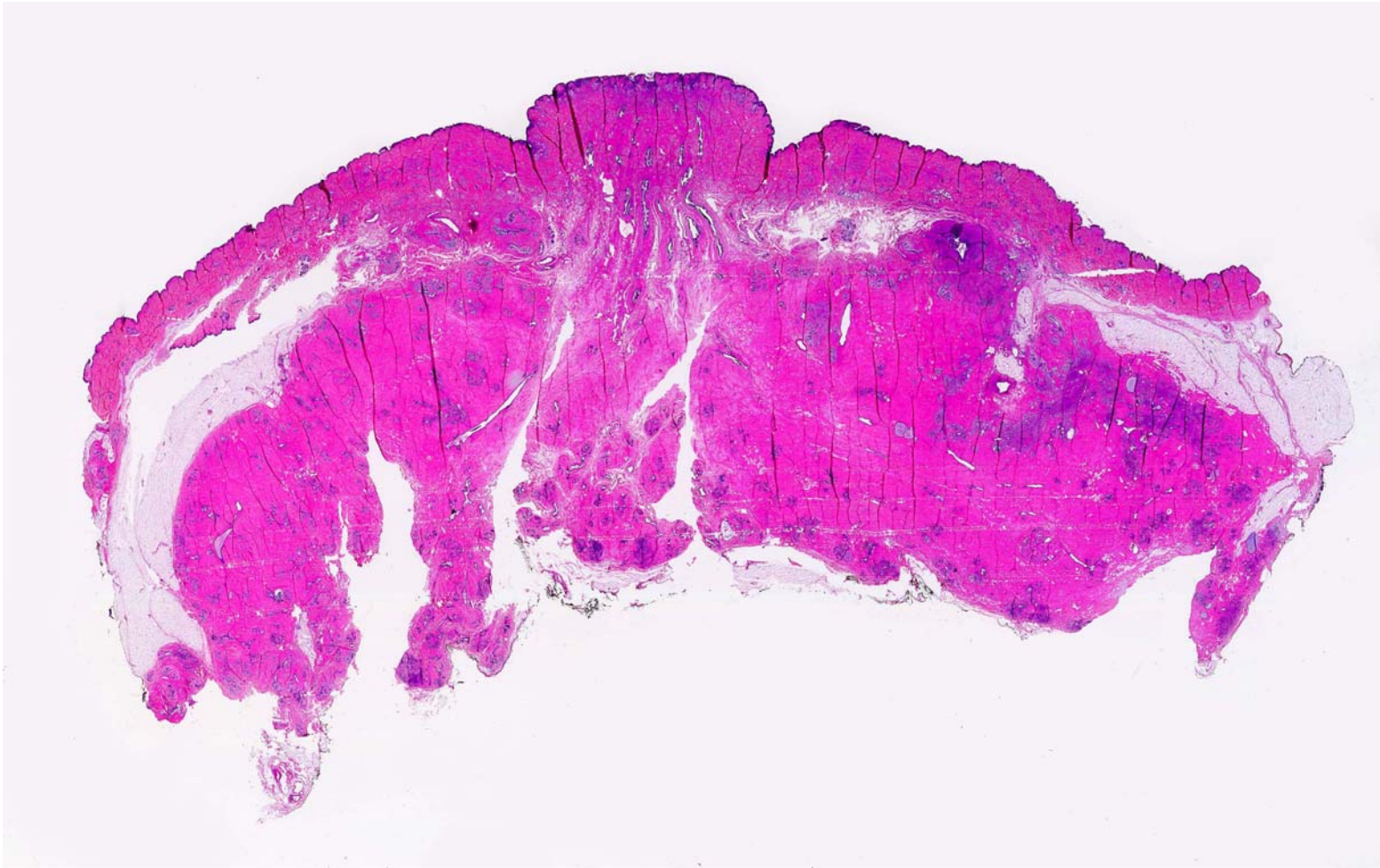
Macrosection



Ductal Carcinoma In Situ: A Proposal for a New Classification

Roland Holland, MD, PHD,* Johannes L. Peterse, MD,† Rosemary R. Millis, MB, BS, FRCPath,‡ Vincenzo Eusebi, MD, FRCPath,§ Daniel Faverly, MD,* Marc J. van de Vijver, MD, PhD,‖ and Brigitte Zafrani, MD¶

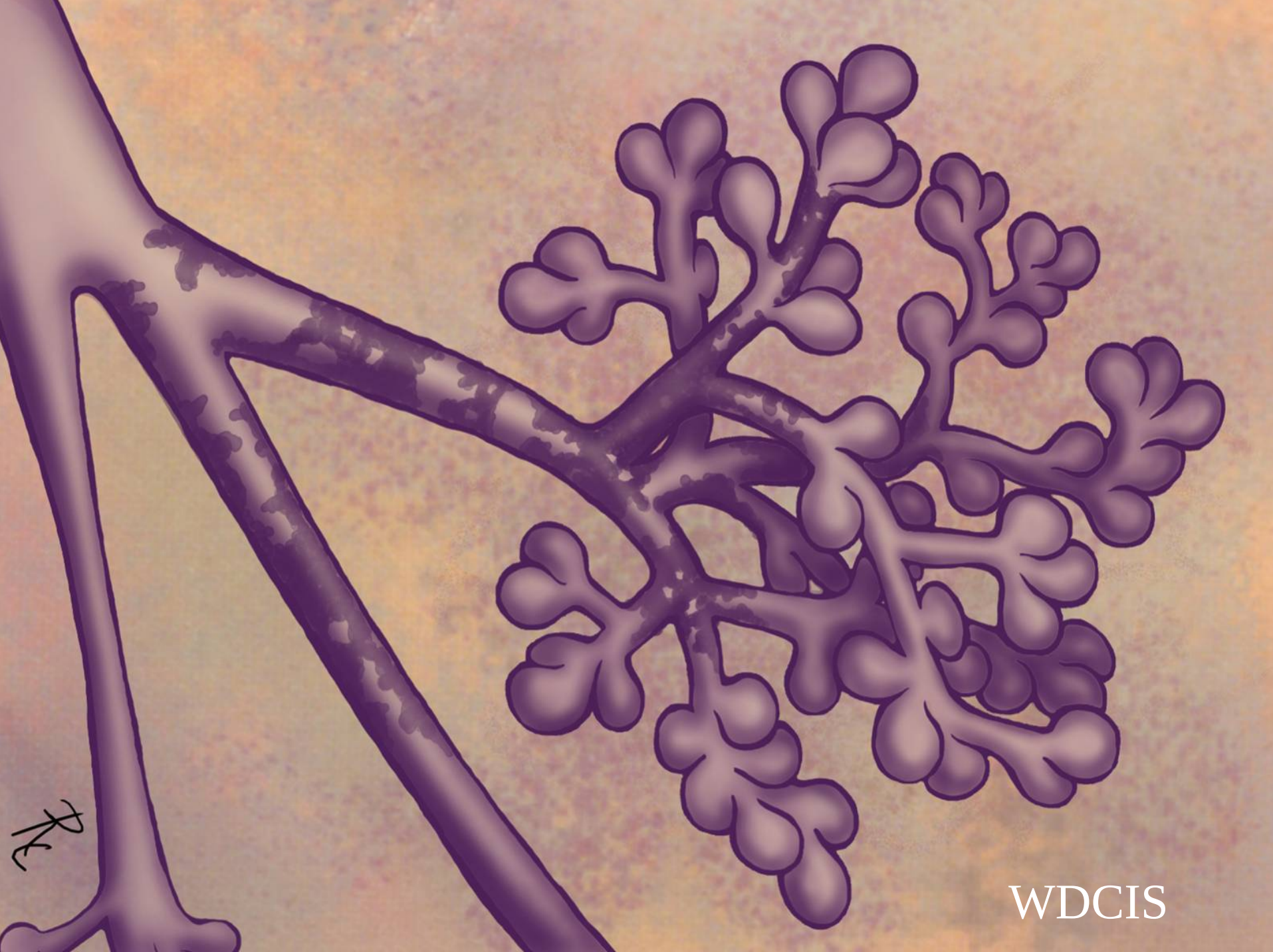
● Details of a proposed new classification for ductal carcinoma in situ (DCIS) are presented. This is based, primarily, on cytonuclear differentiation and, secondarily, on architectural differentiation (cellular polarisation). Three categories are defined. First is poorly differentiated DCIS composed of cells with very pleomorphic, irregularly spaced nuclei, with coarse, clumped chromatin, prominent nucleoli, and frequent mitoses. Architectural differentiation is absent or minimal. The growth pattern is solid or pseudo-cribriform and -micropapillary (without cellular polarisation). Necrosis is usually present. Calcification, when present, is amorphous. Second, at the other end of the spectrum is well-differentiated DCIS, composed of cells with monomorphic, regularly spaced nuclei containing fine chromatin, inconspicuous nucleoli, and few mitoses. The cells show pronounced polarisation with orientation of their apical border towards intercellular spaces usually resulting in cribriform, micropapillary and clinging patterns, although a solid pattern of well-differentiated DCIS also occurs. Necrosis is uncommon. Calcifications, when present, are usually psammomatous. The third category, intermediately differentiated DCIS, is composed of cells showing some pleomorphism but not so marked as in the poorly differentiated group. There is, however, always evidence of polarization around intercellular spaces, although this is not so pronounced as in the well-differentiated group. These two criteria, cytonuclear differentiation and architectural differentiation, have been found to be more consistent throughout a DCIS lesion than previously employed criteria of architectural pattern or the presence or absence of necrosis.

