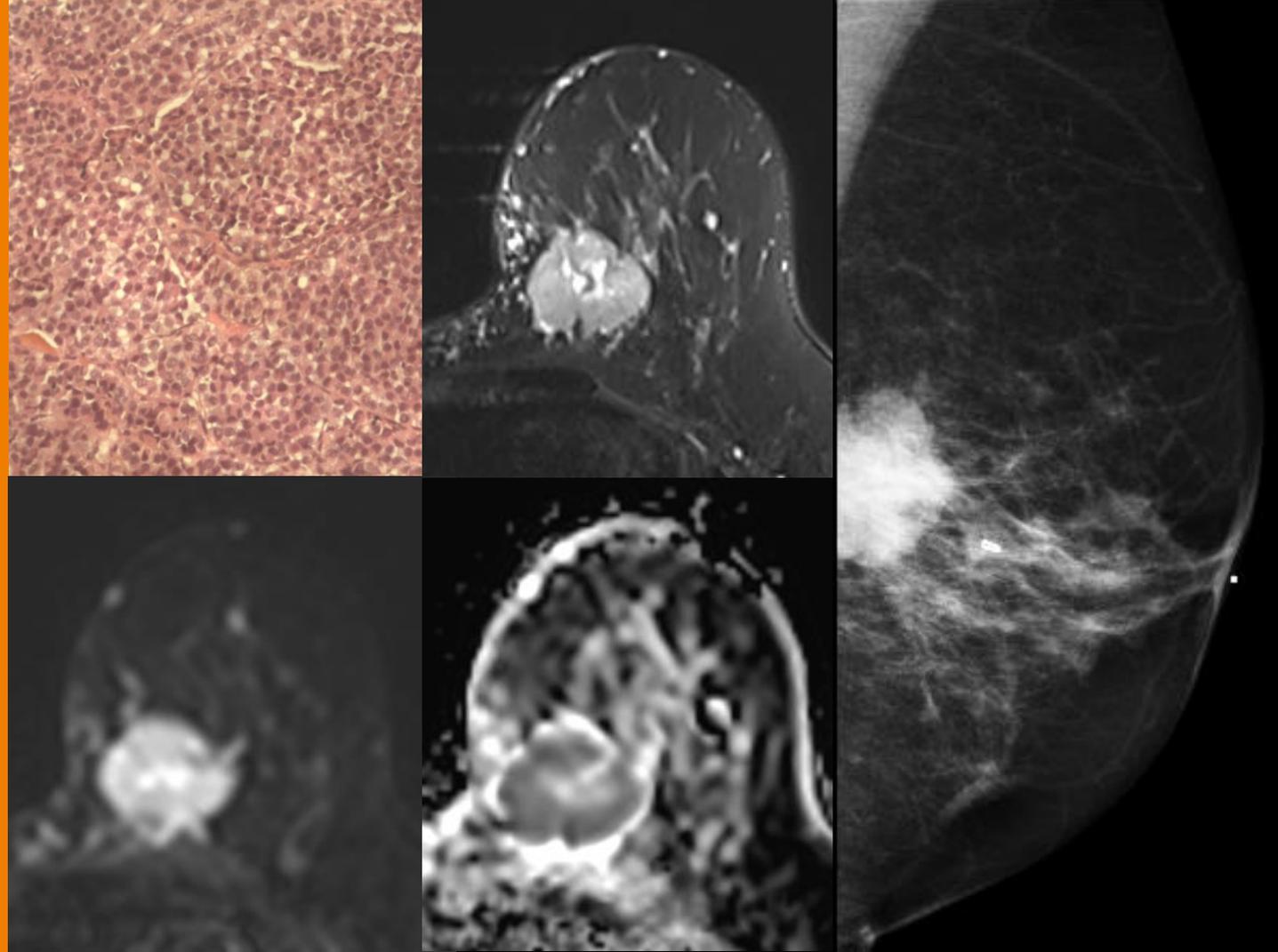


Caroline Malhaire

13 Juin 2025

# Correlations Radio- Histologiques



Institut  
des **Cancers** des  
**Femmes**

by  
institut  
**Curie**

PSL  
UNIVERSITÉ PARIS

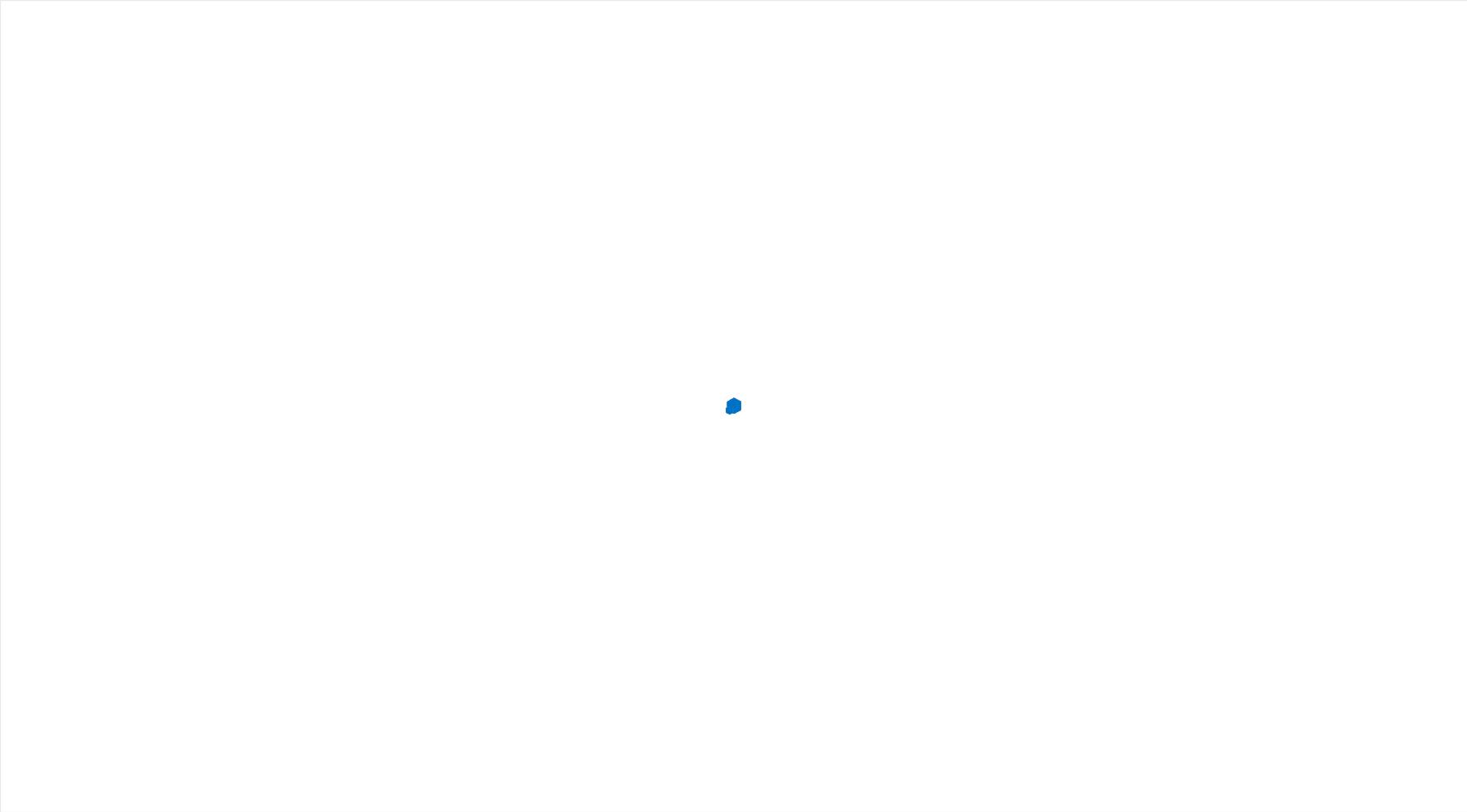
Inserm  
La science pour la santé  
Vers un meilleur traitement

