Is the current BI-RADS score applicable to the pediatric population?

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**Background**

- Breast masses in the pediatric patients raise concerns because of awareness of breast malignancy in adults.
- The spectrum of pediatric breast lesions differs greatly from that of adults. Pediatric lesions are overwhelmingly benign.
- Breast Imaging-Reporting and Data System (BI-RADS) is the standard for risk stratification of breast ultrasound.
- No study has demonstrated validity of BI-RADS in the pediatric population.

**Objective**

Compare BI-RADS classification with histology to determine applicability of the scoring system to the pediatric population.

**Methods**

Multicenter retrospective review:

- 283 patients
- Less than 21 years of age
- Palpable breast mass or abnormal ultrasound
- January 2010 to September 2016
- Review of ultrasound report
- Review of histology / pathology report

**Results**

<table>
<thead>
<tr>
<th>BI-RADS Categories</th>
<th>Pathology Results</th>
<th>(n=227)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI-RADS 1</td>
<td>4 fibroadenomas</td>
<td>4</td>
</tr>
<tr>
<td>BI-RADS 2</td>
<td>35 fibroadenomas, 2 cysts, 1 abscess</td>
<td>38</td>
</tr>
<tr>
<td>BI-RADS 3</td>
<td>19 fibroadenomas, 2 benign breast tissue, 1 cyst, 1 fibrosis, 1 lymph node</td>
<td>24</td>
</tr>
<tr>
<td>BI-RADS 4 and 5</td>
<td>106 fibroadenomas, 4 benign breast tissue, 2 biphasics, 2 galactoceles, 1 abscess, 1 chronic inflammation, 1 cyst, 1 fibroadipelial lesion, 1 fibromatosis, 1 fibrosis, 1 granulomatous mastitis, 1 gynecomastia, 1 lactating adenoma, 1 PASH, 1 tubular adenoma</td>
<td>125</td>
</tr>
<tr>
<td>BI-RADS Not Obtained</td>
<td>27 fibroadenomas, 2 cysts, 2 chronic inflammation, 1 adenosis, 1 benign phylloides, 1 benign squamous papilloma, 1 fibroadipelial lesion, 1 PASH</td>
<td>36</td>
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</tbody>
</table>

283 patients either had a palpable breast mass or abnormal ultrasound.

- 227 histologically proven diagnosis (Core Needle or Excisional Biopsy)
- 191/227 had associated BI-RADS scores
- 84% of those biopsied were fibroadenomas (most common)
- 106 (47%) of the fibroadenomas received a BI-RADS 4 or 5 classification
- All 227 histologically specimens were benign

**Conclusions**

- BI-RADS classification overestimates risk of malignancy in pediatric patients.
- Invasive breast procedures in pediatric patients can potentially have psychosocial effects and trigger additional interventions.
- There is need for a revised or novel scoring system for the pediatric population.

**References**