

가

가 1

. 2 . . . 3 . 4 . 5

:
 : 2003 4 2005 2
 107 113
 , , (,),
 , , , , , , ,
 : 22 66 41 50 가 58% 가
 45% 가 Type 3,
 4 91% ,
 84 23 23 , ,
 90 가
 : 가
 가 가 .

(1).
 (2), Perdue (3)

89% - 92%

가

(7),

가

10% - 15%

(4-6).

(7-11).

1
2
3
4
5

2003 ()

2006 4 4

2006 5 23

2003 4

2005 2

: 가 가

107 113
1
22 66 48.8

가 ,

30

30

가

가

Performa(Instrumentarium Corp, Tuusula, Finland)

가 (American College of Radiology) (Breast Imaging Reporting and Data System, BI - RADS) (12) 1 (category 1, negative)

BI - RADS(12)

4 (Type 1, almost entirely fat; Type 2, scattered fibroglandular density; Type 3, heterogeneously dense; Type 4, extremely dense).

HDI 5000 (ATL, Bothell, WA, U.S.A.)

SONOLINE Antares (Siemens, Mountain view, CA, U.S.A.)

7 - 13 MHz

가

(radial scan)

(antiradial scan) 가

BI - RADS(12) 1 (category 1, negative)

4

가 (purely hyperechoic fibrous tissue, Fig. 1);

(mixed fibroglandular breast tissue, Fig. 2);
(predominantly isoechoic glandular tissue, Fig. 3);
(isoechoic subcutaneous fat tissue, Fig. 4).

1

가

4

가

14gauge

χ^2 test

, p 0.05

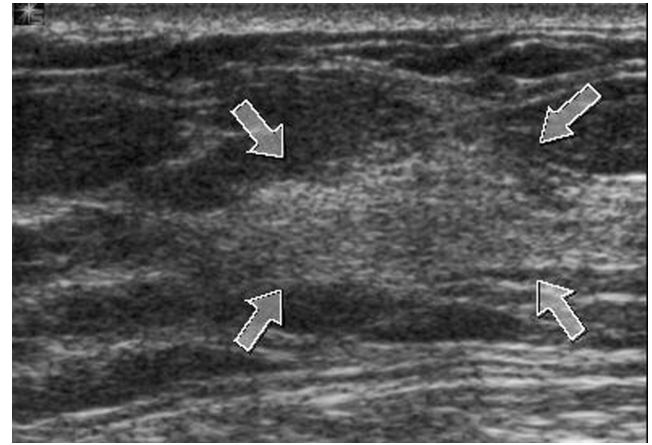


Fig. 1. Sonogram in a 44-year-old woman with a palpable abnormality at the upper central portion in the left breast shows purely hyperechoic fibrous tissue (arrows) without a focal abnormality in the area of clinical concern.

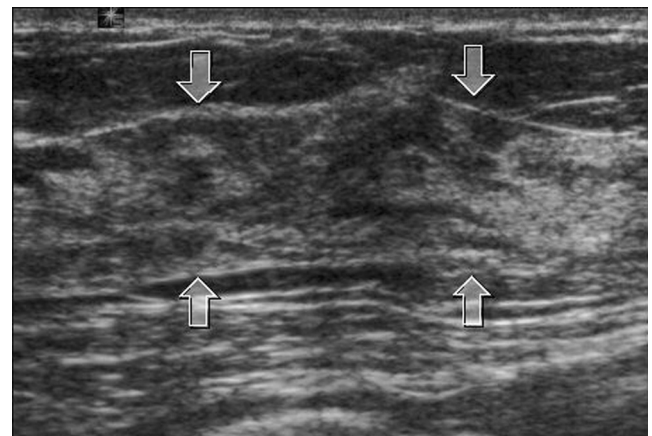


Fig. 2. Sonogram in a 40-year-old woman with a palpable abnormality at the upper outer portion in the left breast shows mixed fibroglandular breast tissue (arrows) without a focal abnormality in the area of clinical concern.

107 9 107 가 21
 55 (48.7%), 45% 가 58 (51.3%)
 23 , 23 (Table 1).
 84 67 , 72 1 (12-30 , 16.7)
 , 18 가

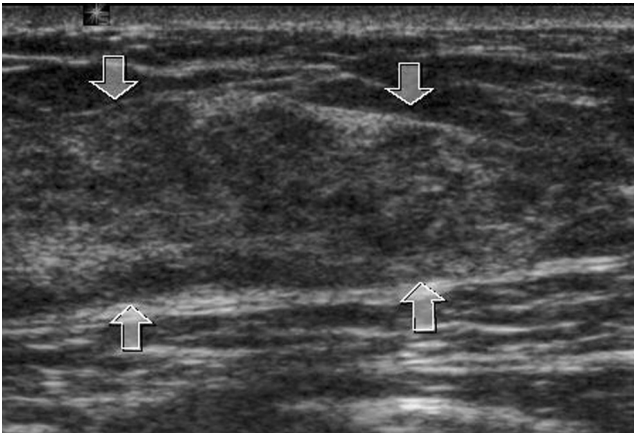


Fig. 3. Sonogram in a 44-year-old woman with a palpable abnormality at the upper inner portion in the left breast shows predominantly isoechoic glandular tissue (arrows) without a focal abnormality in the area of clinical concern.

