Ductal Carcinoma in Situ (DCIS)
Ductal Carcinoma in situ (DCIS)

- **Versions 2002–2020:**
  Audretsch / Bauerfeind / Blohmer / Brunnert / Budach / Costa / Fersis / Friedrich / Gerber / Hanf / Junkermann / Kühn / Lux / Maass / Möbus / Mundhenke / Nitz / Oberhoff / Scharl / Schütz / Solomayer / Souchon / Thill / Thomssen / Wenz

- **Version 2021:**
  Budach / Lux / Solbach
### Pretherapeutic Assessment of Suspicious Lesions (BIRADS 4-5)

<table>
<thead>
<tr>
<th>Mammography</th>
<th>LoE</th>
<th>GR</th>
<th>AGD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnification view of microcalcifications</td>
<td>1b</td>
<td>B</td>
<td>++</td>
</tr>
<tr>
<td>Increased detection rate of G1/G2 DCIS by full-field digital mammography</td>
<td>2b</td>
<td>C</td>
<td>++</td>
</tr>
<tr>
<td>Specimen radiography</td>
<td>2b</td>
<td>B</td>
<td>++</td>
</tr>
<tr>
<td>Marker (clip) left at biopsy site for localization if lesion is completely removed</td>
<td>5</td>
<td>D</td>
<td>++</td>
</tr>
<tr>
<td>Assessment of extension and planning of surgery</td>
<td></td>
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</tr>
<tr>
<td>MRI</td>
<td>1b</td>
<td>B</td>
<td>+/-</td>
</tr>
<tr>
<td>Clinical examination</td>
<td>5</td>
<td>D</td>
<td>++</td>
</tr>
<tr>
<td>FNA / ductal lavage</td>
<td>5</td>
<td>D</td>
<td>-</td>
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<tr>
<td>Interdisciplinary board presentation</td>
<td>5</td>
<td>D</td>
<td>++</td>
</tr>
</tbody>
</table>

### Mammographie


### Präoperatives MRT


**Molecular Subtyping**


### Risk factors for upstaging from DCIS to invasive cancer in final surgical specimen

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>LoE</th>
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<tbody>
<tr>
<td>Ductal Carcinoma In Situ (DCIS) without microcalcification in core needle or vacuum biopsy</td>
<td>3b</td>
</tr>
<tr>
<td>Microcalcification ≥ 1.5 mm</td>
<td>3b</td>
</tr>
<tr>
<td>Presentation as tumor in MRI</td>
<td>3b</td>
</tr>
<tr>
<td>Increased Ki-67 (≥ 20%)</td>
<td>3b</td>
</tr>
<tr>
<td>PR negative</td>
<td>3b</td>
</tr>
<tr>
<td>High peak contrast enhancement on MRI</td>
<td>3b</td>
</tr>
<tr>
<td>Irregularly shaped, non-circumscribed, heterogeneous or margin-enhancing tumors with intratumoral high signal intensity or peritumoral edema on MRI</td>
<td>3b</td>
</tr>
<tr>
<td>Biopsy technique: diagnosis by core needle biopsy versus vacuum biopsy (smaller sampling volume)</td>
<td>3b</td>
</tr>
<tr>
<td>High platelet-lymphocyte ratio</td>
<td>3b</td>
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</tbody>
</table>

**Lower risk**

- Removal ≥ 90% of the microcalcifications by vacuum biopsy

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Ductal Carcinoma in Situ (DCIS)
**Good Clinical Practice (GCP)**

Surgical excision (BCS or mastectomy) is the standard treatment for DCIS.

Adjuvant treatment (radiotherapy, endocrine treatment) must be discussed with the patient individually. Adverse effects should be weighted against risk reduction.

5. Laura Esserman, Christina Yau. Rethinking the Standard for Ductal Carcinoma In Situ Treatment. JAMA Oncology Published online August 20, 2015.
Surgical Treatment for Histologically Proven DCIS I

- **Excisional biopsy (wire guided)**
  - Localization with wire-free procedure
- **Bracketing wire localization in large lesions**
- **Specimen radiography**
- **Intraoperative ultrasound (visible lesion)**
- **Immediate re-excision for close margins (specimen radiography)**
- **Intraoperative frozen section (in individual cases for margin assessment)**
- **Interdisciplinary board presentation**

Open biopsy in suspicious lesions (mammographic microcalcifications, suspicious US, MRI etc.) without preoperative needle biopsy should be avoided

