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Diagnosis and Treatment of Patients with early and advanced Breast Cancer

Ductal Carcinoma in Situ (DCIS)



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Duktales Carcinoma in situ (DCIS)

- **Versions 2002–2019:**
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 2020:**
Friedrich / Gerber

Pretherapeutic Assessment of Suspicious Lesions (BIRADS 4-5)			
	Oxford		
	LoE	GR	AGO
<ul style="list-style-type: none"> Mammography <ul style="list-style-type: none"> Magnification view of microcalcifications Increased detection rate of G1/G2 DCIS by full-field digital mammography (versus screen-film) Stereotactic core needle / vacuum biopsy (VAB) <ul style="list-style-type: none"> Specimen radiography Marker (clip) left at biopsy site for localization if lesion is completely removed Assessment of extension <ul style="list-style-type: none"> MRI Clinical examination FNA / ductal lavage Interdisciplinary board presentation 	1b 4 2b 2b 2b 5 1b 5 5 5	B C B B B D B D D D	++ ++ + ++ ++ ++ +/- ++ - ++



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Mammographie

- Li J, Zhang H, Jiang H, Guo X et al. [Diagnostic Performance of Digital Breast Tomosynthesis for Breast Suspicious Calcifications From Various Populations: A Comparison With Full-field Digital Mammography](#). Comput Struct Biotechnol J. 2018 Dec 20;17:82-89.


Präoperatives MRT hat keinen Einfluss auf die LRR und das OS

- Vapiwala N, Hwang WT, Kushner CJ, et al. No impact of breast magnetic resonance imaging on 15-year outcomes in patients with ductal carcinoma in situ or early-stage invasive breast cancer managed with breast conservation therapy. Cancer. 2017;123(8):1324-1332.
- Ryan R, Tawfik O, Jensen RA et al. . Current Approaches to Diagnosis and Treatment of Ductal Carcinoma In Situ and Future Directions. Prog Mol Biol Transl Sci. 2017;151:33-80.
- Preibsch H, Beckmann J, Pawlowski J et al. [Accuracy of Breast Magnetic Resonance Imaging Compared to Mammography in the Preoperative Detection and Measurement of Pure Ductal Carcinoma In Situ: A Retrospective](#) _Radiol. 2018 Aug 24. pii: S1076-6332(18)30383-0.

4. So A, De La Cruz LM, Williams AD et al. [impact of preoperative magnetic resonance imaging and lumpectomy cavity shavings on re-excision rate in pure ductal carcinoma in situ-A single institution's experience.](#) J Surg Oncol. 2018 Mar;117(4):558-566.

Molecular Subtyping

1. Nofech-Mozes S, Hanna W, Rakovitch E. [Molecular Evaluation of Breast Ductal Carcinoma in Situ with Oncotype DX DCIS.](#) Am J Pathol. 2018 Dec 31. pii: S0002-9440(18)30581-9.



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Original Investigation

Breast Cancer Mortality After a Diagnosis of Ductal Carcinoma In Situ

Narod A. et al.: JAMA Oncol. 2015 Oct; 1(7): 888-96

- 108,196 patients from the SEER data base
- Retrospective analysis
- Breast cancer specific mortality 3.3 %
- Increased in young women (< 35 years) and black ethnicity
- The risk of death increases after ipsilateral invasive recurrence HR 18 (95%CI, 14,0–23,6)
- Prevention of invasive recurrence by radiotherapy does not diminish mortality at 10 years

Narod, SA, Iqbal J, Giannakeas V, Sopik V, Sun P.: [Breast Cancer Mortality After a Diagnosis of Ductal Carcinoma In Situ](#). JAMA Oncol. 2015 Oct;1(7):888-96

<div>  <p>Original Investigation</p> <h1>Breast Cancer Mortality After a Diagnosis of Ductal Carcinoma In Situ</h1> <p>Narod A. et al.: JAMA Oncol. 2015 Oct; 1(7): 888-96</p> </div>						
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Treatment	Cases, No	10-Year BCS Mortality (95%CI), %	Univariate HR (95% CI)	P Value	Multivariate ³ HR (95%)	P Value
Lumpectomy						
Without radiotherapy	19762	0.9 (0.7 - 1.1)	1 [Reference]		1 [Reference]	
With radiotherapy	42250	0.8 (0.7 – 1.0)	0.86 (0.67 – 1.10)	0.22	0.81 (0.63 – 1.04)	0.10
all	63319	0.8 (0.7 – 1.0)	1 [Reference]		1 [Reference]	
Unilateral mastectomy	19515	1.3 (1.1 – 1.5)	1.45 (1.18 – 1.79)	< 0.001	1.20 (0.96 – 1.50)	0.11
<p>³ Adjusted for year of diagnosis, age of diagnosis, ethnicity, income, ER-status, tumor size and grade</p>						

