage. What interests you about these fields?

The lung is a very fragile organ. We breathe 12 breaths a minute, and as the lung expands and contracts, without its protective covering, it will rub against the chest wall.

To protect the lungs, the lungs and ribcage are each lined by a membrane.

Between those two membranes, also known as the pleural space, there is usually a bit of fluid which acts as a lubricant, so that when the lung expands and contracts, it doesn't rub against the bones and cause friction.

But when a person has cancer or tuberculosis, the membranes are affected, and fluid can accumulate between them.

This fluid compresses the lung and patients feel short of breath.

By inserting a scope, I can remove the excess fluid – sometimes up to three litres of it – so that the lung can expand.

I can also examine the membrane to diagnose diseases.

In cases where the patient's airways are narrowed, I can also dilate them using instruments so they are a bit bigger, or even back to their original dimensions.

Q: We already have technology such as X-rays that can look into people's bodies from the outside – why do we still need to put scopes in them?

External imaging cannot diagnose the disease that patients have in their airways or pleural space.

Chest imaging can tell the physician that the pleural space is filled with fluid, or the airways are abnormal.

But given the extensive list of diseases that can cause fluid accumulation, ranging from heart failure to liver and kidney disease, tuberculosis, pus and cancer, we need specimens and tissue to confirm the diagnosis.

Q: You co-wrote a manual called Flex-Rigid Pleuroscopy:



ST PHOTO: MARK CHEONG

Associate Professor Lee Pyng holding a semi-flexible pleuroscope, which is used to examine the space between a patient's lungs and ribcage. She co-authored a manual (above) to promote pleuroscopy by showing clinicians how to use the more flexible scopes in diagnosing diseases.

HELPING THOSE WITH SEVERE ASTHMA TO BREATHE EASIER

A tiny fraction of people in Singapore have such severe asthma that they have to visit the doctor and emergency room frequently.

Some of their attacks are life-threatening and they need acute treatment and monitoring in intensive care units.

In 2012, Associate Professor Lee Pyng from the National University Hospital's (NUH) division of respiratory and critical care medicine introduced a procedure at the hospital that has helped such patients.

The minimally invasive surgery, called bronchial thermoplasty, uses a flexible

scope with a catheter that is inserted into the lung's smaller airways, or bronchioles.

When the doctor activates a foot switch, the catheter's tip burns away part of the thickened muscles in the airways.

This makes it easier for the patients to breathe and they may need their inhalers less.

Prof Lee, who has performed the procedure on 10 patients, said it has more than halved the number of times they need to be hospitalised.

Their asthma attacks have also been milder.

The procedure, which is

available only at NUH, requires three operations, each costing \$4,600 to \$6,500.

The Ministry of Health is considering supporting a pilot project at NUH, the Singapore General Hospital (SGH) and Changi General Hospital.

Prof Lee has been a respiratory physician for 18 years, and her career has spanned Tan Tock Seng Hospital, SGH and NUH.

"I'm a hands-on person. I like to do things that improve a patient's care, and now at NUH I hope to do more in education and research on diseases," she said.

Feng Zengkun

Step-by-Step, which was published in 2005 and shows clinicians how to use the more flexible, flex-rigid scopes to examine the pleural space. Why write it?

In the past, only very rigid scopes which couldn't bend were used to examine the pleural space.

To perform the procedure, one had to go to the operating theatre, have the patient under general anaesthesia, and collapse the lung to create enough space to insert these instruments.

The flex-rigid pleuroscope was invented in the late 1990s, and became available in Singapore in 2003. With it, patients can undergo the procedure with local anaesthesia and minimal sedation. They also recover very quickly.

Singapore was the first to use flex-rigid pleuroscopy to evaluate patients with fluid in the pleural space.

My co-author, Dr Henri Colt from the University of California, Irvine, and I decided to write the manual with pictures and a CD

comprising teaching videos to promote this useful procedure around the region.

This was the first book that allowed readers to view case studies with corresponding videos.

By using our manual, many physicians were able to start the procedure in their own hospitals.

Flex-rigid pleuroscopy is now widely practised in most South-east Asian countries and has led to expedient diagnoses that differentiate, say, tuberculosis from cancer.

Q: Your doctorate thesis had several chapters on lung cancer. What are your views on diagnosing the disease?

About 300 new lung cancer cases are diagnosed yearly in Singapore and it remains a major killer worldwide as more than 60 per cent of patients who go to their doctors with symptoms have advanced cancer.

In fact, lung cancer accounts for more deaths than breast, colon and prostate cancers combined, and smoking is the main cause.

My thesis looked at the combined role of CT screening and bronchoscopic imaging of the airways to detect lung cancer at the early stage, and it is my hope to offer this form of screening to individuals at risk.

Q: In 2012, you introduced a procedure called bronchial thermoplasty here that helps people with severe asthma. What advice do you have for asthma patients?

For mild to moderate asthma patients my advice is: Don't stop using the inhalers just because you feel better.

The ongoing airway inflammation can lead to thickening of the airway walls, which will, with time, compromise the flow of air in and out of the lungs.

✉ zengkun@sph.com.sg