Appendix 1 The formulas of model 3 that assess the risk probability of each type of lymphadenopathy

Logit (Risk $_{Benign\ LNs}$) = - 0.9540 × Vascular phase_original_shape_Maximum2DDiameterRow - 0.7413 × Vascular phase_original_shape_Elongation + 0.1429 × Vascular phase_wavelet- HLH_glszm_ZonePercentage + 1.3295 × Post-vascular phase_original_shape_Maximum2DDiameterRow - 0.0996 × Pre-vascular phase_original_shape_Maximum2DDiameterRow + 0.6128 × Vascular phase_logarithm_glszm_SizeZoneNonUniformity + 0.6049 × Post-vascular phase_wavelet- HHL_glszm_ZonePercentage + 0.3094 × Vascular phase_wavelet- HHL_glszm_ZonePercentage - 0.3993 × Post-vascular phase_original_shape_Sphericity + 0.2815 × Vascular phase_wavelet- HLH_glszm_SizeZoneNonUniformity - 0.1745 × Pre-vascular phase_original_shape_Elongation - 0.6080 × Vascular phase_original_glszm_GrayLevelNonUniformity - 0.6071 × Vascular phase_wavelet- HHL_glszm_SmallAreaHighGrayLevelEmphasis + 0.3259 × Vascular phase_wavelet- HHH_glszm_ZonePercentage + 0.8633 × Vascular phase_wavelet- HHL_glszm_SizeZoneNonUniformity - 0.3535 × Vascular phase_wavelet- HHH_glszm_GrayLevelNonUniformity - 0.4241 × Vascular phase_original_glrlm_GrayLevelNonUniformity - 0.4294 × Pre-vascular phase_original_shape_Sphericity - 0.4365 × logarithm_glszm_SizeZoneNonUniformity + 0.5269 × Vascular phase_wavelet- HLL_glrlm_RunEntropy + 0.3895 × Vascular phase_gradient_firstorder_90Percentile + 0.5599 × Pre-vascular phase_logarithm_glrlm_GrayLevelNonUniformity + 0.9145 × Pre-vascular phase_lbp- 3D- k_glrlm_RunEntropy - 1.1000 × wavelet-HLH_glszm_LargeAreaHighGrayLevelEmphasis - 0.4989 × Vascular phase_lbp- 3D- k_glszm_LargeAreaHighGrayLevelEmphasis - 0.5232 × Post-vascular phase_original_firstorder_10Percentile + 0.2427 × exponential_glrlm_ShortRunEmphasis + 0.2616 × Vascular phase_wavelet- HLL_gldm_SmallDependenceLowGrayLevelEmphasis - 0.0483 × Pre-vascular phase_wavelet- HLH_glszm_LargeAreaHighGrayLevelEmphasis + 0.1554 × Vascular phase_wavelet- HLL_glszm_ZonePercentage + 0.1236 × Pre-vascular phase_wavelet- HLL_firstorder_10Percentile - 0.1263 × Vascular phase_exponential_firstorder_10Percentile - 0.3415 × Vascular phase_wavelet- HHH_gldm_SmallDependenceHighGrayLevelEmphasis - 0.4451 × Post-vascular phase_wavelet- HHL_glszm_ZoneEntropy - 0.4780 × Peripheral vascularity (0/1) - 0.2570 × Hyper- enhancement intensity (0/1) - 0.2091 × Vascular phase_wavelet- LHH_firstorder_10Percentile - 0.0054 × Heterogeneous (0/1) + 0.5083 × Wash- in time - 0.8102 × Wash- out time - 1.4332

