



# Overview of uniportal video-assisted thoracic surgery pulmonary segmentectomy—the movement of minimally invasive surgery

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Uniportal video-assisted thoracic surgery (uVATS) for wedge resection has been firstly introduced by Rocco and colleagues in 2004 (1). Subsequently, Gonzalez-Rivas and colleagues reported uVATS lobectomy in 2012, which was the first report describing anatomic pulmonary resection via single skin incision (2). After these introductions, uVATS has extended worldwide as general thoracic surgeons strive for minimally invasive approach which can ensure better postoperative quality of life in patients. Several reports described the superior perioperative results of uVATS for patients with primary lung cancer undergoing lobectomy with systemic lymphadenectomy compared with multiportal VATS (mVATS) (3). Moreover, Gonzalez-Rivas and colleagues showed successful results of uVATS bronchoangioplasty or carinal reconstruction, which indicated that these complex procedures are no longer contraindications via around 40 mm single skin incision (4).

Pulmonary segmentectomy has also extended worldwide as the movement of minimally invasive surgery. Although this type of sublobar resection can be adopted as an intentional or an (unintentional) palliative treatment, intentional segmentectomy is being focused more because small-sized peripheral lung cancer is more frequently detected accompanied with the improvement of computed tomographic imaging. Suzuki and colleagues recently described that the perioperative results of pulmonary segmentectomy for early-staged non-small cell lung cancer was equivalent to those of lobectomy except more air leakage in the prospective randomized trial (5). This group will demonstrate whether pulmonary segmentectomy can lead to the superior pulmonary function and noninferiority in overall survival compared to lobectomy in near future. In addition, our group demonstrated the equivalent

perioperative results between common and uncommon segmentectomies via thoracoscopic approach although uncommon pulmonary segmentectomy is considered having more technical difficulties compared to common segmentectomy, which indicated that such a complex type of segmentectomy can be achieved via a thoracoscopic approach (6). These positive results will facilitate pulmonary segmentectomy to become widespread.

Although uVATS and pulmonary segmentectomy are considered less invasive treatments as we described them above, the aspects of “less invasive” are different. While uVATS focuses on “approach”, segmentectomy does on “preservation of the lung”. However, we expect that combination of those less invasive treatments might be standard for thoracic disease including lung cancer in the future based on the movement of minimally invasive surgery. Therefore, thoracic surgeons should have technical skills to perform this type of surgery appropriately. In this focused issue, the surgical techniques to achieve uVATS segmentectomy appropriately and the tips of several types of uVATS segmentectomy are introduced by experts in this field. The goal is for this focused issue to help thoracic surgeons to overcome the technical difficulties in uVATS segmentectomy due to limited angulation and interference of any surgical instrument via a single incision.

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