

Figure S1 Study flow chart.

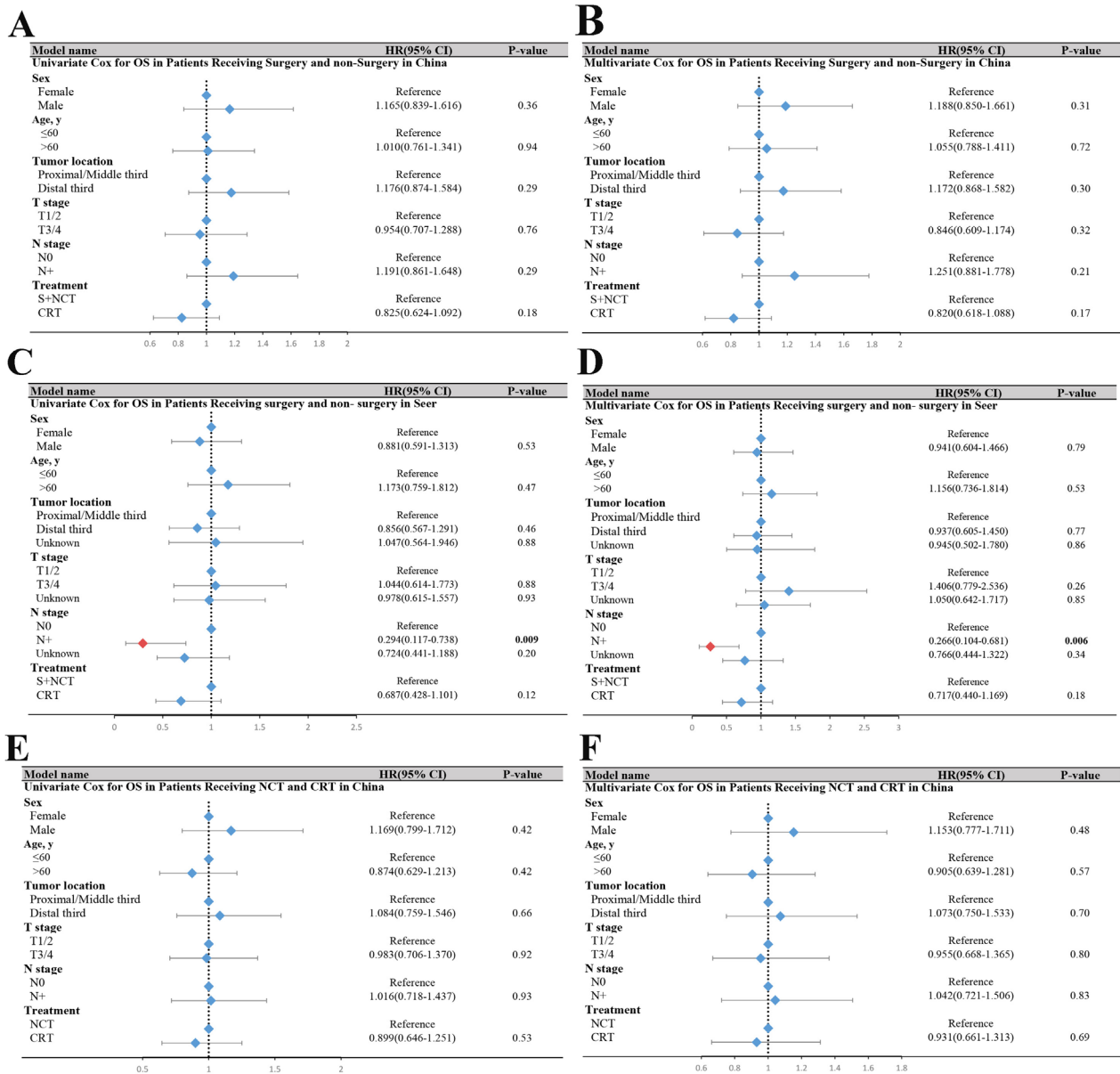


Figure S2 Forest plot for univariate and multivariate Cox regression analyses. (A,B) Univariate and multivariate Cox regression analyses of S + NCT vs. CRT in China. (C,D) Univariate and multivariate Cox regression analyses of surgery vs. non-surgery in SEER database. (E,F) Univariate and multivariate Cox regression analyses of NCT vs. CRT in China.

