

Thoracic surgeon Lijie Tan in Shanghai Zhongshan Hospital: discussion on the self-cultivation of a thoracic surgeon

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Man should select wisely the place he would live at and the friends he would make

—*Encouraging Learning* by Hsun Tzu.

Sound learning environment, supportive mentors and obliging companions can help a person stay away from unkindness and get close to integrity.

Prof. Lijie Tan from the Department of Thoracic Surgery, Zhongshan Hospital, Fudan University, attributes his success in career to multiple factors, ranging from his mentors' strict training, the constant deliberation on the essence of the western medicine, to the ongoing effort to think outside the box and trying new things. His journey to become a thoracic surgeon manifests the saying, "your actions become your habits; your habits become your values; and your values become your destiny." For him, this destiny is a path of life-long self-cultivation.

Strict training from the mentors

There were three mentors, Professor Yanling Zhang, Professor Chengpei Wang and Professor Meixin Shi, who had great influence on Lijie as he began his medical journey.

How to apply the surgical scissors when taking out stitches

Prof. Yanling Zhang was the director of the School of Medicine in Shanghai Medical College of Fudan University and the director of the Surgery Research Institute in Huashan Hospital of Fudan University. "He was very keen on teaching and insisted in training his students by himself", recalled Lijie, "There were two things remain fresh in my mind."

"When I was doing my internship, all surgical interns needed to change the dressings and take out stitches for patients from 6:30 am on a daily basis. Prof. Zhang would arrive 5 minutes in advance every time and offer instructions and guidance to us whenever needed during the whole process."

"Although 25 years has passed, I can still recollect Prof. Zhang's instructions clearly, 'a piece of 6 cm gauze should be applied on a wound evenly, with 3 cm covering all the edges of the wound, in order to protect it from infection'."

"Another unforgettable instruction was that when we try to take out stitches, we should cut from the end close to the wound rather than the end where we pick up the gauze with a tweezer. This is to reduce the chance of infection as well because the scissors are sterile while the part of thread exposed outside the wound contains bacteria."

Performing the surgery step by step as the text-books say? No!

"I learnt fine dissection from Prof. Chengpei Wang," said Lijie, "He is a pacific person and always performs a surgery 'beautifully'. He is skillful of dealing with any details during the surgery. He always tells us that we are not performing the surgery step by step according to medical textbooks. Instead, we are performing according to the anatomical structure. Therefore he is able to conduct operations in a more concise way."

As a result, it will bring less bleeding, complications and damages to tissues during the surgery. This is especially meaningful to a nation like China where most cases of cancers are at advanced stage when found. For these cases, any neglect during the process of separating tissue and vessels could result in misconduct in dealing with metastatic lymph nodes and thus affect the prognosis of the patient.

In addition, by performing according to the anatomical structure, some of the varying situations can be dealt with more properly. Prof. Wang often says "only about 80% of situations are included in our textbooks and we have to learn and record the rest in real-life situations."

Every minute is precious for a patient

"Prof. Jiasi Huang established the Department of

Cardiothoracic Surgery in Zhongshan Hospital in 1947 and Prof. Meixin Shi took over after he left”, recalled Lijie, “When I came to the department in 1993, the Department of Thoracic Surgery had just become an independent department. Prof. Shi was 75 years old at that time and led us through the transitional period. It was really tough and technical obstacles occurred to us from time to time. For instance, some necessary devices such as artificial heart-lung machines were not available and Prof. Shi had to personally look for manufacturers to design and manufacture these devices.”

“Besides, at that time, an artificial heart-lung machine could work for only 15 minutes each time” continued Lijie, “Prof. Shi had to be fast and decisive. This habit remained for the rest of his career life and he would not waste even 1 minute during an operation. He said that ‘every minute is precious for a patient.’”

The above-mentioned three mentors led Lijie through the gate of the professional path for a surgeon and passed on some habits which proved to be essential later on as well. Lijie noted that, “Every new surgeon is a piece of white paper at the beginning. Whoever painted on it and how he painted it will have a great impact on the value of the painting in the future.”

Deliberation on the essence of western medicine

When Lijie furthered his study in America, he realized that as a surgeon, knowing only how to perform an operation is not enough; he also needs to constantly learn and improve the understanding of the strategies of diagnosis and treatment.

Overseas experience in the west

“This year was the century ceremony of American Association for Thoracic Surgery (AATS)” said Prof. Tan, “I was honored to meet Professor Joel Copeer (President of the 84th AATS) and Professor GA Patterson (President of the 90th AATS) again. They both gave me some useful instructions before.”

“In 2003, I was a visiting scholar in Barnes-Jewish Hospital of University of Washington Medical Center. I observed how Prof. Patterson performed surgeries. This experience however, brought me something more, for instance, the contemplation on logic thinking and strategy.”

“Many people believe that medicine is all about science but I think there is also something about liberal arts in it. When I was working as a reviewer for some journals,

I found many of the papers lacking logic. I found this phenomenon unsettling. If a surgeon cannot be logic when writing his paper, how can he make sure the quality of the surgery?”

“I also deepened my understanding of strategy during my overseas time, specifically, the concept of multidisciplinary team (MDT), which was originated from the west. It does not just mean a few doctors from different departments sitting down and talking about what they know. The essence of such discussion is to find out the strategy to diagnose and deal with a certain case. That would be the ultimate goal.”