Soutenu  
par

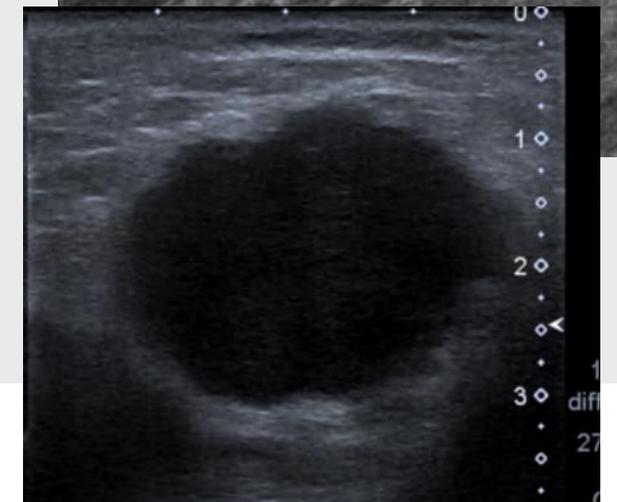
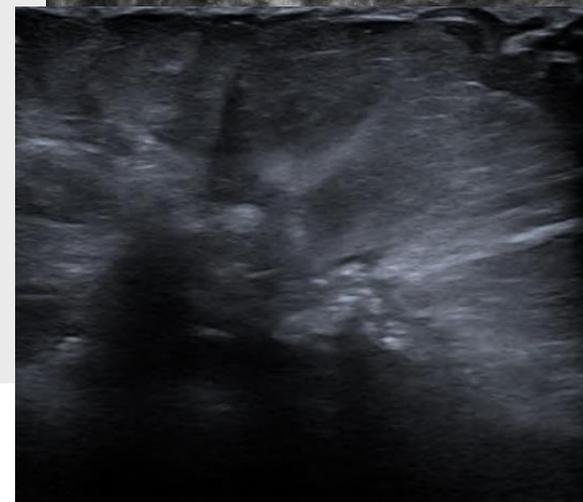
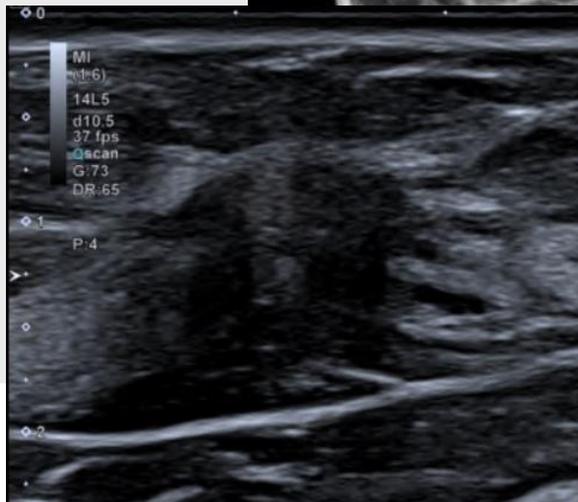
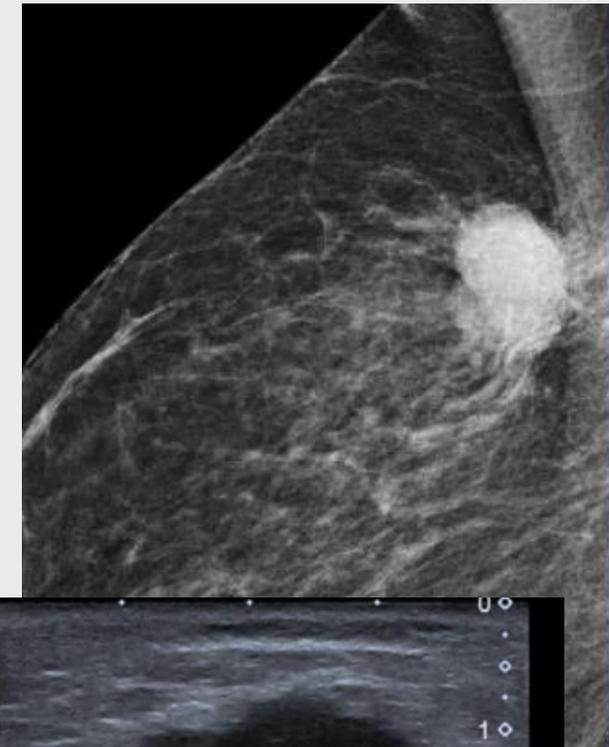
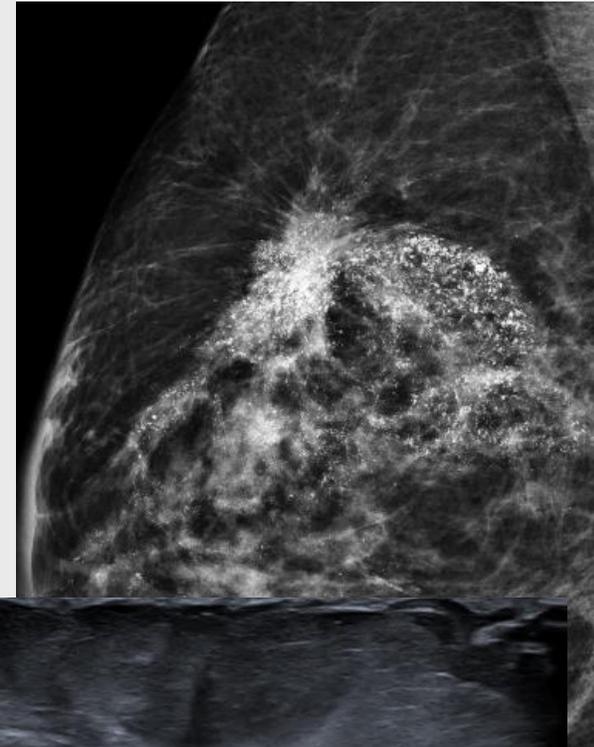
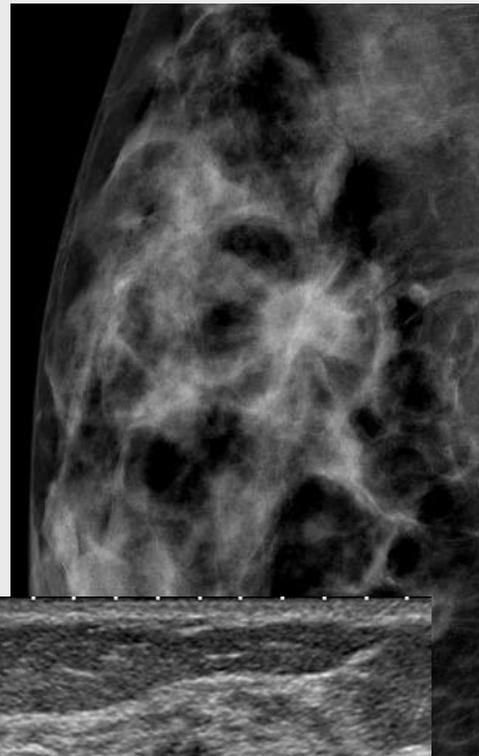
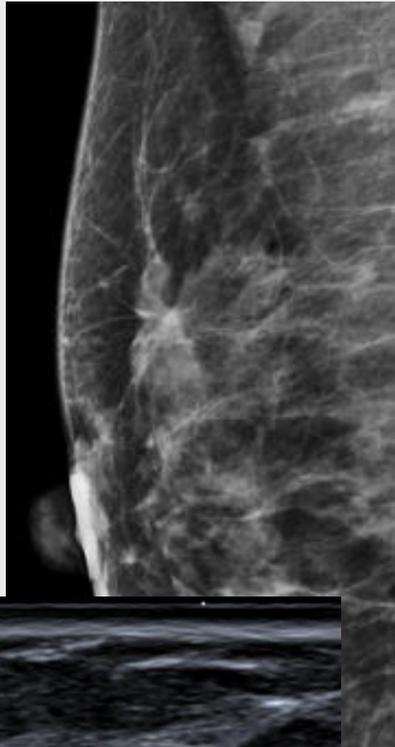
FRANCE  
LIBERTÉ  
ÉGALITÉ  
FRATERNITÉ  
GOUVERNEMENT