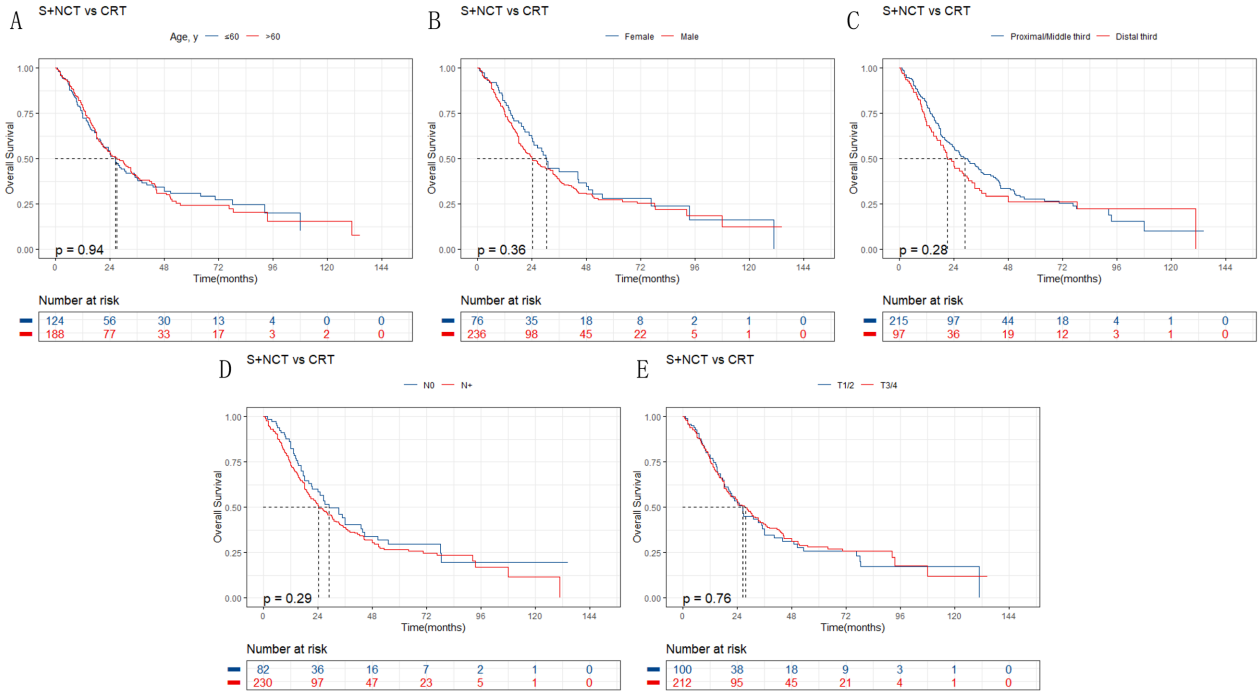


Figure S3 Survival analysis of patients receiving surgery and non-surgery after PSM.