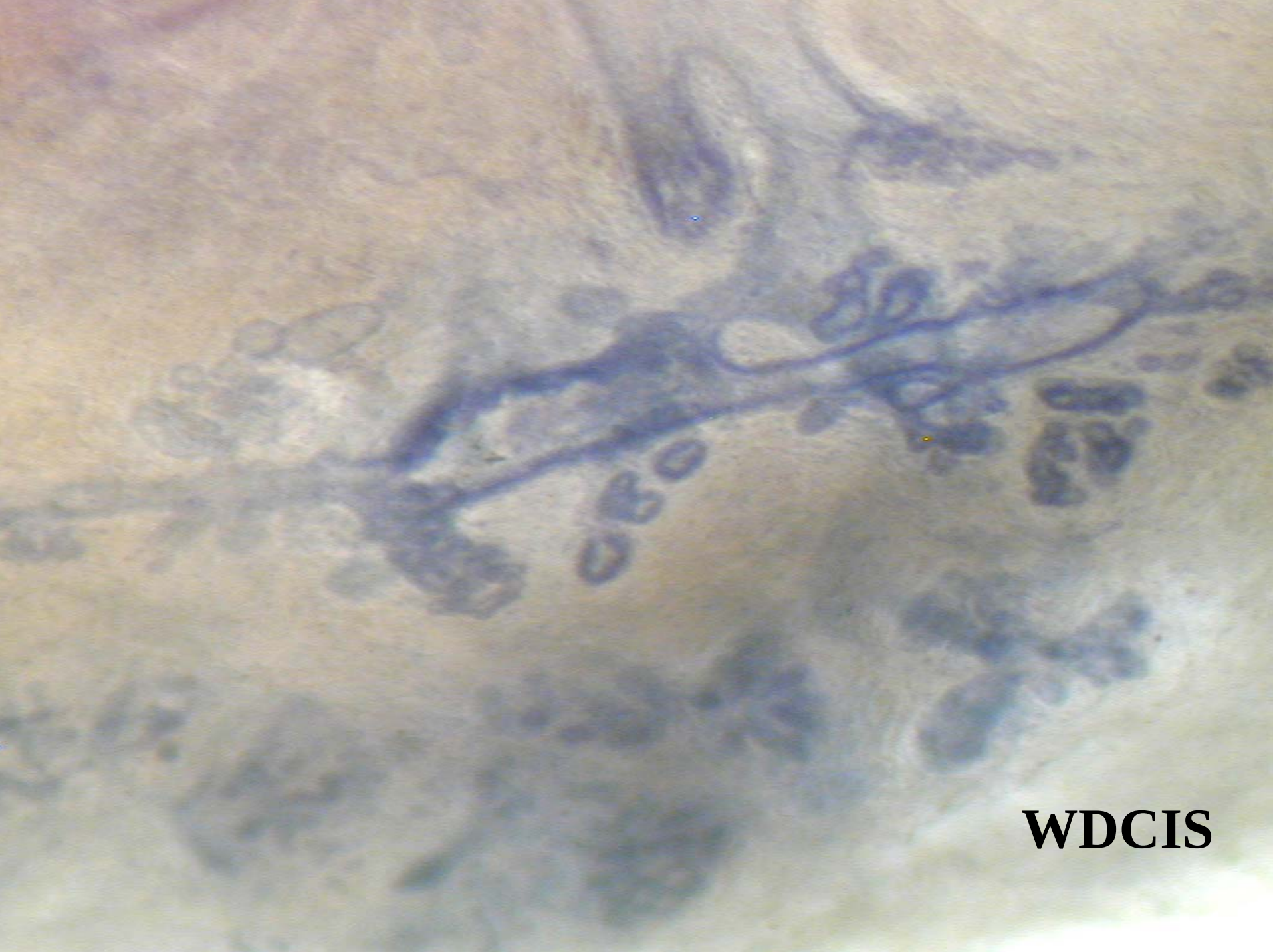
DCIS/DIN

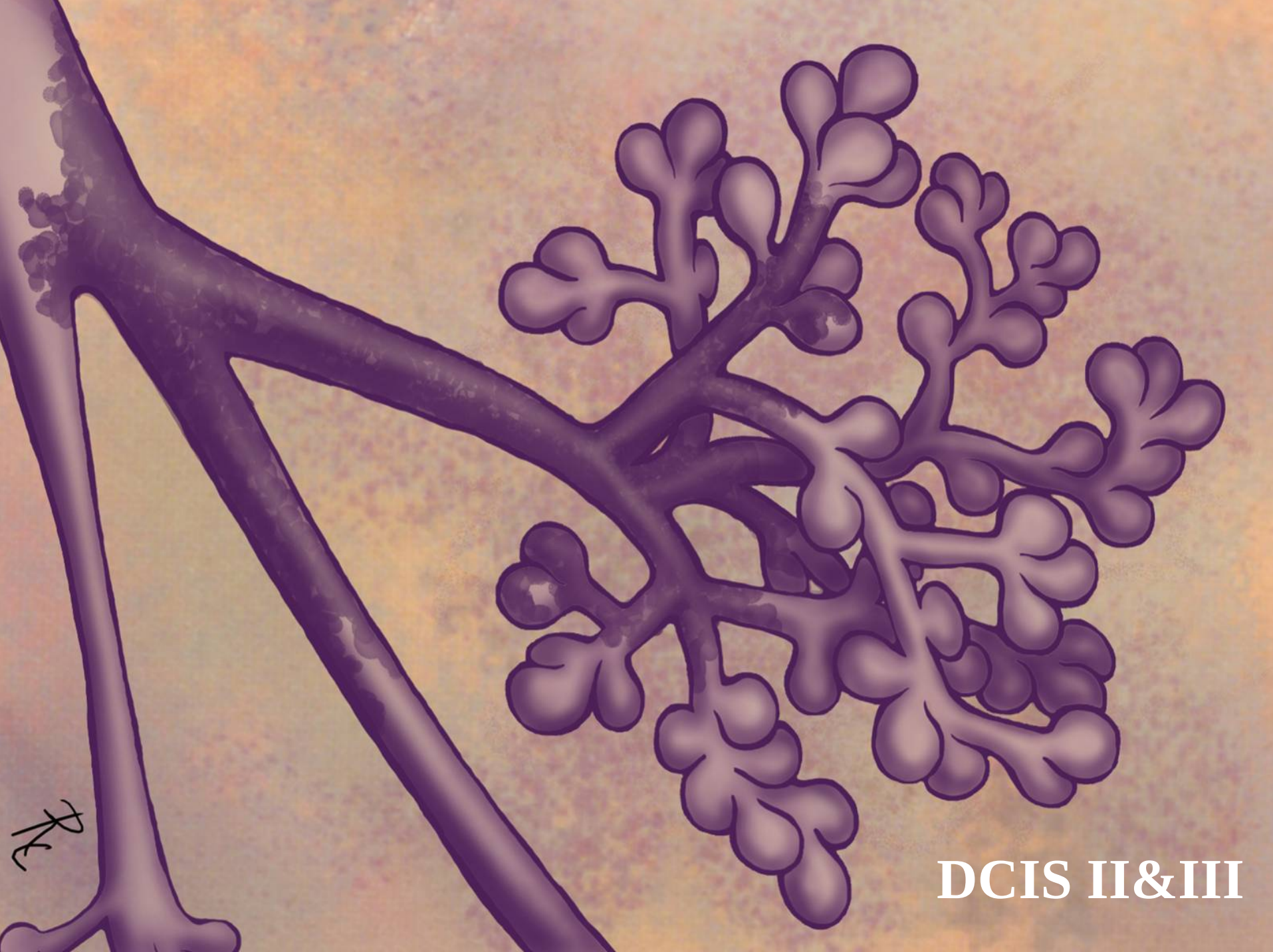
