

Supplementary Table 1 Univariate and multivariate cox regression analysis of local tumor progression-free survival

Variables	Univariate Analysis		Multivariate Analysis	
	HR (95%CI)	P	HR (95%CI)	P
Sex (male)	1.207 (0.680, 2.143)	0.520		
Age (years)	0.984 (0.956, 1.013)	0.268		
BMI (kg/m ²)	0.977 (0.898, 1.062)	0.585		
Primary tumor (ref. rectum)		0.012		
- Transverse colon	0.752 (0.329, 1.719)	0.499		
- Descending colon	0.606 (0.206, 1.783)	0.363		
- Sigmoid colon	0.691 (0.161, 2.965)	0.619		
- Ascending colon	2.689 (1.366, 5.294)	0.004		
Pneumoresection	1.534 (0.688, 3.420)	0.295		
CEA > 20 ng/mL	2.245 (1.145, 4.401)	0.019	2.184 (1.102, 4.328)	0.025
CA125 > 35 U/mL	1.343 (0.417, 4.322)	0.621		
CA19-9 > 37 U/mL	1.647 (0.798, 3.402)	0.177		
MWA (ref. RFA)	0.885 (0.500, 1.567)	0.676		
Tumor number (ref. 1)		<0.001		<0.001
- 2 tumors	5.391 (1.789, 16.248)	0.003	4.419 (1.436, 13.598)	0.010
- 3 tumors	16.863 (5.812, 48.927)	<0.001	9.607 (3.129, 29.498)	<0.001
- 4 tumors	13.709 (3.850, 48.817)	<0.001	11.140 (3.062, 40.530)	<0.001
Laterality (ref. bilateral)		0.088		
- Left lung	0.148 (0.030, 0.742)	0.020		

- Right lung	0.223 (0.068, 0.727)	0.013		
Lung zone (ref. multiple)		0.013		
- Inner zone	0.284 (0.085, 0.949)	0.041		
- Middle zone	0.350 (0.149, 0.819)	0.016		
- Outer zone	0.433 (0.227, 0.825)	0.011		
Tumor size > 3 cm	6.373 (3.591, 11.311)	<0.001	3.367 (1.830, 6.195)	<0.001
Perivascular tumors	1.307 (0.667, 2.563)	0.436		
Peribronchial tumors	1.518 (0.756, 3.046)	0.241		
Near mediastinal pleura	1.800 (0.918, 3.531)	0.087		
Near parietal pleura	1.665 (0.941, 2.945)	0.080		
Peridiaphragmatic tumors	3.844 (1.998, 7.398)	<0.001	4.447 (2.277, 8.692)	<0.001
Near interlobar fissure	1.363 (0.760, 2.446)	0.299		

Note: LTPFS, local tumor progression-free survival; BMI, body mass index; CEA, carcinoembryonic antigen; CA125, cancer antigen 125; CA19-9, carbohydrate antigen 19-9; MWA, microwave ablation; RFA, radiofrequency ablation.

Supplementary Table 2 Univariate and multivariate cox regression analysis of progression-free survival

Variables	Univariate Analysis		Multivariate Analysis	
	HR (95%CI)	P	HR (95%CI)	P
Sex (male)	0.962	(0.747, 0.761)		

	1.237)					
Age (years)	1.006	(0.993,	0.396			
	1.017)					
Pneumoresection	0.963	(0.642,	0.855			
	1.445)					
Primary tumor (ref. rectum)			0.011			
- Transverse colon	0.996	(0.591,	0.987			
	1.679)					
- Descending colon	0.859	(0.581,	0.448			
	1.271)					
- Sigmoid colon	0.698	(0.493,	0.042			
	0.987)					
- Ascending colon	1.447	(1.034,	0.031			
	2.026)					
Extrapulmonary metastasis (ref. none)			<0.001			0.001
- Liver	1.535	(1.128,	0.006	1.449	(1.064,	0.019
	2.087)			1.975)		
- Bone	1.575	(0.850,	0.149	1.256	(0.679,	0.459
	2.917)			2.355)		
- Abdominal cavity	2.466	(1.552,	<0.001	1.864	(1.163,	0.010
	3.920)		1	2.988)		
- Pelvic cavity	1.929	(1.147,	0.013	1.546	(0.911,	0.106
	3.243)			2.625)		
- Other conditions	2.930	(1.805,	<0.001	2.730	(1.675,	<0.001
	4.757)		1	4.449)		
Synchronous metastases	1.124	(0.848,	0.415			
	1.489)					