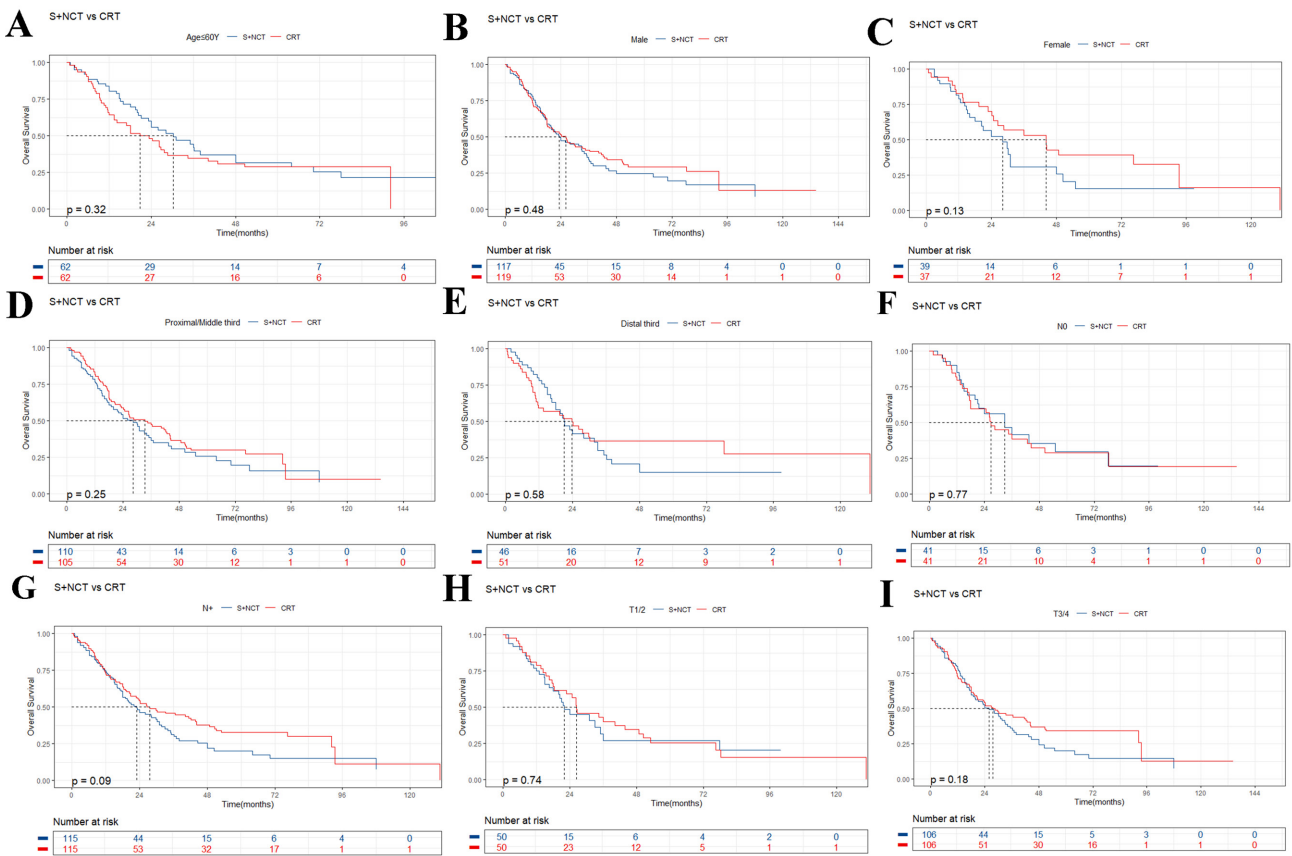


Figure S4 Survival analysis of patients receiving surgery and non-surgery stratified according to different clinical characteristics after PSM.