GRADE I (WELL DIFFER)

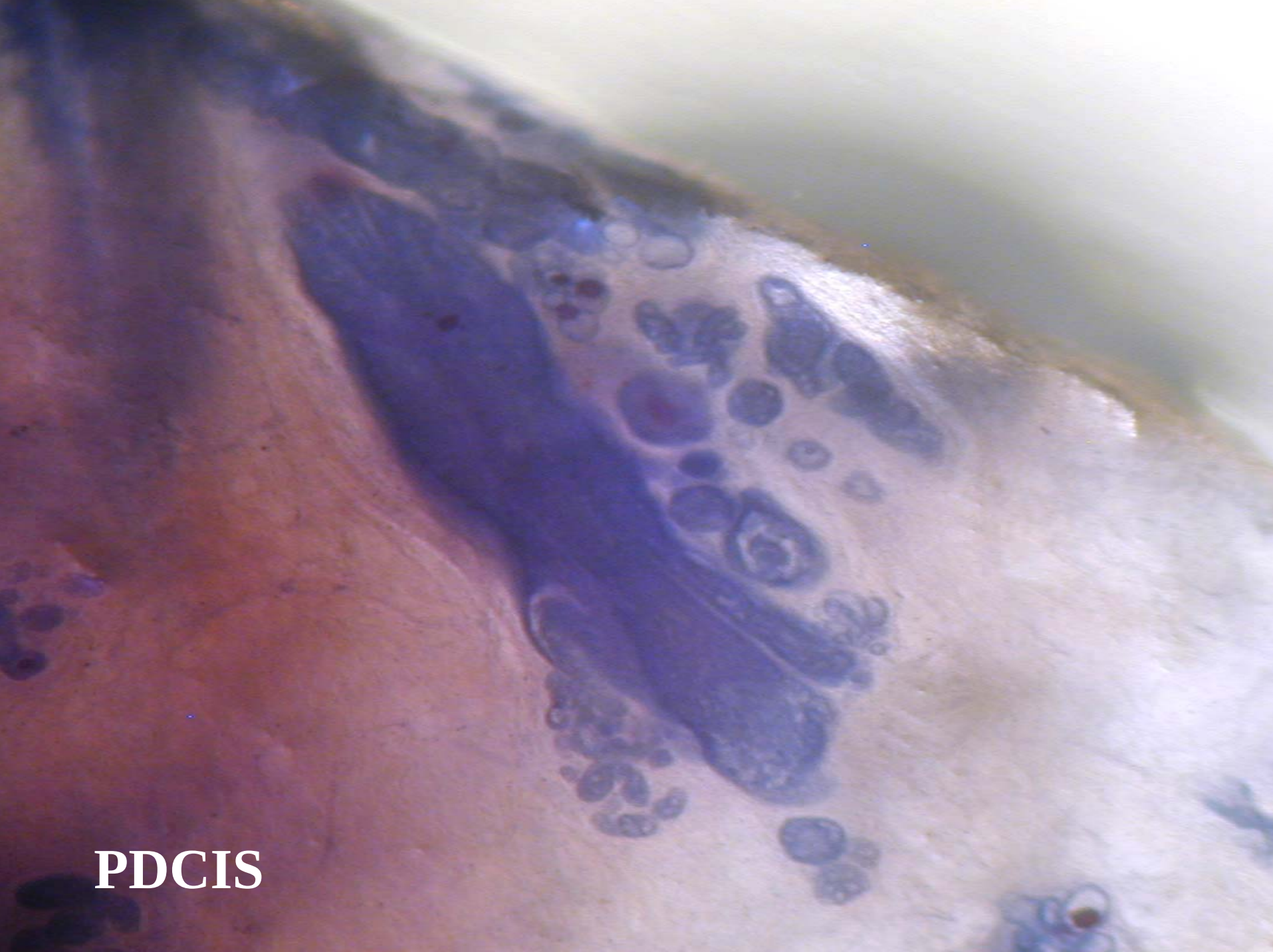
GRADE II (INTERM DIFF)