CEA > 20 ng/mL	1.146 1.643)	(0.798, 0.461			
CA19-9 > 37 U/mL	1.254 1.757)	(0.895, 0.189			
MWA (ref. RFA)	0.954 1.221)	(0.746, 0.711			
T-stage (ref. T1)			0.013		
- T2	2.865 7.641)	(1.074, 0.035			
- T3	2.998 7.431)	(1.209, 0.018			
- T4	3.935 9.885)	(1.566, 0.004			
Tumor differentiation (ref. well)			0.033		
- Poor	1.866 3.314)	(1.050, 0.033			
- Poor-to-moderate	1.498 2.447)	(0.918, 0.106			
- Moderate	1.495 2.305)	(0.969, 0.069			
- Moderate-to-well	1.003 1.624)	(0.619, 0.991			
Tumor size > 3 cm	1.781 2.368)	(1.340, <0.00			
		1			
Tumor number (ref. 1)		<0.00			<0.001
		1			
- 2 tumors	2.457 (1.799,3.356)	<0.00	2.235	(1.625, <0.001	
		1	3.073)		
- 3 tumors	3.010 4.246)	(2.133, <0.00	2.723	(1.916, <0.001	
		1	3.871)		

- 4 tumors	4.180	(2.645, 4.117	<0.001	6.628)
	6.606)		1	
Laterality (ref. bilateral)			0.247	
- Left lung	0.793	(0.537, 0.793	0.245	1.172)
- Right lung	0.723	(0.494, 0.723	0.096	1.060)
Lung field (ref. multiple)			0.265	
- Central	0.548	(0.234, 0.548	0.165	1.281)
- Peripheral	0.533	(0.250, 0.533	0.103	1.136)
Emphysema	0.973	(0.690, 0.973	0.878	1.374)
Perivascular tumors	0.865	(0.632, 0.865	0.364	1.183)
Peribronchial tumors	1.026	(0.732, 1.026	0.883	1.437)
Near mediastinal pleura	1.179	(0.849, 1.179	0.326	1.636)
Near parietal pleura	1.378	(1.077, 1.378	0.011	1.762)
Hilar lymph nodes (+)	0.832	(0.577, 0.832	0.323	1.199)
Mediastinal lymph nodes (+)	1.716	(1.254, 1.716	<0.001	2.348)
DFI (<24 months)	1.121	(0.877, 1.121	0.362	1.432)
Interval between	1.017	(0.791, 1.017	0.898	

primary resection and IGTA (<24 months)	1.306)		
Peridiaphragmatic tumors	1.181	(0.776, 0.437	1.800)
Near interlobar fissure	1.203	(0.929, 0.160	1.558)

Note: PFS, progression-free survival; CEA, carcinoembryonic antigen; CA19-9, carbohydrate antigen 19-9; MWA, microwave ablation; RFA, radiofrequency ablation; DFI, disease-free interval from primary resection to the diagnosis of liver metastasis; IGTA, image-guided thermal ablation.

Supplementary Table 3 Univariate and multivariate cox regression analysis for overall survival

Variables	Univariate Analysis		Multivariate Analysis	
	HR (95%CI)	P	HR (95%CI)	P
Sex (male)	1.037	(0.765, 0.815		
	1.407)			
Age (years)	1.010	(0.995, 0.176		
	1.026)			
Pneumoresection	1.026	(0.630, 0.918		
	1.671)			
Primary tumor (ref. rectum)		<0.001		
- Transverse colon	0.793	(0.411, 0.488		
	1.529)			
- Descending colon	0.471	(0.274, 0.006		
	0.807)			
- Sigmoid colon	0.540	(0.349, 0.006		
	0.837)			
- Ascending colon	1.509	(1.033, 0.033		