<table>
<thead>
<tr>
<th>Oxford</th>
<th>LoE</th>
<th>GR</th>
<th>AGO</th>
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<tbody>
<tr>
<td>2b</td>
<td>B</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>3b</td>
<td>C</td>
<td>+/-</td>
<td></td>
</tr>
<tr>
<td>3a</td>
<td>C</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>2b</td>
<td>B</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>3a</td>
<td>C</td>
<td>+/-</td>
<td></td>
</tr>
<tr>
<td>1c</td>
<td>B</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>3a</td>
<td>D</td>
<td>+/-</td>
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**Exzision (drahtmarkiert)**


Intraoperative Sonographie (darstellbarer Befund)

Sofortige Nachresektion bei knappen Resektionsrändern (Präparateradiographie)

Intraoperative Schnellschnittdiagnostik
Histologisch freie Resektionsränder (pR0)

Multifokalität: BET falls möglich (inkl. RT)

Histologisch freie Resektionsränder (pR0)

- Histologically clear margins (R1/0)
  - Multifocal DCIS: BCS if feasible
  - Re-excision required for close margin (≤ 2 mm in paraffin section)*
  - Mastectomy**
    - Large lesions confirmed by multiple biopsies; no clear margins after re-excision

Sleep
- Mastectomy
- BCS
- In case of DCIS in the male breast

ALND
- 2b B --

Nachresektion bei knappem Resektionsrand (< 2 mm im Paraffinschnitt)

Mastektomie* (große Läsionen; keine sicheren Ränder im Nachresektat)

SLNE* / Axilladissektion


Mastektomie
DCIS beim Mann

BET


**Diagnostische Methode**


**Fokalität**


(mod.) Van Nuys Prognose Index und MSKCC Nomogramm


**Palpables DCIS**
Palpabel + COX-2+p16+Ki-67+
Palpabel + ER-, HER2, +Ki-67+
HER2-Überexpression
ER/PgR (positiv vs. negativ)

DCIS-Score
2. Sarah Patricia Cate, Alyssa Gillego, Manjeet Chadha, et al. Does the Oncotype DCIS score impact treatment decisions? J Clin Oncol 31, 2013 (suppl 26; abstr 91)

DCIS mit Mikroinvasion – Behandlung analog zum invasiven Karzinom

Intrinsische Subgruppen (Luminal A,B, HER+, triple negativ)


Familiäre Karzinombelastung, Menopausenstatus, BMI und Brustdichte


Kontralaterales Mammakarzinom

DCIS Radiotherapy Statements

- Radiotherapy has no impact on survival  
  LoE 1a
- Radiotherapy reduces the risk of ipsilateral (invasive and non invasive) recurrences by 50%  
  LoE 1a
- Avoidance of invasive recurrence is probably not associated with survival benefit  
  LoE 2b
- The absolute (individual) benefit of radiotherapy depends on the individual risk of local recurrence
- The number needed to treat (for ipsilateral breast recurrence) is 9 (across all risk groups)

4. Weinmann S, Leo MC, Francisco M et al. Validation of a Ductal Carcinoma In Situ Biomarker Profile for Risk of Recurrence after Breast-Conserving Surgery with and without Radiotherapy. Clin Cancer Res. 2020 Aug 1;26(15):4054-4063. doi: 10.1158/1078-0432.CCR-19-1152. DCISionRT test, the DS was prognostic for the risk of later breast events for women diagnosed with DCIS, following BCS.
Radiotherapie nach: Brusterhaltender Operation (BEO) (gesamte Brust, WBI)

1. EBCTCG Correa C et al. Overview of the randomized trials of radiotherapy in ductal carcinoma in situ of the breast. J Natl Cancer Inst Monogr. 2010 (41); 162 – 77


**Boost**


**Mastektomie**


**Teilbrustbestrahlung**


Intraoperative Strahlentherapie beim DCIS


Tamoxifen (nur ER+, nur BET)

AI (wenn postmenopausal)


AI vs. Tamoxifen


Therapy of Local DCIS Recurrence after Tumorectomy

<table>
<thead>
<tr>
<th>Oxford</th>
<th>LoE</th>
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</tr>
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<tbody>
<tr>
<td>After Radiation:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Simple Mastectomy + SLNE</td>
<td>3a</td>
<td>C</td>
<td>+</td>
</tr>
<tr>
<td>▪ Secondary breast conserving surgery</td>
<td>5</td>
<td>D</td>
<td>+</td>
</tr>
<tr>
<td>Without radiation after first tumorectomy</td>
<td>5</td>
<td>D</td>
<td>+/-</td>
</tr>
</tbody>
</table>

Prognosis seems to be better for invasive recurrences than for primary invasive breast cancer. About 50% of recurrences are invasive.

Nach Radiatio
Einfache Mastektomie + SLNE

Sekundäre Tumorektomie führt zu Rezidiven in bis zu 30 % der Fälle (NSABP B17)

Keine Radiotherapie
Therapieindikation wie bei primär Erkrankung