

E-P3200: Segmentectomy or Lobectomy in Clinical T1N0M0 Non-Small Cell Lung Cancer: Which Should Be Preferred?

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INTRODUCTION

With accumulating evidence demonstrating comparable overall and disease-free survival between sublobar resection and lobectomy for peripheral non-small cell lung cancers (NSCLC) measuring ≤2 cm, segmentectomy has increasingly been incorporated into clinical practice. Nevertheless, the oncologic adequacy of segmentectomy remains controversial in patients with lymph node involvement, tumors measuring 2–3 cm, or other adverse prognostic features. Therefore, this study aimed to compare the long-term outcomes of segmentectomy and lobectomy in patients with clinical T1N0M0 NSCLC.

METHODS

A total of 948 patients who underwent segmentectomy or lobectomy for T1N0M0 NSCLC between 2001 and 2024 across six centers were included in the study. Of these, 553 patients (58.3%) underwent segmentectomy and 395 patients (41.7%) underwent lobectomy. The segmentectomy and lobectomy groups were compared in terms of demographic characteristics, pathological findings, and survival outcomes.

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RESULTS

The mean age was 64.0 ± 9.7 years in the segmentectomy group and 61.6 ± 10.5 years in the lobectomy group, with no statistically significant difference between the groups (p=0.163). The segmentectomy group included 201 females (36.3%) and 352 males (63.7%), while the lobectomy group included 103 females (26.1%) and 292 males (73.9%). Female sex was significantly more frequent in the segmentectomy group (p=0.001) (Table 1).

Tumor size was significantly larger in the lobectomy group (p<0.001). Video-assisted thoracoscopic surgery (VATS) was performed significantly more often in the segmentectomy group (p<0.001). Non-adenocarcinoma histology, N1 positivity, pleural invasion, perineural, lymphatic, and vascular invasion, as well as STAS positivity, were significantly more frequent in the lobectomy group (Table 1). The segmentectomy group demonstrated significantly better survival outcomes (p=0.001) (Table 2, Figure 1).

In Cox regression analysis, male sex, adenocarcinoma histology, N1 positivity, and the presence of vascular invasion were identified as independent poor prognostic factors (Table 3).

