Percutaneous Breast lesion Ablation: When avoid Open Surgery?

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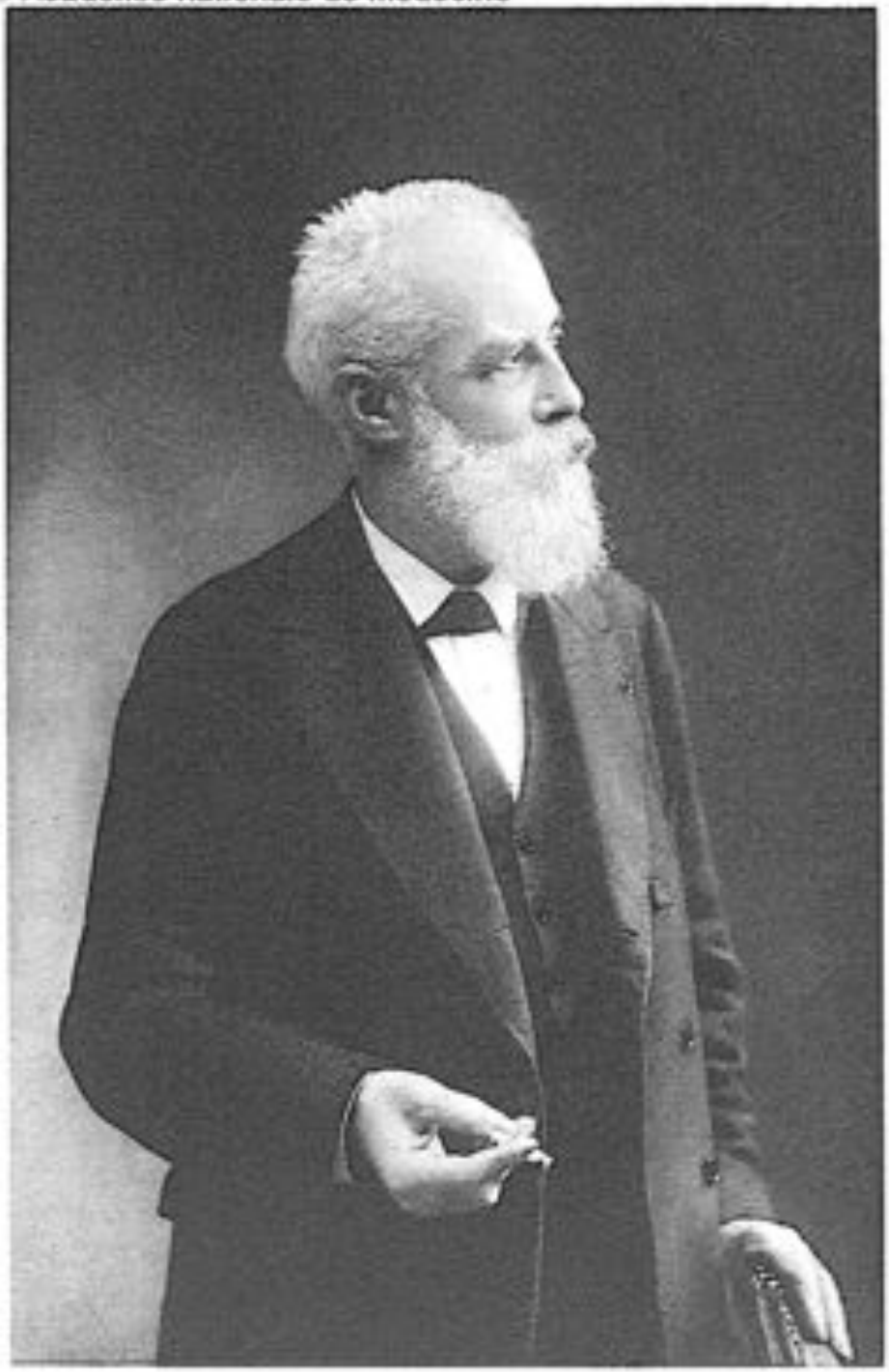
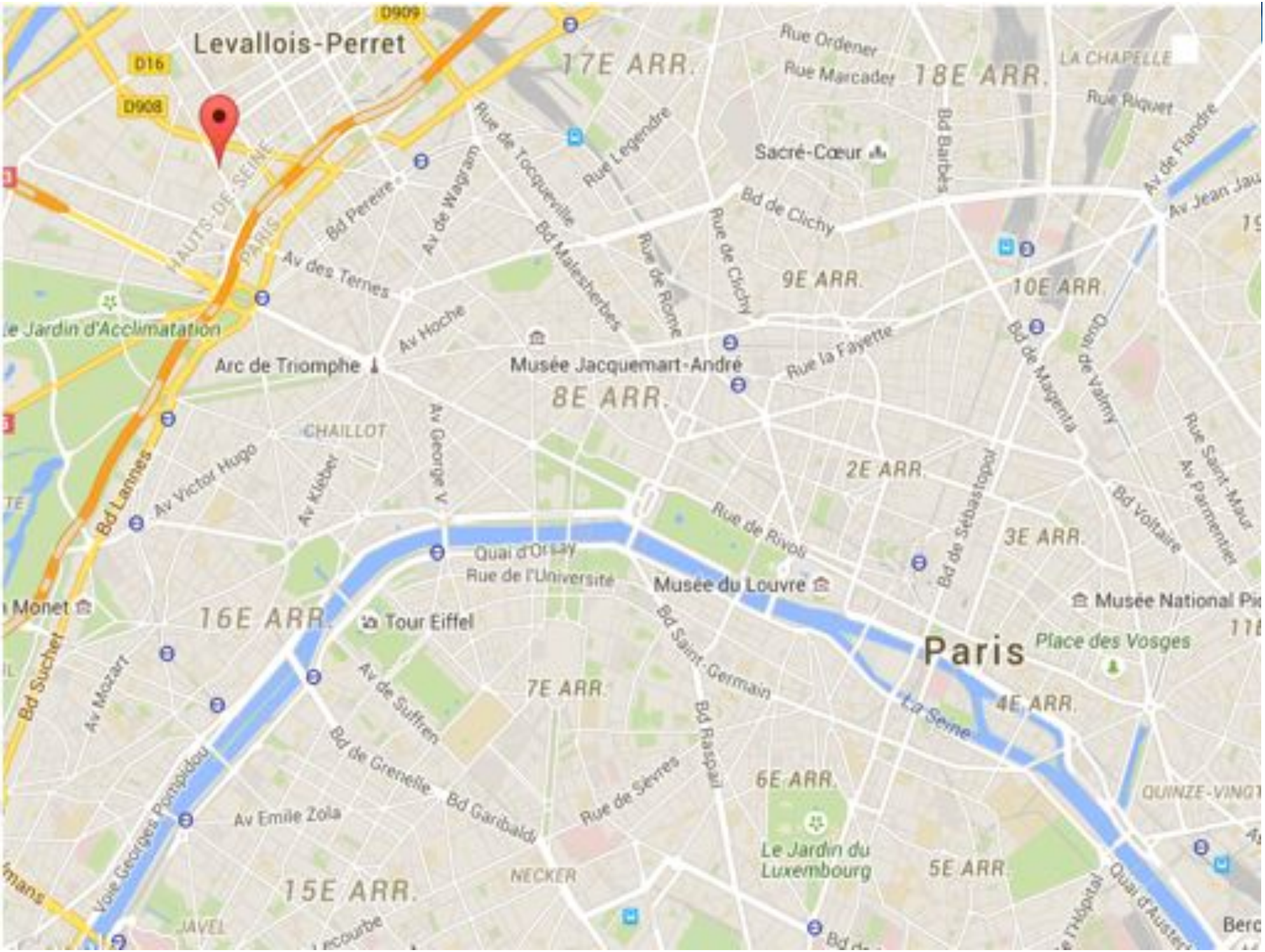
JFIM 15th Edition, Mumbai-India nov 3-6 2016

Hartmann Clinic
Built in 1904

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Rue Riquet
Sacré-Cœur
Av de Flandre
Av Jean Jaurès
Bd Barbès
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Rue de Clichy
Rue Legendre
Rue de Tocqueville
Bd Malesherbes
Rue de Rome
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Bd Pereire
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Av Hoche
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Bd de Magenta
Quai de Valmy
8E ARR.
CHAILLOT
Av George V
Av Victor Hugo
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Bd Lannes
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Rue Saint-Maur
Av Parmentier
Bd Voltaire
Bd de Sébastopol
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La Seine
7E ARR.
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Bd de Grenelle
Bd Garibaldi
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Voie Georges Pompidou
Rue de Sèvres
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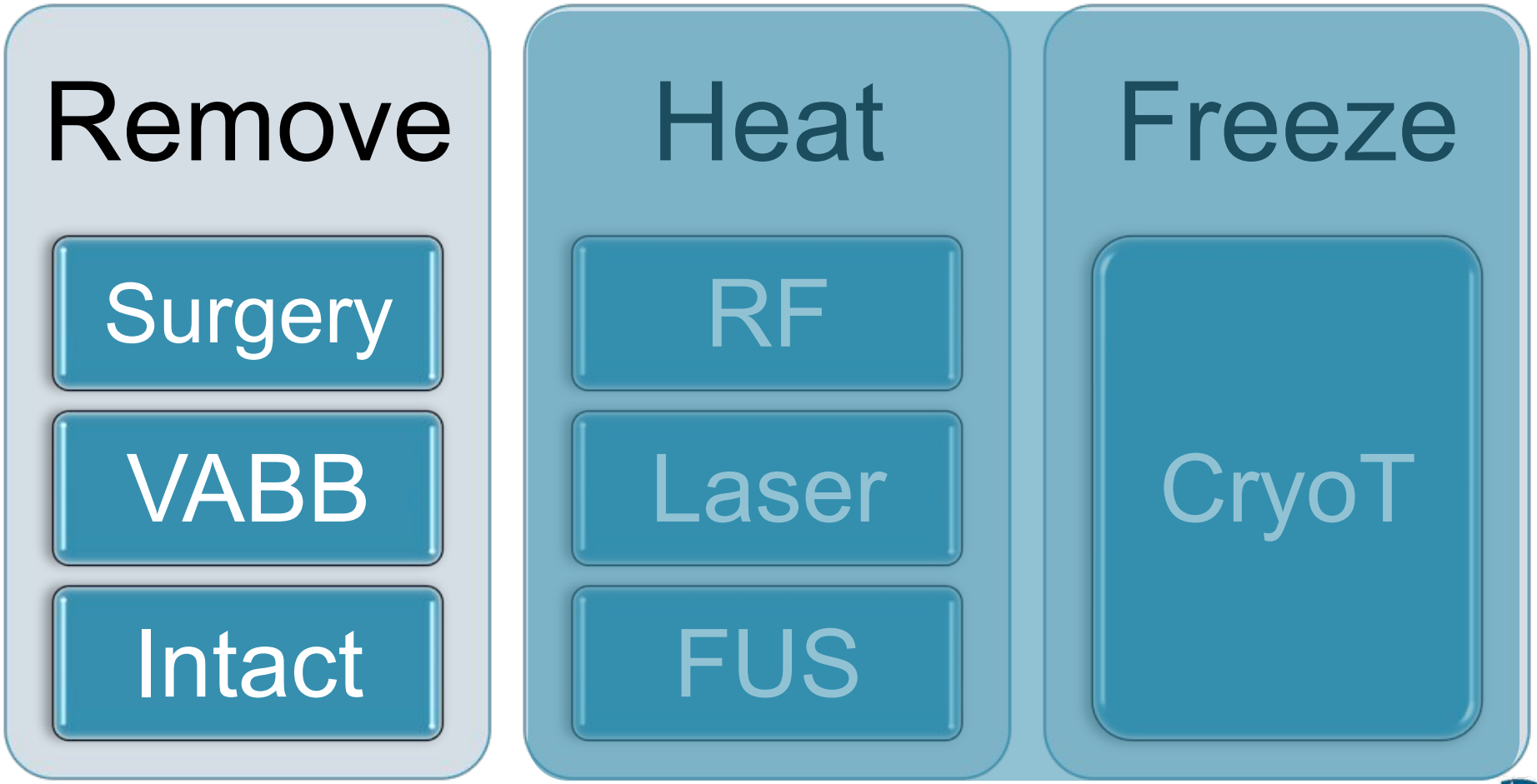
NECKER
15E ARR.
JAVEL
QUINZE-VINGTS

First Cobalt bomb

HARTMANN
1955

Minimal invasive treatment ?

