

2000
(American College of Radiology, ACR)
[7, Table 1] Baker
(60.5%) ACR
[8].

가 .
, ,
(
가).

가 44 (24 - 68) , 93

ACR
가

44
33
16
1) : 89 (95.7%)가
4 (4.3%)가

(Fig.

2002 3 7
93
2001 5 2002 7 73

1). 93 80 가
3 MHz 14 MHz
7 MHz

2) : 93 85 가

, 1 cm 가 가

73 (85.9%) , 12 (14.2%)
1 cm 2 cm 가

10 (11.8%), 2 cm 가 2 (2.4%)
(Fig. 2) 가

3) : 68 (73.1%) 25
(26.9%) 가 10

, 15 (Fig. 3).

4) : 51 (61.4%) 가 가

31 (33.3%), 가 가 5 (5.3%)

5) : 86 (92.5%)

Table 1. Guidelines from the ACR Standards 2000-2001 for Breast US [7]

| | |
|---------|--------------------------------|
| 1. 7MHz | (broadband system 가 6 MHz) |
| 2. | |
| 3. | 가 |
| 4. | |
| 5. | |
| 6. | (,) 가 |
| 7. | (dentification) |

가
ACR
가
2002 3 7
93
2001 5 2002 7 73
(
)
. 3
ACR (Table 1)
(identification) 가 (labeling),
ACR
가 (focal zone) , (gain)
가 가
가 1 cm
1 cm 2 cm 가 , 2 cm 가
가
(high gain),
(low gain)
(quadrant) 가 가

12 가 가 50%(8/16)

7 (7.5%) 가

6) : 80(86%)
76 (81.7%) 가

17 (Fig. 4). 15%

7) : 71 (76.3%) 가
49 (52.7%)

40 (43%) 71 (76.3%)
93 ACR 29
(31.2%) , 68

(36.6%) ACR 34
ACR

50%(8/16)
36.8%(17/44),
12.1%(4/33)

45.4%(20/44)
18.1%(6/33) ACR
가

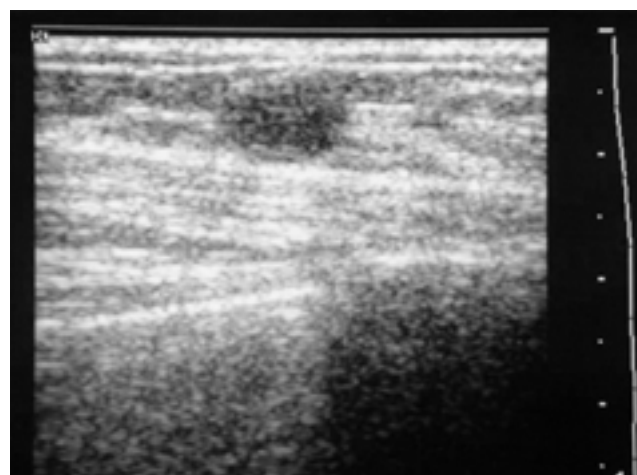


Fig. 2. Inappropriate depth of focal zone. The focal zone is placed at the level of lung tissue, 2 cm posterior to the pectoralis muscle

