

ACR BI-RADS (Suspicious Malignant)

가¹

: ACR BI-RADS (category 4)
가

: 8,134 BI-RADS
161 , 가 66
113
: 113 17.7%, 8.0%,
5.3%, 1.8%, 0.9%,
가 27.4%, 7.1%, 가 9.7%, 7.1%,
가 15.0% 52.3%,
41.2% 가
(amorphous) 가 47.3%, 가 37.1% 가
25.7%

가) 가 (assessment of finding)
(1-3,5). BI-RADS category 3 가
(probably benign lesion)
(Screening System)가 가 (6-8), category 4

(malpractice) BI-RADS lexicon (sus-
(1). ACR(American picious abnormality)
College of Radiology), NCI(National Cancer Institute), The
Centers for Disease Control, FDA(Food and Drug
Administration), AMA(American Medical Association),
ACS(American College of Surgeon), American College of
Obstetrics and Gynecology ACR (American
College of Radiology) Breast Imaging Reporting and
Data System(BI-RADS) lexicon
(1-4).
lexicon () (25 - 73 , 46.0 , 가 가
3 가 가

¹²

1999 3 15

1999 9 3

66

113

: ACR BI-RADS (Suspicious Malignant) 가

44.2 가 31 (27.4%), 8 (7.1%),
(22-66) . (Stromal Fibrosis)가 11 (9.7%), 8 (7.1%),
113 3 가 17 (15.0%) .
가 BI-RADS lexicon , 8,134 172 (2.1%) ,
category 4 113 29 (25.7%)

qui-square test , p 40
0.05 50 가 , 40 ,
30 , 50 (Table 2).
가 113 BI-
RADS
8,134 BI-RADS 52.3%(45 /86) 가 ,
category (Table 1). 가 24.4%(21 /86) .
161 , 41.2%(42 /102) 가
가 66 113 , (architectural distortion) 35.3%(36
(Infiltrating ductal carcinoma) 20 (17.7%), /102), (lobulated) 9.8%(10 /102)
(Ductal carcinoma in situ) 9 (8.0%),
(Atypical ductal hyperplasia) 6 (5.3%), (amorphous) 가 47.3%(26 /55) 가
(Ductal epithelial hyperplasia) 2 (clustered) 가 37.1%(13
(1.8%), (Ductect- asia) 1 (0.9%), /35) 가 , (segmental) 가
31.4%(11 /35) , (regional) 가 17.1%(6 /35)
(Table 3).

Table 1. Diagnostic Interpretations of Observers by ACR BI-RADS Assessment Categories

ACR BI-RADS	Number of Patients	(%)
Category 1	4,564	(56.1%)
Category 2	1,866	(23.0%)
Category 3	1,307	(16.0%)
Category 4	161	(2.0%)
Category 5	106	(1.3%)
Category 0	130	(1.6%)
Total	8,134	(100.0%)

ACR : American College of Radiology

50.0%(36
/72), 64.3%(9 /14)
(Fig. 1, 2), 가 26.4%(19 /72
43.0%(34 /79) ,
34.8%(8 /23) ,
34.2%(27 /79) , 39.1%(9
/23) 가

Table 2. Age Distribution of Pathologic Outcome of 113 Lesions of Category 4 Patients

Pathology \ Age	20 - 29yr	30 - 39 yr	40 - 49 yr	50 - 59 yr	60 - 69 yr	Total Number of Lesions
IDCa		2	8	10		20
DCIS		3	3	2	1	9
ADH		1	1	4		6
DEH	1		1			2
DE				1		1
FCC	3	7	15	4	2	31
FA	1	3	3	1		8
SF		5	2	4		11
Others		4	9	3	1	17
Normal	1	1	4	2		8
Total	6	26	46	31	4	113

IDCa : Infiltrating ductal carcinoma. DCIS : Ductal carcinoma in situ.
ADH : Atypical ductal hyperplasia. DEH : Ductal epithelial hyperplasia.
DE : Ductectasia. FCD : Fibrocystic change.
FA : Fibroadenoma. SF : Stromal fibrosis.
yr : years

47.8% (22 / 46), 44.4% (4
/ 9) (Fig. 3,4), (linear)
15.2% (7 / 46), 44.4% (4
/ 9) 가
40.0% (12 / 30), 20.0% (1
/ 5) 가
23.3% (7 / 30), 80.0% (4 / 5)
(Table 4).
(p=0.026),

BI-RADS lexicon
ACR . BI-RADS
(2). BI-RADS
lexicon . Baker (3)
, BI-RADS lexicon
(interobserver intraobserver)
가
(9) , ANN (artificial neural network)
(positive predictive value) 가

Table 3. Mammographic Features in BI-RADS Category 4 (n= 113)

