

Prof. Heng Zhao: sailing safely in an aircraft carrier named “Department of Thoracic Surgery”

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Prof. Heng Zhao (*Figure 1*), deputy director of the Department of Thoracic Surgery of Shanghai Chest Hospital (SCH), is very straightforward and talkative. With a sense of humor, he often used interesting examples when answering our questions, which made us understand exactly what he was talking about. His glamorous demeanour and sparkling personality impressed us throughout the interview.

Department of Thoracic Surgery: past and present

Prof. Zhao recalled the history of the Department of Thoracic Surgery with pride. While SCH is one of the earliest specialty hospitals in China, its Department of Thoracic Surgery was the cradle of cardiothoracic surgery in China. The Department of Thoracic Surgery has a heavy cultural foundation. The founding fathers of the department have proposed the earliest conventional surgical procedures and developed the relevant surgical norms, and many of these techniques are still in use so far. According to Prof. Zhao, at present, the main task of the Department of Thoracic Surgery is to treat the complex chest diseases; meanwhile, the department is always in the forefront of the profession and has diligently developed a variety of new techniques.

He is very familiar with the strength of the Department of Thoracic Surgery. Among the subdisciplines of thoracic surgery, the tracheal surgery has the largest number of cases in China; meanwhile, research on the relevant substitutes for the surgery is also underway. In terms of mediastinal surgery, SCH also has rich experiences in the treatment of thymoma: every year 700 or 800 plus patients with thymoma received different types of surgical operations in the hospital. In addition, the hospital is also taking a leading position in minimally invasive treatment and robotic surgery for lung cancer. “SCH does not excel in one single technique; rather, it has achieved outstanding results in all fields related with chest diseases.” said Prof. Zhao.

Today, the minimally invasive surgery has been widely applied in thoracic surgery. Then, what’s the proportion



Figure 1 Prof. Heng Zhao.

and rationale of the use of minimally invasive surgery and conventional open surgery in the Department of Thoracic Surgery? Dr. Zhao told us that the proportion of minimally invasive surgery has reached 84% in his department; as for the selection of a surgical procedure, “it should be based on international customs and relevant guidelines and may also depend on technical innovation and disease spectrum,” said Dr. Zhao.

Minimally invasive surgery vs. conventional open surgery—which one is superior?

According to Dr. Zhao, there are preconditions for the increasing application of minimally invasive surgery worldwide: in the old days, the lesions were often large and complex, and there was no room for minimally invasive surgery; along with the improvement of the socioeconomic statuses and the increase of the people’s awareness of health, the diseases are often found early and the lesions tend to be small, which have enabled the application and further development of minimally invasive techniques.

In addition, the disease spectrum is also changing along with the improvement in living standards. For example,

initially the departments of cardiology were always busy performing major open operations for patients with rheumatic heart disease or congenital heart disease; today, these disorders have become much fewer, and many other diseases have also been well controlled and managed. For instance, now lung cancer can be detected when the lesion is still very small. For these lesions, the conventional surgical techniques are no longer the best options. Since surgeons are always seeking quicker treatments with smaller trauma, the introduction of minimally invasive technology is an inevitable trend.

“The choice of surgical procedures in the department of thoracic surgery is based on disease spectrum and disease features,” said Prof. Zhao, *“in general, minimally invasive surgery is preferred for simple, early lesions that can be managed with a minimally invasive technique; for complex, advanced lesions, however, we still prefer to apply conventional open surgery. We will not blindly pursue minimally invasive treatment for diseases that can not be thoroughly cured.”* He stressed that surgeons must have a more objective attitude towards the minimally invasive technology and should not abuse it; otherwise it is not in the best interest of the patients. In addition, the cost of minimally invasive technology is generally higher than that of conventional open surgery. Unfortunately, most patients have limited medical knowledge and they may make a decision just based on the literal meaning of a treatment option. Therefore, doctors should objectively understand the cost-effectiveness of each procedure, provide proper instructions to patients, and ultimately achieve the best possible treatment and prognosis.

Prof. Zhao corrected our ideas when talking about the widely used video-assisted thoracoscopic surgery (VATS). He pointed out that VATS is not different from traditional open surgery in term of treatment effectiveness. Currently VATS can achieve the effectiveness of traditional surgery; however, it does not mean VATS is superior to traditional surgery. The traditional surgery has been investigated and applied for hundreds of years and will not be easily overturned and replaced, just as we still use fans in the summer although the air conditioners have become very common. Nevertheless, minimally invasive surgery does ease the trauma and pain caused by traditional open surgery, which coincides with the concept of “enhanced recovery after surgery (ERAS)”.

Prof. Zhao is one of the pioneers in introducing ERAS. In his eyes, ERAS is a holistic concept that emphasizes the important roles of rapid examinations, rapid hospitalization, rapid surgery, timely anesthesia/rehabilitation, and prompt

postoperative care in the management of surgical patients. In SCH, effective measures including reducing the use of narcotic drugs, reducing intubation, use of minimally invasive techniques, early ambulation after operation, and targeted nursing (e.g., preventing thrombosis or respiratory infections) have been adopted to achieve ERAS. Prof. Zhao also pointed out that surgery has great impact on human physiology and a certain period of recovery is required. *“There is a limit to EARS. It’s impractical to be discharged tomorrow after an operation today.”* he asserted. In the Department of Thoracic Surgery, patients often can be discharged three or four days after a surgery. It is quite fast and has been in line with international standards.