	2.204)					
Extrapulmonary metastasis (ref. none)			<0.00			<0.00
			1			1
- Liver	1.254	(0.830,	0.283	1.300	(0.853,	0.222
	1.894)			1.980)		
- Bone	4.531	(2.506,	<0.00	4.538	(2.445,	<0.00
	8.192)		1	8.425)		1
- Abdominal cavity	5.019	(3.055,	<0.00	4.813	(2.839,	<0.00
	8.247)		1	8.157)		1
- Pelvic cavity	2.920	(1.675,	<0.00	3.105	(1.744,	<0.00
	5.247)		1	5.526)		1
- Other conditions	7.066	(4.202,	<0.00	5.230	(2.887,	<0.00
	11.882)		1	9.477)		1
Synchronous metastases	1.644	(1.198,	0.002			
	2.257)					
CEA > 20 ng/mL	1.053	(0.673,	0.822			
	1.646)					
CA19-9 > 37 U/mL	1.816	(1.246,	0.002	1.592	(1.070,	0.022
	2.646)			2.368)		
MWA (ref. RFA)	0.727	(0.540,	0.035			
	0.978)					
T-stage (ref. T1)			0.701			
- T1	1.297	(0.469,	0.616			
	3.584)					
- T2	1.544	(0.616,	0.346			
	3.811)					
- T3	1.601	(0.638,	0.316			
	4.013)					
Tumor differentiation			0.006			0.001

(ref. well)						
- Poor	2.980	(1.560,	0.001	2.769	(1.389,	0.004
	5.695)			5.521)		
- Poor-to-moderate	1.354	(0.744,	0.322	0.817	(0.434,	0.532
	2.465)			1.540)		
- Moderate	1.225	(0.721,	0.453	1.119	(0.623,	0.700
	2.081)			1.983)		
- Moderate-to-well	1.451	(0.818,	0.202	1.789	(0.985,	0.056
	2.574)			3.248)		
Tumor size > 3 cm	2.656	(1.920,	<0.00	1.446	(0.958,	0.020
	3.674)		1	2.182)		
Tumor number (ref.			<0.00			<0.00
1)			1			1
- 2 tumors	1.737	(1.171,	0.006	1.446	(0.958,	<0.00
	2.575)			2.182)		1
- 3 tumors	3.647	(2.462,	<0.00	2.561	(1.656,	<0.00
	5.402)		1	3.961)		1
- 4 tumors	3.032	(1.774,	<0.00	2.137	(1.199,	<0.00
	5.182)		1	3.811)		1
Laterality (ref.			<0.00			
bilateral)			1			
- Left lung	0.391	(0.253,	<0.00			
	0.604)		1			
- Right lung	0.426	(0.281,	<0.00			
	0.646)		1			
Lung field (ref.			0.166			
multiple)						
- Central	0.469	(0.191,	0.098			
	1.151)					
- Peripheral	0.483	(0.226,	0.060			
	1.031)					

Emphysema	1.092 1.647)	(0.724, 0.674			
Perivascular tumors	1.171 1.691)	(0.811, 0.400			
Peribronchial tumors	1.317 1.933)	(0.898, 0.159			
Near mediastinal pleura	1.591 2.307)	(1.098, 0.014			
Near parietal pleura	1.046 1.410)	(0.777, 0.766			
Hilar lymph nodes (+)	1.184 1.774)	(0.790, 0.413			
Mediastinal lymph nodes (+)	2.336 3.305)	(1.652, <0.00			
DFI (<24 months)	1.751 2.362)	(1.298, <0.00			
Interval between primary resection and IGTA (<24 months)	1.661 2.237)	(1.233, 0.001			
ITGA timing (vs. none)			0.012		0.015
- Delayed ablation	0.670 0.966)	(0.465, 0.032	0.684	(0.466, 0.052	
- Synchronous ablation	0.551 0.869)	(0.349, 0.010	0.491	(0.299, 0.005	
- Upfront ablation	0.546 0.844)	(0.353, 0.006	0.550	(0.347, 0.011	
Peridiaphragmatic tumors	1.308 2.107)	(0.812, 0.269			
Near interlobar fissure	1.320 1.801)	(0.968, 0.079			

Note: OS, overall survival; CEA, carcinoembryonic antigen; CA19-9, carbohydrate antigen 19-9; MWA, microwave ablation; RFA, radiofrequency ablation; DFI, disease-free interval from primary resection to the diagnosis of liver metastasis; IGTA, image-guided thermal ablation.