Local Treatment
Surgery / Minimaly treatment US procedures



Interventionnal procedure

Clinical pathway

- **Before intervention**
  - Explanation
  - Concordance
  - Balistic
    - Guidance method
    - Biopsy device
- **At the moment of the Intervention**
- **After intervention**
  - Complications
  - Concordance
  - Histology
  - **What to do ?**
    - Follow up
    - Surgery
    - Neoadjuvant chemotherapy

Breast Intervention: How I Do It[1]

Mary C. Mahoney, Mary S. Newell, Cincinnati, Altlanta
Radiology, 2013, Vol.268: 12-24, 10.1148/radiol.13120985

Radiology

- **Written informed consent** is required before all breast interventions
- The risks explained to the patient include bleeding and infection
- Anticoagulation is a relative contraindication to all biopsies
  - patients are usually asked to discontinue therapy for a short time prior to the biopsy
- The patient should be informed of the potential benefits of the biopsy
  - including avoidance of surgery with benign results
  - preoperative confirmation of malignancy, which allows definitive surgical treatment in one surgical setting
- **Tailored prebiopsy counseling may better prepare women for percutaneous breast biopsy and improve their overall experience.**

Minimal Invasive Interventions

Preconditions for
Minimal Invasive Interventions

Methods - Overview

Risk and complications
Tumor cells after
Intervention

Methods - Comparison

Reimbursement
pricing

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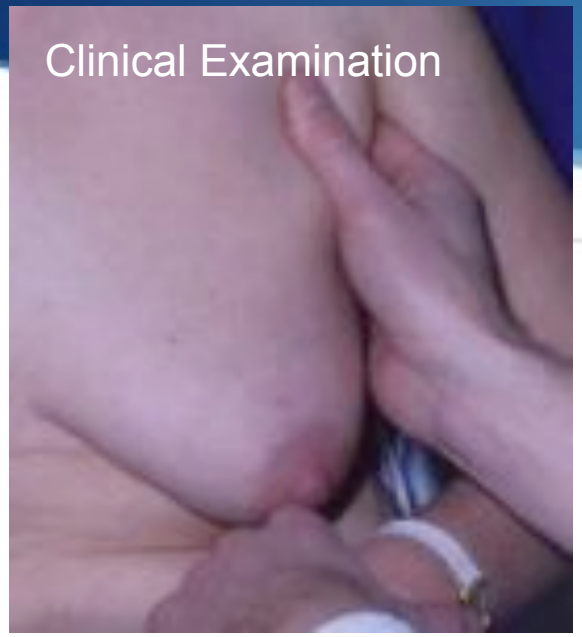
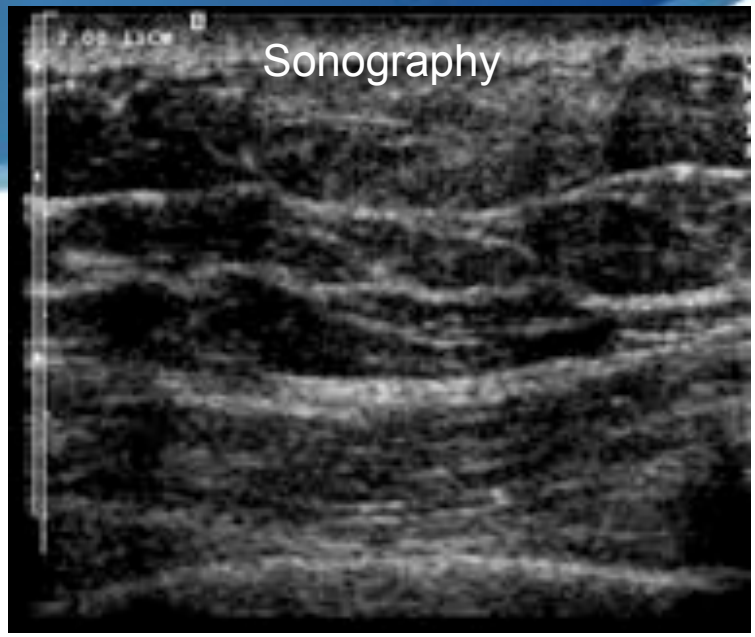
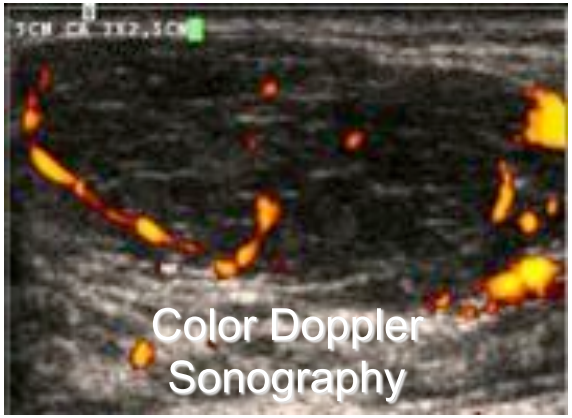
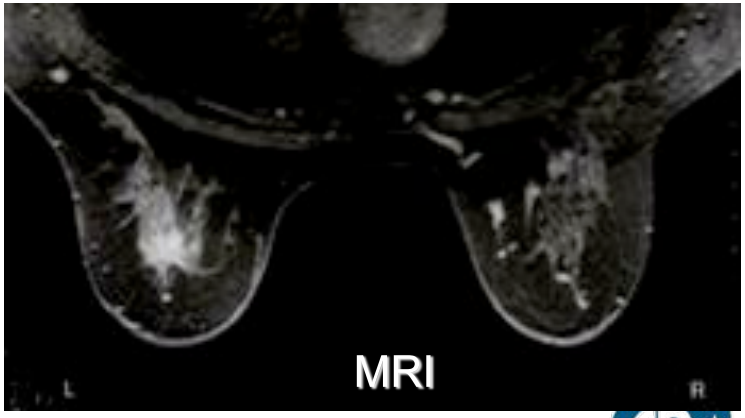
RADIOLOGIE PARIS OUEST

Preconditions for Minimal Invasive Interventions: Complementary Breast Diagnostic









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Breast Biopsy

Why Ultrasound Guidance?

- Real-time imaging of the breast
- Patient is lying on their back
- Ultrasound has excellent contrast resolution
- Cost effective
- Non-ionizing
- Portable

Radiology

Radiology: Volume 273: Number 2 - November 2014

Diagnostic Utility of Second-Look US for Breast Lesions Identified at MR Imaging: Systematic Review and Meta-Analysis[1]

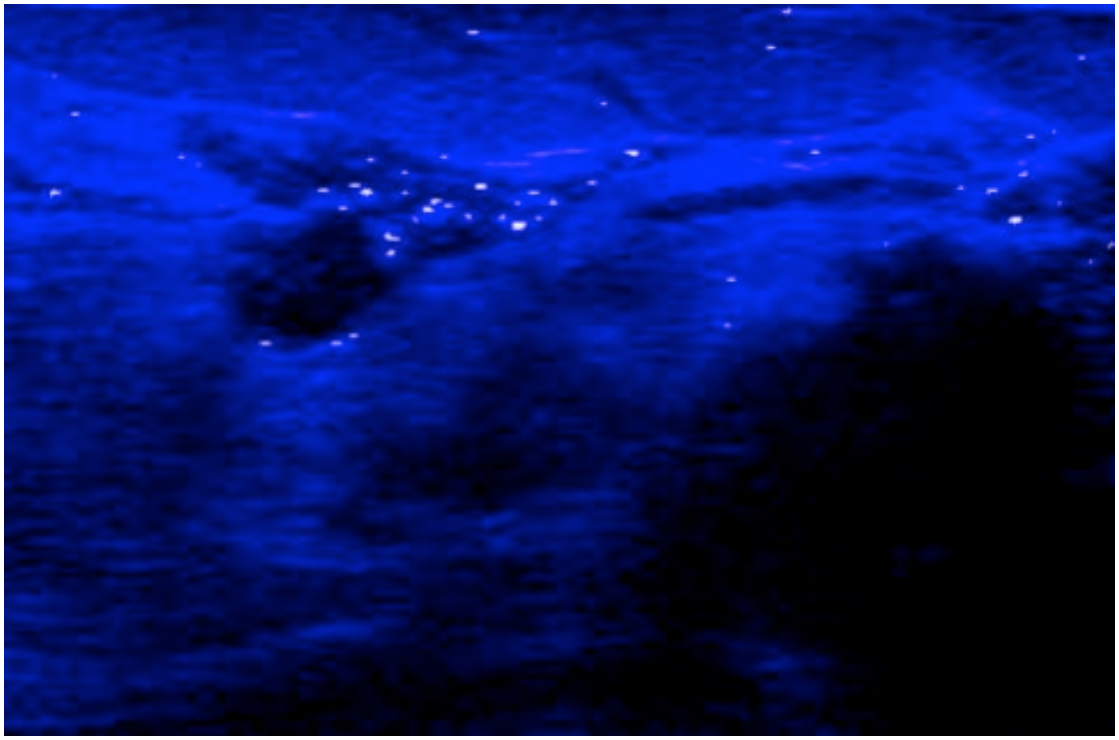
Claudio Spick, MD
Pascal A. T. Baltzer, MD

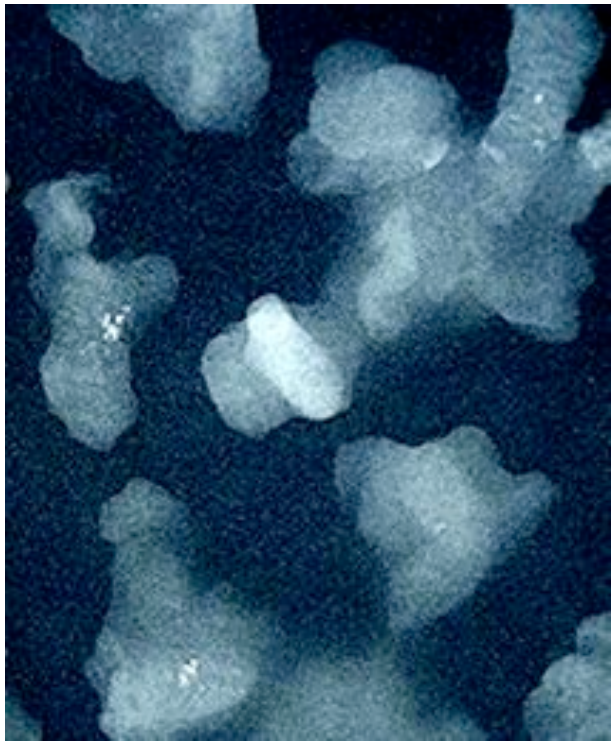
Purpose: To evaluate the diagnostic utility of second-look ultrasonography (US) in the assessment of lesions identified at breast magnetic resonance (MR) imaging.

Results

- 17 studies that included benign and malignant lesions
- The general lesion detection rate at second-look US was very heterogeneous ranged between **22.6% and 82.1%**
- Highest second-look US detection rates for :
  - **mass lesions** (as opposed to nonmass lesions)
  - and **malignant** (vs benign) lesions ($P < .001$ for both).
- Positive or negative second-look US correlates of MR imaging–detected malignant or benign lesions
  - Positive predictive value **PPV : 30.7%** (95% CI: 25.3%, 36.4%; $I^2 = 75.4\%$; $P < .0001$)
  - Negative predictive values **NPV : 87.8%** (95% CI: 82.0%, 92.7%; $I^2 = 82.1\%$; $P < .0001$)

Specimens XRays





Discussion

to excise or to sample ?

- Excision for probably benign lesion + clip
  - Birads 3
  - Birads 4a
- Sample for suspicious or malignant lesion
  - Birads 4 b & c
  - Birads 5 & 6

Indications for diagnostic representative or ablative Vacuum - Biopsy (VABB) /US

1. After Large Core Needle Biopsy (LCNB) and suspicion of breast cancer (BI-RADS® 4c / 5, missmatch / discordance of the results of diagnostic imaging and histology)

2. Suspicious lesions (BI-RADS® 4 / 5) diameter ~ 5 mm

3. Resection of definitely benign, but symptomatic findings or High risk patients
    1. symptomatic Fibroadenoma
    2. recurrent symptomatic cysts

4. Intraductal / intracystical proliferations : singulary Papilloma, complex cyst

5. Neoadjuvant Chemotherapy

6. Suspiscious of local recurrence

7. Hazardous or dangerous location : deep, superficial, implants…

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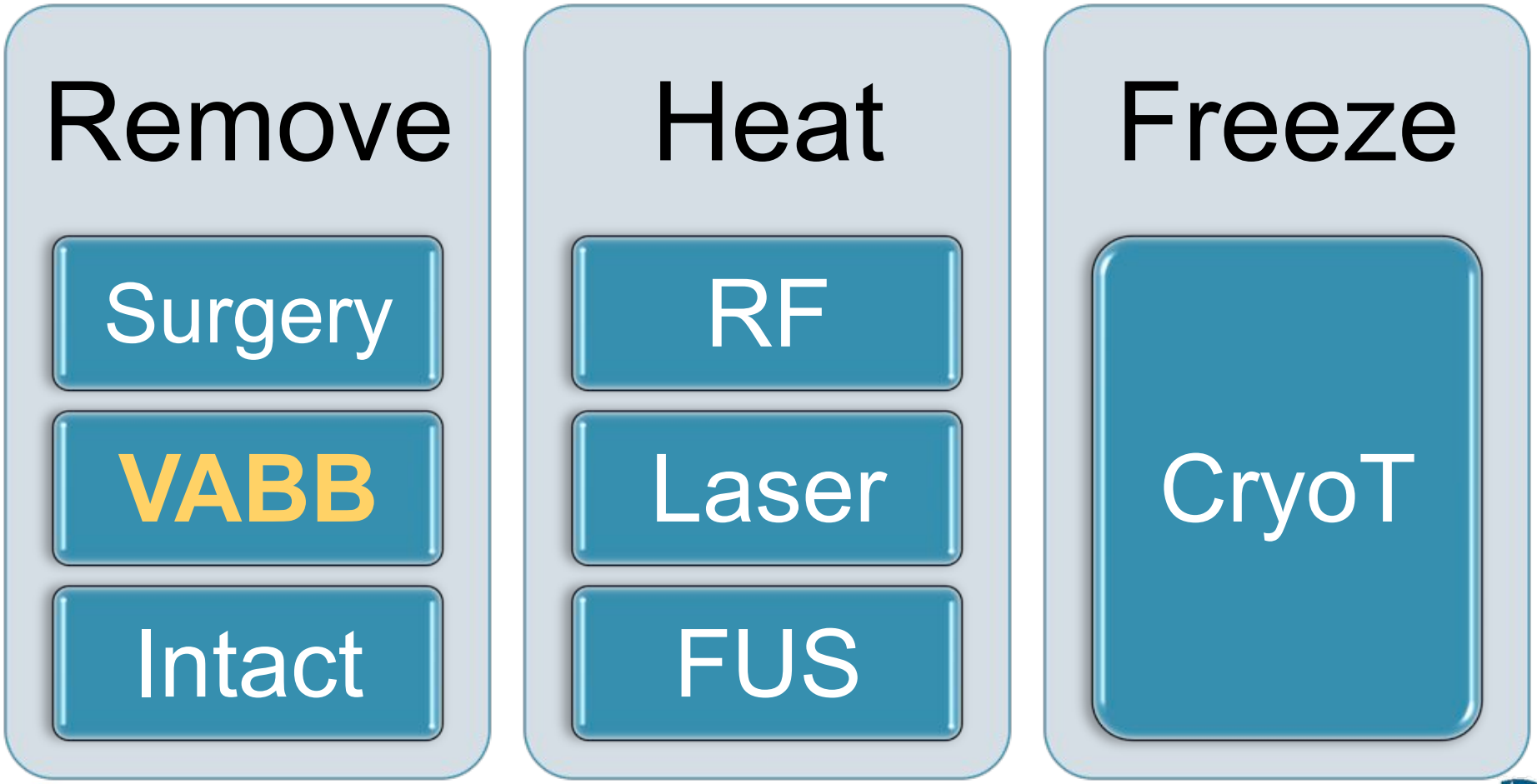
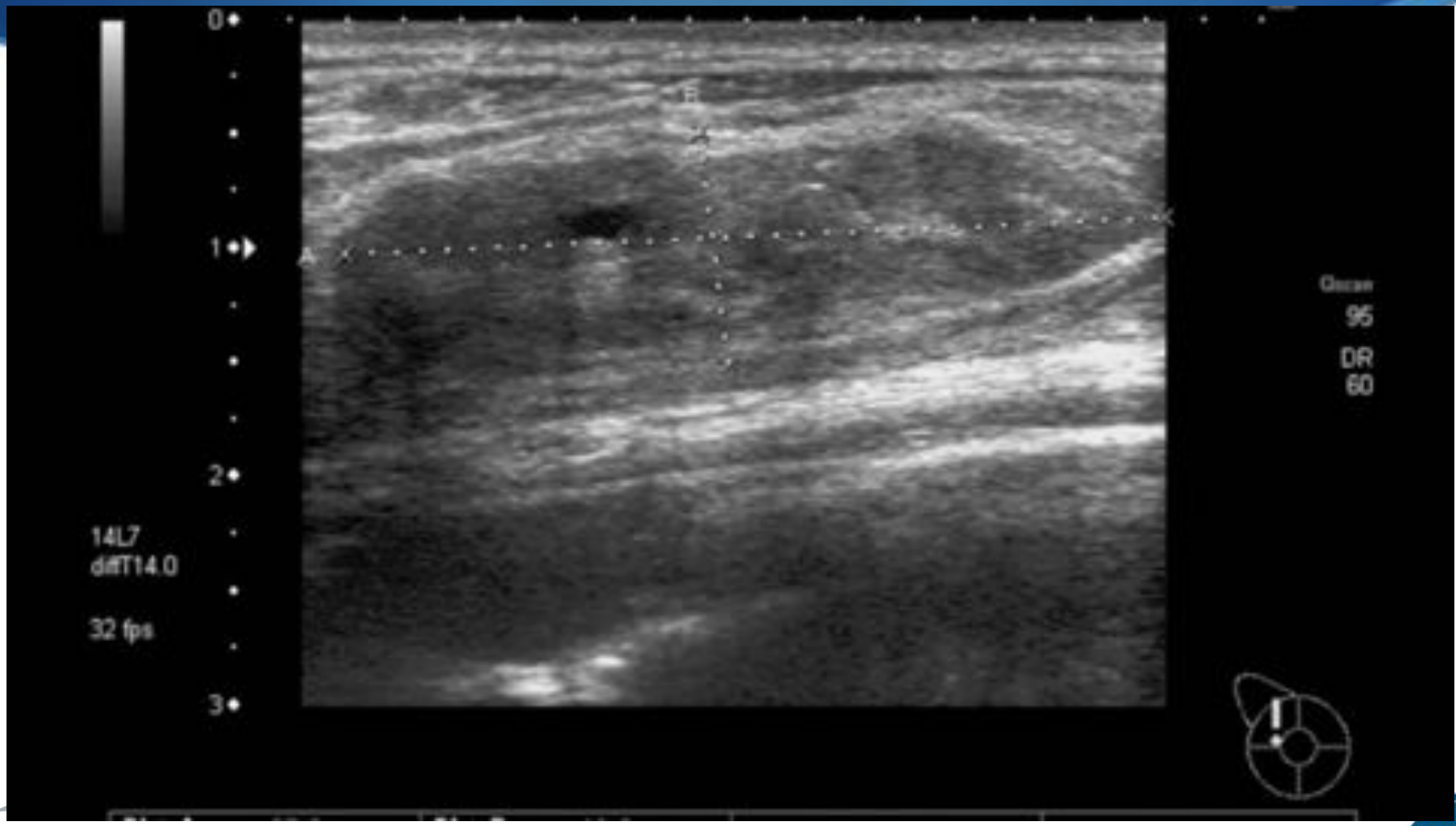
Local Treatment
Surgery / Minimaly treatment US procedures

