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Predictive biomarkers of invasive carcinoma on excision in patients with a diagnosis of ductal carcinoma in situ of the breast by needle biopsy.

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## BREAST CANCER—TRIPLE-NEGATIVE/CYTOTOXICS/LOCAL THERAPY

### Predictive biomarkers of invasive carcinoma on excision in patients with a diagnosis of ductal carcinoma in situ of the breast by needle biopsy.

[Miki Mori](#) , [Gregor Krings](#) , [Loretta Chan](#) , [Denise Wolf](#) , [Yunn-Yi Chen](#) , [Karla Kerlikowske](#).....

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#### Abstract

#### e12029

**Background:** DCIS diagnosed on needle biopsy may underestimate the presence of invasive cancer identified on subsequent excision. This study aims to identify clinicopathologic factors from pre-operative needle biopsies that are predictive of invasive cancer on subsequent surgical excision. **Methods:** The study population consisted of 69 breasts from 67 women initially diagnosed with only DCIS on needle biopsy at St. Luke’s International Hospital, Japan from 2006 until 2008. Parameters analyzed included presenting clinical features, biopsy device, DCIS nuclear grade and morphology, and immunohistochemical expression of estrogen receptor (ER), progesterone receptor (PR), HER2, Ki-67, p16, p53 and cyclooxygenase-2 (COX2) in biopsy specimens. Associations between clinical, pathological, and immunohistochemical findings in initial biopsy specimens and the presence of invasive cancer on subsequent excision were analyzed for significance using univariate and multivariate analysis. **Results:** Of 69 breasts with only DCIS on initial needle biopsy, subsequent surgical excision revealed pure DCIS in 46 (66.7%) and invasive carcinoma in 23 (33.3%). By univariate analysis, pre-operative factors significantly associated with invasive disease on surgical excision included sampling by core needle biopsy rather than vacuum assisted biopsy (p<0.05), p53 positivity (p<0.01), and low ER expression (p<0.05) in needle biopsy samples. Multivariate analysis revealed two significant independent pre-operative predictors of invasive cancer on final pathology, namely age under 50 (p<0.05) and p53 positivity (p<0.05), with sampling by core needle biopsy trending toward significance (p=0.097). A regression model including age<50, p53 positivity, and sampling method predicted invasive disease with AUC=0.8 in the training set by ROC analysis. **Conclusions:** Age<50, sampling by core needle biopsy instead of a vacuum assisted device, and p53 positivity were associated .with subsequent invasive cancer on surgical excision. Women with these factors should consider excisional biopsy prior to deciding on definitive treatment.

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Inclusion of Tumor Biology Molecular Markers to Improve the Ductal Carcinoma In Situ Ipsilateral Breast Tumor Recurrence Nomogram Predictability

[Umashankar K. Ballehaninna et al., J Clin Oncol, 2010](#)

Needle Biopsies for Noninvasive Breast Cancer: Routine Analysis Wastes Millions

[By The ASCO Post et al., Breast Cancer, 2016](#)

Results of biopsies performed after breast conservation therapy for stage I-II breast cancer

[E. E. Harris et al., J Clin Oncol, 2004](#)

Needle Biopsies for Noninvasive Breast Cancer: Routine Analysis Wastes Millions

[By The ASCO Post, The ASCO Post, 2016](#)

Axillary Sentinel Lymph Nodes Can Be Falsely Positive Due to Iatrogenic Displacement and Transport of Benign Epithelial Cells in Patients With Breast Carcinoma

[Ira J. Bleiweiss et al., J Clin Oncol, 2016](#)

Needle biopsies for noninvasive breast cancer: Routine analysis wastes millions

[MedicalXpress, 2016](#)

Ductal Carcinoma in Situ at Core-Needle Biopsy: Meta-Analysis of Underestimation and Predictors of Invasive Breast Cancer

[Meagan E. Brennan et al., Radiology, 2011](#)

MR Imaging–guided 9-gauge Vacuum-assisted Core-Needle Breast Biopsy: Initial Experience

[Susan G. Orel et al., Radiology, 2006](#)