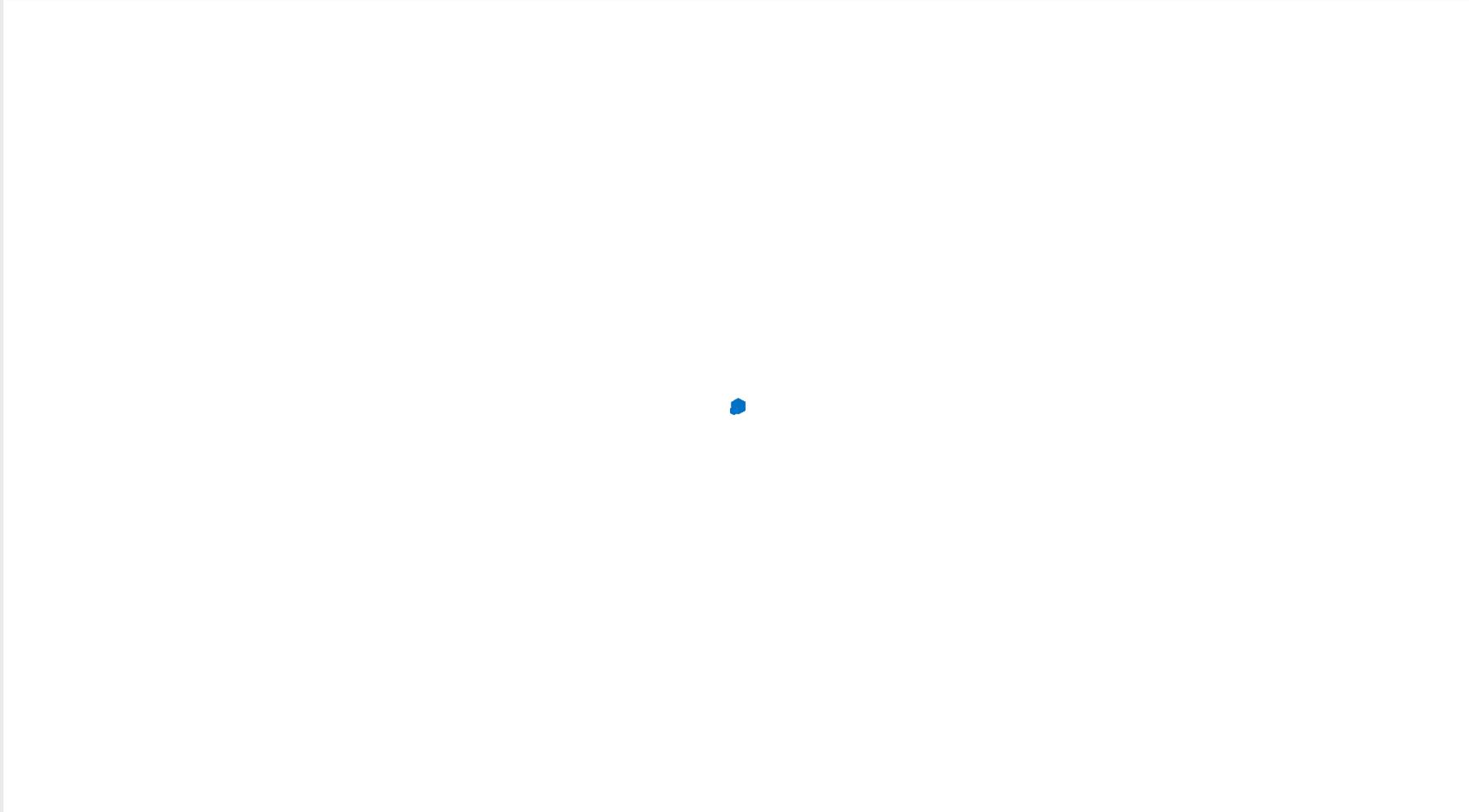
FRANCE  
2023

institut  
**Curie**

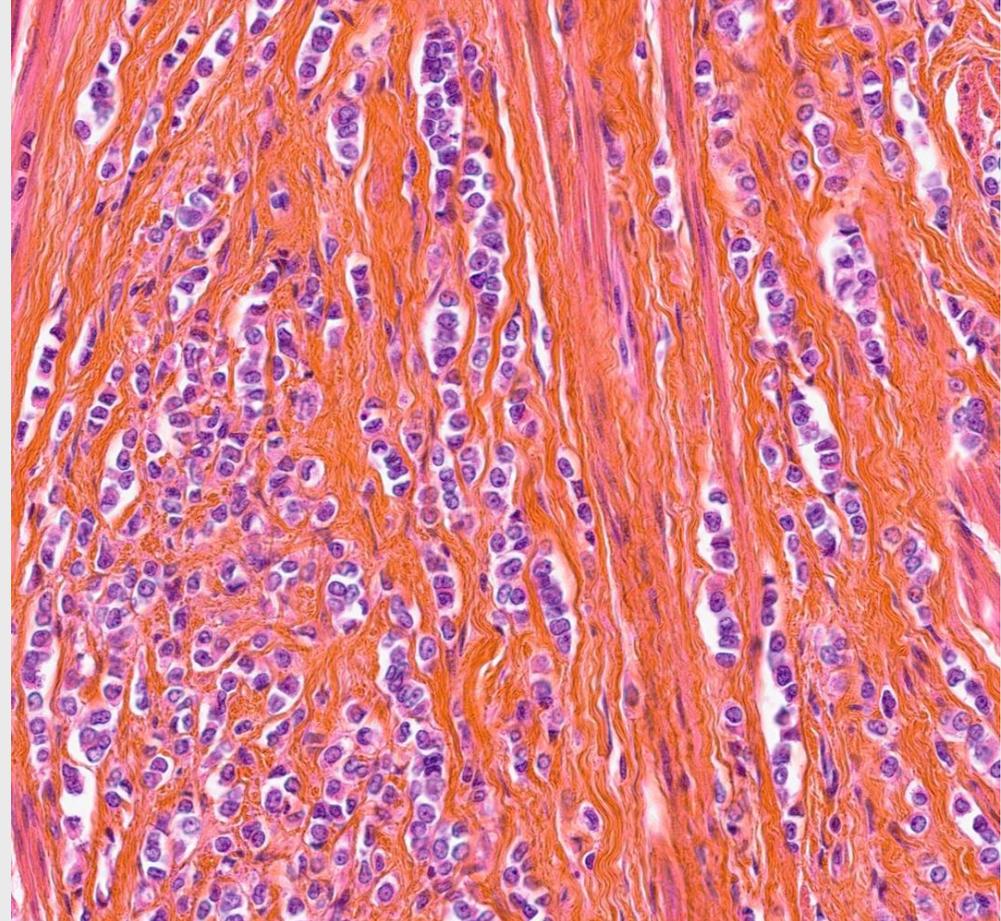


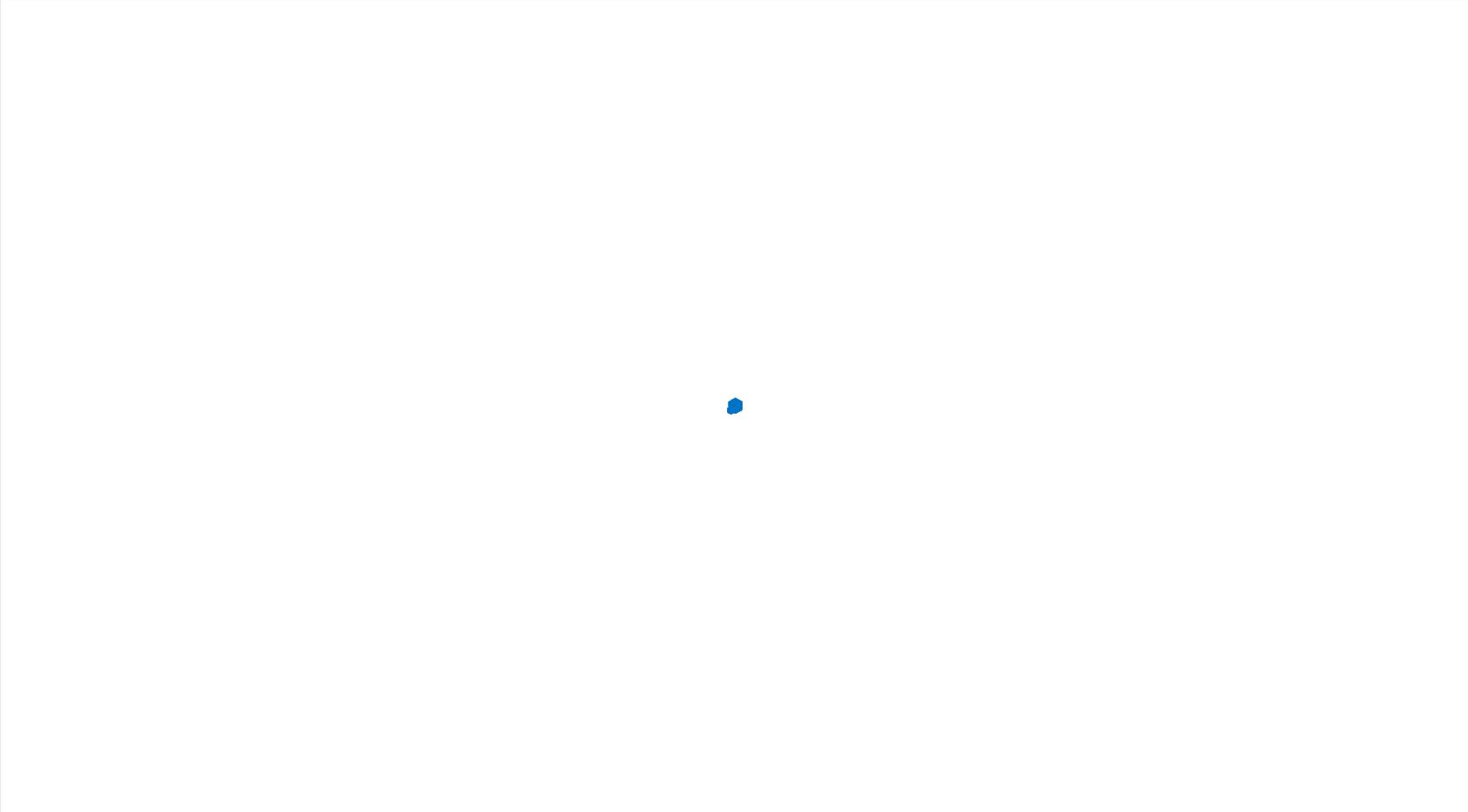
<https://app.wooclap.com/events/DDTIZU/votes>

