

CEM GUIDED BIOPSY IN PRONE POSITION experience with IMS-GIOTTO CLASS SYSTEM



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With courtesy of
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Florence-Italy



 RÉPUBLIQUE FRANÇAISE
 INSTITUT NATIONAL DU CANCER
 OCTOBRE 2021
 RECOMMANDATIONS ET RÉFÉRENTIELS
TRAITEMENTS LOCORÉGIONAUX DES CANCERS DU SEIN INFILTRANTS NON MÉTASTATIQUES
 / synthèse
 INCA OCTOBRE 2021
 SOCIÉTÉ FRANÇAISE DE SÉNÉLOGIE ET DE PATHOLOGIE MAMMAIRE

RECOMMANDATIONS

BILAN INITIAL

BILAN D'EXTENSION LOCALE

LÉGENDE

- conduites à tenir recommandées
- conduites à tenir non recommandées ou impossibilité d'émettre une recommandation par absence de données ou données insuffisantes

- Le groupe de travail rappelle que le bilan d'extension locale repose sur la mammographie bilatérale⁴ et l'ultrasonographie bilatérale.
- La tomosynthèse peut être proposée en complément de la mammographie bilatérale.
- En dehors des situations de tumeur de haut grade (Grade C) ou de tumeur à l'atteinte axillaire isolée, l'angiomammographie qui présente des performances quasi similaires à l'IRM, est une alternative dans les mêmes indications (Grade C). La place de l'IRM dans la situation de la chimiothérapie sera abordée dans une partie spécifique (partie 2 de l'expertise en collaboration).
- La densité mammaire, les critères histologiques, notamment le caractère lobulaire infiltrant (Grade C), ou une indication d'oncoplastie (Avis d'experts) ne sont pas des critères qui permettent à eux seuls de poser l'indication de l'IRM mammaire.

L'angiomammographie qui présente des performances quasi similaires à l'IRM, est une alternative dans les mêmes indications

pre-operative breast MRI/CESM indications Guidelines

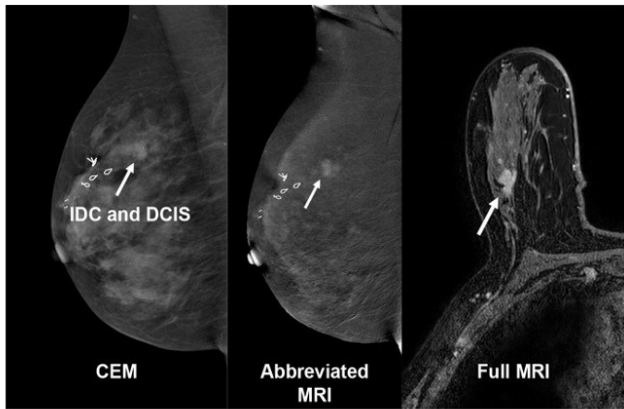
- Facteur de risque de cancer du sein
- Femme jeune
- Seins denses
- Difficulté à évaluer le volume tumoral
- Doute quant à l'existence de lésions additionnelles
- Suspicion d'extension au muscle pectoral/paroi thoracique
- Cancer lobulaire infiltrant
- CIS diagnostiqué sur biopsie de microcalcifications
- Maladie de Paget

Magnetic resonance imaging of the breast: Recommendations from the EUSOMA working group

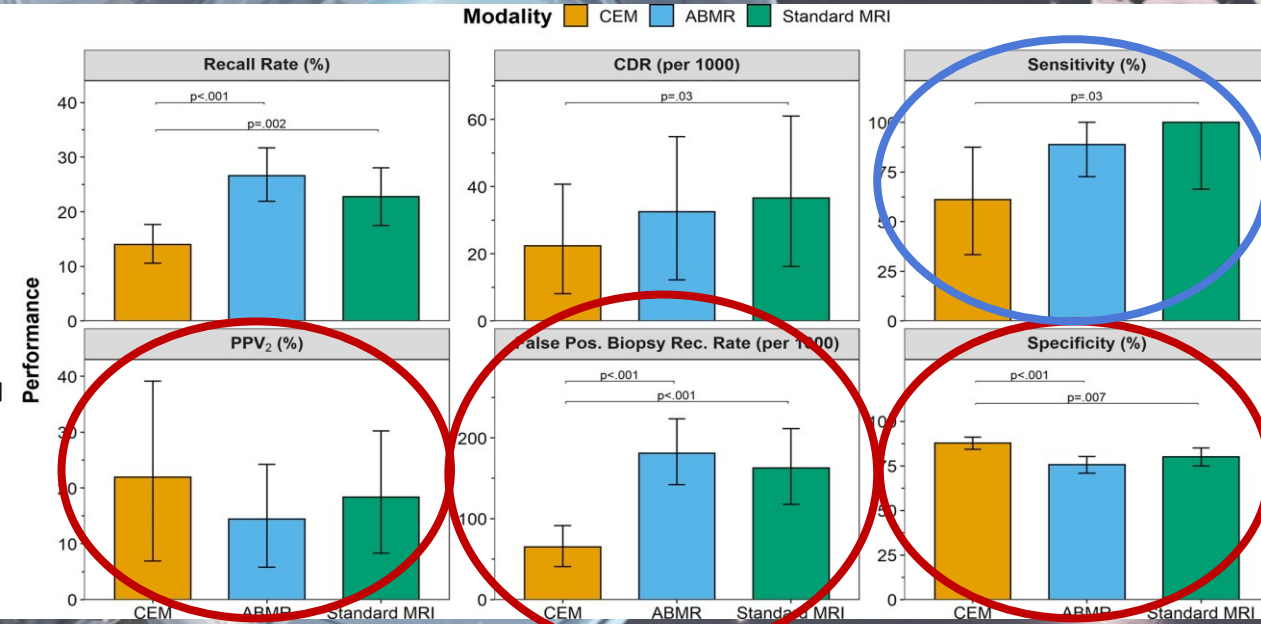
EUROPEAN JOURNAL OF CANCER 46 (2010) 1296–1316

- breast dense
- < 40 y
- High Risk patient > 20%
- Skin sparing mastectomy
- HER2+ and triple negative lesion
- multiple or bilaterale lesion
- DCIS unifocal (additional lesion ?)
- NAC

Comparative Performance of Contrast-enhanced Mammography, Abbreviated Breast MRI, and Standard Breast MRI for Breast Cancer Screening



- Prospective study of 246 participants who had breast MRI and CE mammography.
- Compared with MRI, CE mammography had lower recall (difference, -9%), lower false-positive biopsy recommendation (-98 per 1000 examinations), and higher specificity (difference, 8%).
- CE mammography was less sensitive (difference, -39%) and had lower cancer detection rate (difference, -14) compared with standard MRI.

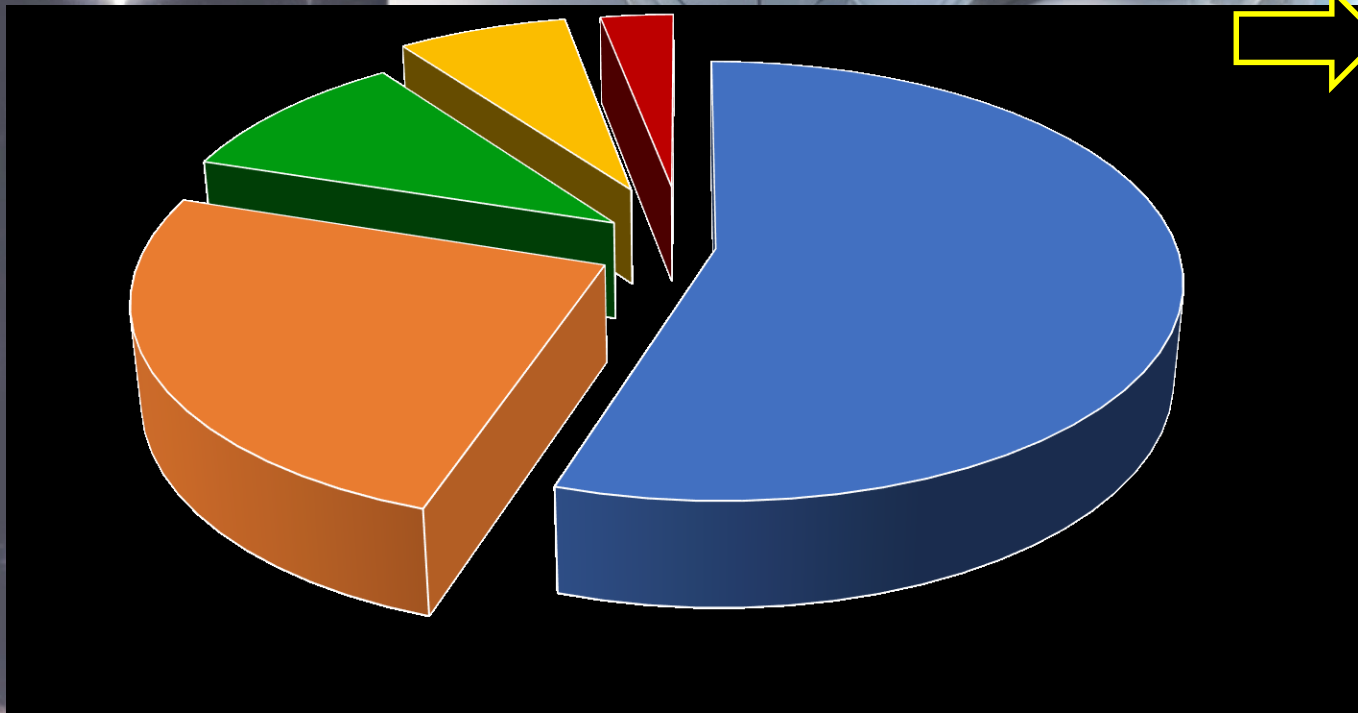


Bar charts of each performance metric summarize examination-level performance by modality, with *P* values indicating significant differences. ABMR = abbreviated breast MRI, CDR = cancer detection rate, CEM = contrast-enhanced mammography, PPV₂ = positive predictive value 2 (of biopsy recommendation).



CAREGGI : from September 2016
OVER 7500 CEM EXAMS

N°5967 CEM



- Pre-operative Staging
- Suspicious Findings
- NAC Monitoring
- Post-operative
- Others Indications

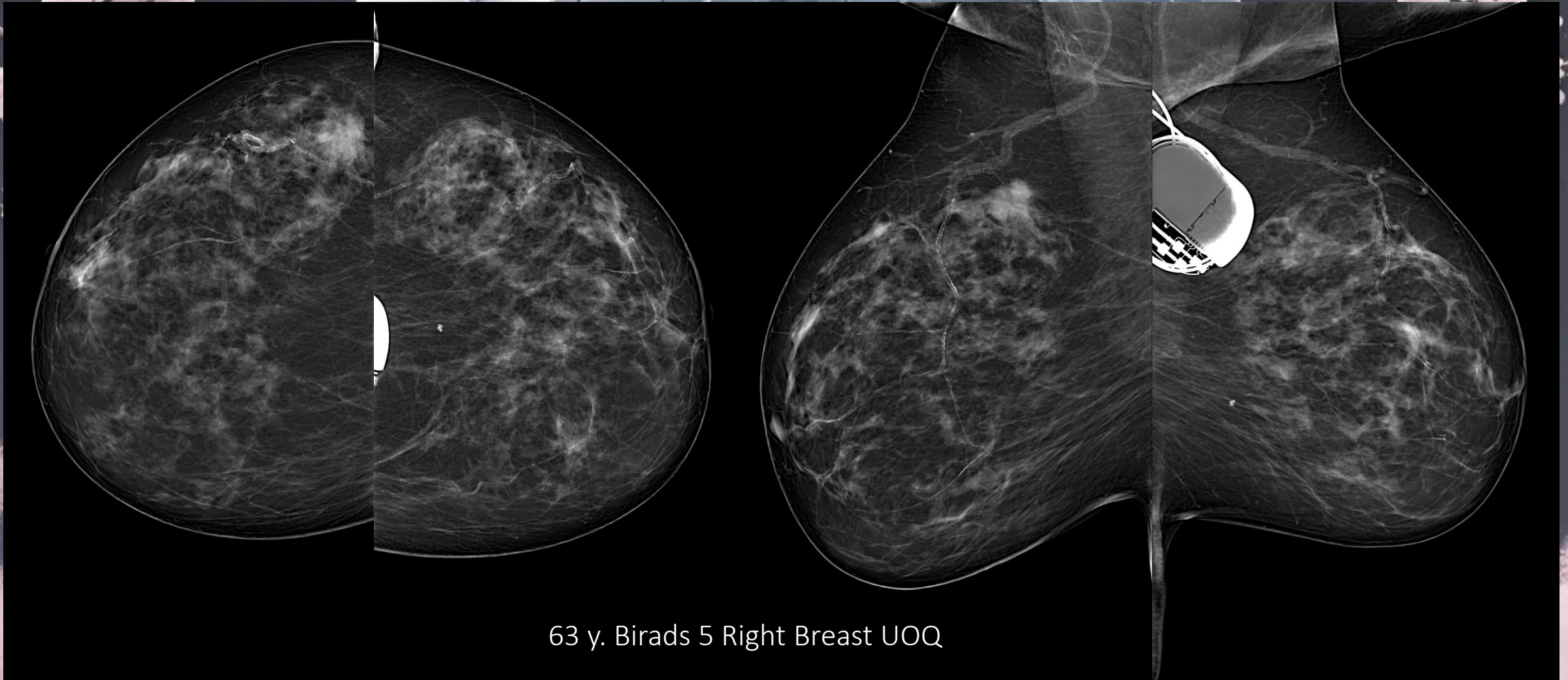
23% of patients: CEM ADDITIONAL LESIONS



Combined second-look imaging DBT + US identified 91.2% of additional lesions that turned out to be malignant at final histology