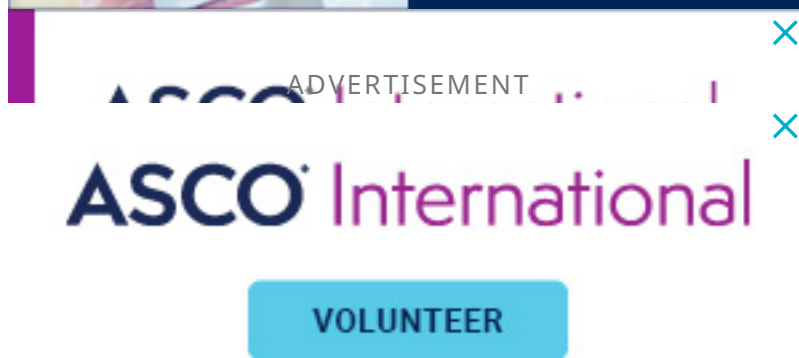
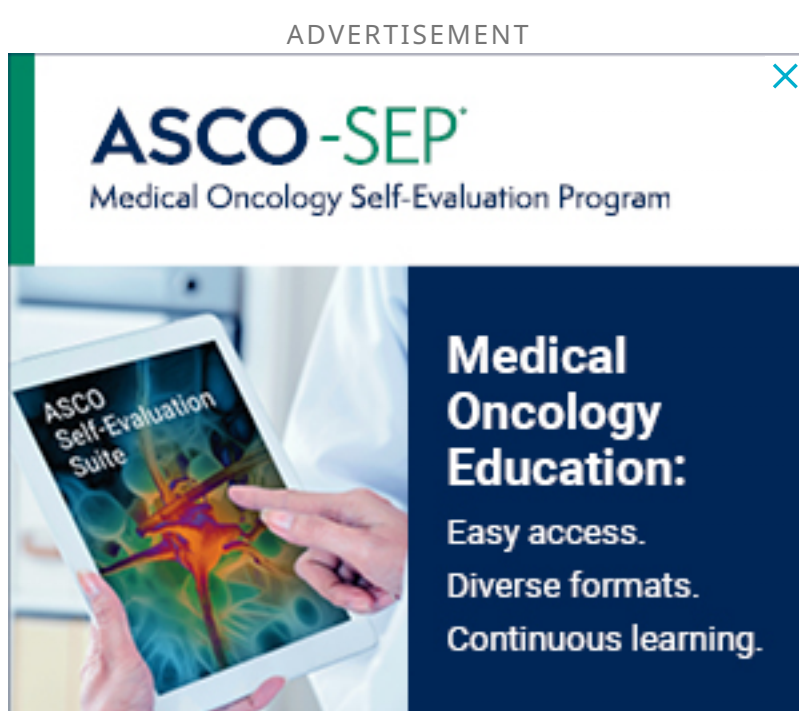
Predictive factors for the presence of invasive components in patients diagnosed with ductal carcinoma in situ based on preoperative biopsy

[Kwan Ho Lee et al., BMC Cancer, 2019](#)

Upgrade Rate of Pure Flat Epithelial Atypia Diagnosed at Core Needle Biopsy: A Systematic Review and Meta-Analysis

[Rifat A. Wahab et al., , 2021](#)

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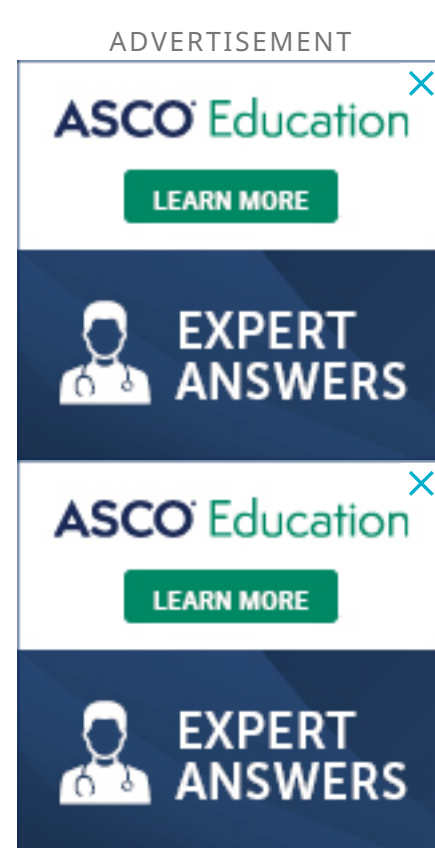
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