GRADE III (POORLY DIFF)


WDCIS


WDCIS


DCIS II&III


PDCIS

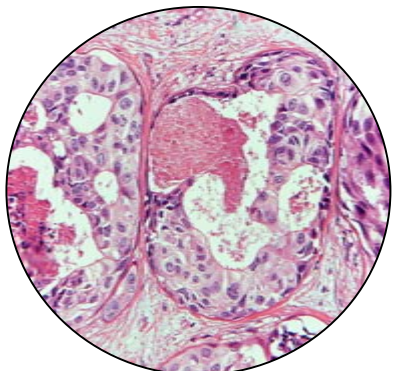
The value of macrosections in the study of DCIS/DIN and IDC

Foschini et al (2006)

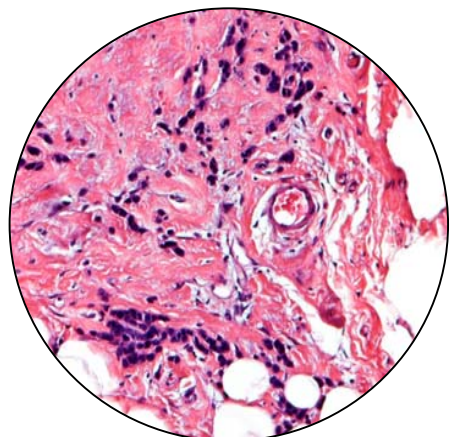
- **46 macrosections on mastectomies.**
- **IDC: 4 Cases**
- **DCIS: 4 Cases**
- **DCIS & IDC: 38 Cases**

Grading DCIS according to Holland et al. 1994

Grading DCI according to Elston & Ellis, 1991



Foci \ areas



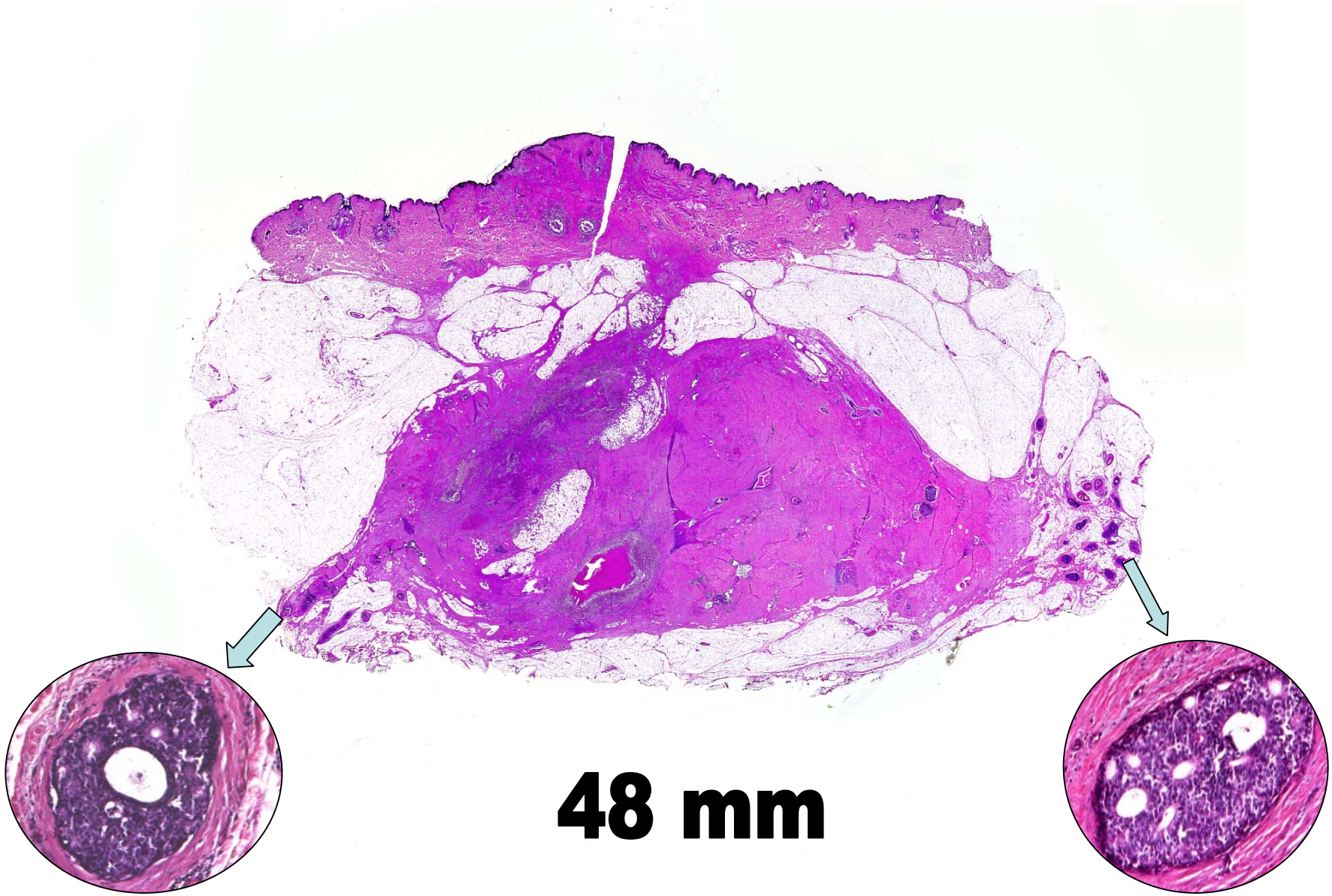
DCIS WELL DIFFERENTIATED/DIN 1

(8 cases)

- **Number of FOCI of DCIS: range 1 - >100 (average 56.75)**
  6\8 (75%) more than 20 foci

- **Maximum distance between foci:**
  range 24– 55 mm (Average 40.86 mm)
  8\8 more than 20 mm

Well differentiated DCIS/DIN 1



DCIS MODERATELY DIFFERENTIATED / DIN 2
(22 cases)

- **Number of FOCI of DCIS: range 1 - >100 (average 21.14)**

  6\22 (27%) more than 20 foci

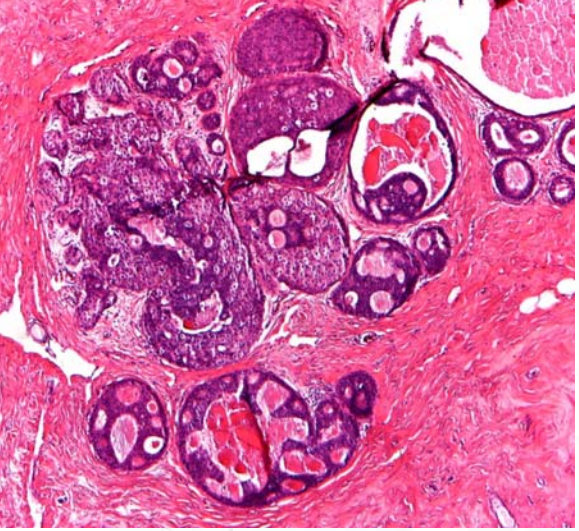
- **Maximum distance between foci: range 1 – 72 mm (average 17.15mm)**

