

Figure S1 Body surface identification of sentinel lymph node biopsy before operation. (A) ○ represent the location of the tumor, ● represent the location of SLN, and ~ represents the pathway of lymphatic drainage; (B) ○ represent the location of the tumor, ● represent the location of SLN, and ~ represents the pathway of lymphatic drainage. SLN, sentinel lymph node.

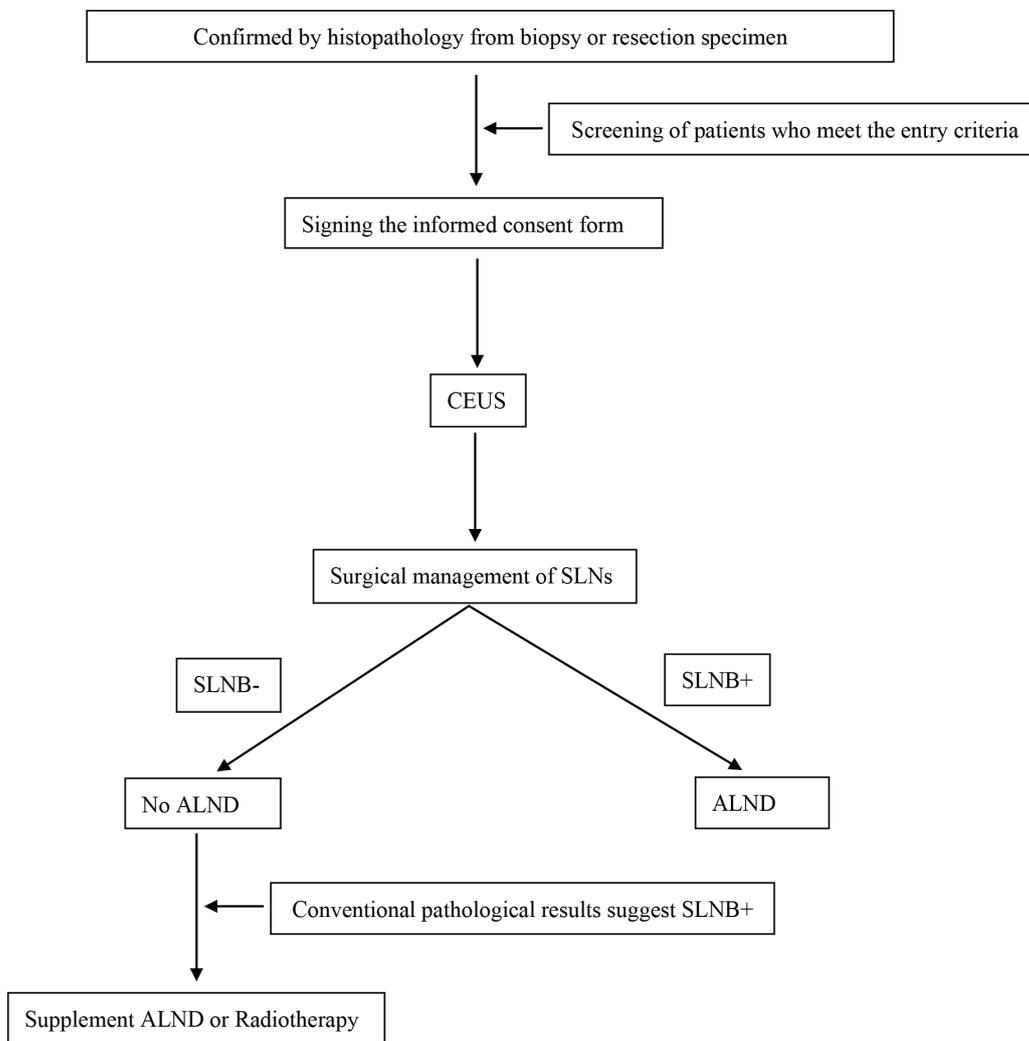


Figure S2 Flow of participants. CEUS, contrast-enhanced ultrasonography; SLNB, sentinel lymph node biopsy; ALND, axillary lymph node dissection.

