

Appendix 1*CT scanning protocol*

Thoracic CT examinations of all patients were performed by using one of the following multidetector CT Systems and their respective acquisition parameters:

- (I) Somatom Definition AS (Siemens Medical Systems): tube energy as 120 kVp, tube current as 130 mA, rotation time as 0.5 seconds, detector collimation as 64 x 0.63 mm, CT reconstruction at 1.0 mm slice thickness with the standard soft kernel (Siemens B31 filter, Siemens Medical Solutions);
- (II) Brilliance 40 (Philips Medical Systems): tube energy as 120 kV, tube current as 200 mA, rotation time as 0.75 seconds, detector collimation as 32×1.25 mm, CT reconstruction at 0.75 mm slice thickness with sharp reconstruction kernel (C filter, Philips). Contrast-enhanced CT was performed after intravenous injection of ioversol (350 mg of iodine per milliliter; Jiangsu Hengrui Medicine) at a dose of 1.3–1.5 mL per kilogram of body weight at a rate of 2.5 mL/sec by using an automated injector.
- (III) Discovery 750 (GE Healthcare): tube energy as 120 kV, tube current as 50-350 mA, rotation time as 0.5 seconds, detector collimation as 32×1.25 mm, pitch of 0.64, section thickness of 0.75 mm without overlap, matrix of 512×512 or 1,024×1,024, field of view (FOV) of 350–400 mm.
- (IV) Somatom Definition Flash (Siemens Healthineers): tube energy as 120 kV, tube current as 120 mA, rotation time as 0.5 seconds, detector collimation as 32×1.25 mm, pitch of 0.64, section thickness of 0.6 mm without overlap, matrix of 512×512 or 1,024×1,024, field of view (FOV) of 350–400 mm.

Table S1 Patients' clinicopathologic characteristics in the C-MLND and S-MLND groups

Variables	C-MLND (n=969)	S-MLND (n=197)	P
Age, years	62 [55–67]	62 [55–66]	0.66
Sex (male/female)	512 (52.8)/457 (47.2)	111 (56.3)/86 (43.7)	0.37
Smoking history (no/yes)	783 (80.8)/186 (19.2)	165 (83.8)/32 (16.2)	0.33
Tumor location			<0.001
RUL/RML/RLL	314 (32.4)/64 (6.6)/100 (10.3)	69 (35.0)/5 (2.5)/18 (9.1)	
LUL/LLL	308 (31.8)/183 (18.9)	41 (20.8)/64 (32.5)	
CTR (≤ 0.5 vs. > 0.5)	317 (32.7)/652 (67.3)	125 (63.5)/72 (36.5)	<0.001
cT (T1a/T1b/T1c)	11 (1.1)/324 (33.4)/634 (65.4)	31 (15.7)/123 (62.4)/43 (21.8)	<0.001
Histologic type (ADC/SCC/others)	860 (88.8)/70 (7.2)/39 (4.0)	180 (91.4)/8 (4.1)/9 (4.6)	0.13
ADC histologic subtype			<0.001
LPA/APA/PPA	191 (22.2)/465 (54.1)/129 (15.0)	80 (44.4)/78 (43.3)/15 (8.3)	
MPA/SPA	14 (1.6)/61 (7.1)	3 (1.8)/4 (2.2)	
EGFR mutation ^a (yes/no)	513 (74.3)/180 (25.7)	89 (74.8)/30 (25.2)	0.86
Others ^b (yes/no)	68 (9.8)/625 (90.2)	12 (10.1)/107 (89.9)	0.88
Operative approach (lobectomy/segmentectomy)	903 (93.2)/66 (6.8)	91 (46.2)/106 (53.8)	<0.001
LVI positive	10 (1.0)	0 (0.0)	0.15
VPI positive	73 (7.5)	5 (2.5)	0.01
STAS positive	35 (3.6)	3 (1.5)	0.13
No. of resected MLN stations	5 [5–6]	0 [0–2]	<0.001
No. of resected MLNs	11 [7–15]	0 [0–4]	<0.001
pT			<0.001
T1a/T1b/T1c	25 (2.6)/425 (43.9)/400 (41.3)	58 (29.4)/101 (51.3)/30 (15.2)	
T2a/T2b	116 (12.0)/3 (0.3)	8 (4.1)/0 (0.0)	
pN (N0/N1/N2)	794 (81.9)/52 (5.4)/123 (12.7)	190 (96.4)/0 (0.0)/7 (3.6)	<0.001
Adjuvant therapy (yes/no)	287 (29.6)/682 (70.4)	28 (14.2)/169 (85.8)	<0.001
CCI (0/1–2/3)	819 (84.5)/148 (15.3)/2 (0.2)	158 (80.2)/39 (19.8)/0 (0.0)	0.20

