Panel discussion

Radical surgery – what are the demands?

Nicola Rocco

Consultant oncoplastic breast surgeon, Naples

Marc Thill

Consultant breast and gynecologic surgeon, Frankfurt

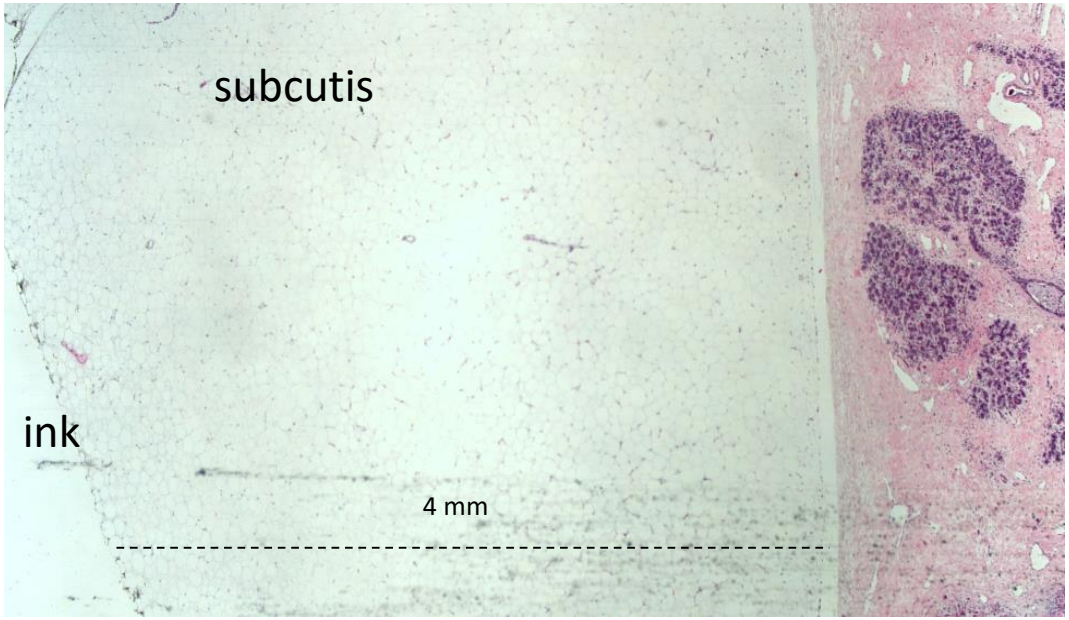
Fredrik Wärnberg

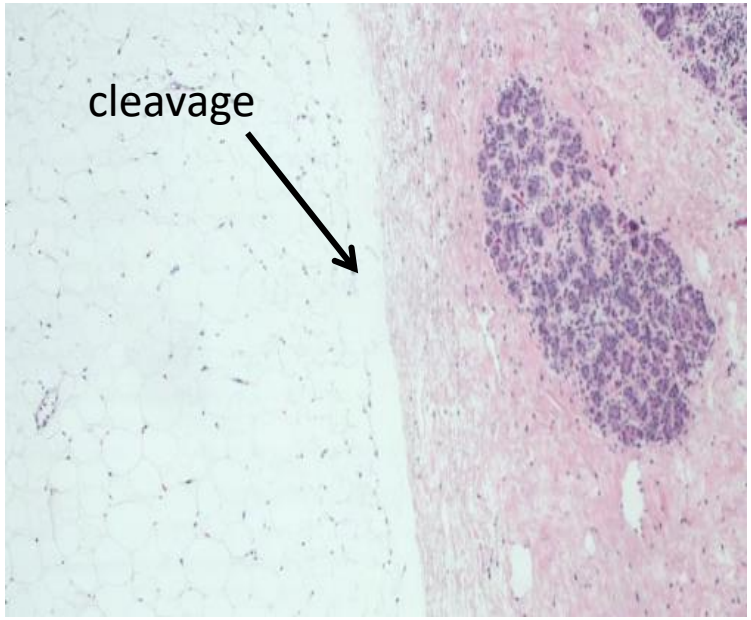
Consultant breast and endocrine surgeon, Uppsala

Focus on radicality in DCIS patients treated with subcutaneus mastectomies

Dilemma between:

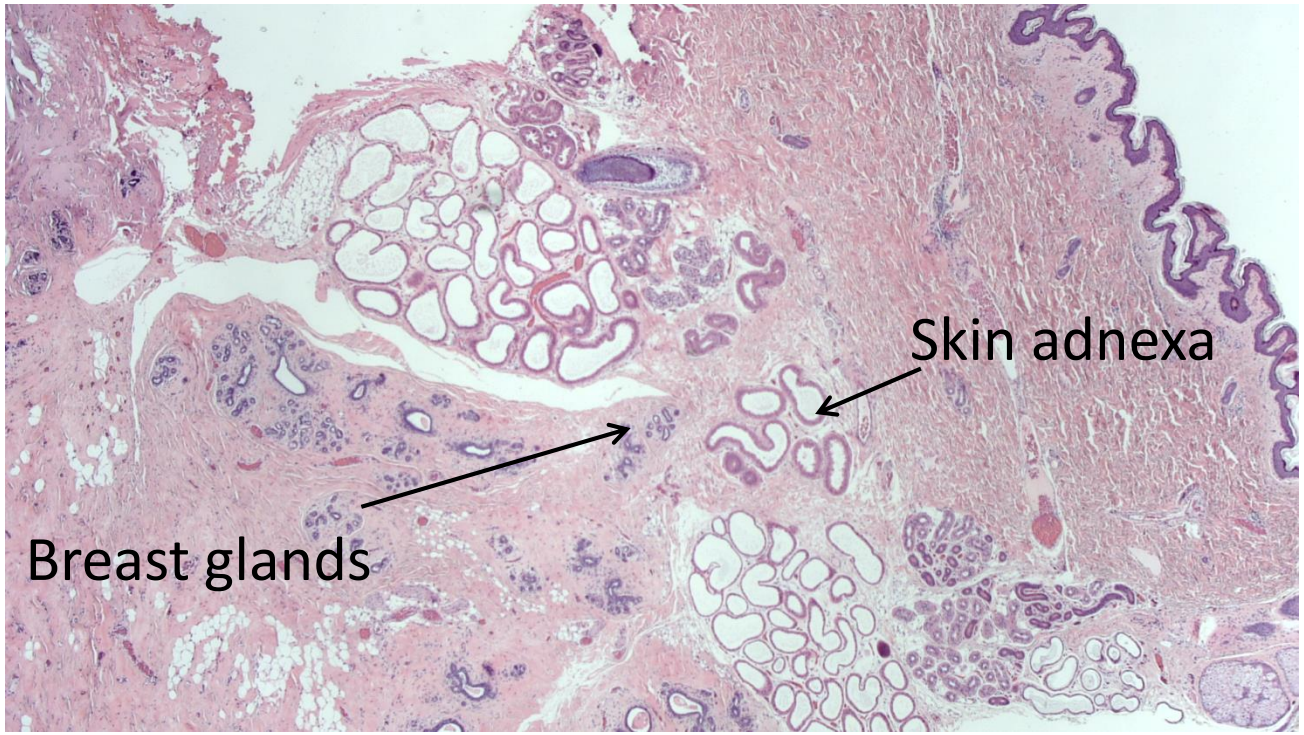
Flap viability and quest to remove as much breast tissue as possible



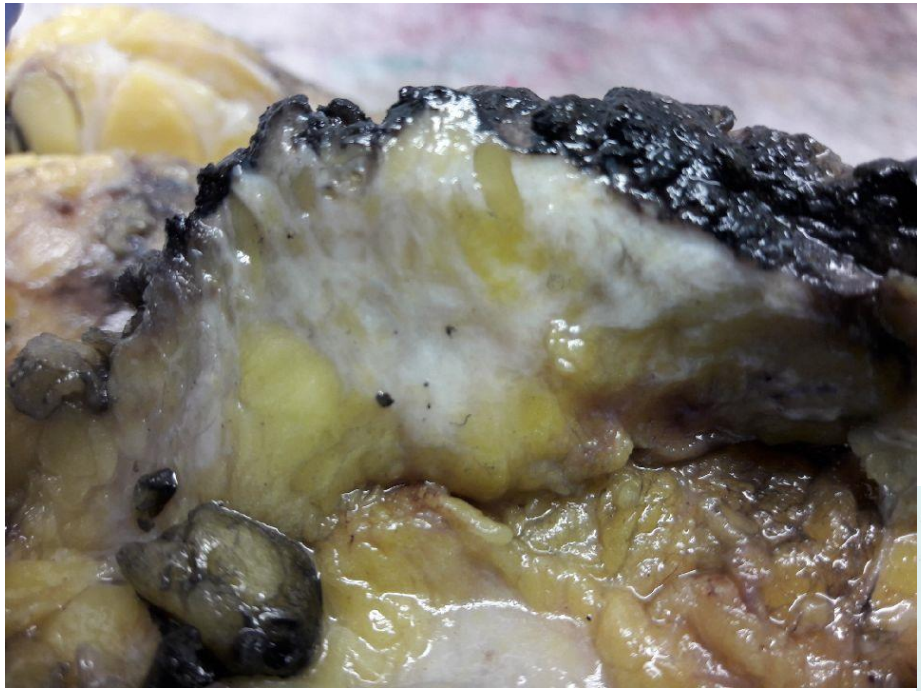


Challenging anatomy

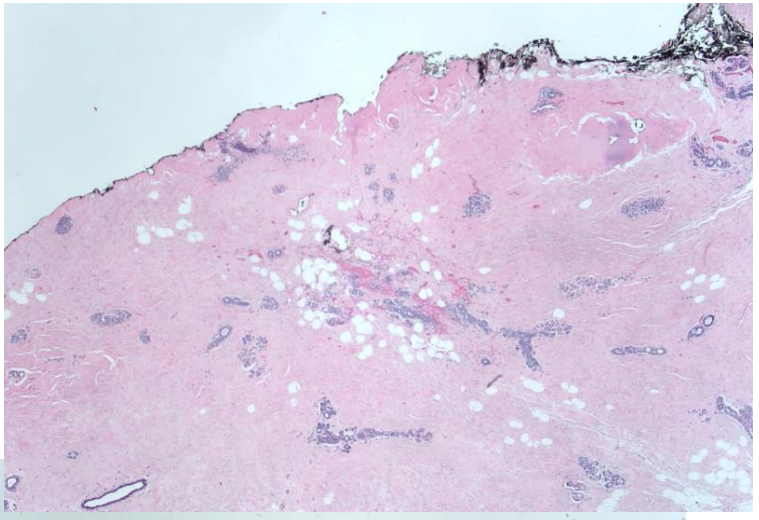
- Limits of anatomic extension of the fibroglandular tissue is imprecise
- The superficial layer is not continous
- Thickness of subcutaneus tissue is variable

