

Supplementary

Table S1 Summary of the 46 patients' clinical characteristics analyzed in this manuscript

No.	Year	Author	Age (years)	Sex	cTNM	cStage	Histology	PD-L1 status (%)	First-line chemotherapy	Immunotherapy agent	Radiation therapy	ycTNM	ycStage	Procedure	Approach	Operation time (min)	Bleeding amount (mL)	irAE	Postoperative complication	ypTNM	ypStage	Effectiveness (Ef)	Postoperative therapy	Survival outcomes (months)
1	2019	Kakimoto T (15)	69	M	cT1bN0M1c	IVB	Giant	75	Pembrolizumab	Pembrolizumab	1 (brain)	ycT1aN0M0	IA1	Left upper lobectomy	VATS	201	23	Renal dysfunction (grade II)	0	ypT0N0M0	0	3 (pCR)	0	16 (alive)
2	2020	Hamaji M (16)	71	M	cT2aN3M1a	IVA	Ad	75	ND	Nivolumab	0	ND	ND	Left lower lobectomy	VATS	Unknown	Unknown	Eczema (grade II)	0	ypT2aN0M0	IB	NA	0	4 (alive)
3	2020	Sumi T (17)	69	F	cT2aN2M0	IIIA	Ad	95	Pembrolizumab	Pembrolizumab	0	ND	ND	Left upper wedge resection	ND	182	80	Liver dysfunction, ILD (grade III)	0	ypT0N0M0	0	3 (pCR)	0	5 (alive)
4	2021	Chou A (18)	67	F	cT4N2M1a	IVA	Sq	NA	CDDP + Gem	Pembrolizumab	0	ycT1cN0M0	IA3	Left lingular segmentectomy	VATS	122	55	0	0	ypT0N0M0	0	3 (pCR)	0	16 (alive)
5	2021	Minegishi K (19)	61	M	cT4N2M0	IIIB	Sq	>75	CDDP + S1	Durvalumab	1 (60 Gy)	ycT2aN1M0	IIB	Right upper lobectomy (sleeve)	Thoracotomy	293	30	0	0	ypT2aN0M0	IB	NA	0	10 (alive)
6	2021	Saito S (20)	50	M	cT4N2M0	IIIB	NSCLC	2	CBDCa + nabPTX	Pembrolizumab	0	ND	ND	Left pneumonectomy	Thoracotomy	248	205	0	0	ypT1aN0M0	IA1	Ef2 (1 mm)	0	12 (alive)
7	2022	Nawashiro A (21)	44	M	cT3N2M1a	IVA	Large	1	CDDP + PEM	Pembrolizumab	1 (60 Gy)	ycT2aN0M0	IB	Right upper lobectomy + S6 SEG	Thoracotomy	123	13	0	0	ypT0M0M0	0	3 (pCR)	0	9 (alive)
8	2021	Higuchi M (22)	73	M	cT4N2M1a	IVA	Ad	50	CDDP + bevacizumab	Pembrolizumab	0	ycT1bN0M0	IA2	Right upper lobectomy	ND	209	110	0	Fever (grade I)	ypT0N0M0	0	3 (pCR)	0	12 (alive)
9	2022	Smith A (23)	74	F	cT3N2M1b	IVA	Ad	40	CBDCa + PEM	Pembrolizumab	0	ycT1aN0M0	IA1	Right upper lobectomy	Thoracotomy	152	60	0	1 (blood transfusion)	ypT1aN0M0	IA1	NA	0	18 (alive)
10	2022	Smith A (23)	50	F	cT2aN2M1b	IVA	Ad	100	CDDP + PEM	Pembrolizumab	0	ycT1aN0M0	IA1	Left upper lobectomy	Thoracotomy	354	150	0	0	ypT1aN0M0	IA1	NA	0	20 (alive)
11	2022	Smith A (23)	59	F	cT4N2M1a	IVA	Ad	66	CDDP + PEM	Pembrolizumab	0	ycT1aN0M0	IA1	Left upper lobectomy	RATS	134	5	Hepatitis (grade II)	0	ypT1cN0M0	IA3	NA	0	22 (alive)