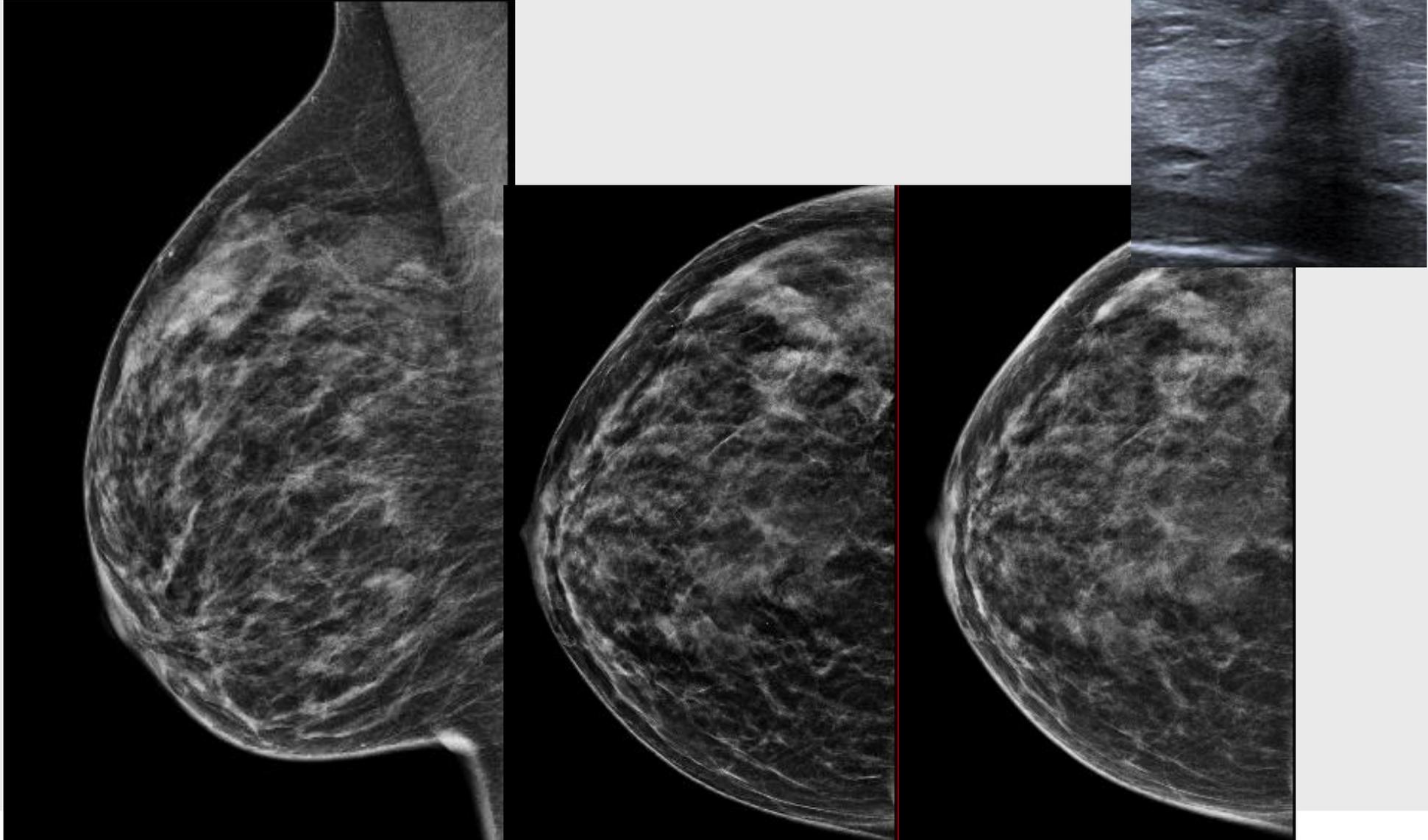


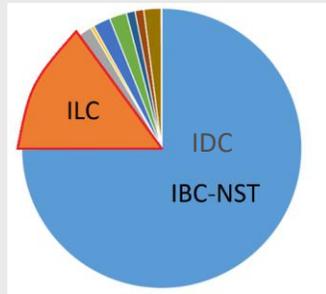


Quel est votre diagnostic ?

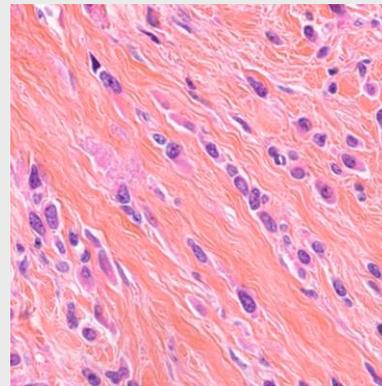




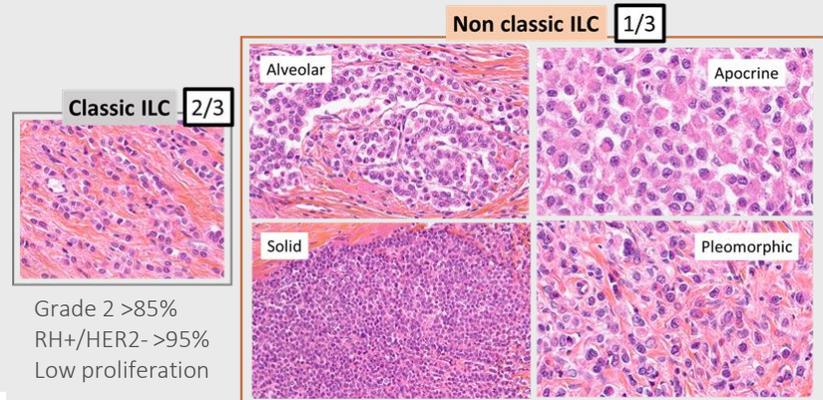
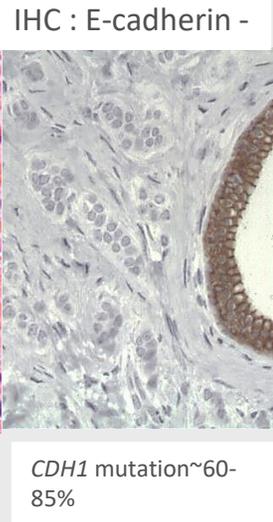




CLI: 5-15%  
de tous les carcinomes  
mammaires invasifs

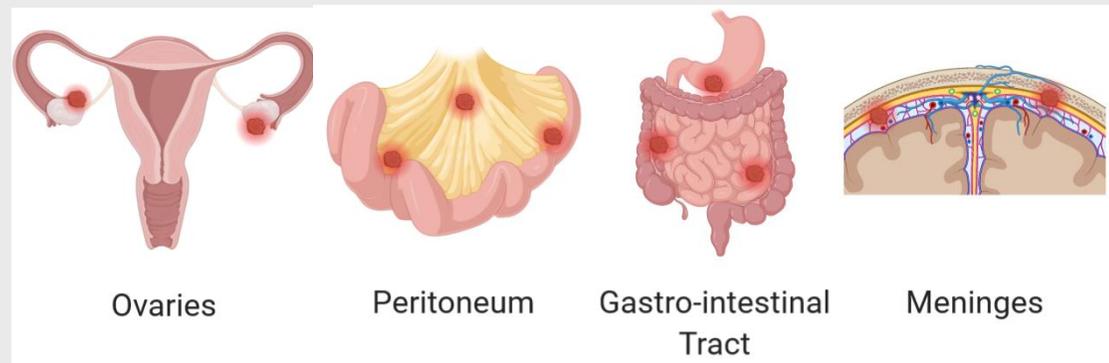


Dyscohesive tumor cells



Par rapport au CI-TNS :

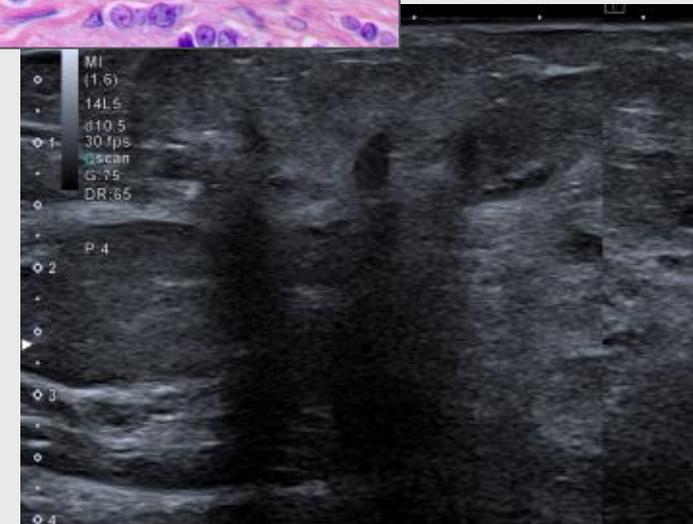
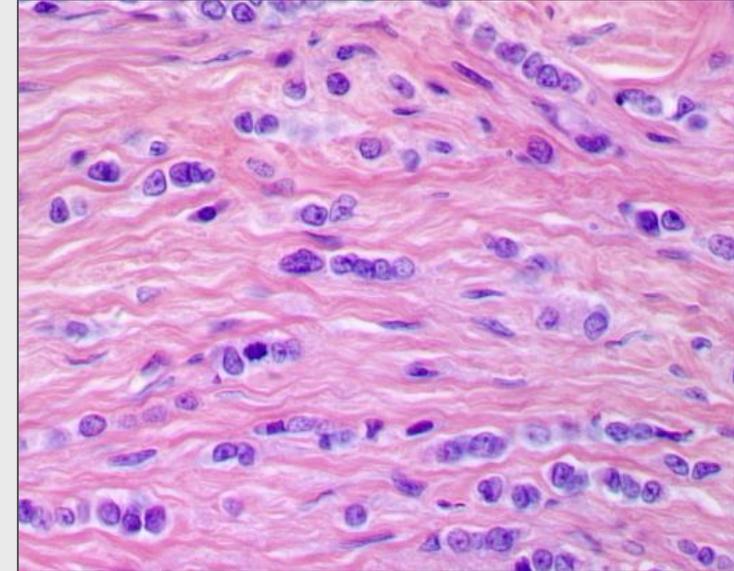
- \*Age d'apparition plus avancé
- \*Taille plus importante au moment du diagnostic
- \*Discordance de taille radio-histologique
- \*Plus de multicentricité/bilatéralité (10-20%)
- \*Plus d'atteinte ganglionnaire massive
- \*Sites anatomiques atypiques de métastases
- \*Mauvais pronostic après 10 ans