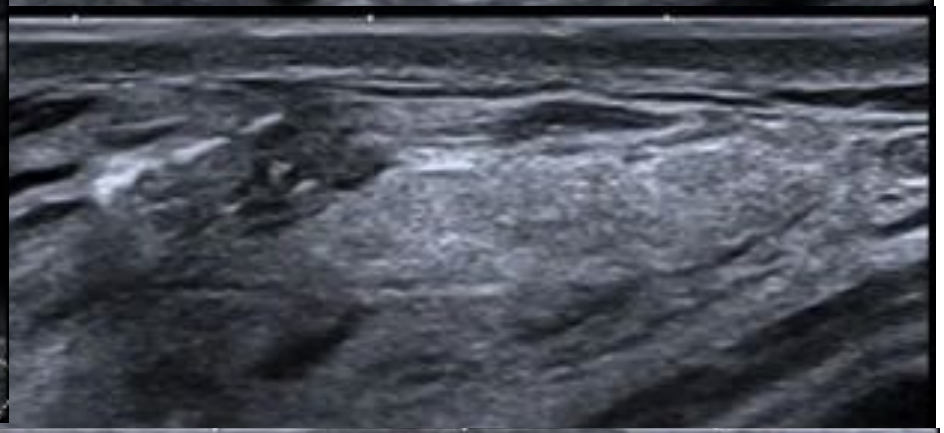


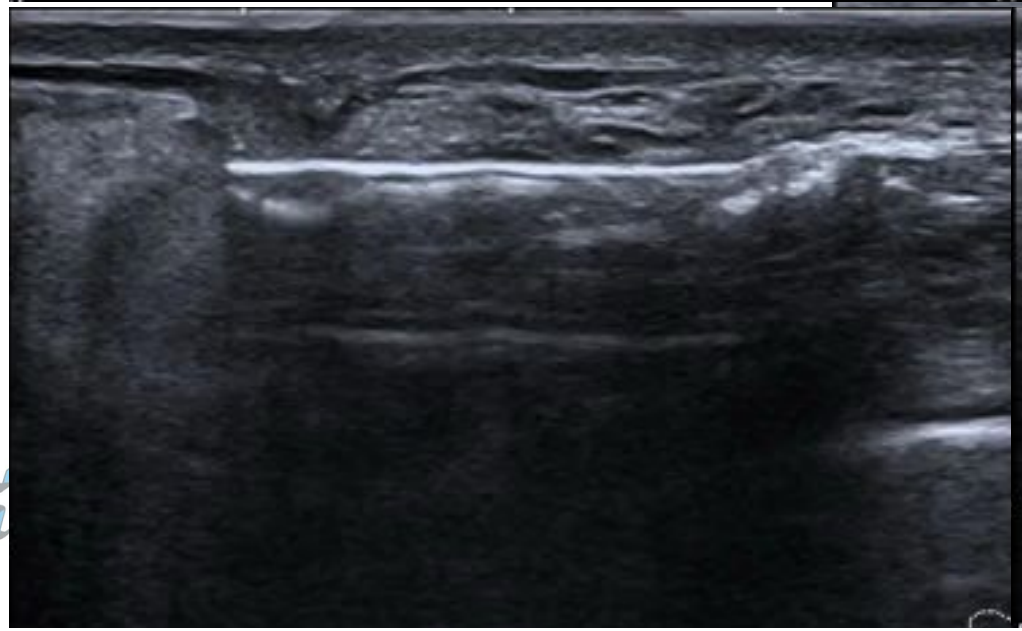
ENCOR SENO RX 7G

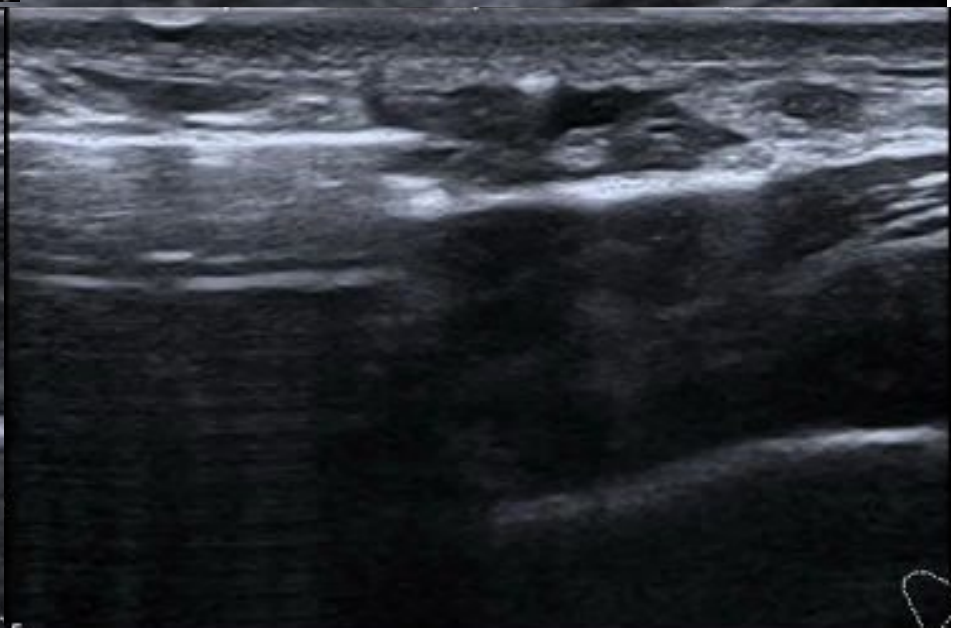
big lesion




RPO Clinique Hartmann
Sein
Precision







DBT 3D guided VABB

Prone position

Giotto Tomo Class

Simone Schrading, MD
Martina Distelmaier, MD
Timm Dirrichs, MD
Sabine Detering, MD
Liv Brolund, MD
Kevin Strobel, MD
Christiane K. Kuhl, MD

Radiology: Volume 274: Number 3—March 2015

Digital Breast Tomosynthesis–guided Vacuum-assisted Breast Biopsy: Initial Experiences and Comparison with Prone Stereotactic Vacuum-assisted Biopsy[1]

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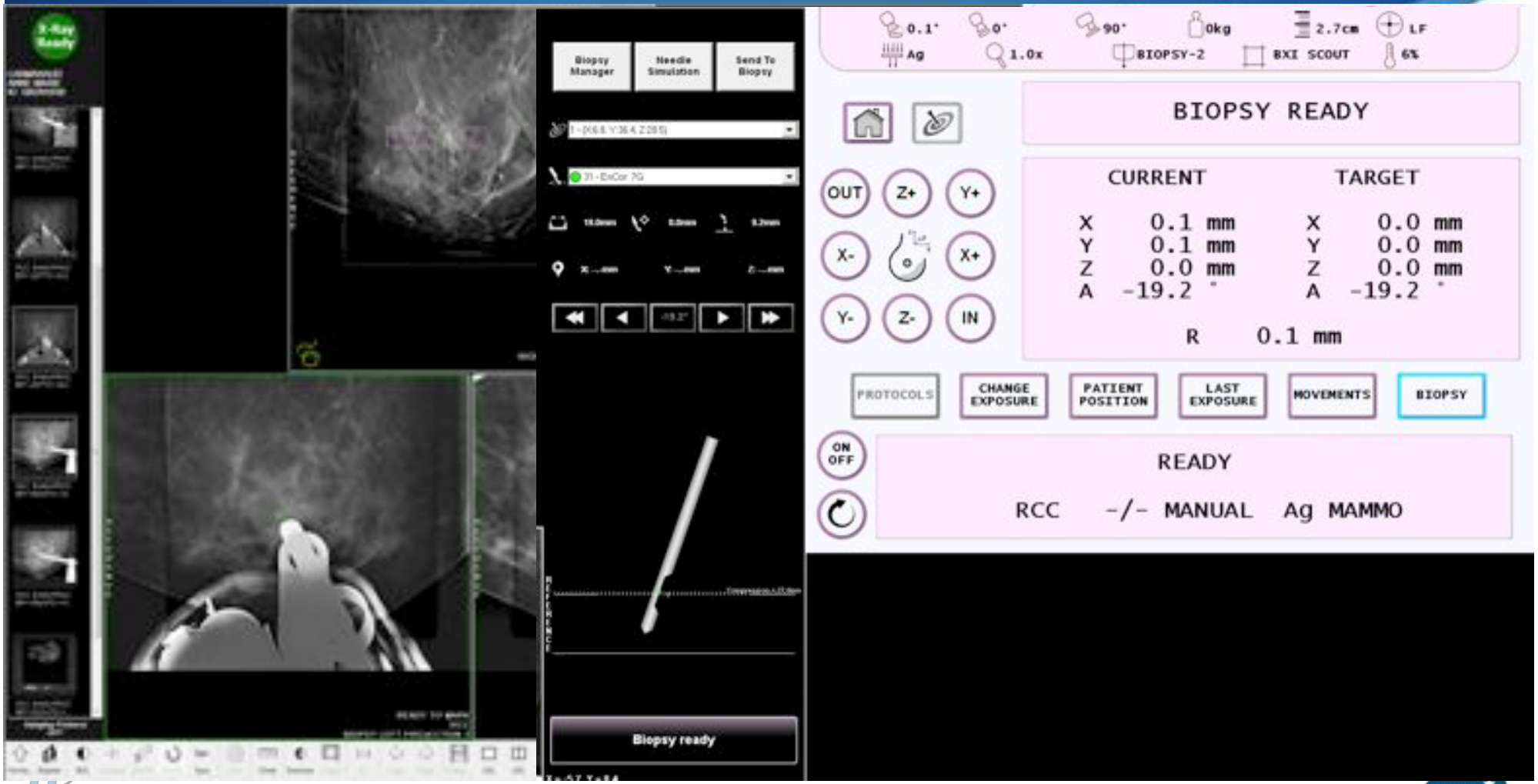
DBT 3D guided VABB