Narod, SA, Iqbal J, Giannakeas V, Sopik V, Sun P.: [Breast Cancer Mortality After a Diagnosis of Ductal Carcinoma In Situ](#). JAMA Oncol. 2015 Oct;1(7):888-96

General Therapeutic Principles

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 weighed against risk reduction.

1. Kirsty E. Stuart, Nehmat Houssami, Richard Taylor, et al. Long-term outcomes of ductal carcinoma in situ of the breast: a systematic review, meta-analysis and meta-regression analysis. BMC Cancer (2015) 15:890.
2. Katrina B. Mitchell and Henry Kuerer. Ductal Carcinoma In Situ: Treatment Update and Current Trends. Curr Oncol Rep (2015) 17: 48
3. Elizabeth M. Ward, Carol E. DeSantis, Chun Chieh Lin, et al. Cancer Statistics: Breast Cancer In Situ. CA Cancer J Clin 2015;65:481–495.
4. Benjamin D. Smith. When Is Good Enough Really Good Enough? Defining the Role of Radiation in Low-Risk Ductal Carcinoma In Situ. J Clin Oncol 2015; 33(7): 686 – 692.
5. Laura Esserman, Christina Yau. Rethinking the Standard for Ductal Carcinoma In Situ Treatment. JAMA Oncology Published online August 20, 2015.
6. Steven A. Narod, Javaid Iqbal, Vasily Giannakeas, et al. Breast Cancer Mortality After a Diagnosis of Ductal Carcinoma In Situ. JAMA Oncol. doi:10.1001/jamaoncol.2015.2510 Published online August 20, 2015.
7. [Hamilton SN](#), [Nichol A](#), [Wai E](#) et al. [Local Relapse After Breast-Conserving Therapy Versus Mastectomy for Extensive Pure Ductal Carcinoma In Situ \$\geq 4\$ cm](#). Int J Radiat Oncol Biol Phys. 2018 Sep 22. pii: S0360-3016(18)33801-X

8. Gradishar WJ, Anderson BO, Balassanian R et al. [Breast Cancer, Version 4.2017, NCCN Clinical Practice Guidelines in Oncology](#). J Natl Compr Canc Netw. 2018 Mar;16(3):310-320.

Surgical Treatment for Histologically Proven DCIS I			
	Oxford		
	LoE	GR	AGO
▪ Excisional biopsy (wire guided)	2b	B	++
▪ Bracketing wire localization in large lesions	3a	C	+
▪ Specimen radiography	2b	B	++
▪ Intraoperative ultrasound (visible lesion)	3a	C	+/-
▪ Immediate re-excision for close margins (specimen radiography)	1c	B	++
▪ Intraoperative frozen section (in individual cases for margin assessment)	3a	D	+/-
▪ Interdisciplinary board presentation	2b	C	++
Open biopsy in suspicious lesions (mammographic microcalcifications, suspicious US, MRI etc.) without preoperative needle biopsy should be avoided			



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Exzision (drahtmarkiert)

1. Houssami N, Ambrogetti D, Marinovich L et al. Accuracy of a preoperative model for predicting invasive breast cancer in women with ductal carcinoma in situ on vacuum assisted core needle biopsy. Ann Surg Oncol 2011;18(5):1364-71
2. Ryan R, Tawfik O, Jensen RA, et al. Current Approaches to Diagnosis and Treatment of Ductal Carcinoma In Situ and Future Directions. Prog Mol Biol Transl Sci. 2017;151:33-80.
3. Janssen NNY, van la Parra RFD, Loo CE et al. [Breast conserving surgery for extensive DCIS using multiple radioactive seeds.](#) Eur J Surg Oncol. 2018 Jan;44(1):67-73.
4. Hong YK, McMasters KM, Egger ME, Ajkay N: [Ductal carcinoma in situ current trends, controversies, and review of literature.](#) Am J Surg. 2018 Nov;216(5):998-1003
5. Kuerer HM, Smith BD, Chavez-MacGregor M, et al. DCIS Margins and Breast Conservation: MD Anderson Cancer Center Multidisciplinary Practice Guidelines and Outcomes. J Cancer. 2017;8(14):2653-2662.
6. DVerstehenden DPA, Keizer LGG, Schlooz-Vries MS, et al: Performance characteristics of specimen radiography for margin assessment for ductal carcinoma in situ: a systematic review. Breast Cancer Res Treat 2017;166:669–679.