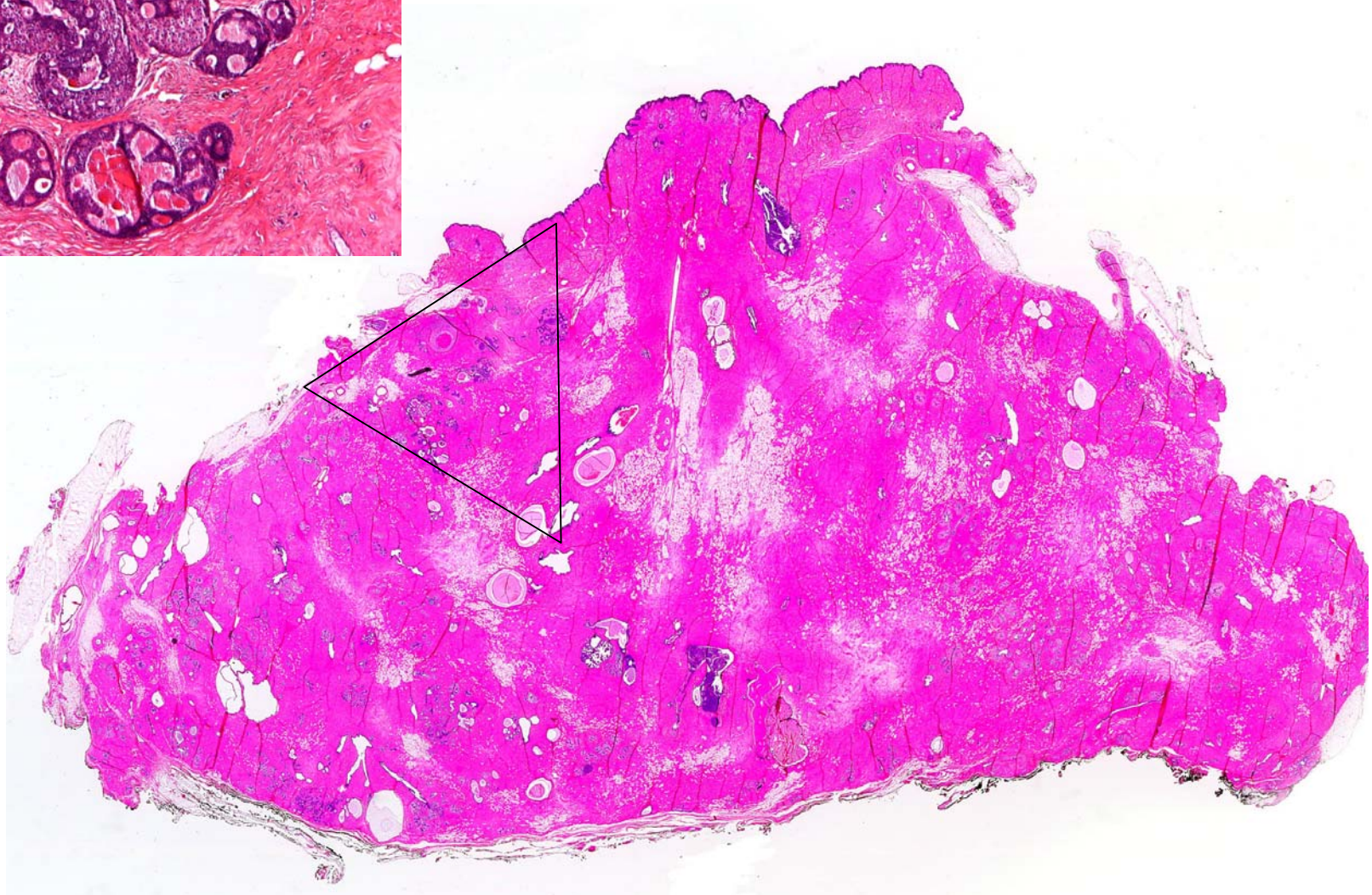
DCIS POORLY DIFFERENTIATED / DIN 3 (14 cases)

- **Number FOCI: 1 - >100 (average 21.28)**
- **4\14 (28.5%) more than 20 foci**

- **Maximum distance between foci: range 1–51 mm (average 20.5 mm)**

DCIS poorly differentiated / DIN3





Carcinoma Duttale In Situ DCIS/DIN

- **DCIS grado 1 lesioni distanti (distanza media fra foci 40.86 mm)**
- **DCIS grado 2&3 lesioni meno distanti (distanza media fra foci 17.15 & 20.5 mm)**

