Editorial

# Robotic segmentectomy: far beyond choice

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With the progress of the technology, video-assisted surgeries have been developed in thoracic surgery as well as the other branches. With the widespread use in the 2000's, robotic surgical systems had also found a place within the field of thoracic surgery. First in benign diseases and then in parallel with the increasing experience, it started to be used in cancer surgery which requires more technical skill. It was shown in various articles that it can be used in a wide area from wedge resections to pneumonectomy.

Lung segmentectomies are used for long years in the treatment for benign lung lesion requiring surgery. Also, some authors prefer lung segmentectomies for tumors smaller than 2 cm and without lymph nodes involvement and for larger tumors in patients with limited pulmonary function. With the development of video-assisted thoracic surgery, VATS segmentectomy has been proved to be a safer procedure than open segmentectomy in terms of complications and hospital stay (1). Also, there is another study claims that the peri-operative outcome has been shown to be similar (2). This study also demonstrated that VATS segmentectomy is feasible in terms of oncological outcomes for stage IA non-small cell lung cancer (NSCLC), especially T1a and carefully selected T1b (2). Thoracoscopic segmentectomy has been compared to thoracoscopic lobectomy when analyzing oncologic results in small (≤2 cm) peripheral stage IA NSCLC (3). Local recurrence rates with thoracoscopic segmentectomy (5.1%) have been reported to be similar to the thoracoscopic lobectomy (4.9%). No significant difference has been observed in 5-year overall or disease free survival (3). Some studies also demonstrated that uniportal and total thoracoscopic segmentectomies are safer alternatives for VATS segmentectomies (4,5). Minimally invasive methods will be even more needed as small nodules are more likely to be found. Certainly, robotic lung segmentectomies might be another safe and minimally invasive option for pulmonary segmentectomies. Growing knowledge of robotic anatomic lung resection for early stage lung cancer would provide additional experience for performing segmentectomy for lung cancer. The major difficulty in robotic operations is the resection without palpation. This could be overcome by palpating and marking the lesion prior to the docking of the robotic arms. Lung segmentectomies with robotic surgery requires an adequate knowledge of the pulmonary anatomy for each patient (6). It has been reported that preoperative planning based on patient's actual 3D pulmonary model was useful for patients with stage IA NSCLC ≤2 cm in diameter and for selecting an appropriate VATS lung resection for an individual (7). Apparently, this may be a required preoperative technique in robotic segmentectomy as well. Robotic segmentectomy may provide better dissection capabilities than conventional thoracoscopic surgery around smaller vessels and the lymph nodes around lobar and segmentary bronchi. However, developing these techniques may require preparation and patience to overcome the difficulties of a correct docking, developing dissection techniques. Yet, the provided data and results about performing robotic segmentectomies may not fully satisfy the thoracic surgical community. However, the robotic anatomic lung segmentectomy is a feasible and safe procedure with an acceptable operating time, adequate lymph node dissection, less pain and few complications.

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## Footnote

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