

Table S1 Classification of the position of free space according to the resected segment

Lobe	Position of intersegmental plane free space	Resected segment
RUL	Cranial side	$S^1, S^{1a+bi}, S^{1b}, S^1+S^2, S^1+S^{2a}, S^{1a}+S^{2b}, S^1+S^3, S^2+S^6$
	Ventral side	S^1+S^3, S^3, S^{3b}
	Other	$S^{1a}+S^2, S^2, S^{2b}+S^{3a}$
RML	Cranial side	–
	Ventral side	S^5
	Other	S^4, S^{4a}
RLL	Cranial side	$S^6, S^{6a}, S^6+S^*, S^6+S^7+S^{10}, S^6+S^9+S^{10}$
	Ventral side	$S^7+S^8, S^{7a}+S^8+S^9, S^8, S^8+S^9, S^8+S^9+S^{10}, S^{8a}+S^9+S^{10}$
	Other	$S^6+S^{10}, S^6+S^{10a}, S^7, S^{7a}, S^{7b}+S^{10a}, S^8+S^9, S^9, S^9+S^{10}, S^*, S^{10}, \text{basilar segment } (S^{7-10})$
LUL	Cranial side	Upper-division segment (S^{1-3}), $S^{1+2}, S^{1+2}+S^{3a}, S^{1+2}+S^{3a+c}$
	Ventral side	$S^{1+2c}+S^3, S^{1+2c}+S^4+S^5, S^3, S^{3a}, S^{3b}, S^{3b}+S^4+S^5, S^{3b+c}, S^4, S^{4a}, S^{4b}, S^{5b}, S^5+S^8$
	Other	$S^{1+2b+c}, S^{1+2c}, S^{1+2c}+S^{3a}, \text{lingular segment } (S^{4-5})$
LLL	Cranial side	$S^6, S^{6a}, S^{6a+b}, S^6+S^{8a}+S^{9a}$
	Ventral side	$S^8, S^{8a}, S^{8b}, S^8+S^9, S^{8b}+S^{9b}, S^6+S^{8a}+S^{9a}$
	Other	$S^{6c}, S^{6c}+S^{10a}, S^9, S^{9a}+S^{10}, S^{9b}, S^9+S^{10}, S^{10}, \text{basilar segment } (S^{8-10})$

RUL, right upper lobe; RML, right middle lobe; RLL, right lower lobe; LUL, left upper lobe; LLL, left lower lobe; S^1 , apical; S^2 , posterior; S^3 , anterior; S^4 , superior; S^5 , inferior; S^6 , superior; S^7 , medial basal; S^8 , anterior basal; S^9 , lateral basal; S^{10} , posterior basal; S^* , sub-superior.

Table S2 Methods of intersegmental plane dissection [2010–2021]

Variable	n	LOPF –	LOPF +	P value
Staple group	300	293	7	0.001
Staples only	181	180	1	0.000
Electrocautery group	203	187	16	0.001
Electrocautery only	77	70	7	0.059
Electrocautery + staples	115	109	6	0.791
Staples <2	48	44	4	0.254
Staples ≥2	67	65	2	0.749
Energy device group	23	19	4	0.015
Energy device only	8	7	1	0.313
Energy device + electrocautery	11	8	3	0.010
Energy device + staples	4	4	0	1.000
Number of staples (intersegmental plane)	2.1			

Table S3 Risk factors for PAL in the univariate analysis [2010–2021]

Variables	n/mean	PAL		P value
		No (n=371)	Yes (n=25)	
Preoperative variables				
Age, years	68.1	67.9	70.6	0.221
Sex				0.100
Male	221	203	18	
Female	175	168	7	
Smoking	232	216	16	0.677
Pack-year	23.6	22.9	33.9	0.083
BMI, kg/m ²	22.4	22.5	20.6	0.003
Diabetes mellitus	62	55	7	0.089
Hemodialysis	9	7	2	0.105
Previous steroid therapy	13	12	1	0.577
COPD	85	77	8	0.208
History of lung resection	76	70	6	0.598
IP	10	10	0	1.000
Asthma	21	21	0	0.384
FVC, L	3.1	3.1	3.1	0.986
FEV1.0, L	2.3	2.3	2.3	0.935
Surgical variables				
Primary site				
Right	176	164	12	0.836
Left	220	207	13	
Primary lobe				0.144
Upper/middle	222	204	18	
Lower	174	167	7	
Approach				1.000
Open	27	26	1	
VATS	369	345	24	
Segmentectomy type				0.836
Simple	171	161	10	
Complex	225	210	15	
Number of resected segments				0.540
Single	215	203	12	
Multiple	181	168	13	
Number of intersegmental planes				0.839
Single	212	198	14	
Multiple	184	173	11	
Position of intersegmental plane free space				
Cranial side	179	167	12	0.837
Ventral side	85	78	7	0.450
Intersegmental plane dissection method				
Electrocautery	125	120	5	0.267
Staple	248	230	18	0.396
Energy device	23	21	2	0.648
Covering	367	343	24	1.000
Intraoperative air leakage	308	288	20	1.000
Operative time, min	223.9	222.3	248.3	0.038
Blood loss, mL	55.4	54.6	67.0	0.624
Postoperative variable				
LOPF	18	18	0	0.617
Pneumonia*	11	10	1	0.517
Length of drainage, days	3.0	2.5	9.6	0.000
Length of stay, days	7.9	7.3	16.6	0.000
Mortality (30-day)	0	0	0	1.000

Values are presented as mean (interquartile range) or n (%). *, Clavien-Dindo classification \geq grade II. PAL, prolonged air leakage; BMI, body mass index; COPD, chronic obstructive pulmonary disease; IP, interstitial pneumonia; FVC, forced vital capacity; FEV1.0, forced expiratory volume in 1 second; VATS, video-assisted thoracic surgery; LOPF, late-onset pulmonary fistula.

Table S4 Risk factors for PAL in a multivariate analysis

Variable	SE	Wald	P	OR
Pack-year	0.000	3.941	0.047	1.001
BMI	0.076	8.271	0.004	0.803
Operative time, min	0.003	2.986	0.084	1.005

PAL, prolonged air leakage; BMI, body mass index; SE, standard error; OR, odds ratio.