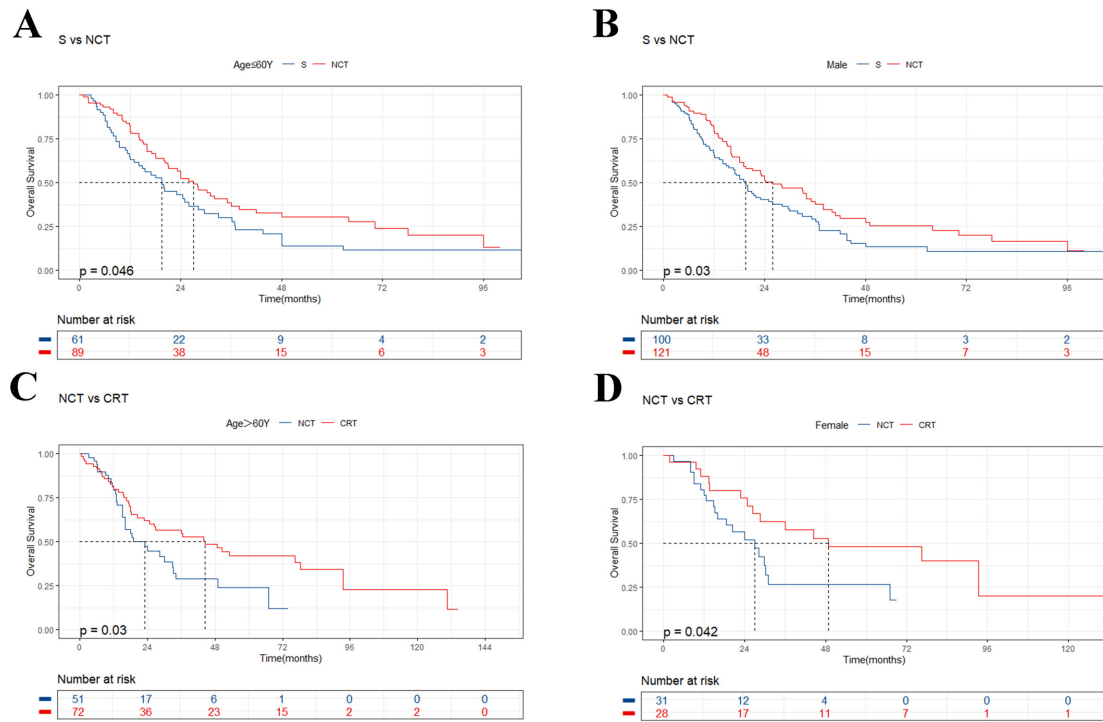


Figure S5 Survival analysis stratified according to different clinical characteristics. (A,B) Kaplan-Meier curves for patients aged ≤ 60 years and male patients in the upfront surgery *vs.* NCT groups; (C,D) Kaplan-Meier curves for patients aged > 60 years and female patients in the NCT *vs.* CRT groups after PSM.

Table S1 Clinical and tumor characteristics of patients with LS-SCCE receiving surgery and non-surgery in SEER

Characteristics	Non-surgery (n=99)	Surgery (n=29)	P
Sex, n (%)			0.12
Female	36 (36.4)	6 (20.7)	
Male	63(63.6)	23 (79.3)	
Age, years, n (%)			0.02
≤ 60	23(23.2)	13 (44.8)	
> 60	76 (76.8)	16 (55.2)	
Tumor location, n (%)			0.36
Proximal/middle third	42(42.4)	10 (34.5)	
Distal third	44 (44.4)	17 (58.6)	
Unknown	13(13.1)	2 (6.9)	
T, n (%)			0.88
T1/2	22 (22.2)	7 (24.1)	
T3/4	24 (24.2)	8 (27.6)	
Unknown	53 (53.5)	14 (48.3)	
N, n (%)			0.81
N0	15 (15.2)	5 (17.2)	
N+	8 (8.1)	3 (10.3)	
Unknown	76 (76.8)	21 (72.4)	

LS-SCCE, limited-stage small cell carcinoma of the esophagus; SEER, Surveillance, Epidemiology, and End Results.

Table S2 mOS for clinical characteristics of patients with LS-SCCE receiving surgery and non-surgery in China

Characteristics	S + NCT	CRT	P
Age, years			
≤60	30.2 (17.0–43.4)	20.7 (11.4–30.0)	0.32
>60	20.9 (15.4–26.4)	36.0 (19.9–52.1)	0.007
Sex			
Female	28.3 (15.8–40.8)	44.2 (24.4–63.9)	0.13
Male	23.2 (13.0–33.4)	26.2 (18.2–34.2)	0.48
Tumor location			
Proximal/middle third	28.3 (21.0–35.6)	33.3 (20.1–46.4)	0.25
Distal third	20.9 (16.1–25.7)	23.8 (8.9–38.7)	0.58
T stage			
T1/2	22.0 (11.7–32.3)	26.4 (15.3–37.5)	0.74
T3/4	26.0 (17.7–34.3)	27.6 (16.2–39.1)	0.18
N stage			
N0	33.0 (17.9–48.1)	26.9 (21.5–32.2)	0.77
N+	23.0 (16.7–29.3)	27.6 (15.9–39.3)	0.09

Data are presented as mOS (95% CI), measured in months.

