



P1.106-234 Segmentectomy versus Pulmonary Lobectomy in Resectable pN1 NSCLC  
The VESPER Study

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INTRODUCTION

BACKGROUND

Anatomical segmentectomy is an established option for selected patients with small peripheral NSCLC. However, randomized trials largely excluded patients with hilar nodal involvement, and evidence for patients with a final diagnosis of pN1 disease therefore remains limited.

OBJECTIVE

The VESPER study compared anatomical segmentectomy with lobectomy in the multicentre cohort, focusing on overall survival, cancer-related survival and recurrence-free survival. We also examined differences in baseline selection and explored whether clinical nodal status was associated with long-term outcomes.

METHODS

STUDY DESIGN

This retrospective multicentre cohort included patients who underwent anatomical lobectomy or segmentectomy between 2016 and 2024 and had resectable NSCLC with pathological N1 involvement. The study cohort comprised 143 patients.

ENDPOINTS

Overall survival was measured to death from any cause, whereas cancer-related survival considered cancer death. Recurrence-free survival treated recurrence as the event and censored deaths without recurrence.

STATISTICAL ANALYSIS

Survival was estimated with Kaplan–Meier methods and compared with the log-rank test. Follow-up was calculated using the reverse Kaplan–Meier method. Cox proportional-hazards models evaluated the associations of procedure and clinical nodal status with each endpoint. Baseline characteristics were compared using Welch’s t test or Fisher’s exact test, as appropriate.

