

Port-access thoracoscopic anatomical anterior segmentectomy

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Still there have been lacks of scientific evidences from randomized controlled trials, and recent studies have concluded controversial results for the clinical efficacies of sublobar resections for non-small cell lung cancer. Lobar resection is standard surgical approach, and minimally invasive procedure could be justified only when the tumor is in early stages (1).

However, there are increasing demands for less extensive pulmonary resections both from patients and medical providers, which might remind thoracic surgeons the explorative expansion of minimally invasive techniques for the past decades. Application of minimally invasive techniques has been spread rapidly despite the concern for safety and ethical problems (2).

Adoption of less invasive surgical extension is expected to contribute enhanced functional recovery, less pulmonary complications, reduced hospital stay, and therefore save healthcare cost, just like what the minimally invasive techniques have done. Current studies have demonstrated that segmentectomy with minimal invasive procedures is safe and feasible, and the oncologic efficacy is as effective as that of lobectomy. However, standard surgical techniques for minimally invasive segmentectomy have not been established yet (3).

Anatomical dissection of segmental structure is the key advantage over wedge resection for small sized peripheral lung cancer, at the same time it is a major concern, particularly, when performed with VATS approaches, and

obstacle for expanding its application. Dividing appropriate segmental vessels and bronchi need a skillful familiarity with segmental anatomies. The most important factor is delineation of accurate intersegmental plane. This is relatively easier when performed with larger segment such as lingular, superior or basilar segments of both lower lobes, however, it could be a challenge with anterior, posterior or apical segment (3,4).

Most of the newly suggested surgical techniques are focused on the accurate dissection of anatomical structures and intersegmental plane. Their availability is more meaningful when the segmentectomy is performed without direct vision. Two streams of novel procedures have been reported, one is to facilitate the comprehension and dissection of segmental anatomies, and the other is to guide development of segmental fissures. Their availability is more meaningful when the segmentectomy is performed without direct vision.

This article reported successful performance of VATS segmentectomy in elder patient. They used intraoperative three-dimensional contrast enhanced computed tomography simulation for tracing delicate segmental structures, and a vessel sealing system for easier dissection. For accurate delineation of intersegmental plane, they adopted a slit knot methods. Intraoperative imaging guidance prevents surgical errors resulted from misunderstanding of intraoperative anatomy. Commercially designed slit knot system promotes speed and skillfulness of surgical procedure by creating inflation-deflation line more easily (5).

Advanced surgical techniques may facilitate the adoption of single port surgery in the field of segmentectomy. They could contribute to reduce surgical errors and catastrophic adverse effect caused by a limited visualization, therefore to be beneficial for postoperative outcomes.

In the era of less invasiveness, minimalism is not only concern for surgical wound, but for the extension of organ resection. Preservation of organ function without complication, reducing pain and long-term survival with oncologic efficacy is no more optional. Sharing experiences and listening advices from experts are essential for further innovation in minimally invasive segmentectomy.

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Footnote

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