Features	Number of Lesions	Percentage
Mass Margin (n= 86)		
Circumscribed	7	8.1%
Microlobulated	4	4.7%
Obscured	9	10.5%
Indistinct	21	24.4%
Spiculated	45	52.3%
Mass Shape (n= 102)		
Round	5	4.9%
Oval	9	8.8%
Lobulated	10	9.8%
Irregular	42	41.2%
Architectural distortion	36	35.3%
Calcification Morphology (n= 55)		
Coarse	11	20.0%
Punctate	7	12.7%
Amorphous	26	47.3%
Pleomorphic	0	0.0%
Linear	11	20.0%
Calcification Distribution (n= 35)		
Clustered	13	37.1%
Segmental	11	31.4%
Regional	6	17.1%
Diffuse	4	11.4%

* 가

BI-RADS lexicon ANN
(9). BI-RADS
lexicon
,
가
BI-RADS lexicon 1993 ACR
(4,10). BI-RADS lexicon 가
가
(5). BI-RADS lexicon category 가
, Orel (11)



Fig. 1. A 53-year-old woman with 1 month duration of clinically palpable mass in Lt. breast, which was confirmed as infiltrating ductal carcinoma.

Craniocaudal view mammogram shows a mass lesion with spiculated margins and irregular shape (arrows).

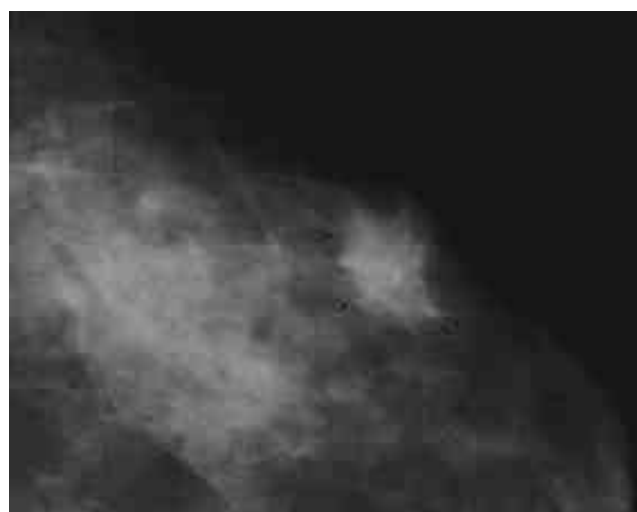


Fig. 2. A 48-year-old woman with 1 week duration of palpable mass in Lt. breast, which was confirmed as fibrocystic change. Craniocaudal view left mammogram shows about 2cm mass with converging spiculated margins (arrows) and architectural distortion.

Table 4. Comparison of Mammographic Features of Benign and Malignant Lesions (n= 113)

Features	Benign Lesions(n= 84)	(%)	Malignant Lesions(n= 29)	(%)
Mass Margin				
Circumscribed	5/72	6.9	2/14	14.3
Microlobulated	3/72	4.2	1/14	7.1
Obscured	9/72	12.5	0/14	0.0
Indistinct	19/72	26.4	2/14	14.3
Spiculated	36/72	50.0	9/14	64.3
Mass Shape				
Round	5/79	6.3	0/23	0.0
Oval	7/79	8.9	2/23	8.7
Lobulated	6/79	7.6	4/23	17.4
Irregular	34/79	43.0	8/23	34.8
Architectural distortion	27/79	34.2	9/23	39.1
Calcification Morphology				
Coarse	10/46	21.7	1/9	11.1
Punctate	7/46	15.2	0/9	0.0
Amorphous	22/46	47.8	4/9	44.4
Pleomorphic	0/46	0.0	0/9	0.0
Linear	7/46	15.2	4/9	44.4
Calcification Distribution				
Clustered	12/30	40.0	1/5	20.0
Segmental	7/30	23.3	4/5	80.0
Regional	6/30	20.0	0/5	0.0
Diffuse	4/30	13.3	0/5	0.0

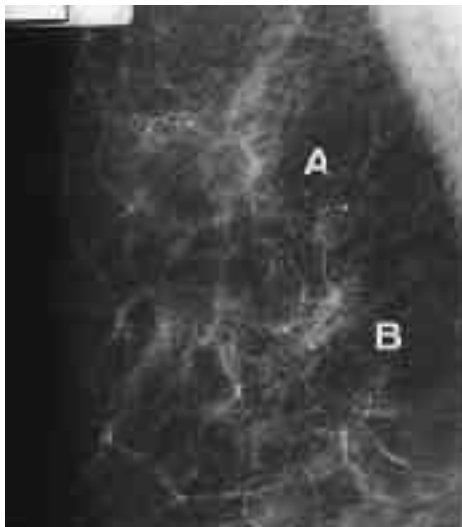


Fig. 3. A 57-year-old woman with 1 month duration of microcalcifications in Rt. breast, which was confirmed as fibrocystic change.