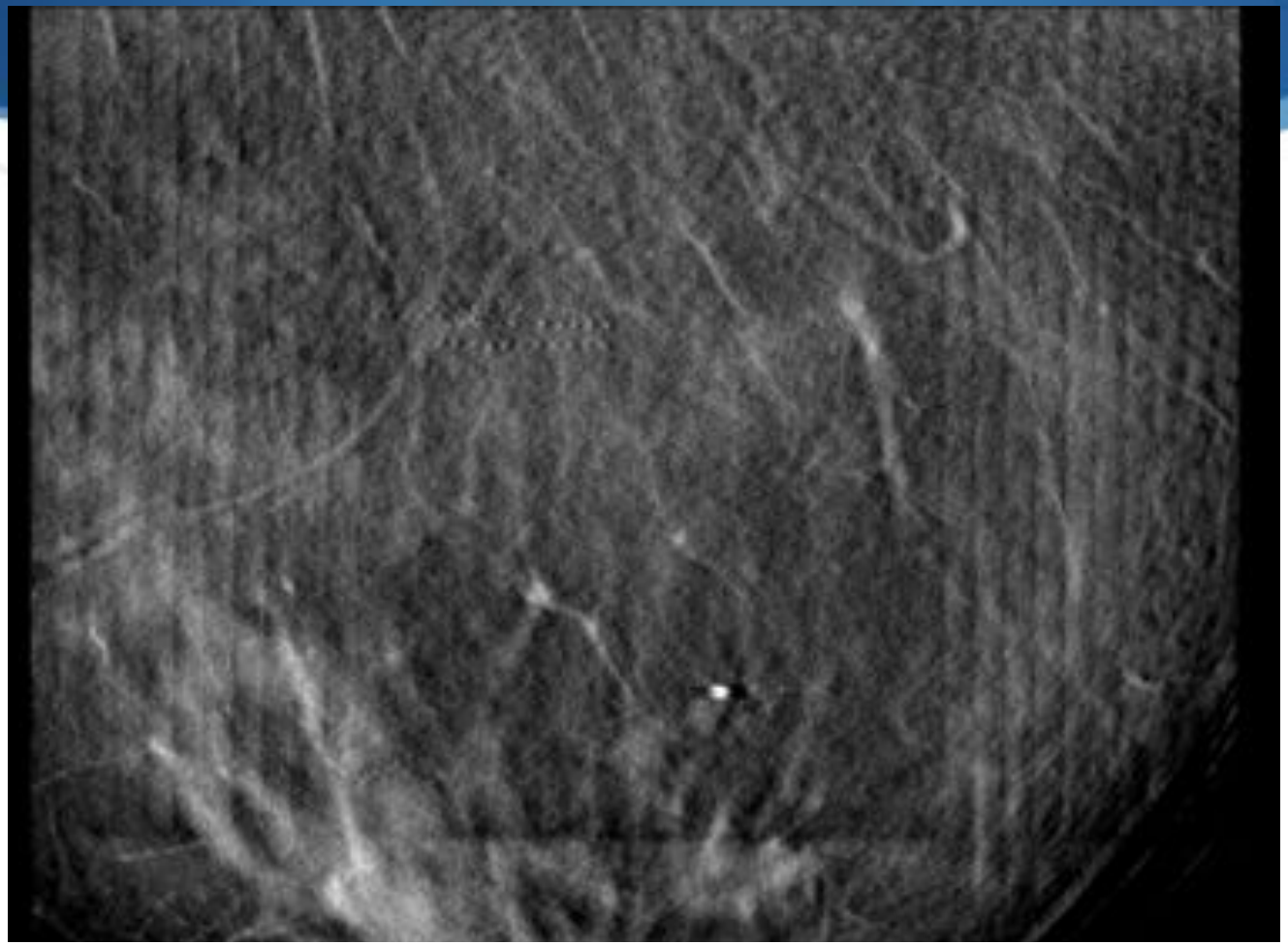
Prone position

DBT 3D guided VABB

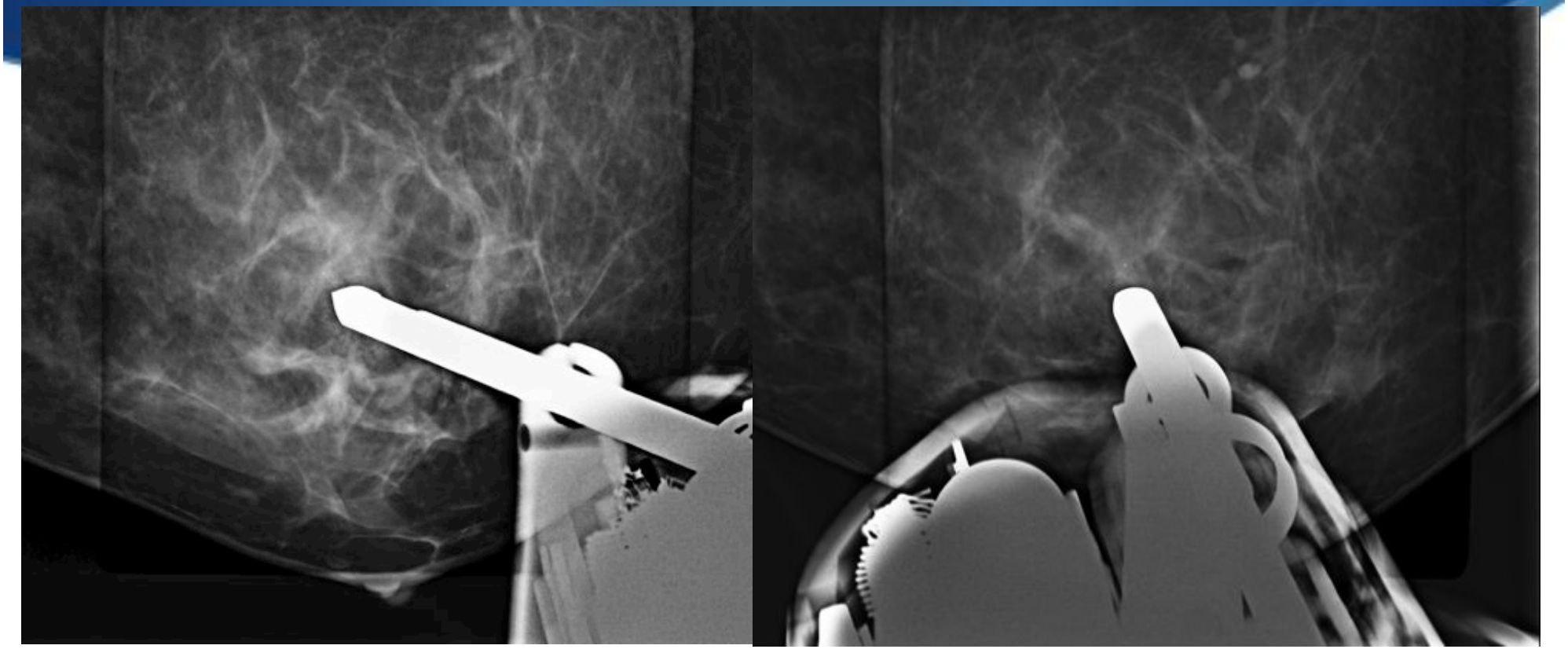


Giotto Class IMS – Prone position

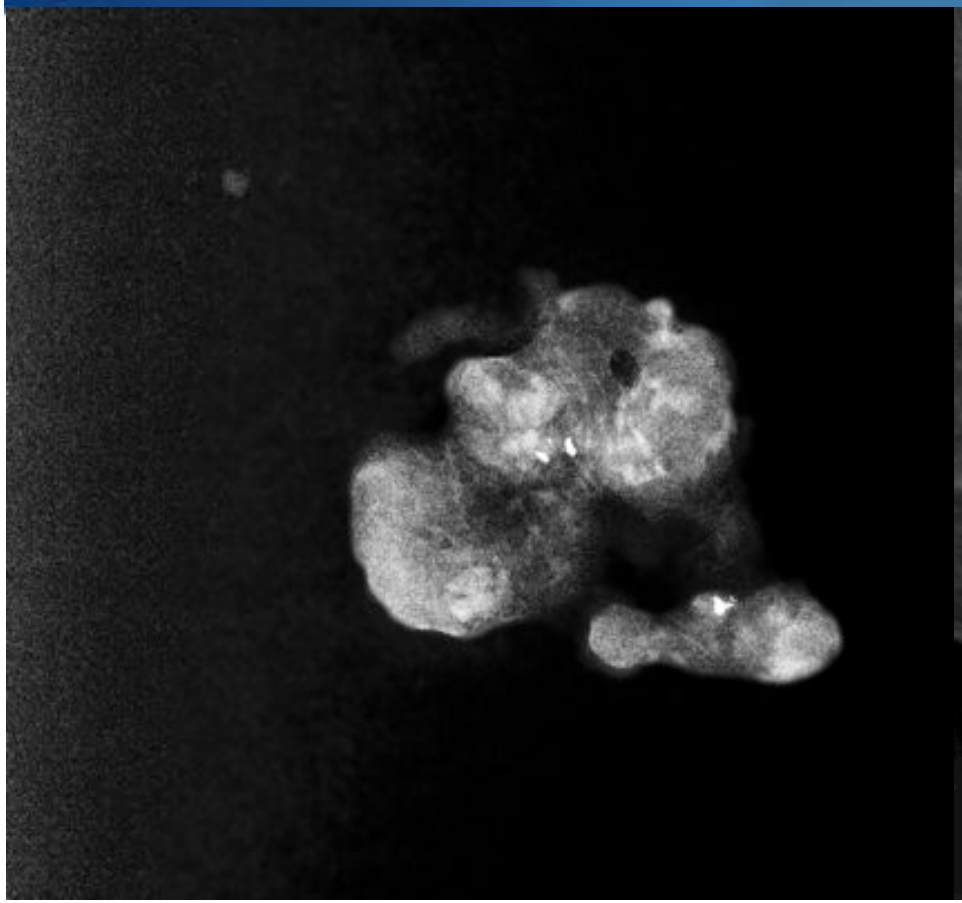
DBT 3D guided VABB

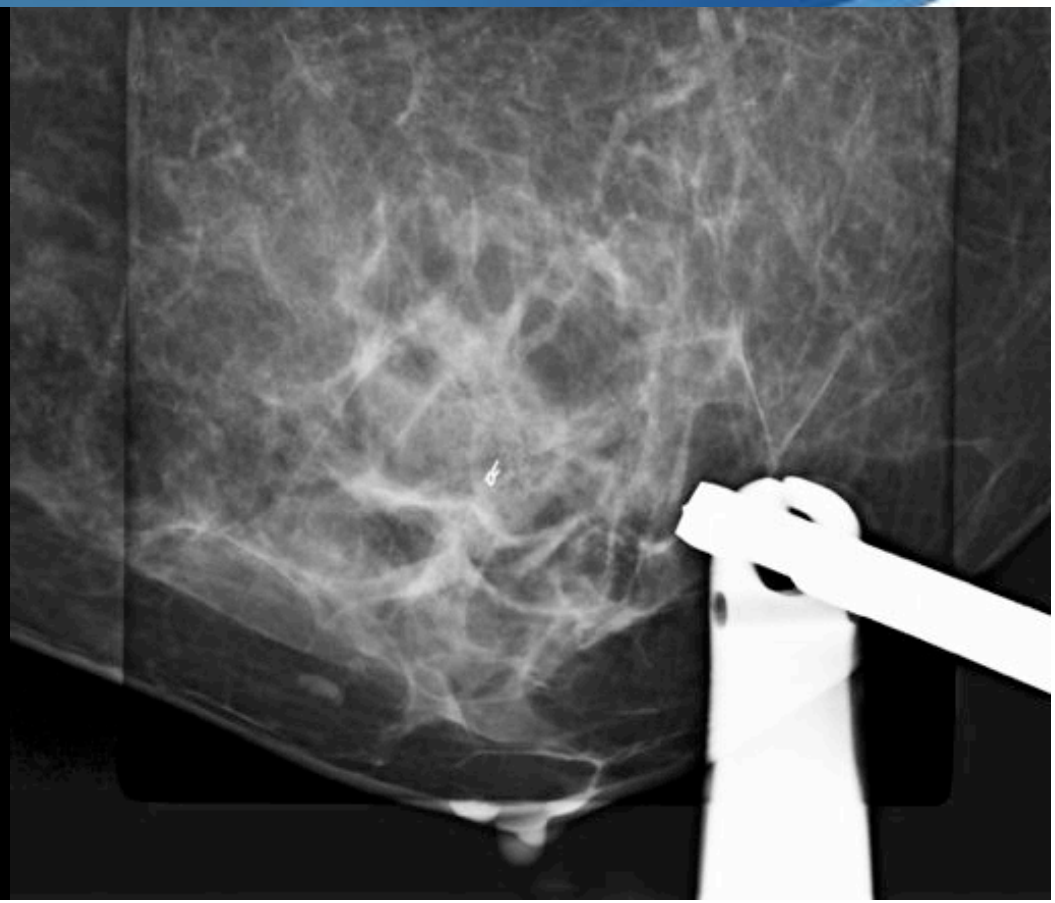


DBT 3D guided VABB



DBT 3D guided VABB





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Radiology

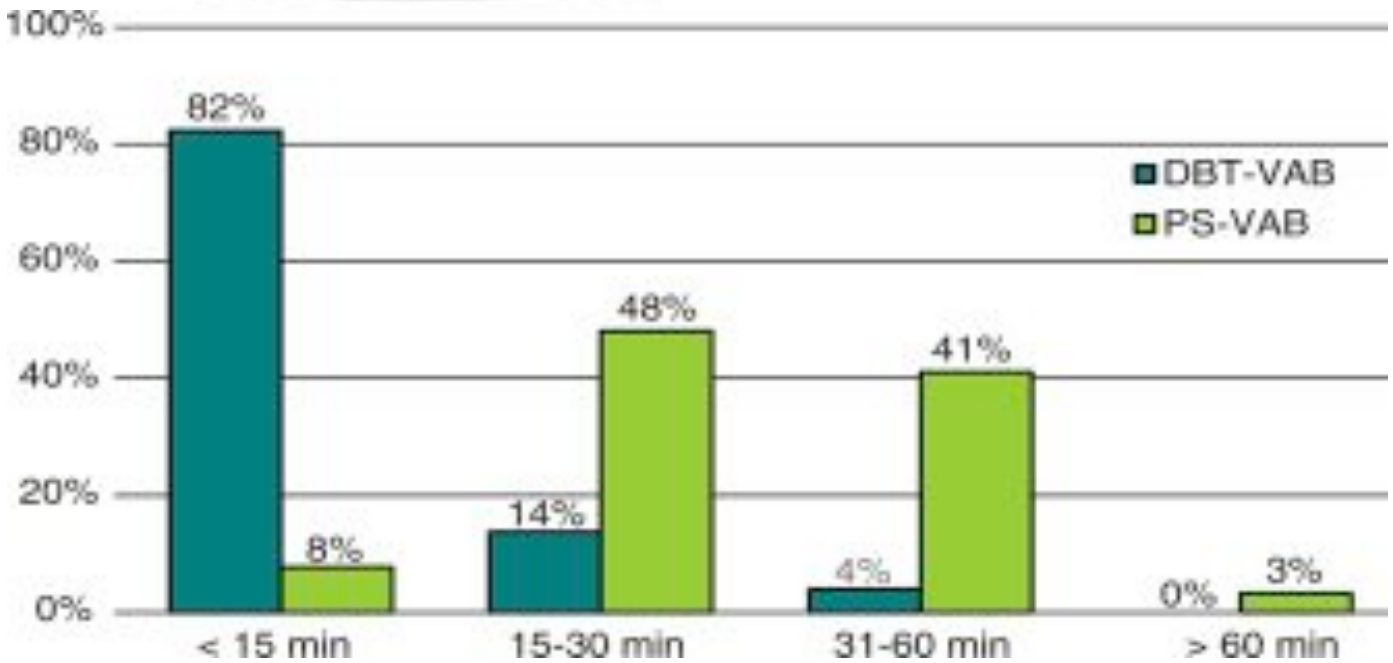
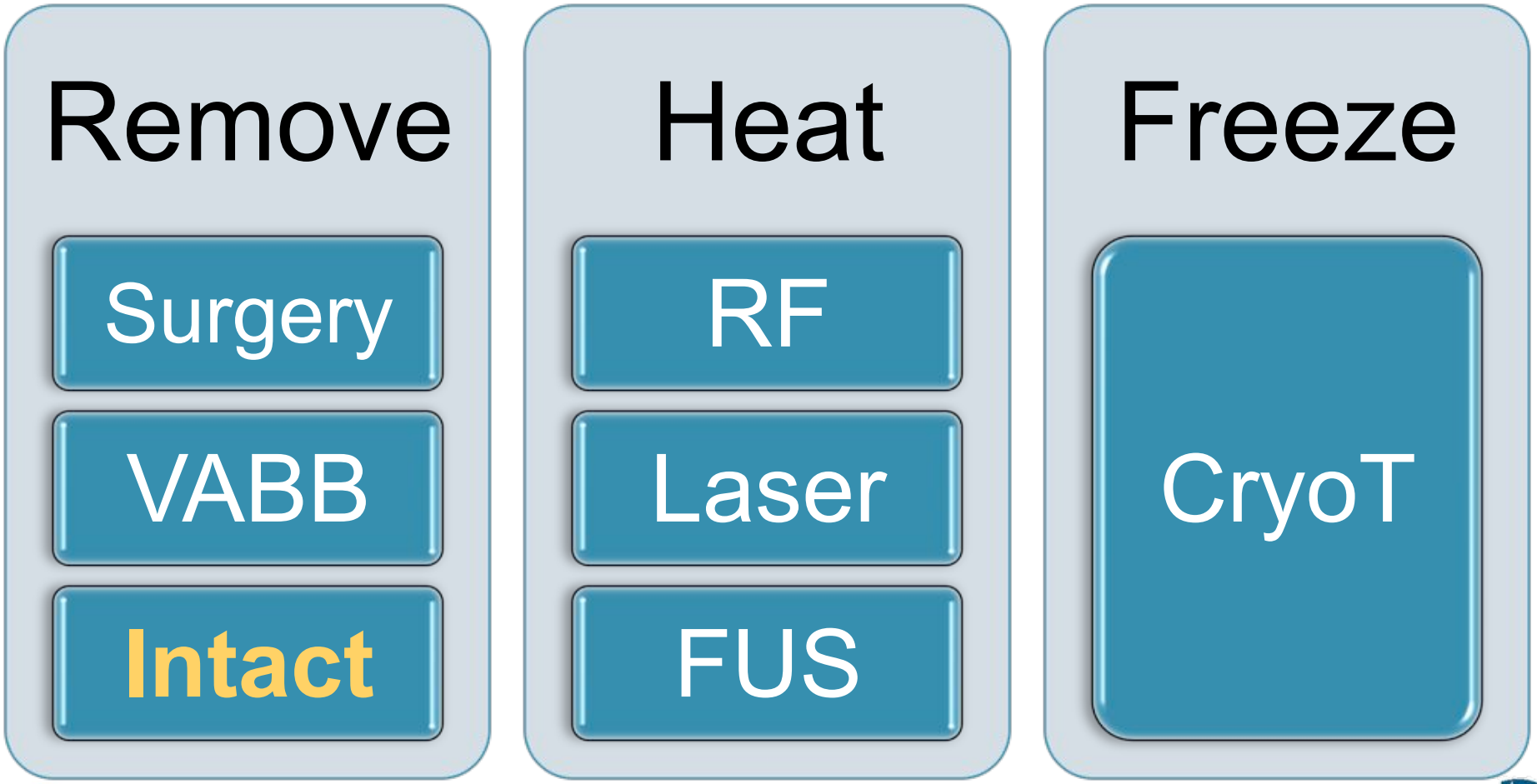


Figure 2a: Bar graphs show the time needed per lesion for **(a)** the total intervention, **(b)** reidentification and targeting