Rates and Indications for Surgical Excisional versus Core Needle Breast Biopsies in a Community-based Health System

Laurel Soot, MD, FACS; Roshanthi Weerasinghe, MPH; Lian Wang, MS; Heidi D. Nelson, MD, MPH
Providence Cancer Center, Providence Health & Services, Portland, Oregon

Objectives

• Analysis of data from 5757 women undergoing breast biopsies for a clinical or radiographic abnormality between 2008-2010.
• Procedures were performed in seven community hospitals within Providence Health & Services—Oregon, a not-for-profit open access health system.
• The Providence Cancer Center is a NCI Community Cancer Center Program site.
• Patient-level data from a comprehensive registry included: types of biopsy performed as the initial diagnostic procedure, indications for excisional biopsy (from chart review), age, and pathological diagnoses.
• Comparisons between biopsies used t-tests, Wilcoxon rank-sum, Chi-squared, or Fisher’s exact tests; the association between biopsy type and diagnosis used logistic regression controlling for age and between indication and patient age used one-way ANOVA.

Methods

• Analysis of data from 5757 women undergoing breast biopsies for a clinical or radiographic abnormality between 2008-2010.
• Procedures were performed in seven community hospitals within Providence Health & Services—Oregon, a not-for-profit open access health system.
• The Providence Cancer Center is a NCI Community Cancer Center Program site.
• Patient-level data from a comprehensive registry included: types of biopsy performed as the initial diagnostic procedure, indications for excisional biopsy (from chart review), age, and pathological diagnoses.
• Comparisons between biopsies used t-tests, Wilcoxon rank-sum, Chi-squared, or Fisher’s exact tests; the association between biopsy type and diagnosis used logistic regression controlling for age and between indication and patient age used one-way ANOVA.

Results

Pathologic Diagnosis by Biopsy Method

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Core Needle</th>
<th>Excisional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invasive</td>
<td>1164 (24%)</td>
<td>72 (8%)</td>
</tr>
<tr>
<td>DCIS</td>
<td>336 (7%)</td>
<td>54 (6%)</td>
</tr>
<tr>
<td>LCIS</td>
<td>51 (1%)</td>
<td>12 (1%)</td>
</tr>
<tr>
<td>Atypia</td>
<td>293 (6%)</td>
<td>45 (5%)</td>
</tr>
<tr>
<td>Benign/Other</td>
<td>2971 (62%)</td>
<td>759 (80%)</td>
</tr>
<tr>
<td>Total</td>
<td>4815 (84%)</td>
<td>942 (16%)</td>
</tr>
</tbody>
</table>

• 16% of women received excisional breast biopsies as their initial diagnostic procedure (95% CI, 15.4%-17.3%).
• Women receiving excisional biopsies were 6 years younger than those receiving core needle (49.3±0.5 vs. 55.2±0.2 years, p<0.001).
• Diagnoses differed between the two biopsy procedures (p<0.001; age-adjusted).
  • Core needle: 24% invasive breast cancer; 62% benign.
  • Excisional: 8% invasive breast cancer; 80% benign.

Conclusions

• 11% of invasive breast carcinomas diagnosed by excisional biopsy were not technically feasible by core needle.
• Women with symptomatic lesions were younger, while women with lesions not feasible by core needle biopsy were older (44.7±0.7 vs. 56.4±0.8 years, p=0.001).
• The 16% excisional breast biopsy rate in our community-based health system is much lower than reported rates.
• Legitimate indications—such as symptomatic presentations, lesions not feasible by core needle biopsy, and patient choice—need to be considered when determining acceptable use of excisional biopsy.