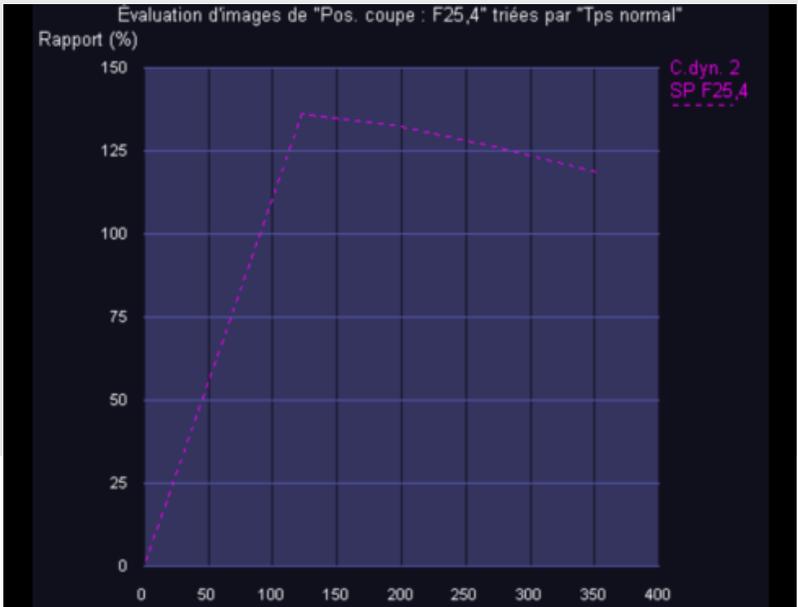
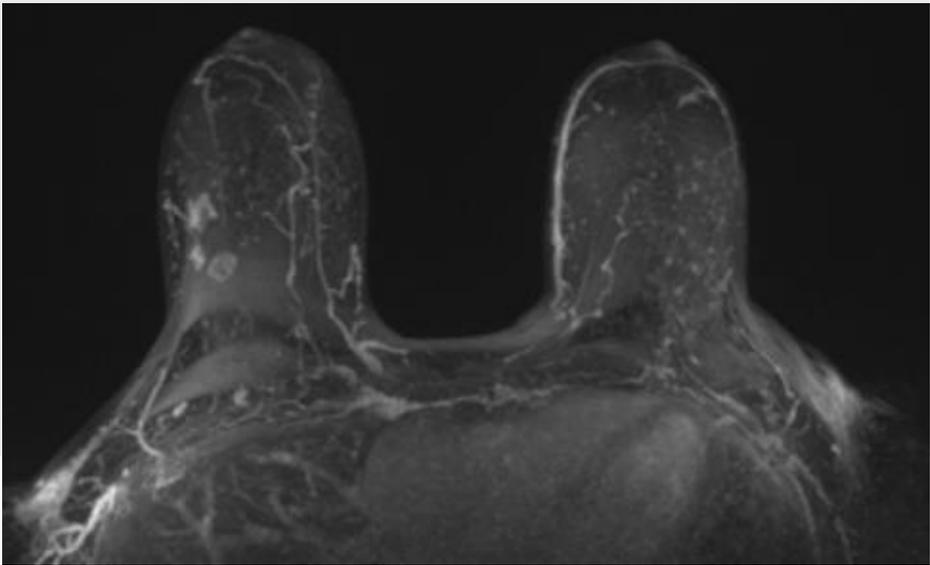
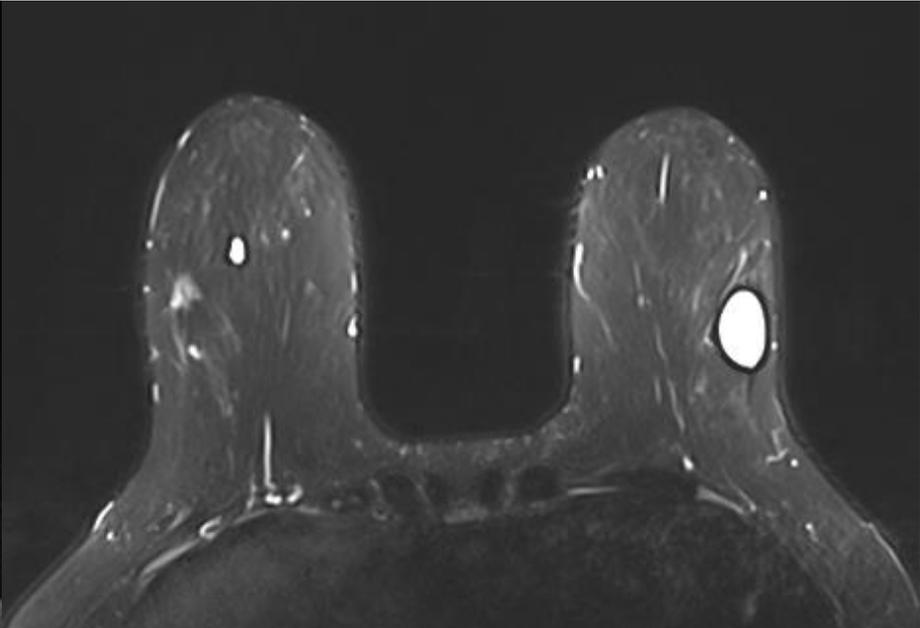
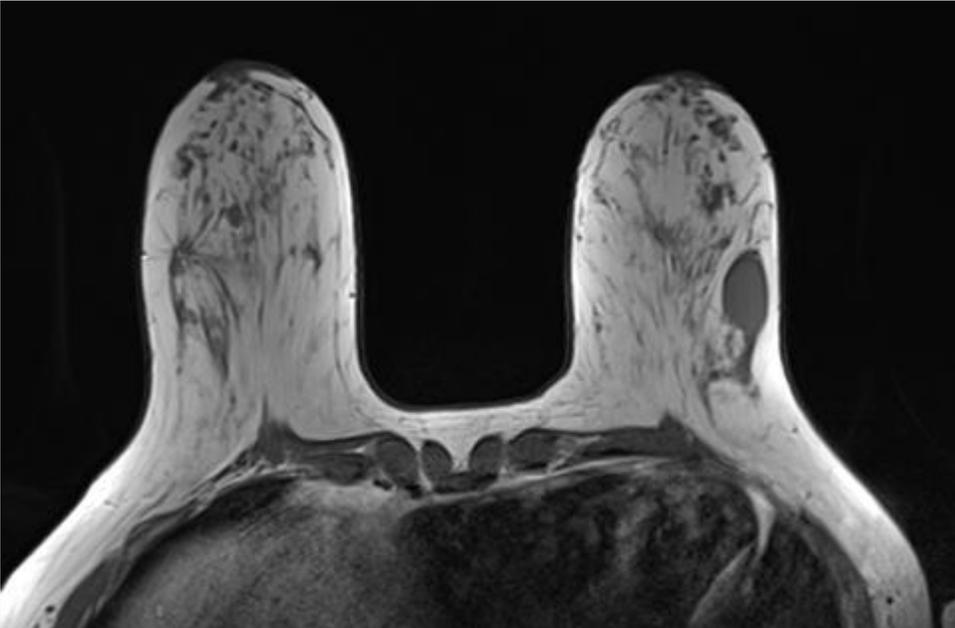


Sastre-Garau et al. Cancer 1996; Ferlicot, Vincent-Salomon et al. Eur. J. Cancer 2004; Pestalozzi et al. JCO 2008

