

# Young Woman in the Breast Clinic: Ultrasound or Not?

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**ABSTRACT:** **Background:** Young women concerned about a breast cancer diagnosis will visit breast care centers and request breast cancer screening, including imaging studies, on their initial visit. **Objectives:** To explore the role of breast examination and breast ultrasound in self-referred asymptomatic women under the age of 40 years. **Methods:** We identified 3524 women under the age of 40 at our medical clinic from 1 January 2010 until 1 June 2014. Of this group, 164 women with above average breast cancer risk were excluded and 233 were excluded because of breast complaints. Of 3127 women, 220 underwent breast ultrasound following the initial visit to the clinic and formed the study group. **Results:** Of 220 women evaluated with ultrasound, 68 had prior positive clinical findings. Of this group 8 women had no sonographic findings, and in the remaining 60, a total of 30 simple cysts, 15 fibroadenomas, and 15 suspicious solid masses were identified. One infiltrating ductal carcinoma and one ductal carcinoma in situ were found in a biopsy. The remaining 152 of the 220 total women who underwent breast ultrasound without showing prior physical findings did not require follow-up. **Conclusions:** In the absence of clinical findings during physical breast examination, the addition of breast ultrasonography does not provide additional information to supplement the physical examination in self-referred women under age 40 who do not have any major risk factors for developing breast cancer.

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**KEY WORDS:** breast cancer, breast ultrasound, young women, screening, manual examination

makers in the United States [2]. The problem has been studied extensively with randomized controlled trials, population-based screening programs, and observational studies. Based on long-term follow-up data from these sources, a new set of updated guidelines has been formulated by the American Cancer Society (ACS), which was released in October 2015 [3]. According to these recommendations, women with an average risk of breast cancer should undergo regular screening mammography starting at age 45 years. However, this strong recommendation of the ACS has been supplemented with a qualified recommendation that women should have the opportunity to begin annual screening between the ages of 40 and 44 years. Moreover, the ACS does not recommend clinical breast examination for breast cancer screening among average-risk women at any age.

Women under age 40 are not routinely referred to breast clinics because of the low incidence of breast cancer in this age group. No evidence-based guidelines for breast cancer screening in this population exist. However, because of growing public awareness, media hype that overstates cancer risks, and global information sharing, many young women feel anxious about their breast health and demand breast cancer screening at ages younger than that recommended by national screening programs.

Because of the high awareness of breast cancer in Israel and easy access to health care in specialist clinics, many anxious young women visit breast care centers and request breast examinations and imaging studies. The aim of this study was to explore the role of breast examination and breast ultrasound on initial visit in self-referred asymptomatic women under the age of 40.

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**B**reast cancer is an age-related event among women. It is uncommon in young women, and its risk increases with age. Only 6.5% of breast cancers are common in women under age 40. The chance that a 30-year-old woman without risk factors will develop breast cancer in the next decade of her life is 0.44% [1]. The ideal age for screening for breast cancer in women with an average risk has been a matter of controversy, not only in different countries, but also among different policy

## PATIENTS AND METHODS

This study was approved by the institutional ethics review board committee of the Clalit Health Care Services, Dan District, under protocol number 0030-17-COM.

The Clalit Health Care Clinic in Ramat Gan, Israel, offers a wide range of professional services to the public, and employs a breast surgeon who provides breast examinations for women of any age. While the routine screening program at the clinic commences at age 40, a substantial number of younger women visit the clinic because of concern about breast cancer. Our practice

is to offer individual risk assessment, clinical breast examination, and follow-up within one year in the absence of clinical findings. Women with clinical findings on breast examination are advised to undergo breast ultrasound scans as an initial test.

