SINGLE PORT VATS
SEGMENTECTOMY

Diego Gonzalez Rivas, MD, FETCS
Coruña University Hospital
Minimally Invasive Thoracic surgery Unit (UCTMI)
Coruña, Spain

www.videothoracoscopy.com
Anatomy

1. Bronchial anatomy is consistent

2. Arterial anatomy sometimes follows the bronchus but not always!

3. Venous anatomy can drain multiple segments. Travels in intersegmental planes, not essential to define and isolate.
Uniportal VATS Segmentectomy

Indications

- Small tumors. <2cm ?
- GGO (ground glass opacity)
- COPD-Impaired lung function test
- Previous resections
- Central metastasis , Benign lesions
- Ager > 75
Pulmonary Segmentectomy by Thoracotomy or Thoracoscopy: Reduced Hospital Length of Stay With a Minimally-Invasive Approach

B. Zane Atkins, MD, David H. Harpole, Jr, MD, Jennifer H. Mangum, BSN, Eric M. Toloza, MD, PhD, Thomas A. D’Amico, MD, and William R. Burfeind, Jr, MD

Department of Surgery, Duke University School Network, Bethlehem, Pennsylvania

Background. Previous studies have discussed pulmonary resection for primary lung cancer. Pulmonary segmentectomy has advantages over lobectomy. Furthermore, while thoracoscopic lobectomy is increasingly applied with well-documented results compared with thoracotomy, few studies have evaluated thoracoscopic approaches to pulmonary segmentectomy. This study compares thoracoscopic versus open segmentectomy outcomes.

Methods. This is a retrospective review of data collected for 77 consecutive patients treated between 2000 and 2006 at a University Hospital. Preoperative, intraoperative, and postoperative parameters for patients undergoing TS (n = 48) were compared to those undergoing OS (n = 29). Student’s t test was used for continuous data and Fisher’s exact test was used for categorical data.

Results. Baseline demographics were similar between groups. Indications for pulmonary resection were similar between groups. Operative time, blood loss, and length of hospital stay were lower in the thoracoscopic group. There was no difference in complications or length of hospital stay.

Conclusions. Thoracoscopic segmentectomy is a safe and effective alternative to open segmentectomy for pulmonary resection.

Feasibility of video-assisted thoracoscopic surgery segmentectomy for selected peripheral lung carcinomas*

Atsushi Watanabe, Syunsuke Ohori, Shinji Nakashima, Tohru Mawatari, Norio Inoue, Yoshihiko Kurimoto, Tetsuya Higami

Department of Thoracic and Cardiovascular Surgery, Sapporo Medical University School of Medicine, South 1, West 16, Chuo-ku, Sapporo 060-8543, Japan

Received 10 September 2008; revised in revised form 27 December 2008; accepted 8 January 2009. Available online 23 February 2009

Abstract

Objective: Segmentectomy for non-small cell lung cancer (NSCLC) is believed to increase the rates of recurrence and postoperative air leak. We sought to test our clinical data and outcome of VATS (video-assisted thoracoscopic surgery) segmentectomies with systematic node dissection for selected NSCLC patients. Methods: Inclusion criteria were clinical T1N0M0 peripheral NSCLC measuring < 2 cm (n = 38) and NSCLC with interlobar invasion, which cause positive surgical margin with malignancy after lobectomy of a primary lesion and only partial resection of invasion site (n = 3). Outcome variables include hospital course, complications, mortality, recurrence patterns and survival. The intersegmental border was identified using the intersegmental veins as landmark and the demarcation between the resected (inflated) and preserved (collapsed) lungs. The intersegmental plane was divided by an endoscopic stapler and electrocautery. Results: The mean operative time and intraoperative bleeding were 220 min (range 100–306) and 183 ml (30–730), respectively. The number of stapler cartridges used for intersegmental division was 2 (1–5). Postoperative air leak (>7 days), which required no surgical intervention, occurred in two patients. The chest tube drainage duration was 3 days. There were no in-hospital deaths. The numbers of resected subsegments and resected subsegments in comparison with lobectomy were 5 (2–13) and 5 (3–13), respectively. The FEV1.0 after VS was higher than the preoperative FEV1.0 after lobectomy, if the latter was performed as standard procedure. We experienced four cases of distant metastasis after segmentectomy, but there was no case of local recurrence. The 5-year survival and recurrence-free survival rates in pathological stage IA NSCLC were 89.9% and 93.3%, respectively. Conclusions: VATS segmentectomy with systematic node dissection is a reasonable treatment option for selected peripheral NSCLC.

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Uniportal Technique

Previous double-port experience
Utility incision: 2-4 cm
5th intercostal space
No rib spreading, no trocar

Lung exposure

- Direct visualization target tissue
- One screen, 30 degree
- 5-10mm HD thoracoscope
- Camera: posterior part of incision
- Bimanual instrumentation, coordination
- Vascular clips, ligasure, curved tip staplers
Instruments

- Adapted VATS instruments (Scanlan)
- Curved suction
- Thoracoscopic peanuts (5mm endopath)
- Long cautery, hook
- Ligasure, Harmonic, thunderbeat
- Vascular clips: Click a´ V (Grena)
- Staplers: Tri-staple
- HD 30ºcamera (Olympus)
Surgical Segments

- **RUL**
  - Posterior segment
  - Apical segment
  - Anterior segment

- **LUL**
  - Lingulectomy
  - Apical Trisegmentectomy (Lingula sparing)

- **LLL / RLL**
  - Superior segmentectomy (S6)
  - 7, 8, 9, 10

- **RML**
  - Medial
  - Lateral
RUL apico-posterior segmentectomy
Uniportal ReVATS right apical segmentectomy (segment 1)
Posterior RUL segmentectomy (S2)

- Video
Lingulectomy

- video
LUL Trisegmentectomy
Anterior LUL segmentectomy (S3)
Left apico-posterior segment
LLL Superior segmentectomy (VI)

- video
RLL superior segmentectomy

RLL basilar segmentectomy
Left basilar segmentectomy
Anterobasal segmentectomy (S8)
Conclusions

- Uniportal VATS Segmentectomy is feasible and safe (more difficult than lobectomy)
- Start with the easy segments
- When in doubt follow the bronchus to the lesion
- Need to start thinking about segmentectomy for every small lesion