12	2022	Smith A (23)	76	M	cT2aN2M1b	IVA	Ad	80	Pembrolizumab	Pembrolizumab	1 (5 Gy)	ycT1aN0M0	IA1	Wedge resection of right upper lobe	VATS	124	3	0	0	ypT1bN0M0	IA2	NA	0	5 (alive)
13	2022	Smith A (23)	74	M	cT3N1M0	IIIA	Ad	80	CBDCa + PEM	Pembrolizumab	0	ycT1aN0M0	IA1	Right lower lobectomy	RATS	337	50	Nephritis	1 (pneumonia, air leakage)	ypT1aN0M0	IA1	NA	0	6 (alive)
14	2022	Smith A (23)	65	F	cT3N2M1c	IVB	Ad	5-10	CBDCa + PEM	Pembrolizumab	0	ycT1cN0M0	IA3	Left upper segmentectomy	RATS	242	70	0	0	ypT1cN0M0	IA3	NA	0	6 (alive)
15	2022	Okano Y (24)	82	M	cT2aN3M0	IIIC	Sq	60	CBDCa + nabPTX	Pembrolizumab	0	ycT1bN0M0	IA2	Left upper lobectomy	ND	213	110	0	0	ypT0N0M0	0	3 (pCR)	0	11 (alive)
16	2022	Nagata S (25)	70	M	cT2aN3M1a	IVA	Ad	75	ND	Nivolumab	0	ND	ND	left lower lobectomy	VATS	Unknown	Unknown	0	0	ypT2aN0M0	IB	NA	0	30 (alive)
17	2022	Nagata S (25)	56	M	cT4N0M0	IIIA	Ad	0	CDDP + VNR	Atezolizumab	1 (66 Gy)	ND	ND	Right upper sleeve lobectomy	ND	Unknown	Unknown	0	0	ypT4N0M0	IIIA	NA	0	18 (death)
18	2022	Funaki S (26)	70	M	cT4N0M0	IIIA	Sq	0	CDDP + VNR	Durvalumab	1 (60 Gy)	ND	ND	Right upper lobectomy with II, III rib/vertebra	Thoracotomy	159	50	0	0	NA	NA	MPR (a few viable cell)	0	24 (alive)
19	2023	Dickhoff C (27)	53	F	cTxN2M0	IIIA	Large	NA	ND	Durvalumab	1 (66 Gy)	ycT2aN0M0	IB	Left upper lobectomy	Thoracotomy	525	1,100	0	0	ypT1cN1M0	IIB	NA	0	9 (dead)
20	2023	Dickhoff C (27)	53	M	cT4N0M0	IIIA	Ad	NA	ND	Durvalumab	1 (66 Gy)	ycT2N0M0	IB	Right upper lobectomy	Thoracotomy	126	75	Dermatitis	0	ypT1bN0M0	IA2	NA	0	23 (alive)
21	2023	Dickhoff C (27)	64	M	cT4N2M0	IIIB	Sq	NA	ND	Durvalumab	1 (60 Gy)	ycT1cN0M0	IA3	Left lower lobectomy	Thoracotomy	237	100	Colitis	0	ypT2aN0M0	IB	NA	0	23 (alive)
22	2023	Dickhoff C (27)	56	M	cT4N1M0	IIIA	Sq	NA	ND	Durvalumab	1 (65 Gy)	ycT1bN2M0	IIIA	Right upper lobectomy	Thoracotomy	444	4,000	0	0	ypT2aN2M0	IIIA	NA	0	19 (alive)
23	2023	Dickhoff C (27)	56	M	cT2N2M0	IIIA	Sq	NA	ND	Durvalumab	1 (66 Gy)	ycT1bN0M0	IA2	Left pneumonectomy	Thoracotomy	245	500	0	BPF (grade V)	ypT2bN0M0	IIA	NA	0	9 (dead)
24	2023	Dickhoff C (27)	57	M	cT3N2M0	IIIB	Sq	NA	ND	Durvalumab	1 (60 Gy)	ycT2aN0M0	IB	Right pneumonectomy	Thoracotomy	213	300	0	0	ypT2bN1M0	IIB	NA	0	5 (alive)