Logit (Risk $_{Lymphoma}$) = 0.8283 × Vascular phase_original_shape_Maximum2DDiameterRow - 0.1331 × Vascular phase_original_shape_Elongation - 0.0241 × Vascular phase_wavelet- HLH_glszm_ZonePercentage - 0.6400 × Post-vascular phase_original_shape_Maximum2DDiameterRow + 0.6757 × Pre-vascular phase_original_shape_Maximum2DDiameterRow - 1.2019 × Vascular phase_logarithm_glszm_SizeZoneNonUniformity - 0.2820 × Post-vascular phase_wavelet- HHL_glszm_ZonePercentage - 0.7261 × Vascular phase_wavelet- HHL_glszm_ZonePercentage + 0.2734 × Post-vascular phase_original_shape_Sphericity + 0.7029 × Vascular phase_wavelet- HLH_glszm_SizeZoneNonUniformity - 0.0484 × Pre-vascular phase_original_shape_Elongation + 0.2210 × Vascular phase_original_glszm_GrayLevelNonUniformity - 0.0493 × Vascular phase_wavelet- HHL_glszm_SmallAreaHighGrayLevelEmphasis - 0.1947 × Vascular phase_wavelet- HHH_glszm_ZonePercentage - 0.1504 × Vascular phase_wavelet- HHL_glszm_SizeZoneNonUniformity + 0.1324 × Vascular phase_wavelet- HHH_glszm_GrayLevelNonUniformity + 0.2217 × Vascular phase_original_glrlm_GrayLevelNonUniformity - 0.0374 × Pre-vascular phase_original_shape_Sphericity + 0.2510 × Post-vascular phase_logarithm_glszm_SizeZoneNonUniformity - 0.5363 × Vascular phase_wavelet- HLL_glrlm_RunEntropy + 0.0989 × Vascular phase_gradient_firstorder_90Percentile - 0.3356 × Pre-vascular phase_logarithm_glrlm_GrayLevelNonUniformity - 1.0237 × Pre-vascular phase_lbp- 3D- k_glrlm_RunEntropy + 0.3178 × wavelet- HLH_glszm_LargeAreaHighGrayLevelEmphasis + 0.3946 × Vascular phase_lbp- 3D- k_glszm_LargeAreaHighGrayLevelEmphasis + 0.1896 × Post-vascular phase_original_firstorder_10Percentile + 0.0252 × exponential_glrlm_ShortRunEmphasis + 0.0957 × Vascular phase_wavelet- HLL_gldm_SmallDependenceLowGrayLevelEmphasis - 0.2257 × Pre-vascular phase_wavelet- HLH_glszm_LargeAreaHighGrayLevelEmphasis - 0.0106 × Vascular phase_wavelet- HLL_glszm_ZonePercentage - 0.3228 × Pre-vascular phase_wavelet- HLL_firstorder_10Percentile + 0.5659 × Vascular phase_exponential_firstorder_10Percentile + 0.3858 × Vascular phase_wavelet- HHH_gldm_SmallDependenceHighGrayLevelEmphasis - 0.2004 × Post-vascular phase_wavelet- HHL_glszm_ZoneEntropy + 0.7031 × Vascular phase_wavelet-LHH_firstorder_10Percentile + 0.7979 × Peripheral vascularity (0/1) + 0.3343 × Hyper- enhancement intensity (0/1) - 0.7494 × Heterogeneous (0/1) + 0.1994 × Wash- in time - 1.2093 × Wash- out time - 1.5111

