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Stereotactic Breast Biopsy With Benign Results Does Not Negatively Affect Future Screening Adherence

SA-CME

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Abstract

Purpose: To evaluate whether false-positive stereotactic vacuum-assisted breast biopsy (SVAB) affects subsequent mammographic screening adherence.

Materials and Methods: This Institutional Review Board–approved, HIPAA-compliant retrospective review of women with SVAB was performed between 2012 and 2014. Patient age, clinical history, biopsy pathology, and first postbiopsy screening mammogram were reviewed. Statistical analyses were performed using Fisher's exact, Mann-Whitney, and χ^2 tests.

Results: There were 913 SVABs performed in 2012 to 2014 for imaging detected lesions; of these, malignant or high-risk lesions or biopsies resulting in a recommendation of surgical excision were excluded, leaving 395 SVABs yielding benign pathology in 395 women. Findings were matched with a control population consisting of 45,126 women who had a BI-RADS 1 or 2 screening mammogram and did not undergo breast biopsy. In all, 191 of 395 (48.4%) women with a biopsy with benign results and 22,668 of 45,126 (50.2%) women without biopsy returned for annual follow-up >9 months and ≤18 months after the index examination ($P = .479$). In addition, 57 of 395 (14.4%) women with a biopsy with benign results and 3,336 of 45,126 (7.4%) women without biopsy returned for annual follow-up >18 months after the index examination ($P < .001$). Older women, women with personal history of breast cancer, and women with postbiopsy complication after benign SVAB were more likely to return for screening ($P = .026$, $P = .028$, and $P = .026$, respectively).

Conclusion: The findings in our study suggest that SVABs with benign results do not negatively impact screening mammography adherence. The previously described "harms" of false-positive mammography and biopsy may be exaggerated.

Key Words: Stereotactic biopsy, benign breast biopsy, screening, adherence

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INTRODUCTION

Mammography is the only imaging test shown to decrease the mortality rate from breast cancer [1-7]. However, critics of screening mammography argue that harms of screening include unnecessary recalls and biopsies. Up to 50% of women will have at least one false-positive mammogram after a decade of annual screening [8]. National and international studies have demonstrated variable adherence rates for screening mammography after so-called false-positive mammograms [9-14]. Concern has been voiced that false-positive mammograms may deter women from obtaining future screening mammography, thereby increasing their risk of breast cancer mortality [13].

Overall, 1% to 2% of screened women have an image-guided biopsy. Because 20% to 40% of these biopsies yield

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a diagnosis of cancer [15], a mammographic recall may lead to a biopsy [16] with benign results. Some authors have argued that biopsies cause significant distress in women awaiting the biopsy procedure [17,18] or awaiting notification of biopsy results [19]. Biopsies with benign results have also been shown to alter breast self-examination practices [20] and clinical follow-up adherence [16]. Critics of benign breast biopsies have also suggested that these procedures lead to exaggerated perceptions of personal breast cancer risk, resulting in avoidance of mammography. With the revised American Cancer Society Guidelines for screening mammography [21] and the latest United States Preventive Services Task Force guidelines [22], it is clear that critics of screening mammography place a great deal of weight on unnecessary recalls and biopsies. However, there is a paucity of data on whether a benign breast biopsy may impact a woman's later adherence with screening.

The purpose of our study is to evaluate whether false-positive stereotactic vacuum-assisted breast biopsy (SVAB) affects subsequent mammographic screening adherence in a single institution academic breast imaging practice.

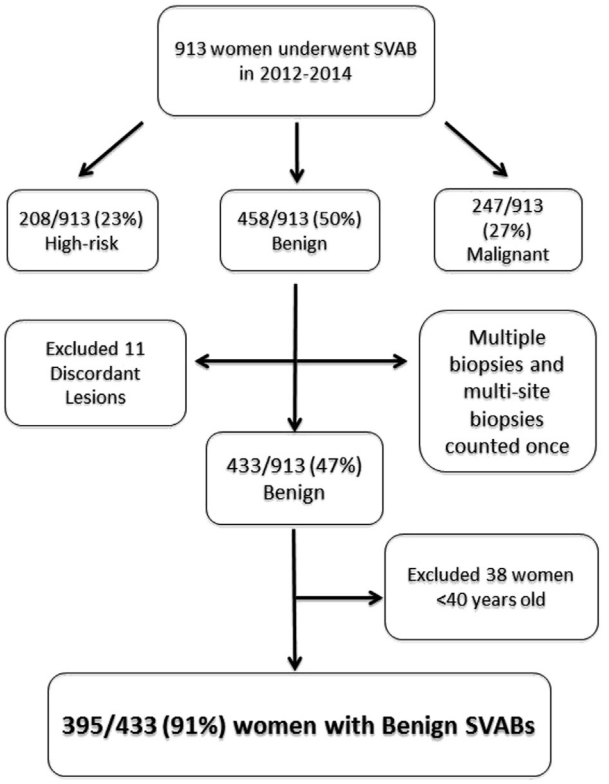

Fig 1. Benign stereotactic vacuum-assisted breast biopsy (SVAB) population.

MATERIALS AND METHODS

Inclusion and Exclusion Criteria

Our study was an Institutional Review Board–approved, HIPAA-compliant retrospective review of women who had SVABs performed at our institution between January 1, 2012, and December 31, 2014, matched against normal, asymptomatic controls with negative screening mammograms and without biopsy intervention.

Our electronic medical records database was searched to identify SVABs performed between 2012 and 2014; 913 imaging-detected lesions were recommended for SVAB, of which 458 of 913 (50%) proved to be benign lesions (see Fig. 1). After our exclusion criteria (see Fig. 1), we had a total of 433 SVABs yielding benign pathology in 395 women (55.66 ± 11.12 years, range 40-85 years).

Control Population

With the assistance of an electronic data capture service within our Research Information Technology Department, the biopsy cohort was matched with a control population. Institutional medical records and a breast imaging-specific database were searched to identify women who underwent screening mammography during 2012 to 2014 (53,195 women). At our institution, women with a personal history of breast cancer >5 years prior undergo annual screening (as opposed to diagnostic) mammography and therefore are included in our control population. After inclusion and exclusion criteria (Fig. 2) were applied, there were 45,126 women (mean age 57.03 ± 11.26 years; range 40-99 years) in the control cohort who had a BI-RADS 1 or 2 screening mammogram without recall or breast biopsy.

Data Collection

Information including patient age, clinical history biopsy pathology, biopsy complication, and date of first post-biopsy screening mammogram were culled from the medical record. We also recorded one of three self-reported race categories (white, black, Asian) and excluded women from analysis where race was not available in the medical record (13,297 women; 29.5%) or where numbers were too small for statistical analysis (other race: 6,045 women; 13.4%). In accordance with the literature [23], we defined age groups by decade: age group 1, 40 to 49 years; age group 2, 50 to 59 years; age group 3, 60 to 69 years; age group 4, ≥70 years.

Follow-up Screening Intervals

Mammography adherence was determined by evaluating time between screening mammograms for the benign biopsy group and the control cohort, respectively. Our