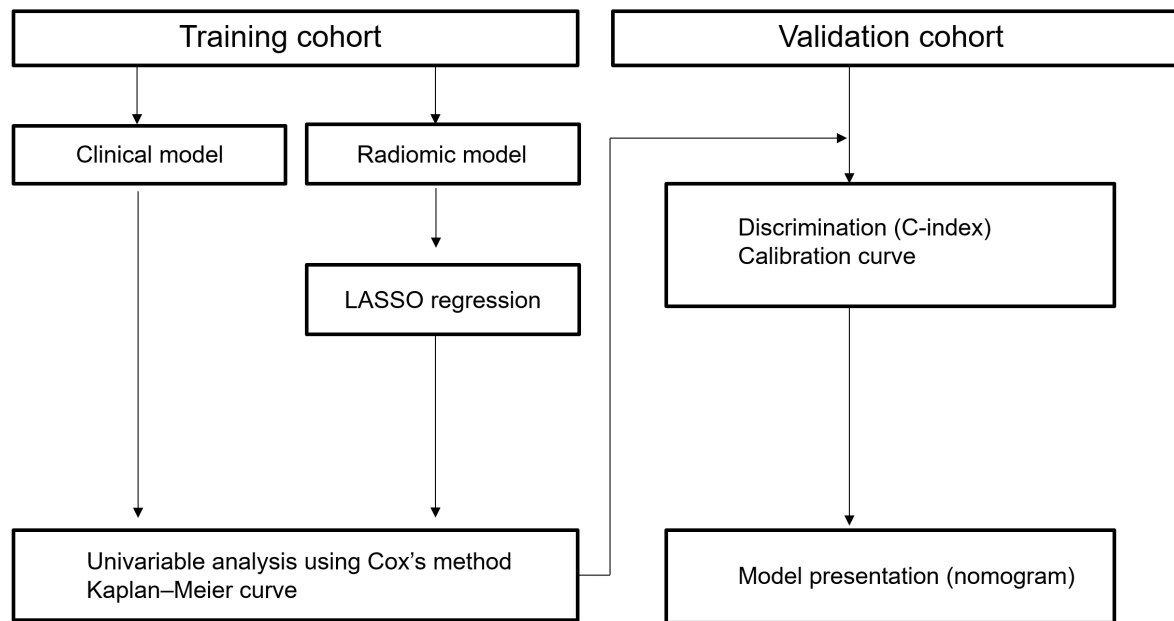


Supplementary Table S1. Radiomics features extracted from ^aCGITA.

Parent matrix of CGITA	Feature measure of CGITA
Co-occurrence	Second angular moment
Co-occurrence	Contrast
Co-occurrence	Entropy
Co-occurrence	Homogeneity
Co-occurrence	Dissimilarity
Co-occurrence	Inverse difference moment
Co-occurrence	Correlation
Normalized Co-occurrence	Second angular moment
Normalized Co-occurrence	Contrast
Normalized Co-occurrence	Entropy
Normalized Co-occurrence	Homogeneity
Normalized Co-occurrence	Dissimilarity
Normalized Co-occurrence	Inverse difference moment
SUV statistics	Minimum SUV
SUV statistics	Maximum SUV
SUV statistics	Mean SUV
SUV statistics	SUV Variance
SUV statistics	SUV SD
SUV statistics	SUV Skewness
SUV statistics	SUV Kurtosis

SUV statistics	SUV bias-corrected Skewness
SUV statistics	SUV bias-corrected Kurtosis
SUV statistics	TLG
SUV statistics	Tumor volume
SUV statistics	Entropy
SUV statistics	SULpeak
Texture Spectrum	Max spectrum
Texture Spectrum	Black–white symmetry
Texture Feature Coding	Coarseness
Texture Feature Coding	Homogeneity
Texture Feature Coding	Mean convergence
Texture Feature Coding	Variance
Texture Feature Coding Co-occurrence	Second angular moment
Texture Feature Coding Co-occurrence	Contrast
Texture Feature Coding Co-occurrence	Entropy
Texture Feature Coding Co-occurrence	Homogeneity
Texture Feature Coding Co-occurrence	Intensity
Texture Feature Coding Co-occurrence	Inverse difference moment
Texture Feature Coding Co-occurrence	Code Entropy
Texture Feature Coding Co-occurrence	Code Similarity

^aCGITA : Chang-Gung Image Texture Analysis



Supplementary Figure S1. Flow chart of the study design.