Logit (*Risk* $_{Metastatic\ LNs}$) = 0.2992 × Vascular phase_original_shape_Maximum2DDiameterRow + 0.6938 × Vascular phase_original_shape_Elongation + 0.0275 × Vascular phase_wavelet- HLH_glszm_ZonePercentage - 0.4212 × Post-vascular phase_original_shape_Maximum2DDiameterRow - 0.2677 × Pre-vascular phase_original_shape_Maximum2DDiameterRow + 0.2327 × Vascular phase_logarithm_glszm_SizeZoneNonUniformity - 0.7026 × Post-vascular phase_wavelet- HHL_glszm_ZonePercentage + 0.3367 × Vascular phase_wavelet- HHL_glszm_ZonePercentage + 0.1491 × Post-vascular phase_original_shape_Sphericity - 0.7319 × Vascular phase_wavelet- HLH_glszm_SizeZoneNonUniformity + 0.0065 × Pre-vascular phase_original_shape_Elongation + 0.7202 × Vascular phase_original_glszm_GrayLevelNonUniformity + 0.6626 × Vascular phase_wavelet- HHL_glszm_SmallAreaHighGrayLevelEmphasis + 0.0258 × Vascular phase_wavelet- HHH_glszm_ZonePercentage - 0.6453 × Vascular phase_wavelet- HHL_glszm_SizeZoneNonUniformity + 1.1852 × Vascular phase_wavelet- HHH_glszm_GrayLevelNonUniformity + 0.0858 × Vascular phase_original_glrlm_GrayLevelNonUniformity + 0.6171 × Pre-vascular phase_original_shape_Sphericity + 0.1607 × Post-vascular phase_logarithm_glszm_SizeZoneNonUniformity + 0.0001 × Vascular phase_wavelet- HLL_glrlm_RunEntropy - 0.2736 × Vascular phase_gradient_firstorder_90Percentile - 0.4636 × Pre-vascular phase_logarithm_glrlm_GrayLevelNonUniformity + 0.1422 × Pre-vascular phase_lbp- 3D- k_glrlm_RunEntropy + 0.3294 × Post-vascular phase_wavelet- HLH_glszm_LargeAreaHighGrayLevelEmphasis - 0.0235 × Vascular phase_lbp- 3D- k_glszm_LargeAreaHighGrayLevelEmphasis + 0.2995 × Post-vascular phase_original_firstorder_10Percentile - 0.4860 × exponential_glrlm_ShortRunEmphasis - 0.0415 × Vascular phase_wavelet- HLL_gldm_SmallDependenceLowGrayLevelEmphasis - 0.1842 × Pre-vascular phase_wavelet- HLH_glszm_LargeAreaHighGrayLevelEmphasis - 0.2567 × Vascular phase_wavelet- HLL_glszm_ZonePercentage + 0.1518 × Pre-vascular phase_wavelet- HLL_firstorder_10Percentile - 0.2980 × Vascular phase_exponential_firstorder_10Percentile - 0.2344 × Vascular phase_wavelet- HHH_gldm_SmallDependenceHighGrayLevelEmphasis + 0.5594 × Post-vascular phase_wavelet- HHL_glszm_ZoneEntropy - 0.5856 × Vascular phase_wavelet- LHH_firstorder_10Percentile - 0.1364 × Peripheral vascularity (0/1) + 0.8200 × Heterogeneous (0/1) - 0.0185 × Hyper-enhancement intensity (0/1) - 0.7832 × Wash- in time + 1.7151 × Wash-out time - 0.7193

Table S1 Classification of the lymph nodes and the numbers included in each category

Classification of the LNs	Number that included in training cohort (%)	Number that included in internal testing cohort (%)	Number that included in external testing cohort (%)
Benign LNs	63 (33.2)	42 (33.1)	34 (31.2)
Reactive hyperplasia	53 (27.9)	38 (29.9)	18 (16.5)
Lymphatic tuberculosis	12 (6.3)	2 (1.6)	13 (11.9)
Lymphadenitis	1 (0.5)	1 (0.8)	3 (2.8)
Others	1 (0.5)	1 (0.8)	0 (0.0)
Lymphoma	49 (25.8)	32 (25.2)	29 (26.6)
Hodgkin's	6 (3.2)	7 (5.5)	4 (3.7)
B cell non-Hodgkin's	25 (13.2)	15 (11.8)	19 (17.4)
T cell non-Hodgkin's	12 (6.3)	5 (3.9)	3 (2.8)
Others	4 (2.1)	3 (2.4)	3 (2.8)
Metastatic LNs	78 (41.1)	53 (41.7)	46 (42.2)
Lung carcinoma	36 (18.9)	24 (18.9)	2 (1.8)
Breast carcinoma	3 (1.6)	4 (3.1)	22 (20.2)
Thyroid carcinoma	13 (6.8)	8 (6.3)	4 (3.7)
Esophageal carcinoma	6 (3.2)	4 (3.1)	3 (2.8)
Nasopharyngeal carcinoma	5 (2.6)	4 (3.1)	5 (4.6)
Laryngeal carcinoma	5 (2.6)	4 (3.1)	0 (0.0)
Intestinal malignancy	3 (1.6)	0 (0.0)	4 (3.7)
Salivary gland cancer	2 (1.1)	1 (0.8)	2 (1.8)
Pelvic malignancy	1 (0.5)	3 (2.4)	3 (2.8)
Pancreatico-biliary malignancy	1 (0.5)	1 (0.8)	0 (0.0)
Melanoma	1 (0.5)	2 (1.6)	1 (0.9)
Total	190	127	109