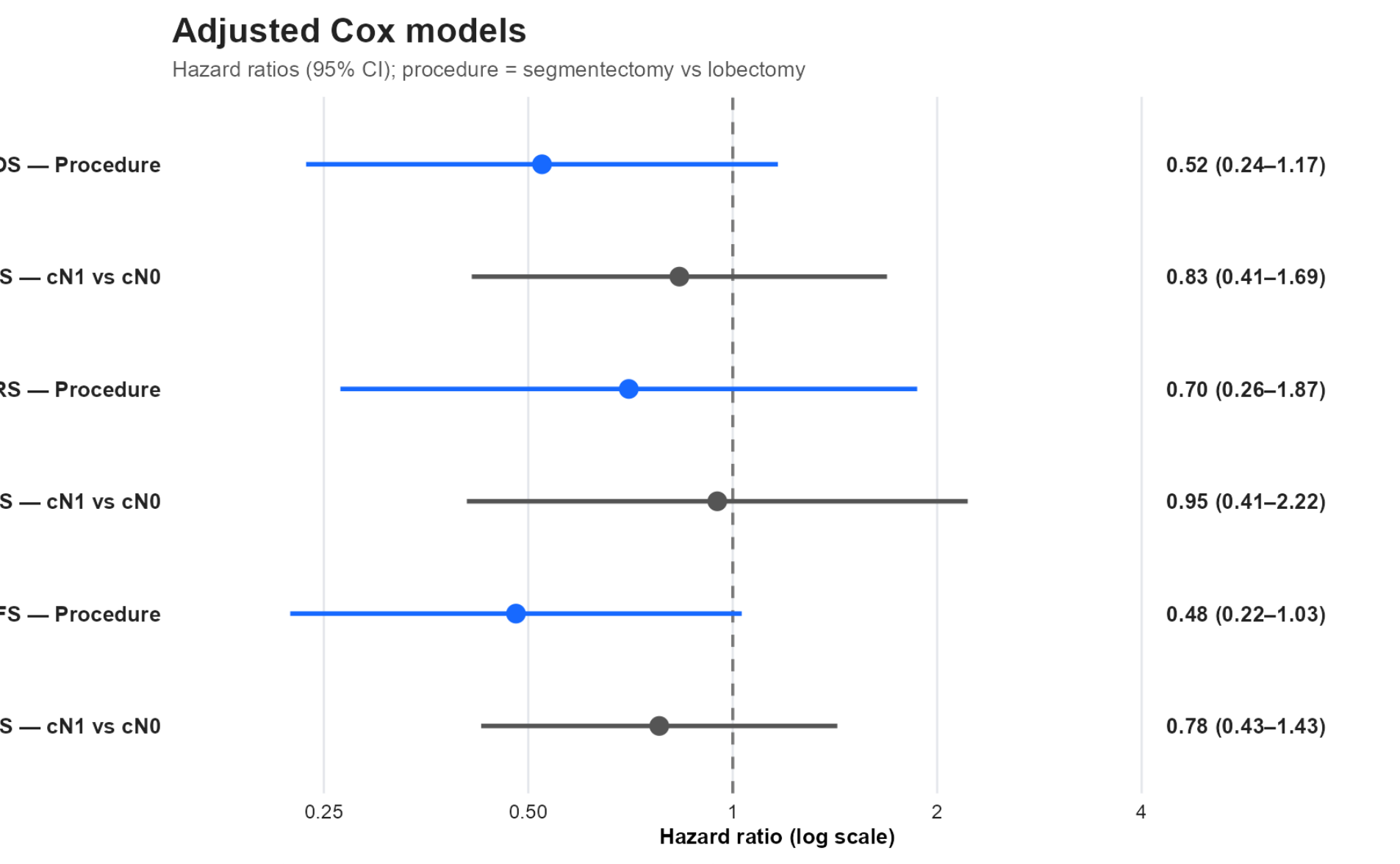
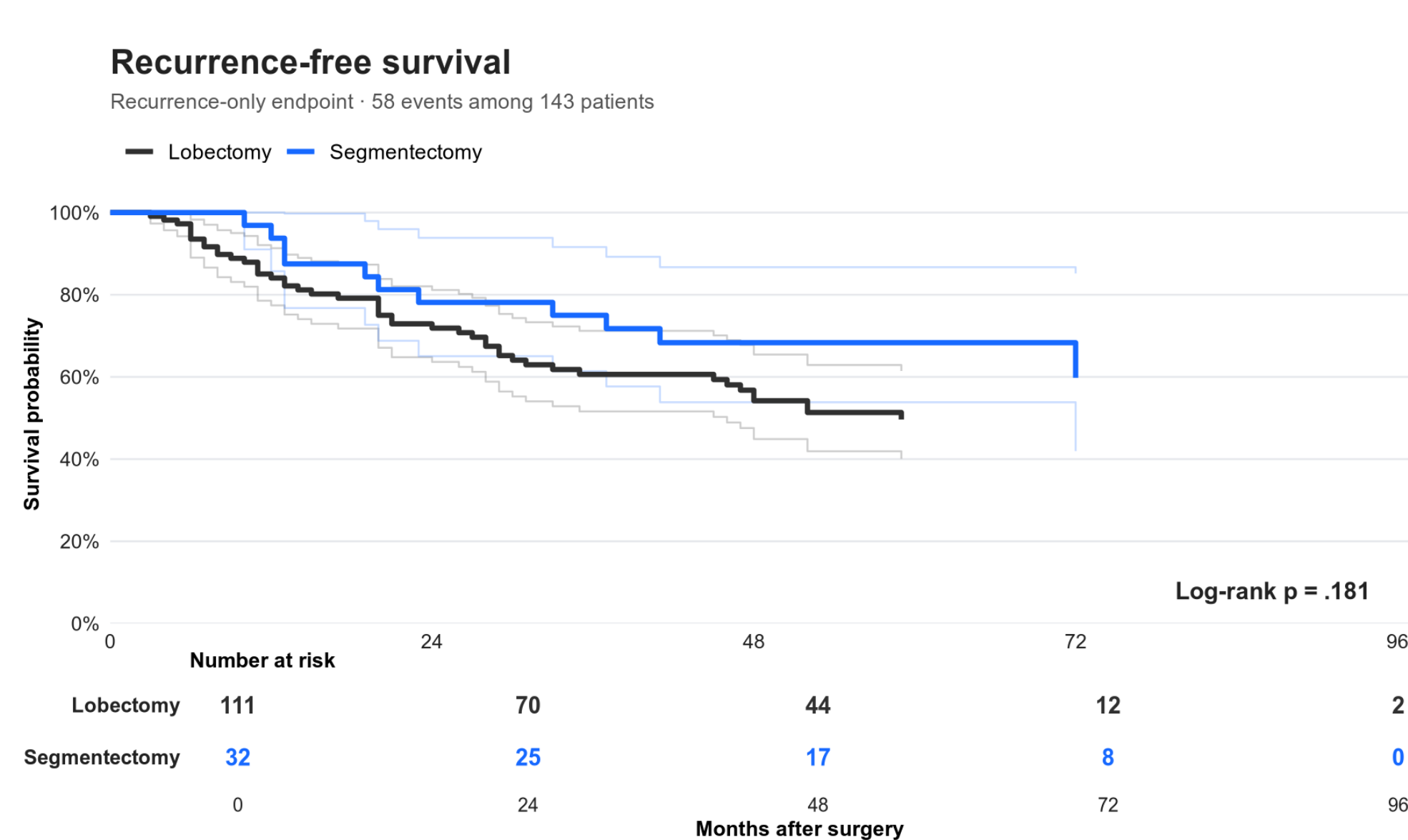
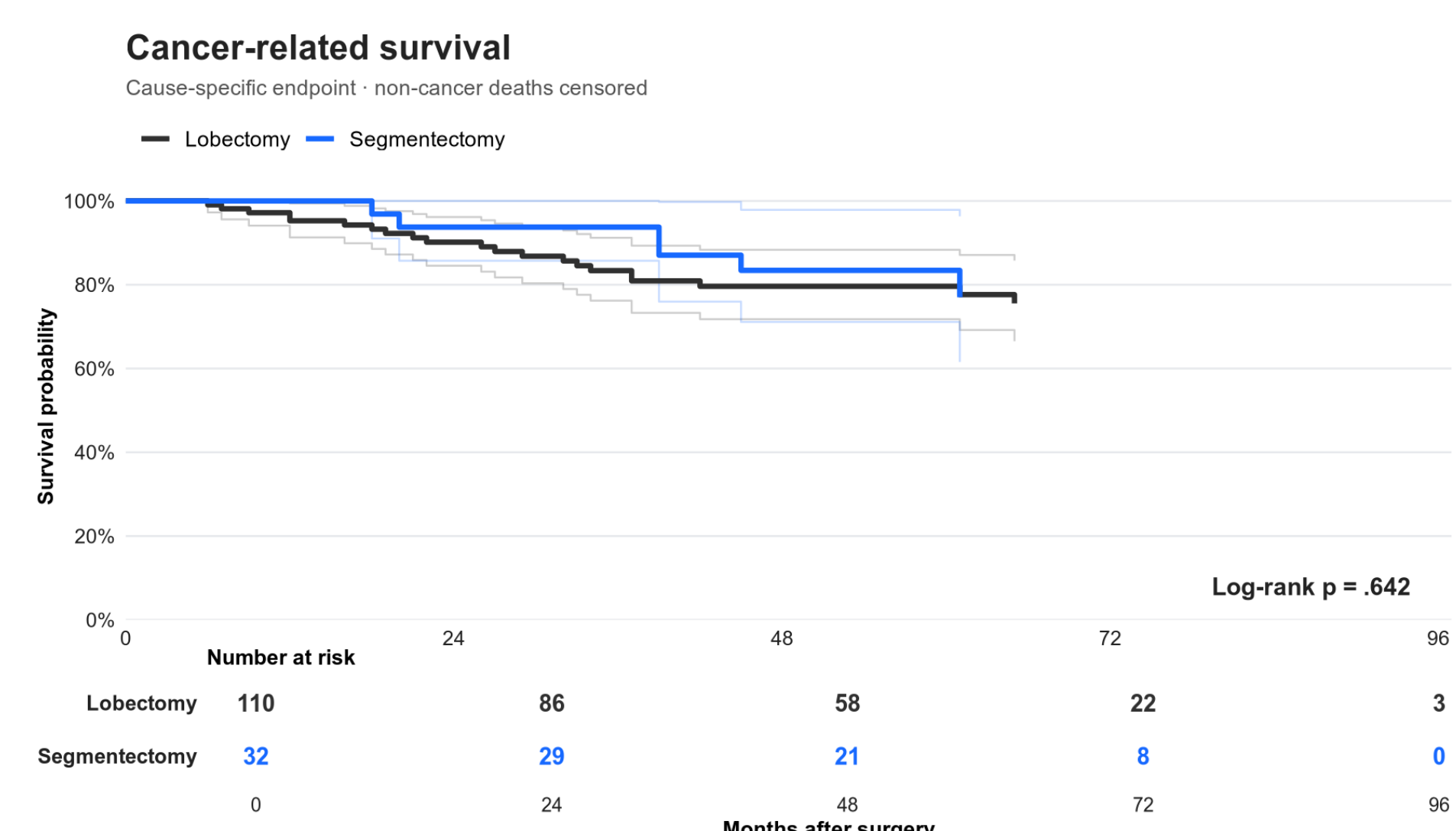
