

## Micrometastases in the Sentinel Lymph Nodes of Patients with Ductal Carcinoma In-Situ of the Breast

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**Purpose:** Although the axillary lymph node (LN) status is the most important prognostic indicator in breast cancer, due to the very low rate of axillary metastasis, the need for an axillary lymph node dissection in ductal carcinoma in situ (DCIS) and DCIS with a microinvasion (DCIS-M) is still controversial. The sentinel lymph node procedure has emerged as a potential alternative to avoid unnecessary axillary lymph node dissection. This study was performed in order to compare the frequency of metastasis in the sentinel node analyzed by various techniques, and the lymph nodes obtained by a routine axillary dissection in patients with DCIS and DCIS-M

**Methods:** A total of 207 patients who underwent surgery for DCIS and DCIS-M at the Samsung Medical Center between 1994 and 2001, including 27 patients who underwent a sentinel node biopsy, were enrolled in this study. The sentinel node was serially cut into 20 slides per paraffin block of which 3 slides were immunostained with anti-cytokeratin antibodies. The medical records for the clinical, radiological, and pathological findings were reviewed.

**Results:** The patients were 205 women and 2 men with a mean age of 47 years. The patients presented with a palpable mass (50.2%), abnormal radiological findings detected in a routine check-up (35.7%), nipple discharge (10.1%), and others (3.9%). The operations applied were a total mastectomy in 120 patients, a lumpectomy in 50, and a lumpectomy with an axillary dissection in 31. The histological types of

tumors were DCIS (77.3%) and DCIS with a microinvasion (22.7%). While the conventional pathologic examination showed axillary metastasis in 2 of 151 patients (1.3%) with an axillary dissection, serial sectioning and immunohistochemical staining for cytokeratin on the sentinel node in 27 patients revealed 2 more patients with a micrometastasis that were found to be negative in a conventional pathological examination.

**Conclusion:** The serial sectioning and immunohistochemical method for the sentinel LN's of patients with DCIS and DCIS-M are superior to a conventional histological examination for detecting a metastatic carcinoma. The patients with a micrometastasis might be considered as a high risk group and a close long-term follow up would be required to define their prognostic significance. (*J Korean Surg Soc* 2002;63:276-282)

**Key Words:** Breast cancer, Micrometastasis, Sentinel node

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20 가  
 (ductal carcinoma in  
 situ) (ductal carcinoma in situ  
 with microinvasion) 20% 가  
 .(1) 가

: 50  
 ☎ 135-710,  
 Tel: 02-3410-3463, Fax: 02-3410-3019  
 E-mail: jhyang@smc.samsung.co.kr  
 : 2002 2 4 , : 2002 5 25  
 2001

(H&E)  
 가 1%  
 .(2)  
 0 5%

(3) 9 31% 가  
 (3) cytokeratin 가 가  
 cytokeratin 1,935  
 1) 1994 11 2001 6 207  
 2) 207 28 isosulfan blue 99mTc-Antimony sulfide colloid isosulfan blue dye 5 cc 가 4 5 10 2 3 cm 가 99mTc-Antimony sulfide colloid 2 3 0.5 mCi 4 (Neoprobe 1500, Neoprobe corporation, USA) 가 iso- sulfan blue dye isosulfan blue dye 2

. Isosulfan blue dye  
 3) 28 27 34 4 μm 20 3 anti-cytokeratin (AE1+AE3) anti-body (Zymed , USA) 17

1) 10.7% 160 (77.3%) 47 (22.7%)

2) 20 70 40 가 가 38.6% 30 22.2%, 50 가 19.3% 207 2 (0.1%) (Table 1).

3) 가 50.2% 35.7%, 10.1%, 3.9% (Table 2).

**Table 1.** Age and sex of patients with DCIS\* and DCIS-M†

	No. of patients		Percent (%)
Age (years)	20-29	10	4.8
	30-39	46	22.2
	40-49	80	38.6
	50-59	40	19.3
	60-69	27	13.0
	70	4	1.9
Sex	Male	2	0.1
	Female	205	99.9

\*Ductal carcinoma in-situ; † ductal carcinoma in-situ with microinvarion.

**Table 2.** Presenting symptoms and signs

	No. of patients	Percent (%)
Palpable mass	104	50.2
Abnormality on screening exam	74	35.7
Nipple discharge	21	10.1
Others	8	3.9

**Table 3.** Preoperative diagnostic methods

	No. of patients	Percent (%)
Excisional biopsy	45	26.8
Sono-guided core biopsy	36	21.6
Needle localization	34	20.4
Stereotactic core biopsy	20	12.0
Fine needle aspiration cytology	17	10.2
Incisional biopsy	11	6.6
ABBI*	4	2.4
<b>Total</b>	<b>207</b>	<b>100</b>

\*Advanced breast biopsy instrumentation.

4)

167 (ex-cisional biopsy) 45 , (sono-guided core biopsy) 36 , (needle localization) 34 , (stereotactic core biopsy) 20 , 17 , (incisional biopsy) 11 , ABBI (Advanced breast biopsy instrumentation) 4 . 가 (Table 3).

5)

179 가 32.4% , 가 61.5% , 76.4%가 11 가 (Table 4).

6)

120 lumpectomy 56 , lumpectomy 31 (Table 5).