Table S2 Details of the ultrasound instruments used in the study

Cohort	Ultrasound instrument information		
	Manufacturer	Model	Site
Training cohort (n=190)	Cannon (n=119)	Aplio i800	Canon Medical Systems, Tokyo, Japan
	Toshiba (n=6)	Aplio 500	Toshiba Medical Systems, Tokyo, Japan
	Esaote (n=60)	MyLab Twice	Esaote Group, Italy
	General Electric (n=5)	Logiq E9	GE Healthcare, Milwaukee, WI, USA
Internal testing cohort (n=127)	Cannon (n=76)	Aplio i800	Canon Medical Systems, Tokyo, Japan
	Toshiba (n=4)	Aplio 500	Toshiba Medical Systems, Tokyo, Japan
	Esaote (n=46)	MyLab Twice	Esaote Group, Italy
	General Electric (n=1)	Logiq E9	GE Healthcare, Milwaukee, WI, USA
External testing cohort (n=109)	Esaote (n=46)	MyLab Twice	Esaote Group, Italy
	General Electric (n=20)	Logiq E9	GE Healthcare, Milwaukee, WI, USA
	Cannon (n=12)	Aplio i800	Cannon Medical Systems, Tokyo, Japan
	Mindray (n=13)	Resona 9T	Mindray, Shenzhen, China
	Siemens (n=7)	ACUSON Sequoia Sliver	Siemens AG, Erlangen, Germany
	Philips (n=11)	IE33	Philips Healthcare, Andover, MA, USA

Table S3 Numbers of the lymph nodes collected by different instruments in internal data

Cohort	Numbers of the collected LNs (%)	Numbers of the Misclassified LNs (%)
Training cohort	(n=190)	(n=57)
Cannon Aplio i800	119 (62.63)	37 (64.91)
Toshiba Aplio 500	6 (3.16)	1 (1.75)
Esaote MyLab Twice	60 (31.58)	18 (31.58)
General Electric Logiq E9	5 (2.63)	1 (1.75)
Internal testing cohort	(n=127)	(n=45)
Cannon Aplio i800	76 (59.84)	26 (57.78)
Toshiba Aplio 500	4 (3.15)	1 (2.22)
Esaote MyLab Twice	46 (36.22)	17 (37.78)
General Electric Logiq E9	1 (0.79)	1 (2.22)

Table S4 The most effective radiomics features that were selected for the lymph node classification

