

Appendix 1

A propensity score matching analysis were performed as follows. Propensity scores were generated using logistic regression based on clinically relevant preoperative variables, such as the age, sex, performance status, and presence of diabetes mellitus, which were considered possible confounders for potential associations with the outcome of interest based on clinical knowledge. Patients were matched 1:1 by nearest neighbor-matching (caliper width, 0.2) without replacement. Comparisons between matched groups were performed using McNemar's test for categorical variables and the paired t-test or Wilcoxon's signed-rank test for continuous variables. The standardized difference was used to measure covariate balance, with an absolute standardized difference >0.1 representing a meaningful imbalance.

Table S1 Characteristics and outcomes after propensity score matching

| Variables | Patients who underwent lobectomy | | P value |
|---|----------------------------------|---------------|---------|
| | BPF (n=15) | No BPF (n=15) | |
| Age (years) | 74.7±5.5 | 74.57±5.3 | 0.89 |
| Sex | | | 1.0 |
| Male | 13 (86.7) | 13 (86.7) | |
| Female | 2 (13.3) | 2 (13.3) | |
| BMI (kg/m ²) | 22.7±3.4 | 23.9±2.5 | 0.24 |
| Pack-years (smoking) | 34.9±29.4 | 24.0±20.0 | 0.25 |
| Performance status | | | 1.0 |
| 0 | 15 (100.0) | 15 (100.0) | |
| History of malignancy | 2 (13.3) | 5 (33.3) | 0.20 |
| Number of diabetes mellitus | 4 (26.7) | 4 (26.7) | 1.0 |
| Number of interstitial pneumonia | 2 (13.3) | 3 (20.0) | 0.62 |
| Number of undergoes hemodialysis | 0 (0.0) | 0 (0.0) | N/A |
| Taking immunosuppressant drugs | 0 (0.0) | 1 (6.7) | 0.31 |
| Taking anti-thrombotics drugs | 4 (26.7) | 6 (40.0) | 0.44 |
| FEV1% (%) | 71.6±10.7 | 72.8±8.0 | 0.73 |
| Serum albumin (g/dL) | 4.15±0.44 | 4.32±0.28 | 0.22 |
| Surgical procedure | | | |
| Right upper lobectomy | 0 (0.0) | 3 (20.0) | 0.07 |
| Right middle lobectomy | 0 (0.0) | 1 (6.7) | 0.31 |
| Right lower lobectomy | 9 (60.0) | 4 (26.7) | 0.04 |
| Left upper lobectomy | 2 (13.3) | 4 (26.7) | 0.36 |
| Left lower lobectomy | 3 (20.0) | 2 (13.3) | 0.62 |
| Bilobectomy | 1 (6.7) | 1 (6.7) | 1.0 |
| Approach, n (%) | | | |
| Complete VATS | 12 (80.0) | 14 (93.3) | 0.28 |
| Hybrid VATS | 0 (0.0) | 0 (0.0) | N/A |
| Thoracotomy | 3 (20.0) | 1 (6.7) | 0.28 |
| Lymph node dissection | | | |
| ND1b or 0 | 0 (0.0) | 1 (6.7) | 0.31 |
| ND2a-1 | 0 (0.0) | 3 (20.0) | 0.07 |
| ND2a-2 | 15 (100.0) | 11 (73.3) | 0.03 |
| Lymph node metastasis (clinical) | | | |
| cN0 | 12 (80.0) | 14 (93.3) | 0.28 |
| cN1 | 0 (0.0) | 0 (0.0) | N/A |
| cN2 | 3 (20.0) | 1 (6.7) | 0.28 |
| Lymph node metastasis (pathological) | | | |
| pN0 | 13 (86.7) | 12 (80.0) | 0.62 |
| pN1 | 1 (6.7) | 2 (13.3) | 0.54 |
| pN2 | 1 (6.7) | 1 (6.7) | 1.0 |
| Operation time (min) | 314.9±139.28 | 271.1±67.5 | 0.28 |
| Blood loss (g) | 120.5±198.7 | 88.8±145.6 | 0.62 |
| Bronchial stump coverage | | | |
| Yes | 0 (0.0) | 1 (6.7) | 0.31 |
| No | 15 (100.0) | 14 (93.3) | |
| Method of bronchial stump coverage | | | 0.31 |
| Free pericardial fat pad | 0 (0.0) | 1 (6.7) | |
| Pedicled intercostal muscle flap | 0 (0.0) | 0 (0.0) | |
| Postoperative pneumonia | 6 (40.0) | 2 (13.3) | 0.10 |
| Postoperative interstitial pneumonia (acute exacerbation) | 1 (6.7) | 0 (0.0) | 0.31 |

Data are presented as n (%) or mean ± standard deviation. BPF, bronchopleural fistula; BMI, body mass index; FEV, forced expiratory volume; N/A, not available; ND, node dissection; VATS, video-assisted thoracic surgery.