

Table S1 MRI parameters from different centers

Parameter	Scanner	TR (ms)	TE (ms)	FOV (mm)	Matrix (pixels)	Slice thickness (mm)	Pixel size (mm)
T2W							
Qingchun center	GE Signa Excite 1.5T	2,342–7,700	40–85	240×240	512×512	3.5	0.4688×0.4688
Yuhang center	GE Architect 3.0T	3,000–6,453	65–87	260×260	512×512	4	0.5078×0.5078
Zhijiang center	GE Architect 3.0T	3,000–6,453	65–87	260×260	512×512	4	0.5078×0.5078
T1W							
Qingchun center	GE Signa Excite 1.5T	603–669	13–22	240×240	512×512	3.5	0.4688×0.4688
Yuhang center	GE Architect 3.0T	616–714	14–26	260×260	512×512	4.5	0.5078×0.5078
Zhijiang center	GE Architect 3.0T	616–714	14–26	260×260	512×512	4.5	0.5078×0.5078

MRI, magnetic resonance imaging; TR, time of repeat; TE, time of echo; FOV, field of view; T2W, T2-weighted; T1W, T1-weighted.

Table S2 The clinical baseline characteristics of cCR and non-cCR in the whole population

Characteristics	cCR (n=73)	Non-cCR (n=168)	P value
Age (mean \pm SD, years)	61.59 \pm 11.02	62.85 \pm 9.71	0.16
Sex			0.59
Male	59	130	
Female	14	38	
Location of tumor			0.82
Low	21	49	
Middle	40	89	
High	12	30	
T stage			0.82
T2	0	1	
T3	54	110	
T4	19	57	
N stage			0.59
N0	4	10	
N1	40	91	
N2	27	56	
N3	2	11	
EMVI*			0.001
+	37	123	
-	36	45	
CRM			0.054
+	27	92	
-	46	76	
Lateral lymph node			0.82
+	30	67	
-	43	101	
CEA (ng/mL)			0.09
\leq 5	44	81	
>5	29	87	
CA199 (U/mL)			0.28
\leq 37	61	144	
>37	12	24	
SII (mean \pm SD)	628.92 \pm 253.79	716.97 \pm 513.76	0.24

*, $P \leq 0.05$, which is considered statistically significant difference. cCR, clinical complete response; SD, standard deviation; EMVI, extramural vascular invasion; CRM, circumferential resection margin; CEA, carcinoembryonic antigen; CA199, carbohydrate antigen 199; SII, systemic immune-inflammation index.

Table S3 The clinical baseline characteristics of pCR and non-pCR in the cCR population

Characteristics	pCR (n=73)	Non-pCR (n=168)	P value
Age (mean ± SD, years)	61.59±11.02	62.85±9.71	0.30
Sex			0.26
Male	59	130	
Female	14	38	
Location of tumor			0.71
Low	21	49	
Middle	40	89	
High	12	30	
T stage [*]			0.050
T2	0	1	
T3	54	110	
T4	19	57	
N stage			0.92
N0	4	10	
N1	40	91	
N2	27	56	
N3	2	11	
EMVI			0.23
+	37	123	
-	36	45	
CRM			0.31
+	27	92	
-	46	76	
Lateral lymph node			0.84
+	30	67	
-	43	101	
CEA (ng/mL)			0.75
≤5	44	81	
>5	29	87	
CA199 (U/mL)			0.07
≤37	61	144	
>37	12	24	
SII (mean ± SD)	628.92±253.79	716.97±513.76	0.35

^{*}, $P \leq 0.05$, which is considered statistically significant difference. pCR, pathological complete response; SD, standard deviation; EMVI, extramural vascular invasion; CRM, circumferential resection margin; CEA, carcinoembryonic antigen; CA199, carbohydrate antigen 199; SII, systemic immune-inflammation index.

Table S4 Features used for constructing models

Models	Features
Models for differentiating cCR	
Clinical model	
	EMVI
Radiomic model	
	T1_wavelet-HHL_gldm_DependenceEntropy
	T1_wavelet-LLL_glrIm_RunEntropy
	T2_original_glszm_SmallAreaLowGrayLevelEmphasis
	T2_original_glcm_SumEntropy
	T2_log-sigma-2-0-mm-3D_glszm_GrayLevelNonUniformityNormalized
Clinical-radiomic model	
	EMVI
	T1_wavelet-HHL_gldm_DependenceEntropy
	T1_wavelet-LLL_glrIm_RunEntropy
	T2_exponential_gldm_SmallDependenceLowGrayLevelEmphasis
	T2_original_glcm_SumEntropy
	T2_log-sigma-2-0-mm-3D_glszm_GrayLevelNonUniformityNormalized
Models for differentiating pCR	
Clinical model	
	T stage
Radiomic model	
	T1_wavelet-LLL_firstorder_Range
	T1_original_ngtdm_Complexity
	T2_wavelet-HLL_glszm_SizeZoneNonUniformity
	T2_wavelet-HHL_firstorder_Skewness
Clinical-radiomic model	
	T stage
	T1_wavelet-LLL_firstorder_Range
	T1_original_ngtdm_Complexity
	T2_wavelet-HLL_glszm_SizeZoneNonUniformity
	T2_wavelet-HHL_firstorder_Skewness

cCR, clinical complete response; EMVI, extramural vascular invasion; pCR, pathological complete response.