Radiomics features based on multi-temporal CEUS	Coefficients	Relative to max
Benign LNs		
Post-vascular phase_original_shape_Maximum2DDiameterRow	1.082	1
Pre-vascular phase_lbp-3D-k_glrlm_RunEntropy	0.835	0.7717
Vascular phase_wavelet-HLL_glrlm_RunEntropy	0.7608	0.7032
Post-vascular phase_wavelet-HHL_glszm_ZonePercentage	0.6749	0.6238
Vascular phase_wavelet-HLL_gldm_SmallDependenceLowGrayLevelEmphasis	0.6368	0.5886
Vascular phase_wavelet-HHL_glszm_ZonePercentage	0.5552	0.5131
Pre-vascular phase_original_glrlm_GrayLevelNonUniformity	0.4365	0.4034
Post-vascular phase_exponential_glrlm_ShortRunEmphasis	0.3219	0.2975
Vascular phase_squareroot_glszm_SizeZoneNonUniformity	0.3118	0.2881
Vascular phase_gradient_firstorder_90Percentile	0.2604	0.2407
Vascular phase_exponential_firstorder_10Percentile	0.2549	0.2356
Vascular phase_wavelet-HLH_glszm_ZonePercentage	0.249	0.2301
Vascular phase_wavelet-HLH_glszm_SizeZoneNonUniformity	0.2097	0.1939
Vascular phase_wavelet-HHH_glszm_ZonePercentage	0.1913	0.1768
Pre-vascular phase_wavelet-HLH_glszm_LargeAreaHighGrayLevelEmphasis	−0.0261	−0.0241
Pre-vascular phase_original_shape_Maximum2DDiameterRow	−0.0274	−0.0253
Vascular phase_squareroot_glrlm_GrayLevelNonUniformity	−0.0723	−0.0668
Pre-vascular phase_original_shape_Elongation	−0.2103	−0.1944
Pre-vascular phase_original_shape_Sphericity	−0.3236	−0.2991
Post-vascular phase_original_firstorder_10Percentile	−0.3689	−0.341
Lymphoma		
Vascular phase_wavelet-HLH_glszm_SizeZoneNonUniformity	0.5605	0.566
Post-vascular phase_original_shape_Sphericity	0.4818	0.4865
Vascular phase_original_shape_Maximum2DDiameterRow	0.3708	0.3744
Prevascular phase_original_shape_Maximum2DDiameterRow	0.3348	0.3381
Vascular phase_squareroot_glszm_GrayLevelNonUniformity	0.3149	0.318
Vascular phase_lbp-3D-k_glszm_LargeAreaHighGrayLevelEmphasis	0.2768	0.2795
Post-vascular phase_wavelet-HLH_glszm_LargeAreaHighGrayLevelEmphasis	0.2402	0.2426
Vascular phase_wavelet-HHH_glszm_ZonePercentage	0.1065	0.1076
Vascular phase_squareroot_glrlm_GrayLevelNonUniformity	0.0524	0.0529
Vascular phase_original_shape_Elongation	0.0487	0.0492
Post-vascular phase_original_firstorder_10Percentile	0.0113	0.0114
Vascular phase_gradient_firstorder_90Percentile	−0.0452	−0.0457
Post-vascular phase_logarithm_glszm_SizeZoneNonUniformity	−0.0725	−0.0732

Table S4 (*continued*)

Table S4 (*continued*)