Intraoperative Sonographie (darstellbarer Befund)

1. Ahmed M, Douek M. Intra-operative ultrasound versus wire-guided localization in the surgical management of non-palpable breast cancers: systematic review and meta-analysis. Breast Cancer Res Treat. 2013; 140(3): 435-446.


Sofortige Nachresektion bei knappen Resektionsrändern (Präparateradiographie)

1. Thill M, Dittmer C, Baumann K, et al. [MarginProbe®--final results of the German post-market study in breast conserving surgery of ductal carcinoma in situ](#). Breast. 2014 Feb;23(1):94-6. doi: 10.1016/j.breast.2013.11.002. Epub 2013 Dec 2.
2. Kuerer HM, Smith BD, Chavez-MacGregor M, et al. DCIS Margins and Breast Conservation: MD Anderson Cancer Center Multidisciplinary Practice Guidelines and Outcomes. J Cancer. 2017;8(14):2653-2662.

Intraoperative Schnellschnittdiagnostik

1. Kuerer HM, Smith BD, Chavez-MacGregor M et al. DCIS Margins and Breast Conservation: MD Anderson Cancer Center Multidisciplinary Practice Guidelines and Outcomes. J Cancer. 2017;8(14):2653-2662.
2. [Laws A](#), [Brar MS](#), [Bouchard-Fortier A](#), et al. [surgery for ductal carcinoma in situ](#). J Surg Oncol. 2018 Dec;118(7):1205-1211.
3. Morrow M, Van Zee KJ, Solin LJ, Houssami N et al: [Society of Surgical Oncology-American Society for Radiation Oncology-American Society of Clinical Oncology Consensus Guideline on Margins for Breast-Conserving Surgery with Whole-Breast Irradiation in Ductal Carcinoma In Situ](#). Ann Surg Oncol. 2016 Nov;23(12):3801-3810.

Interdisziplinäre Tumorboard-Präsentation

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	Oxford		
	LoE	GR	AGO
▪ Histologically clear margins (R0)	1a	A	++
▪ Multifocal DCIS: BCS if feasible	2b	B	+
▪ Re-excision required for close margin (≤ 2 mm in paraffin section)*	2b	C	+
▪ Mastectomy**			
▪ Large lesions confirmed by multiple biopsies; no clear margins after re-excision	2a	B	++
▪ SLNE			
▪ Mastectomy	3b	B	+
▪ BCS	3b	B	-
▪ In case of DCIS in the male breast	5	D	+/-
▪ ALND	2b	B	--
* Especially if postoperative radiation therapy is not performed			
** Patients who present with a palpable mass have a significantly higher potential for occult invasion (26%), multicentricity and local recurrence.			

Histologisch freie Resektionsränder (pR0)

1. Badruddoja M. Ductal carcinoma in situ of the breast: a surgical perspective. Int J Surg Oncol. 2012;2012:761364. doi: 10.1155/2012/761364. Epub 2012 Sep 4.
2. Hassani A, Griffith C, Harvey J. Size does matter: High volume breast surgeons accept smaller excision margins for wide local excision--a national survey of the surgical management of wide local excision margins in UK breast cancer patients. Breast. 2013 Oct;22(5):718-22.
3. Morrow M., et al: Society of Surgical Oncology –American Society for Radiation Oncology–American Society of Clinical Oncology Consensus Guideline on Margins for Breast-Conserving Surgery with Whole-Breast Irradiation in Ductal Carcinoma in Situ J CO 2016 34;33 :4040-4046

Multifokalität: BET falls möglich (inkl. RT)

1. Meijnen P, Bartelink H. Multifocal ductal carcinoma in situ of the breast: A contraindication for breast-conserving treatment? J Clin Oncol 2007;25:5548–5549
2. Rakovitch E, Pignol JP, Hanna W, et al. Significance of multifocality in ductal carcinoma in situ: outcomes of women treated with

breast-conserving therapy. J Clin Oncol 2007;25:5591–5596

Nachresektion bei knappem Resektionsrand (< 2 mm im Paraffinschnitt)

