

(DCIS)

Ductal Carcinoma In Situ (DCIS) of the Breast; Clinico-pathological Analysis, Expression of Molecular Markers, and Correlations between Known Prognostic Factors

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Purpose: The improved availability of breast cancer screening, including mammography, has dramatically increased the detection rate of DCIS (ductal carcinoma in situ). However, there has been controversy regarding the clinico-pathological characteristics and optimal management of DCIS. This analysis was conducted in order to evaluate the clinico-pathological findings of DCIS, and any possible correlations between the known prognostic factors.

Methods: We analyzed 58 consecutive cases of DCIS, from 1990 to 1995, including data on the annual proportion of DCIS to total breast cancer cases, the clinico-pathological characteristics and the expressions of ER, PR, c-erbB-2 and p53. The median length of follow-up was 98.5 months.

Results: The proportion of DCIS was 8.8%, with progressive increases from 1990 to 1995. The mean age at diagnosis was 47.1 years, with the peak of prevalence seen in women aged 40-49 years. The most common presentation was a palpable breast mass in 28 (48.3%) cases, but 18 (31%) patients were asymptomatic. The mammographic findings demonstrated calcification in 75% and mass density in 59.6%. There was only 1 (1.8%) case of a bilateral lesion, and 5 (8.6%) of multifocal or multicentric lesions. Axillary

lymph nodes were positive in 5.5% of the patients who underwent an axillary dissection. Breast conserving operations were performed in 8 (13.8%) cases. The frequencies of ER, PR, c-erbB-2 and p53, positivity, by immunohistochemistry were 52, 50, 55.1 and 30.6%, respectively. c-erbB-2 immunoreactivity was found more often in DCIS with larger size, higher nuclear grade and negative ER and PR (P=0.011, P=0.001, P=0.002, and P=0.006, respectively). There was a significant association between higher nuclear grade and negative ER and PR, and comedotype (P=0.001, P=0.000, and 0.008, respectively). Although an invasive ductal carcinoma had developed in 5.4% of the contralateral breasts, there were no cases of systemic relapse, or disease-specific mortality, at the last follow-up. (*J Korean Surg Soc* 2003;64:289-295)

Key Words: Breast cancer, Ductal carcinoma in situ (DCIS), Molecular markers

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1985

가 7% , 1995 14% 2 가 25.9%), 30 (14 , 24.1%) (Table 2).
 가 ,(2) 1998 36,000 32 (55.2%), 26 (44.8%)
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 17% .(3)
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 가 25 (43%) 가
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, p53 c-erbB-2
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system Pearson's correlation SPSS 10.0 data analysis P<0.05

1)
 658 , 58 (8.8%)가
 , 1993 13
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 12.1% 가 , 1993 9.8% .
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 3 7.1%,
 9.8% (Table 1).
 2)
 47.1 27 79 . 40
 20 (34.5%) 가 , 50 (15 ,

Table 1. Annual proportion of DCIS

Year	Cases of DCIS	Total cases of breast cancer	%
1990	5	72	7
1991	7	102	6.9
1992	7	93	7.5
1993	13	132	9.8
1994	9	119	7.6
1995	17	140	12.1
Total	58	658	8.8

Table 2. Age distribution

Age (yr)	Cases of DCIS (%)
~)	2 (3.4)
30~)	14 (24.1)
40~)	20 (34.5)
50~)	15 (25.9)
60~)	4 (6.9)
70~	3 (5.2)
Total	58 (100)

Table 3. Clinical presentations

Symptoms	Number of cases (%)
Mass	25 (43)
No symptom	18 (31)
Bloody nipple discharge	7 (12.1)
Pain	4 (6.9)
Mass with bloody nipple discharge	3 (5.2)
Nipple ulcer	1 (1.7)
Total	58 (100)

가 7 (12.1%), 4 (6.9%), 가 28 (48.3%) 가 3 (5.2%) 가 10 (17.3%) 가 21 (36.2%), 36 (62%)가 5 (8.6%) (Table 3). 2.3+1.7 cm (0.3~7 cm) 55 4) 3 (5.5%) 22 (38%), 50 (86.2%) 8 (13.8%) (20, 34.5%), (4, 6.9%), (3, 5.2%), (Table 4). 7) 31 (53.4%), 27 (46.6%) 5) . Van-Nuys (4) 49 가 1 11 (22.4%), 2 16 (32.7%), 3 22 (44.9%) . 51 가 9 (17.6%), 19 (37.3%), 23 (45.1%) (Table 6). 8) (n=50), (n=50), p53(n=49) c-erbB-2(n=49)가 26 (52%), 25 (50%), 27 (55.1%), 15 (30.6%) (Table 7).