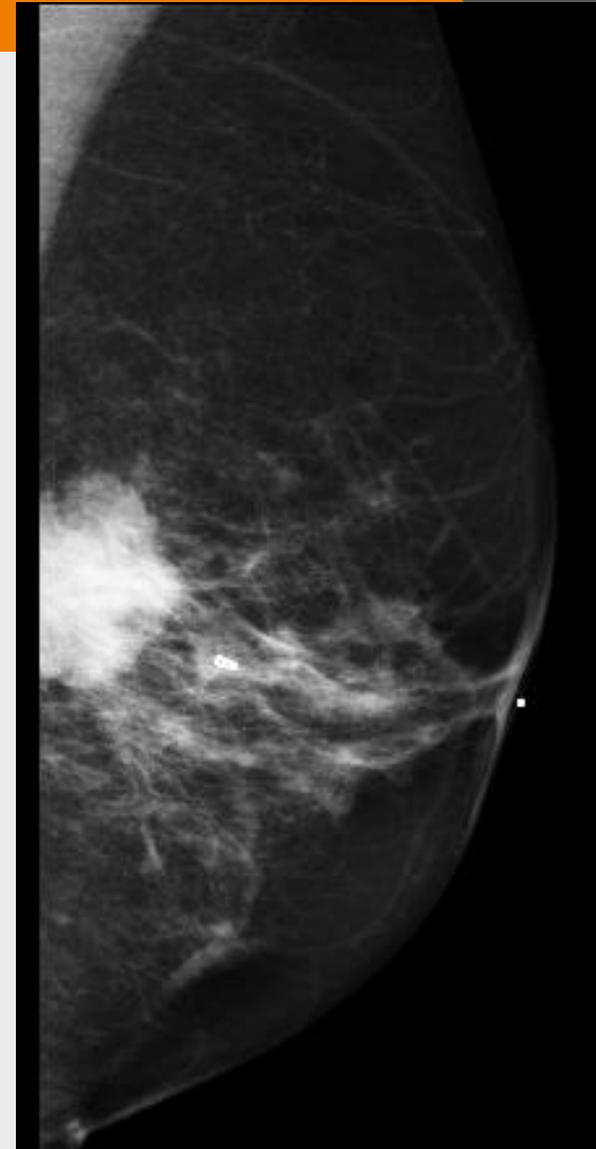
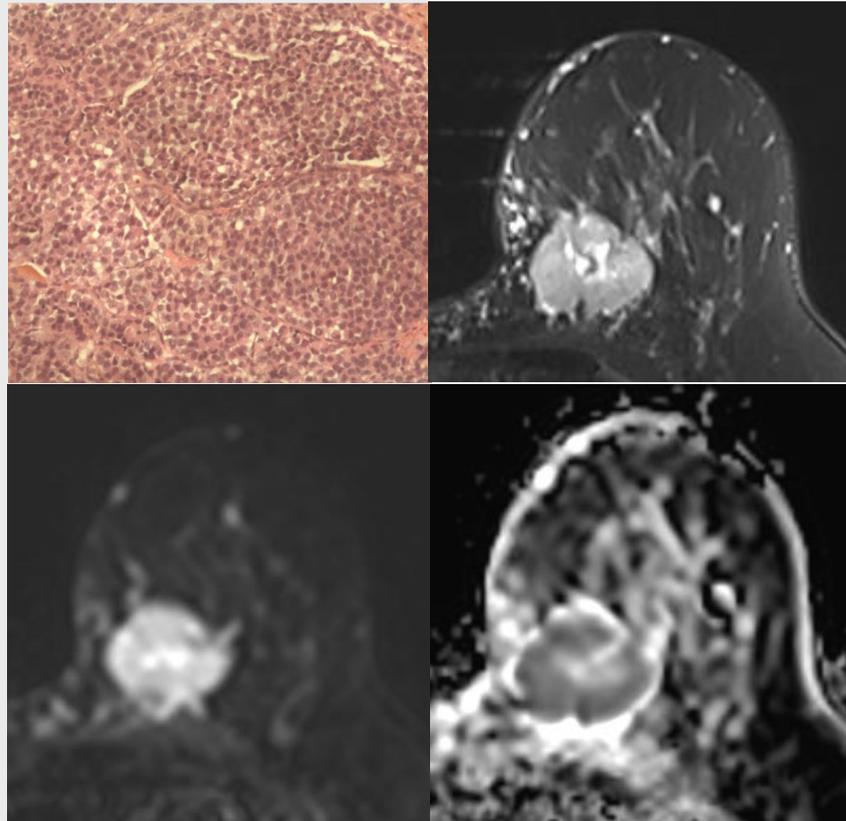
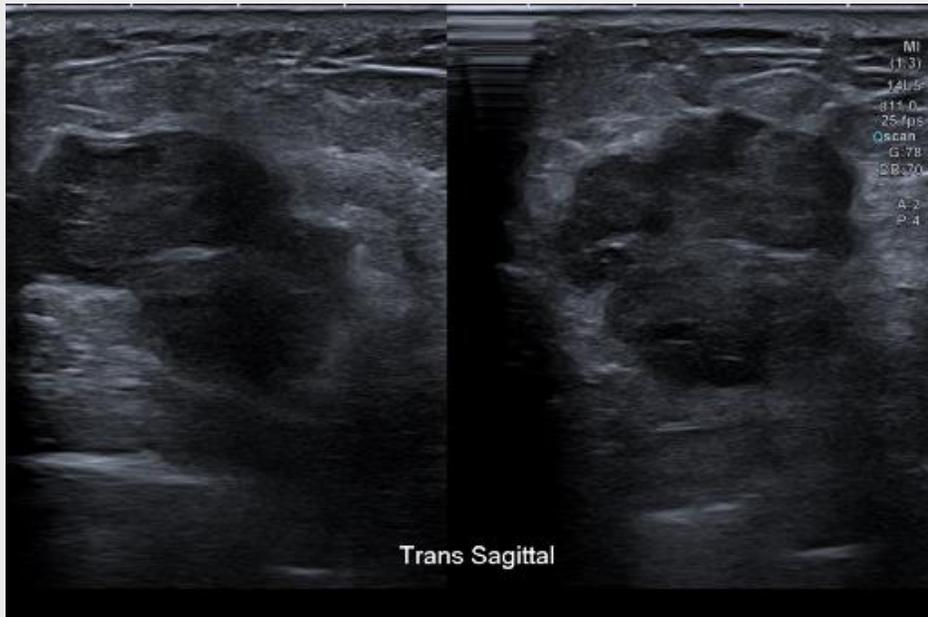
Merci au Docteur Lounes Djerroudi

- Petites cellules indépendantes
- En files indiennes
- Pas de nécrose
- Stroma abondant, fibreux, avec élastose
- Reaction desmoplasiqne moins marquée que dans le CCI
- RH positifs
- HER2 négatifs





Sous-type lobulaire de variant solide  
1-5%  
grade nucléaire 3  
taux plus élevé de mitoses



Discordance Radio-Clinique

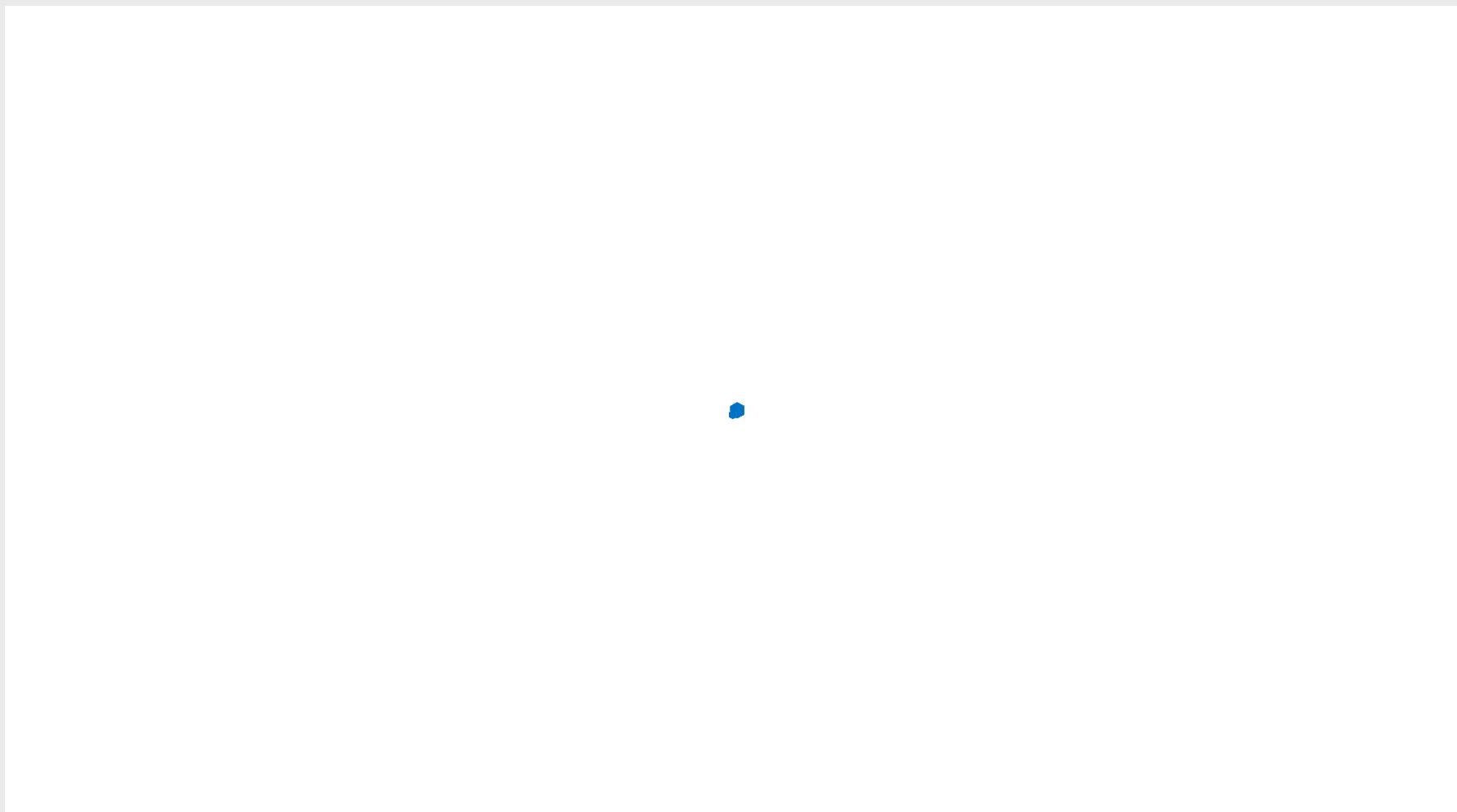
Surreprésentation des CLI dans les cancers occultes