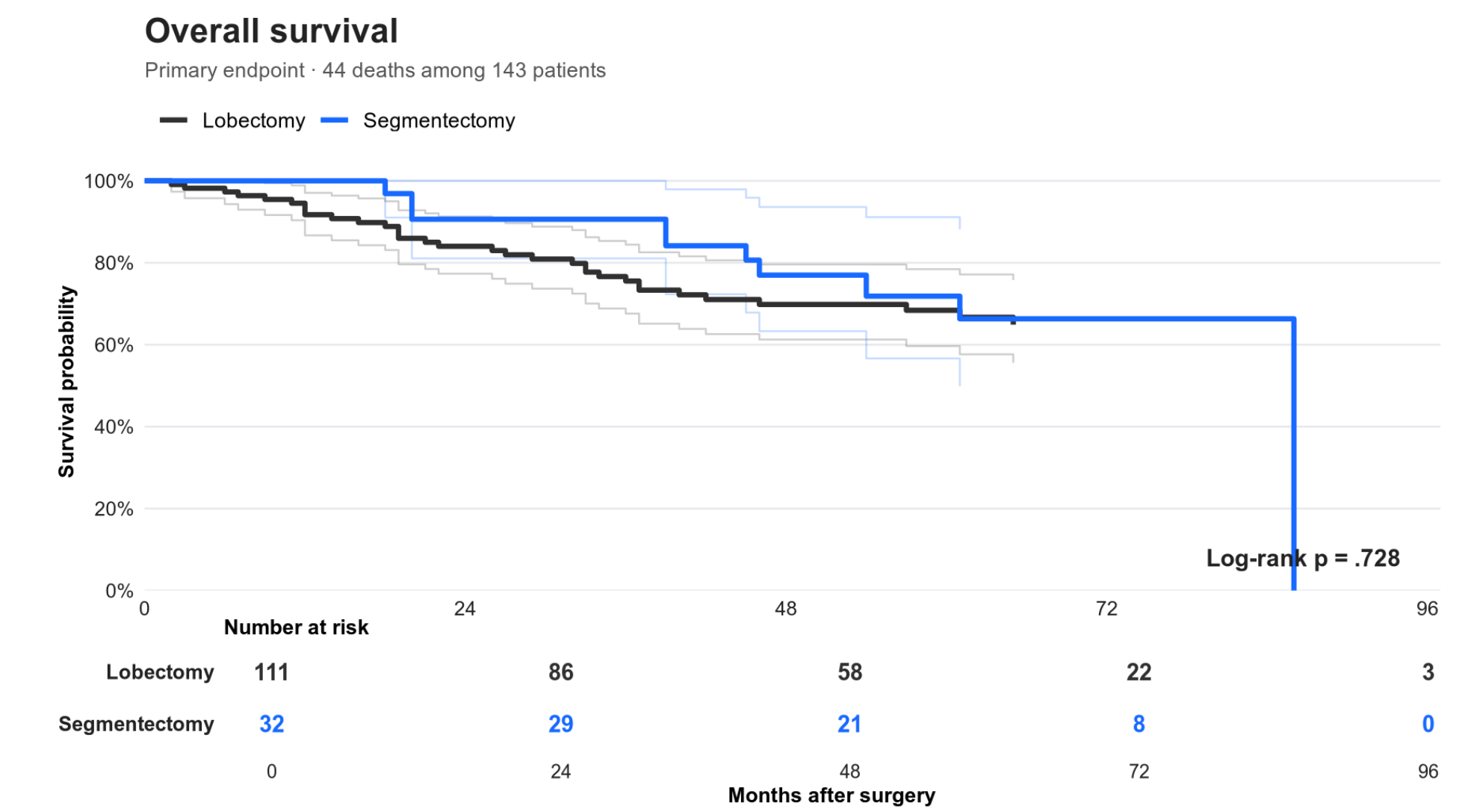
Because of missing information, denominators varied slightly: clinical nodal status was available for 142 patients, CCI for 138, and the adjusted RFS model included 131 patients. The cN0–cN1 analyses were considered exploratory.