1. Dunne, C., J. P. Burke, et al. (2009). "Effect of margin status on local recurrence after breast conservation and radiation therapy for ductal carcinoma in situ." J Clin Oncol 27(10): 1615-1620.
2. Van Cleef A, Altintas S, Huizing M et al. Current view on ductal carcinoma in situ and importance of the margin thresholds: A review. Facts Views Vis Obgyn. 2014;6(4):210-8.
3. Kuerer HM, Smith BD, Chavez-MacGregor M et al. DCIS Margins and Breast Conservation: MD Anderson Cancer Center Multidisciplinary Practice Guidelines and Outcomes. J Cancer. 2017;8(14):2653-2662.
4. Morrow M. De-escalating and escalating surgery in the management of early breast cancer. Breast. 2017 Aug;34 Suppl 1:S1-S4.

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

1. Carlson, G. W., A. Page, et al. (2007). "Local recurrence of ductal carcinoma in situ after skin-sparing mastectomy." J Am Coll Surg 204(5): 1074-1078; discussion 1078-1080.
2. Rudloff U, E Brogi et al. (2010): "The Influence of Margin Width and Volume of Disease Near Margin on Benefit of Radiation Therapy for Women With DCIS Treated With Breast-Conserving Therapy" Ann Surg (251) 583 – 591
3. Polyak K. Molecular markers for the diagnosis and management of ductal carcinoma in situ. J Natl Cancer Inst Monogr 2010; 41: 210-213
4. Houssami N, Ambrogetti D, Marinovich L et al. Accuracy of a preoperative model for predicting invasive breast cancer in women with ductal carcinoma in situ on vacuum assisted core needle biopsy. Ann Surg Oncol 2011;18(5):1364-71

SLNE*

1. Killelea BK, Long JB, Dang W, et al. [Associations Between Sentinel Lymph Node Biopsy and Complications for Patients with Ductal Carcinoma In Situ.](#) Ann Surg Oncol. 2018 Jun;25(6):1521-1529.

2. [Hong YK](#), [McMasters KM](#), [Egger ME](#), [Ajay N](#): Ductal carcinoma in situ current trends, controversies, and review of literature. [Am J Surg](#). 2018 Nov;216(5):998-1003
3. [Karakatsanis A](#), [Hersi AF](#), [Pistiolis L](#): Effect of preoperative injection of superparamagnetic iron oxide particles on rates of sentinel lymph node dissection in women undergoing surgery for ductal carcinoma in situ (SentiNot study). [Br J Surg](#). 2019 May;106(6):720-728. doi: 10.1002/bjs.11110. Epub 2019 Mar 6.

Mastektomie


DCIS beim Mann

1. Chern J, Liao L, Baraldi R, et al. Case report: ductal carcinoma in situ in the male breast. *Case Rep Radiol*. 2012;2012:532527. doi: 10.1155/2012/532527. Epub 2012 Sep 26.

BET

1. Meijnen P, Oldenburg HS, Loo CE, et al. Risk of invasion and axillary lymph node metastasis in ductal carcinoma in situ diagnosed by core-needle biopsy. *Br J Surg* 2007;94:952-6
2. Miyake T, Shimazu K, Ohashi H, et al. Indication for sentinel lymph node biopsy for breast cancer when core biopsy shows ductal carcinoma in situ. *The American Journal of Surgery* 2011; 202: 59-65 :394095. doi: 10.5402/2012/394095. Epub 2012 May 14.
3. De Lorenzi F, Di Bella J, Maisonneuve P et al. [Oncoplastic breast surgery for the management of ductal carcinoma in situ \(DCIS\): is it oncologically safe? A retrospective cohort analysis](#). *Eur J Surg Oncol*. 2018 Jul;44(7):957-962.