QUALE TRATTAMENTO PER DCIS

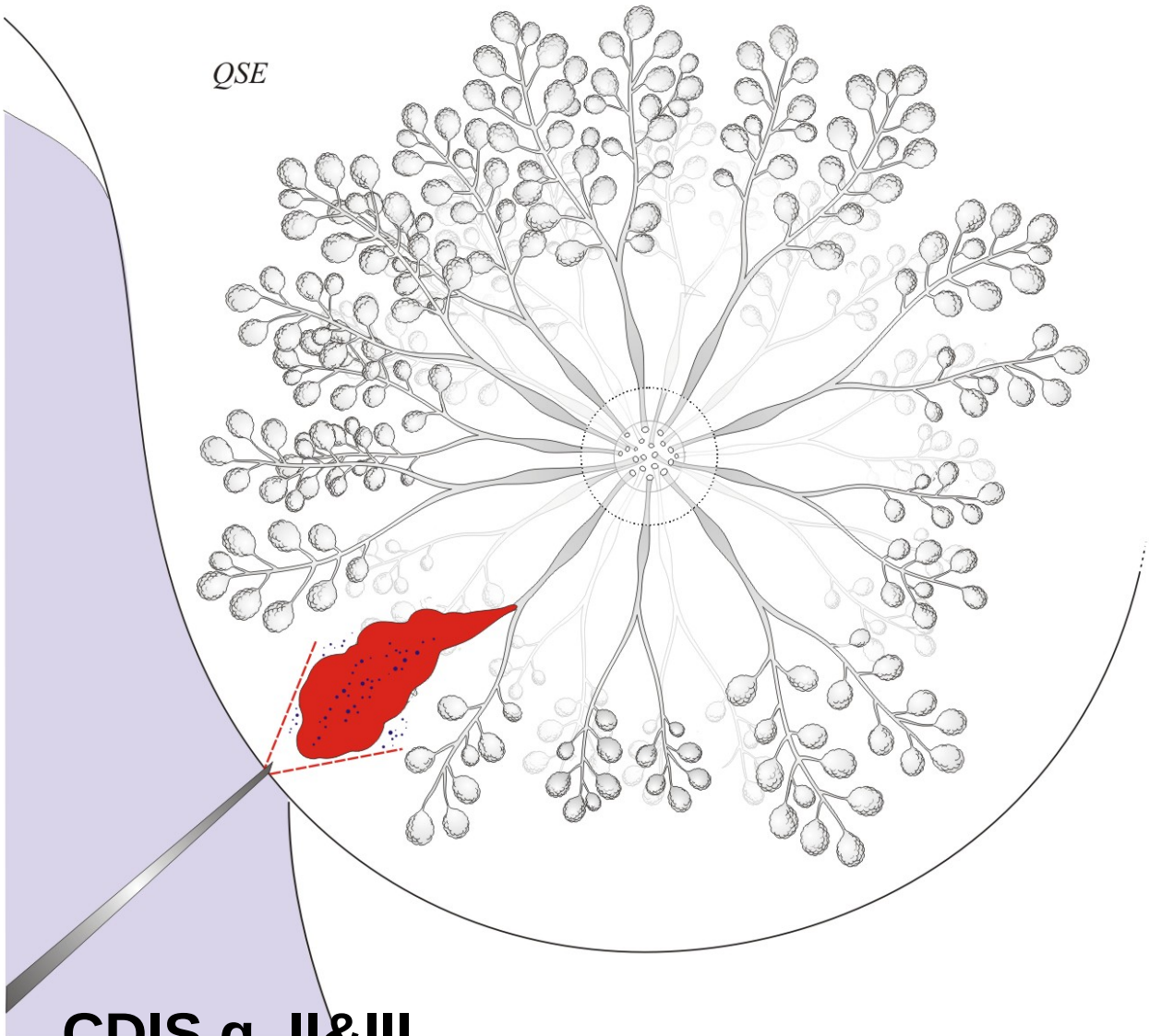
PARAMETRI TERAPEUTICI

ISTOTIPO

MARGINI

BIOLOGIA

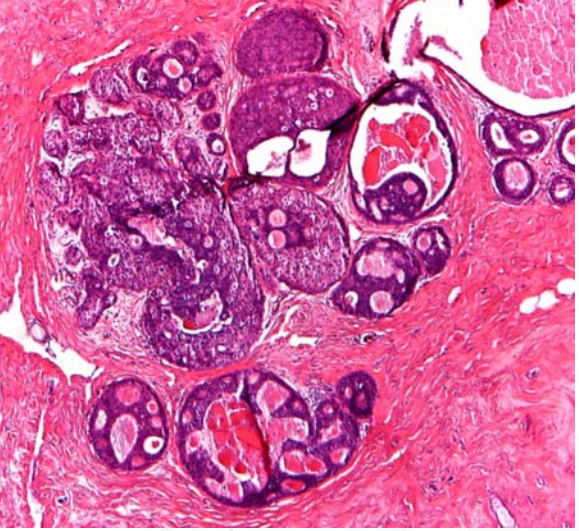
The sick lobe (T.Tot)

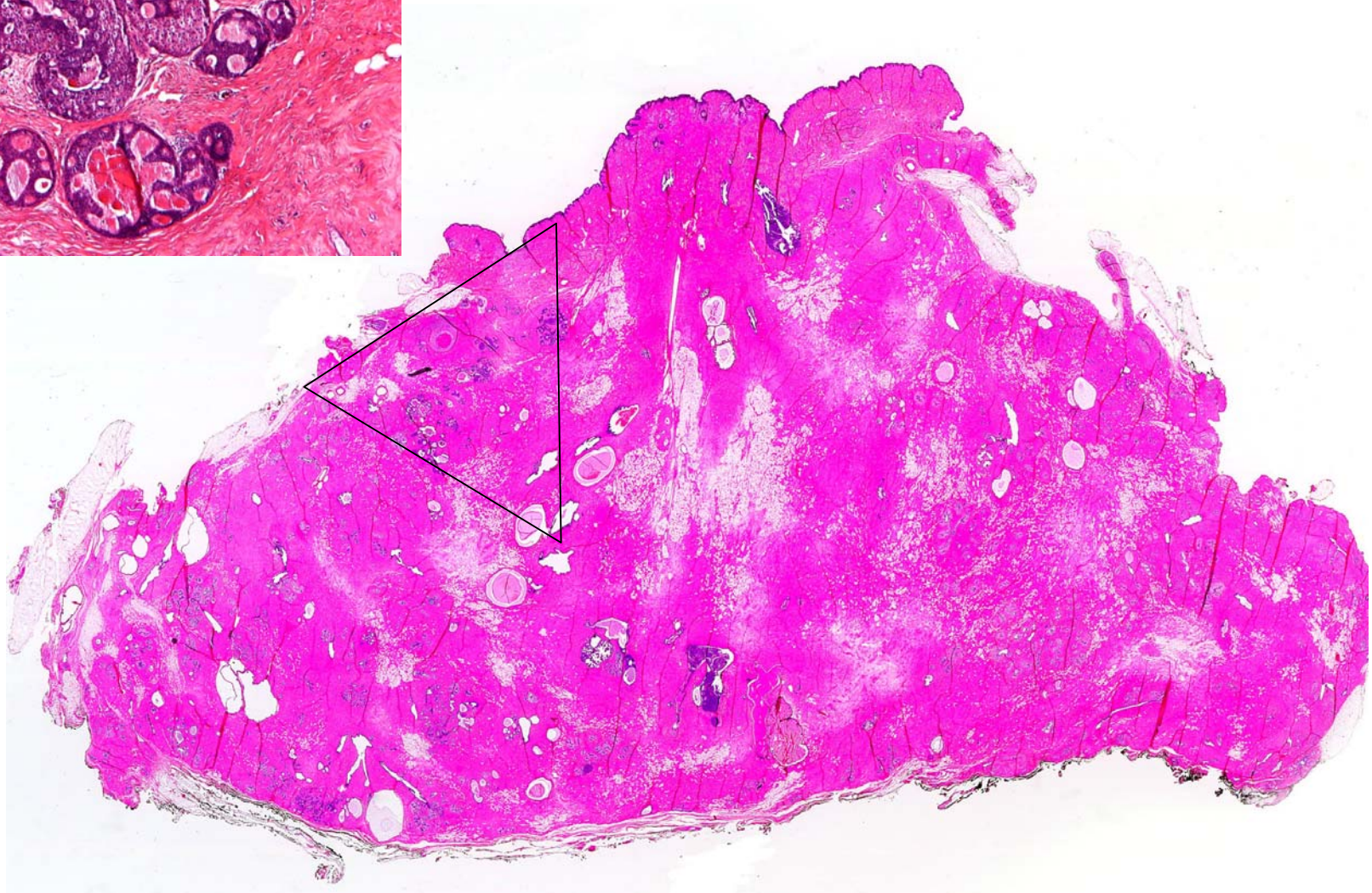


CDIS g. II&III

Unifocale

Poorly differentiated DCIS





Three Dimensional Imaging of Mammary Ductal Carcinoma in Situ: Clinical Implications

