

Table S1 Accuracy of AUS and MRI

Index	AUS	MRI
Sensitivity	72.3%	68.8%
Specificity	76.2%	77.0%
Positive predictive value	30.6%	32.7%
Negative predictive value	95.0%	93.8%

AUS, axillary ultrasound; MRI, magnetic resonance imaging.

Table S2 Comparison of the clinicopathologic features of patients with or without LN metastasis

Variables	Patients with no LN metastasis (N=252), %	Patients with LN metastasis (N=81), %	P value
Age (years)			0.035
<70	218 (86.5)	77 (95.1)	
≥70	34 (13.5)	4 (4.9)	
Result of each modality			0.205
AUS & MRI cN0 or nor performed MRI	238 (76.8)	72 (88.9)	
AUS cN0 and MRI cN+	9 (3.6)	5 (6.2)	
AUS cN+ and MRI cN0	5 (2.0)	4 (4.9)	
Axillary surgery			<0.001
SLNB only	243 (96.4)	23 (28.4)	
ALND	9 (3.6)	58 (71.6)	
Average number of SLN	4.7 (1-13)	5.0 (1-13)	0.194
cT stage			
I	204 (81.0)	47 (58.8)	
II	48 (19.0)	33 (41.3)	
PR			0.935
Negative	58 (23.0)	19 (23.5)	
Positive	194 (77.0)	62 (76.5)	
Histologic grade			0.669
I/II	205 (81.3)	68 (84.0)	
III	31 (12.3)	10 (12.3)	
Unknown	16 (6.3)	3 (3.7)	
Nuclear grade			0.225
I/II	207 (82.1)	70 (86.4)	
III	30 (11.9)	10 (12.3)	
Unknown	15 (6.0)	1 (1.2)	
Radiotherapy			
Performed	249 (98.8)	79 (97.5)	0.410
Breast only	249 (100.0)	69 (87.3)	<0.001
Breast + regional	0 (0.0)	10 (12.7)	
Not performed	3 (1.2)	2 (2.5)	

LN, lymph node; AUS, axillary ultrasound; MRI, magnetic resonance imaging; SLNB, sentinel lymph node biopsy; ALND, axillary lymph node dissection; SLN, sentinel lymph node; PR, progesterone receptor.

Table S3 Radiologic findings of cN0 patients in AUS with LN metastasis

Findings	Patients with 1-2 LN metastases (%)	Patients with ≥ 3 LN metastases (%)	P value
Not any enlarged LN	56 (86.2)	9 (75.0)	0.328
Enlarged LN, but benign finding	9 (13.8)	3 (25.0)	
Total	65 (100.0)	12 (100.0)	

AUS, axillary ultrasound; LN, lymph node.

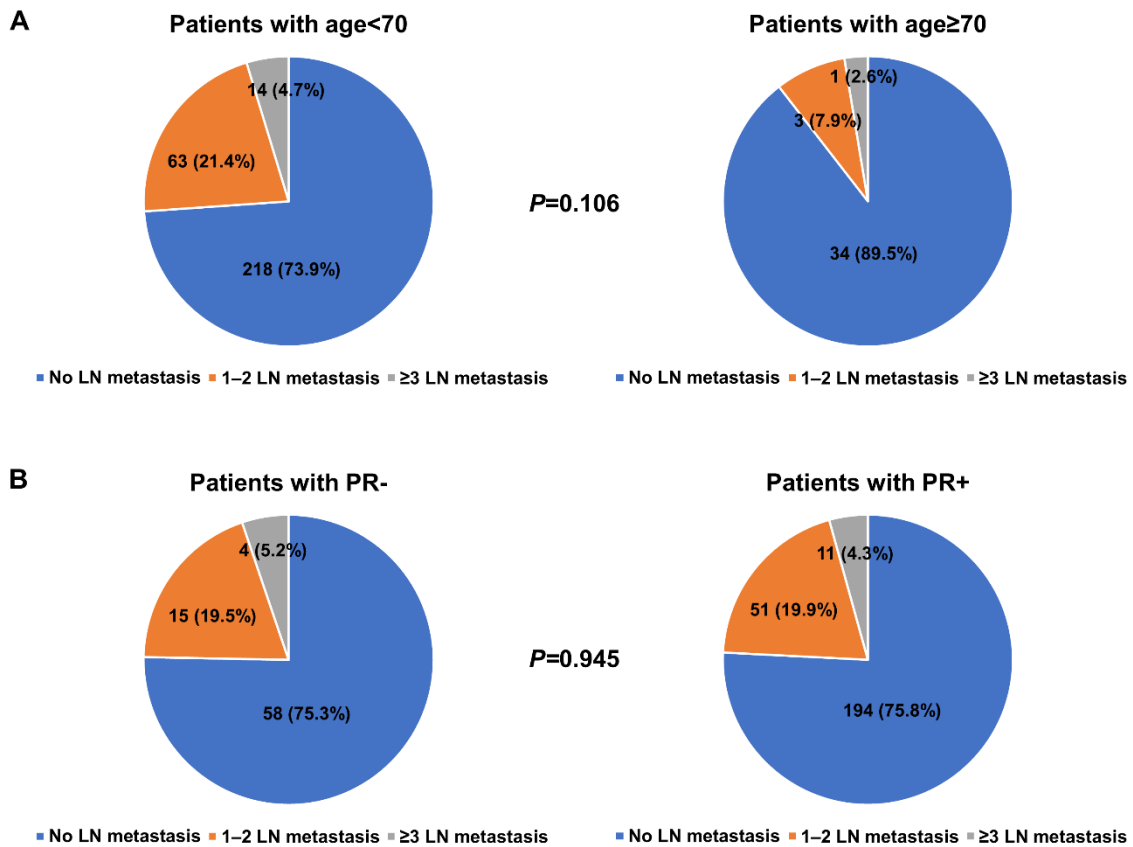


Figure S1 Comparison of distribution of LN metastasis patients according to age and PR status. (A) Age; (B) PR. PR, progesterone receptor; LN, lymph node.