**Table 4.** Mammographic findings

Findings	No. of patients	Percent (%)
Mass lesion	58	32.4
Spiculated mass	9	5.0
Mass density	21	11.7
Mass with calcification	28	15.7
Calcification only	110	61.5
Benign	12	6.7
Indeterminate	14	7.9
Malignant	84	46.9
No abnormality	11	6.1
<b>Total</b>	<b>179</b>	<b>100</b>

**Table 5.** Operative methods

	No. of patients	Percent (%)
Total mastectomy	120	60.0
Lumpectomy	56	27.0
Lumpectomy with ALND*	31	15.0

\*Axillary lymph node dissection.

7)

198 (micro focus) 가 14.1% , 3 cm 15.7% . 0.1 cm 207 2.02 cm . 22.7% 가 . 1 151 2 (1.3%) . 1 가 (ph-ylloides tumor) . 80.7% 10 . comedo type 49.4% 13.2%, 72.2%, 60.9% (Table 6).

8)

28 1 가 11 가

**Table 6.** Pathologic findings

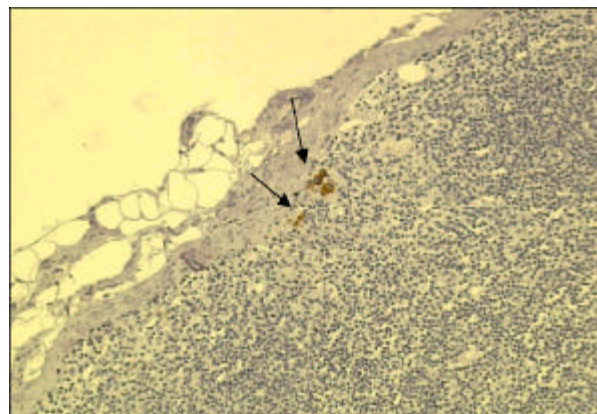
	N*		No. of patients	Percent (%)
Size (cm)	198	microfocus	28	14.1
		1.0	44	22.2
		1.1 2.0	56	28.3
		2.1 3.0	39	19.7
		3.1	31	15.7
Microinvasion	207	yes	47	22.7
		no	160	
L/N metastasis	151	yes	2	1.3
		no	149	
Comedo pathology	160	yes	79	49.4
		no	81	
Multicentricity	197	yes	26	13.2
		no	121	
Estrogen receptor	151	Positive	109	72.2
		Negative	42	
Progesterone receptor	151	Positive	92	60.9
		Negative	59	

\*Number of patients with available data.

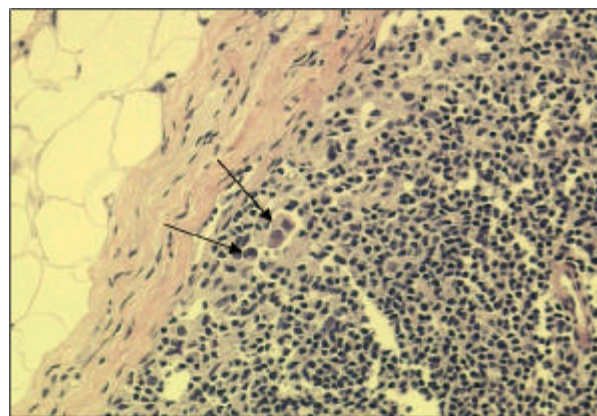
**Table 7.** Detection of micrometastases by serial sectioning and immunohistochemical study for sentinel lymph nodes

		No. of patients
Serial section	Positive	1
	Negative	26
IHC* with cytokeratin (AE1/AE3)	Positive	2 <sup>†</sup>
	Negative	25

\*Immunohistochemical staining; <sup>†</sup> 1 case detected by serial section was detected also by IHC staining.



**Fig. 1.** Micrometastasis detected by IHC staining with cytokeratin. Note a few cells in the subcapsular sinus.



**Fig. 2.** H&E staining following serial section. A few tumor cells can be seen at the nearby slide.

2 9 , 3 7 , 4 1 19  
28 6 (15.4%)  
. 7

2  
1 (3.7%)  
(7.4%) anti-cytokeratin 27 2

9) cytokeratin 1 28

가 2  
1 1 (Table 7, Fig. 1, 2).

1 27 34 (1 1.3 )  
cytokeratin (AE1, AE3)



가 25% 31 3 (10%) 76 9 (12%),  
 (14) 가 Pendas (19) 87 5 (6%)  
 가 가  
 (12) cytokeratin +AE3 27 1 , cytokeratin (AE1 2 (7.1%)  
 가 736 cytokeratin 1 , cytokeratin  
 20% 가  
 (15) 가 , 1 가 2 1  
 , 가 Klauber-DeMore (18)  
 . Fisher (16) 814 . Anderson(20)  
 7.5 1.8% , 1.8%  
 , Silverstein(12) 6.9  
 879 0.9%, 0.6% 가 scrubbing 가  
 Linden Zarbo(21) 가 cytokeratin  
 가 가 10%  
 cytokeratin  
 (interstitial reticular cell)  
 207 1 151 Silverstein(12)  
 2 (1.3%) Frykberg 가  
 Bland(17) 5% , , 가  
 가  
 . Klauber-DeMore (18) 207  
 1) , 2) 27  
 , 3) ,  
 , 4) , 5) 가 2  
 cytokeratin , 가 가

cytokeratin

가

가

가

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