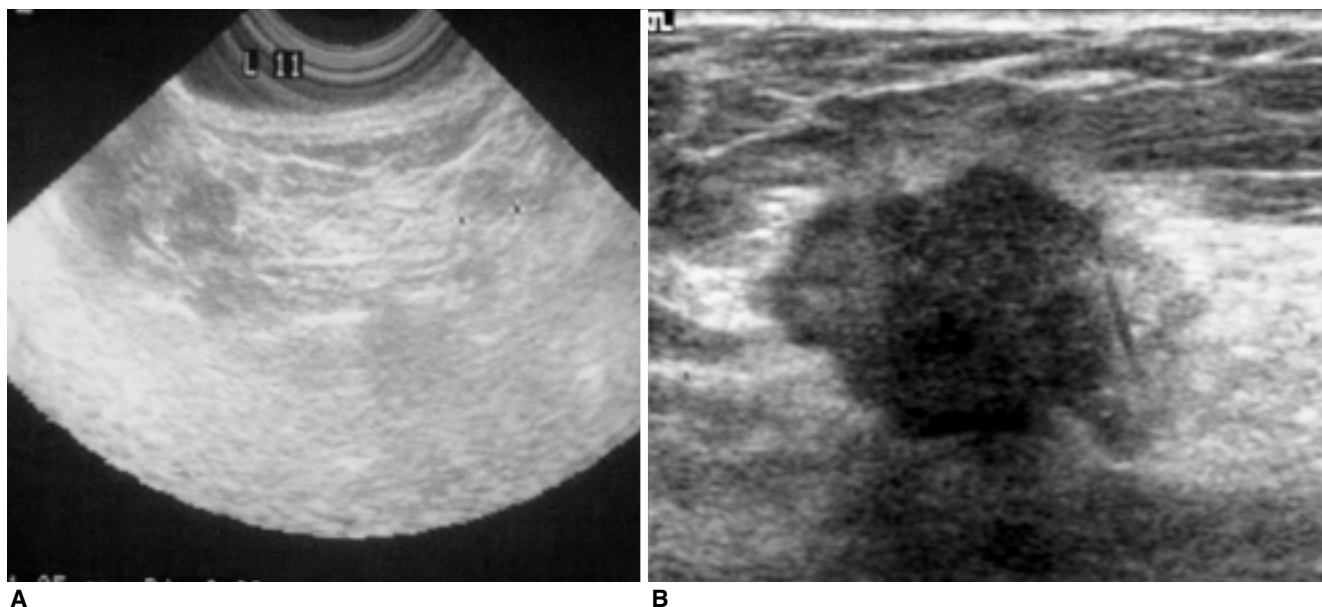
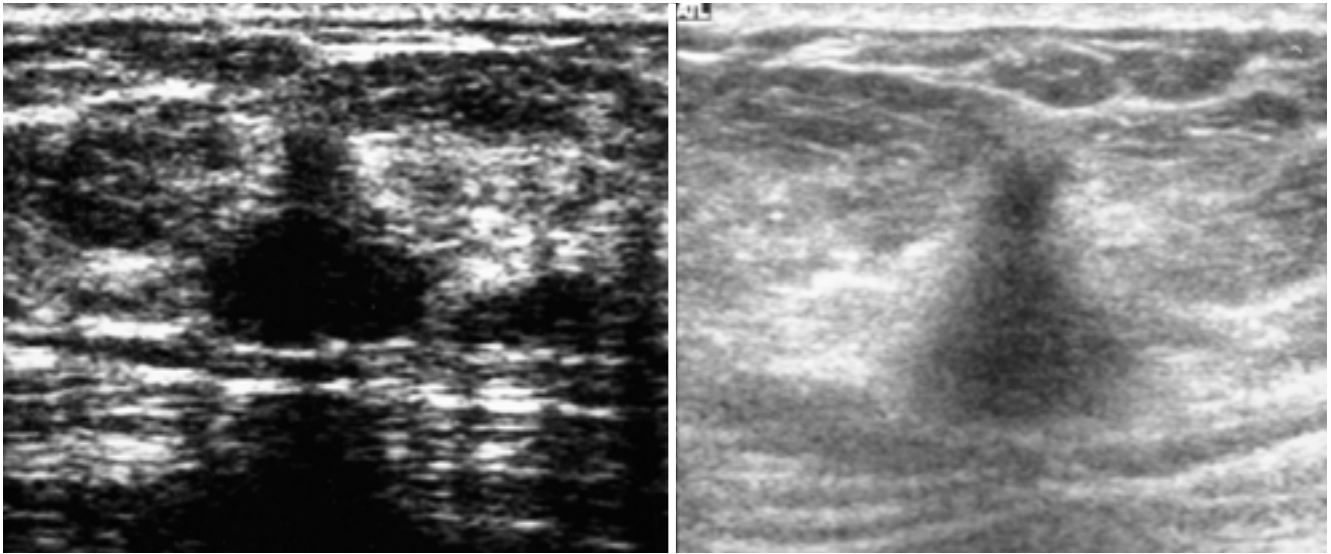


Fig. 1. Transverse sonogram of the breast obtained with convex probe.
A. There are two masses in the breast . A 3.5-MHz convex transducer was used. The detail of masses could not evaluated due to poor resolution. **B.** The image obtained 7.5 MHz linear probe shows hypoechoic mass with irregular speculated margin(B). It was an invasive ductal carcinoma. Another nodule was revealed an invasive ductal carcinoma.



A **B**
Fig. 3. Inappropriate gray-scale gain (low gain).
 A 54-year old woman with non-palpable breast cancer in her left breast.
A. The gain setting of the sonogram obtained from an outside facility was too dark. Therefore, the mass was interpreted as cystic mass at outside facility. **B.** But, the mass was subsequently reinterpreted as a solid mass after the appropriate gray-scale gain setting in our hospital and confirmed as invasive ductal carcinoma.