Table 4. Biopsy methods

Methods	No of cases (%)
Excisional biopsy	22 (38)
Needle localization excision	20 (34.5)
Needle core biopsy	4 (6.9)
Fine needle aspiration cytology	3 (5.2)
Stereotactic core biopsy	3 (5.2)
Microdochestomy	2 (3.4)
Incisional biopsy	2 (3.4)
Subareolar wedge excision	2 (3.4)
Total	58 (100)

Table 5. Mammographic findings

Findings	Number of cases (%)
Microcalcification	20 (38.5)
Mass with microcalcification	19 (36.5)
Mass	12 (23.1)
No abnormal finding	1 (1.9)
Total	52 (100)

Table 6. Pathological subtypes of DCIS

Classification	Subtypes	Number of cases (%)
Comedo (n=58)	Yes	31 (53.4)
	No	27 (46.6)
Van-Nuys (n=49)	1	11 (22.4)
	2	16 (32.7)
	3	22 (44.9)
Nuclear grade (n=51)	Low	9 (17.6)
	Intermediate	19 (37.3)
	High	23 (45.1)

Table 7. Expression of the molecular markers

Molecular markers	Number of cases (%)
Estrogen receptor (n=50)	26 (52)
Progesteron receptor (n=50)	25 (50)
p53 (n=49)	27 (55.1)
c-erbB-2 (n=49)	15 (30.6)

Table 8. Correlations between clinico-pathological findings (P-values)

	Age	Size	Comedo	ER	PR	p53	c-erbB-2	Van-Nuys group	Nuclear grade
Age		.152	.738	.162	.446	.504	.320	.111	.195
Size	.152		.433	.235	.883	.859	.011	.239	.111
Comedo	.738	.433		.294	.335	.372	.511	.772	.008
ER	.162	.235	.294		.000	.885	.002	.001	.001
PR	.446	.883	.335	.000		.318	.006	.002	.000
p53	.504	.858	.372	.855	.318		.289	.158	.505
c-erbB-2	.320	.011	.511	.002	.006	.289		.008	.001
Van-Nuys group	.111	.239	.772	.001	.002	.158	.008		.000
Nuclear grade	.195	.111	.008	.001	.000	.505	.001	.000	

9)

가 c-erbB-2가 (P=0.011),
 가 (nuclear grade versus ER: P=0.01, nuclear grade versus PR: P<0.01) c-erbB-2가 가 (P=0.001).
 c-erbB-2가 (ER versus c-erbB-2: P=0.002, PR versus c-erbB-2: P=0.006).
 가 (P=0.011),
 가 (P=0.008),
 p53 가 (Table 8).

10)

37 (5.4%)
 가
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 가 (43%),
 (12.1%), (6.9%),
 (5.2%), (1.7%)
 48.3% (28)
 17.3% (10)
 31% (18)
 1996 4.2%
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 1990 1995
 658 8.8% (58)가
 가
 , 1990 7% 1995 가
 12.1% 가 1.7 가
 가 (10,11)
 가
 가
 25~)%
 72~ 3%
 75%

(39) , mapping (immunohistochemical staining) , 38.5% (20) , 36.5% (19) , 23.1% (12) . (noncomedo) (comedo) .(20) , HER-2 (overexpression) (invasive focus) 가 (12) (77.4%:59.3%) HER-2가 (73.3%:67.6%) 가 (breast conserving surgery) 1997 “Consensus Conference on the Ductal Carcinoma In Situ.” (margin width), (cell polarization) 8.6% (5) (21) (multifocal or multicentric) (comedo), (cribriform), (micro-papillary), (papillary), (solid) 5가 multicentricity multifo- 58 31 (53.4%)가 Lagios (22) 53 Silverstein 2% 78% .(13,14) 39.2% 60 4 cm 1.7% , 1 cm 8% .(13) NSABP 가 (total mastectomy) B-06 (breast conserving therapy) 7% 1995 (group 1), (group 2), ,(4) 1996 가 (The Van Nuys Prognostic Index Scoring System, VNPI) (VNPI score 3~4), (score 5~7), (total mastectomy) (score 8~9) .(23) 가 1999 , , 10 mm , 1 mm .(24) , 49 가 , Silverstein (1995) group 1 22.4% (11

), group 2가 32.7% (16), group 3 44.9% (22) .
 (ER),
 (PR)
 p53, c-erbB-2
 ,
 p53 , c-erbB-2
 ER: 60~75%, (25,26) PR: 49~62%, (25,27) p53: 7~37%
 (28,29) c-erbB-2: 28~61% (25,30)
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 가
 c-erbB-2가
 ,
 c-erbB-2
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 (P=0.294). c-erbB-2
 , c-erbB-2가
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 PCR (polymerase chain reaction) Claus
 (25) c-erbB-2
 ,
 ,
 ,
 가
 , 40 가
 48.3% , 31%
 . 75% ,
 59.6% .
 1.7% (1) ,
 8.6% (5) , 2
 . 5.5%
 가 , 13.8% . ER,
 PR, c-erbB-2, p53 52%, 50%, 55.1%, 30.6%
 . 가 c-erbB-2가 ,
 가 c-erbB-2가
 가 , c-erbB-2가

가
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