Radiomics features based on multi-temporal CEUS	Coefficients	Relative to max
Vascular phase_wavelet-HHL_glszm_SmallAreaHighGrayLevelEmphasis	−0.0977	−0.0986
Post-vascular phase_wavelet-HHL_glszm_ZoneEntropy	−0.1279	−0.1292
Prevascular phase_original_glrlm_GrayLevelNonUniformity	−0.1363	−0.1376
Post-vascular phase_original_shape_Maximum2DDiameterRow	−0.1821	−0.1839
Post-vascular phase_exponential_glrlm_ShortRunEmphasis	−0.2115	−0.2136
Post-vascular phase_wavelet-HHL_glszm_ZonePercentage	−0.2151	−0.2172
Vascular phase_wavelet-HHH_glszm_GrayLevelNonUniformity	−0.2633	−0.2659
Vascular phase_wavelet-HLH_glszm_SizeZoneNonUniformity	0.5605	0.566
Metastatic LNs		
Vascular phase_wavelet-HHH_glszm_GrayLevelNonUniformity	0.9637	1
Prevascular phase_original_shape_Sphericity	0.6389	0.663
Vascular phase_original_shape_Elongation	0.4594	0.4767
Prevascular phase_original_shape_Elongation	0.4554	0.4726
Post-vascular phase_wavelet-HHL_glszm_ZoneEntropy	0.4299	0.4461
Prevascular phase_lbp-3D-k_glrlm_RunEntropy	0.3857	0.4002
Vascular phase_wavelet-HHL_glszm_SmallAreaHighGrayLevelEmphasis	0.3635	0.3772
Post-vascular phase_logarithm_glszm_SizeZoneNonUniformity	0.3094	0.3211
Post-vascular phase_original_firstorder_10Percentile	0.2437	0.2529
Vascular phase_squareroot_glszm_SizeZoneNonUniformity	0.2164	0.2245
Vascular phase_wavelet-HLL_gldm_SmallDependenceLowGrayLevelEmphasis	0.2064	0.2142
Vascular phase_wavelet-HHL_glszm_ZonePercentage	0.1756	0.1822
Vascular phase_original_shape_Maximum2DDiameterRow	0.1729	0.1794
Post-vascular phase_wavelet-HLH_glszm_LargeAreaHighGrayLevelEmphasis	0.137	0.1421
Vascular phase_wavelet-HLH_glszm_ZonePercentage	0.1056	0.1096
Prevascular phase_wavelet-HLH_glszm_LargeAreaHighGrayLevelEmphasis	0.0948	0.0984
Vascular phase_wavelet-HLL_glrlm_RunEntropy	0.0709	0.0736
Vascular phase_squareroot_glrlm_GrayLevelNonUniformity	0.0638	0.0662
Vascular phase_squareroot_glszm_GrayLevelNonUniformity	0.0578	0.06
Prevascular phase_original_glrlm_GrayLevelNonUniformity	0.0424	0.044

Table S5 The performance of different classifiers for diagnosing lymphadenopathies

Classifier	AUC	ACC (%)	Sensitivity (%)	Specificity (%)	F1-score	NPV	PPV
Training cohort							
DT	0.7594	54.21	57.33	79.01	0.5442	0.797	0.679
AdaBoost	0.8172	67.89	62.75	83.05	0.5927	0.856	0.692
Linear SVC	0.8271	73.16	71.42	86.20	0.7125	0.868	0.725
RF	0.9993	98.95	99.15	99.50	0.9897	0.994	0.988
LR	0.8381	70.00	67.39	84.58	0.6691	0.854	0.685
Internal testing cohort							
DT	0.5738	33.07	35.00	68.87	0.3260	0.667	0.427
AdaBoost	0.6723	59.84	54.55	78.96	0.4907	0.814	0.539
Linear SVC	0.7144	57.48	56.30	78.57	0.5636	0.784	0.566
RF	0.7063	57.48	54.16	78.36	0.5343	0.788	0.532
LR	0.7388	64.57	62.54	82.05	0.6279	0.821	0.632

Table S6 The radiomics performance comparison of different lymphadenopathy in different sequences in all cohorts