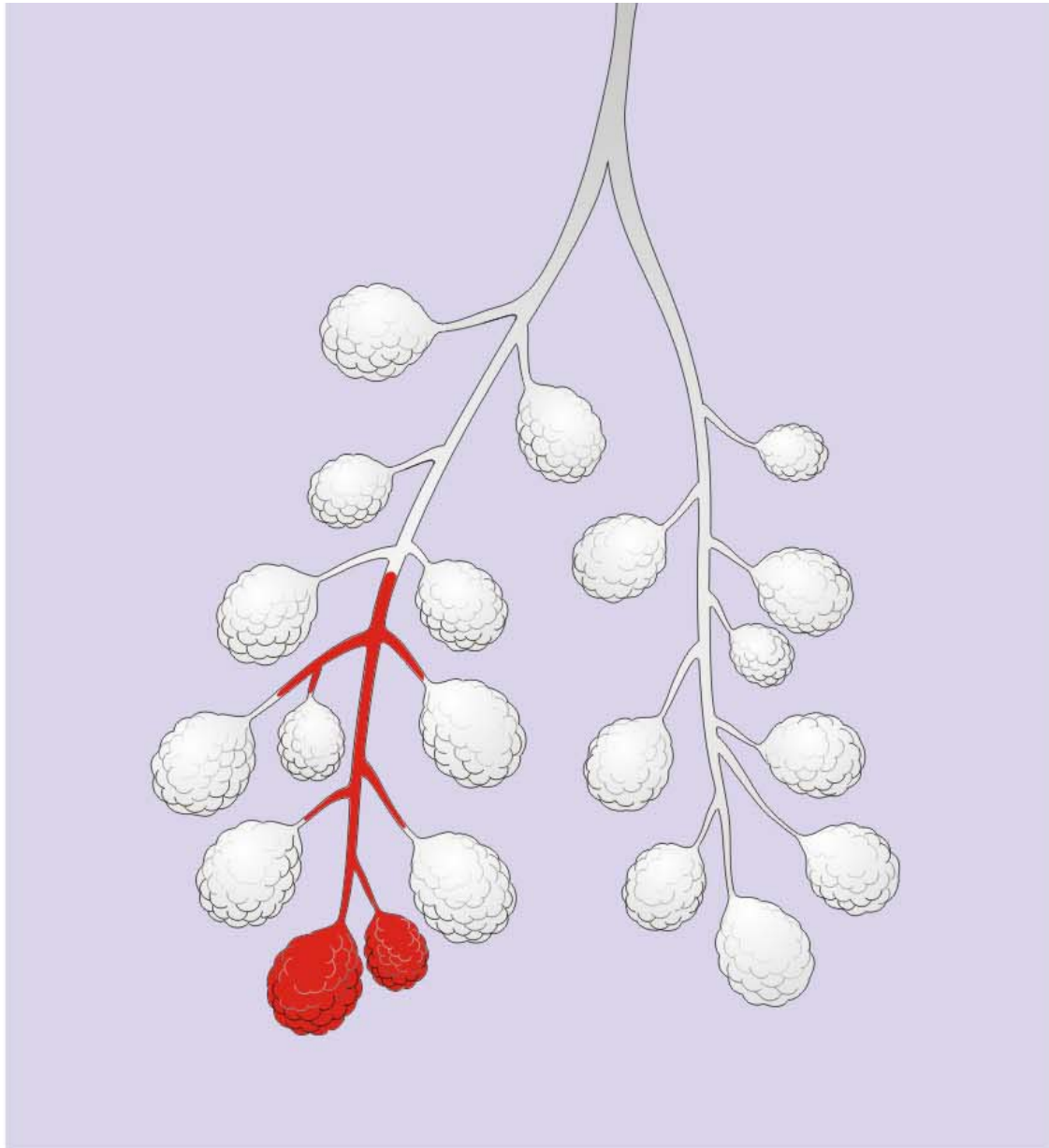
Daniel R. G. Faverly MD,*† Lambert Burgers,*† Peter Bult MD,* and Roland Holland MD, PhD*†

● The conservation treatment of ductal carcinoma in situ (DCIS) is based on the surgical excision of the tumour together with irradiation of the remaining breast. Because short-term recurrence is almost certainly caused by residual tumour, an attempt should be made to verify the adequacy of the excision by assessing the specimen margin. The reliability of histologic margin assessment is influenced by the growth pattern of DCIS within the ductal tree and by the distance between tumour foci. Using an original stereoscopic technique, the present study of 60 mastectomy specimens shows that continuous and multifocal growth patterns are usual. A multifocal distribution (defined as gap of 4 cm or more between tumour foci) was found in only a single case. The growth pattern is related to DCIS type. Poorly-differentiated DCIS shows continuous growth, in contrast to the well-differentiated DCIS, which has a multicentric distribution. Irrespective of histologic type, however, only 8% of DCIS have a multifocal distribution with gaps greater than 10 mm. Therefore, with careful assessment, the likelihood of a false free margin seems theoretically low and should encourage the use of conserving treatment for eradicable DCIS.

Table 3. Largest Distance of Uninvolved Breast Tissue Between Tumor Foci Relation To DCIS Type

Size of The Largest Gap	Frequency (%)	DCIS TYPE			
		Well-Differentiated	Intermediately Differentiated	Poorly Differentiated	Mixed
No gap	30 (50)	8	4	17	1
<5 mm	19 (32)	12	3	1	3
5 to 10 mm	6 (10)	3	1	1	1
>10 mm	5 (8)	4*	1	0	0
Total	60	27	9	19	5

* One well-differentiated DCIS had a 40-mm gap of uninvolved parenchyma between two tumor areas and was defined as multicentric.



