



# From west to east: video-assisted thoracoscopic surgery in Day Surgery Center

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According to literature, lung cancer is a leading cause of death and has high global morbidity rates. According to GLOBOCAN 2018 (an estimation of the Global Cancer Incidence and Mortality in 2018), released by the International Journal of Cancer, an estimated 18.1 million new cancer cases and 9.6 million cancer deaths were reported worldwide. Out of all new cancer cases reported till date, lung cancer cases comprise approximately 2.093 million cases. In addition, 1.761 million deaths have occurred due to lung cancer (1). According to research conducted by Maomao Cao and Wanqing Chen, the incidence and mortality rates of lung cancer are the highest among Chinese males and second highest among Chinese females (2). A similar situation exists in the United States (3). Due to the aging population and uneven distribution of medical care, hospitals in China, including the West China Hospital, are struggling to cope with the ever-increasing demands for surgical care. According to latest reports from the Organization for Economic Co-operation and Development (OECD), hospitals in China have only 4.3 beds available for every 1,000 inhabitants [available at: <https://data.oecd.org/healthqt/hospital-beds.htm> (date of access 1/22/2020)]. As compared to traditional elective surgery, the associated time and expenditure may be better balanced by day surgery.

Enhanced recovery after surgery (ERAS) is an evidence-based, multimodal, multidisciplinary approach focusing on perioperative care of the patient, resulting in substantial improvements in clinical outcomes and costs (4). The ERAS program has been implemented in almost all major surgical specialties, including spinal surgery, bariatric surgery, colorectal surgery, pancreatic surgery, and minimally invasive surgery. A video-assisted thoracoscopic lobectomy, performed in a Day Surgery Center, is a novel concept that

combines the advantages of ERAS program and day surgery.

Video-assisted thoracoscopic surgery can substitute classical approaches for both, benign and malignant thoracic diseases. Considering the trend of high morbidity and mortality of lung cancer worldwide, it is an ideal technique to treat and diagnose pulmonary nodules. We believe that the Day Surgery Center of West China Hospital is the first center to perform a video-assisted thoracoscopic surgery in China.

The Chinese Ambulatory Surgery Alliance defines day surgery as a planned surgery that is performed, and the patient is discharged within 24 hours, excluding outpatient surgery. The maximum duration of hospitalization is less than 48 hours [available at: <http://www.chinaasa.org/col.jsp?id=111> (Date of access 1/22/2020)]. In West China Hospital, the hospital stay after day surgery is strictly evaluated for 24 hours, following which the patient may be transferred to the inpatient department or community hospital. Surgeries in the center were rigorously monitored to reduce risks, and a full community hospital service ensured continuous medical service. Certain patient criteria, identical to those applied at the beginning surgeries in western countries, were carefully established by surgeons. These criteria included age of patient ( $\leq 55$  years), diameter of pulmonary nodule on thoracic CT scan ( $\leq 3$  cm), and an ASA status of 1 or 2. Lastly, a preoperative physical training program, in combination with aerobic and breathing exercises, was established to reduce the occurrence of postoperative pulmonary complications and to shorten length of stay with a lower in-hospital cost (5). A multimodal analgesia was used to improve the patient's postoperative experience. In addition, in order to guarantee patient safety, an individual follow-up protocol was established.

From 19<sup>th</sup> June to 19<sup>th</sup> November, 2019, 26 cases of video-assisted thoracoscopic lobectomy were performed in Day Surgery Center of West China Hospital. The median age of patients was 41 years. Out of the 26 patients, 22 (84.62%) were female and 4 (15.38%) were male. In 10 (38.46%) cases, the tumor was in the left lung, while in 16 (61.54%) cases, it was located in the right lung. The average intraoperative blood loss was 33.53 ml. Out of 26 patients, 18 (69.23%) patients were diagnosed with lung adenocarcinoma, 5 (19.23%) were diagnosed with chronic inflammation with fibrous hyperplasia, and 3 (11.54%) were diagnosed with granulomatous inflammation with necrosis. On day 7 post-surgery, the average NRS score was 1 and no other complications were observed. Only one patient refused to undergo a chest drainage tube placement procedure, and experienced pneumothorax. This patient was transferred to inpatient department for further treatment. The rest of the 25 patients were discharged within 24 hours.

Perhaps a “short” length of stay is not an accurate indicator to evaluate the quality of surgery. However, we are the first Chinese hospital to report a video-assisted thoracoscopic lobectomy in Day Surgery Center in the literature. This service has proven successful. Considering the challenges we face in the provision of surgery to a large population, we believe that this service may improve access to surgical care. It significantly reduces the waiting time and promotes community integration, diverting patients from high-level hospitals to community hospitals.

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### Footnote

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*Ethical Statement:* The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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