Data are expressed as median [first quartile and third quartile] or n (%). ^a, 812 patients had genetic sequencing test after surgery, with 693 in the C-MLND group and 119 in the S-MLND group. ^b, others included KRAS mutation, BRAF mutation, ROS1 fusion, EML4-ALK fusion. LPA, lepidic-predominant adenocarcinoma; APA, acinar-predominant adenocarcinoma; PPA, papillary-predominant adenocarcinoma; SPA, solid-predominant adenocarcinoma; MPA, micropapillary-predominant adenocarcinoma; C-MLND, complete mediastinal lymph node dissection; S-MLND, selective mediastinal lymph node dissection; MLN, mediastinal lymph node; LLL, left lower lobe; LUL, left upper lobe; RLL, right lower lobe; RUL, right upper lobe; CCI, Charlson/Deyo comorbidity index; CTR, consolidation tumor ratio; LVI, lymphovascular invasion; VPI, visceral pleural invasion; STAS, spread through air space; ADC, adenocarcinoma; SCC, squamous cell carcinoma; EGFR, epidermal growth factor receptor.

Table S2 Comparison of perioperative parameters as well as postoperative complications between C-MLND and S-MLND groups in the lobectomy subgroup after matching

Variables	C-MLND (n=88)	S-MLND (n=86)	P
Intraoperative blood loss (mL)	50.0 [50.0–100.0]	50 [27.5–100.0]	0.18
Total pleural drainage (mL)	450.0 [320–640]	450 [295.0–650.0]	0.98
Operative time (min)	130.0 [98.3–169.5]	122.5 [81.5–159.5]	0.11
Duration of chest tube placement (d)	4 [3–4]	3 [3–4]	0.80
Postoperative length of stay (d)	4 [4–5]	4 [3–6]	0.74
Postoperative complications	22 (25.0)	10 (11.6)	0.02
Pneumonitis	10 (11.4)	9 (10.4)	0.85
Prolonged air leakage (≥ 7 d)	5 (5.7)	1 (1.2)	0.21
Chylothorax	4 (4.5)	0 (0.0)	0.045
Arrhythmia	2 (2.3)	0 (0.0)	0.50
Pulmonary embolism	1 (1.1)	0 (0.0)	>0.99

Data are expressed as median [first quartile and third quartile] or n (%). C-MLND, complete mediastinal lymph node dissection; S-MLND, selective mediastinal lymph node dissection.

Table S3 Comparison of postoperative recurrence between C-MLND and S-MLND groups in the lobectomy subgroup after matching

Variables	C-MLND (n=126)	S-MLND (N=126)	P
Recurrence	11 (8.7)	17 (13.5)	0.19
Locoregional recurrence	2 (1.6)	6 (4.8)	0.17
Distant metastasis	9 (7.1)	11 (8.7)	0.60

Data are expressed as n (%). C-MLND, complete mediastinal lymph node dissection; S-MLND, selective mediastinal lymph node dissection.

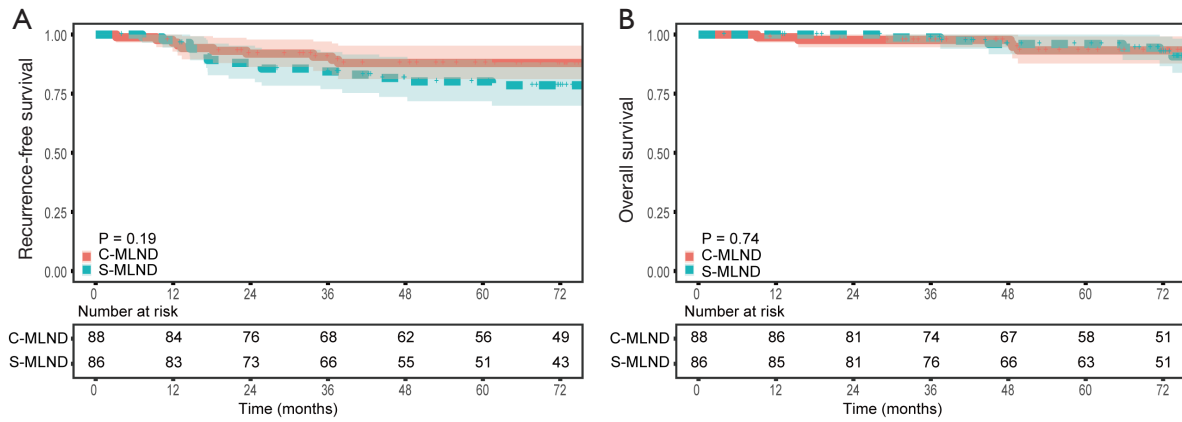


Figure S1 Survival outcomes of patients with clinical stage IA invasive NSCLC based on extent of mediastinal lymph node dissection in lobectomy subgroup after matching. (A) Postoperative recurrence-free survival of patients in the C-MLND and S-MLND groups in lobectomy subgroup after matching. (B) Postoperative overall survival of patients in the C-MLND and S-MLND groups in lobectomy subgroup after matching. C-MLND, complete mediastinal nodal dissection; S-MLND, selective mediastinal lymph node dissection; NSCLC, non-small cell lung cancer.