of the lesion, and **(c)** the actual biopsy procedure (tissue sampling) for DBTdigital breast tomosynthesis VABvacuum-assisted biopsy and conventional PSprone stereotactic VABvacuum-assisted biopsy.

Local Treatment
Surgery / Minimaly treatment US procedures



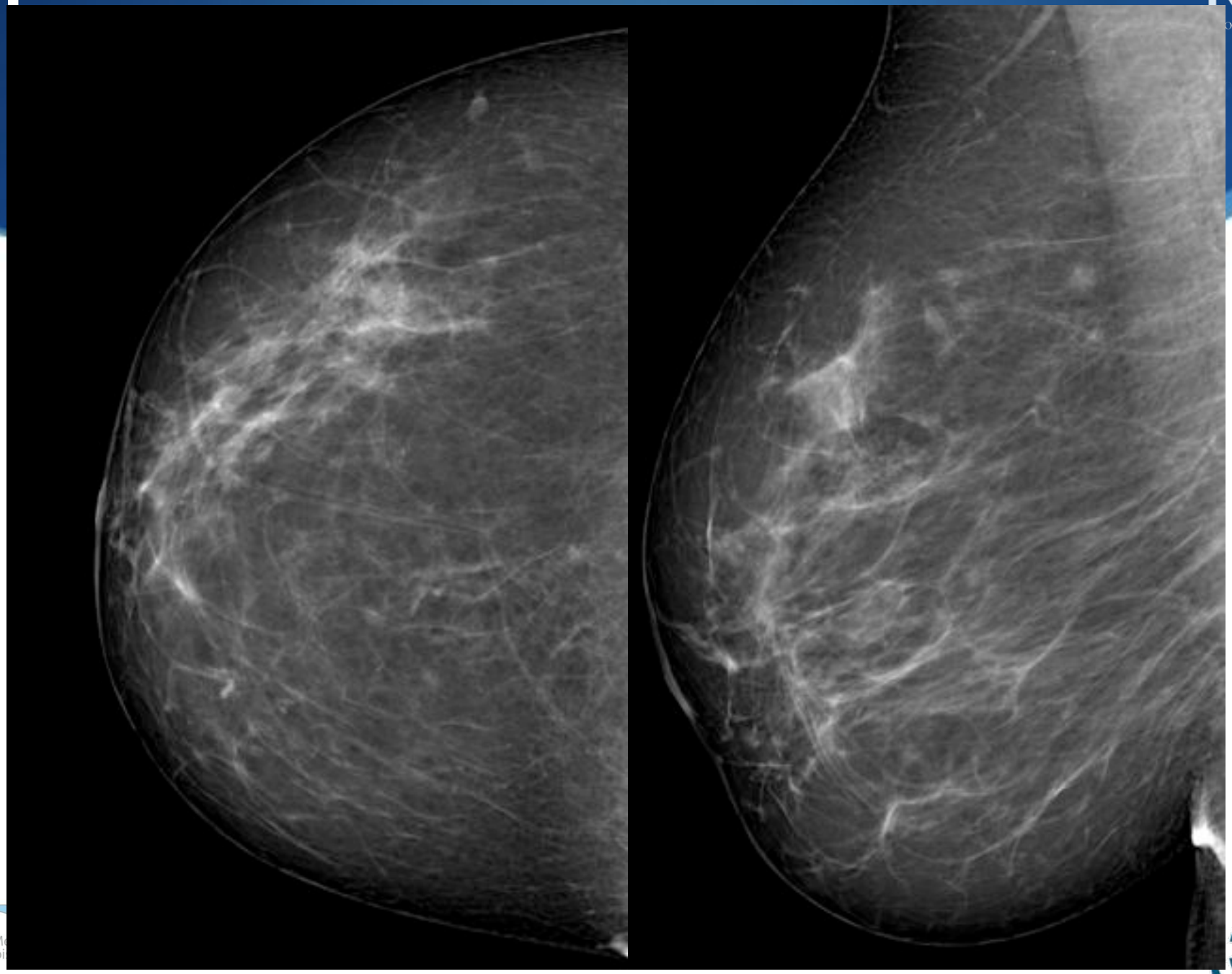
Intact system

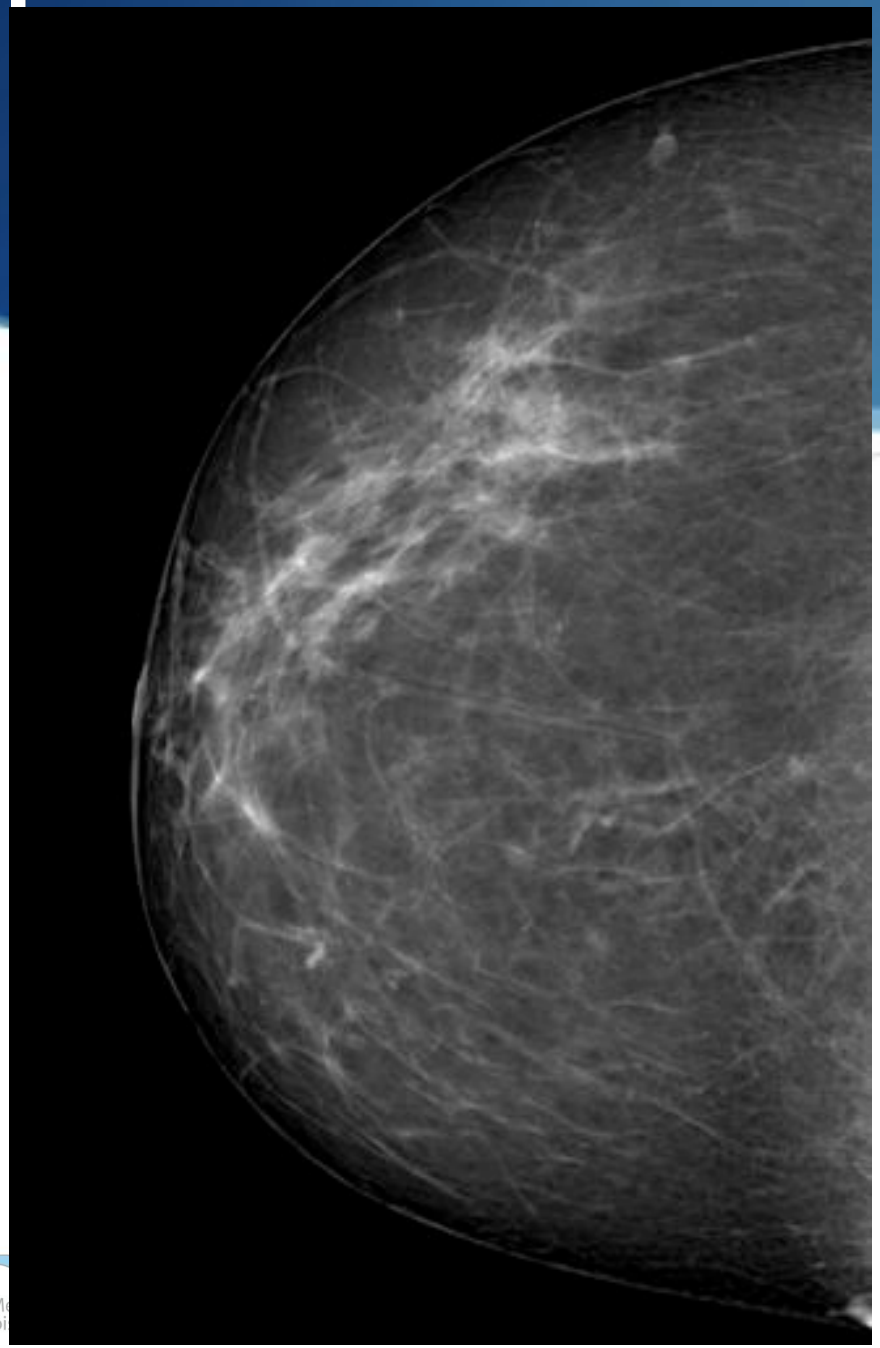
1. With a small (6-8mm) incision, Intact ® wands can easily access the target lesion under image guidance

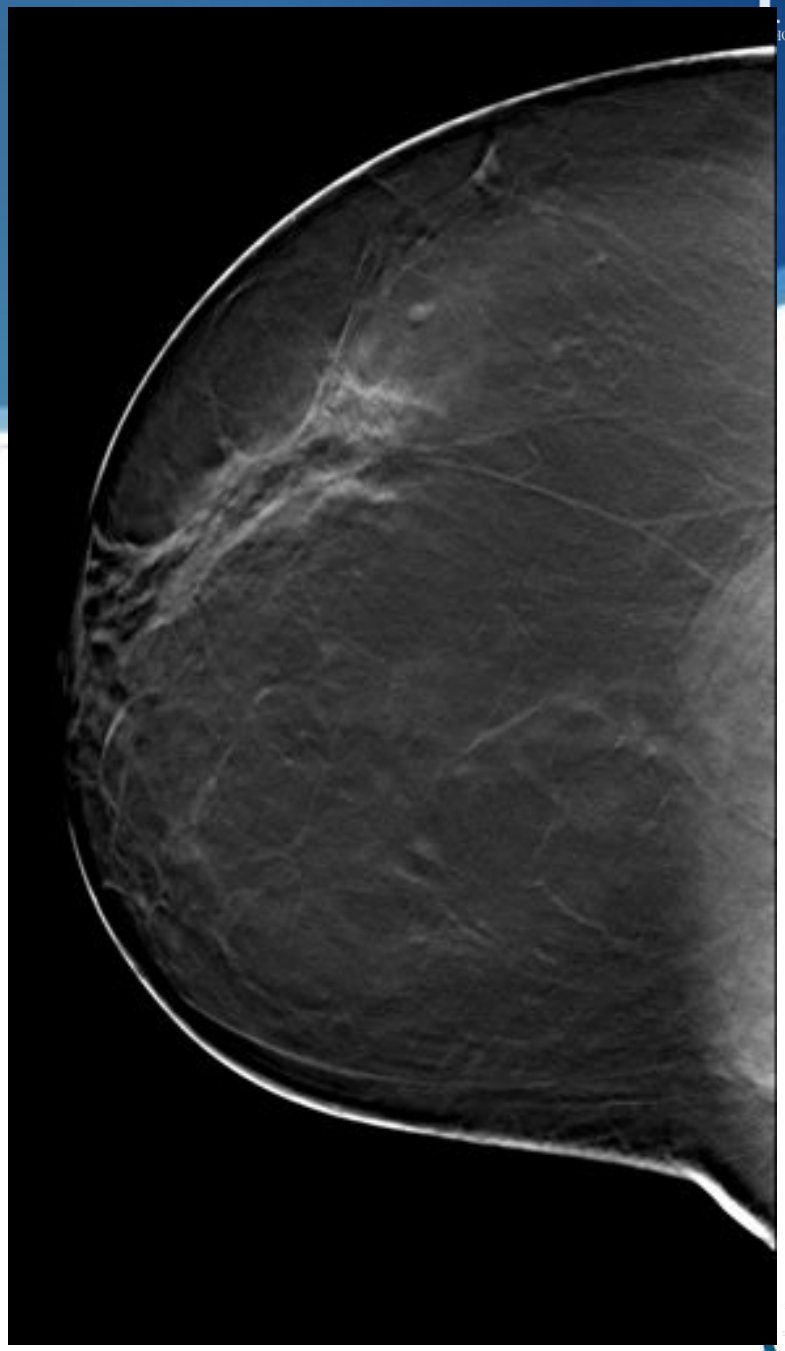
2. The wand envelops the target tissue. Capture takes less than 10 seconds.

