#215 Prediction of Surgical Upgrade Rate of Breast Atypia to Malignancy: An Academic Center’s Experience and Validation of a Predictive Model

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Introduction
- Atypical ductal hyperplasia (ADH), atypical lobular hyperplasia (ALH), and lobular carcinoma in situ (LCIS) are common diagnoses seen on breast core needle biopsy
- Many institutions recommend surgical excision of these high-risk lesions to exclude underlying malignancy
- Our study objectives were to:
  1) Determine our upgrade rate of atypia on core needle biopsy to malignancy at surgical excision
  2) Identify potential predictors of upgrade to use in patient counseling and management and develop a predictive model
  3) Validate a recently published predictive model in our study population

Methods
- Chart review of all patients who underwent image-guided core biopsy at our center between 2008-2010
- Inclusion criteria
  - ADH, ALH, or LCIS on core needle biopsy pathology
  - Subsequent surgical excision of biopsy site
  - No DCIS or invasive cancer on core needle biopsy pathology
- Creation of a single center database
  - Screening modality
  - Imaging abnormality
  - Core needle biopsy modality
  - Core needle biopsy pathology
  - Surgical pathology
  - Patient and family history
  - Treatment
  - Follow up care
- T-test and chi-square test were used to identify predictors
- Classification tree was used to predict upgrade

Results
- 151 patients
- Mean age of 53 years (range 29-81)
- Mean maximum lesion size of 11 mm (range 2-60)
- 13% of patients with personal history of breast cancer
- 18% of patients with first-degree relative with breast cancer
- 71.1% of target lesions with calcifications
- Highest degree of atypia on core needle biopsy
  - ADH in 63.6% of specimens
  - ALH in 27.8% of specimens
  - LCIS in 8.6% of specimens
- 16.6% of patients had upgrade to malignancy at surgical excision
  - DCIS in 72% of cases
  - Invasive carcinoma in 28% of cases

Our Predictive Model
- Risk factors for upgrade to cancer
  - Maximum lesion size at the time of initial imaging (p = 0.002)
  - Radiographic presence of residual lesion after the core needle biopsy (p = 0.001)
- A predictive model based on these factors has sensitivity 78%, specificity 80% and AUC=0.75

Validation of Previously Published Nomogram
- Risk factors for upgrade to cancer
  - Patient age
  - Lesion size greater than 15 mm
  - Presence of residual lesion after core needle biopsy
- A validation analysis of Uzan’s nomogram with our data produced accuracy figures (AUC = 0.65) within published CI of 0.63–0.82

Conclusions
- Our center’s upgrade rate from 2008-2010 was 16.6%
- Initial lesion size and presence of residual lesion after core needle biopsy are predictors of surgical upgrade to malignancy
- A validated model based on these predictors may be helpful in developing patient management strategies

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