From 1 January 2010 until 1 June 2014, 3524 women under the age of 40 were identified based on the breast clinic electronic database. Of these, 164 women with breast cancer risk above average were excluded, which included 151 women with a personal history of breast cancer or a first degree relative affected before age of 50 and 13 carriers of known BRCA mutations. The average risk was defined as: no personal history of breast cancer, no known BRCA mutations, and no first-degree relatives with breast cancer under the age of 50. We excluded 233 women because of breast complaints (pain, mass, lactation related problems, nipple discharge). The remaining 3127 women were identified as average risk and younger than 40 years of age. In their medical charts, the reason for a visit was indicated as “breast check-up,” and no specific breast related complaints were identified. All of the women (n=3127) were offered annual breast examination, until the age of 40. In this group, 220 women underwent breast ultrasound following their initial visit to the clinic. This group formed the study group.

**RESULTS**

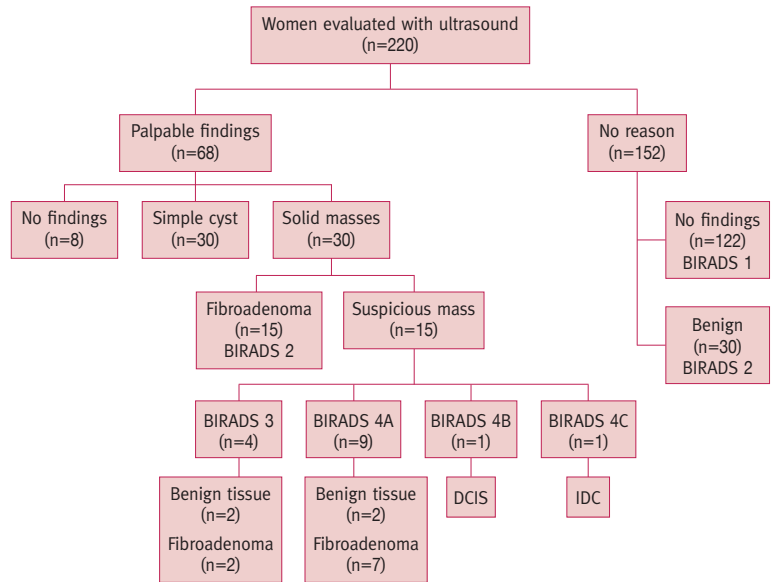
Of 220 women evaluated by ultrasound, 68 had positive clinical findings and 152 did not have identifiable reasons. The mean age of the women was 32 years (range 23–39 years) in the group with positive clinical findings, and 30 years in the second group (range 22–39 years). In the first group, eight women had no sonographic findings (Breast Imaging-Reporting and Data System, BIRADS 1). In the other 60 women, ultrasonography correlated with the clinical examination as follows: 30 simple cysts (BIRADS 2), 15 solid masses compatible with sonographic fibroadenomas (BIRADS 2), and 15 suspicious solid masses (one BIRADS 4B, one BIRADS 4C, four BIRADS 3, and nine BIRADS 4A).

All 15 suspicious masses were biopsied. Of them, one was infiltrating ductal carcinoma (IDC), and one ductal carcinoma in situ. The other 13 biopsies showed benign breast tissue in 6 cases and fibroadenoma in 7.

Of the 152 women without physical findings, 122 had normal breast ultrasonography (BIRADS 1), and 30 had benign findings (BIRADS 2), which did not warrant further investigation [Figure 1].

In asymptomatic women with positive clinical findings, 15 biopsies were performed, and 2 cancers were found. This result represents a positive biopsy rate of 13.3% (2/15), and corresponds to a cancer detection rate of 0.9% (2/220) among 220 women examined with ultrasound. The cancer detection rate for women with positive clinical findings examined with ultrasound was 2.9% (2/68). The cumulative cancer detection

**Figure 1.** Results of the 220 women evaluated by ultrasonography



BIRADS = Breast Imaging-Reporting and Data System, DCIS = ductal carcinoma in situ, IDC = infiltrating ductal carcinoma

rate during the study period for all average risk women under the age of 40, examined in our clinic was 0.06% (2/3127).