U.S. medicine in Prof. Tan’s view

“About 10 years ago, an entrepreneur living in America for 17 years went to Zhongshan Hospital because of his long lasting coughing, wheezing and oppression in the chest. With the help of bronchoscope, some nodules were found in his lungs. At first, it was suspected as tuberculosis. However, after one month of anti-tuberculosis treatment, no change occurred. The pathological report could not identify the nature of the nodules. When I was invited to do a consultation for this patient, he asked me who is the best doctor to treat this disease.”

“After doing some research, I recommended a pathologist in Los Angeles. The pathologist showed great interest in this case after receiving my email and was willing to accept this patient. Two months later, the patient was cured. However, the person who solved the problem was not that doctor, but another one from Colorado.”

“I was impressed by this anecdote. It seems that in America, the more challenging a case is, the more interest it would draw. If a doctor discovered a kind of disease for the first time, that disease could be named after the founder (e.g., Crohn’s disease) and it would be a matter to be proud of. Therefore, however difficult or complex a disease may be, an answer will be found by someone eventually.”

In addition, the word “specialist” in America is referring to the field a doctor specializes at rather than representing his hierarchy in an institute as in China.

In Prof. Tan’s mind, his experience as a visiting scholar in America is precious because it provided him a different way of thinking and also pushed him to make some decisions in his work not long after.

Changing the way of thinking

In 1990, doctors in the University of Edinburgh performed

esophageal surgery with thoracoscope for the first time in the world. In China, the same kind of surgery was first done in Taizhou, Zhejiang in 1997. However, due to its complexity and difficulty, this method did not spread well in China. Prof. Tan was the one who would like to “change something”.

Taking the initiative of making changes

“I came back from America in 2004. At that time I had the opportunity to take charge of a patient on my own. I was 34 years old and had great motivation and some spare time. So I started to think about doing some innovative things, instead of repeating what others had done.”

“Esophagus is a posterior mediastinum organ and its location is relatively deep. At that time, cases of open operation of esophagus cancer in China were performed where the patient is on lateral position. Overseas, most cases were performed on the same position, but there were also cases performed on prone position. Thus, I was thinking about combining this two positions.”

“After some exploration, we initiated the lateral abdominal position of doing the surgery in China. It not only matches with the anatomical features of esophagus but also allowing lungs to sink to a lower position with gravity effect. This position makes the esophagus surgery smoother and shortens the operation time.”

“However, I know well that it cannot be considered as an innovation, but an improvement of the existing methods.”

Improving anesthesia method for thoracoscopic surgery

“Previously, the anesthesia of thoracoscopic surgery for esophagus cancer was normally done by double-cavity tube intubation. This method is demanding to the anesthetist. To reduce the dependence on the skills of the anesthetist, I visited Australia to observe the single cavity intubation performed by the local doctors. However, this method is costly. Thus when I went back, I did some adjustment and initiated a single cavity intubation which could meet our requirements.”

“With this improvement, some patients with lung function insufficiency can also have the opportunity to undergo the surgery. It reduces the damage to the lungs and the occurrence rate of pneumonia. More meaningfully, as it is relatively simple and less costly, hospitals without the most advanced medical devices can also apply to it.”

“In order to reduce the damage to the lungs and the

occurrence rate of complications, we also worked on improvements on small tidal volume ventilation, mediastinal lymph node dissection (MLND) and preoperative guided diet.”

“But I still have to emphasize, these are improvements, not innovations.”

Modest as Prof. Tan is, his effort and achievement in combining the international minimally invasive techniques and China’s reality for these years is indelible.

The path of medicine requires for persistence

When asked if there are any regrets during these years, Prof. Tan said that he has been lucky and has not had been through any crooked road. However, he also mentioned that the journey of medicine is a one-way path. The various medical cases are the best guiding light on it.

Not all the solutions are found from experiments, but what remains has gone through the test of time

“Some people said that as single port thoracoscopic surgery cannot significantly shorten surgery time and there is no solid evidence that prognosis is better, there is no point in doing it.”

“What I want to say is that since comparing to multiple port thoracoscopic surgery, there is no difference in the time spent on the surgery, no influence on the lymph node dissection, no increase in the amount of bleeding; while the wounds on a patient’s intercostal space will be reduced from three to one and the pain of the patient will be largely decreased. Then it is meaningful to do it.”

In fact, in clinical practice, not all the solutions can be found by clinical experiments. Some experiments may not indicate a significant p value statistically. However, we know that as time goes by, some methods pass on and get through the test of time, while other methods will be weeded out in history and disappear. This is the rule of the nature. Man can not change it.

Willingness to try and accept new things

“I think I am getting more conservative as I grow older. However in general I am a person with open mind and willing to speculate and try new things.”

“For instance, the treatment methods for local advanced esophageal carcinoma are different among nations. In Japan, doctors apply preoperative chemotherapy mostly

and in European countries and American, doctors apply preoperative chemoradiotherapy mostly. This is probably because of the main type of pathologic features are different in these two regions, where the former has more squamous carcinoma and the latter has more adenocarcinoma. So, I decided to step further and add minimally invasive techniques to see what results can be produced by combining thoracoscopic surgery to chemotherapy and by combining thoracoscopic surgery to chemoradiotherapy.”

“Nine institutes are going to participate in this multicenter clinical research plan. We are organizing it at the moment. This study will bring great enlightenment on the treatment to local advanced esophagus cancer. We are looking forward to it.”

The last question for Prof. Tan was “what would you like to say to today’s young surgeons?”

He answered, “young people need to calm down and do not be blinded to quick success and instant benefits.”

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Footnote

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