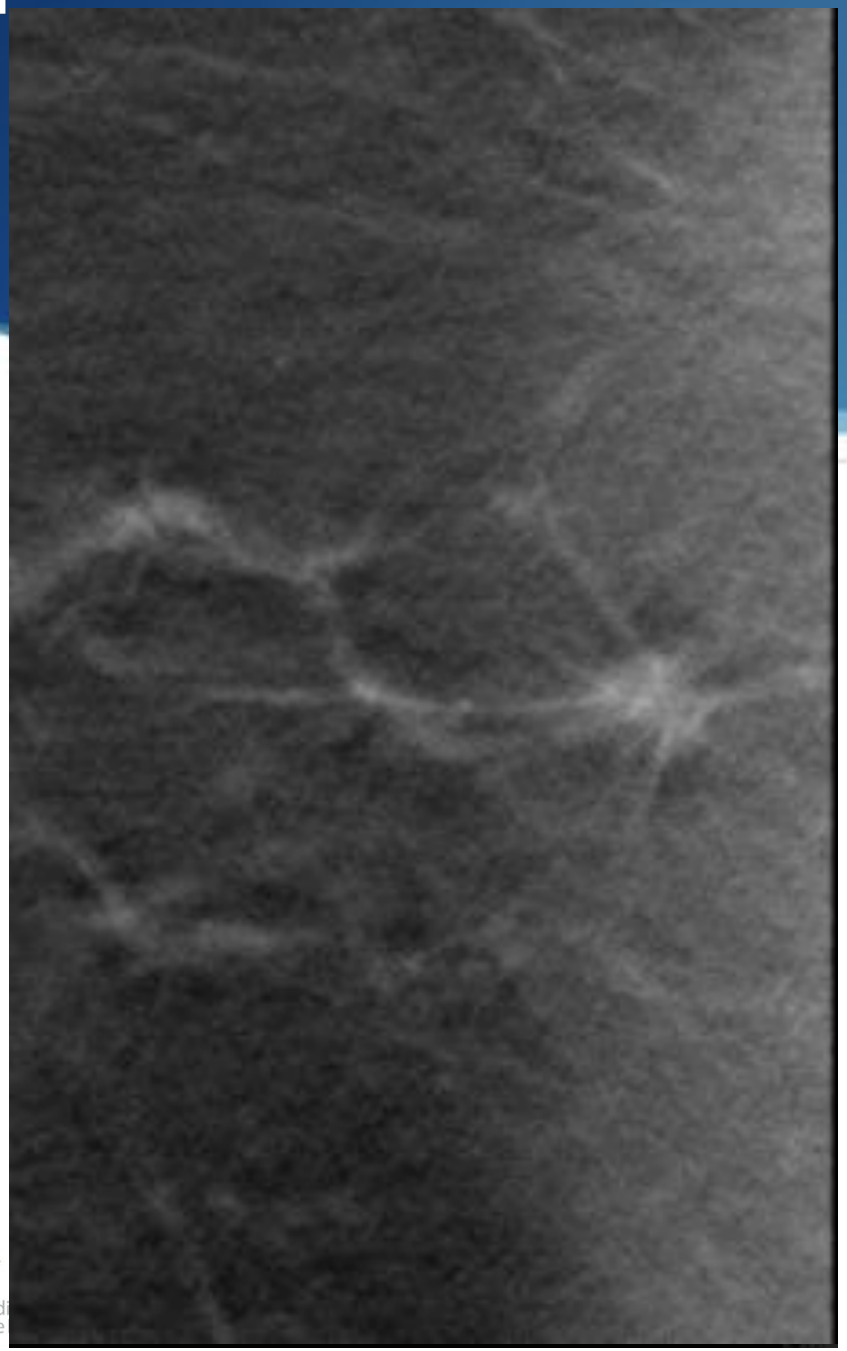
3. The intact sample is withdrawn.

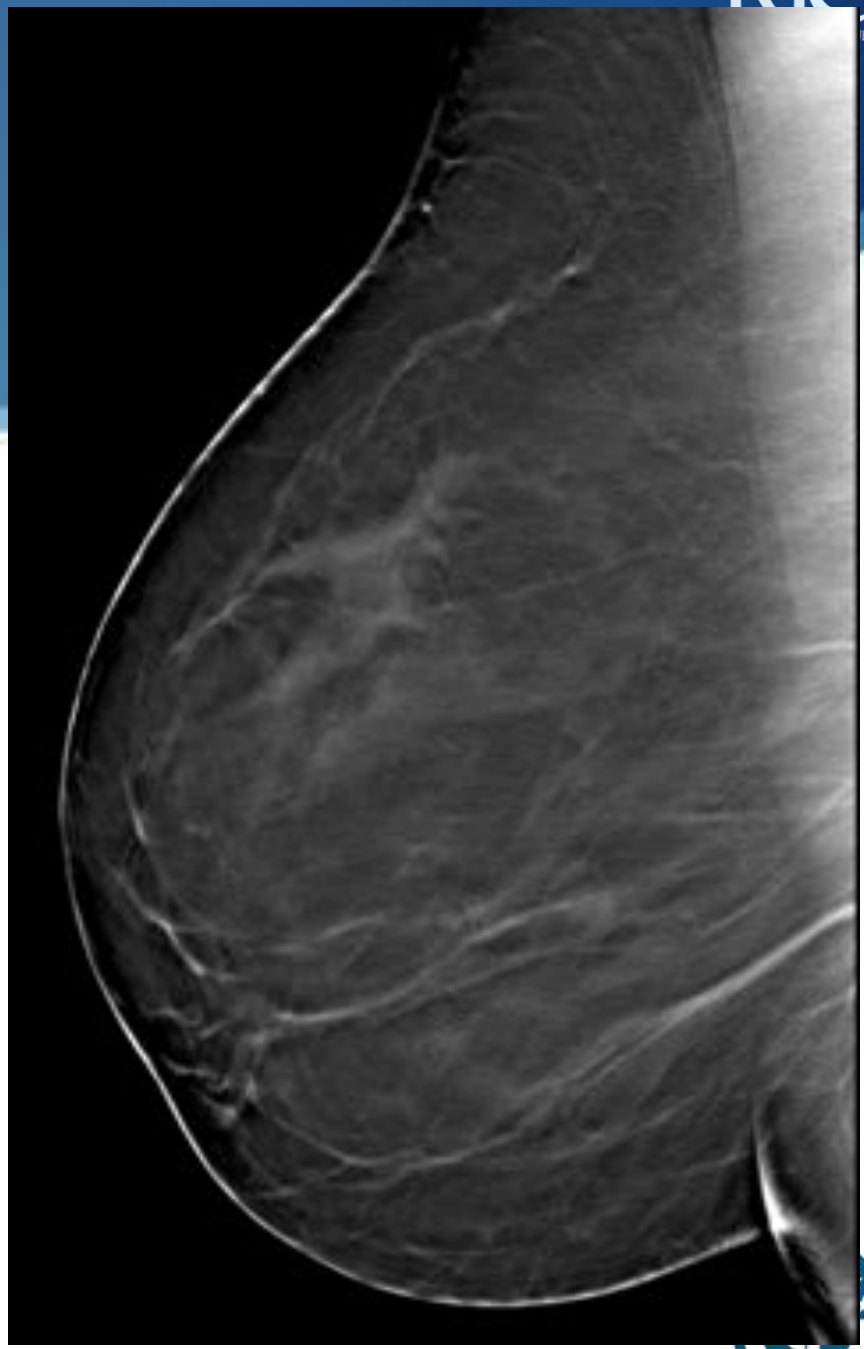
intact











Intact
Exérèse One Bloc

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Post Minimal Invasive Therapy assessment

post intervention follow up

J8-J15

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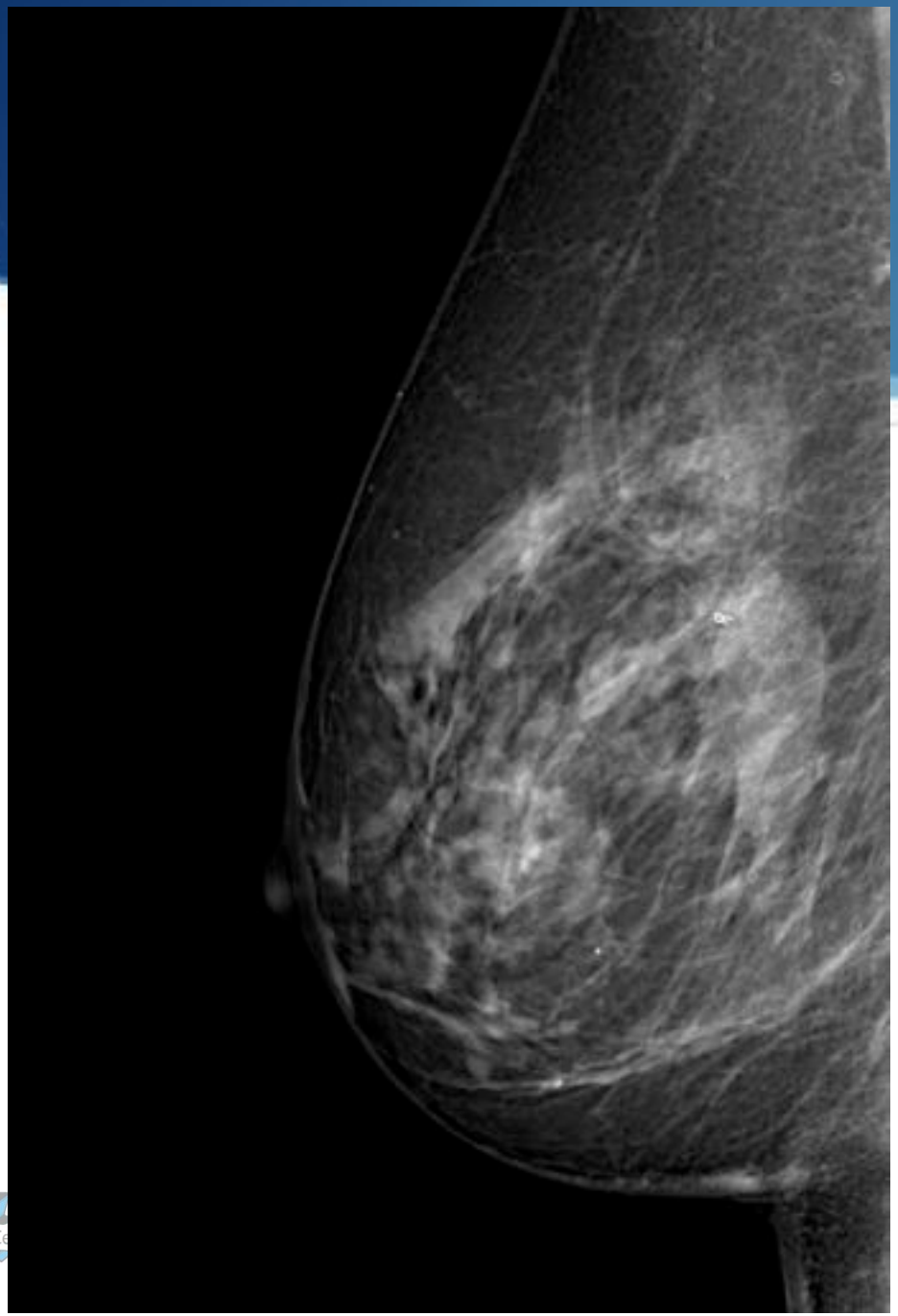