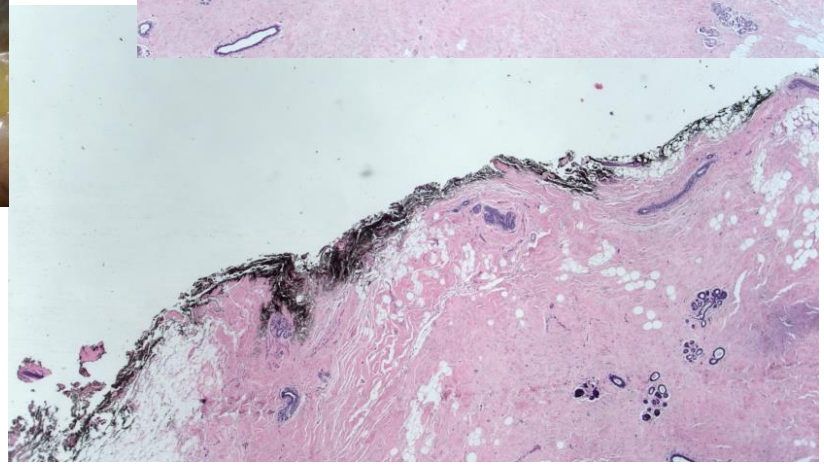


Residual breast tissue (RBT) will be left behind

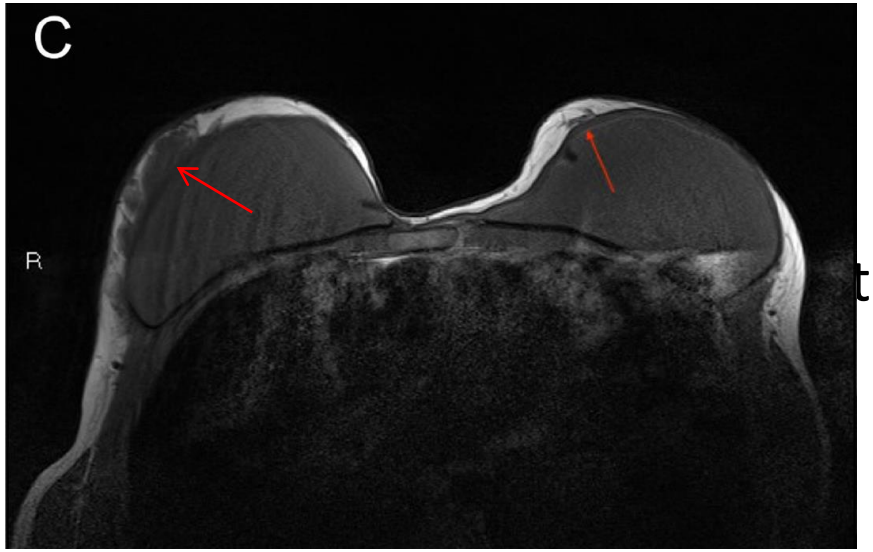


Fibroglandular tissue extending to the ink

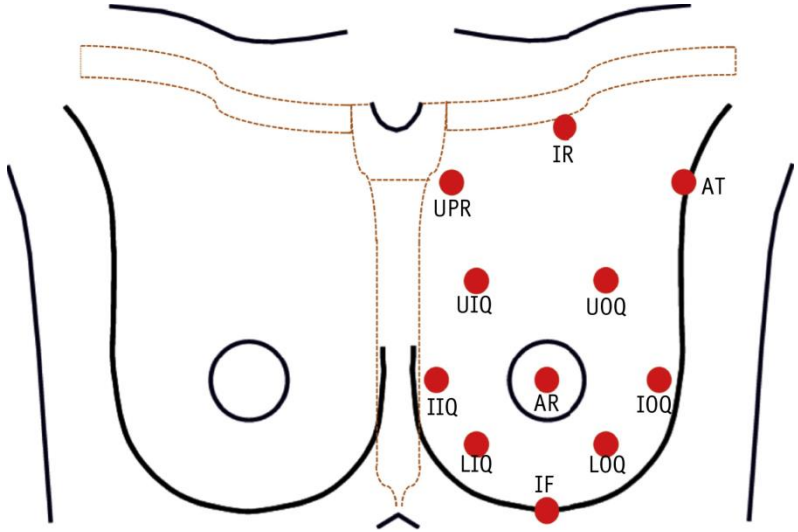




Flap thickness and RBT

- Postoperative MRI based studies have shown sign. ass. between flap thickness and RBT (except for inframammary region)
- Flaps > 5 mm have a high prevalence of RBT
- Larger flap thickness with prophylactic mastectomies
- 

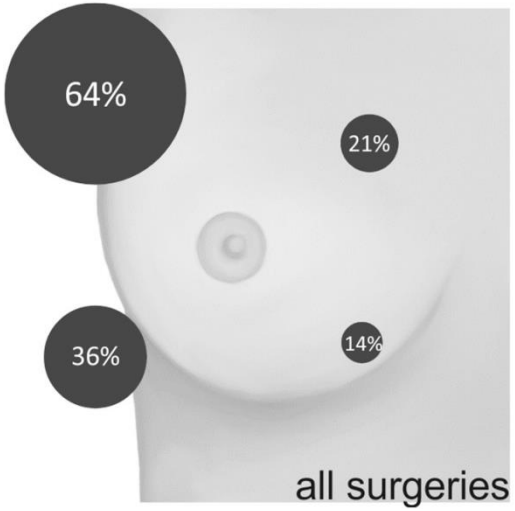
t:

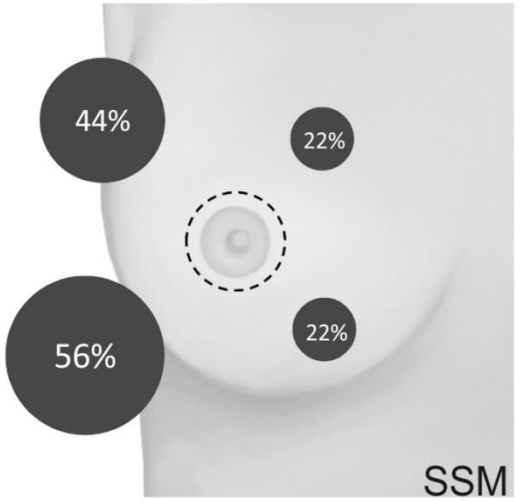


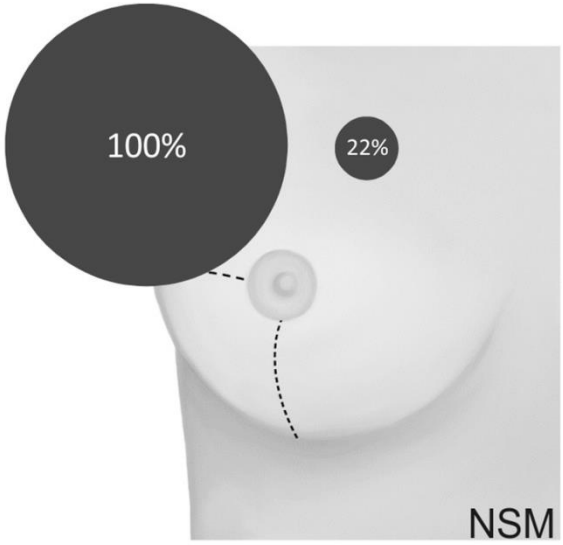
1. *Giannotti DG, Int. Journal of Radiation Oncology, 2018*
2. *Woitek R, European Journal of Radiology, 2018*
3. *Bevilacqua JLB, Int. Journal of Radiation Oncology, 2019*

RBT varies with surgical procedure

- RBT more frequently present in nipple sparing mastectomies (after excl. of NAC)[1]
  - 2.8% after total mast.
  - 13.2% after SSM
  - 51% after NSM







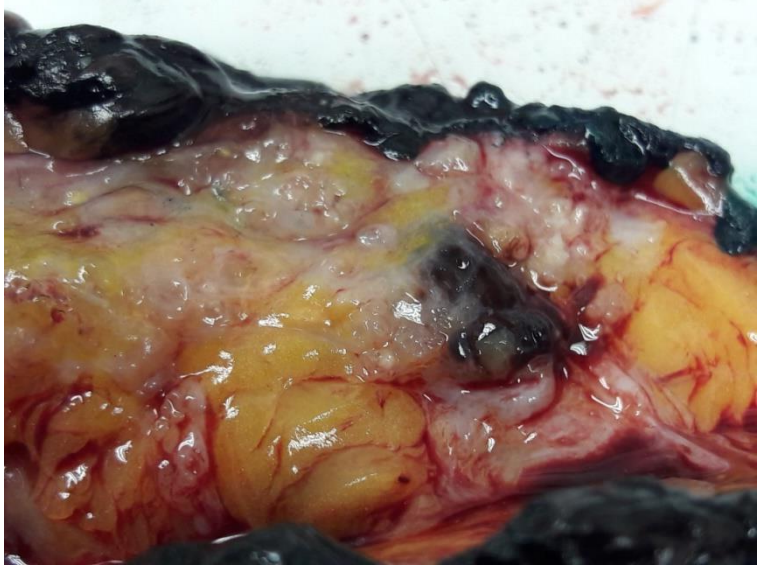
1. *Giannotti DG, Int. Journal of Radiation Oncology, 2018*
2. *Woitek R, European Journal of Radiology, 2018*

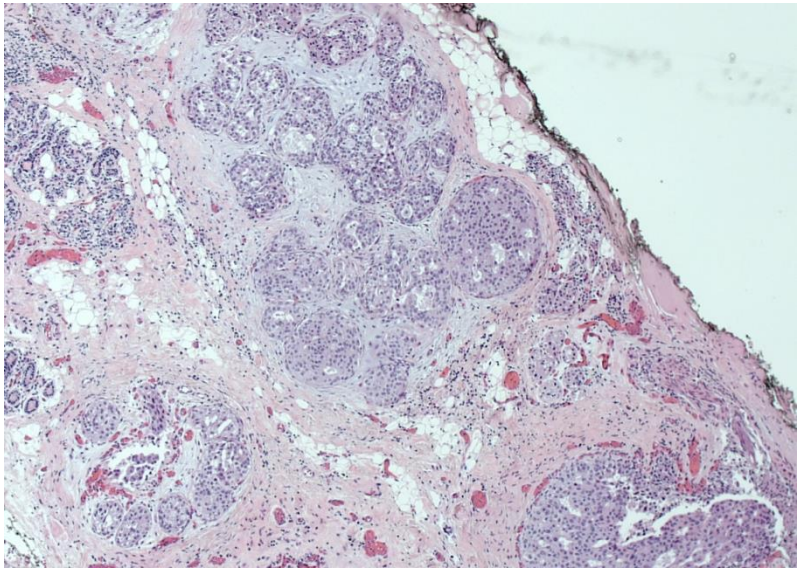
Our concerns at tumor board

When not only RBT, **but DCIS is present on, or close to, the inked superficial margin**