Second-look imaging

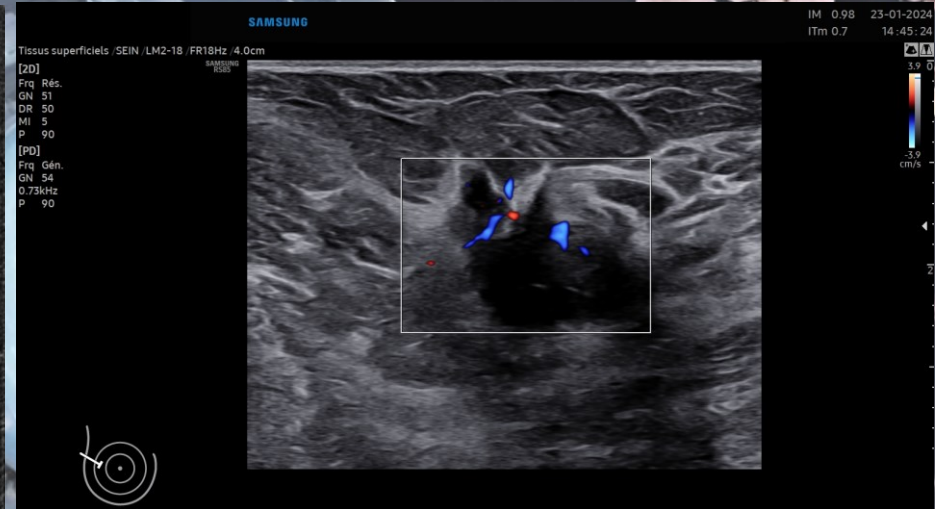
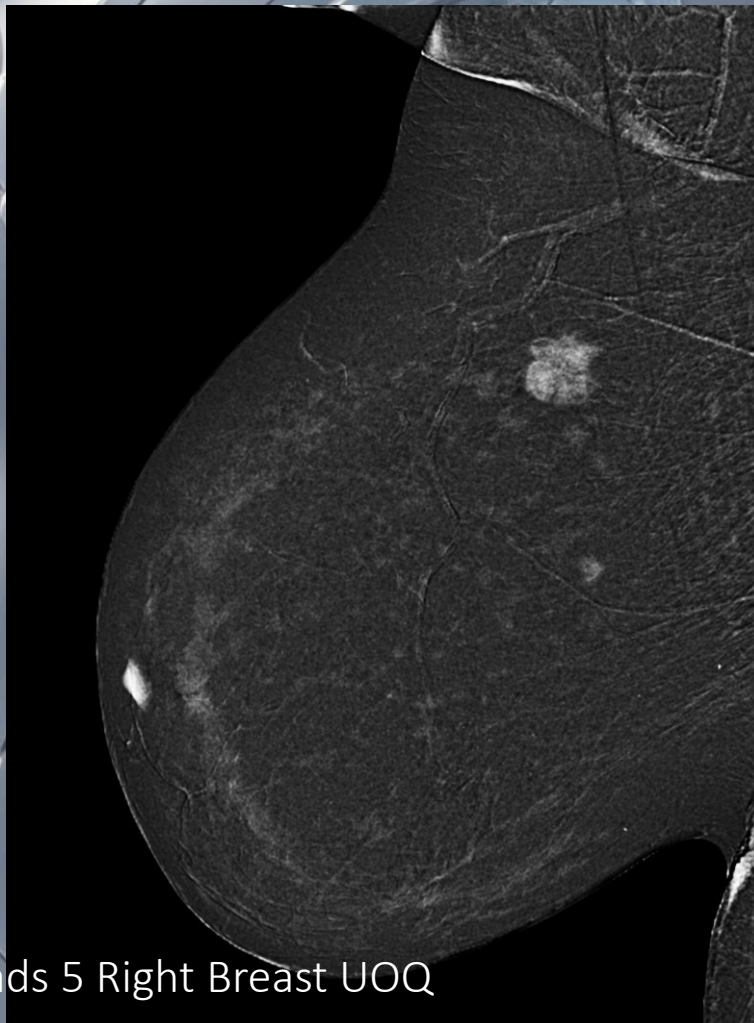
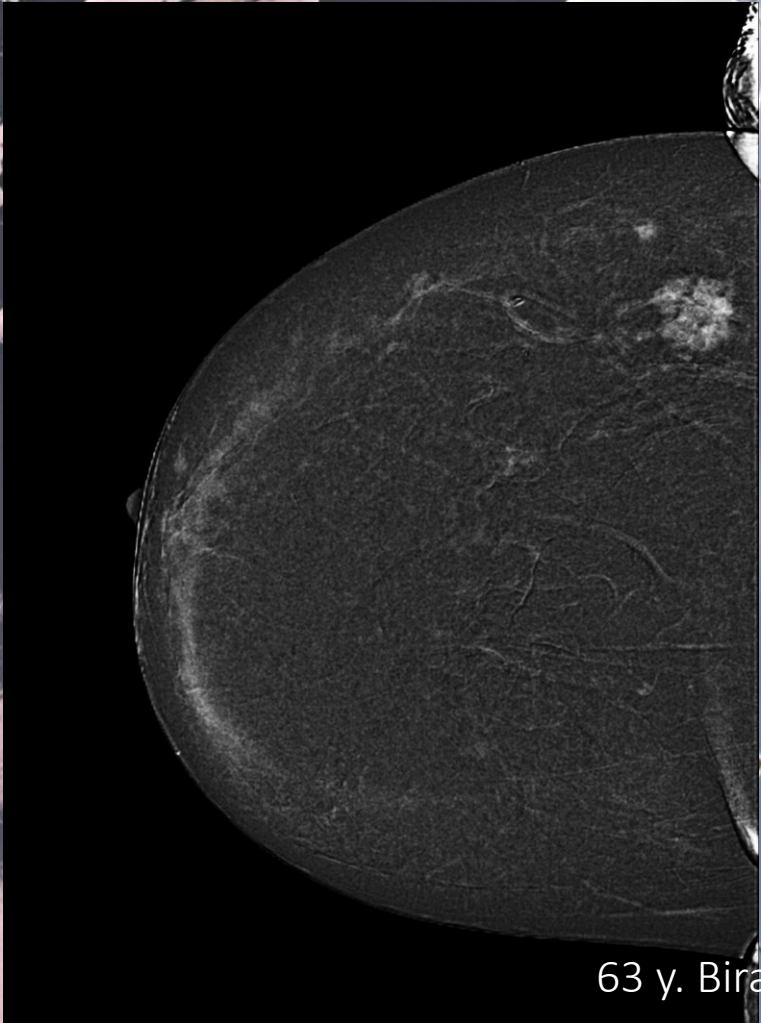
ECHOGRAPHIE



63 y. Birads 5 Right Breast UOQ

CEM

US



63 y. Birads 5 Right Breast UOQ

SAMSUNG RS85

SAMSUNG

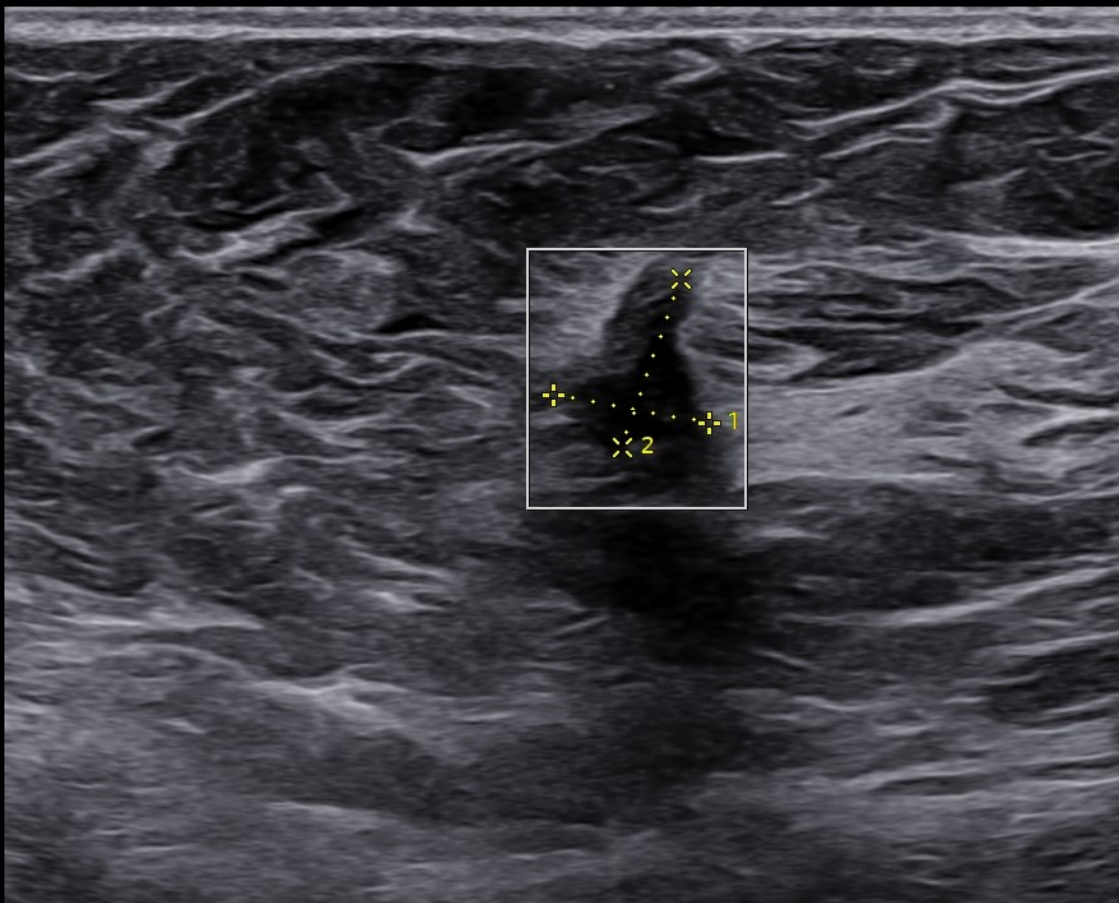
IM 1.0 23-01-2024
ITm 0.3 14:49:30

Tissus superficiels / SEIN / LM2-18 / FR71Hz / 4.0cm

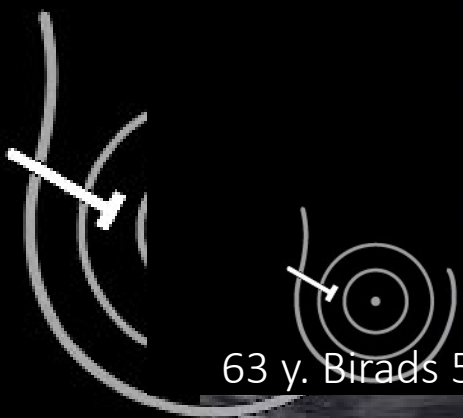
[2D]