Table S4 Comparison of the clinicopathologic feature with or without ≥ 3 LN metastasis

Variables	Patients with ≤ 2 LN metastasis (N=318), %	Patients with ≥ 3 LN metastasis (N=15), %	P value
Age (years)			0.554
<70	281 (95.3)	14 (4.7)	
≥ 70	37 (11.6)	1 (2.6)	
Result of each modality			<0.001
AUS & MRI cN0 or nor performed MRI	300 (94.3)	10 (66.7)	
AUS cN0 and MRI cN+	12 (3.8)	2 (13.3)	
AUS cN+ and MRI cN0	6 (1.9)	3 (20.0)	
Axillary surgery			<0.001
SLNB only	266 (83.6)	0 (0.0)	
ALND	52 (16.4)	15 (100.0)	
Average number of SLN	4.7 (1–13)	6.0 (1–13)	0.012
cT stage			0.148
I	243 (76.4)	9 (60.0)	
II	75 (23.6)	6 (40.0)	
PR			0.739
Negative	73 (23.0)	4 (26.7)	
Positive	245 (77.0)	11 (73.3)	
Histologic grade			0.630
I/II	262 (82.4)	11 (73.3)	
III	38 (11.9)	3 (20.0)	
Unknown	18 (5.7)	1 (6.7)	
Nuclear grade			0.670
I/II	264 (83.0)	13 (86.7)	
III	38 (11.9)	2 (13.3)	
Unknown	16 (5.0)	0 (0.0)	
Radiotherapy			0.495
Performed	64 (97.0)	15 (100.0)	<0.001
Breast only	62 (96.9)	7 (46.7)	
Breast + regional	2 (3.1)	8 (53.3)	
Not performed	2 (3.0)	0 (0.0)	

LN, lymph node; MRI, magnetic resonance imaging; SLNB, sentinel lymph node biopsy; ALND, axillary lymph node dissection; SLN, sentinel lymph node; PR, progesterone receptor

Table S5 Uni- and multivariate analyses of risk factors associated with ≥ 3 LN metastasis

Variables	Univariate analysis		Multivariate analysis	
	OR (95% CI)	P value	OR (95% CI)	P value
Age (years)				
<70	Reference			
≥ 70	0.54 (0.07-4.25)	0.560		
Result of cN0 modality				
AUS and MRI or nor performed MRI	Reference		Reference	
AUS cN0 and MRI cN+	5.00 (0.99-25.37)	0.052	4.55 (0.86-24.21)	0.075
MRI cN0 and AUS cN+	15.00 (3.27-68.75)	<0.001	16.71 (3.40-82.04)	0.001
Number of SLN	1.33 (1.06-1.67)	0.013	1.39 (1.09-1.77)	0.007
cT stage				
I	Reference		Ref.	
II	2.16 (0.75-6.27)	0.156	2.11 (0.68-6.60)	0.199
PR				
Negative	Reference			
Positive	0.82 (0.25-2.65)	0.739		
Histologic grade				
I/II	Reference			
III	1.88 (0.50-7.05)	0.349		
Nuclear grade				
I/II	Reference			
III	1.07 (0.23-4.92)	0.932		

LN, lymph node; OR, odds ratio; CI, confidence intervals; AUS, axillary ultrasound; MRI, magnetic resonance imaging; SLN, sentinel lymph node; PR, progesterone receptor.

Table S6 Uni- and multivariate analyses of risk factors associated with ≥ 4 LN metastasis

Variables	Univariate analysis		Multivariate analysis	
	OR (95% CI)	P value	OR (95% CI)	P value
Age (years)				
<70	Reference			
≥ 70	0.00 (0.00-NE)	0.998		
Result of cN0 modality				
AUS and MRI or nor performed MRI	Reference		Reference	
AUS cN0 and MRI cN+	10.17 (1.79-57.83)	0.009	8.49 (1.44-50.05)	0.018
MRI cN0 and AUS cN+	7.63 (0.80-72.99)	0.078	6.97 (0.71-68.53)	0.096
Number of SLN	1.22 (0.90-1.67)	0.206		
cT stage				
I	Reference		Reference	
II	3.2 (0.79-13.18)	0.104	2.64 (0.62-11.28)	0.190
PR				
Negative	Reference			
Positive	0.82 (0.25-2.65)	0.739		
Histologic grade				
I/II	Reference			
III	2.28 (0.45-11.71)	0.323		
Nuclear grade				
I/II	Reference			
III	0.99 (0.12-8.26)	0.992		

NE, not estimated; LN, lymph node; OR, odds ratio; CI, confidence intervals; AUS, axillary ultrasound; MRI, magnetic resonance imaging; SLN, sentinel lymph node; PR, progesterone receptor.