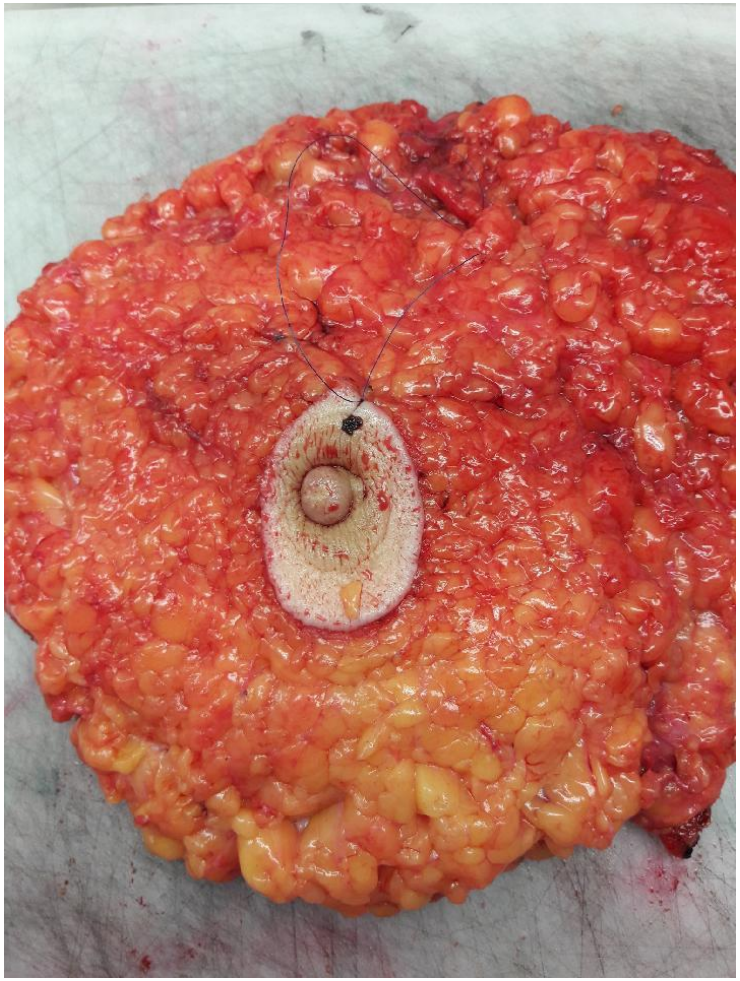
Dilemma between:

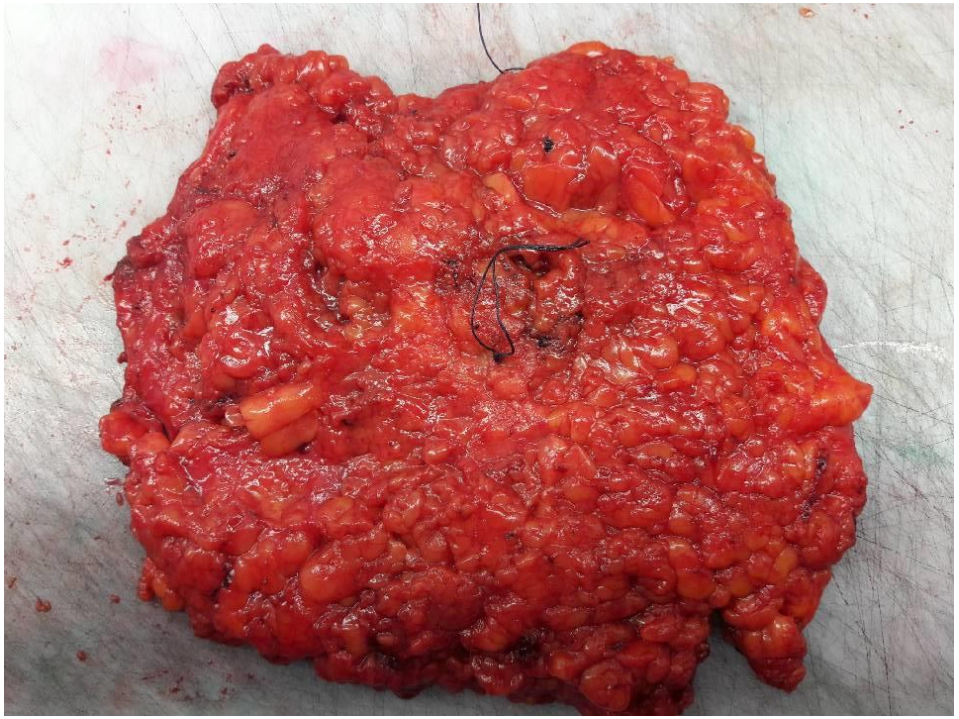
- risk of developing a local recurrence
- concerns for viability of the skin and survival of the reconstruction





How to best describe the exact location of the positive margin?





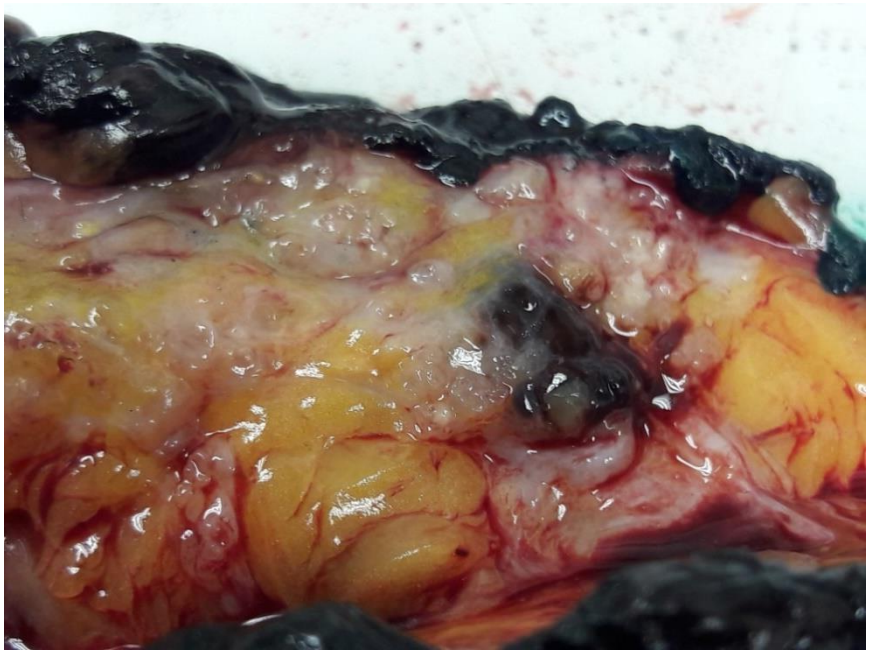
Latitude: 56° 11' 18.00" N
Longitude: 10° 10' 12.00" E

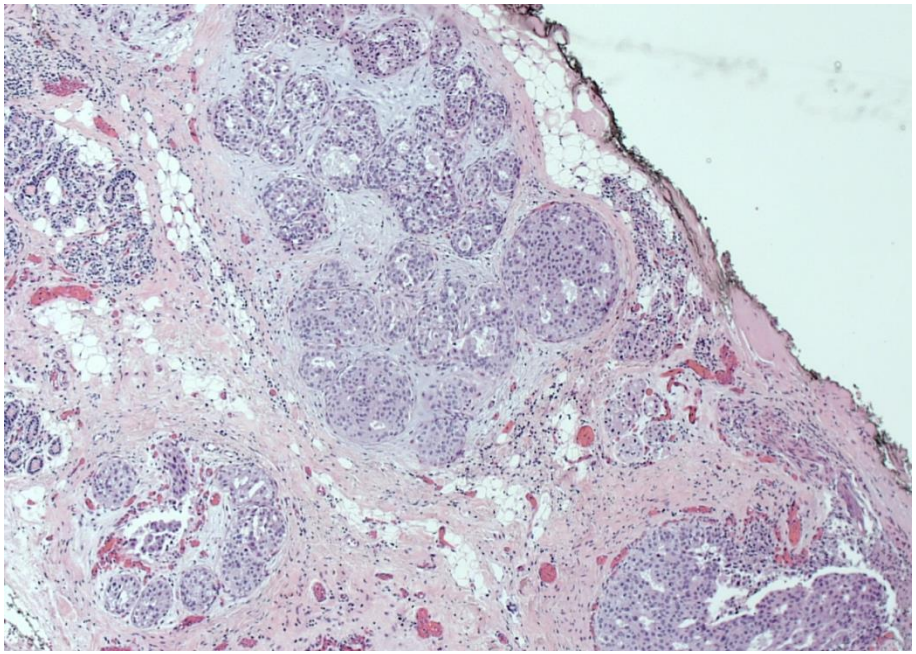
Our questions to the panel and audience are, how to optimize:

1) **selection of patients** eligible for an oncologically successful SSM/NSM

2) **evaluation and reporting** of status of the margins

3) **planning of further surgical procedure** (or not) or **RT**





- Case 1, Pure DCIS
- Case 2 , DCIS with invasive recurrence
- Case 3, DCIS with invasive foci
- Case 4, Pure DCIS
- Case 5, male DCIS

Case 1 (*010987)*
Pure DCIS

31 year old woman

Palpable lump in upper lateral quadrant of the right breast.

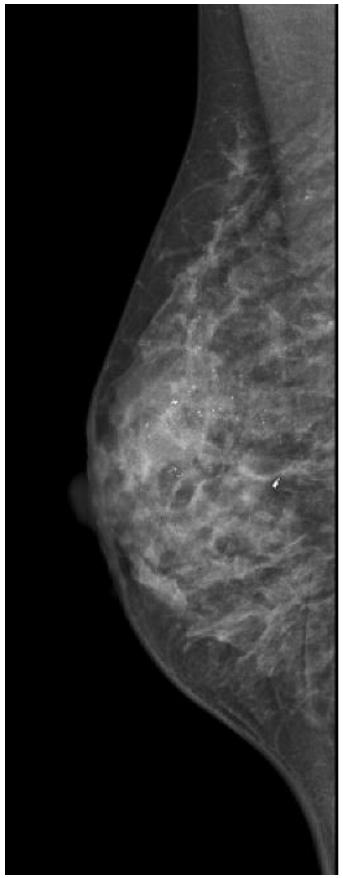
Right mammography: microcalcifications from the papilla to the upper lateral quadrant, extension 12 x 6 cm.