Table S3 Clinical and tumor characteristics of patients with LS-SCCE receiving upfront surgery and NCT in China

Characteristics	S (n=141)	NCT (n=171)	P
Sex, n (%)			>0.99
Female	41 (29.1)	50 (29.2)	
Male	100 (70.9)	121 (70.8)	
Age, years, n (%)			0.15
≤60	61 (43.3)	89 (52.0)	
>60	80 (56.7)	82 (48.0)	
Tumor location, n (%)			0.25
Proximal/middle third	101 (71.6)	111 (64.9)	
Distal third	40 (28.4)	60 (35.1)	
T, n (%)			0.27
T1/2	74 (52.5)	78 (45.6)	
T3/4	67 (47.5)	93 (54.4)	
N, n (%)			0.55
N0	57 (40.4)	76 (44.4)	
N+	84 (59.6)	95 (55.6)	

Table S4 mOS for clinical characteristics in patients with LS-SCCE receiving upfront surgery and NCT in China

Characteristics	S	NCT	P
Age, years			
≤60	19.6 (12.2–27.0)	27.0 (20.6–33.3)	0.046
>60	20.0 (16.3–23.7)	24.1 (11.4–36.8)	0.49
Sex			
Female	20.9 (6.9–34.9)	27.0 (16.9–37.1)	0.72
Male	19.5 (15.9–23.1)	26.0 (17.9–34.1)	0.03
Tumor location			
Proximal/middle third	20.0 (15.9–24.1)	28.0 (21.8–34.2)	0.13
Distal third	20.9 (18.2–23.6)	23.0 (13.7–32.3)	0.30
T stage			
T1/2	21.5 (16.1–26.9)	34.0 (21.4–46.6)	0.15
T3/4	19.0 (13.5–24.4)	24.0 (17.3–30.7)	0.19
N stage			
N0	20.0 (17.6–22.4)	28.0 (16.5–39.5)	0.27
N+	20.0 (14.5–25.5)	26.0 (20.3–31.7)	0.13

Data are presented as mOS (95% CI), measured in months.

Table S5 Clinical and tumor characteristics of patients with LS-SCCE receiving NCT and CRT in China

Characteristics	Before matching			After matching		
	NCT (n=171)	CRT (n=171)	P	NCT (n=120)	CRT (n=120)	P
Sex, n (%)			0.63			0.76
Female	50 (29.2)	45 (26.3)		31 (25.8)	28 (23.3)	
Male	121 (70.8)	126 (73.7)		89 (74.2)	92 (76.7)	
Age, years, n (%)			0.005			0.01
≤60	89 (52.0)	62 (36.3)		69 (57.5)	48 (40.0)	
>60	82 (48.0)	109 (63.7)		51 (42.5)	72 (60.0)	
Tumor location, n (%)			0.57			0.58
Proximal/middle third	111 (64.9)	117 (68.4)		78 (65.0)	83 (69.2)	
Distal third	60 (35.1)	54 (31.6)		42 (35.0)	37 (30.8)	
T, n (%)			0.003			>0.99
T1/2	78 (45.6)	50 (29.2)		50 (41.7)	50 (41.7)	
T3/4	93 (54.4)	121 (70.8)		70 (58.3)	70 (58.3)	
N, n (%)			<0.001			>0.99
N0	76 (44.4)	41 (24.0)		41 (34.2)	41 (34.2)	
N+	95 (55.6)	130 (76.0)		79 (65.8)	79 (65.8)	

Table S6 mOS for clinical characteristics in patients receiving NCT and CRT in China

