The American Journal of Surgery (2016) 211, 152-158

The American Journal of Surgery®

Clinical Science

Short-term follow-up in 6 months is unnecessary for asymptomatic breast lesions with benign concordant results obtained at ultrasonography-guided 14-gauge core needle biopsy

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KEYWORDS:
Breast malignancy;
Core needle biopsy;
Follow-up

Abstract

BACKGROUND: We investigated whether short-term follow-up in 6 months was appropriate for asymptomatic benign concordant lesions on ultrasonography-guided core needle biopsy (ultrasonography-guided CNB).

METHODS: Of 1,111 lesions, 944 underwent follow-up within 4 to 9 months after CNB, and 359 of 944 underwent a 2nd follow-up within 9 to 15 months. One hundred sixty-seven underwent a 1st follow-up within 9 to 15 months. Follow-up intervals were classified according to an interval of 6 and 12 months with 2 different methods. First, 944 and 167 lesions were classified into the 6- and 12-month groups. Second, 944 and 526 lesions (sum of 167 and 359 lesions) were classified into the 6- and 12-month groups. Clinicopathologic factors were compared between the 2 groups.

RESULTS: None of the benign concordant lesions were malignant; 1.4% of the lesions showed progression in the 6-month group, not significantly different from 1.2% and .8% of the 12-month group. Mean age, mean lesion size, final assessments, and specific or nonspecific pathologies were not different between the 2 groups.

CONCLUSIONS: Short-term follow-up in 6 months is unnecessary for asymptomatic benign concordant breast lesions at ultrasonography-guided CNB.

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Percutaneous imaging-guided core needle biopsy (CNB) is an alternative to surgical biopsy because of its accuracy, less invasiveness, cost-effectiveness, and safety.[1–3] As approximately 80% of masses are seen on ultrasonogram,[4] ultrasonography (US)-guided CNB is nonionizing, needs no compression, and is more cost-effective than

The authors declare no conflicts of interest.

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Manuscript received January 30, 2015; revised manuscript March 10, 2015

0002-9610/$ - see front matter © 2016 Elsevier Inc. All rights reserved.
http://dx.doi.org/10.1016/j.amjsurg.2015.03.036

stereotactic or magnetic resonance imaging guidance.[2,3,5–9] However, a limitation of CNB is false-negative results, which are mainly due to sampling errors.[5,7,10–13] To avoid a delayed diagnosis of breast cancer, imaging-pathologic concordance assessment and follow-up after benign biopsy are essential.[2,5,7,10,14–16]

The follow-up protocols after benign concordant lesions vary according to institution.[14,17] Some reports suggest that the initial follow-up should be done at 6 months for all benign concordant lesions.[1,18,19] Others recommend a short-term follow-up at 6 months for benign concordant lesions with nonspecific pathology or symptoms, and a 12-month follow-up for those with specific pathology or without symptoms.[10,11,20] The guidelines presented by the National Comprehensive Cancer Network recommend a follow-up at 6 to 12 months regardless of pathologic results or symptoms.[21] The American College of Radiology Breast Imaging Reporting and Data System (BI-RADS) has no guideline for the follow-up interval of benign concordant lesions.[22] Recently, several studies have suggested that a short-term follow-up for benign concordant lesions does not improve breast cancer detection.[14,23,24] However, both US-guided or stereotactic-guided biopsies were included,[14] and lesion-to-lesion correlation was not performed in these studies.[23,24]

Therefore, we retrospectively compared the malignancy rates of benign concordant lesions after US-guided 14-gauge CNB according to the follow-up intervals of 6 and 12 months. From the results, we investigated whether the 6-month follow-up for asymptomatic benign concordant lesions was appropriate.

Methods

Population

Our institutional review board approved this retrospective study and required neither patient approval nor informed consent for the review of medical records.

From April 2008 to July 2011, 6,038 US-guided 14-gauge CNBs in 5,405 women were performed at our institution. Among them, 1,437 lesions in 1,324 women were malignant; 630 lesions in 556 women were high-risk lesions of atypical ductal hyperplasia, lobular neoplasia, radial sclerosing lesions, possible phyllodes tumors, benign papilloma, atypical papilloma, and mucocele-like lesions[20,25]; and 3,971 lesions in 3,525 women were benign. Of 3,971 benign lesions, 126 lesions (3.2%) in 118 women, had benign discordant assessments, which were recommended for rebiopsy. Of 3,845 benign concordant lesions in 3,407 women, 1,277 with symptomatic lesions, 864 with no follow-up after CNB, 483 with excision after CNB because of concurrent breast cancer or the physician's or patient's preference (in which none was cancer), 110 with an initial follow-up after 15 months were excluded. Finally, a total of 1,111 asymptomatic benign concordant lesions in 998 women with a 1st follow-up within 15 months after CNB were included in this study (Fig. 1).

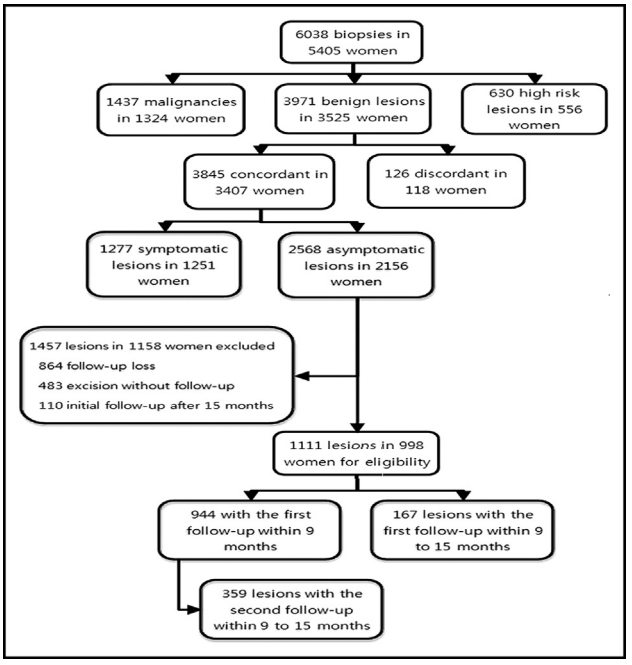

Figure 1 Study population of inclusion.

Biopsy procedure

US-guided CNB was performed for breast masses found on US, which were assessed as the American College of Radiology BI-RADS category 4 or 5.[22] If women or their clinicians chose to undergo biopsy for category 3 lesions, a biopsy was performed as well. All US-guided CNBs were performed by dedicated breast imaging radiologists with US machines (iU22 or HDI 5000; Philips-Advanced Technology Laboratories, Bothell, WA and Logic 9; GE Medical Systems, Milwaukee, WI) and 5- to 12- or 7- to 12-MHz linear array transducers. US-guided CNB was performed with at least 5 passes using a 14-gauge dual-action semiautomatic core biopsy needle with a 22-mm throw (Stericut with coaxial; TSK laboratory, Tochigi, Japan).

Imaging-pathologic concordance assessment, management recommendation, and follow-up

Imaging-pathologic concordance was assessed in a weekly conference, consisting of all radiologists who performed CNB. US images and pathologic results were correlated. Concordance was assessed when a histologic result provided an acceptable explanation for the imaging findings and discordance was assessed when a histologic result was not sufficient enough to explain the imaging findings.[14,20,26] In cases needing the expertise of pathologists, concordance assessment was made after discussion with pathologists. Concordance assessments and follow-up recommendations were added to the radiologic reports as

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