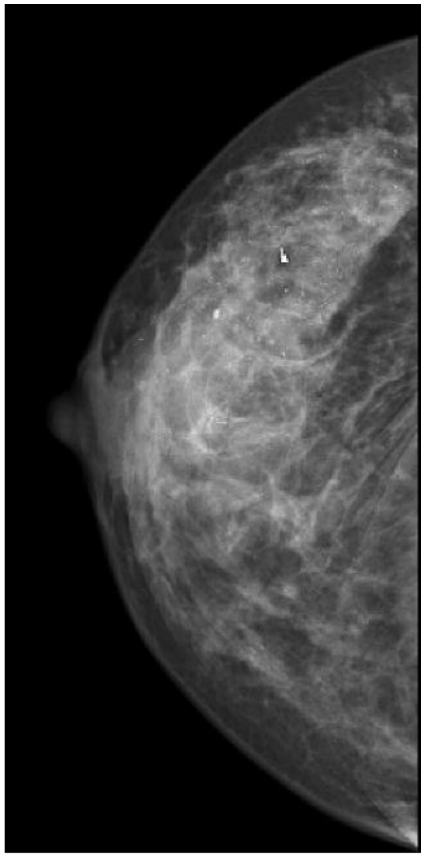
MRI: malignant uptake in the upper lateral quadrant from basis of the papilla to processus axillaris.

Genetics: Mother and grandmother with breast cancer.

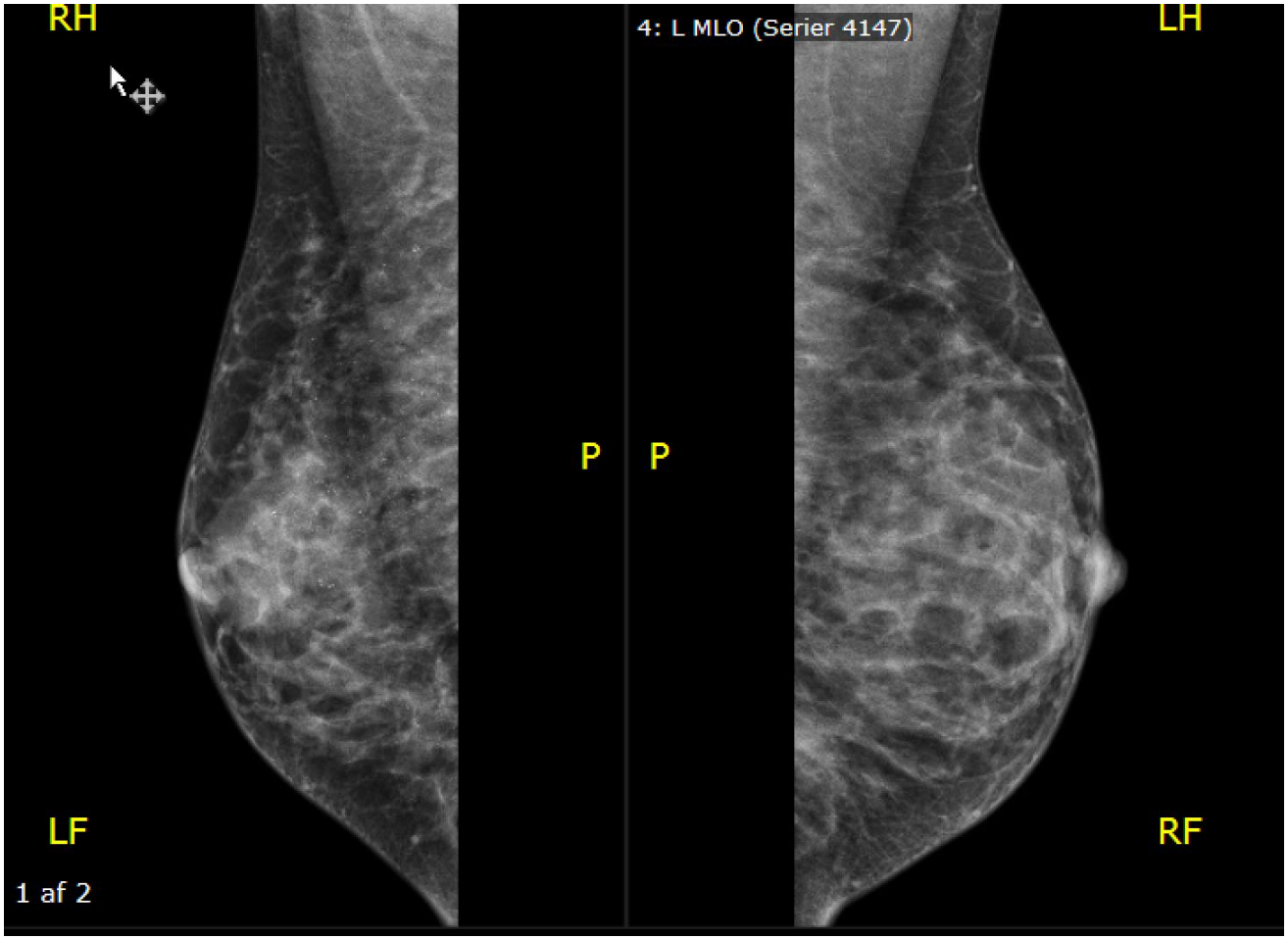
Core needle biopsy:

DCIS van Nuys gr. 2





Mammography



DCIS case 1

Planned surgery:

SN biopsy, followed by

Subcutaneus mastectomy, including excision of the papilla.

Primary reconstruction with implant and ADM.

Genetic councelling planned

DCIS case 1

Histopathology:

SN without metastasis

Right breast: **Ductal carcinoma in situ**, Van Nuys group 2-3, size 80 mm. No invasion

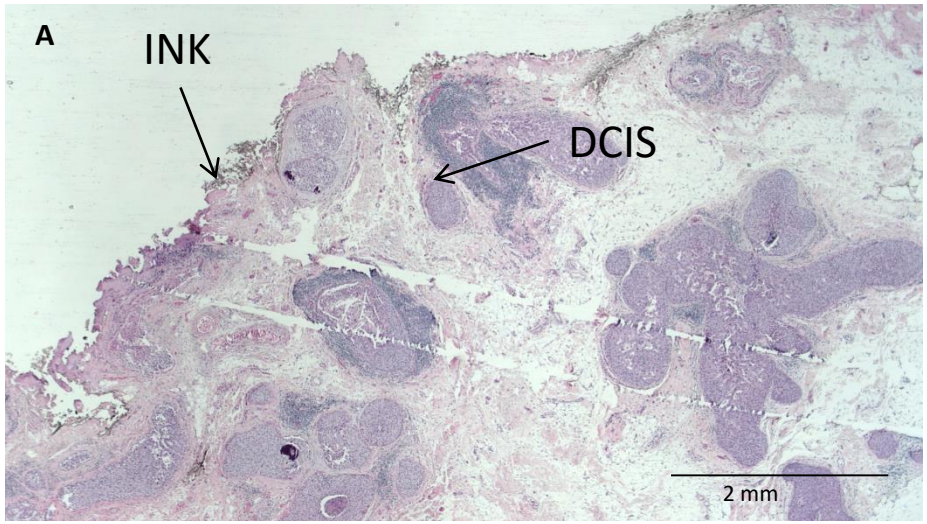
Margin: 0-0,1 mm from DCIS to lateral undermining margin in upper lateral quadrant as well as to the lateral margin (towards sector D)

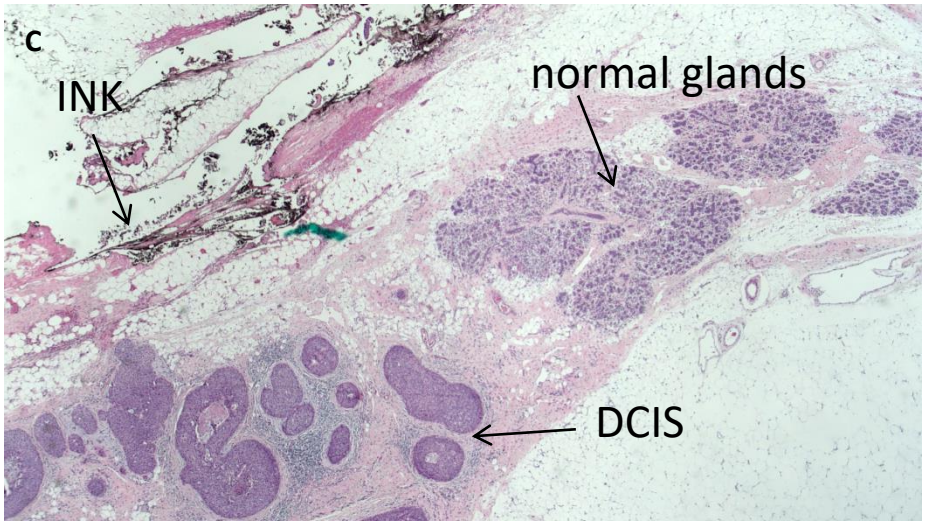
Abundant normal glands close to the margins

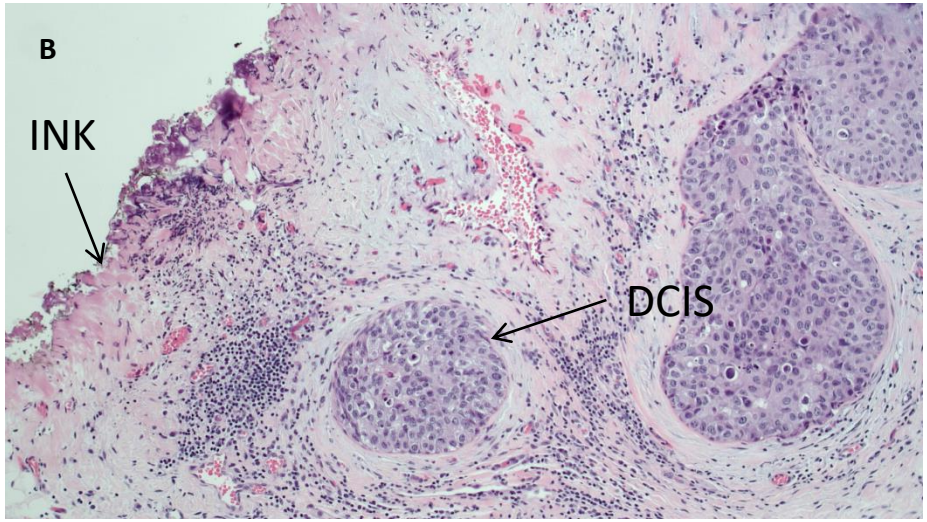
Planned surgery:

Re-resection including the skin laterally

DCIS case 1







Sections from mastectomy specimen

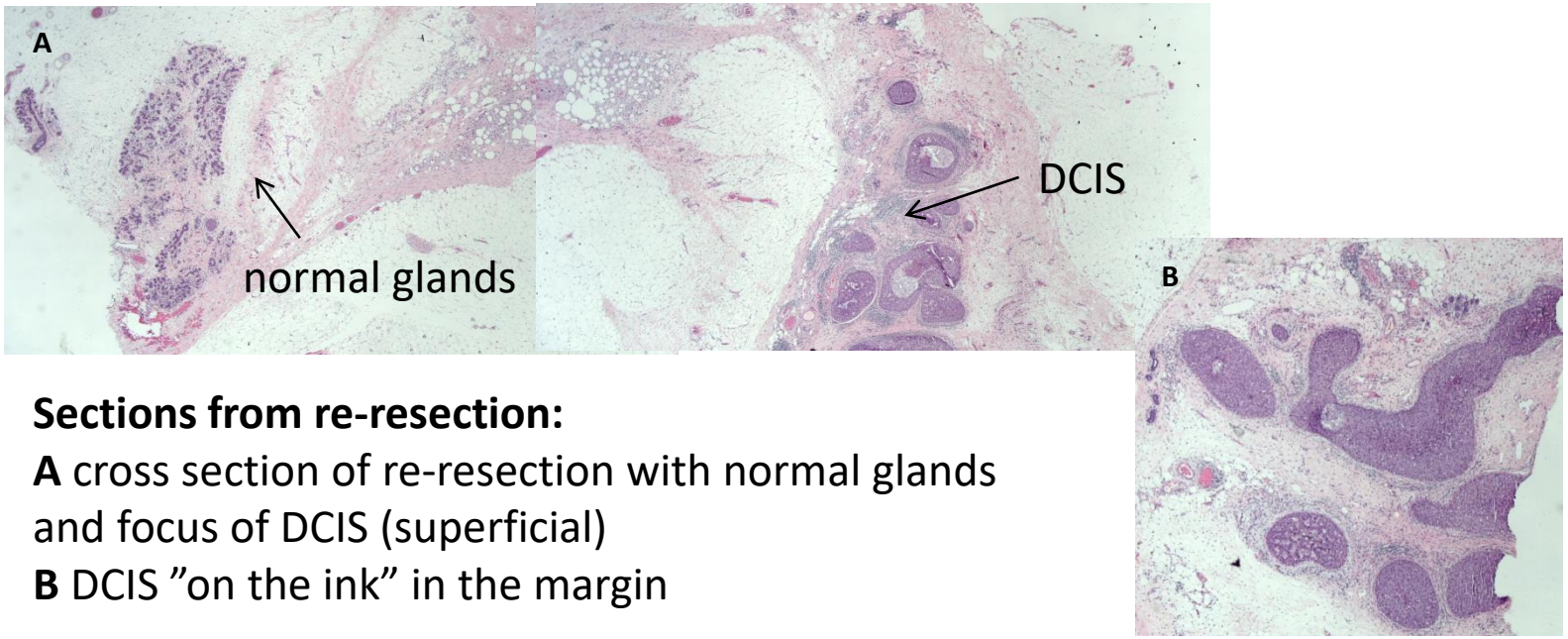
A, B, C: DCIS < 1 mm from ink

C: Abundant normal glands close to the margin

DCIS case 1

Histopathology (re-resection):

Margin: 9 mm DCIS “on the ink” in the ”new” lateral resection margin.
Residual breast glands in the resected tissue



Sections from re-resection:
A cross section of re-resection with normal glands and focus of DCIS (superficial)
B DCIS ”on the ink” in the margin

According to surgeon: No further subcutaneous tissue to excise.

Plan: No further resection - MRI in 6 months.

- Case 1, Pure DCIS
- Case 2 , DCIS with invasive recurrence
- Case 3, DCIS with invasive foci
- Case 4, Pure DCIS
- Case 5, male DCIS

Case 2 (*010173)*
DCIS with ipsilateral invasive recurrence

46 year old woman

2015:

palpable mass in the lower lateral quadrant, left breast.

Mammography:

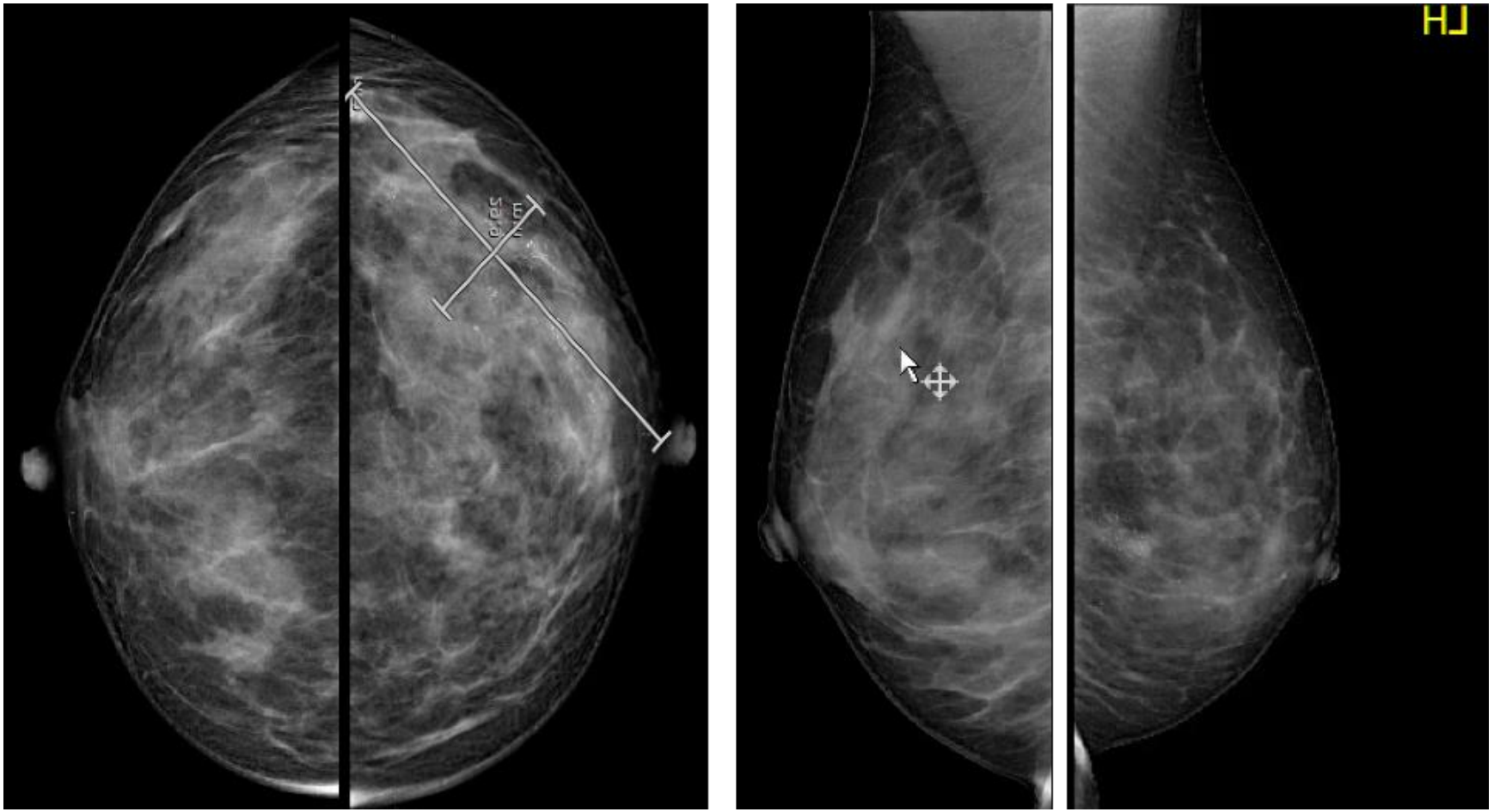
microcalcifications from the papilla, extension 10 cm

Lower lateral quadrant

Core needle biopsy:

DCIS, Van Nuys group 3.

Mammography 2015



DCIS case 2

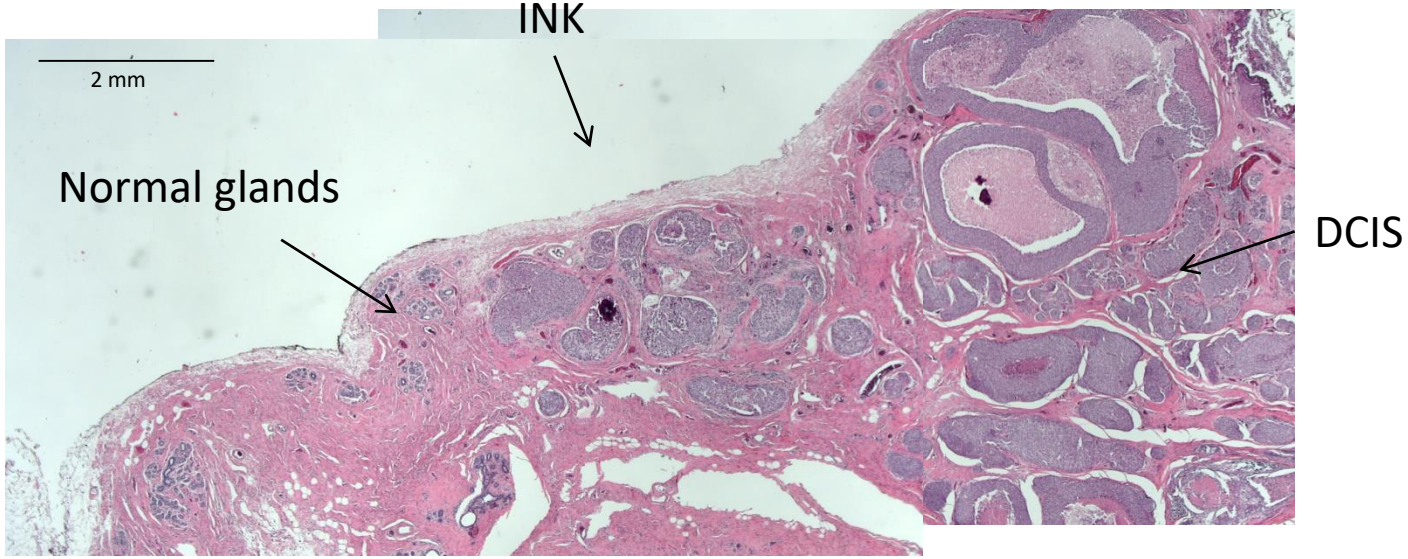
Planned surgery:

SN followed by subcutaneous mastectomy with primary reconstruction (Implant)

Histopathology: 2 SN without metastasis

Mastectomy with 25 mm, high grade DCIS

Margin: focally < 0,5 mm in the lower lateral quadrant.



