

Prof. Qingdong Cao: single-port inflatable mediastinoscopy combined with laparoscopy for the radical treatment of esophageal cancer

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The 7th Zhongshan Thoracic Minimally Invasive Technique Forum & Advanced Workshop in VATS was held in Zhongshan Hospital, Fudan University, on May 5–7, 2016. Focusing on the hot topics in minimally invasive thoracic surgery, in particular lung resection, single-port video-assisted thoracoscopic surgery (VATS), minimally invasive surgery in treating thymoma with myasthenia gravis, and minimally invasive esophageal surgery, this forum provided a good chance for in-depth discussions and communication in forms of surgery demonstration, special lectures, and video communication. In his presentation during the meeting, Prof. Cao introduced the use of single-port inflatable mediastinoscopy combined with laparoscopy for the radical treatment of esophageal cancer. With much pleasure, AME editor has invited Prof. Cao for an interview to further share his experiences in this procedure (*Figures 1,2*).

Introduction of Prof. Cao Qingdong

Prof. Cao Qingdong, chief physician, Professor, Department of thoracic surgery, The Fifth Affiliated Hospital of Sun Yat-sen University. At present, professor Cao has finished more than 4,000 various types of high difficult cases of minimally invasive thoracic surgery, including single port total thoracoscopic tracheal tumor resection and single port thoracoscopic lung tumor resection, single port mediastinoscopy esophageal tumor surgery and single port total thoracoscopic mediastinal tumor surgery.

In January 2009, professor Cao completed the first case esophageal cancer surgery using Orvil technology combining with thoracoscopy and laparoscopy in China, avoiding the problems of digestive tract reconstruction by only the thoracoscopy. In March 2011, professor Cao completed the first single port thoracoscopic technology in China through auto-research surgical instrument. Till now, professor Cao has been finished more than 1,000 cases of single port thoracoscopic surgery, including of lung cancer, esophageal cancer and mediastinal tumor resection surgery. In March

2016, professor Cao completed the first case of “Single-port inflatable mediastinoscopy combined with laparoscopy for the radical treatment of esophageal cancer”. And professor Cao introduced the most advanced of “no open thoracic esophageal cancer radical surgery” into china within current world and promoted the further development of the technology of minimally invasive esophageal surgery in china.

At the beginning of the interview, Prof. Cao pointed out that traditionally the radical treatment of esophageal cancer requires the surgical operations in neck, chest, and abdomen. It is estimated that over 60% of post-operative complications after the radical treatment were cardiopulmonary complications, which are directly related with the thoracotomy. Therefore, for decades thoracic surgeons have been searching for more minimally invasive radical operations for esophageal cancer that need not open the chest. The conventional esophageal resection methods without opening the chest include: (I) esophageal denudation without thoracotomy; (II) transhiatal esophagectomy; and (III) traditional mediastinoscopy esophagectomy. According to Prof. Cao, all these three surgeries do not need thoracotomy and thus decrease the cardiopulmonary complications; however, they are not feasible for effective and thorough lymph node dissection; also, they may be accompanied by severe complications including mediastinal hemorrhage, tracheal injury, recurrent laryngeal nerve injury, and chylothorax. Therefore, these three procedures should be applied with particular caution and cannot be used as the mainstream techniques for radical treatment of tumors. Transthoracic surgery seems to be a must to resect tumors radically.

In 2015, an article published in *Annals of Thoracic Surgery* attracted the attention of Prof. Cao. This article, authored by Prof. Fujiwara from Kyoto Prefectural Medical University Hospital, described a novel surgical method, single-port mediastinoscopy total mesoesophagus excision via the neck, which needs no thoracotomy (3). “I was thrilled to read that article. I found the ideal operation that I had been



Figure 1 Dissociate the esophagus via single-port inflatable mediastinoscope (upper mediastinum) (1).

Available online: <http://www.asvide.com/articles/1150>



Figure 2 Dissociate the esophagus via laparoscope (lower mediastinum) (2).

Available online: <http://www.asvide.com/articles/1151>

looked for many years!” recalled Prof. Cao. In February 2016, invited by Prof. Fujiwara, Prof. Cao went to Japan to receive further training. In Kyoto, Prof. Cao carried out in-depth exchanges with his Japanese peers. Prof. Fujiwara’s rigorous style of study and superb surgical techniques were very impressive. It was under Prof. Fujiwara’s patient instructions, Prof. Cao successfully mastered this new surgery. After he returned to China, Prof. Cao wasted no time in preparing for the introduction of this surgery, during which he was actively supported by Prof. Xiaotian Shi and other colleagues in Anyang Tumor hospital. On March 30, 2016, Prof. Cao successfully performed the first case of “single-port inflatable mediastinoscopy combined with laparoscopy for the radical treatment of esophageal cancer” in China, which made him become more determined to introduce this technology into China and share it with Chinese colleagues. Till now Prof. Cao has successfully completed 6 cases of this procedure,

with satisfactory outcome. The 7th Zhongshan Thoracic Minimally Invasive Technique Forum witnessed the formal demonstration of this procedure in China, which sheds new light on the radical treatment of esophageal cancer without opening the chest.

Technically, Prof. Cao concluded that: (I) the novel inflatable mediastinoscopy enables a clear surgical field and thus dramatically increases the surgical safety; meanwhile, it makes the total meso esophagus excision become possible, thus meeting the oncological requirements of the radical treatment of esophageal cancer; and (II) the surgery does not need to open the thoracic cavity, which remarkably decreases the incidences of cardiopulmonary complications and makes the radical treatment less invasive.

Prof. Cao firmly believes that this surgical technique will receive more and more attention in esophageal surgery in coming years. He hopes that more doctors will be involved in the optimization of this technique and thus make it become more popular in China.

Acknowledgements

None.

Footnote

Conflicts of Interest: The author has no conflicts of interest to declare.

References

1. Li GS. Dissociate the esophagus via single-port inflatable mediastinoscope (upper mediastinum). *Asvide* 2016;3:386. Available online: <http://www.asvide.com/articles/1150>
2. Li GS. Dissociate the esophagus via laparoscope (lower mediastinum). *Asvide* 2016;3:387. Available online: <http://www.asvide.com/articles/1151>
3. Fujiwara H, Shiozaki A, Konishi H, et al. Single-Port Mediastinoscopic Lymphadenectomy Along the Left Recurrent Laryngeal Nerve. *Ann Thorac Surg* 2015;100:1115-7.

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