Taux de détection < par rapport aux CCI

Estimation de la taille plus fréquemment sous-estimée

Lésions plus souvent

- Multifocales
- Bilatérales synchrones (5-19%)

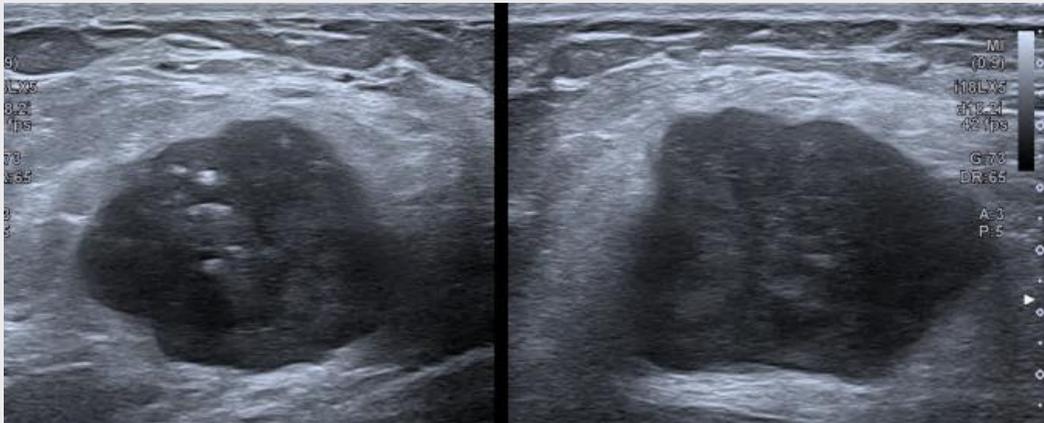


Co-existence de **composantes épithéliale et non-épithéliale**

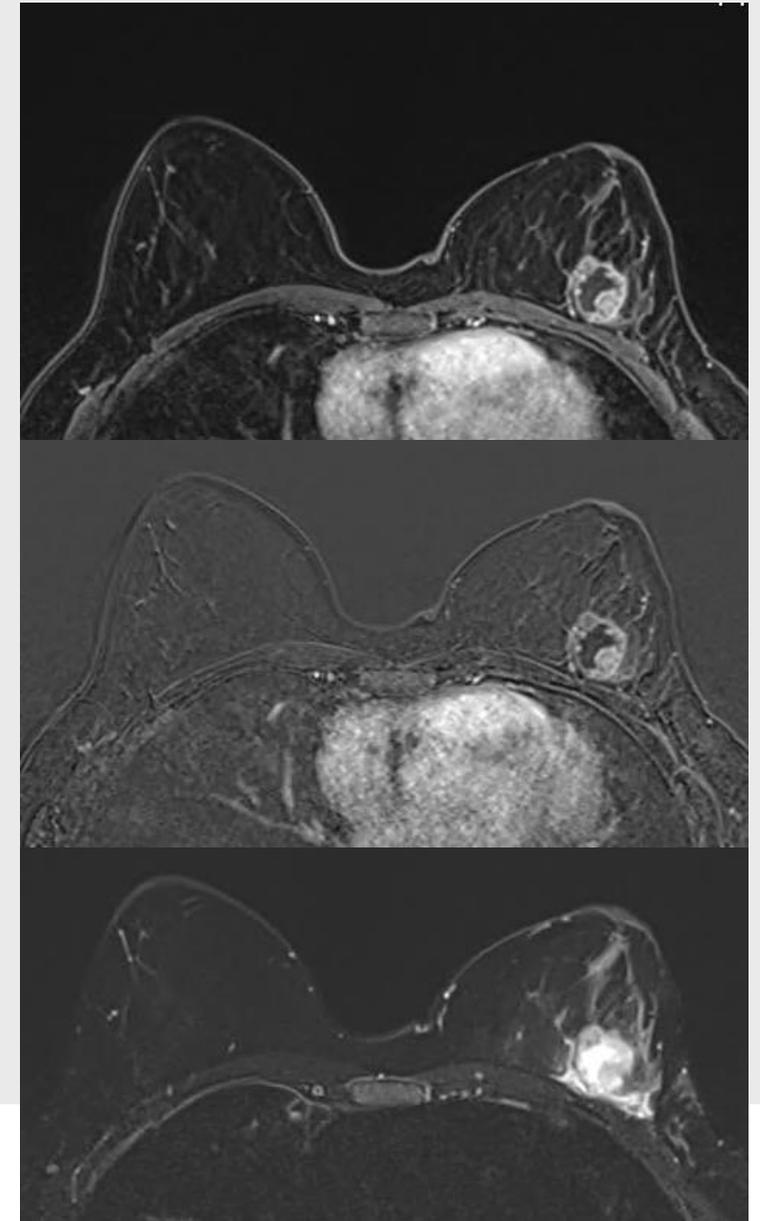
Type rare, agressif et de mauvais pronostic

Mauvaise réponse aux traitements neoadjuvants

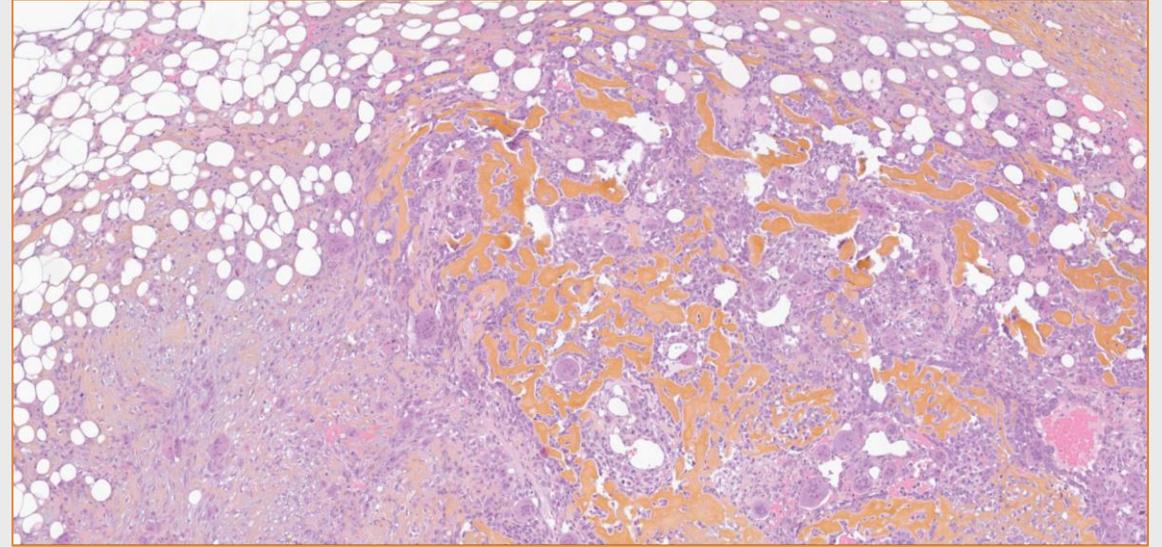
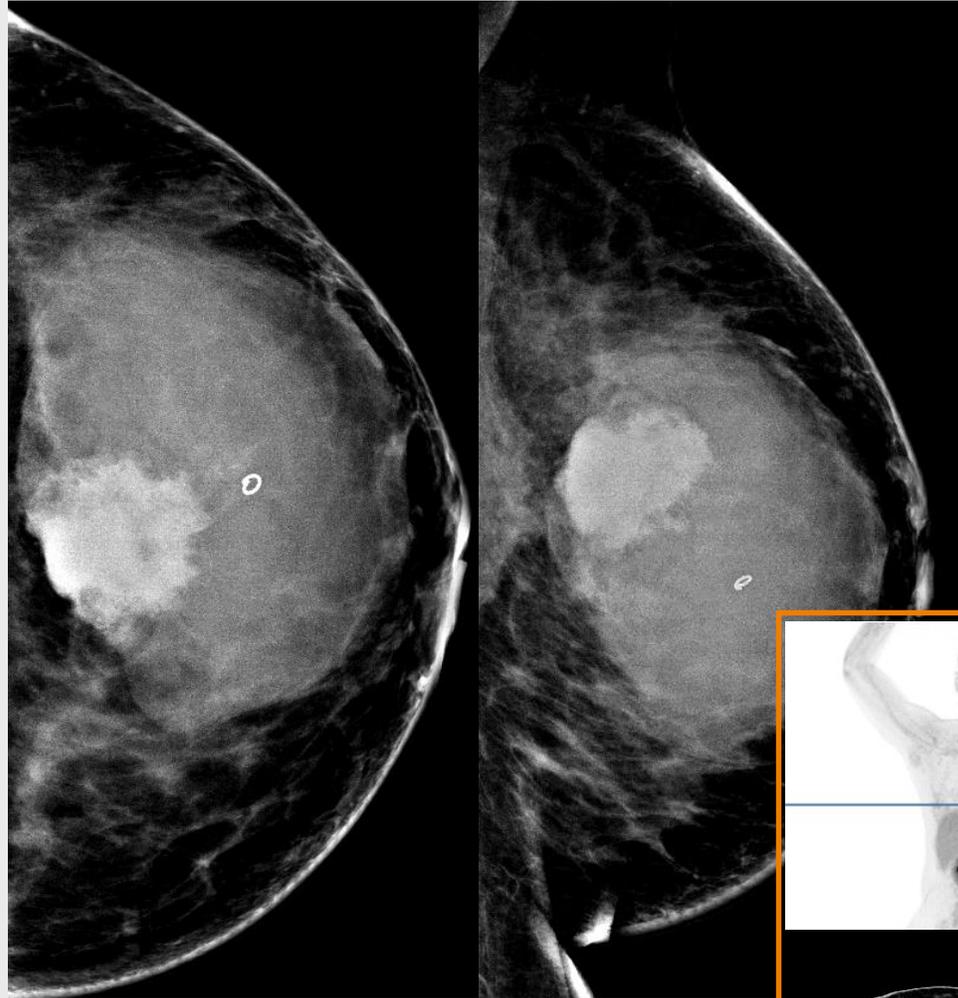
Yao et al., Academic Radiology 2024