Axilladisektion

Prognostic Factors for an Ipsilateral Recurrence		
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		LoE
▪ Resection margins		1a
▪ Age		1a
▪ Size		1a
▪ Grade		1a
▪ Comedo necrosis		1a
▪ Method of diagnosis		1a
▪ Focality		1a
▪ HER2-overexpression		1a
▪ ER/PgR (positive vs. negative)		1a
▪ Residual tumor-associated microcalcifications		2b
▪ Architecture		2b
▪ (modified) Van Nuys Prognostic Index		2b
▪ Palpable DCIS		2b
▪ Palpable and ER-, HER2+, Ki-67+		2b
▪ DCIS-Score (9 Gene recurrence score)		2b
▪ MSKCC Nomogram		2b
▪ Intrinsic subtypes (luminal A, B, HER2+, triple negative)		2b

1. Visser LL, Elshof LE, Schaapveld M et al. Clinicopathological Risk Factors for an Invasive Breast Cancer [recurrence after Ductal Carcinoma In Situ-A Nested Case-Control Study](#). Clin Cancer Res. 2018 Aug 1;24(15):3593-3601.
2. Rakovitch E, Gray R, Baehner FL et al. [Refined estimates of local recurrence risks by DCIS score adjusting for clinicopathological features: a combined analysis of ECOG-ACRIN E5194 and Ontario DCIS cohort studies](#). Breast Cancer Res Treat. 2018 Jun;169(2):359-369
3. [Cutuli B](#): Ductal carcinoma in situ in 2019: Diagnosis, treatment, prognosis. [Presse Med](#). 2019 Oct;48(10):1112-1122
4. [Badve SS](#), [Gökmen-Polar](#): Ductal carcinoma in situ of breast: update 2019. [Pathology](#). 2019 Oct;51(6):563-569.
5. Van Bockstal MR, Agahozo MC, Koppert LB: A retrospective alternative for active surveillance trials for ductal carcinoma in situ of the breast. [Int J Cancer](#). 2020 Mar 1;146(5):1189-1197
6. Solin LJ: [Management of Ductal Carcinoma In Situ \(DCIS\) of the Breast: Present Approaches and Future Directions](#). Curr Oncol Rep. 2019 Mar 5;21(4):33

Diagnostische Methode

1. Park HS, Park S, Cho J, et al. Risk predictors of underestimation and the need for sentinel node biopsy in patients diagnosed with ductal carcinoma in situ by preoperative needle biopsy. J Surg Oncol. 2013 Mar;107(4):388-92. doi: 10.1002/jso.23273. Epub 2012 Sep 24.
2. Schulz S, Sinn P, Golatta M, et al. Prediction of underestimated invasiveness in patients with ductal carcinoma in situ of the breast on percutaneous biopsy as rationale for recommending concurrent sentinel lymph node biopsy. Breast. 2013 Aug;22(4):537-42.
3. Elshof LE, Schmidt MK, Rutgers EJ, et al. Cause-specific Mortality in a Population-based Cohort of 9799 Women Treated for Ductal Carcinoma In Situ. Ann Surg. 2017 Apr 3. doi: 10.1097/SLA.0000000000002239. [Epub ahead of print]
4. Punglia RS, Jiang W, Lipsitz SR, et al. Clinical risk score to predict likelihood of recurrence after ductal carcinoma in situ treated with breast-conserving surgery. Breast Cancer Res Treat. 2017 Oct 28. doi: 10.1007/s10549-017-4553-5. [Epub ahead of print]

Fokalität

1. Meijnen P, Bartelink H. Multifocal ductal carcinoma in situ of the breast: A contraindication for breast-conserving treatment? J Clin Oncol 2007;25:5548–5549
2. Rakovitch E, Pignol JP, Hanna W, et al. Significance of multifocality in ductal carcinoma in situ: outcomes of women treated with breast-conserving therapy. J Clin Oncol 2007;25:5591–5596

(mod.) Van Nuys Prognose Index und MSKCC Nomogramm

1. Lagios MD, Page DL, Silverstein MJ. Prospective study of wide excision alone for ductal carcinoma in situ of the breast. J Clin Oncol 2006;24:3809-11
2. Rudloff U, Jacks LM, Goldberg JL, et al. Nomogram for predicting the risk of local recurrence after breast conserving surgery for ductal carcinoma in situ. J Clin Oncol 2010; 28(23): 3762-9
3. Van Zee KJ, Patil S. Validation of a nomogram for predicting risk of local recurrence for ductal carcinoma in situ. J Clin Oncol 2012; 30(25): 3143-4.

4. Sweldens C, Peeters S, van Limbergen E, et al. Öokal relapse after breast-conserving therapy for ductal carcinoma in situ: a European single-center experience and external validation of the Memorial Sloan-Kettering Cancer Center DCIS nomogram. Cancer J 2014; 20(1): 1-7.

