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PRINCIPLES AND MANAGEMENT OF IMAGE GUIDED BREAST INTERVENTIONS
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EUSOMA CRITERIA

• 1) Clear unclear findings without surgery
  • Breast cancer should be diagnosed preoperatively in > 90%

• 2) Choose the image technique for guidance who will show lesion best
3) ALARA vs how sensitive is the biopsy technique chosen?

- FNAB: Cytology - needles from 20G to 23G (0.9-0.6mm outer diameter)
  - sensitivity 53-99% - huge range
  - disadvantage: no differentiation between in situ or mature/invasive carcinoma

- IND: cystic vs solid lesion, cyst fluid aspiration, lymph node sampling
• Core needle biopsy: histology

• needles > 18G (typ. 14G); core 1.5-2-2cm

• sensitivity 92-99%
• 4) More tissue is better than less tissue; little tissue is better than cells

• German consensus paper: >70% should be diagnosed, false-neg < 5%

• The overall-miss-rate for CNB is 2-4%, false neg about 1.2%

• Risk: underestimation of radial scar - afterwards: better vacuum assisted biopsy or surgery
From fine-needle to vacuum aspiration biopsy

Core needle biopsy: histology

- Underestimation:
  ADH: in 58%* CA in final histology after surgery (in Lit. 31% - 88%)
  Radial scar: in 40%* CA in final histology after surgery
  DCIS: in 15%* invasive Ca in final histology after surgery (in Lit. 15% - 36%)


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**Management of risk lesions**

**IBUS Consensus 25.1.2014**

*Data collected by C. Rageth*

<table>
<thead>
<tr>
<th>Diagnosis made by CNB</th>
<th>Diagnosis made by VAB</th>
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<tbody>
<tr>
<td><strong>FEA</strong></td>
<td>wait and see (VAB or OE of visible lesion)</td>
</tr>
<tr>
<td><strong>Radial scar</strong></td>
<td>VAB or OE of visible lesion</td>
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<tr>
<td><strong>Papillary lesion without atypia</strong></td>
<td>Remove larger or symptomatic (and especially peripheral) Papillomas</td>
</tr>
<tr>
<td><strong>Papillary lesion with atypia</strong></td>
<td>OE</td>
</tr>
<tr>
<td><strong>Phyllioid tumor</strong></td>
<td>OE Free margins in borderline and malignant PT's</td>
</tr>
<tr>
<td><strong>LN classical type</strong></td>
<td>OE or VAB (remove US-visible lesion). High risk follow-up if lesion is removed</td>
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<tr>
<td><strong>ADH</strong></td>
<td>OE</td>
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<tr>
<td><strong>DCIS and pleomorphic LN</strong></td>
<td>OE</td>
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</tbody>
</table>

**CNB**: core needle biopsy. **VAB**: vacuum assisted biopsy. **OE**: open excision. **FEA**: flat epithelial atypia. **LN**: lobular neoplasia. **PT**: phyllodes tumor. **ADH**: atypical ductal hyperplasia. It is important that imaging and pathological results are concordant, and that tissue sampling is sufficient.

* Park HL (J Breast Cancer 2012) excised 63 benign phyllodes tumors with US-guided VAB with just 1 recurrence in the follow up
• Vacuum assisted biopsy: histology

• needles 8G-14G (typ 11G) (3-4mm outer diameter)

• sensitivity about 100%

• Tissue sampling:
  • 14G (core needle) - 18mg tissue
  • 11G (vacuum) - 94mg
  • 8G (vacuum) - 160mg
• Stereotactical biopsy of microcalcifications

• 5) don’t mask the target - you have to find the lesion after biopsy safely
  • recommended: marker placement in lesions and microcalcified areas (different types)

• 6) inform your patient before biopsy
  • Information sheed for punch and vacuum assisted biopsy: http://www.oerg.at

• 7) check the concordancy!
Seventh Principle

Check the concordancy!

BI-RADS 4a  benignancy expected (prob. of mal. >2-10%)

BI-RADS 4b  benignancy more probable than mal. (prob. of mal. 10-50%)

BI-RADS 4c  malignancy more probable than ben. (prob. of mal. 50-95%)

BI-RADS 5   malignancy expected (prob. of mal. > 95%)
Seventh Principle

Check the concordancy!

- BI-RADS 4c
  - benign histology
    - rediscuss your images
      - if concordant follow-up after 6 months
      - if discordant REBIOPSY
  - REBIOPSY
- BI-RADS 5
  - benign histology
    - REBIOPSY