Frq Rés.
GN 51
DR 50
MI 5
P 100

SAMSUNG RS85



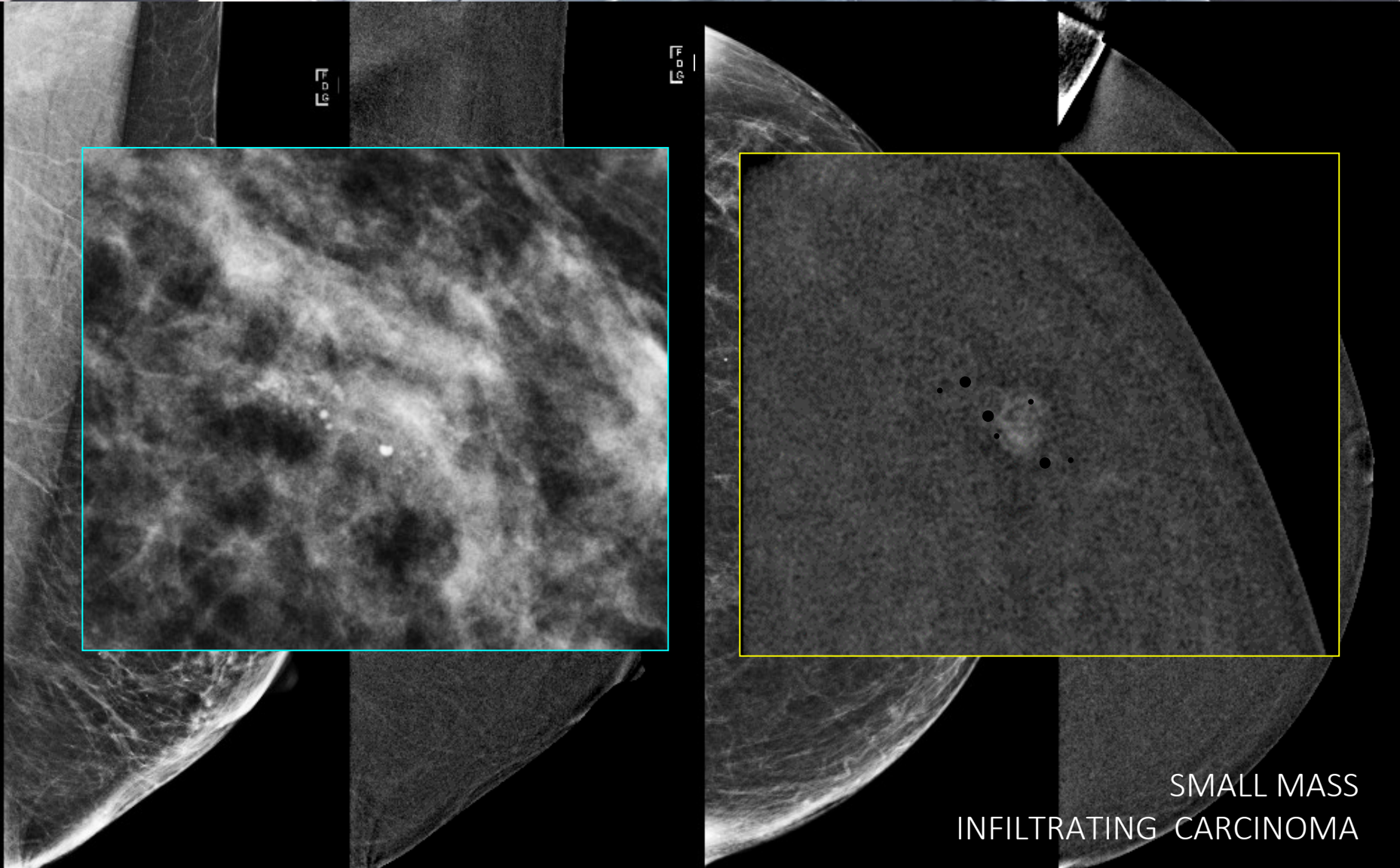
D1 0.70 cm
D2 0.79 cm



63 y. Birads 5 Right Breast Bifocal

Second-look imaging

TOMOSYNTHESIS



SMALL MASS
INFILTRATING CARCINOMA

Pre-surgical Staging CEM second look



for the remaining **8.8%** MRI OR CEM-guided biopsies
will be the ONLY POSSIBLE solution

décembre 2019
première biopsie du sein guidée par angio-mammographie à l'IGR

Editorial > [Eur Radiol.](#) 2023 Jan;33(1):414-416. doi: 10.1007/s00330-022-09196-2.

Epub 2022 Oct 31.

Contrast-enhanced mammography-guided biopsy: why, when, and where we need it

[Simone Schiaffino](#)¹, [Andrea Cozzi](#)²

> [Eur Radiol.](#) 2023 Jan;33(1):417-428. doi: 10.1007/s00330-022-09021-w. Epub 2022 Jul 27.

Contrast-enhanced mammography-guided biopsy: technical feasibility and first outcomes

[R Alcantara](#)^{# 1}, [M Posso](#)², [M Pitarch](#)³, [N Arenas](#)³, [B Ejarque](#)³, [V Iotti](#)^{# 4}, [G Besutti](#)^{5 6}

Clinical Trial > [AJR Am J Roentgenol.](#) 2023 Jun;220(6):826-827. doi: 10.2214/AJR.22.28780.

Epub 2023 Feb 1.

Contrast-Enhanced Mammography-Guided Breast Biopsy: Single-Center Experience

[Anat Kornecki](#)¹, [Mousumi Bhaduri](#)², [Nasir Khan](#)³, [Ilanit Ben Nachum](#)¹, [Giulio Muscedere](#)¹, [Olga Shmuilovich](#)¹, [Kalan Lynn](#)¹, [Eni Nano](#)¹, [Lily Blyth](#)⁴

12 to 66 lesions

> [Quant Imaging Med Surg.](#) 2023 Aug 1;13(8):5349-5354. doi: 10.21037/qims-23-137.

Epub 2023 Jun 5.

Contrast-enhanced mammography-guided biopsy: technique and initial outcomes

[Ya-Chun Tang](#)^{1 2}, [Yun-Chung Cheung](#)^{1 2}

> [J Breast Imaging.](#) 2023 Mar 20;5(2):148-158. doi: 10.1093/jbi/wbac096.

Contrast-enhanced Mammography-guided Biopsy: Initial Trial and Experience

[Aneta Kowalski](#)¹, [Dooman Arefan](#)¹, [Marie A Ganott](#)¹, [Kimberly Harnist](#)¹, [Amy E Kelly](#)¹, [Amy Lu](#)¹, [Bronwyn E Nair](#)¹, [Jules H Sumkin](#)¹, [Adrienne Vargo](#)¹, [Wendie A Berg](#)¹, [Margarita L Zuley](#)¹

> [J Clin Med.](#) 2024 Feb 6;13(4):933. doi: 10.3390/jcm13040933.

Contrast-Enhanced Mammography-Guided Biopsy: Preliminary Results of a Single-Center Retrospective Experience

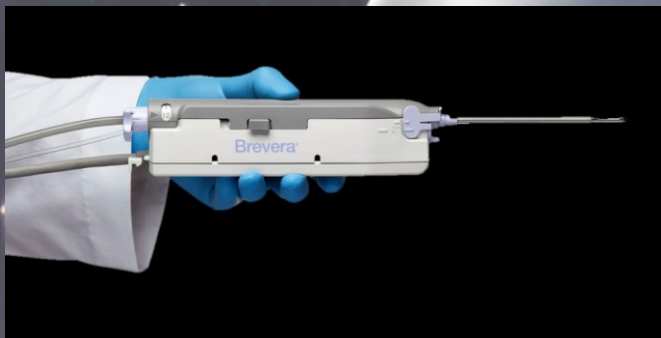
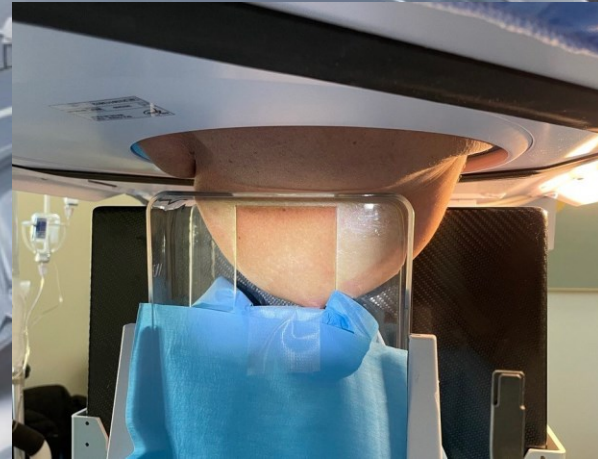
[Matteo Sammarra](#)¹, [Claudia Lucia Piccolo](#)¹, [Marina Sarli](#)¹, [Rita Stefanucci](#)¹, [Manuela Tommasiello](#)¹, [Paolo Orsaria](#)², [Vittorio Altomare](#)³, [Bruno Beomonte Zobel](#)^{1 4}

CEM GUIDED BIOPSY: our experience with GIOTTO CLASS PRONE TABLE



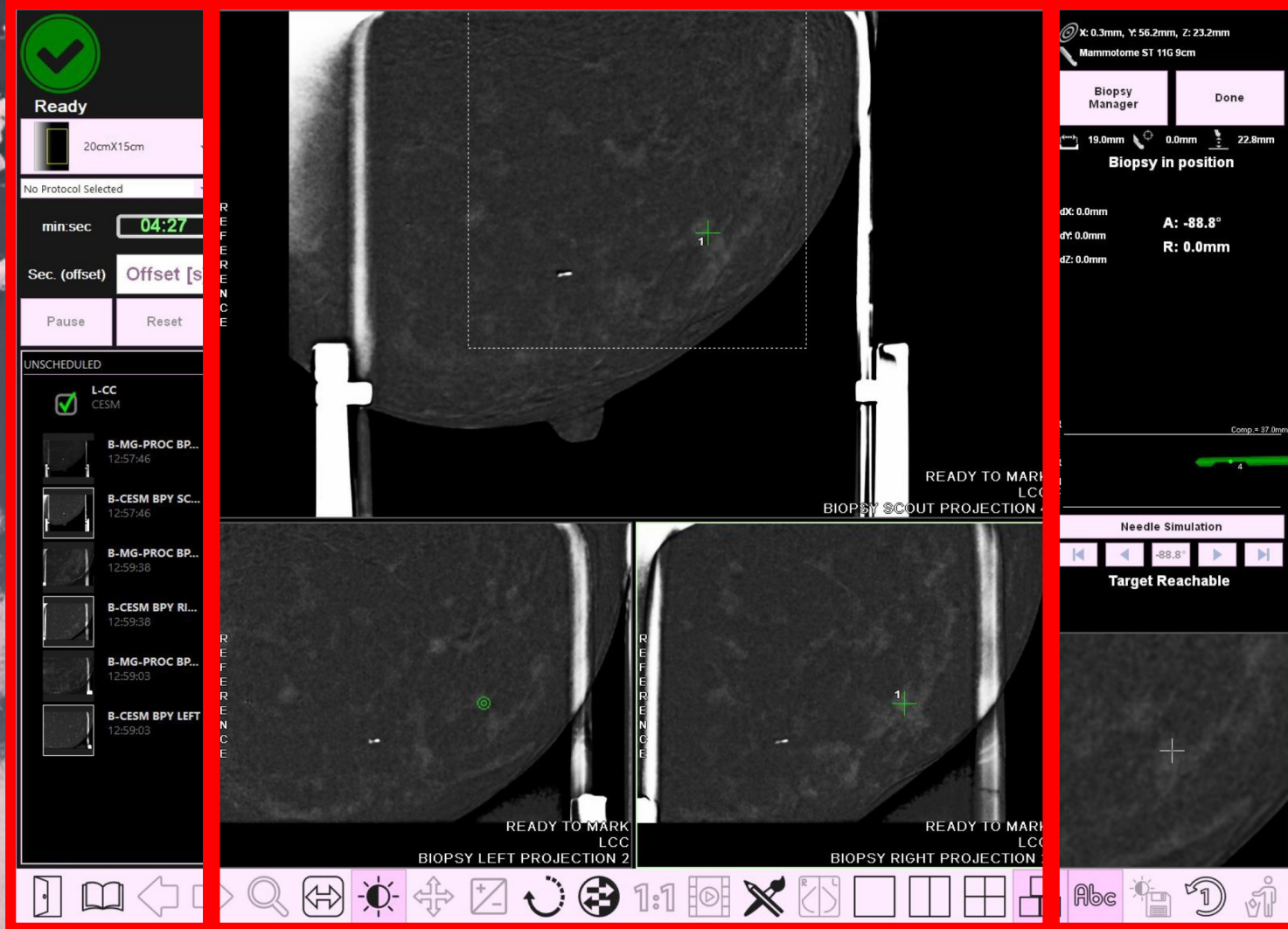
MAIN FEATURES

- Wide biopsy field (11 x 15 cm);
- Multiple available approaches:
vertical, angled, and lateral
- Compatible with all commercial vacuum biopsy