Palpables DCIS

Palpabel + COX-2+p16+Ki-67+

Palpabel + ER-, HER2, +Ki-67+

HER2-Überexpression

ER/PgR (positiv vs. negativ)

DCIS-Score


1. Solin LJ, Gray R, Baehner FL, et al. A multigene expression assay to predict local recurrence risk for ductal carcinoma in situ of the breast. J Natl Cancer Inst. 2013 May 15;105(10):701-10.
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)
3. Rakovitch E, Nofech-Mozes S, Hanna W et al. A large prospectively-designed study of the DCIS score. Predicting recurrence risk after local excision for ductal carcinoma in situ patients with and without irradiation. SABCS 2015. S5-04
4. Wood WC, Alvarado M, Buchholz DJ, et al. The current clinical value of the DCIS Score. Oncology (Williston Park). 2014 May;28 Suppl 2:C2, 1-8, C3.

DCIS mit Mikroinvasion – Behandlung analog zum invasiven Karzinom

1. Eng-Wong J, JP Costantino et al. The Impact of Systemic Therapy Following Ductal Carcinoma In Situ. J Natl Cancer Inst Monogr 2010; 41: 200 – 203
2. Ryan R, Tawfik O, Jensen RA, Anant S. Current Approaches to Diagnosis and Treatment of Ductal Carcinoma In Situ and Future Directions. Prog Mol Biol Transl Sci. 2017;151:33-80.

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

1. Noh JM, Lee J, Choi DH, et al. HER-2 overexpression is not associated with increased ipsilateral breast tumor recurrence in DCIS treated with breast-conserving surgery followed by radiotherapy. *Breast*. 2013 Oct;22(5):894-7.
2. Solin LJ.: Management of Ductal Carcinoma In Situ (DCIS) of the Breast: Present Approaches and Future Directions. *Curr Oncol Rep*. 2019 Mar 5;21(4):33. doi: 10.1007/s11912-019-0777-3.
3. Visser LL, Groen EJ, van Leeuwen FE, et al.: [Predictors of an Invasive Breast Cancer Recurrence after DCIS: A Systematic Review and Meta-analyses](#). *Cancer Epidemiol Biomarkers Prev*. 2019 May;28(5):835-845. doi: 10.1158/1055-9965.EPI-18-0976. Epub 2019 Apr 25.
4. Van Bockstal MR, Agahozo MC, Koppert LB, van Deurzen CHM. [A retrospective alternative for active surveillance trials for ductal carcinoma in situ of the breast](#). *Int J Cancer*. 2019 Apr 24. doi: 10.1002/ijc.32362. [Epub ahead of print]



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DCIS Radiotherapy Statements


- Radiotherapy has no impact on survival
- Radiotherapy reduces the risk of ipsilateral (invasive and non invasive) recurrences by 50 %
- Avoidance of invasive recurrence is probably not associated with survival benefit
- 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 (over all risk groups)

LOE 1a


LOE 1a

LOE 2b

1. Bagenal J, Roche N, Ross G, Kirby A, Dodwell D: [Should patients with ductal carcinoma in situ be treated with adjuvant whole breast radiotherapy after breast conservation surgery?](#) BMJ. 2018 May 17;361:k1410. doi: 10.1136/bmj.k1410. Review.
2. Lebeau A, Kühn T.: [Updates in the treatment of ductal carcinoma in situ of the breast.](#) Curr Opin Obstet Gynecol. 2016 Feb;28(1):49-58.



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DCIS

Adjuvant Radiotherapy

	Oxford		
	LoE	GR	AGO
Radiotherapy after:			
▪ Breast conserving surgery (BCS)	1a	A	++
▪ Mastectomy	2b	B	--
Modality:			
▪ Partial breast radiotherapy (PBI) (DCIS < 3 cm)	2a	B	+/-
▪ Hypofractionated radiotherapy regimens	2b	D	+/-*
▪ Radiotherapy boost on the tumor bed	2b	D	--
▪ Women younger than 45-50 years	2b	C	+/-
▪ Intraoperative Radiotherapy	2b	C	-

Side effects and disadvantages must be weighed against risk reduction. Omitting radiotherapy implies elevated risk for local recurrence without effect for overall survival even in the subset of „good risk“ patients. 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