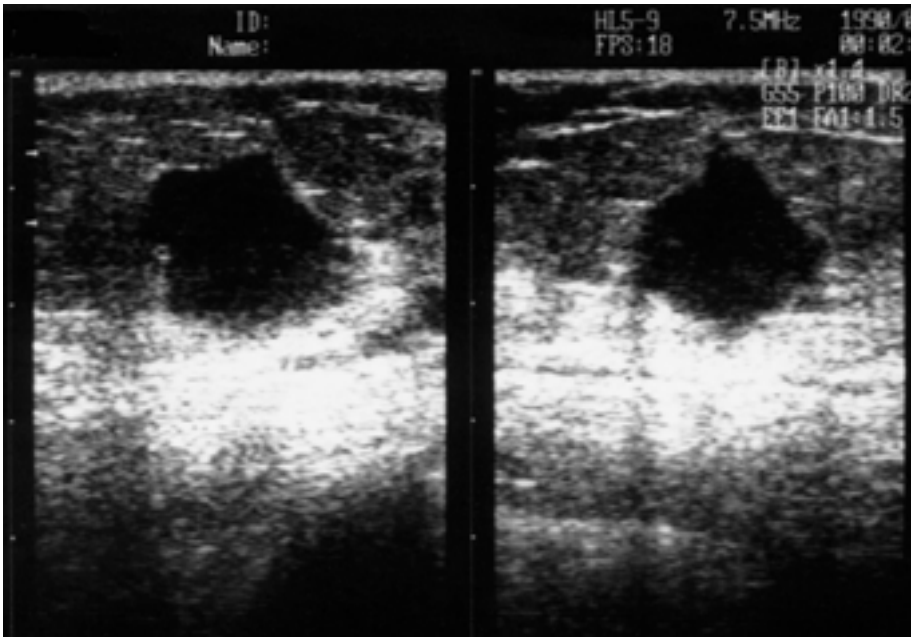


Fig. 4. Inappropriate permanent identification label.
 The sonogram didn't include the patient's name, identification number, age and facility name. Moreover, the examination date and time was wrong in spite of film taken of 2003.

[9 - 11]. Kolb 가

가 [6]. 가 MQSA) , 1992 11 (Mammography Quality Standards Act, 1993

, 가 [12].

: 가
 MQSA 가 ,
 [13].
 2001 1
 , 가 ,
 가 [14].
 MQSA ,
 ACR 가 ,
 , ,
 [7]. Barker 86
 152 가
 ACR [15]. ACR
 , 60.5%(92/152) (Breast Imaging
 , 9.2%(1/152) Reporting and Data System: Ultrasound, BI - RADS:
 [8]. 68.8%(68/93) Ultrasound) 2001
 5MHz [16].
 4
 (4.3%) . 69% 가 ACR
 가 ,
 14.2%(12/85)
 . ACR ,
 , 27%(25/93) 10
 , 15
 가 가
 , 18%(17/93)
 가 , 14%(13/93)
 . 가
 43%(40/93) 가
 ACR

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= Abstract =

Technical Quality Assessment of Breast Ultrasound According to American College of Radiology (ACR) Standards

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PURPOSE : To evaluate the technical quality of breast ultrasound based on American College of Radiology(ACR) standards.

MATERIALS and METHODS : Between March 2002 and July 2002, ninety three breast sonograms obtained from 73 institutions were evaluated based on ACR standards for the hardware, technical settings, labeling of the images and identification.

RESULTS : Of 93 breast sonograms, a satisfactory compliance with all ACR standards in the performance of breast US examinations was documented in 31% while the remaining 69% did not fully meet all ACR standards. 4.3% of breast US examinations were performed with a convex transducers, and the focal zone was inappropriately positioned in 14.2%. Gray-scale gain was subjectively characterized as inappropriate in 26.9%, and the size of lesion was not measured in 7.5%. Anatomic location of lesions was inappropriately described in 9.3%. The orientation of an US transducer was not properly labeled on any images in 33.3%. Inadequate recording of patient's information was noted in 43.3%. 50% of sonograms at University medical centers and larger general hospitals fully met all ACR standards while 36.8% at radiologic clinics and 12.1% at other private clinics met all ACR standards.

CONCLUSION : Overall, 69% of breast sonograms failed to meet the quality criteria of the ACR standards. Therefore, it is essential to educate the basic technical details in performing breast US for the quality control.

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