Table S1 The clinicopathological Indexes of 73 patients with breast cancer in the external verification group

Characteristics	No. of cases	SLN, n (%)	
		(-)	(+)
Age			
≤35	5	5 (100.0)	0 (0)
35–50	29	22 (75.9)	7 (24.1)
>50	39	31 (79.5)	8 (20.5)
BMI			
<25	45	37 (82.2)	8 (17.8)
≥25	28	21 (75.0)	7 (25.0)
Menopausal status			
Pre-menopausal	45	39 (86.7)	6 (13.3)
Post-menopausal	28	19 (67.9)	9 (32.1)
Family history			
No	57	45 (78.9)	12 (21.1)
Yes	16	13 (81.2)	3 (18.8)
Tumor location			
Central	4	4 (100)	0 (0)
Outer upper	43	34 (79.1)	9 (20.9)
Outer lower	11	7 (63.6)	4 (36.4)
Inner lower	3	3 (100)	0 (0)
Inner upper	12	10 (83.3)	2 (16.7)
Excision biopsy			
No	59	46 (78.0)	13 (22.0)
Yes	14	12 (85.7)	2 (14.3)
Tumor size*			
T1mi	5	5 (100)	0 (0)
T1	31	20 (64.5)	11 (35.5)
T2	37	30 (81.1)	7 (18.9)
Histologic grade[#]			
G1	9	8 (88.9)	1 (11.1)
G2	53	41 (77.4)	12 (22.6)
G3	11	9 (81.8)	2 (22.2)
Lympho-vascular invasion			
No	55	51 (94.4)	4 (7.3)
Yes	18	7 (38.9)	11 (61.1)
Pathology			
IDC	46	37 (80.4)	9 (19.6)
ILC	3	3 (100.0)	0 (0)
DCIS-IDC	22	17 (77.3)	5 (22.7)
Mucinous	2	1 (50.0)	1 (50.0)
ER Status			
Positive	56	43 (76.8)	13 (23.2)
Negative	17	15 (88.2)	2 (11.8)
PR status			
Positive	47	38 (80.9)	9 (19.1)
Negative	26	20 (76.9)	6 (23.1)
HER-2 Status			
Negative	49	40 (81.6)	9 (18.4)
Positive	24	18 (75.0)	6 (25.0)
Ki-67			
≤14%	16	14 (87.5)	2 (12.5)
>14%	57	44 (77.2)	13 (22.8)
CK5/6			
Negative	19	16 (84.2)	3 (15.8)
Positive	54	42 (77.8)	12 (22.2)
EGFR			
Negative	49	40 (81.6)	9 (18.4)
Positive	24	18 (75.0)	6 (25.0)
Number of LN by US			
1	54	42 (77.8)	12 (22.2)
2	19	16 (84.2)	3 (15.8)
US lymphatic structure			
Yes	71	57 (80.3)	14 (19.7)
No	2	1 (50.0)	1 (50.0)
SLN aspect ratio of US			
≤2	23	17 (73.9)	6 (26.1)
>2	50	41 (82.0)	9 (18.0)
Cortical medulla boundary			
Clear	54	42 (77.8)	12 (22.2)
Lack of clarity	19	16 (84.2)	3 (15.8)
Number of LN by CEUS			
0	6	2 (33.3)	4 (66.7)
1	49	41 (83.7)	8 (16.3)
2	16	14 (87.5)	2 (12.5)
3	2	1 (50.0)	1 (50.0)
CEUS enhanced mode			
I	53	47 (88.7)	6 (11.3)
II/III	20	11 (55.0)	9 (45.0)
SLN aspect ratio of CEUS			
≤2	38	27 (71.1)	11 (28.9)
>2	35	31 (88.6)	4 (11.4)
SLN aspect ratio of mammography			
≤2	48	44 (91.7)	4 (8.3)
>2	25	14 (56.0)	11 (44.0)

*: T ≤0.1 cm is T1mi, 0.1 cm < T ≤2 cm is T1, 2 cm < T ≤5 cm is T2, T >5 cm is T3; #: histological grade was missing in 17 participants. BMI, body mass index; IDC, invasive ductal carcinoma; ILC, invasive lobular carcinoma; DCIS-IDC, ductal carcinoma *in situ*-invasive ductal carcinoma; ER/PR, estrogen/progesterone receptor; HER-2, human epidermal growth factor receptor-2; EGFR, epidermal growth factor receptor; US, ultrasound; SLN, sentinel lymph node; LN, lymph node; CEUS, contrast-enhanced ultrasonography.