Table 1: Demographic and Pathologic Data

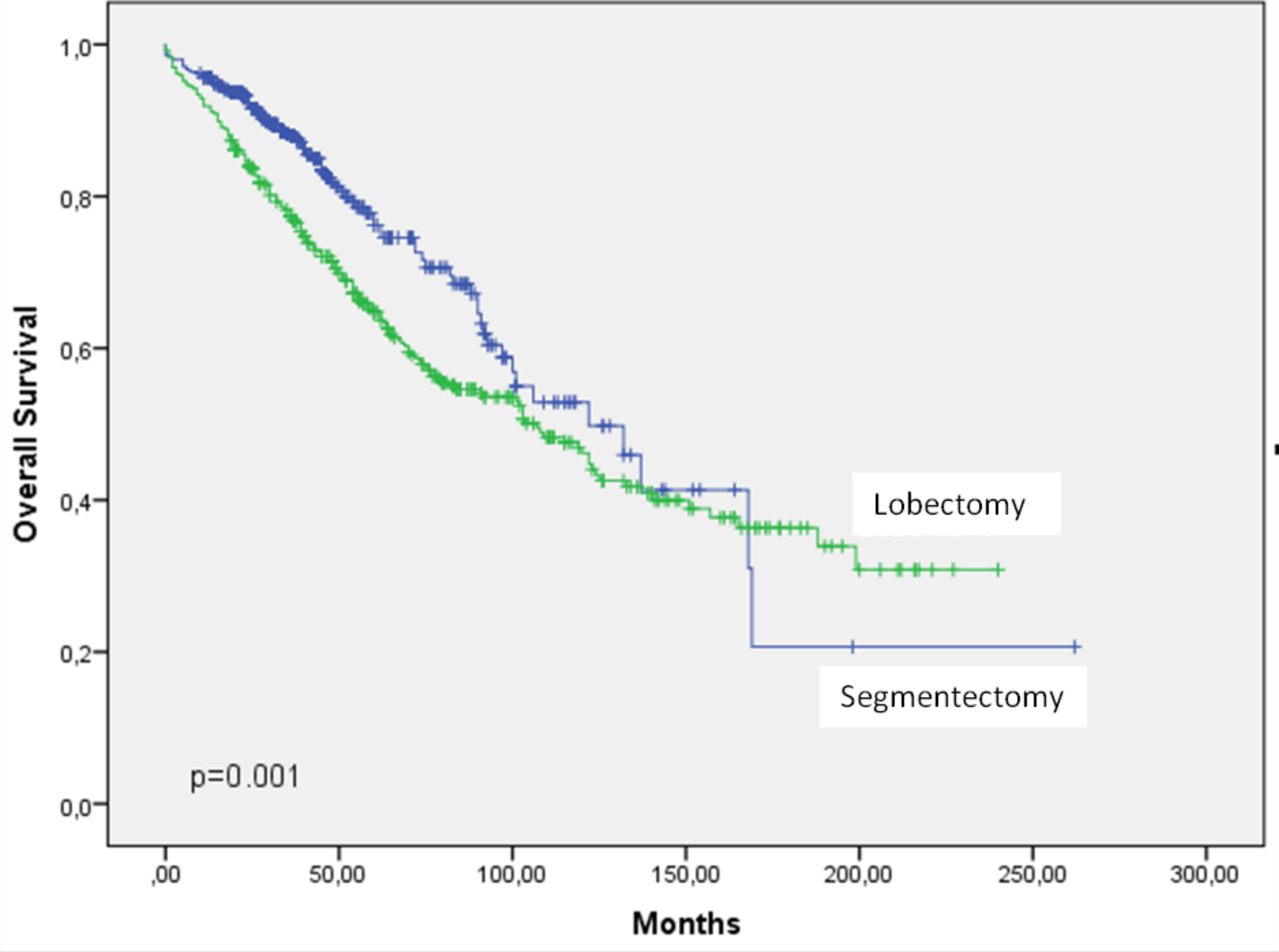
	Segmentectomy (n=553)	Lobectomy (n=395)	p Value
Age	64.0 ± 9.7	61.6 ± 10.5	0.163
Gender -Female -Male	201 (36.3%) 352 (63.7%)	103 (%26.1%) 292 (%73.9%)	0.001, OR:1.6 (1.2-2.2)
Tumor Diameter	1.6 ± 0.7	1.9 ± 0.9	<0.001
Incision -VATS -Thoracotomy	441 (79.8%) 112 (20.2%)	206 (52.2%) 189 (47.8%)	<0.001
Pathology -Adenocarcinoma -Non-adenocarcinoma	415 (75.1%) 138 (24.9%)	232 (58.7%) 163 (41.3%)	<0.001
N0 N1	529 (95.7%) 24 (4.3%)	343 (86.8%) 52 (13.2%)	<0.001
PL0 PL1 PL2 PL3	499 (90.2%) 42 (7.6%) 10 (1.8%) 2 (0.4%)	272 (68.9%) 97 (24.6%) 14 (3.5%) 12 (3.0%)	<0.001
Perineural Invasion	17 (3.1%)	92 (23.3%)	<0.001
Lymphatic Invasion	88 (15.9%)	260 (65.8%)	<0.001
Vascular Invasion	37 (6.7%)	172 (43.5%)	<0.001
STAS	114 (20.6%)	108 (27.3%)	<0.001
Postoperative Complication	106 (19.2%)	95 (24.1%)	0.092

DISCUSSION

In our study, the segmentectomy group showed better overall survival outcomes. Male sex, adenocarcinoma histology, N1 positivity, and vascular invasion were identified as independent adverse prognostic factors.

In patients undergoing segmentectomy who have these poor prognostic features, closer follow-up or consideration of adjuvant therapies may be warranted.

Figure 1: Survival Functions



	10- Years Survival Rate (%)	Median Survival (Months)	95% CI	p Value
Segmentectomy	81.9%	122.0 ± 13.8	94.9-149.1	0.001
Lobectomy	54.4%	107.0 ± 11.5	84.4-129.6	

Table 2: Survival Data

	HR; 95% CI	p Value
Gender	0.6 (0.4-0.7)	<0.001
Adenocarcinoma	1.3 (1.0-1.7)	0.041
N1	0.6 (0.4-1.0)	0.013
Vascular Invasion	0.7 (0.5-0.9)	0.022

Table 3:Multivariable analysis of factors affecting survival