Predicting PFS:

Rad-score

= Normalized_Cooccurrence_Second_angular_moment * 0.0015226635

+ Cooccurrence_Correlation * 0.0091515752

+ SUV_statistics_SUV_Variance * 0.0031195177

Predicting OS:

Rad-score

= Cooccurrence_Contrast *-0.0041757495

+ SUV_statistics_SUV_Variance * 0.0013239587

+ SUV_statistics_SUV_Kurtosis *-0.0015628803

+ SUV_statistics_SUV_bias_corrected_Skewness * 0.0006349189

+ Texture_Feature_Coding_Cooccurrence_Second_angular_moment * 0.0005972383

Supplementary Figure S2. Rad-score formula.

Supplementary Table S2. The clinical data of risk-stratified groups according to ^aPFS model in training set.

Characteristic	Low-risk group (n=54)	High-risk group (n = 7)	p
Mean age, y	61.46 ± 9.24	60.41 ± 12.50	0.785
Sex			0.405
male	49 (91%)	7 (100%)	
female	5 (9%)	0 (0%)	
Smoking history			0.347
Ex/current smoker	46 (85%)	7 (100%)	
Never smoked	6 (12%)	0 (0%)	
N/A	2 (3%)	0 (0%)	
Cancer site			0.178
Larynx	32 (59%)	6 (86%)	
Hypopharynx	22 (41%)	1 (14%)	
Concurrent chemoradiotherapy			0.148
Yes	38 (70%)	3 (43%)	
No	16 (30%)	4 (57%)	
Induction chemotherapy			0.460
Yes	4 (7%)	0 (0%)	
No	50 (93%)	7 (100%)	
T stage			0.607

T1	8 (15%)	3 (43%)	
T2	26 (48%)	2 (29%)	
T3	14 (26%)	0 (0%)	
T4	6 (11%)	2 (29%)	
N stage			0.536
N0	25 (46%)	5 (71%)	
N1	16 (30%)	0 (0%)	
N2	13 (24%)	2 (29%)	
N3	0 (0%)	0 (0%)	
No. of progression			0.030
Yes	16 (30%)	5 (71%)	
No	38 (70%)	2 (29%)	

^aPFS: progression-free survival.

Supplementary Table S3. The clinical data of risk-stratified groups according to ^bOS model in training set.

Characteristic	Low-risk group (n=52)	High-risk group (n = 9)	P
Mean age, y	60.78 ± 9.46	64.58 ± 9.95	0.274
Sex			0.732
male	48 (92%)	8 (89%)	
female	4 (8%)	1 (11%)	
Smoking history			0.198
Ex/current smoker	46 (88%)	7 (78%)	
Never smoked	4 (8)	2 (12%)	
N/A	2 (4%)	0 (0%)	
Cancer site			0.654
Larynx	33 (63%)	5 (56%)	
Hypopharynx	19 (37%)	4 (44%)	
Concurrent chemoradiotherapy			0.468
Yes	34 (65%)	7 (78%)	
No	18 (35%)	2 (22%)	
Induction chemotherapy			0.553
Yes	3 (6%)	1 (11%)	
No	49 (94%)	8 (89%)	
T stage			0.042

T1	10 (19%)	1 (12%)	
T2	26 (50%)	2 (22%)	
T3	11 (21%)	3 (33%)	
T4	5 (10%)	3 (33%)	
N stage			0.336
N0	26 (50%)	4 (44%)	
N1	15 (29%)	1 (12%)	
N2	11 (21%)	4 (44%)	
N3	0 (0%)	0 (0%)	
No. of death			0.032
Yes	11 (21%)	5 (56%)	
No	41 (79%)	4 (44%)	

^bOS: overall survival.