OPERATOR INTERFACE SYSTEM

Raffaello software : easy to use



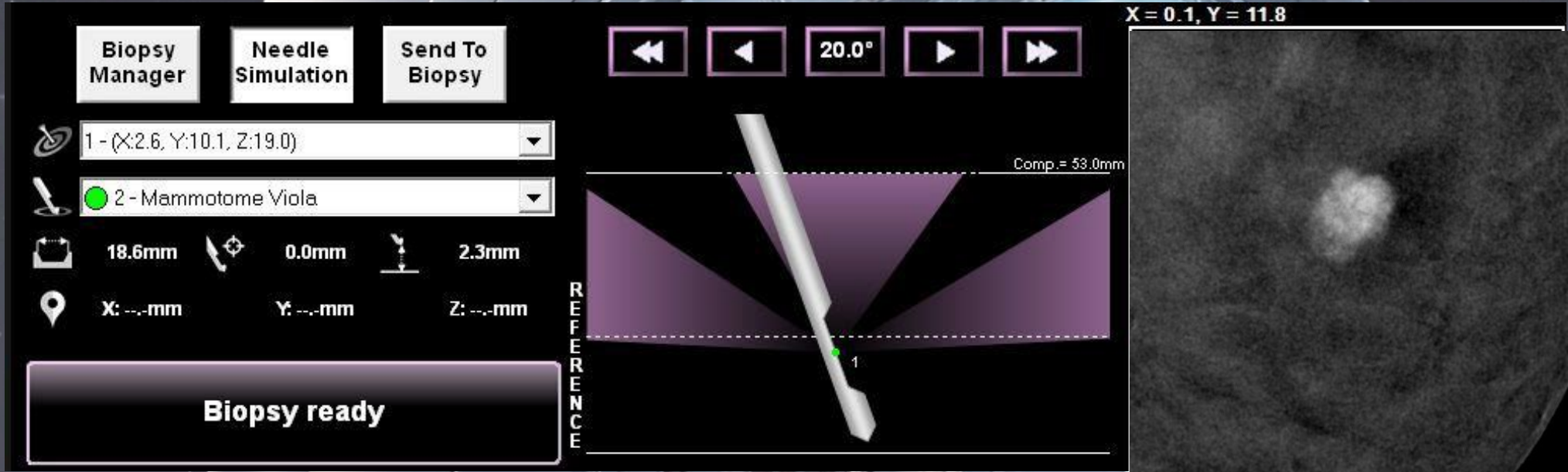
The screenshot displays the Raffaello software interface. On the left, a sidebar shows a 'Ready' status with a green checkmark, a 20cmX15cm field of view, and a timer set to 04:27. Below this is a list of 'UNSCHEDULED' protocols, including 'L-CC CEM' and several 'B-MG-PROC BP...' and 'B-CESM BPY...' entries. The main area features a large ultrasound image with a green crosshair and a '1' marker. To the right, a 'Biopsy Manager' panel shows 'Biopsy in position' with coordinates (dx: 0.0mm, dy: 0.0mm, dz: 0.0mm) and angles (A: -88.8°, R: 0.0mm). Below this is a 'Needle Simulation' control with a play button and a '-88.8°' angle, and a 'Target Reachable' indicator. A bottom toolbar contains various navigation and tool icons.

Historical images of the study

Needle positioning interface

Active study images

NEEDLE POSITIONING INTERFACE



Biopsy Manager Needle Simulation Send To Biopsy

1 - (X:2.6, Y:10.1, Z:19.0)

2 - Mammotome Viola

18.6mm 0.0mm 2.3mm

X: ---mm Y: ---mm Z: ---mm

Biopsy ready

20.0°

Comp. = 53.0mm

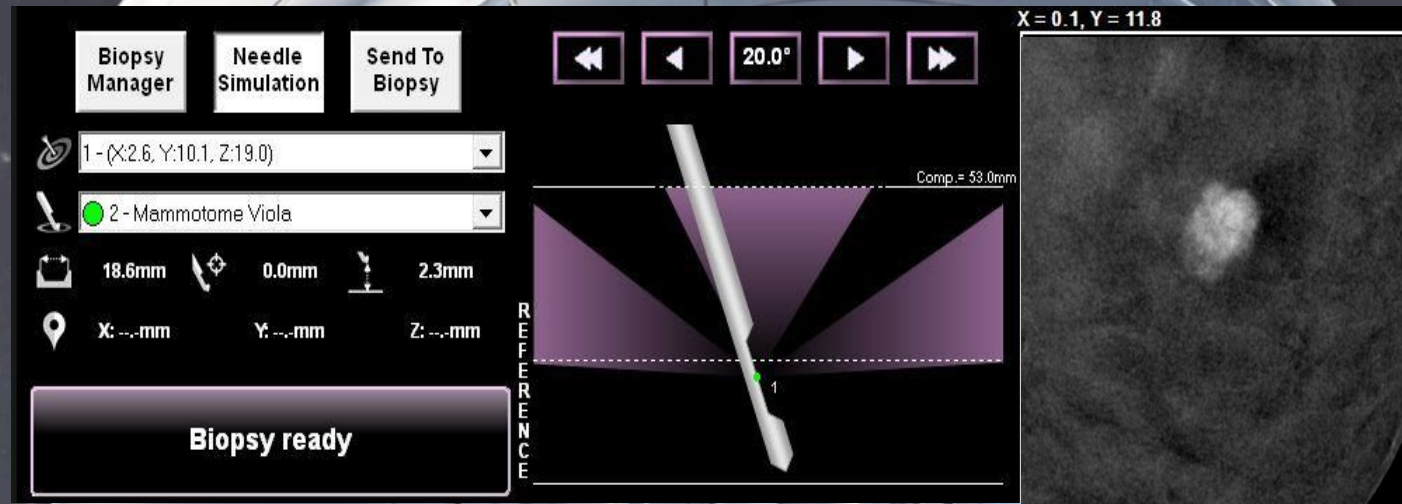
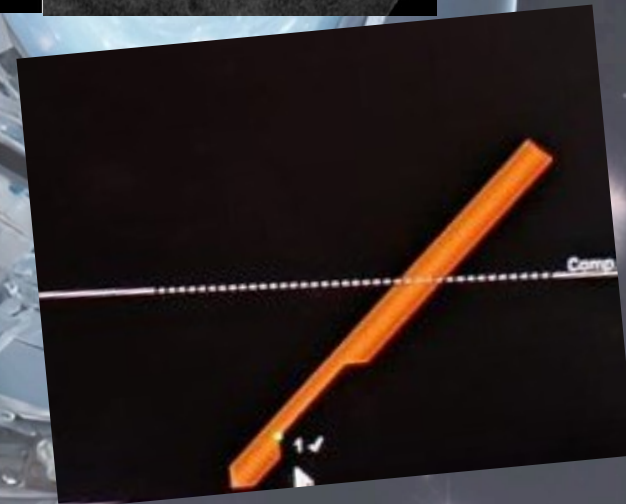
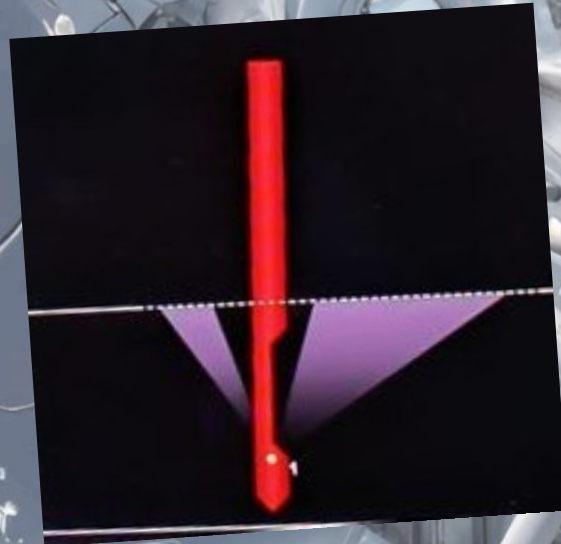
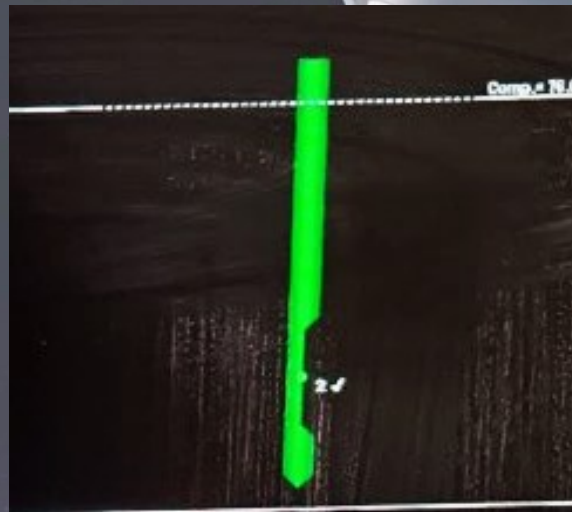
REFERENCE