25	2023	Dickhoff C (27)	59	F	cT2bN3M0	IIIC	Ad	NA	ND	Durvalumab	1 (60 Gy)	ycT3N0M0	IIB	Left upper lobectomy (sleeve PA)	Thoracotomy	232	50	Pneumonitis, dermatitis	0	ypT3N0M0	IIB	NA	0	5 (alive)
26	2023	Dickhoff C (27)	73	F	cT1N2M0	IIIA	Sq	NA	ND	Durvalumab	1 (60 Gy)	ycT2aN0M0	IB	Right upper lobectomy	Thoracotomy	298	150	Pneumonitis	0	ypT3N0M0	IIB	NA	0	4 (alive)
27	2023	Dickhoff C (27)	67	M	cT2N2M0	IIIA	Sq	NA	ND	Durvalumab	1 (60 Gy)	ycT3N0M0	IIB	Right lower lobectomy	Thoracotomy	358	400	Malaise	0	ypT3N2M0	IIB	NA	0	2 (alive)
28	2023	Dickhoff C (27)	74	M	cT4N0M0	IIIA	Sq	NA	ND	Durvalumab	1 (55 Gy)	ycT3N0M0	IIB	Right middle lower lobectomy	Thoracotomy	Unknown	Unknown	0	0	ypT4N0M0	IIIA	NA	0	1 (alive)
29	2023	Nakagami C (28)	62	M	cT4N2M0	IIIB	Sq	1	CBDCa + nabPTX	Pembrolizumab	0	ycT2bN0M0	IIA	Right lower lobectomy	ND	Unknown	Unknown	Hypoadrenocorticism and hypothyroidism (grade II)	0	ypT1miN0M0	IAI	MPR (residual 5%)	0	11 (alive)
30	2023	Hong G (29)	61	M	cT4N3M1c	IVB	LCNEC + Ad	SP142: 40; SP263: 90	Pembrolizumab	Pembrolizumab	0	ND	ND	Right lower segmentectomy	ND	Unknown	Unknown	0	0	ND	ND	NA	0	12 (alive)
31	2024	Goto E (30)	64	F	cT4N1M1c	IVB	Sq	95	ND	Pembrolizumab	1	ycT1bN1M1c	IVB	Right pneumonectomy	Thoracotomy	Unknown	Unknown	ND	0	ypT1bN2M1c	IVB	NA	0	24 (dead)
32	2024	Goto E (30)	51	F	cT3N0M1b	IVA	Ad	30	ND	Nivolumab	0	ycT3N0M1b	IVA	Left lower lobectomy	Thoracotomy	Unknown	Unknown	ND	Wound infection (grade II)	ypT3N0M1b	IVA	NA	0	15 (death)
33	2024	Goto E (30)	64	F	cT3N2M1b	IVA	AdSq	60	ND	Pembrolizumab	0	ycT3N2M1b	IVA	Right middle and lower lobectomy(sleeve)	Thoracotomy	120	150	ND	Arrythmia (grade II)	ypT3N2M0	IIIB	NA	0	32 (alive)
34	2024	Goto E (30)	45	M	cT3N2M0	IIIB	Ad	0	ND	Nivolumab	1	ycT3N0M0	IIB	Right upper lobectomy (sleeve)	Thoracotomy	300	400	ND	Prolonged air leakage (grade III)	ypT3N0M0	IIB	NA	0	31 (dead)
35	2024	Goto E (30)	69	M	cT2aN1M1b	IVA	Ad	75	ND	Nivolumab	0	ycT2aN1M0	IIB	Right upper lobectomy	Thoracotomy	180	300	ND	Prolonged air leakage (grade III)	ypT2aN0M0	IB	NA	0	8 (alive)
36	2024	Goto E (30)	74	M	cT2bN2M0	IIIA	Sq	50	ND	Pembrolizumab	1	ycT2aN2M0	IIIA	Right middle and lower lobectomy	Thoracotomy	70	50	ND	Prolonged air leakage (grade III)	ypT2aN0M0	IB	NA	0	43 (alive)