Pyramid of talent development: adopting a low profile first

Prof. Zhao attaches great importance to talent training as he firmly believes that strong youths lead to a strong country. Professionally, a young doctor should lay the groundwork first and master the most basic traditional surgeries including thoracic puncture, thoracotomy, and some simple operating procedures; then, he/she may further learn more sophisticated techniques. Such a training mode can provide the surgeons with most solid knowledge and skills, so that they can calmly and confidently deal with any unexpected surgical accident in their future careers.

In terms of team building, Prof. Zhao believes that a pyramid of talent development should be established in the Department of Thoracic Surgery to ensure the sustainable development of the department. In such a pyramid, a handful of people serve as the “leaders”, a few people as “skeleton staff”, and the vast majority as “workers”. The “leaders” should be active in clinical, scientific, and social activities and can grow effective teams. The “skeleton staff” don’t have to do sophisticated stuff; however, they must be able to lead the “workers” to perform successful surgical operations, with good reputations among patients. The “workers” may grow into “leaders” and “skeleton staff” in the future, so as to ensure a steady stream of talents.

During the interview, Prof. Zhao told us that he had cured an 85-year-old lung cancer patient. Treatment of elderly patients requires both experience and courage. He hopes the younger generations in the department will be brave enough to assume new kinds of risks and responsibilities. Also, and most importantly, they should be upright, so as to unite the people around them and establish their prestige. In addition to their own proficiency in a

particular field, they should also have spirit of struggling for success in untouched fields.

Prof. Zhao is proud of his team. He happily told us that the Department of Thoracic Surgery has ranked in the second place among all thoracic surgery departments in China for four consecutive years, as released by the Hospital Management Institute, Fudan University. This ranking result reflects the clinical practice, scientific research, teaching, social popularity, and many other factors in the department. It's a great sense of achievement to win this honor because it affirms the strenuous efforts of the staff of the Department of Thoracic Surgery and meanwhile motivates everyone to keep working hard. With a feeling of intense relief, Prof. Zhao also felt pressure to lead the Department of Thoracic Surgery, an aircraft carrier for him. He hoped he would satisfactorily complete this challenging task.

Future development and collaboration with *Shanghai Chest*: with a lofty ambition

Prof. Zhao has been trained in Japan and in Massachusetts General Hospital in the United States. These valuable experiences impressed him and have been applied in his daily work. He recalls that Japanese doctors are always dedicated to their careers. When they are performing a surgery, they always do it carefully, with zero tolerance to any surgical error. The Massachusetts General Hospital, the birthplace of tracheal surgery, has traditional and rigorous teaching modes. The hospital has a variety of patient sources and is good at developing new technologies and treatment options for specific cases. What he admires is the practicalness and innovation of surgeons in the Massachusetts General Hospital. He smiled that, similar to the Massachusetts General Hospital, SCH is also a low-profile but strong hospital.

In future, he hopes that the Department of Thoracic Surgery will continue to develop with reference to the philosophy of the Massachusetts General Hospital. In addition to the multidisciplinary, high-quality, and standardized treatment of diseases, research in all disciplines and subdisciplines should also be carried out.

Since *Shanghai Chest* is a peer-reviewed journal focused on chest disorders, he hopes that it will constantly increase its academic level and publish high-quality articles, so as to raise the profile of the journal. SCH has carried out cooperation with many top international universities and research institutes including the National Cancer Center Research Institute of Japan, University of Bern

(Switzerland), University of Zurich (Switzerland) in research on esophageal cancer, lung cancer, and lung transplantation. He hopes to the findings of these studies will be published in *Shanghai Journal*, so that both the journal and the scientific studies can be known worldwide.

In the interview, Prof. Zhao vividly shared us like a tireless teacher with his work in the Department of Thoracic Surgery and his life experiences and insights. He explained the professional things in plain words with interesting examples. However, when talking about his daily work, he always understated his considerable efforts. He is another typical SCH stall member who is rigorous, practical, and dedicated.

Expert's introduction

Heng Zhao, male, chief physician, professor of Shanghai Jiaotong University School of Medicine, and deputy director of Department of Thoracic Surgery of Shanghai Chest Hospital. He is a master tutor and also serves as the deputy director of the Department of Tracheal and Esophageal Diseases, Shanghai Chest Tumor Institute. He is good at the diagnosis and treatment of tracheal diseases, reconstruction of chest wall defects, VATS for chest diseases, early diagnosis and radical operation of esophageal cancer. In particular, he has rich experience in surgical treatment of pulmonary and esophageal diseases patients with poor heart and lung function and has used the tracheal allograft, for the first time in China, to treat long-segment tracheal defects.

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