X = 0.1, Y = 11.8

NEEDLE SIMULATION

optimal range of biopsy driver angles → best approach to the lesion

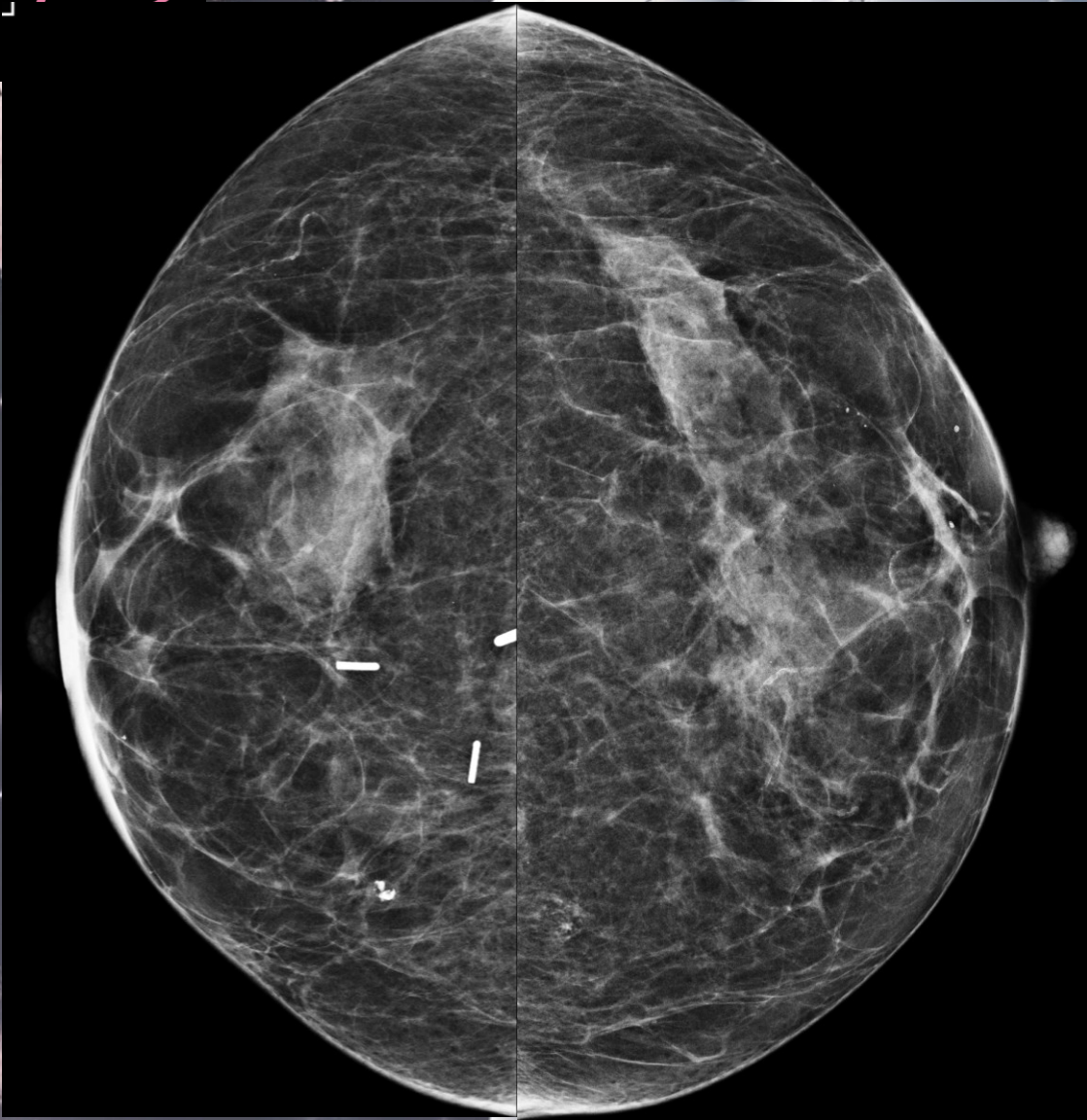
NEEDLE POSITIONING INTERFACE

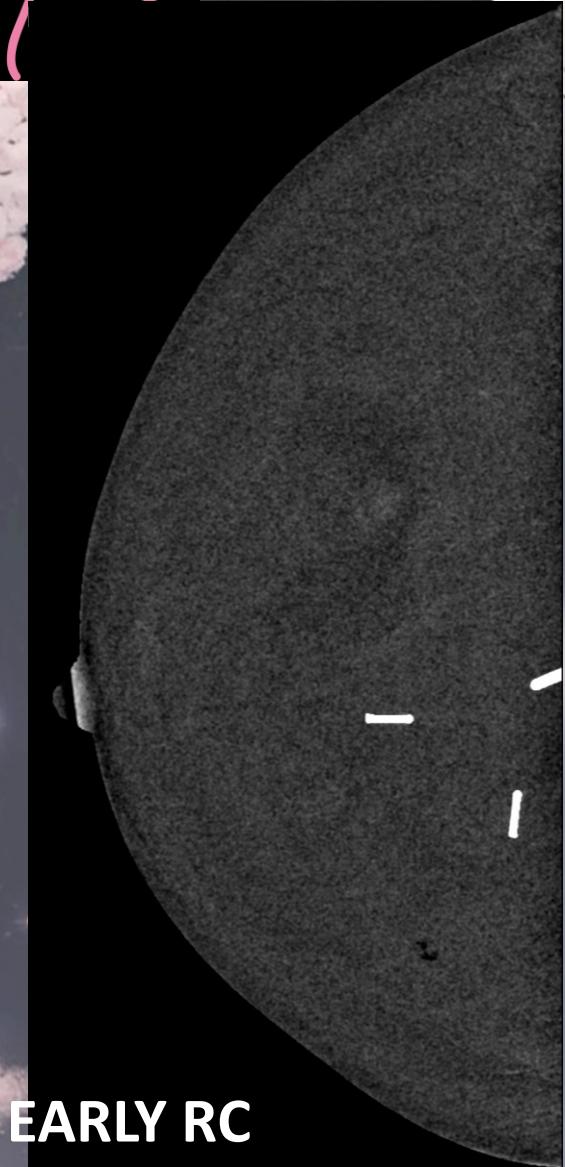



optimal range of biopsy driver angles → best approach to the lesion

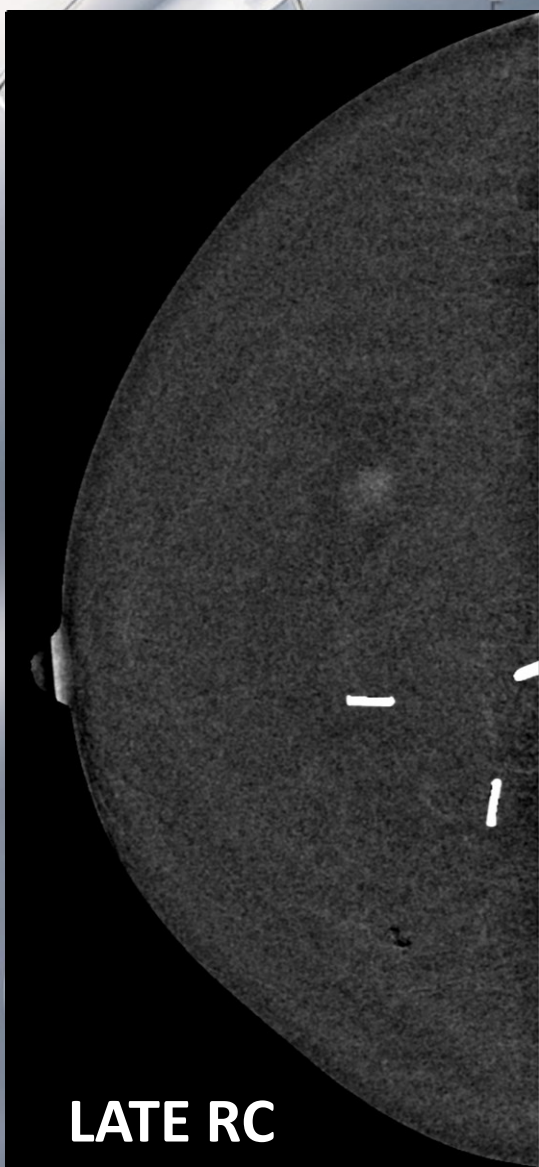
CAS 1 : CC STANDARD APPROACH

Patiente de 65 ans, antécédent de tumorectomie droite.
Asymétrie focale de densité QSE Droit sur mammo de contrôle.
Indication d'angiomammographie

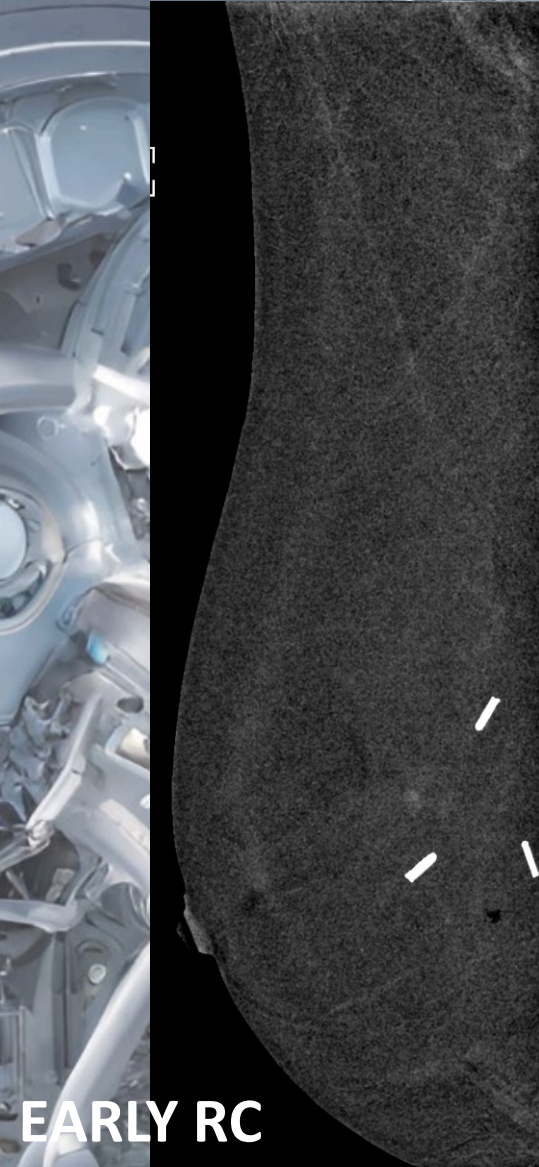




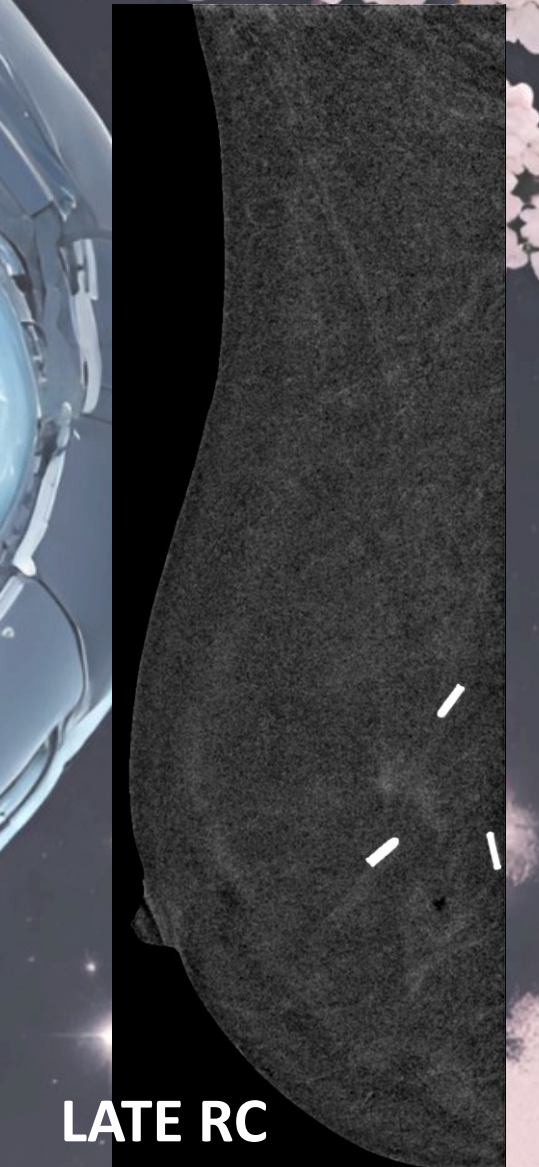
EARLY RC



LATE RC



EARLY RC



LATE RC

Patient preparation



Recent and
past medical
history
(history of
allergies, severe
adverse
reactions...)