37	2024	Goto E (30)	59	M	cT2aN3M0	IIIB	Sq	40	ND	Durvalumab	1	ycT2aN2M0	IIIA	Right pneumonectomy	Thoracotomy	130	100	ND	Anastomosis failure (grade V)	ypT2aN1M0	IIB	NA	0	1 month (dead)
38	2024	Goto E (30)	72	M	cT4N3M0	IIIC	Sq	70	ND	Durvalumab	1	ycT3N1M0	IIIA	Right pneumonectomy (sleeve)	Thoracotomy	65	10	ND	Respiratory failure (grade IV)	ypT2bN0M0	IIA	NA	0	6 (dead)
39	2024	Goto E (30)	63	F	cT2aN2M0	IIIA	Ad	30	ND	Durvalumab	1	ycT2aN0M0	IB	Right middle and lower lobectomy	Thoracotomy	Unknown	Unknown	ND	0	ypT2aN0M0	IB	NA	0	10 (alive)
40	2024	Goto E (30)	65	F	cT2bN0M1b	IVA	Sq	65	ND	Pembrolizumab	0	ycT2aN0M1b	IVA	Right S6 segmentectomy	Thoracotomy	Unknown	Unknown	ND	0	ypT2aN0M1b	IVA	NA	0	11 (dead)
41	2024	Goto E (30)	62	F	cT2aN3M0	IIIB	Sq	0	ND	Durvalumab	1	ycT3N0M0	IIB	Right pneumonectomy (sleeve)	Thoracotomy	Unknown	Unknown	ND	0	ypT3N2M0	IIIB	NA	0	12 (alive)
42	2024	Goto E (30)	67	M	cT4N2M0	IIIB	Sq	NA	ND	Durvalumab	1	ycT2aN2M0	IIIB	Right pneumonectomy (sleeve)	Thoracotomy	272	800	ND	Wound infection (grade II)	ypT4N0M0	IIIA	NA	0	7 (alive)
43	2024	Goto E (30)	66	M	cT3N2M0	IIIB	Sq	80	ND	Durvalumab	1	ycT3N2M0	IIB	Left upper lobectomy (sleeve)	Thoracotomy	Unknown	Unknown	ND	0	ypT2aN0M0	IB	NA	0	5 (alive)
44	2024	Xu M (31)	58	M	cT4N1M1b	IVA	Sq	70	CCDP + nabPTX	Pembrolizumab	0	ND	ND	Left lower lobectomy	VATS	Unknown	Unknown	Immunosuppression (grade IV)	0	ypT0N0M0	0	3 (pCR)	1 (pembrolizumab alone)	10 (alive)
45	2024	Manabe T (32)	53	M	cT3N3M0	IIIC	Ad	30	CDDP + VNR	Durvalumab	1 (60 Gy)	ycT1bN0M0	IB	Left upper lobectomy with chest wall resection	Thoracotomy	Unknown	Unknown	0	Pulmonary embolism (grade I)	ypT0N0M0	0	3 (pCR)	0	7 (alive)
46	2025	Ustumi T (33)	71	F	cT3N2M1c	IVB	Sq	NA	CBDCa + nabPTX	Pembrolizumab	1 (Th12 40 Gy)	ycT1cN0M0	IA3	Right upper lobectomy	VATS	Unknown	Unknown	0	0	ypT0N0M0	0	3 (pCR)	0	18 (alive)

Giant, giant cell carcinoma; Ad, adenocarcinoma; Sq, squamous cell carcinoma; Large, large cell carcinoma; AdSq, adenosquamous cell carcinoma; LCNEC, large cell neuroendocrine carcinoma; NSCLC, non-small cell lung cancer; ND, no data; CDDP, cisplatin; CBDCa, carboplatin; VNR, vinorelbine; nab PTX, nanoparticle albumin-bound paclitaxel; GEM, gemcitabine; S1, tegafur, gimeracil, oteracil potassium; VATS, video-assisted thoracoscopic surgery; NA, not analysis; MPR, major pathological response; PD-L1, Programmed death-ligand 1.