(VATS) versus open (thoracotomy or sternotomy) method. **Method:** 136 patients (112 men) underwent pulmonary metastasectomy for isolated PM of HCC from October 1998 to December 2010 at Seoul Asan Medical Center. 86 patients were operated by VATS (VATS group) and the other 50 patients were operated by thoracotomy or sternotomy (Open group). Propensity score analysis between VATS group and Open group was utilized and matched the groups by age, sex, level of preoperative AFP, treatment method for primary HCC, and PM characteristics (number, size, location, time to interval and range of resection). **Result:** There was no operative mortality and minor complication in 10 patients (7.3%) including prolonged air-leak. During 36 month-follow-up period, 112 patients (82.4%) experienced recurrence and 102 patients (75%) died of disease progression. Matching based on propensity scores produced 50 patients in each group for analysis of survival and disease-free survival. There were no survival and disease-free survival differences between matching VATS group and Open group. Multivariate analysis revealed hepatic recurrence, preoperative level of alpha-fetoprotein, liver cirrhosis to be an independent prognostic factor for survival and disease-free survival. **Conclusion:** Pulmonary metastasectomy may prolong survival in selected patients with HCC. VATS metastasectomy provided comparable outcomes to open metastasectomy in regard to survival rate and disease-free survival rate. Liver recurrence, preoperative level of alpha-fetoprotein, liver cirrhosis were independent prognostic factors for survival and disease-free survival. **Keywords:** metastasectomy, hepatocellular carcinoma

P1.16-021
Midterm Oncologic Outcomes of Single Port Thoracoscopic Lobectomy for Lung Cancer by Propensity Matched Analysis

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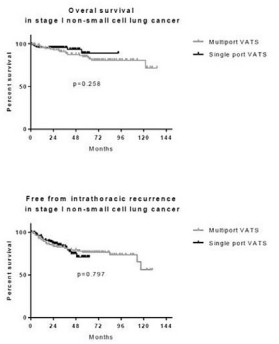
Background: Current evidence is still weak to establish the oncologic equivalence of single port thoracoscopic approach compared to conventional multiport thoracoscopic surgery as one of minimally invasive approach for lung cancer surgery. The purpose of this study is to evaluate the midterm surgical outcomes of single port approach compared to conventional multiport approach in thoracoscopic lobectomy for lung cancer. **Method:** A total of 228 patients in propensity matched group (both 114 patients with pathologic stage I who underwent lobectomy by conventional multiport or single port VATS) were compared the operative outcomes and we analyzed midterm survival and recurrence to evaluate the feasibility of single port VATS lobectomy for lung cancer. **Result:** Both propensity matched groups showed comparable preoperative variables (age, gender, FEV_1, and tumor size) (Table 1). The mean operation time, the number of resected lymph node, and conversion to open thoracotomy or multiport VATS in both group did not show differences (respectively, P=0.076, P=0.291, P=0.253). There was no difference in postoperative major morbidity (P=0.807) and 30-day mortality (p=0.247). The duration of chest drain was shorter in single port VATS group (p<0.001) (Table 2). The survival (P=0.258) and freedom from intrathoracic recurrence (p=0.797) for mean 32 (6-62) months follow up in patients with pathological stage I were not statistically different between groups (Fig). **Conclusion:** Single port thoracoscopic lobectomy in lung cancer showed acceptable oncologic outcomes for midterm follow ups with oncologic equivalence compared to conventional multiport thoracoscopic lobectomy. **Keywords:** lobectomy, Minimally invasive thoracoscopic surgery, lung cancer

Table 1. Propensity matched group

	Conventional VATS (N=114)	Single port VATS (N=114)	*P* value
Age	64 ± 9	62 ± 10	0.17
<70	80 (70.2)	83 (72.8)	0.769
>70	34 (29.8)	31 (27.2)	
Sex			
Male	67 (58.8)	68 (59.6)	0.893
Female	47 (41.2)	46 (40.4)	
FEV1%			
≥80	71 (62.3)	67 (58.8)	0.685
<80	43 (37.7)	47 (41.2)	
Tumor size	2.5 ± 0.4	2.7 ± 0.6	0.326
clinical stage			
IA	73 (64)	65 (57.9)	0.415
IB	41 (36)	49 (42.1)	

Table 2. Perioperative outcomes

	Conventional VATS (N=114)	Single port VATS (N=114)	*P* value
Operation time (min)	193 ± 62 (65-418)	178 ± 59 (72-395)	0.076
No. of lymph node dissection	20 ± 12 (2-59)	18 ± 9 (4-56)	0.291
Conversion to open	4 (3.5)	9 (7.9)	0.253
Morbidity	8 (7)	10 (8.8)	0.807
Postoperative mortality (<30days)	2 (0.8)	3 (2.6%)	0.247
Chest drain removal (days)	5 ± 1 (3-8)	4 ± 1 (2-7)	<0.001
Follow-up duration (months)	62 ± 34 (12-129)	32 ± 14 (6-62)	<0.001



P1.16-022
Incorporating Robotics to the Surgical Treatment of Thoracic Neoplasms: 5-Year Experience at an Academic Center

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Background: Video-assisted thoracoscopic surgery (VATS) is a well-recognized oncologically sound and safe surgical modality to treat appropriately selected thoracic neoplasms. It is, however, limited by 2D imaging and rigid instrumentations. Such restrictions are addressed by robotic platform offering high-definition 3D optics and angulated instrumentations with multiple degrees of movements. We incorporated this novel technology to our thoracic surgical armamentarium in June 2012 to augment our minimally invasive thoracic surgery (MITS) capability. Between 6/1/2012 and 5/30/2017, we have performed 566 robotic video-assisted thoracic surgical (R-VATS) procedures. **Method:** The objective of this retrospective analysis of our prospectively maintained database is to appraise our short-term outcomes and to perform comparative analysis of our data with published results. **Result:** We performed 231 anatomic lung resections (lobectomy/segmentectomy; 98% for lung cancers) and 256 wedge lung resections (196 therapeutic/137 for lung cancers), 60 mediastinal procedures (50% for neoplasm) and 9 esophageal procedures (all benign). Regarding R-VATS anatomic lung resection, there were 8 conversions to open thoracotomy (3.4%); the 30-day morbidity and mortality for the remaining 231 cases are 25% (3% potentially life-threatening) and 0.4% (1/231). The postoperative hospital length of stay (LOS) is 3.46±2.48 (median 3.00) days. 25% patients undergoing R-VATS lobectomy/segmentectomy were ≥75 years old (79.78±3.64 (median 79.00), n=53). Comparing to those ≤75 years old (67.19±10.21 (median 68.00), n=170), older patients had a slight increase in LOS (4.46 ±3.75 (median 3.00) versus 3.15±1.83 (median 3.00), p<0.001) but similar morbidity (34% versus 24%, p=0.16). Our single institution short-term surgical outcomes including LOS, number of intrathoracic lymph node harvested, incidence of nodal upstaging (cN0 to pN1/2), 30-day perioperative mortality and morbidity compare very favorable to data reported by individual academic centers or by databases. The learning curve for robotic anatomic lung resection as judged by the duration of time spent at the console performing the complete procedure is long as it would take about 100 cases to achieve a steady-state average of 150 minutes per case. **Conclusion:** We successfully incorporate this novel technology to our current thoracic surgery practice without adversely affecting surgical outcomes of lung resections for malignancies as exemplified by our short-term outcomes of R-VATS anatomic lung resections. Our own results are very comparable to those reported by