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

- **Version 2002:** Gerber

- **Versions 2003–2014:** Audretsch / Brunnert / Costa / Fersis / Friedrich / Hanf / Junkermann / Lux / Maass / Möbus / Nitz / Oberhoff / Scharl / Solomayer / Souchon / Thill / Thomssen

- **Version 2015:** Blohmer / Nitz
Pretherapeutic Assessment of Suspicious Lesions (BIRADS IV)

- **Mammography**
  - Magnification view of microcalcification
  - Increase of detection rate of G1/G2 DCIS by full-field digital mammography (versus screen-film)

- **Stereotactic core needle / vacuum biopsy (VAB)**
  - Specimen radiography
  - Marker (Clip) left at biopsy site for location if lesion is completely removed

- **Assessment of extension**
  - MRI
  - Clinical examination
  - FNA / ductal lavage
  - Interdisciplinary board presentation
### Surgical Treatment for Histologically Proven DCIS I

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Oxford</th>
<th>AGO</th>
<th>LoE</th>
<th>GR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excisional biopsy (wire guided)</td>
<td>2b</td>
<td>B</td>
<td>++</td>
<td></td>
</tr>
<tr>
<td>Bracketing wire localization in large lesions</td>
<td>5</td>
<td>D</td>
<td>+</td>
<td></td>
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<tr>
<td>Specimen radiography</td>
<td>2b</td>
<td>B</td>
<td>++</td>
<td></td>
</tr>
<tr>
<td>Intraoperative ultrasound (visible lesion)</td>
<td>3a</td>
<td>C</td>
<td>+/-</td>
<td></td>
</tr>
<tr>
<td>Immediate re-excision for close margins (specimen radiography)</td>
<td>1c</td>
<td>B</td>
<td>++</td>
<td></td>
</tr>
<tr>
<td>Intraoperative frozen section</td>
<td>5</td>
<td>D</td>
<td>- -</td>
<td></td>
</tr>
<tr>
<td>Interdisciplinary board presentation</td>
<td>2b</td>
<td>C</td>
<td>++</td>
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</tr>
</tbody>
</table>

Open biopsy in suspicious lesions (mammographical microcalcifications, suspicious US, MRI etc.) without preoperative needle biopsy should be avoided
Surgical Treatment for Histologically Proven DCIS II

- Histologically clear margins (R0)
  - Multifocal DCIS: BCT if feasible (incl. RT)
  - Re-excision required for close margin ≤ 2 mm in paraffin section
- Mastectomy*
  - Large lesions confirmed by multiple biopsies; no clear margins after re-excision
- SNE*
  - Mastectomy
    - In case of DCIS in the male breast
    - BCT: ≥ 5 cm or ≥ 2.5 cm + high nuclear grade/comedonecrosis
- ALND

* Patients who present with a palpable mass have a significantly higher potential for occult invasion (26%), multicentricity and local recurrence.
## DCIS – Prognostic Factors for the Incidence of Local- / Locoregional Recurrence

<table>
<thead>
<tr>
<th>Factor</th>
<th>Oxford / AGO</th>
<th>LoE / GR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resection margins</td>
<td>1a A ++</td>
<td></td>
</tr>
<tr>
<td>Residual tumor-associated microcalcification</td>
<td>2b C ++</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>1a A ++</td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>1a A ++</td>
<td></td>
</tr>
<tr>
<td>Grading</td>
<td>1a A ++</td>
<td></td>
</tr>
<tr>
<td>Comedo necrosis</td>
<td>1a A ++</td>
<td></td>
</tr>
<tr>
<td>Architecture</td>
<td>2b C +</td>
<td></td>
</tr>
<tr>
<td>Method of diagnosis</td>
<td>1a A ++</td>
<td></td>
</tr>
<tr>
<td>Focality</td>
<td>1a A ++</td>
<td></td>
</tr>
<tr>
<td>(mod.) Van Nuys Prognostic Index</td>
<td>2b C +/-</td>
<td></td>
</tr>
<tr>
<td>Palpable DCIS</td>
<td>2b C +/-</td>
<td></td>
</tr>
<tr>
<td>Palpable + COX-2+, p16+, Ki-67+</td>
<td>2b C +/-</td>
<td></td>
</tr>
<tr>
<td>Palpable + ER-, HER2+, Ki-67+</td>
<td>2b C +/-</td>
<td></td>
</tr>
<tr>
<td>HER2/neu (positive vs. negative)</td>
<td>1a B +/-</td>
<td></td>
</tr>
<tr>
<td>ER/PgR (positive vs. negative)</td>
<td>1a B +/-</td>
<td></td>
</tr>
<tr>
<td>DCIS-Score</td>
<td>2b C +/-</td>
<td></td>
</tr>
<tr>
<td>DCIS with microinvasion – treatment in analogy to invasive breast cancer</td>
<td>3b C ++</td>
<td></td>
</tr>
<tr>
<td>Intrinsic subtypes (luminal A, B, HER2+, triple negative)</td>
<td>2b C -</td>
<td></td>
</tr>
</tbody>
</table>
DCIS Radiotherapy