No re-resection, but follow up:

After 6 months:
US, left breast: Normal, no sign of residual tissue.

After 12 months:
MRI : Nothing suspicious

After 2 years and 2½ years:
Mammography + US nothing suspicious

DCIS case 2

Jan 2019:

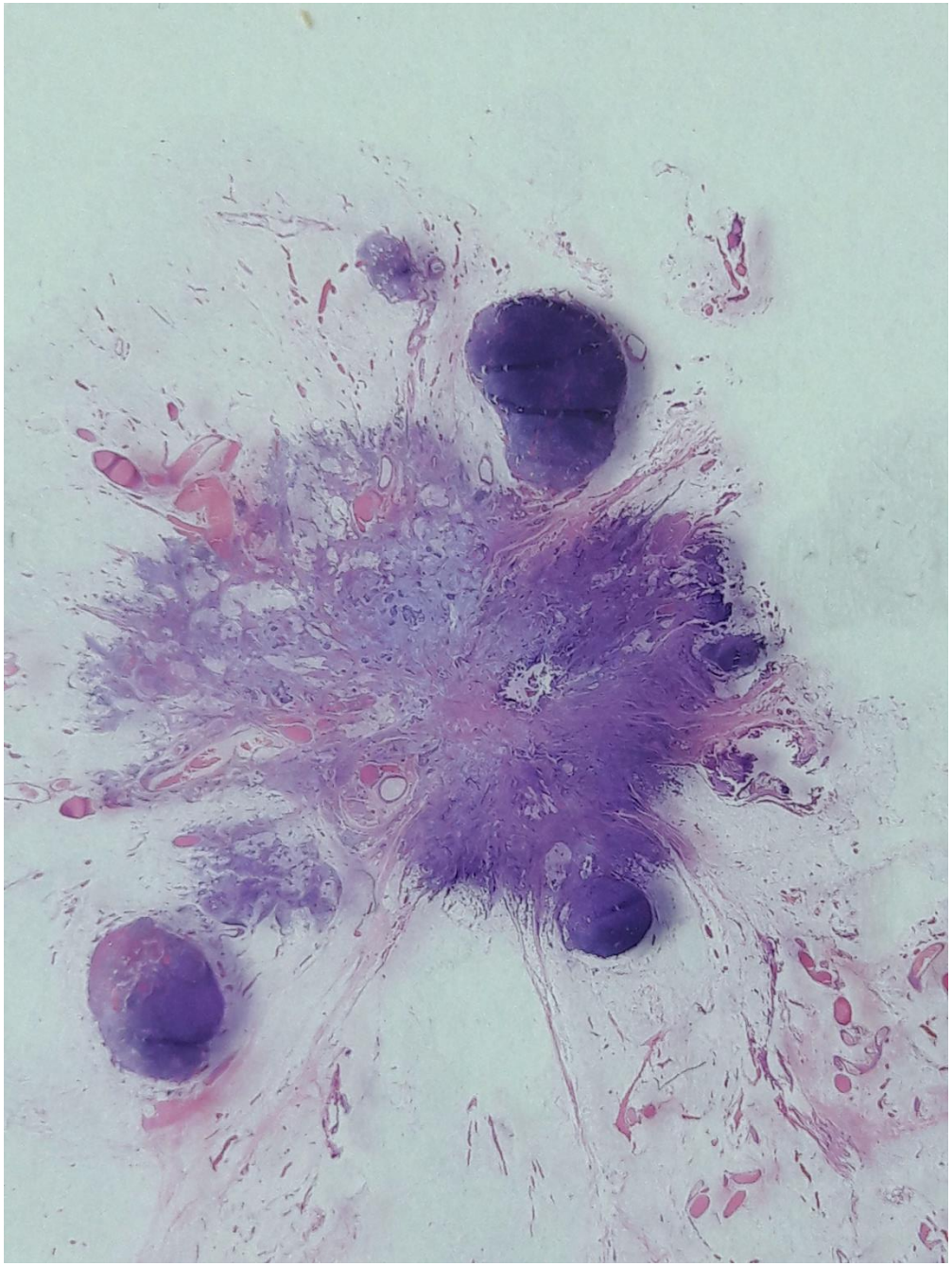
Mammography and US: Suspicious lymph nodes in the left axilla.

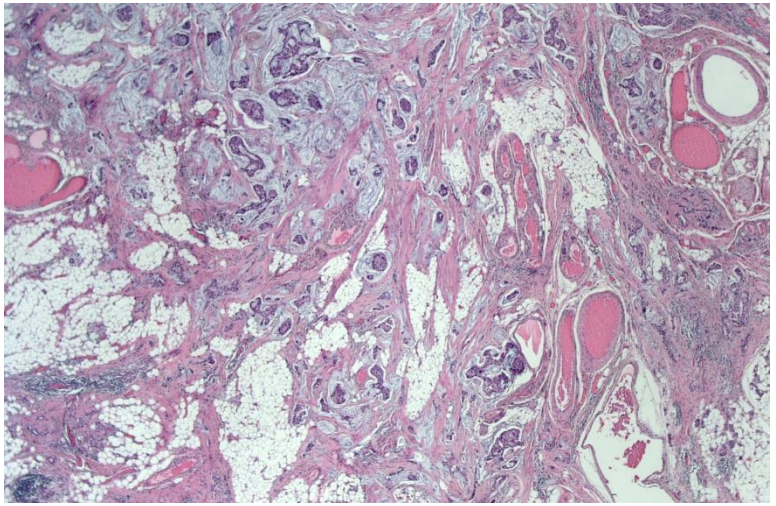
Core needle biopsy: carcinoma, unclear if primary or metastasis (no lymphoid tissue in the background)

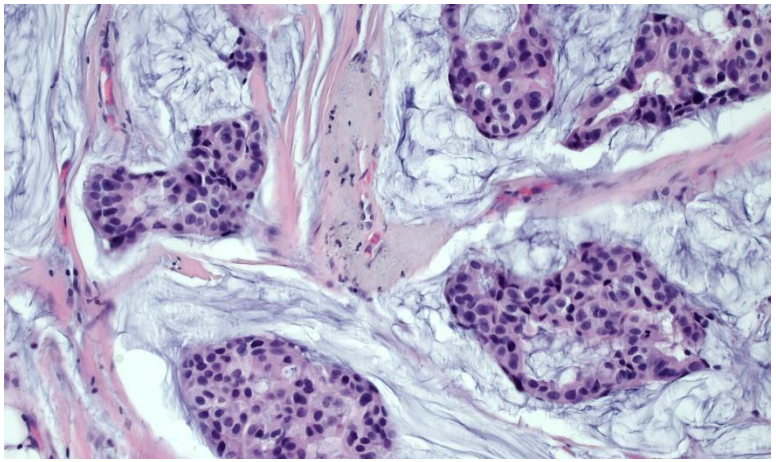
Planned surgery: Local excision and following axillary clearance:

Histopathology: 14 mm, IDC gr. II (ER negative, HER-2 positive) intertwined in between LN.

3/ 22 lymph nodes (2 macro-, 1 micrometastasis)







Invasive recurrence surrounded by small lymph nodes

Histopathology (continued):

No benign glands or DCIS present in the surroundings of invasive carcinoma, but due to localization and extent it was favoured that the tumor represented an invasive recurrence instead of LN metastasis with massive perinodal infiltration

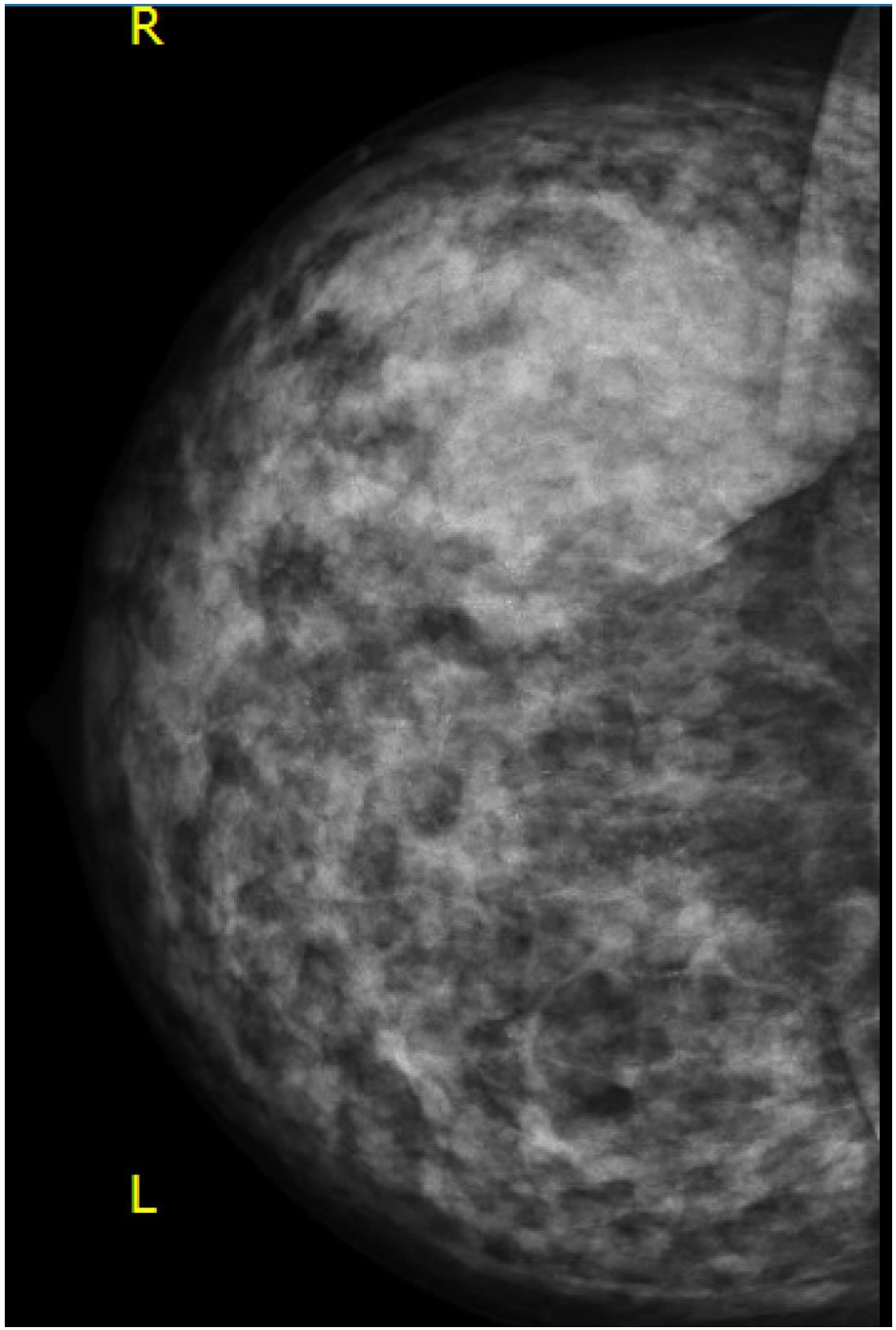
Further treatment:

