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Abstract

Background/Objectives
• 15% of biopsies for mammographic abnormality result in a diagnosis of ADH
• NCCN currently recommends all patients with ADH on percutaneous biopsy undergo surgical excision to rule out underlying malignancy
• Lower, more contemporary upgrade rates suggest many patients may be able to be managed without excision
• Others have attempted to identify features of ADH that confer lower risk of upgrade with mixed success
• Frequently features that are identified at one institution may not be translatable across institutions, depending on available resources
• Our goal was to identify our own upgrade rate and identify both pathologic and radiographic features of ADH associated with a low upgrade rate

Methods
• Single institution, retrospective review of patients diagnosed with ADH from 2008-2015
• Inclusion criteria
  • Women >18 years of age
  • ADH identified by stereotactic biopsy
  • Both biopsy and surgical excision performed at our institution
• Exclusion criteria
  • Ipsilateral breast cancer
  • ADH involving another lesion
• All imaging was reviewed by breast specific radiologists for size of the target lesion, needle gauge, number of cores removed, percent of lesion removed, and breast density
• All pathology slides were reviewed by breast specific pathologists for number of ADH foci, presence of cell necrosis or micropapillary features, and if ADH was targeted or incidental

Results
• 82 women underwent 84 stereotactic biopsies (2 bilateral cases) during the study period followed by surgical excision
• 14 breasts had underlying malignancy identified at the time of excision for an upgrade rate of 16.7%
  • 9 DCIS
  • 5 invasive cancer
• Features NOT associated with significant upgrade:
  • Age at the time of biopsy
  • Breast density
  • Personal or family history of breast cancer
  • Needle gauge used (all biopsies were performed with vacuum assistance)
  • Number of cores removed
• Features that trended toward statistical significance for upgrade:
  • Lesion size
  • <50% of the target lesion removed by biopsy
  • ≥3 foci of ADH present
  • Presence of individual cell necrosis
• Women that had lesions <1.0 cm, >50% of the lesion removed, no cell necrosis, and ≥2 foci of ADH had an upgrade rate of 0%

<table>
<thead>
<tr>
<th>Lesion size (mean, SD)</th>
<th>Upgraded to DCIS/IBC (n=14)</th>
<th>No upgrade (n=70)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1.0 cm</td>
<td>2.4 cm (2.6)</td>
<td>1.5 cm (1.9)</td>
<td>0.0621</td>
</tr>
<tr>
<td>≥1.0 cm</td>
<td>6 (44%)</td>
<td>12 (17%)</td>
<td>0.0544</td>
</tr>
<tr>
<td>≥3 foci ADH present</td>
<td>12 (86%)</td>
<td>43 (61%)</td>
<td>0.0591</td>
</tr>
<tr>
<td>Individual cell necrosis</td>
<td>5 (36%)</td>
<td>9 (13%)</td>
<td>0.0514</td>
</tr>
<tr>
<td>Micropapillary features</td>
<td>7 (50%)</td>
<td>18 (26%)</td>
<td>0.1068</td>
</tr>
</tbody>
</table>

Conclusions
• At our institution, with careful multidisciplinary discussion, it is possible to stratify women with ADH at lowest risk for upgrade to underlying malignancy
• Application of these criteria prospectively is necessary
• ADH is still a high risk feature for risk of future breast cancer. Subsequent breast cancer after excision of ADH occurred in 6/79 (8%) of our patient population

Acknowledgements

Note: This case study is not intended for medical or legal advice. It is provided for educational purposes only.

Background
NCCN guidelines currently recommend surgical excision after diagnosis of atypical ductal hyperplasia (ADH) on percutaneous biopsy. Rate of upgrade to ductal carcinoma in situ (DCIS) or invasive cancer ranges from 7-87% in the literature. Significant improvements have been made in imaging technology and biopsy techniques. We aimed to identify our institution’s upgrade rate in order to identify radiographic and pathologic features associated with upgrade and stratify which patients could benefit from observation over surgical excision.

Methods
A retrospective review identified all women diagnosed with ADH on stereotactic biopsy performed a single institution from 2008-2015 who were treated with surgical excision. Patients with ipsilateral breast cancer or ADH involving another lesion were excluded. Dedicated breast radiologists reviewed all breast imaging for lesion size and residual calcifications, and breast pathologists reviewed the biopsy slides for number of ADH foci, cell necrosis, and micropapillary features. Chi-square and Fisher’s exact tests were used to describe and test for associations between categorical demographic, clinical, radiologic, and pathologic characteristics of subjects. T test and Wilcoxon tests were used to describe and test for associations between continuous characteristics.

Results
During the study period, 82 women underwent 84 stereotactic biopsies at our institution, followed by surgical excision. Underlying malignancy was identified at the time of excision in 14 breasts (9 DCIS and 5 invasive cancer) for an upgrade rate of 16.7%. Age at time of biopsy, breast density, or having a personal or family history of breast cancer was not associated with upgrade to malignancy. The biopsy needle gauge or number of cores removed was not associated with upgrade. Features associated with higher risk of upgrade included lesions larger than 2 cm, >50% of the lesion removed by biopsy, the presence of ≥3 foci of ADH, and lesions with individual cell necrosis.

Conclusion
Advances in imaging and biopsy techniques have resulted in upgrade to malignancy lower than historically quoted. This provides an opportunity for more conservative management. Though radiologic and pathologic correlation can identify patients at low risk for upgrade who may be able to avoid surgical excision.

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