RESULTS

The cohort comprised 143 patients (111 lobectomy and 32 segmentectomy), with a median follow-up of 65 months; there were 58 recurrences, 44 deaths and 27 cancer deaths. Segmentectomy patients had a higher Charlson Comorbidity Index (6.0±2.9 vs 4.4±2.6; p=.007), whereas adjuvant treatment was more frequent after lobectomy (64/109, 58.7% vs 11/32, 34.4%; p=.017).

Clinical N1 patients were significantly more frequent in lobectomy compared to segmentectomy, that was choosen as the treatmente of choice in only 3 patients (3/41 vs 29/101; p=.007). Recurrence occurred in 47/111 (42.3%) after lobectomy and 11/32 (34.4%) after segmentectomy (Fisher p=0.540). At 5 years, OS was 68.4% after lobectomy and 71.8% after segmentectomy (p=0.728), Cancer-Related Survival 79.6% vs 83.4% (p=0.642), and Recurrence-Free Survival 49.6% vs 68.3% (p=0.181). Adjusted RFS showed a non-significant differenc ebetween lobectomy and segmentectomy (HR 0.48, 95% CI 0.22–1.03; p=.060). Among 30 classified segmentectomies, recurrence occurred after 4/15 single and 5/15 multiple resections (p=1.000); 5-year OS was 84.4% vs 70.6% (p=.076) and RFS 73.3% vs 72.7% (p=.549). These sparse subgroup estimates remain exploratory.

| Characteristic              | Whole cohort<br>n=143 | Lobectomy<br>n=111 | Segmentectomy<br>n=32 | p     |
|-----------------------------|-----------------------|--------------------|-----------------------|-------|
| Age, years                  | 66.6 ± 10.4           | 65.9 ± 9.8         | 68.9 ± 12.3           | 0.217 |
| Female sex                  | 62 (43.4%)            | 49 (44.1%)         | 13 (40.6%)            | 0.840 |
| Charlson Index (CCI)        | 4.7 ± 2.7             | 4.4 ± 2.6          | 6.0 ± 2.9             | 0.007 |
| MIS approach                | 132 (92.3%)           | 101 (91.0%)        | 31 (96.9%)            | 0.456 |
| Adenocarcinoma              | 107 (74.8%)           | 85 (76.6%)         | 22 (68.8%)            | 0.365 |
| Tumour size, mm             | 20.7 ± 6.8            | 21.1 ± 6.5         | 19.4 ± 7.9            | 0.295 |
| Lymphovascular invasion     | 52 (39.1%)            | 41 (39.4%)         | 11 (37.9%)            | 1.000 |
| Clinical N1                 | 41 (28.9%)            | 38 (34.5%)         | 3 (9.4%)              | 0.007 |
| Postoperative complications | 41 (28.9%)            | 33 (30.0%)         | 8 (25.0%)             | 0.662 |
| Any adjuvant treatment      | 75 (53.2%)            | 64 (58.7%)         | 11 (34.4%)            | 0.017 |



SEGMENTECTOMY DETAILS

| SINGLE SEGMENTECTOMY (n=16) |    |    |    |    |    |    |    |    |    |     |       |
|-----------------------------|----|----|----|----|----|----|----|----|----|-----|-------|
| Side                        | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 | Total |
| Left                        | 1  | 2  | 0  | 0  | 0  | 3  | 0  | 0  | 0  | 1   | 7     |
| Right                       | 3  | 1  | 2  | 0  | 0  | 3  | 0  | 0  | 0  | 0   | 9     |

| MULTIPLE SEGMENTECTOMY (n=14) |       |          |       |       |           |        |       |
|-------------------------------|-------|----------|-------|-------|-----------|--------|-------|
| Side                          | S1+S2 | S1+S2+S3 | S1+S3 | S4+S5 | S8+S9+S10 | S9+S10 | Total |
| Left                          | 1     | 6        | 0     | 2     | 1         | 0      | 10    |
| Right                         | 2     | 0        | 1     | 0     | 0         | 1      | 4     |

DISCUSSION AND CONCLUSION

INTERPRETATION

Patients undergoing segmentectomy were not a lower-risk population. Their Charlson Comorbidity Index was higher than after lobectomy (6.0±2.9 versus 4.4±2.6; p=.007). This pattern is consistent with real-world selection during the 2016–2024 study period, when a parenchymal-sparing operation appears to have been chosen more often for patients with greater comorbidity.

Despite this baseline imbalance, long-term OS and CRS were comparable. RFS numerically favoured segmentectomy, but the estimate remained imprecise. The single-versus-multiple segmentectomy comparison was based on few events and should not be interpreted as evidence of equivalence. The absence of statistically significant differences should therefore be interpreted cautiously.

CONCLUSION

In this selected pN1 cohort, segmentectomy was not associated with worse long-term survival. These findings support clinical equipoise for carefully selected patients, while non-random treatment allocation and residual confounding remain important limitations.

USEFUL REFERENCES



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