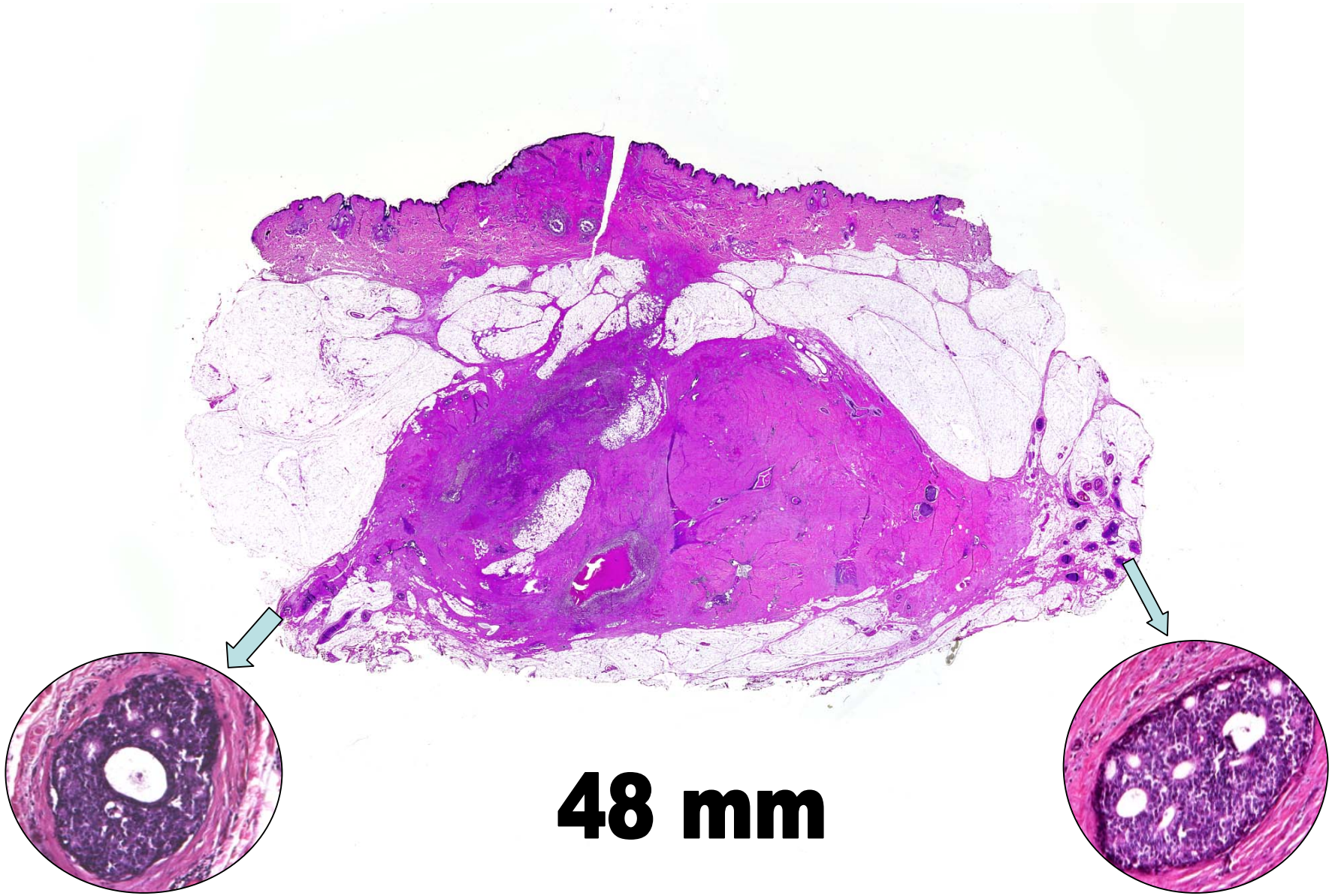
Escissione & radioterapia

Margini 5 mm

CDIS poco differenziato

unifocale

DCIS well differentiated



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THE INFLUENCE OF MARGIN WIDTH ON LOCAL CONTROL OF DUCTAL CARCINOMA IN SITU OF THE BREAST

MELVIN J. SILVERSTEIN, M.D., MICHAEL D. LAGIOS, M.D., SUSAN GROSHEN, PH.D., JAMES R. WAISMAN, M.D., BERNARD S. LEWINSKY, M.D., SILVANA MARTINO, D.O., PARVIS GAMAGAMI, M.D., AND WILLIAM J. COLBURN, M.D.

NEW ENGL J MED 340:1455-61;1999

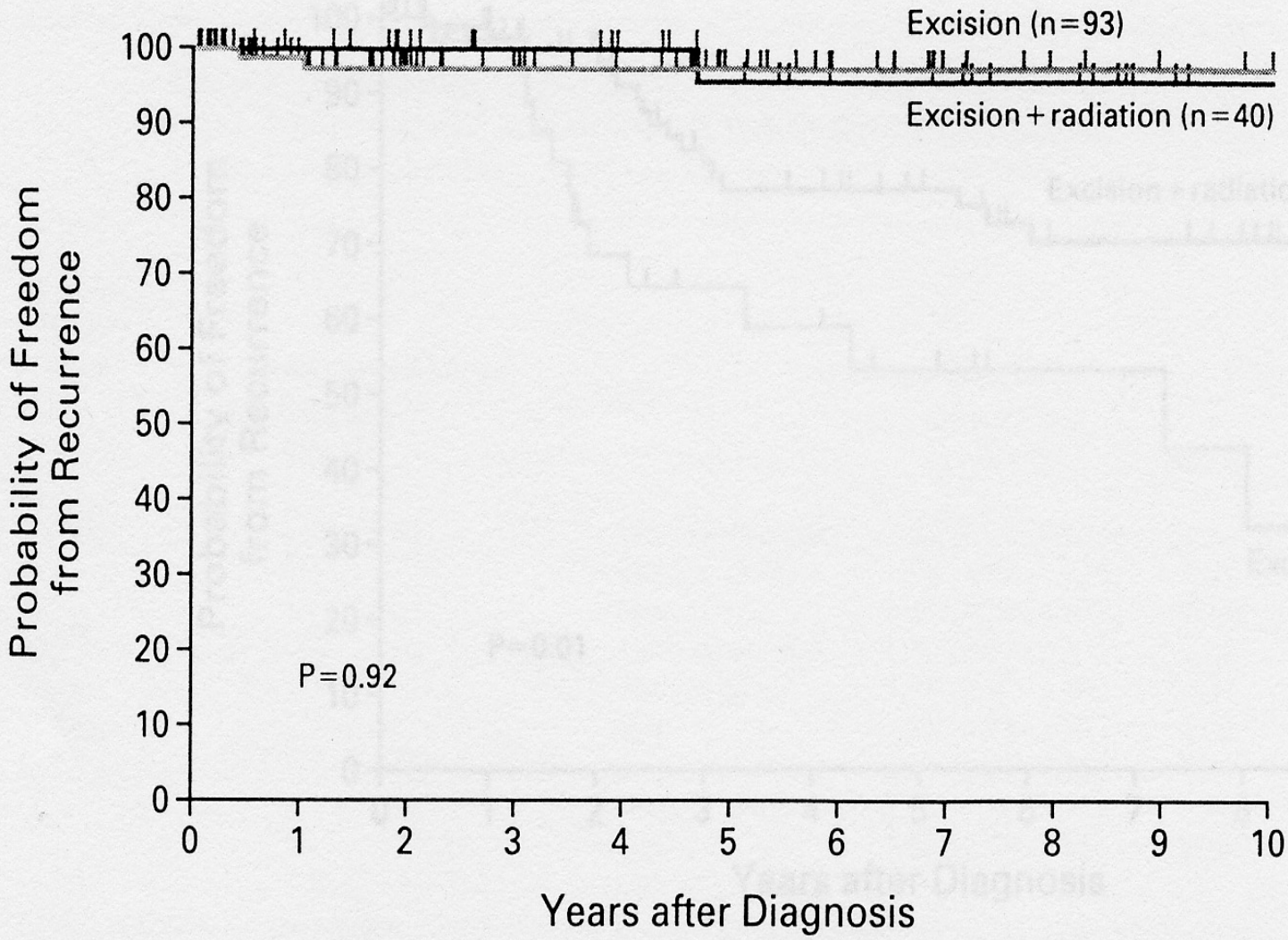

Figure 1. Recurrences in 133 Patients with Ductal Carcinoma in Situ and Excision Margins at Least 10 mm Wide.

Data were analyzed according to treatment. There was no benefit from the addition of radiation therapy after excision (P=0.92 by the log-rank test). The tick marks indicate patients whose data were censored.