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
2. Abram Recht. Are the Randomized Trials of Radiation Therapy for Ductal Carcinoma in Situ Still Relevant? J Clin Oncol 2014; 32(22): 3588
3. Lawrence J. Solin, Robert Gray, Lorie L. Hughes et al. Surgical Excision Without Radiation for Ductal Carcinoma in Situ of the Breast: 12-Year Results From the ECOG-ACRIN E5194 Study. J Clin Oncol 2015; 33 (33):3938
4. Beryl McCormick, Kathryn Winter, Clifford Hudis, et al. RTOG 9804: A Prospective Randomized Trial for Good-Risk Ductal Carcinoma In Situ Comparing Radiotherapy With Observation. J Clin Oncol 2015; 33(7): 709
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Mastektomie


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Teilbrustbestrahlung

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Intraoperative Strahlentherapie beim DCIS

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DCIS – Adjuvant Systemic Treatment

<ul style="list-style-type: none"> ▪ Adjuvant endocrine treatment has no impact on survival 	LOE 1a
<ul style="list-style-type: none"> ▪ Endocrine treatment may have a small effect on ipsilateral invasive and DCIS recurrences 	LOE 1a
<ul style="list-style-type: none"> ▪ Endocrine treatment for DCIS has an effect on contralateral invasive and non-invasive cancer 	LOE 1a
<ul style="list-style-type: none"> ▪ The number needed to treat for any ipsilateral breast event is 15 	LOE 1a

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DCIS – Adjuvant Systemic Treatment

	Oxford		
	LoE	GR	AGO
■ Tamoxifen (only ER+) 20mg	1a	A	+/-*
■ Tamoxifen (only ER+) 5mg (long-term data missing)	2b ^a	B	+/-*
■ Aromatase inhibitor (only ER+) in postmenopausal women only	1b	A	+/-*
■ Trastuzumab (only HER2+)	5	D	--

* Indication for treatment depends on risk factors, side effects and patient preference


Tamoxifen (nur ER+, nur BET)

1. Fisher B, Dignam J, Wolmark N, et al. Tamoxifen in treatment of intraductal breast cancer: National Surgical Adjuvant Breast and Bowel Project B-24 randomised controlled trial. *Lancet*. 1999 Jun 12;353(9169):1993-2000.
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AI (wenn postmenopausal und Kontraindikationen gegen Tamoxifen)

1. Richard G Margolese, Reena S Cecchini, Thomas B Julian, et al. Anastrozole versus tamoxifen in postmenopausal women with ductal carcinoma in situ undergoing lumpectomy plus radiotherapy (NSABP B-35): a randomised, double-blind, phase 3 clinical trial. www.thelancet.com Published online December 10, 2015
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Low dose Tamoxifen (5mg) in premalignant lesions

- **N = 500**
- **Follow up 5.69 years**

DCIS (69%), LCIS (11%),
ADH (20%)


→ (R) →

Tamoxifen 5 mg 3y

Placebo

- **EFS: TAM 5.5% (14/253) vs. PLAC 11.3% (28/247)**
- **Severe adverse Event with same incidence (Endometrial cancer TAM 1 vs. PLAC 0, thrombo-embolic event TAM 1 vs. PLAC 1)**
- **Adherence TAM 65% vs. PLAC 61%** Lazzeroni M et al: Breast 2019

1. Lazzeroni M, Puntoni M, Provinciali N et al.: [Estimating the magnitude of clinical benefit of systemic therapy in patients with DCIS or pre-invasive disease of the breast](#). Breast. 2019 Nov;48 Suppl 1:S39-S43.
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Therapy of Local DCIS Recurrence after Tumorectomy

	Oxford		
	LoE	GR	AGO
After Radiation:			
■ Simple Mastectomy	3a	C	+
+ SLNE	5	D	+
■ Secondary breast conserving surgery	5	D	+/-
Without radiation after first tumorectomy			
■ Treatment like primary disease	3	C	++

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

Nach Radiatio

Einfache Mastektomie

+ SN B

1. Silverstein MJ, MD Lagios et al (1998): "Outcome After Invasive Local Recurrence in Patients With Ductal Carcinoma In Situ of the Breast" J Clin Oncol 16:1367-1373

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

1. Fisher ER, Dignam J, Tan-Chiu E et al. (1999): "Pathologic findings from the National Surgical Adjuvant Breast Project (NSABP) eight-year update of Protocol B-17: intraductal carcinoma" Cancer 86: 429 – 438

Keine Radiotherapie

Therapieindikation wie bei primär Erkrankung