On mammography, asymmetrical increased density with indistinct and spiculated margins with architectural distortion are seen at right upper outer breast(A). There is another area which shows segmental distributed clustered amorphous calcifications surrounded by punctate calcifications.

598 가 category 2
13 0%, category 3 75
2.6%, category 4 427 29%
, category 5 83 94%

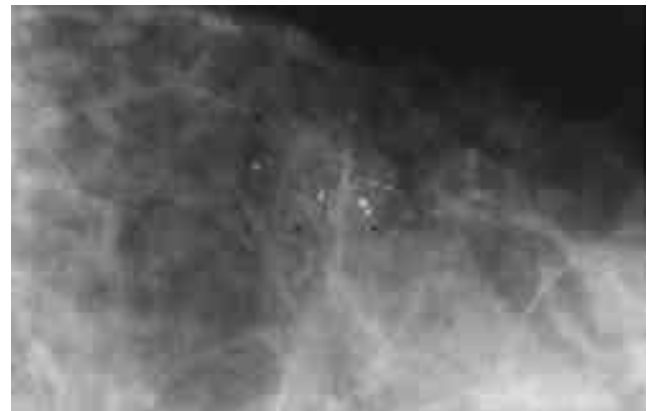


Fig. 4. A 43-year-old woman with 1 year duration of microcalcification in Rt. breast, which was confirmed as ductal carcinoma in situ.

Magnification craniocaudal view shows about 1cm lobulated margin mass with clustered punctate and amorphous calcifications(arrows). Radiolucent halo is also seen.

category 5 가 category 4
. Hanchak (12) 133,668
category 1
73.8 % (98,687), category 2 15.4 % (20,664), category 3
8.7 % (11,685), category 4 1.6 % (2,178), category 5
0.3 % (459) , category 1
0.1 % (148), category 2 0.3 % (72), category 3
2.0 % (237), category 4 15.8 % (343), category 5
47.5 % (218) .

category 1 57.0%, category 2 23.3%,
category 3 16.3%, category 4 2.0%, category 5 1.3%

category 4
25.7% , Orel (11) Hanchak
(12)

category 4

가 가
(supplementary study)

가

BI-RADS lexicon

가
(41.2%)

(5). 가
가 가 (52.3%)

(desmoplastic reaction)

(lipid-filled space)
(sclerotic stroma) (5,13).

(punctate) (coarse)
(typically benign)

(pleomor-
phic) , 가 (branching) 가
(3,5).

가
(p = 0.026).

(p = 0.067) (3). 가 가

(47.3%),

Liberian (5)

category 4

category 5(18%) category 4(82%)

BI-RADS

가 category
가 (5).

category 가

category

가

ACR BI-RADS가
KCR(Korean College of Radiology) BI-RADS가
가
BI-RADS lexicon

, BI-RADS

Category 4

25.7%

category 4

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Mammographic Evaluation of Suspicious Malignant Lesions Based on ACR(American College of Radiology) Breast Imaging Reporting and Data System(BI-RADS)¹

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Purpose : The purpose of this study was to assess the mammographic features and pathologic outcome of category 4 lesions using the Breast Imaging Reporting and Data System(BI-RADS), and to evaluate the significance of final assessment categories.

Materials and Methods : Using BI-RADS, the interpretations of 8,134 mammograms acquired between January 1997 and May 1998 were categorized. From among 161 lesions categorized as " 4 " (" suspicious abnormality ") and pathologically confirmed by surgery or biopsy, we analysed 113, found in 66 patients.

Results : The pathologic outcome of these 113 lesions was as follows: infiltrating ductal carcinoma, 17.7 %(20/113); DCIS(ductal carcinoma in situ), 8.0 %(9/113); ADH(atypical ductal hyperplasia), 5.3 %(6/113); DEH(ductal epithelial hyperplasia), 1.8 %(2/113); ductectasia, 0.9 %(1/113), FCD(fibrocystic change), 27.4 %(31/113); fibroadenoma, 7.1 %(8/113); stromal fibrosis, 9.7 %(11/113); normal parenchyma, 7.1 %(8/113); other pathology, 15.0 %(17/113). The most frequent mammographic features of BI-RADS category 4 lesions were irregular mass shape(41.2 %), spiculated mass margin(52.3 %), amorphous calcification(47.3 %) and clustered calcification distribution(37.1 %).

Conclusion : Because category 4 lesions account for about 25.7 % of all breast malignancies, mammographic lesions in this category (" suspicious abnormality ") should be considered for supplementary study and breast biopsy rather than short-term follow-up. Initial pathologic findings can thus be confirmed.

Index words : Breast neoplasms, diagnosis
Breast neoplasms, radiography

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