Cohorts	Sequence	Label	AUC	95% CI	ACC (%)	Sensitivity (%)	Specificity (%)
Training cohort	Prevascular phase	Benign LNs	0.802	0.739–0.857	70.00	58.73	75.59
		Lymphoma	0.780	0.714–0.837	73.68	44.90	83.69
		Metastatic LNs	0.837	0.776–0.886	74.21	67.95	78.57
	Vascular phase	Benign LNs	0.863	0.806–0.908	78.42	71.43	81.89
		Lymphoma	0.807	0.744–0.861	80.00	53.06	89.36
		Metastatic LNs	0.847	0.788–0.895	77.37	74.36	79.46
	Postvascular phase	Benign LNs	0.842	0.782–0.891	74.74	69.84	77.17
		Lymphoma	0.834	0.774–0.884	81.58	57.14	90.07
		Metastatic LNs	0.797	0.733–0.852	71.05	62.82	76.79
	Combined	Benign LNs	0.896	0.843–0.935	83.16	85.71	81.89
		Lymphoma	0.777	0.711–0.834	78.42	40.82	91.49
		Metastatic LNs	0.830	0.769–0.880	78.42	75.64	80.36
Internal testing cohort	Prevascular phase	Benign LNs	0.766	0.682–0.836	71.65	57.14	78.82
		Lymphoma	0.737	0.652–0.811	76.38	43.75	87.37
		Metastatic LNs	0.699	0.612–0.778	65.35	64.15	66.22
	Vascular phase	Benign LNs	0.795	0.716–0.863	75.59	64.29	62.79
		Lymphoma	0.538	0.447–0.626	66.14	28.12	31.03
		Metastatic LNs	0.760	0.676–0.831	68.50	64.15	61.82
	Postvascular phase	Benign LNs	0.719	0.632–0.795	67.72	54.76	74.12
		Lymphoma	0.777	0.694–0.846	77.95	62.50	83.16
		Metastatic LNs	0.676	0.587–0.756	67.72	54.72	77.03
	Combined	Benign LNs	0.848	0.773–0.905	82.68	69.05	89.41
		Lymphoma	0.616	0.526–0.701	72.44	46.88	81.05
		Metastatic LNs	0.733	0.647–0.808	74.02	71.70	75.68
External testing cohort	Prevascular phase	Benign LNs	0.734	0.641–0.814	68.81	44.12	80.00
		Lymphoma	0.546	0.448–0.641	57.80	51.72	60.00
		Metastatic LNs	0.669	0.573–0.757	65.14	43.48	80.95
	Vascular phase	Benign LNs	0.638	0.541–0.728	64.22	58.82	66.67
		Lymphoma	0.649	0.551–0.738	72.48	48.28	81.25
		Metastatic LNs	0.573	0.474–0.667	62.39	43.48	76.19
	Postvascular phase	Benign LNs	0.682	0.585–0.768	66.06	47.06	74.67
		Lymphoma	0.769	0.678–0.844	67.89	68.97	67.50
		Metastatic LNs	0.505	0.407–0.602	55.96	28.26	76.19
	Combined	Benign LNs	0.732	0.592–0.773	74.31	44.44	89.04
		Lymphoma	0.722	0.628–0.803	70.64	55.17	76.25
		Metastatic LNs	0.770	0.680–0.845	72.48	72.73	72.31

Table S7 DeLong tests to compare the AUCs of the three models for different types of lymphadenopathies

	Comparison	Training cohort		Internal testing cohort		External testing cohort	
		AUC	P value	AUC	P value	AUC	P value
Benign LNs	Model 2 vs. Model 1	0.896	0.017*	0.848	0.239	0.688	0.432
		0.801		0.786		0.780	
	Model 2 vs. Model 3	0.896	0.014*	0.848	0.774	0.688	0.527
		0.945		0.853		0.696	
	Model 1 vs. Model 3	0.801	<0.001**	0.786	0.139	0.780	0.201
		0.945		0.853		0.696	
Lymphoma	Model 2 vs. Model 1	0.777	0.734	0.616	0.062	0.722	0.731
		0.796		0.769		0.753	
	Model 2 vs. Model 3	0.777	<0.001**	0.616	0.026*	0.722	0.193
		0.927		0.759		0.805	
	Model 1 vs. Model 3	0.796	<0.001**	0.769	0.818	0.753	0.274
		0.927		0.759		0.805	
Metastatic LNs	Model 2 vs. Model 1	0.830	0.681	0.733	0.043*	0.770	0.815
		0.847		0.830		0.741	
	Model 2 vs. Model 3	0.830	<0.001**	0.733	0.01*	0.770	0.141
		0.949		0.838		0.834	
	Model 1 vs. Model 3	0.847	<0.001**	0.830	0.802	0.741	0.044*
		0.949		0.838		0.834	

*, significant difference (P<0.05); **, extremely significant difference (P<0.01).