Evaluating the Incidence of Upgrade to Malignancy Following Surgical Excision of High Risk Breast Lesions Identified by Core Needle Biopsy

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INTRODUCTION

• Image guided percutaneous core needle biopsy (CNB) is recommended for BI-RADS IV and V lesions by the National Comprehensive Cancer Network (NCCN)1
• Excision is recommended for high risk lesions (HRL), i.e. papilloma (PAP), atypical ductal hyperplasia (ADH), atypical lobular hyperplasia (ALH) and lobular carcinoma in situ (LCIS), as well as for ductal carcinoma in situ (DCIS)1
• Rates of upgrade of HRL to invasive carcinoma (IC) or DCIS have been previously reported to range from 13.7%-100% depending on the type of HRL2-3
• The upgrade of DCIS to IC has been reported to be 8-20%4-5
• With the advent of ultrasound guided and vacuum assisted CNB this study aimed to determine the pathological concordance for HRL and DCIS on excisional biopsy at our institution

METHODS

• Institutional review board clearance was obtained
• The electronic medical records of patients who underwent CNB for BI-RADS IV and V lesions between January 2014 to October 2016 were reviewed retrospectively
• Patients with HRL and DCIS on CNB were included
• Demographic data (i.e., patient age), number of core samples, technique for CNB, pathology on CNB and excision, and additional data were gathered
• Patients were grouped as concordant and discordant based on the results on excision
• Data was analyzed using Fisher’s exact test

RESULTS

• 66 of 90 (73.3%) were found to be concordant
• 24 of 90 (26.6%) were found to be discordant and upgraded to IC or DCIS

Figure 1: Rate of Upgrade to IDC or DCIS

<table>
<thead>
<tr>
<th>CNB Pathology</th>
<th>Overall N=90</th>
<th>Concordant Group N=66</th>
<th>Discordant Group N=24</th>
<th>Percent Upgrade (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCIS</td>
<td>51</td>
<td>41</td>
<td>10</td>
<td>19.6</td>
</tr>
<tr>
<td>LCIS</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ADH</td>
<td>21</td>
<td>10</td>
<td>11</td>
<td>52.3</td>
</tr>
<tr>
<td>ALH</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PAP</td>
<td>17</td>
<td>14</td>
<td>3</td>
<td>17.6</td>
</tr>
</tbody>
</table>

• When comparing the concordant and discordant groups there was no statistical significant differences for age at the time of CNB, interval of days between CNB and excision or the grade of DCIS on CNB
• There was a statistically significant difference between the two groups for the number of cores on each CNB and the size of needle used. With the concordant group having a higher number of cores and larger bore CNB

Figure 2: Analysis of Variables with Upgrade

<table>
<thead>
<tr>
<th>Variable</th>
<th>Overall N=90</th>
<th>Concordant Group N=66</th>
<th>Discordant Group N=24</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in Years Mean (± SD)</td>
<td>60.2 (± 11.5)</td>
<td>61.2 (± 11.5)</td>
<td>57.6 (± 11.6)</td>
<td>0.20</td>
</tr>
<tr>
<td>Interval Between Excisional and CNB Date (Days) Median (IQR)</td>
<td>26.0 (15.0, 41.0)</td>
<td>28.0 (15.0, 41.0)</td>
<td>17.0 (17.0, 47.5)</td>
<td>0.75</td>
</tr>
<tr>
<td>Number of Cores Obtained From Each CNB Mean (± SD)</td>
<td>6.0 (± 2.2)</td>
<td>6.4 (± 2.2)</td>
<td>4.9 (± 1.8)</td>
<td>0.01</td>
</tr>
<tr>
<td>Gauge of Needle, N (%)</td>
<td>8 (14.5)</td>
<td>10 (16.7)</td>
<td>2 (8.7)</td>
<td>0.0089</td>
</tr>
<tr>
<td>11</td>
<td>30 (36.1)</td>
<td>25 (41.7)</td>
<td>5 (21.7)</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>33 (39.8)</td>
<td>23 (38.3)</td>
<td>10 (43.5)</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>8 (9.6)</td>
<td>2 (3.3)</td>
<td>6 (26.1)</td>
<td></td>
</tr>
</tbody>
</table>

SD = Standard Deviation, IQR = Interquartile Range
Note: 1 missing interval days due to missing core biopsy date, 16 missing number of core specimens, 7 missing gauge of needle
*p-value derived from unpaired t-test or Mann-Whitney U test for continuous variables and Chi-square test for categorical variables

CONCLUSION

• CNB remains a useful method for the evaluation of suspicious lesions detected on imaging
• This study demonstrates similar rates of upgrade for HRL and DCIS as previously reported6-5
• Larger bore needles and increased number of cores on CNB were found to have a decreased rate of discordance as with other studies3
• Limitations of this study include the retrospective design. The patient population was not randomized and the sample size of HRL and DCIS was low. The CNB technique was not standardized
• This single institution retrospective review supports previously reported rates of upgrade among HRL and DCIS diagnosed by CNB. We recommend the continued practice of surgical excision of HRL

REFERENCES


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