Creatinine
value for
renal function
assessment

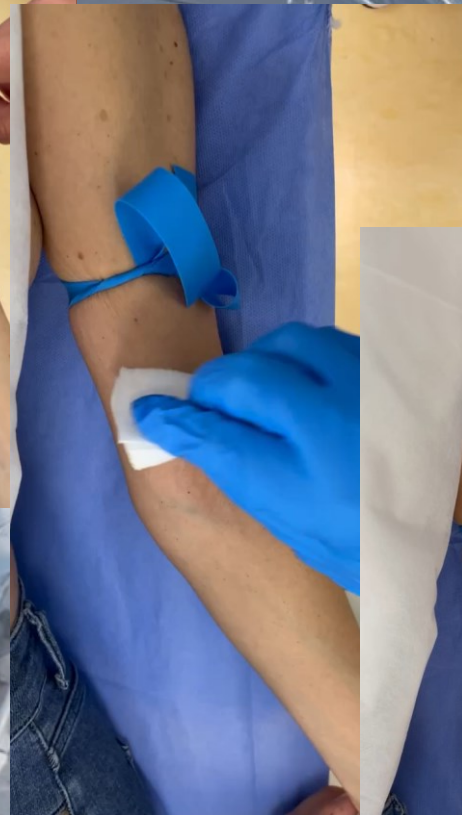
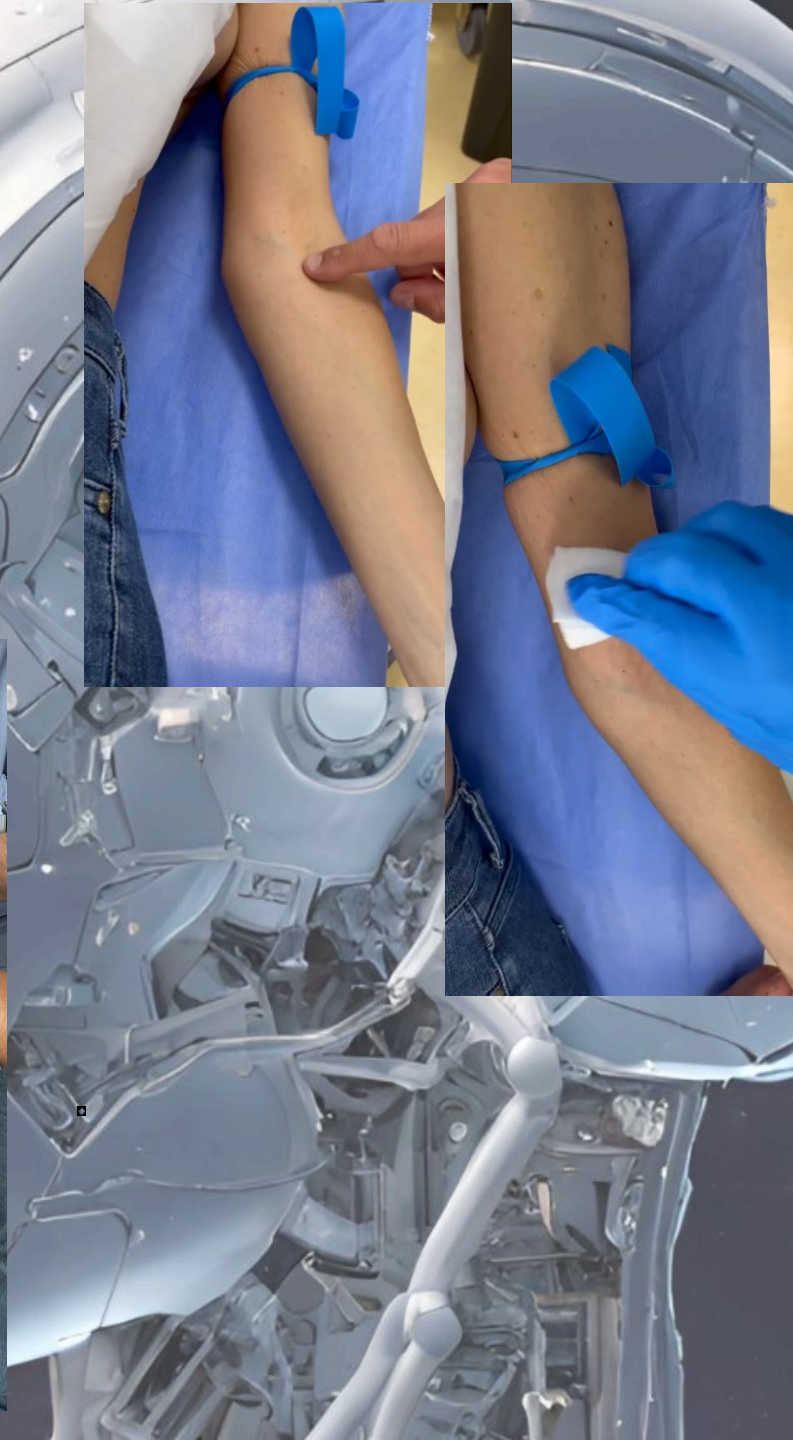


Informed
Consent



Venous
access

Venous access

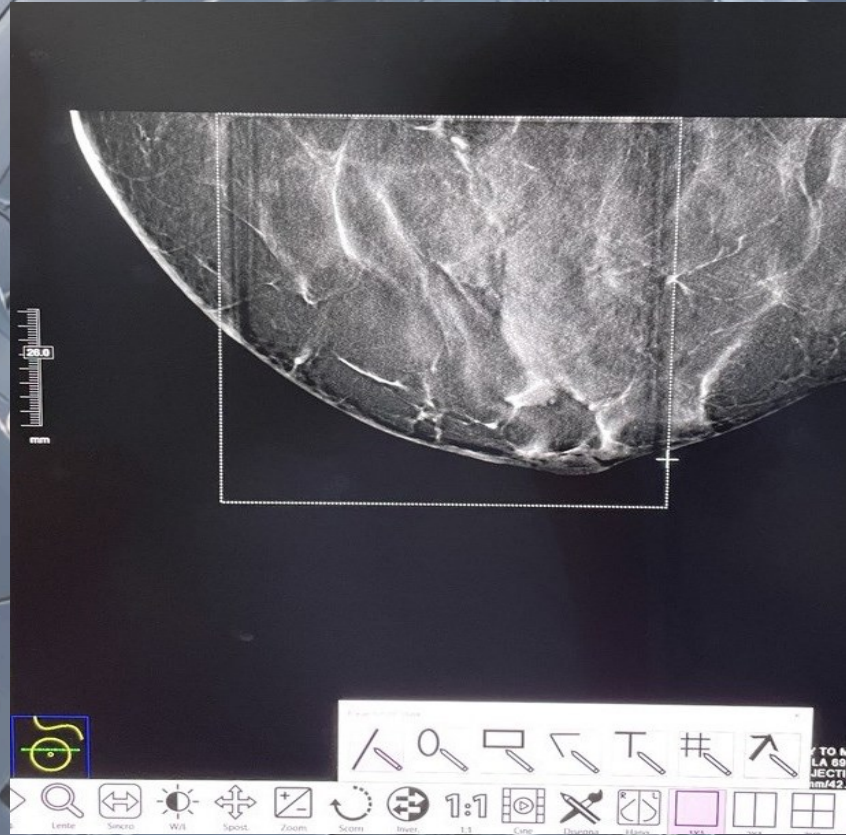


Patient positioning





First check





Acquisition :

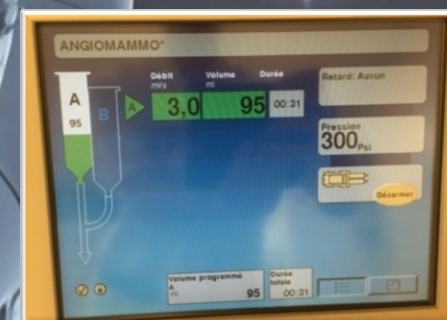
2 mn after IV

Simultaneous acquisition High & low energy images

Delay 2 s between 2 acquisitions

Automated recombination

Total exam time : 8-10 mn



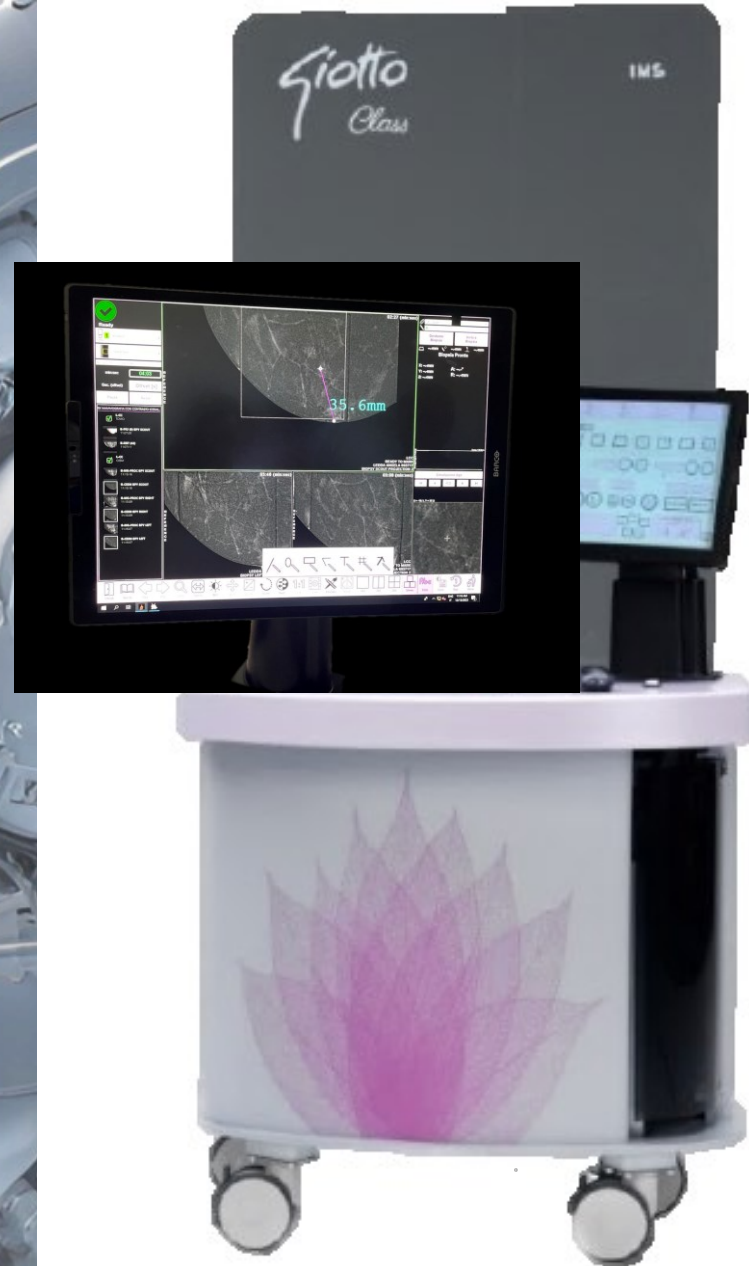
Decompression/ Contrast Injection



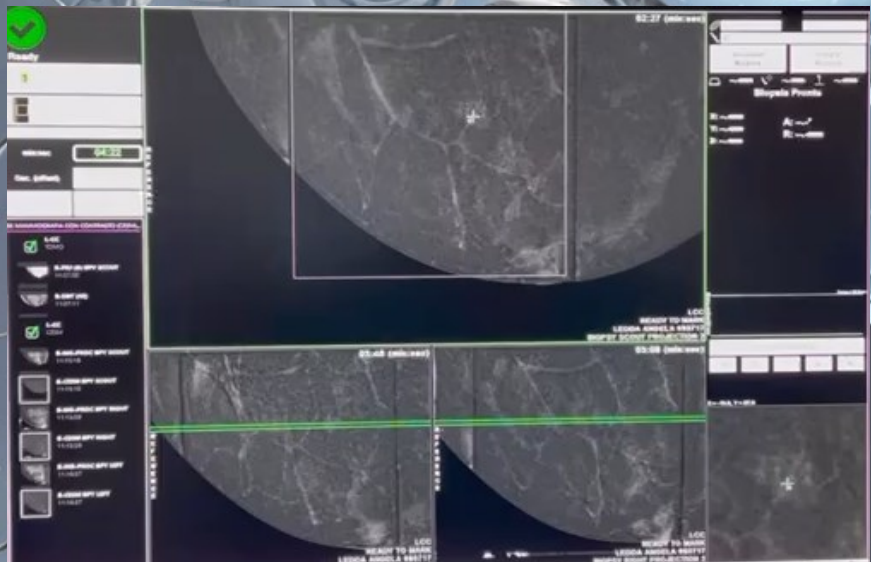
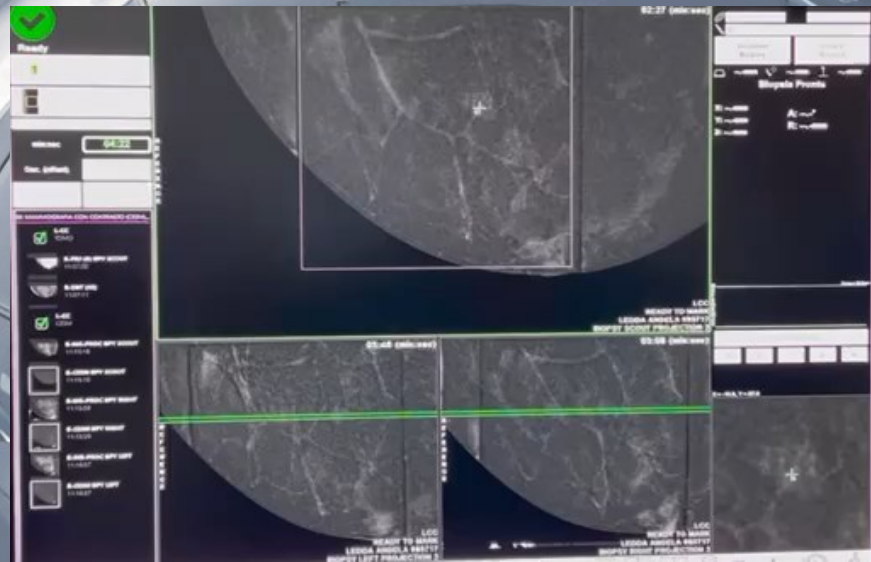
- MDC: non-ionic iodinated contrast (300-400 mg/ml), injected intravenously (antecubital vein of the contralateral arm to the suspected breast) to a patient sitting
- INJECTION: 18 G needle, 1.5 ml/Kg, 3 ml /sec.
 - An automatic injector is preferable (for injection of contrast medium and subsequent 20 mL saline solution)