**DISCUSSION**

It is estimated that 12,150 cases of breast cancer in the United States will be diagnosed in women under the age of 40, and approximately 26,393 will be in women under 45 years of age [4]. Every year, more than 1000 women under the age of 40 die in the United States from breast cancer [5]. In this study, we examined all women under the age of 40 who presented our breast clinic on a self-referred basis. We deliberately excluded women with a risk to develop breast cancer higher than average. The risk assessment was performed based on family history and known founder mutations in BRCA 1 and BRCA 2 genes. For pragmatic reasons, we performed the personal risk assessment based on the age of first-degree family relative younger than 50 years of age. Other pedigree-related risk factors were difficult to obtain due to deficiencies in the documentation and electronic database.

Our interest in this work was based on three facts:

- The high occurrence of breast cancer in Israel due to the high prevalence of BRCA mutations in the Ashkenazi Jewish population. In fact, the prevalence of BRCA1 and BRCA2 founder mutations in Ashkenazi Jews is as high as 2.5%. Up to 30% of breast cancers diagnosed before the age of 40 bear BRCA mutations. In contrast, in the non-Jewish population,

only 6.1% genetic breast cancers are diagnosed before the age of 50 [6,7]

- Breast cancer awareness in Israel is endorsed by physicians, public awareness projects, media releases, and educational activities in workplaces, and thus, raises awareness among young women who are not at risk according to national and international breast cancer screening guidelines
- The public basis of the health care system in Israel allows any woman to receive breast examinations by a specialist, including imaging studies, with either full reimbursement or minimal co-pay

The combination of these facts mentioned creates a unique subset of young women who are concerned about their health, and therefore visit breast clinics and specialist surgeons in order to obtain reassurance, support, and peace of mind.

We specifically selected young women without major risk factors and without specific breast-related complaints who visited our clinic for breast examinations. Because there is no consensus in the literature regarding the evaluation of young women without major risk factors for breast cancer, we routinely offer them manual breast exams and follow-up examinations as warranted. The breast masses discovered by physical examination were assessed through sonographic imaging and followed by biopsies if clinically indicated. During retrospective review of our data, we found a substantial number of young, asymptomatic women who were advised to undergo breast ultrasound scans without specific justifiable reasons mentioned in the patient's chart (152/220). We assumed that very concerned women were directed to have breast ultrasonography to placate their fears, rather than due to sound medical reasons. This cohort was compared with 68 asymptomatic women who presented with palpable breast masses found on manual exami-

nation by a physician. Two cancers (2/68) were found in the latter group of women, and none in the former. The results and the conclusions of this study are only related to the findings from the first clinic visit, and cannot be interpreted in regard to long-term follow-up.

## CONCLUSIONS

The results of our study demonstrate that in the absence of palpable clinical findings during breast examination, the addition of breast ultrasonography will not provide significant yield to complement the physical examination in self-referred women under the age of 40 who do not have major risk factors for the development of breast cancer.

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## Capsule

### Hard work and a path of least resistance

Transcatheter aortic valve replacement (TAVR) is a treatment for patients with a narrow aortic valve, a condition called aortic stenosis, which reduces the transvalvular pressure gradient. However, only some patients experience improved quality of life after the procedure. To understand how valvular, ventricular, and systemic vascular conditions contribute to improvements after TAVR, **Ben-Assa** and colleagues studied 70 patients undergoing the procedure. Patients with lower

vascular impedance and higher left ventricular stroke work before the procedure had greater improvements in quality of life after TAVR. Analyzing valve, ventricle, and arterial system hemodynamics could help identify patients likely to benefit from TAVR and inform timing of intervention.

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Eitan Israeli

**“Adults who are racked with death anxiety are not odd birds who have contracted some exotic disease, but men and women whose family and culture have failed to knit the proper protective clothing for them to withstand the icy chill of mortality”**

Irvin D. Yalom (born 1931), psychiatrist and professor