Radiotherapy after:

- Breast conserving surgery (BCS)
- Mastectomy

Modality:

- Partial breast radiotherapy (PBI)
- Hypofractionated radiotherapy regimens
- Radiotherapy boost on the tumor bed
  - Women younger than 45-50 years

Oxford / AGO LoE / GR

Radiotherapy after:

- Breast conserving surgery (BCS) 1a A ++
- Mastectomy 2b B --

Modality:

- Partial breast radiotherapy (PBI) 3a D --
- Hypofractionated radiotherapy regimens 2b D -/+*
- Radiotherapy boost on the tumor bed 2b D --
  - Women younger than 45-50 years 2b C +/-

Side effects and disadvantages of radiotherapy must be balanced against risk reduction. Omitting radiotherapy implies elevated risk for local recurrence without effect for overall survival even in the subset of “good risk” patients. There remains a lack of level-1 evidence supporting the omission of adjuvant radiotherapy in selected low-risk cases: < 2.5 cm, low and intermediate nuclear grade, mammographically detected

* Analysis in ongoing trials
Cochrane Analysis
Radiation after Surgery (all/with Radiation after Breast Conserving Surgery)

Goodwin A, Parker S, Ghersi D, Wilcken N.
## DCIS Postoperative Systemic Treatment

<table>
<thead>
<tr>
<th>Oxford / AGO LoE / GR</th>
<th>Tamoxifen (only ER+)</th>
<th>Other endocrine options</th>
<th>Trastuzumab (only HER2+)</th>
<th>For Prevention of opposite breast see Prevention chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a A +</td>
<td>AI if postmenopausal and contraindication against tamoxifen</td>
<td>5 D +/-</td>
<td>5 D -</td>
<td></td>
</tr>
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<td></td>
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</tr>
</tbody>
</table>
Cochrane Analysis
Tamoxifen after DCIS (all/with Radiation)

Staley H, McCallum I, Bruce J.
Postoperative tamoxifen for ductal carcinoma in situ.

Local Recurrence of DCIS after Tumorectomy w/o Irradiation

After radiation

- Simple mastectomy
  + SN B
- Second tumorectomy is followed by recurrences in up to 30% of patients (NSABP B17)

No radiation after first tumorectomy

- Treatment like primary disease

Prognosis for invasive recurrences seems to be better than for primary invasive breast cancer. About 50% of recurrences are invasive.
**Ductal Carcinoma in Situ (DCIS)**

*No further information*

*No references*
Pretherapeutic Assessment in Suspicious Lesions (BIRADS 4) (3/11)

Further information:

Alle Abstimmungen mit 100% Zustimmung

References:


- Stereotaktische Stanzbiopsie / Vakuumbiopsie (VAB)


- Präparateradiographie
- Setzen eines Markierungsclips in der Biopsieregion, wenn die Läsion komplett entfernt wurde
- MRT zur Festlegung der Ausdehnung


- Klinische Untersuchung
- Feinnadelpunktion / duktale Lavage
- Interdisziplinäre Tumorboard-Präsentation
Surgical Treatment for Histologically Proven DCIS I (4/11)

Further information:

Alle Abstimmungen mit 100% Zustimmung

References:

- **Exzision (drahtmarkiert)**

- **Flankierende Drahtmarkierung bei großen Läsionen**
- **Präparatradiographie**
- **Intraoperative Sonographie (darstellbarer Befund)**

Sofortige Nachresektion bei knappen Resekionsrändern (Präparateradiographie)


Intraoperative Schnellschnittdiagnostik
Interdisziplinäre Tumorboard-Präsentation
Further information:

Alle Abstimmungen mit 100% Zustimmung

References:

- **Histologisch freie Resektionsränder (pR0)**

- **Multifokalität: BET falls möglich (inkl. RT)**

**Nachresektion bei knappem Resektionsrand**

(≤ 2 mm im Paraffinschnitt)


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


- SNE*
  - Mastektomie
  - DCIS beim Mann


- BET: \( \geq 5 \) cm oder > 2,5 cm + high grade/Komedonekrosen


- Axilladissektion
DCIS – Prognostic Factors for the Incidence of Local-/Locoregional Recurrence (6/11)

No further information

References:

- Resektionsränder
- Residueller tumorassoziierter Mikrokalk
- Alter
- Größe
- Grading
- Komedonekrose
- Architektur


Diagnostische Methode

1. Han JS, Molberg KH, Sarode V. Predictors of Invasion and Axillary Lymph Node Metastasis in Patients with a Core Biopsy Diagnosis of Ductal carcinoma In Situ: An Analysis of 255 Cases. The Breast Journal 2011; 17: 223-229

➢  Fokalität


➢  (mod.) Van Nuys Prognose Index

7. Silverstein MJ, Lagios MD. Choosing Treatment for Patients With Ductal Carcinoma In Situ: Fine Tuning the University of Southern California/Van Nuys Prognostic Index. J natl Cancer Inst Monogr 2010; 41: 193-196

- 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, John Rescigno, Paul R. Gliedman, Ilana Kats, Susan K. Booblol. 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)

DCIS Radiotherapy (7/11)

Further information:

Alle Abstimmungen mit 100% Zustimmung.

References:

Radiotherapie nach:

- Brusterhaltender Operation (BEO) (gesamte Brust, WBI)


10. Schwartz GF, Solin LJ, Olivotto IA, Ernster VL, Pressman PI.
12. Impact of pathological characteristics on local relapse after breast-conserving therapy: a subgroup analysis of the EORTC boost versus no boost trial.


34. Australian New Zealand Clinical Trials Registry website. The Trans Tasman Radiation Oncology Group (TROG) 07.01: A randomised phase III study of radiodoses and fractionation schedules in non-low risk Ductal Carcinoma In


**Mastektomie**


**Sonderformen der Radiotherapie:**

- **Teilbrustbestrahlung**


11. John Paul Einck, Steven E. Finkelstein, Ben Han, Robert Hong, Lydia T. Komarnicky, Robert R. Kuske, Sudha B. Mahalingam, Constantine Mantz, Serban Morcovescu, Stephen S. Nigh, Kerri L. Perry, Jodadiv Pollock, Jay E. Reiff, Daniel Scanderbeg, Jon F. Strasser, Catheryn M. Yashar, SAVI Collaborative Research Group; Department of Radiation Medicine and Applied Sciences, University of California, San Diego, La Jolla, CA; 21st Century


Hypofraktionierte Radiotherapie


Boost-RT des Tumorbettes


4. Two different hypofractionated breast radiotherapy schedules for 113 patients with ductal carcinoma in situ:

Bei Patientinnen unter 45-50 Jahren
Cochrane Analysis – Radiation after Surgery (8/11)

No further information

No references
DCIS Postoperative Systemic Treatment (9/11)

Further information:
Alle Abstimmungen mit 100% Zustimmung

References:

- **Tamoxifen (nur ER+, nur BET)**


- AI (wenn postmenopausal und Kontraindikationen gegen Tamoxifen)
- Andere endokrine Optionen - Trastuzumab (nur HER2+)

Cochrane Analysis – Tamoxifen after DCIS (10/11)

No further information

No references
Local Recurrence of DCIS after Tumorectomy w/o Irradiation (11/11)

Further information and references:

Abstimmung:
Lokalrezidiv des DCIS nach Tumorektomie nach Radiatio:

Einfache Mastektomie
  ++  4/19;
  +  15719

Einfache Mastektomie + SNB:
  ++  3/22
  +  14/22
  +/-  3/22
  -  2/22
  --  0/22

Lokalrezidiv des DCIS nach Tumorektomie mit Radiotherapie

Therapieindikation wie bei primärer Erkrankung:
  ++  10/21
  +  7/21
  +/-  1/21
  -  1/21
  --  2/21

Nach Radiatio
➢ Einfache Mastektomie

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


Keine Radiotherapie
Therapieindikation wie bei primär Erkrankung