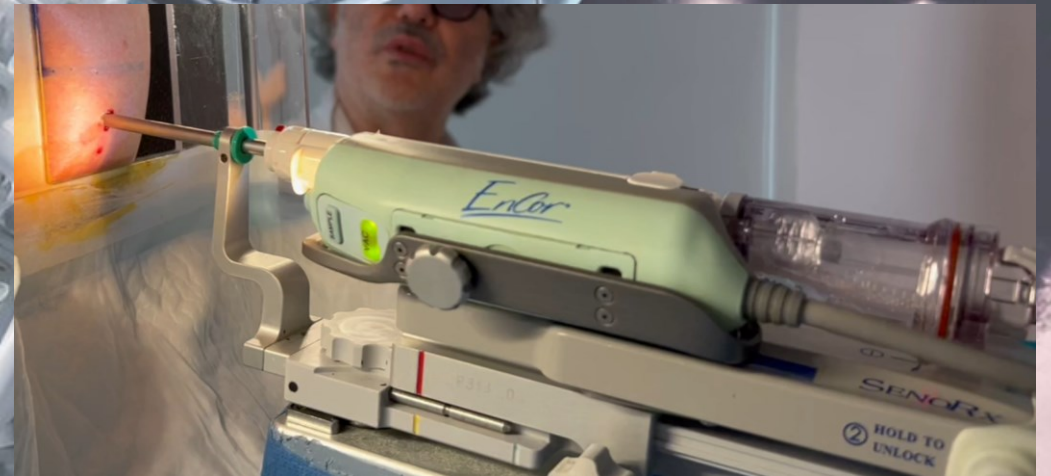
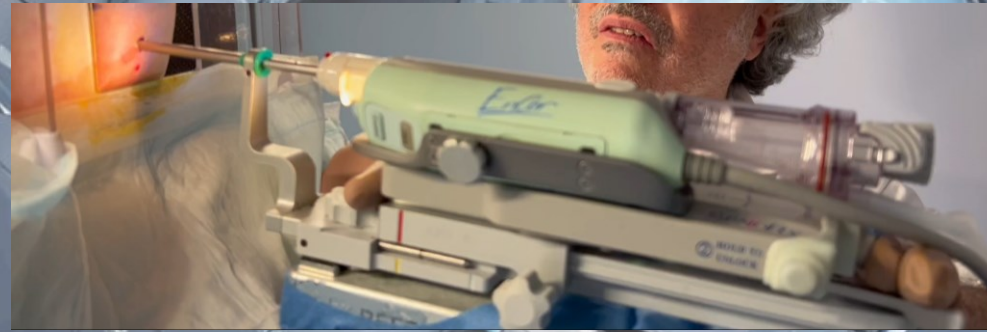


Compression/ Dual-Energy Acquisition



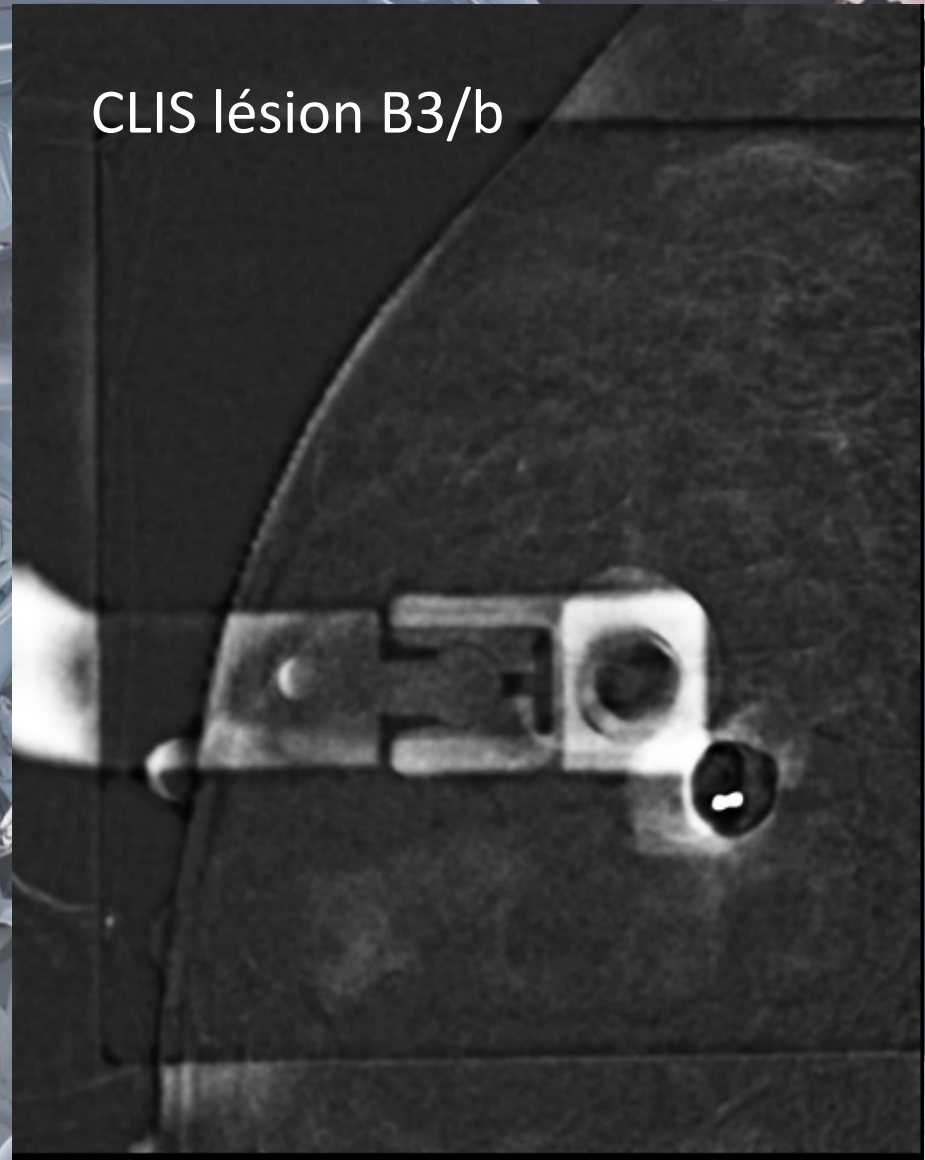
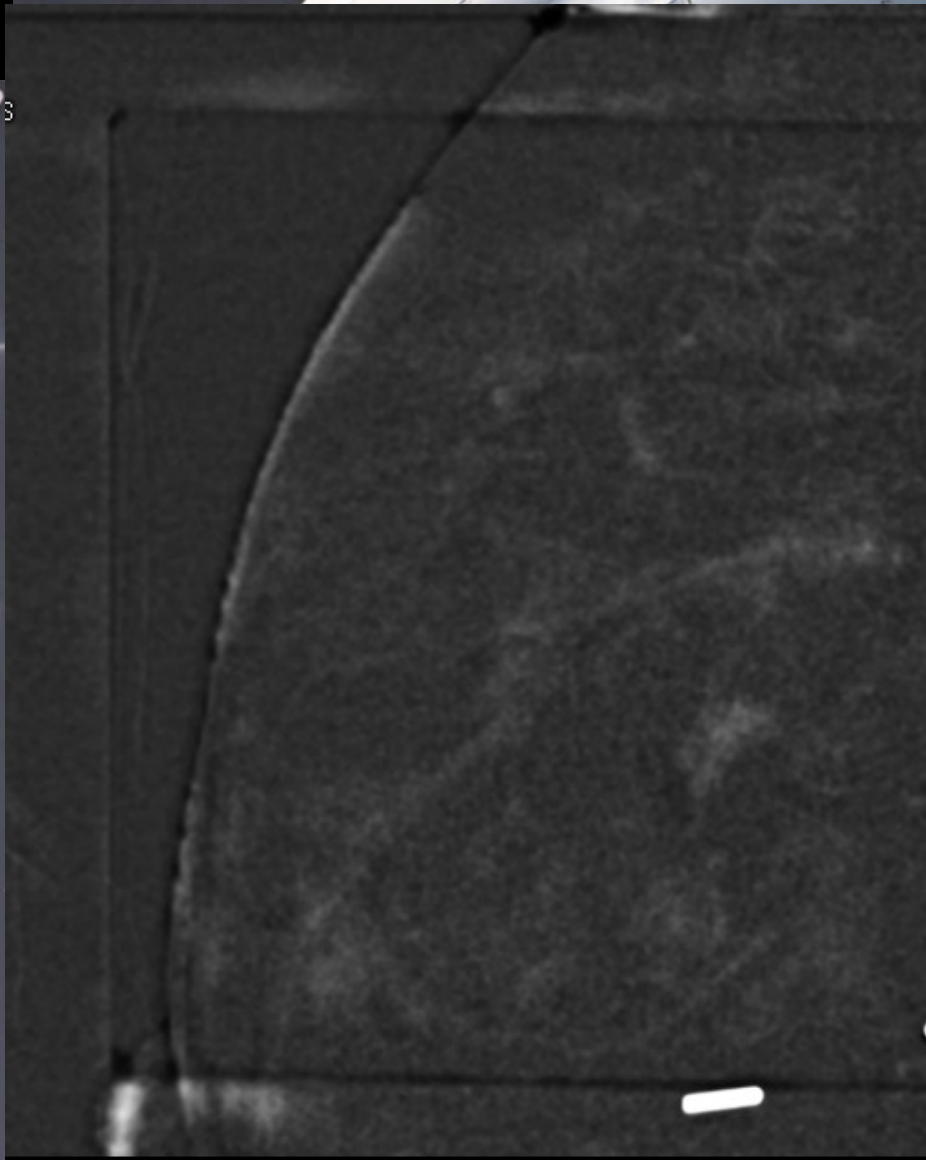
Targeting/ Selecting needle





Biopsy
(anesthesia and
sample collecting)





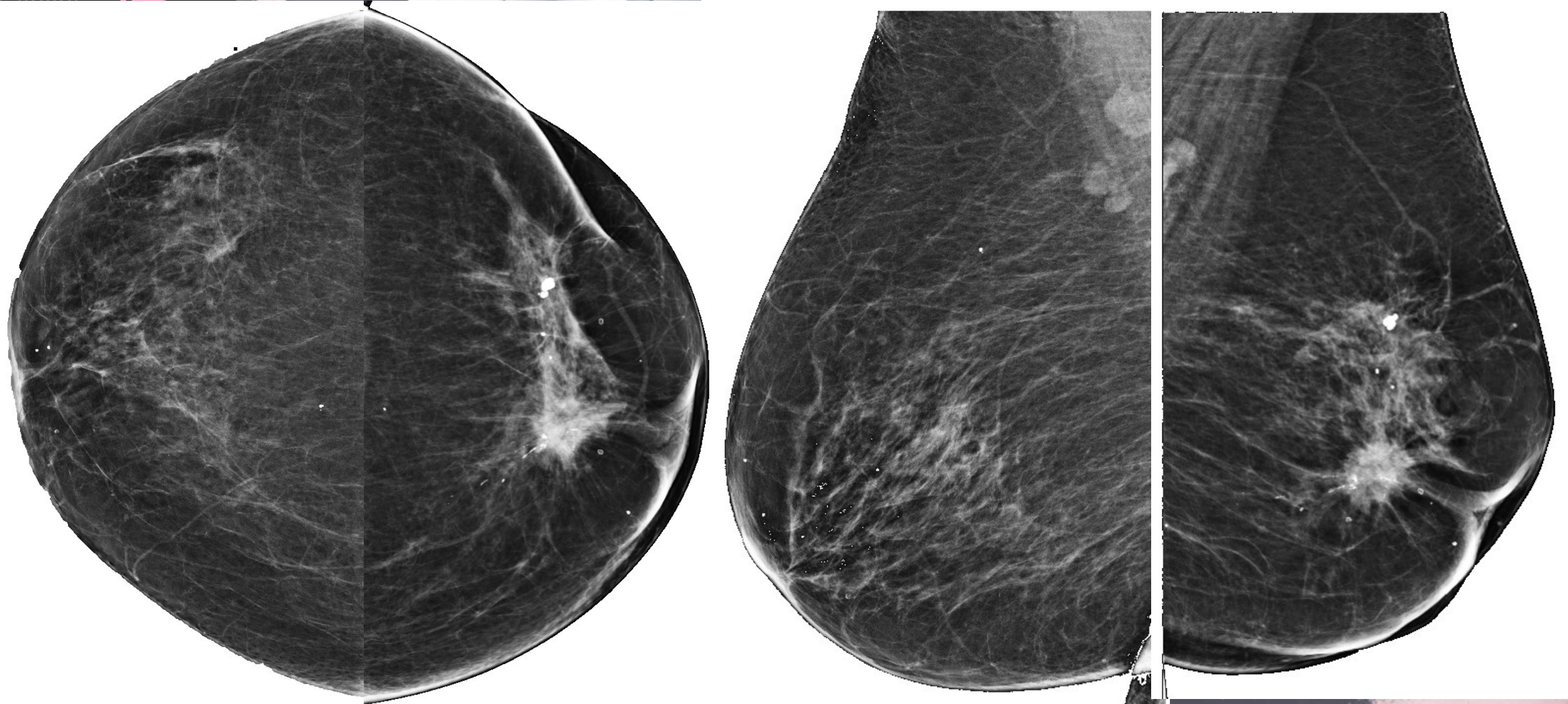
CLIS lésion B3/b

CASE 2 : LATERAL APPROACH :