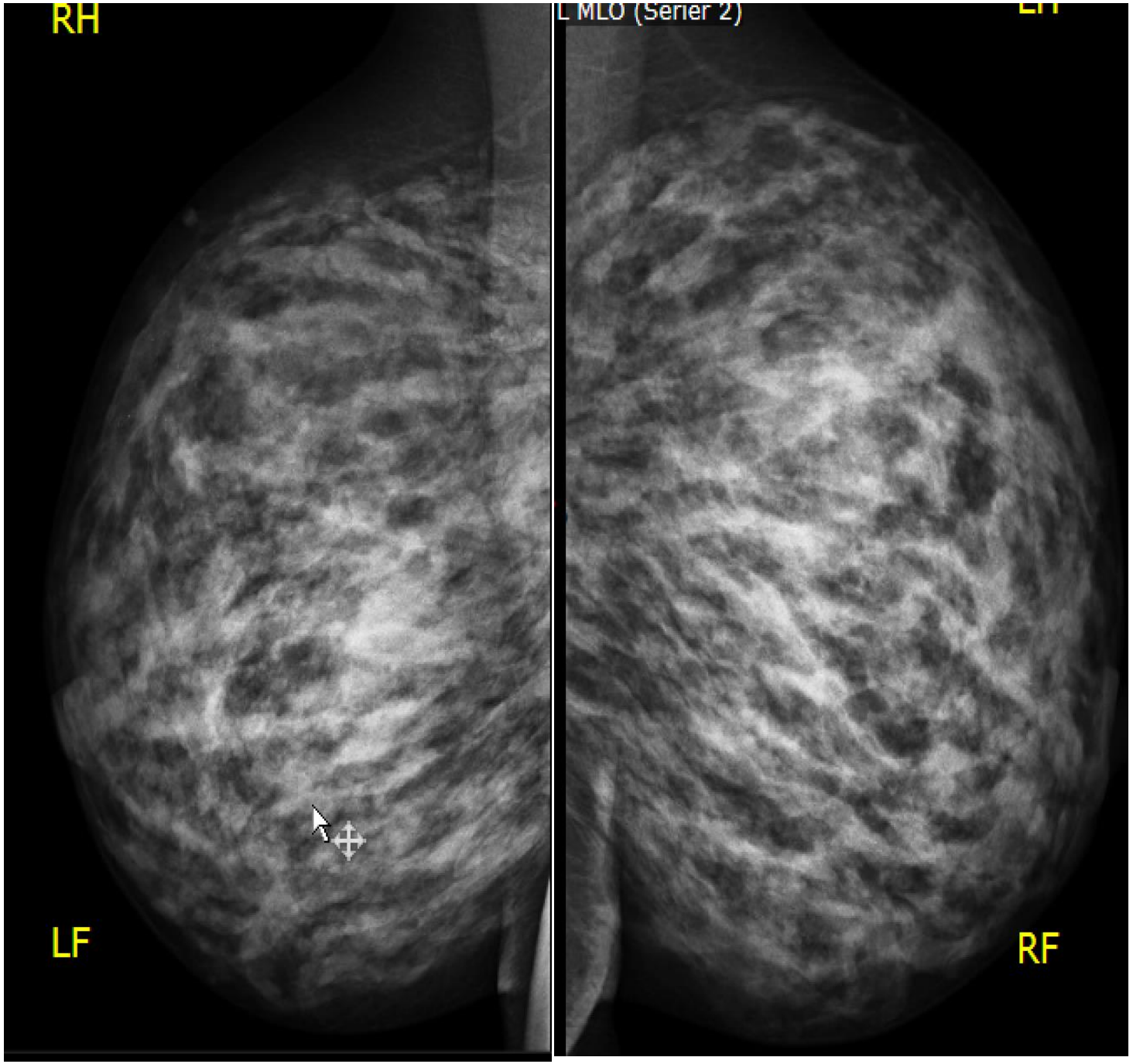
Adjuvant Chemotherapy , Trastuzumab and Radiotherapy planned

- Case 1, Pure DCIS
- Case 2 , DCIS with invasive recurrence
- Case 3, DCIS with invasive foci
- Case 4, Pure DCIS
- Case 5, male DCIS

Case 3 (*200585)*
DCIS with invasive foci

- Age 33
- Lactating, birth one week earlier
- During last period of pregnancy felt a lump in the right breast at 11 o'clock
- Clinical examination: 1 cm tumor
- **US:** 4 mm lesion - benign appearance
- **Core needle biopsy**: IDC, ER+
- **Mammography**: malignant microcalcifications in upper part of right breast in an area from 11 to 3 o'clock
- **Further biopsies**: DCIS suspected, but a definite histological diagnosis not possible


R
L


RH
L MLO (Serier 2)
LF
RF

DCIS case 3

Planned surgery:

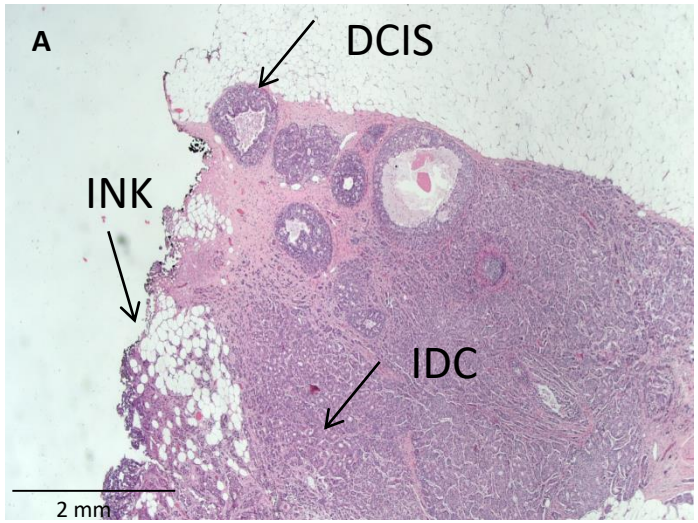
- 19.10: Sentinel node biopsy performed
- 31.10: Skin-sparing mastectomy and expander based breast reconstruction – indication: small invasive tumor and large area with DCIS

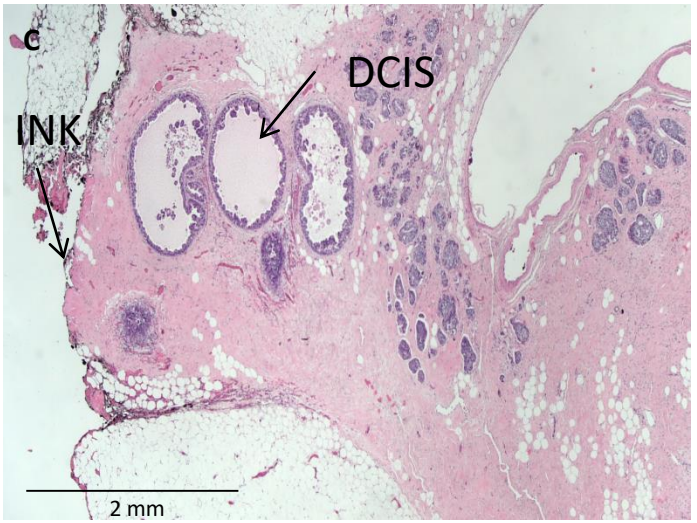
Histopathology:

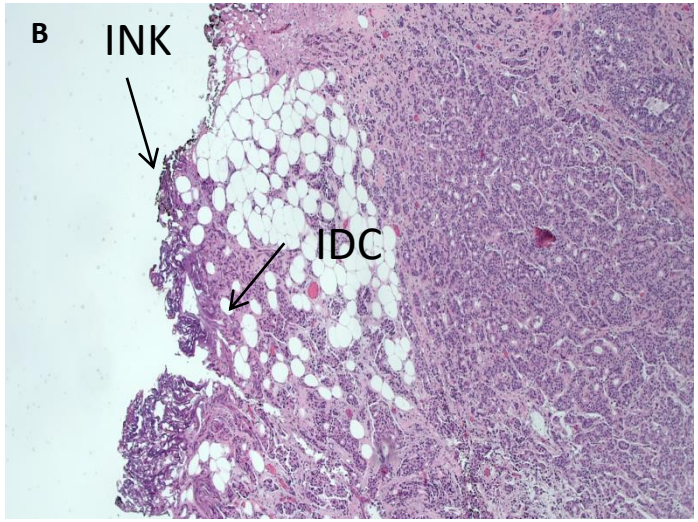
1 of 3 SN with clusters, but no micro-/macrometastasis

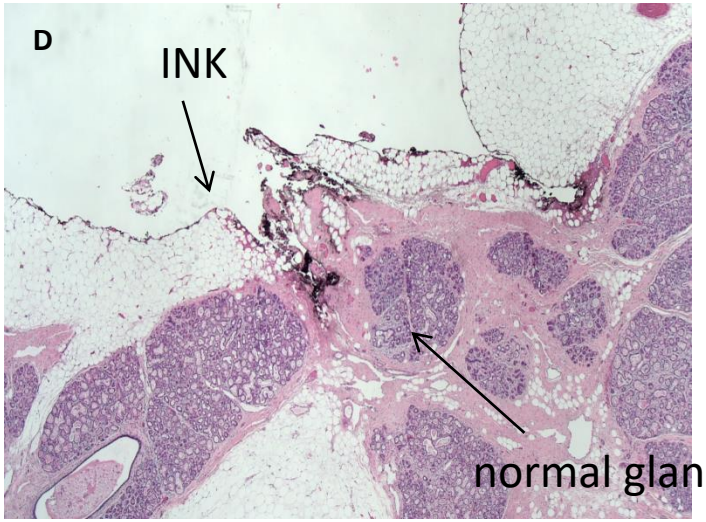
Diffuse DCIS (70 mm) with >10 foci of IDC, grade II (1-7 mm), ER+, HER2 normal, Ki67 30%

Margin: Invasive carcinoma “on the ink” and DCIS < 1 mm from the margin in the upper lateral quadrant (11 o/clock). Abundant normal glandular tissue with varying secretory activity in the surroundings of DCIS