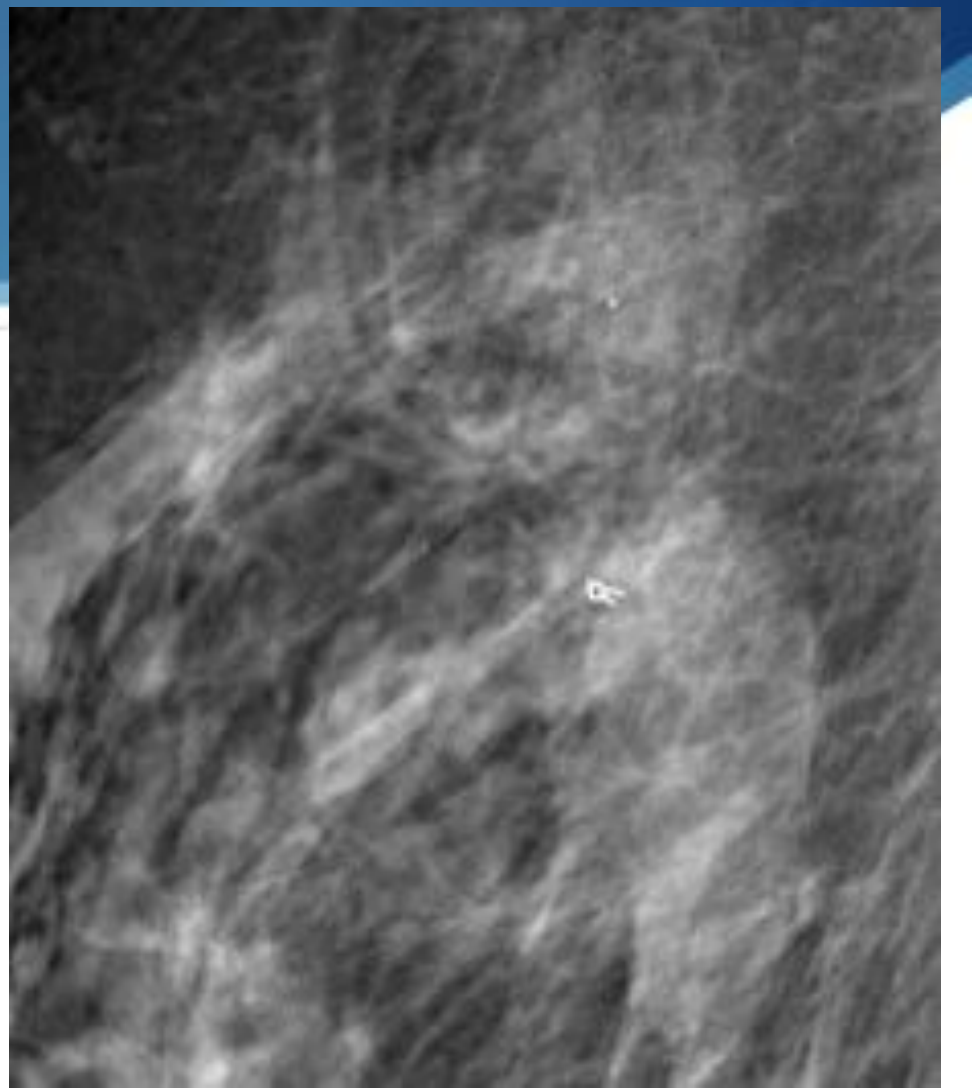

Interactive Case Review of Radiologic and Pathologic Findings from Breast Biopsy: Are They Concordant? How Do I Manage the Results?

Christopher P. Ho, MD, Jennifer E. Gillis, MD, Kristen A. Atkins, MD, Jennifer A. Harvey, MD, and , Brandi T. Nicholson, MD
University of Virginia Heath System, Chalottesville, Va. Radiographics, Volume 33-4 , 2013

- **To successfully perform a minimally invasive breast biopsy**
  - it is important to not only be familiar with the technique
  - but also with how to determine radiologic-pathologic concordance
  - and the **appropriate treatments for patients after the procedure**
- **When reviewing pathologic results for concordance**
  - it is important to ensure that microcalcifications are identified in the histologic specimen
  - and the specific pathologic diagnosis is consistent
    - with the morphologic characteristics seen at mammography
    - and the pretest probability of malignancy.

Benign and good radiologic-pathologic concordane

No surgery

At an histopathological **benign** result there should be performed an imaging control after **6 months**

European Guidelines

Interactive Case Review of Radiologic and Pathologic Findings from Breast Biopsy: Are They Concordant? How Do I Manage the Results?

Christopher P. Ho, MD, Jennifer E. Gillis, MD, Kristen A. Atkins, MD, Jennifer A. Harvey, MD, and , Brandi T. Nicholson, MD
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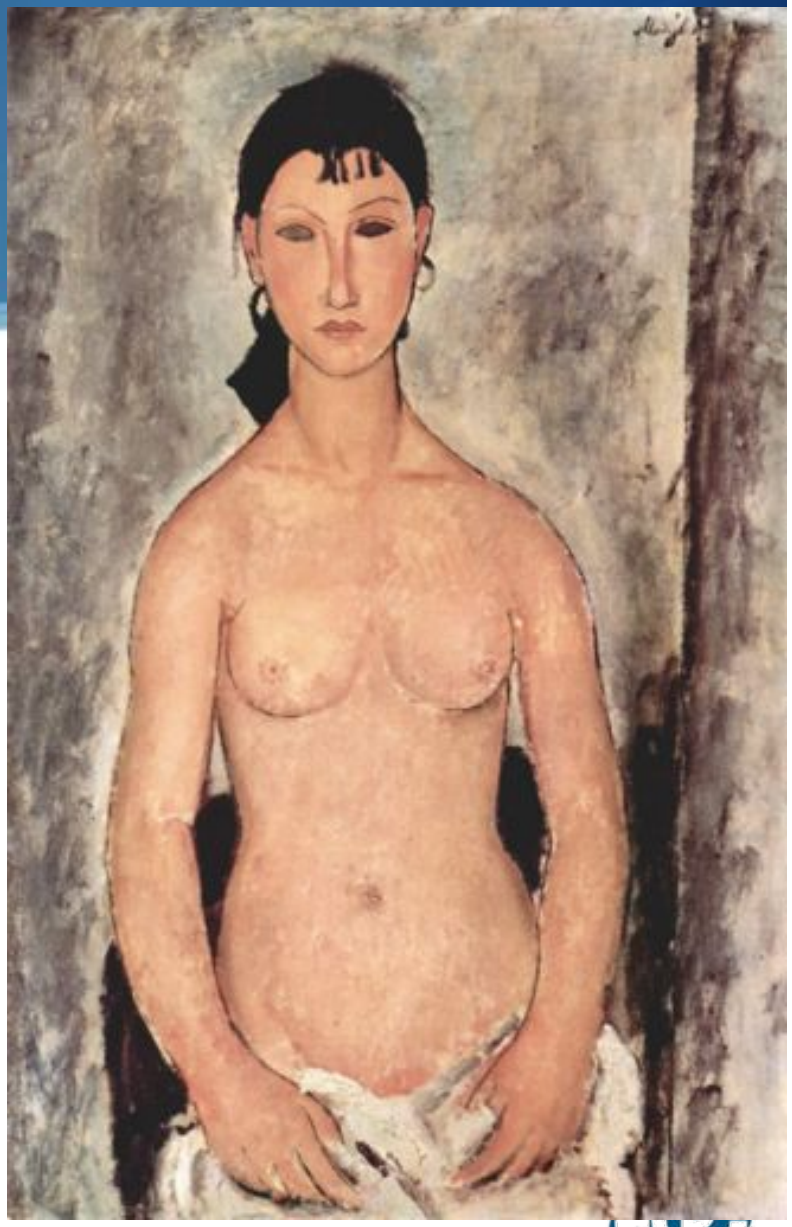
- **At the follow-up examination**
  - both the histologic and imaging findings should be revisited
  - and the mass should be assessed at mammography or US to ensure that it is stable
- If it has grown in size or its morphologic characteristics have changed
- If calcifications increase in number or extent or the mass changes
  - Increases in size or its features become more suspicious
  - appropriate action should be taken
  - **Excision is typically recommended**
- **If the lesion is stable at follow-up examination**
  - the patient may return to the general screening population

Discussion
Premalignant lesion

- Underestimation rate

  ADH, DCIS, LCIS

  - Not eliminated with VABB
    - >> PPV : malignant
    - >> NPV : benign
  - Surgical indication



DCIS

Roger J. Jackman & al, *Radiology February 2001 218:497-502*
Stereotactic Breast Biopsy of Nonpalpable Lesions: Determinants of Ductal Carcinoma in Situ Underestimation Rates

- DCIS underestimation rates by biopsy device were
  - 20.4% (76 of 373) at large-core biopsy
  - 11.2% (107 c
- 24.3% (35 of 1
- 12.5% (148 of
- and by numbe
  - 17.5% (88 of 502) with 10 or fewer specimens
  - 11.5% (92 o
- DCIS underest

1.8 times more frequent with LCB than with VAB

1.9 times more frequent with masses than with calcifications

1.5 times more frequent <10 or fewer specimens per lesion than with ≥ 10 specimens per lesion.

ADH

Frederick R. Margolin1 Jessica W. T. Leung1,2 Richard P. Jacobs1 Susan R. Denny1
Percutaneous Imaging-Guided Core Breast Biopsy: 5 Years' Experience in a Community Hospital, AJR:177, September 2001

TABLE 3 : Summary of Published Data on the Incidence and Upgrade Rate of Atypical Ductal Hyperplasia (ADH) After II- or 9-Gauge Vacuum-Assisted Breast Biopsy and Surgical Excision

Study		Rate of ADH			
Author	Year	After 11-Gauge Biopsy	After 9-Gauge Biopsy	Patients Who Underwent Surgical Excision	Upgrade After Surgical Excision
Liberman et al. [14]	1998	12/112 (11)		10/12 (83)	1/10 (10)
Brem et al. [16]	1999	20/422 (5)		16/20 (80)	4/16 (25)
Burak et al. [18]	2000	[illegible]		[illegible]	5/40 (13)
Philpotts et al. [19]	2000				6/26 (23)
Adrales et al. [21]	2000				9/62 (15)
Cangiarella et al. [23]	2001				2/8 (25)
Lai et al. [24]	2001				2/12 (17)
Jackman et al. [25]	2002				22/104 (21)
Rao et al. [26]	2002	Not given		31	11/31 (35)
Pandelidis et al. [27]	2003	37/1341 (3)		35/37 (95)	5/35 (14)
Winchester et al. [28]	2003	77/1750 (4)		65/77 (84)	11/65 (17)
Sohn et al. [29]	2007	88/4579 (2)		78/88 (89)	14/78 (18)
Lourenco et al. [30]	2007	62/828 (8)		46/62 (74)	13/46 (28)
			33/395 (8)	27/33 (82)	8/27 (30)
This study	2009	58/391 (15)		49/58 (84)	10/49 (20)
			83/600 (14)	74/83 (89)	16/74 (22)

ADH Prevalence 2% to 15%

Underestimation 10 to 35 %

ADH

Peter R. Eby, Jennifer E. Ochsner, Wendy B. DeMartini & al, **Frequency and Upgrade Rates of Atypical Ductal Hyperplasia Diagnosed at Stereotactic Vacuum-Assisted Breast Biopsy: 9- Versus 11-Gauge.** *AJR* 2009; 192:229–234

TABLE 1 : Results of 9- and 11-Gauge Vacuum-Assisted Breast Biopsy

Parameter	11-Gauge Biopsy (34 mo)	9-Gauge Biopsy (31 mo)	Total
Total no. of stereotactic vacuum-assisted breast biopsy procedures	391	600	991
Lesions with atypical ductal hyperplasia (ADH)[a]	58/391 (14.8)	83/600 (13.8)	141/991 (14.2)
ADH lesions with surgical follow-up	52/58 (89.7)	77/83 (92.8)	129/141 (91.5)
Lesions excluded because of mastectomy	3	3	6
Number of lesions with excisional biopsy follow-up	49	74	123
Frequency of upgrade to DCIS or invasive carcinoma[b]	10/49 (20.4)	16/74 (21.6)	26/123 (21.1)

ADH Prevalence = 14,2%

Underestimation = 21,1%

ADH Prevalence and Underestimates at Prone Stereotactic Breast Biopsy

Study and Year†	ADH Lesions‡	No. of ADH Underestimates*		
		14-gauge Large Core	14-gauge Vacuum Assisted	11-gauge Vacuum Assisted
Jackman et al (1), 1994§	19 of 450 (4)	9 (6 DCIS, 3 IC) of 16 (56)	0	0
Liberman et al (2), 1995‖	25 of 264 (9)	11 (8 DCIS, 3 IC) of 21 (52)	0	0
Tocino et al (3), 1996¶	18 of 358 (5)	9 (5 DCIS, 4 IC) of 18 (50)	0	0
Nguyen et al (4), 1996				
Burbank (5), 1997#				
Lee et al (6), 1997#				
Liberman et al (7), 1997				
Moore et al (8), 1997				
Gadzala et al (9), 1997*				
Jackman et al (10), 1997				
Brown et al (11), 1998**				
Meyer et al (12), 1998††				
Lin et al (13), 1998				
Fuhrman et al (14), 1998				
Liberman et al (19), 1998				DCIS) of 10 (10)
Jackman et al (15), 1999‡‡				
Brem et al (20), 1999				DCIS, 2 IC) of 16 (25)
Meyer et al (16), 1999††	51 of 1,836 (3)	10 (7 DCIS, 3 IC) of 18 (56)	9 (7 DCIS, 2 IC) of 24 (38)	1 (1 DCIS) of 9 (11)
Burak et al (21), 2000§§	43 of 851 (5)	0	0	5 (1 DCIS, 4 IC) of 40 (13)
Philpotts et al (22), 2000	26 of 753 (3)	0	0	6 (5 DCIS, 1 IC) of 26 (23)
O'Hea and Tornos (17), 2000	27 of 590 (5)	6 (4 DCIS, 2 IC) of 19 (32)	0	0
Adrales et al (23), 2000	90 of 1,081 (8)	0	0	9 (7 DCIS, 2 IC) of 62 (15)
Darling et al (18), 2000	148 of 3,873 (4)	11 (8 DCIS, 3 IC) of 25 (44)	11 (8 DCIS, 3 IC) of 28 (39)	16 (11 DCIS, 5 IC) of 86 (19)
Cangiorella et al (24), 2001	10 of 160 (6)	0	0	2 (2 DCIS) of 8 (25)
Raza et al (25), 2001	20 of 350 (6)	0	0	6 (4 DCIS, 2 IC) of 16 (38)
Lai et al (26), 2001	19 of 673 (3)	0	0	2 (2 NA) of 12 (17)
Present study	131 of 1,964 (7)	0	0	22 (19 DCIS, 3 IC) of 104 (21)
Total	894 of 18,601 (5)	127 (93 DCIS, 30 IC, 4 NA) of 288 (44)	24 (18 DCIS, 6 IC) of 102 (24)	73 (52 DCIS, 19 IC, 2 NA) of 380 (19)