Characteristics	NCT	CRT	P
Age, years			
≤60	28.1 (22.3–33.9)	20.7 (5.8–35.7)	0.19
>60	23.0 (13.6–32.4)	44.5 (20.2–68.8)	0.03
Sex			
Female	27.0 (16.2–37.8)	48.8 (1.0–96.7)	0.04
Male	28.0 (18.5–37.5)	23.4 (15.2–31.6)	0.83
Tumor location			
Proximal/middle third	29.9 (24.6–35.2)	26.9 (14.6–39.1)	0.78
Distal third	21.2 (14.2–28.2)	27.6 (0.0–79.5)	0.74
T stage			
T1/2	35.0 (20.9–49.1)	26.4 (15.3–37.5)	0.63
T3/4	24.1 (18.6–29.6)	27.6 (4.4–50.8)	0.30
N stage			
N0	33.0 (18.5–47.5)	26.9 (21.5–32.2)	0.96
N+	26.0 (20.6–31.4)	27.6 (6.4–48.9)	0.49

Data are presented as mOS (95% CI), measured in months.

Table S7 Summary of clinical studies on small cell carcinoma of esophagus in the last 10 years

Author	Year	Data source	Sample Size	VASLG stage	Treatments and Clinical end points [OS rate (%) or MST (month)]	P
Chen <i>et al.</i> (22)	2023	China	704	LS and ES	LS: CMT (36.7%) > RT/CT (32.2%) > S (25.6%)*	0.045
					ES: RT (19.4%) > CT (12.2%) > RT + CT (11.1%)*	0.40
Zhu <i>et al.</i> (21)	2024	China	458	LS	CT + RT (43.9%) = CT + S (38.4%) > CT (20.7%)*	0.01
Gu <i>et al.</i> (19)	2022	China	69	LS	I/IIA/IIB: CMT (S + AT, S + CRT) = S	0.06
					III: CMT (S + AT, S + CRT) > S	0.001
Sun <i>et al.</i> (23)	2022	China	544	LS	CMT (24.60) > CT (17.34)	0.001
Zhao <i>et al.</i> (27)	2021	China	129	LS	S + CT ± RT (26) = CRT (25)	0.75
Li <i>et al.</i> (29)	2021	SEER Database	162	LS and ES	CT+ RT (16.1%) > RT (0%)**	0.001
Cai <i>et al.</i> (26)	2022	China	280	LS	NCT + S (26) > S (19.5)	0.01
Xiao <i>et al.</i> (18)	2019	China and SEER Database	522	LS and ES	LS: S > Other	N/A
					ES: CT > Other	
Chen <i>et al.</i> (9)	2019	China	42	LS and ES	Radiation dose (≥ 56 Gy) > Radiation dose (<56 Gy)	0.03
					RT + CT > RT	0.046
Xu <i>et al.</i> (24)	2017	China	152	LS	S (39.0) > no-S (17.0)	0.003
					III: NCT + S (43.0) > S (23.0) > S + AT (22.0) > no-S (15.0)	N/A
Zou <i>et al.</i> (30)	2016	China	150	LS	LSII: S + CT (19.5) > S + CRT (15) > S (14)	0.05
Chen <i>et al.</i> (31)	2014	China	211	LS and ES	I/IIA: S (29) > no-S (17.4)	0.08
					IIB/III: CT (13.0) > no-CT (6.1)	0.003
Meng <i>et al.</i> (20)	2013	China	127	LS	RT + CT (33.0) > S + CT (17.5)	0.02
Ding <i>et al.</i> (28)	2013	China	106	LS	S + CT (26.0) > RT + CT (18.0) > RT (11.0) = S (11.0)	N/A
Kukar <i>et al.</i> (25)	2013	SEER Database	387	LS and ES	S (17) > no-S (7)	0.002
Hou <i>et al.</i> (12)	2013	China	141	LS	S + RT + CT (25) > S + RT (23) > S(18) > RT + CT (17.1) > S + CT (15) > CT(6.1)	0.02

*, 3-year OS rate; **, 5-year OS rate. VASLG, Veterans' Administration Lung Study Group; OS, overall survival; MST, median survival time; LS, limited stage; ES, extensive stage; CMT, combined modality therapy; RT, radiotherapy; CT, chemotherapy; S, surgery; AT, adjuvant chemotherapy; CRT, chemoradiation; NCT, neoadjuvant chemotherapy; LSII, limited stage II individuals with T3–4N0M0 or T1–4N1–2M0.