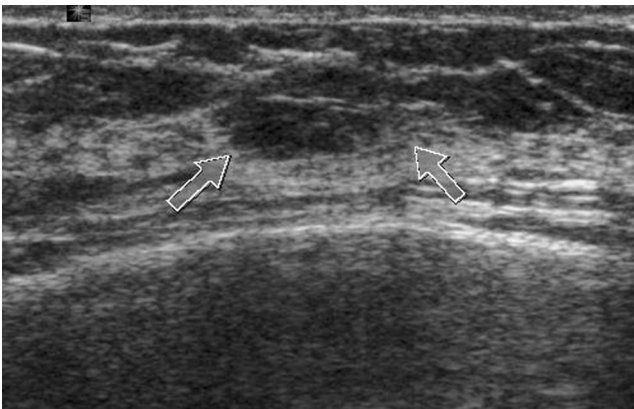


Fig. 4. Sonogram in a 45-year-old woman with a palpable abnormality at the lower outer portion in the left breast shows isoechoic subcutaneous fat tissue (arrows) without a focal abnormality in the area of clinical concern.

3 1
 , 1
 , 1
 . 3
 Type 1 4 (4%), Type 2가
 6 (5%), Type 3 48 (42%), Type 4가 55 (49%)
 Type 3, 4 91%
 (purely hyperechoic fibrous tissue)
 26 (23%), (mixed
 fibroglandular breast tissue) 37 (33%),
 (predominantly isoechoic glandular tissue) 33
 (29%), (isoechoic subcutaneous
 fat tissue) 17 (15%) (Table 2)

가 ($p > 0.05$).

100%

Table 1. Histologic Diagnoses in Patients Who Underwent Biopsy

Histologic diagnoses	No. of patients ($n=23$)
acute hemorrhage with fibrinous exudate	1
adenosis	10
blunt duct adenosis	2
duct ectasia with stromal fibrosis	2
fat lobule	1
fibroadipose tissue	1
fibrocystic change	1
fibrosis with hyalinization	1
sclerosing adenosis	2
stromal fibrosis	2

Note. Data are numbers of patients.

Table 2. Sonographic Echo Patterns at the Sites of the Palpable Abnormalities

US echo patterns / Bx	Yes ($n=23$)	No ($n=90$)
purely hyperechoic fibrous	5 (22)	21 (23)
mixed fibroglandular	7 (30)	30 (33)
predominantly isoechoic glandular	10 (44)	23 (26)
isoechoic subcutaneous fat	1 (4)	16 (18)

Note. Data are numbers of patients. The numbers in parentheses are percentages.

: 가 가

90%

가

(13).

가

(1),

(14).

가

가

가

BI-RADS (12)

(10).

1

(4-6)

Moy (11)

가

가

가

가

가

(1). Dennis (7)

7가

가

가

(15).

가

가

type 1, 4, 6

(type 1,

가

hyperechoic tissue that contained thin branching hypoechoic or anechoic structures; type 2, a band of hyperechoic tissue within isoechoic tissue; type 3, equal amounts of hyperechoic and isoechoic tissue; type 4, focally prominent homogeneously hyperechoic tissue; type 5, ovoid isoechoic structures separated by thin echogenic septa; type 6, a "trapped" fat lobule; type 7, prominent tubular and/or branching hypoechoic or anechoic structures).

가 (7-11). Dennis

(7)

Shetty (8)

100%

, Weinstein (9)

416

2 가

99.5%

Soo (10)

445

1

99.8%

. Moy (11)

233

6

2.6%

100%

가

97.4%

13 MHz

가

가

12

Stavros (13)

가

가

100%

가

가

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The Clinical Significance of Normal Mammograms and Normal Sonograms in Patients with Palpable Abnormalities of the Breast¹

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Purpose: We wanted to evaluate the clinical significance of normal mammograms and normal sonograms in patients with palpable abnormalities of the breast.

Materials and Methods: From Apr 2003 to Feb 2005, 107 patients with 113 palpable abnormalities who had combined normal sonographic and normal mammographic findings were retrospectively studied. The evaluated parameters included age of the patients, the clinical referrals, the distribution of the locations of the palpable abnormalities, whether there was a past surgical history, the mammographic densities and the sonographic echo patterns (purely hyperechoic fibrous tissue, mixed fibroglandular breast tissue, predominantly isoechoic glandular tissue and isoechoic subcutaneous fat tissue) at the sites of clinical concern, whether there was a change in imaging and/or the physical examination results at follow-up, and whether there were biopsy results. This study period was chosen to allow a follow-up period of at least 12 months.

Results: The patients' ages ranged from 22 to 66 years (mean age: 48.8 years) and 62 (58%) of the 107 patients were between 41 and 50 years old (58%). The most common location of the palpable abnormalities was the upper outer portion of the breast (45%) and most of the mammographic densities were dense patterns (BI-RADS Type 3 or 4: 91%). Our cases showed similar distribution for all the types of sonographic echo patterns. 23 patients underwent biopsy; all the biopsy specimens were benign. For the 84 patients with 90 palpable abnormalities who were followed, there was no interval development of breast cancer in the areas of clinical concern.

Conclusion: Our results suggest that we can follow up and prevent unnecessary biopsies in women with palpable abnormalities when both the mammography and ultrasonography show normal tissue, but this study was limited by its small sample size. Therefore, a larger study will be needed to better define the negative predictive value of combined normal sonographic and mammographic findings.

Index words : Breast US
Breast radiography, comparative studies
Breast, abnormalities
Biopsies

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