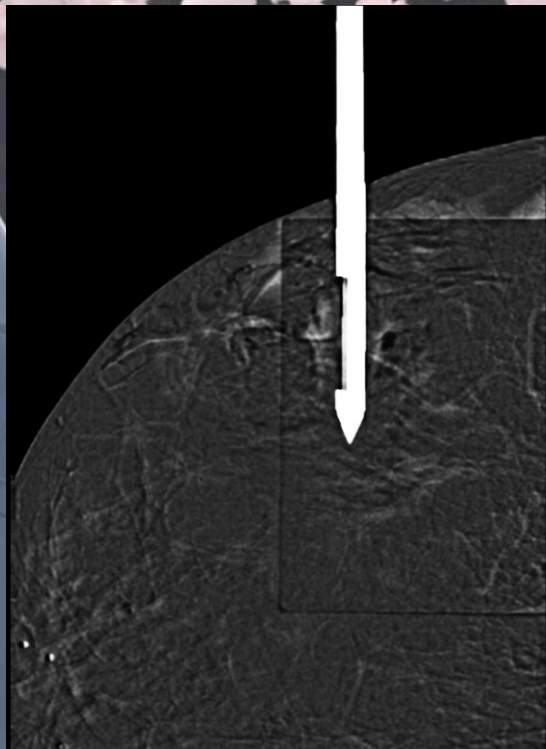
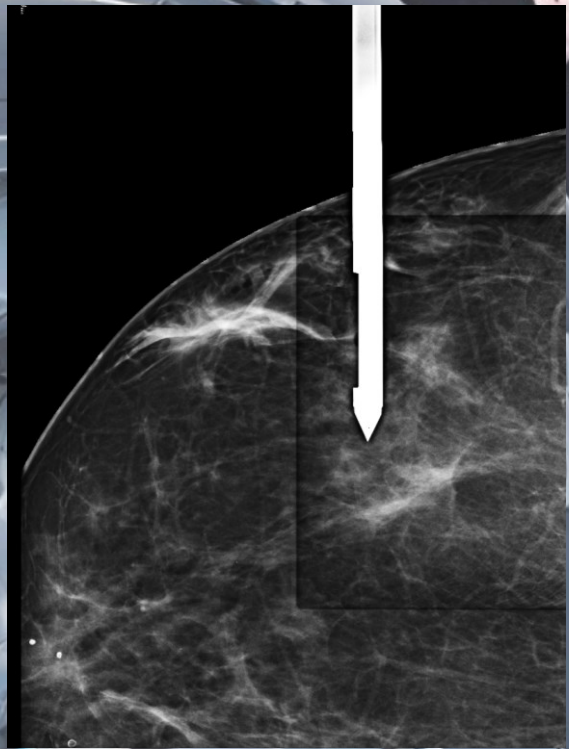
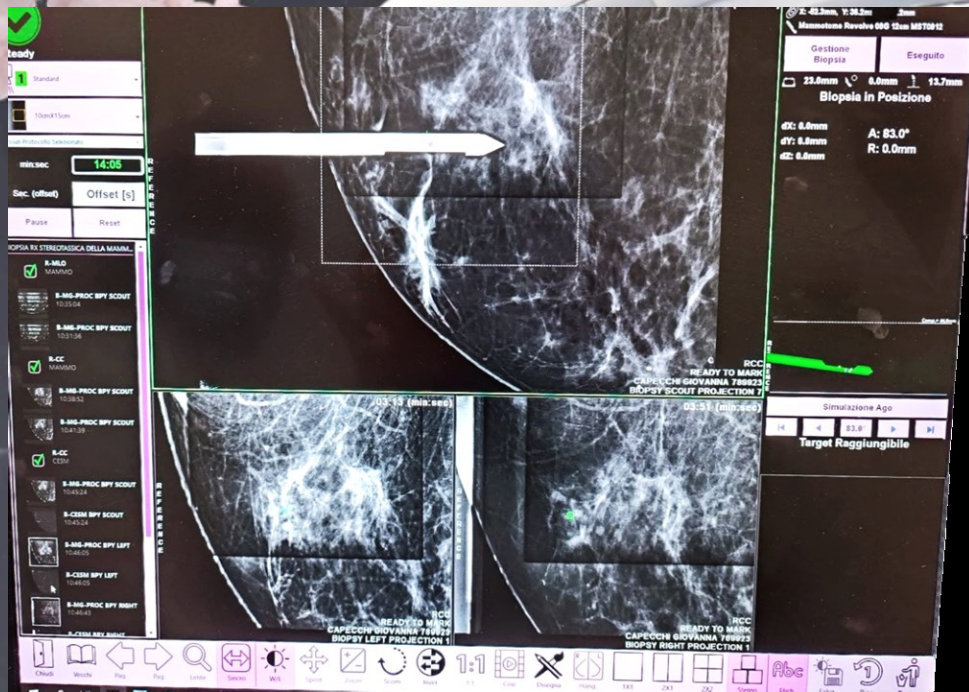
Patiente de 58 ans, CCI sein gauche.

N+.

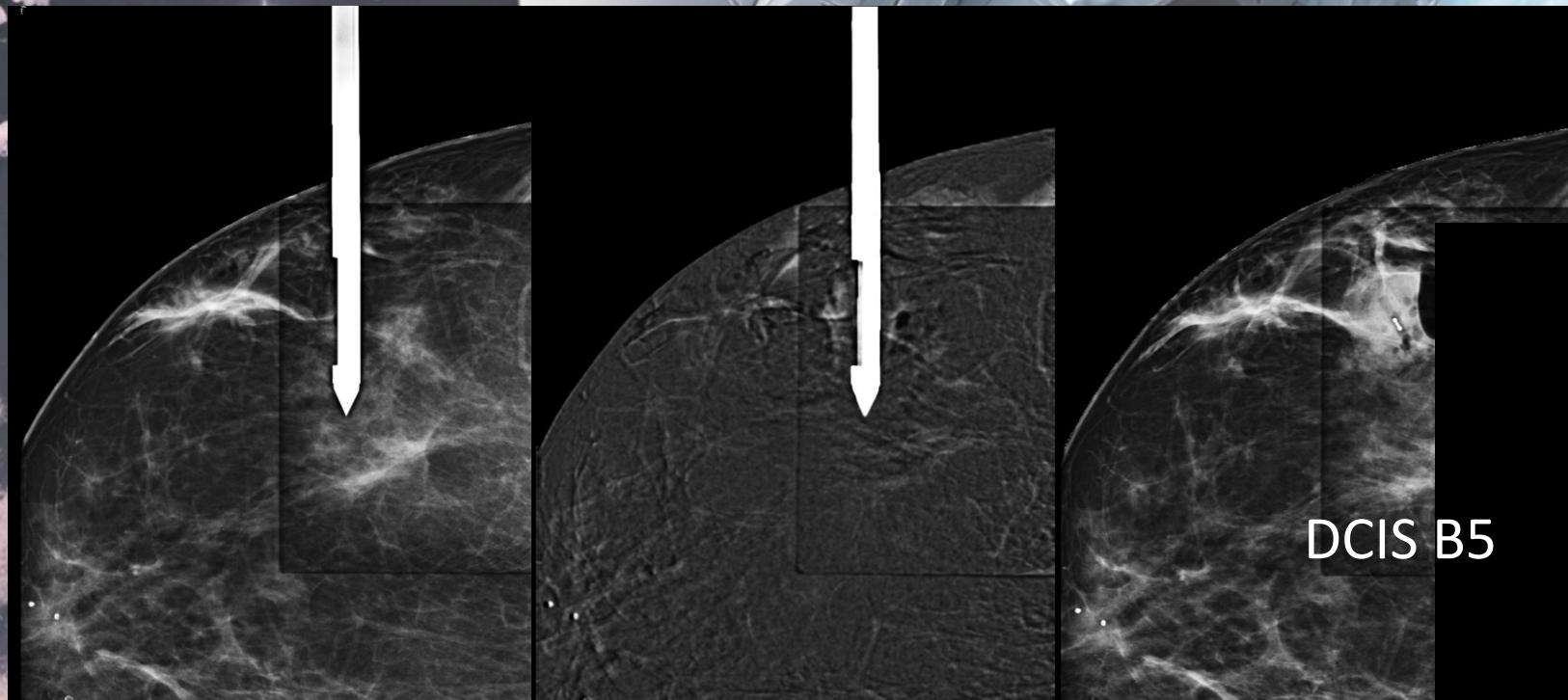
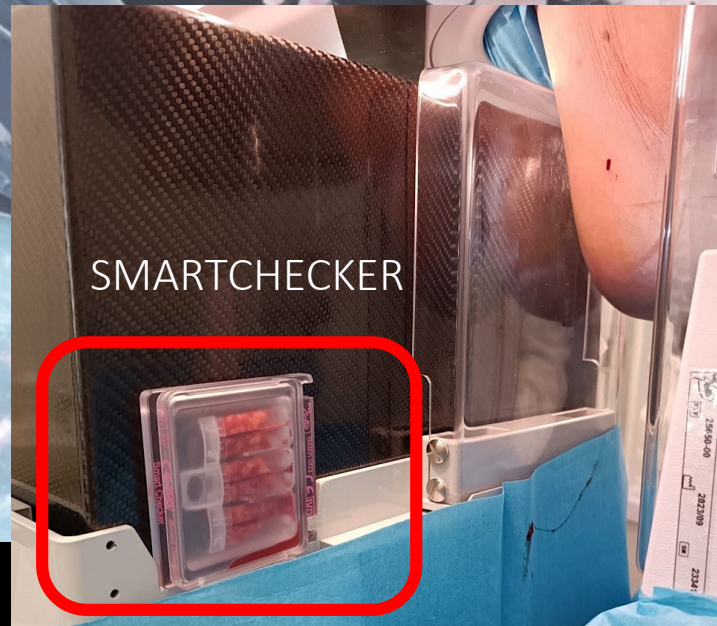
Bilan pré thérapeutique







Accès latéral sans bras accessoire



DCIS B5



Conclusion & messages à retenir

- **Biopsie sous angiommographie (CEM)**
 - Alternative à la biopsie sous IRM
 - Technique = Stéréotaxie + CEM
 - Rapide
 - Accessible
 - Visualisation de la cible par CEM
 - Plus spécifique, PPR ++, moins de Faux –
 - Partage de l'information plus facile : RCP
- Second look US et TBD 3D : > 90% des cibles
- **Position allongée (prone position):**
 - **Confort patient +++ et médecin**
 - Salle hybride Giotto Class
 - 2D, 3D TBD, Angiomammographie
 - Biopsie sous stereo, Tomo, Angiomammographie
 - Adaptable à toutes les aiguilles

**BREAST
CANCER
UPDATE
4TH EDITION**

BCU
BREAST CANCER UPDATE

SO/UPTOWN HOTEL
UPTOWN TOWER, UPTOWN, 214686

DUBAI-UAE

**PROMOTING WOMEN'S HEALTH THROUGH
A MULTIDISCIPLINARY APPROACH**

**SAVE THE DATE
JAN 23-26
2025**

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HENRI HARTMANN



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SIFEM 2025
12 > 14 JUIN | CNIT FOREST PARIS



CORINNE BALLEYGUIER & ISABELLE THOMASSIN-NAGGARA

Responsabilité

Eco responsabilité

Sein / Gynecologie

Personnalisation

Innovations

Risque

Eco soins