ADH Prevalence 3% to 11% mean 5%

Underestimation

44% with 14g LCB

19% with 11g VABB

RJ Jackman, RL Birdwell, DM Ikeda, Atypical Ductal Hyperplasia: **Can Some Lesions Be Defined as Probably Benign after Stereotactic 11-gauge Vacuum- assisted Biopsy, Eliminating the Recommendation for surgical exision ?** Radiology 2002; 224:548–554

Radial Scars

R. James Brenner, Roger J. Jackman, Steve H. Parker & al, **Percutaneous Core Needle Biopsy of Radial Scars of the Breast:** When Is Excision Necessary? AJR:179, November 2002

- Carcinoma was found at excision in
  - **28%** (8/29) of lesions with associated **atypical hyperplasia**
  - **4%** (5/128) of lesions **without associated atypia**

28% with ADH or ALH
4% without atypia

- In the latter group, carcinoma was found at excision in
  - 3% (2/60) of masse
  - 8% (3/40) of architectural distortions
  - 0% (0/28) of microcalcification lesions

- Malignancy was missed in
  - **9%** (5/58) of lesions biopsied with a spring-loaded device **LCB**
  - **0%** (0/70) of lesions biopsied with a directional vacuum-assisted device **VABB**
  - **8%** (5/60) of lesions sampled with **less than 12 specimens**
  - **0%** (0/68) sampled with **12 or more specimens**

9% with LCB
0% with VABB

8% < 12 samples
0% ≥ 12 samples

- **Lesion type, maximal lesion diameter, and type of imaging guidance (stereotactic presence of malignancy**

- **No Surgery if :**
  no associated atypical hyperplasia
  biopsy includes at least 12 specimens (VABB)
  mammographic findings are reconciled with histologic findings.
  If miss a criteria, excisional biopsy is indicated

Journées Francophones d'Imagerie Médicale

RADIOLOGIE PARIS OUEST

Lobular Neoplasia : ALH & LCIS

at Percutaneous Breast Biopsy: Variables Associated with Carcinoma at Surgical Excision

Rachel F. Brem, Mary C. Lechner, Roger J. Jackman

***AJR* 2008**; 190:637–641

- **OBJECTIVE.** better define the rate and variables associated with cancer underestimation when lobular neoplasia is found at breast biopsy. ALH or LCIS

- **MATERIALS AND METHODS.**
  - The records of 32,420 patients who underwent imaging- guided needle biopsy from 1988 to 2000 retrospectively reviewed.
  - 278 cases in which lobular neoplasia was the highest-risk lesion at biopsy were included.
  - 164 proceeded to surgical excision, allowing calculation of rates of underestimation from minimally invasive biopsy.

- **RESULTS**
  - **lobular neoplasia** was found in 278 = **0.9%**
  - 164/278 (59%) continued to surgical excision
  - cancer confirmed in 38 = **23%**
  - No difference **underestimation rates LCIS = 25%**, 17 of 67 / **ALH = 22%**, 21 of 97 lesions
  - **Statistically significant underestimation**
    - **masses (with or without associated µcalcifications) > µcalcifications only**
    - **higher BI-RADS category**
    - **core biopsy device rather than a vacuum device**
    - **obtaining fewer specimens**

LN Prevalence = 0,9%
Underestimation rate = 23%

- **CONCLUSION**
  - **all patients with lobular neoplasia at core or vacuum-assisted biopsy should undergo surgical excision until further differentiating criteria can be determined.**

Centres Médico Chirurgicaux
Ambroise Paré, Pierre Cherest, Hartmann

Refered for surgical excision

Lobular carcinoma in situ/atypical lobular hyperplasia on breast needle biopsies: does it warrant surgical excisional biopsy? A study of 27 cases

O'Neil M, Madan R, Tawfik OW, Thomas PA, Fan F. **Ann Diagn Pathol 2010**; 14(4):251–255

- 3163 breast core needle biopsies were retrieved from the surgical pathology files between 2003 and 2009
- among them, 56 (1.8%) cases were identified with a diagnosis of ALH or LCIS
- Eleven cases were excluded because of the presence of a mandated excision
- The remaining 45 cases contained only ALH or LCIS
  - 27 had surgical excision follow-up
  - In the surgical excision specimens, 5 (19%) of 27 (11% of 45) cases showed more severe lesions or were "upgraded »
    - 3 invasive ductal carcinomas
    - 1 invasive lobular carcinoma
    - 1 ductal carcinoma in situ
    - Histologic features of the lobular neoplasia on the core were found to have no predictive value for a more severe lesion in the subsequent excision
- We suggest that patients with LCIS/ALH on core needle biopsy should be **considered for surgical excision** to rule out a more significant lesion regardless of the histologic features.

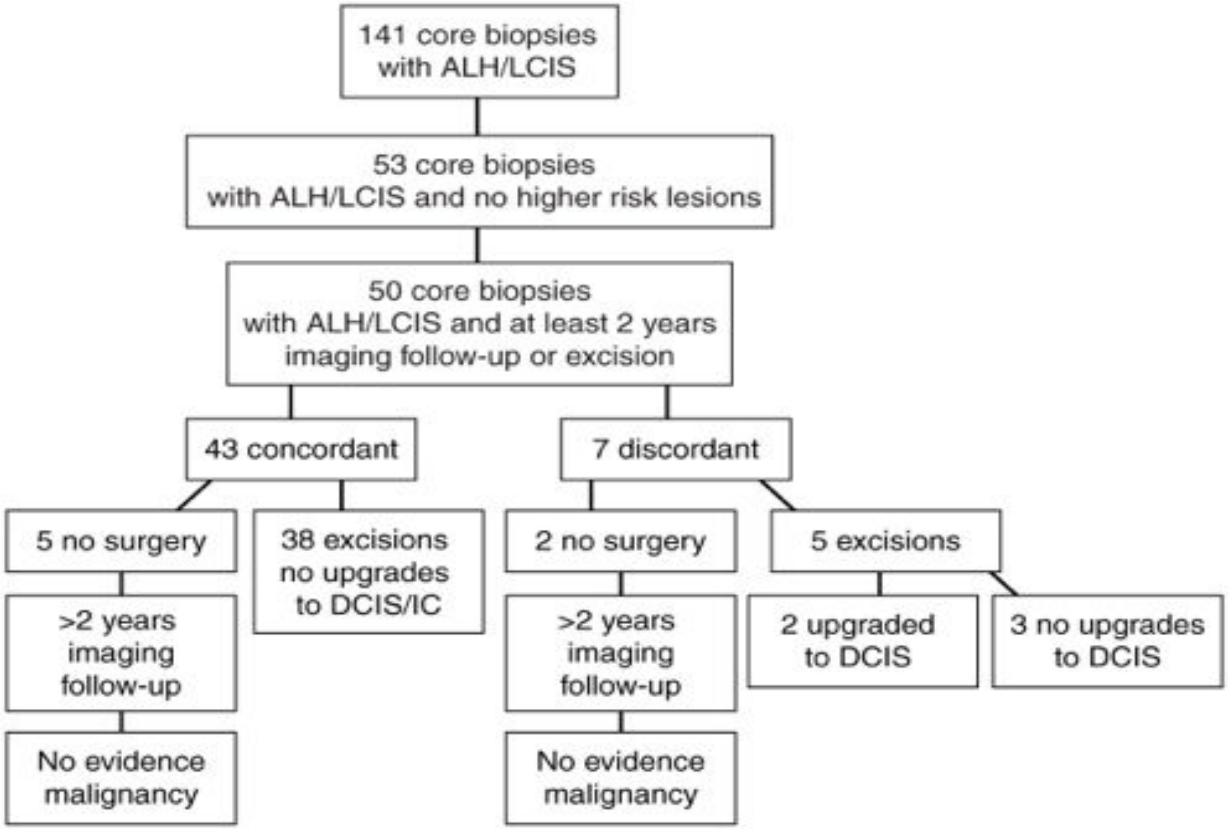
LCB
LN prevalence = 1,8%
Underestimation = 19%

Refered for surgical excision

Atypical Lobular Hyperplasia and Lobular Carcinoma in Situ at Core Breast Biopsy: Use of Careful Radiologic-Pathologic Correlation to Recommend Excision or Observation

Kristen A. Atkins, Michael A. Cohen, Brandi Nicholson, Sandra Rao.
Northwestern Memorial Hospital, Prentice Women's Hospital, Chicago.

Radiology, 2013, Vol.269: 340-347, 10.1148/radiol.13121730



Flow diagram of total number of cases partitioned into radiologic and histologic concordance or discordance. *IC* = invasive carcinoma.

Atypical Lobular Hyperplasia and Lobular Carcinoma in Situ at Core Breast Biopsy: Use of Careful Radiologic-Pathologic Correlation to Recommend Excision or Observation

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- Advance in Knowledge

- None of the 43 (95% CI: 0%, 8%) benign concordant cases were upgraded at subsequent surgical excision or extended imaging follow-up
- which suggests that arbitrary excision in all cases of ALH or LCIS may not be necessary.

- **Focused and complete radiologic-pathologic correlation may obviate excisional biopsy in patients with benign concordant biopsy findings**
- Additional validation of this is required before this approach can be universally applied

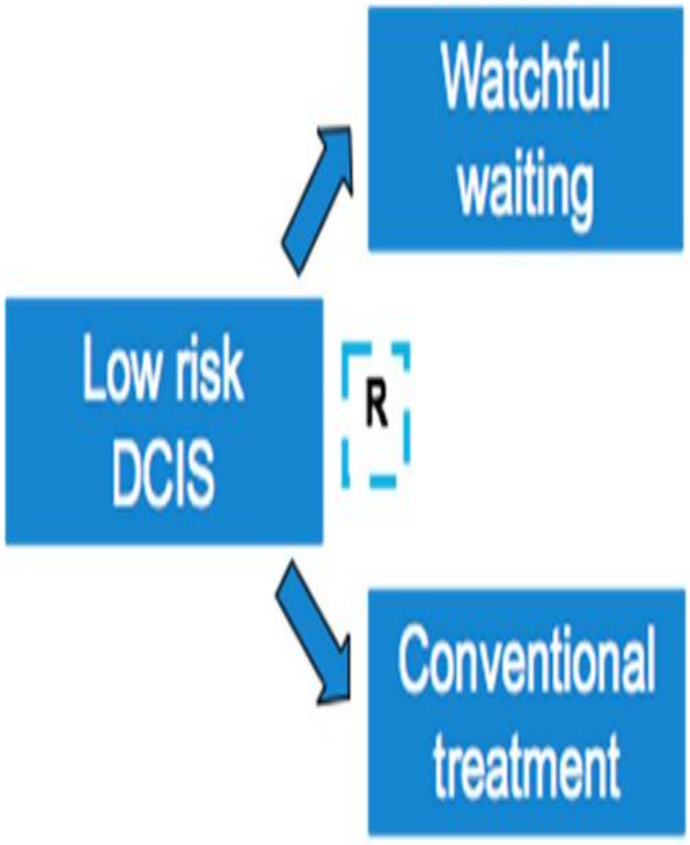
LORD

LOW RISK DCIS

R. ROUZIER

Study Design

- **1842 patients** (taking into account 5% dropout at 10 years and 5% ineligible)
- Accrual duration of 5.5 years and an further follow up period of 7.5 years
- **Total study duration ≈ 13 years,** median follow-up duration: 10 years.



Eligibility Criteria

INCLUSION

- DCIS, grade I, on vacuum assisted core biopsy, as confirmed by at least double reading
- TisNxMx
- Referral to the hospital solely based on microcalicifications as detected by mammogram by the national screening program or by opportunistic screening
- Radiology studies (mammogram and ultrasound performed within 28 days prior to registration) confirming results found at screening
- Women
- ≧49 years of age
- Patient's life expectancy > 5 years
- Prior history of contralateral DCIS allowed
- Prior surgery of the ipsilateral breast because of a benign lesion allowed

BEFORE RANDOMIZATION

- ≥ 5 vacuum assisted core biopsies with pure low grade DCIS
- Marker placement at biopsy site
- MRI unsuspicious of invasive breast cancer or higher grade DCIS
- Good correlation between radiological and pathological findings, i.e. both findings confirm low grade DCIS and no suspicion of intermediate or high grade DCIS or invasive breast cancer

EXCLUSION

- Bilateral grade I DCIS
- Paget's disease of the nipple on core biopsy
- Invasive breast disease on core biopsy
- LCIS on core biopsy
- Symptomatic DCIS
- Serious non-malignant disease that precludes definitive surgical treatment
- Prior history of cancer, except adequately treated non-melanocytic skin cancer and carcinoma in situ of the cervix
- Synchronous invasive carcinoma of the contralateral breast cancer
- BRCA1/2

Objectives

PRIMARY OBJECTIVE

- To determine whether low- grade DCIS can safely (measured by ipsilateral invasive breast cancer rate at 10 years) be managed by an active surveillance strategy or if the conventional treatment, being either wide local excision (WLE) only, WLE plus radiotherapy or mastectomy, possibly followed by hormonal therapy, will remain the standard of care.

MAIN SECONDARY OBJECTIVES

- To assess the rate of invasive disease at final pathology specimen in the standard treatment arm.
- To assess the rate of higher grade DCIS at final pathology specimen in the standard treatment arm.
- To assess the biopsy rate during follow-up in the standard treatment and active surveillance arm.
- To compare the ipsilateral mastectomy rate between the two therapeutic policies.
- ...

- Overdiagnosis
- Overtreatment

Minimal invasive treatment ?

- Benign lesion
- Malignant lesion ?

- Premalignant lesions ???

- New paradigme
- New guideline
- Most studies

Take home message

- Clinical pathway/Parcours Patient
  - Faisability
  - Explanation
  - Device and guidance
  - Concordance +++
  - Follow up/Treatment
- Direct excision for ACR 3/4A
  - All in one
  - If benign : follow up
- Sampling for ACR 4BC and 5
  - Discussion for resection dependind histologic patern and patient
    - Interventionnal
    - surgery
- Success rate : 95 à 98 %

Take home message

- No imaging specificity for PML
- Histology correlation for all Birads 4 and 5 lesions
- PML prevalence out of DCIS
  - ADH 5 %
  - ALH/LCIS 0,9 to 2 %
- Under-estimation rate
    - ≈ 10 % VABB
    - ≈ 20 % LCNB
- PML refered for surgical excision
  - ALH ?...
- Present & Next Futur :
  - Minimal invasive therapy/ patient selection
    - Benign
    - Premalignant +/- ...?
    - and Malignant ??? Etude LORD