A, B: Invasive carcinoma ”on ink” **A, C**: DCIS < 1 mm from ink

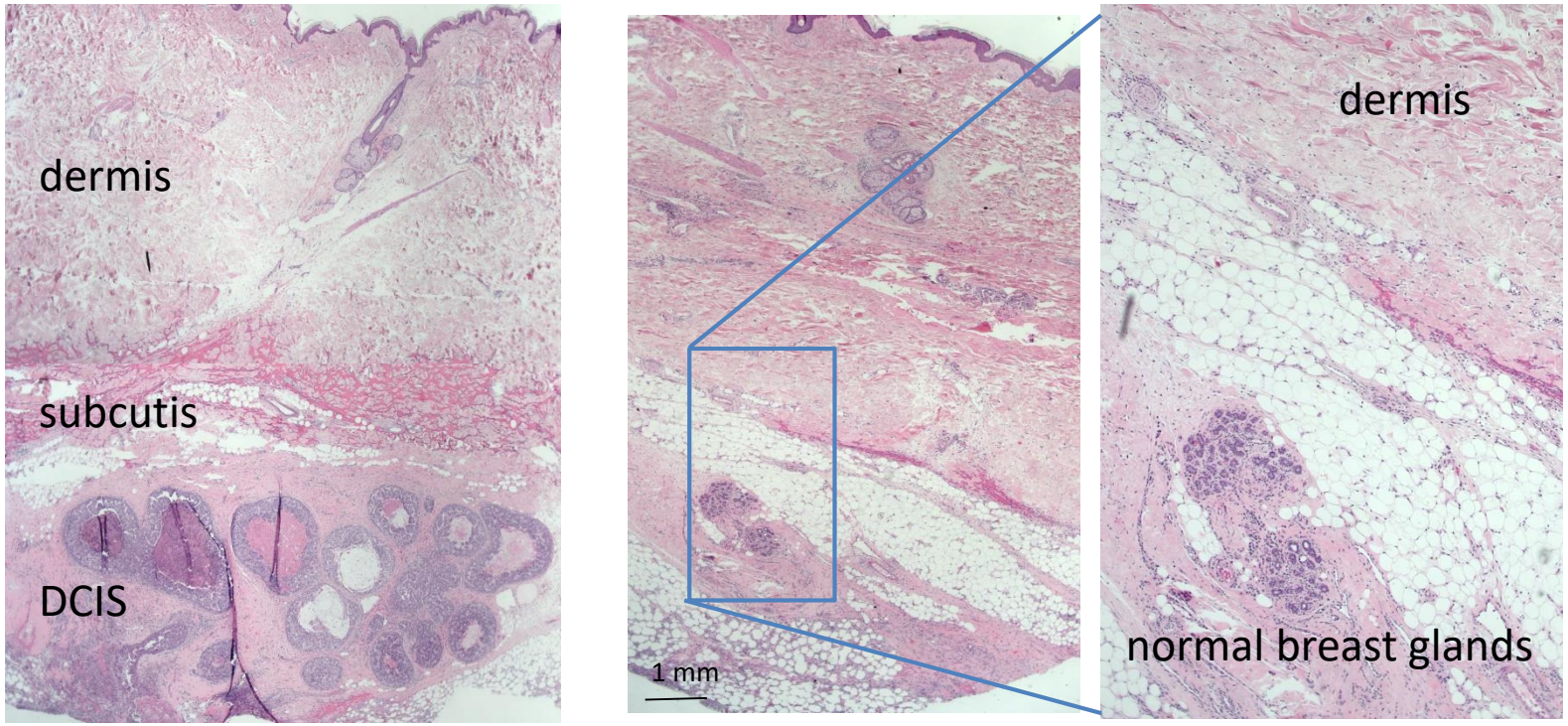
D: Abundant normal glands close to margin

Planned surgery:

Re-resection of skin in upper lateral quadrant

Histopathology: 8 mm focus of DCIS very close to the skin with < 1 mm to the margin(11-12 o/clock). No invasion.

Residual breast glands very close to dermis



DCIS, case 3

- Decision: No further surgery
  MRI in 6 months

- 13.12: skin necrosis and infection - removal of expander and resection of skin

- **Histopathology**:

Skin resection with acute and chronic inflammation but without malignancy

May 2019: MRI to evaluate RBT

- Case 1, Pure DCIS
- Case 2 , DCIS with invasive recurrence
- Case 3, DCIS with invasive foci
- Case 4, Pure DCIS
- Case 5, male DCIS

DCIS, Case 4

77 year old woman with Mb.Sjøgren

1980: breast cancer in left breast treated by left mastectomy, no adjuvant treatment

1990: secondary left breast reconstruction with implant

2019: **CT of thorax** and abdomen at Dept. of rheumathology shows an elongated **unspecified tissue area** in right breast

No palpable breast tumors at clinical examination

DCIS, Case 4

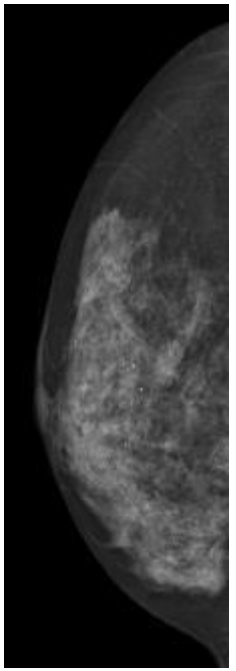
Mammography, right breast:

Fibroglandular tissue, density 3, compared to previous screening mammography in 2011 a new area with clearly **malignant suspicious densities** has appeared, including progression of microcalcifications situated segmentally, laterally measuring 3 cm, suspicious for DCIS

Ultrascan, right breast: 10 B – C, area with angular, slightly suspicious fibroglandular tissue, which could represent DCIS, measuring 44 mm

No suspicious axillary lymph nodes, Left implant intact

Conclusion: DCIS mammae dx. obs pro (BIRADS 4)



Biopsy from 10 B-C in right breast:

Ductal carcinoma in situ, Van Nuys group 3 with microcalcifications

DCIS, Case 4

Planned surgery:

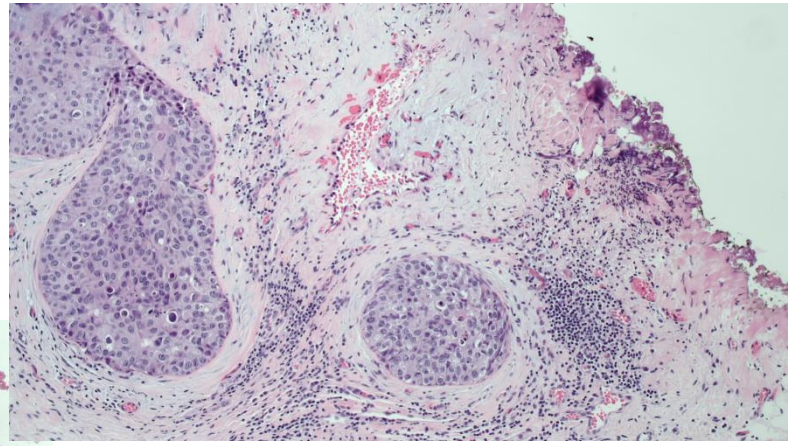
Right subcutaneus mastectomy with primary reconstruction with implant and SN procedure without frozen sections

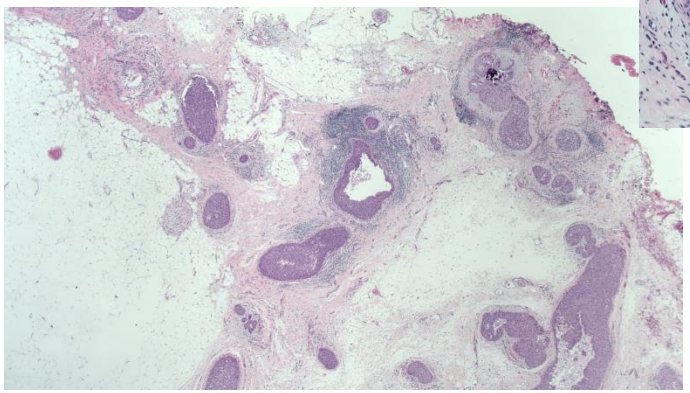
DCIS, Case 4

Histopathology:

Right breast with **DCIS** of solid and cribriform growth pattern, comedo necrosis and microcalcifications, nuclear grade 3, Van Nuys group 3, size 38 mm, tumor cells ER neg. No sign of invasion
1 SN without metastases

Closest resection margin:
caudally at subcutaneous margin: 1 mm
Other margins: more than 5 mm





Treatment options:

- No further treatment
- Resection caudally – where exactly?
- Radiotherapy caudally – where exactly?
- What about the implant then?

- Case 1, Pure DCIS
- Case 2 , DCIS with invasive recurrence
- Case 3, DCIS with invasive foci
- Case 4, Pure DCIS
- Case 5, male DCIS

DCIS case 5

58 year old man with known gynecomastia (previously verified by biopsy)

4 weeks of spontaneous **bloody discharge** from right nipple

Mother with breast cancer at age 53

Mammography: Normal

Ultrasound: Bilateral gynaecomastia measuring 35 mm

Planned surgery: Ductectomy dxt.

DCIS case 5

Histopathology:

Ductal carcinoma in situ, Van Nuys gr. 1, without sign of invasion

Free resection margins with 3 mm

Planned surgery:

Mastectomy dxt is recommended to avoid radiotherapy

DCIS case 5

Histopathology:

Residual area of ductal carcinoma in situ, size 10 mm, solid and cribriform type, nuclear grade 3, van Nuys group 3.

Small area of invasive **ductal carcinoma, <1 mm**, too small for malignancy grading. No vessel invasion. Resection margins free with 6 mm to closest margin
ER: 100%, HER2: 1+, Ki-67: 10%.

Treatment options:

- No axillary staging
- Try sentinel node procedure despite previous mastectomy – is it feasible and reliable?
- Do axillary lymph node dissection – overtreatment?

In your opinion (1):

Which parameters should be taken into consideration, when selecting patients for SCM, and in which way?

- *Clinical considerations: e.g. age, nursing, BMI/subcutaneous fat*
- *Radiology: e.g. size of lesion, localization of the lesion in the breast), distance from skin, extend of breast tissue (anatomy)*
- *??*

In your opinion (2):

How should the superficial margin in SCM be considered and which informations regarding the margins would you like the pathology report to include?

- *e.g. margins should not be commented on, should be considered /reportes as other true resections margin etc.*
- *Presence of fibroglandular breast tissue in the area of DCIS in the margin*
- *exact measurement of the area of DCIS in the margin from cranial/caudal margin (or other fixpoint)*
- *??*

In your opinion (3):

- **Which parameters would you take into consideration, when contemplating a re-excision, if DCIS is reported in the margin?**
- *Radiology: e.g. estimation of residual breast tissue by MR???*
- *Pathology: e.g. presence of fibroglandular tissue in the margin, size of DCIS focus in the margin*
- *Surgical considerations ?*
- *Clinical considerations?*
- *??*

In the following cases, we will ask you to conside,

- if you agree/disagree upon the chosen strategy
- If you have suggestions that might optimize our future treatment of patients with similar lesions