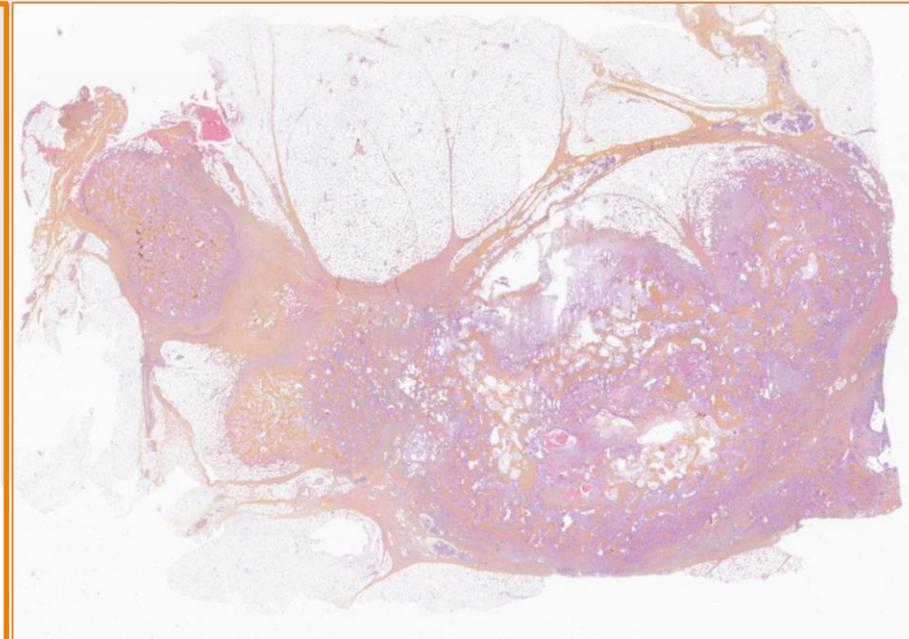
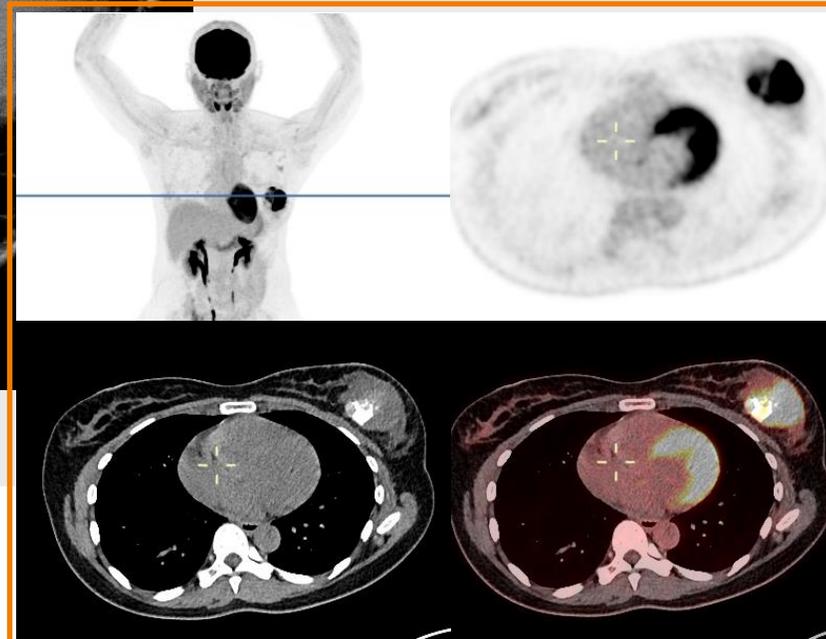
TN grade III  
KI-67 80%  
Stroma myxoïde

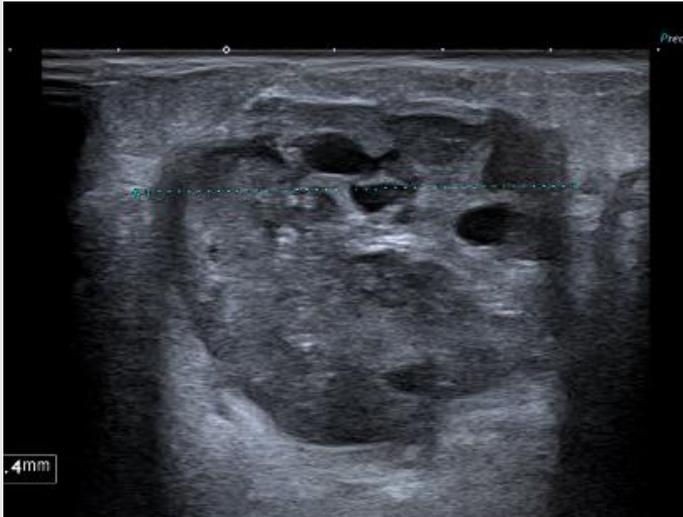


# TN avec métaplasie osseuse et chondroïde

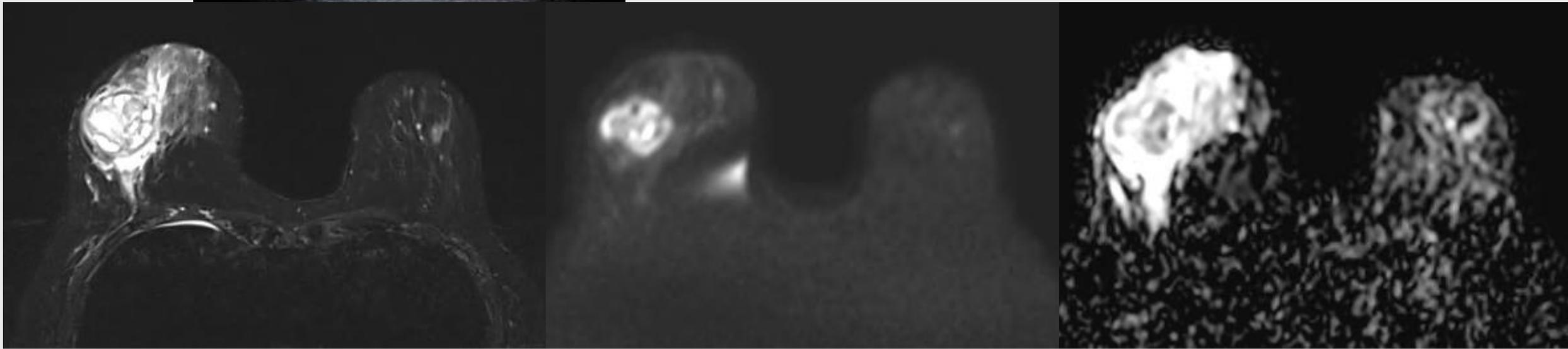


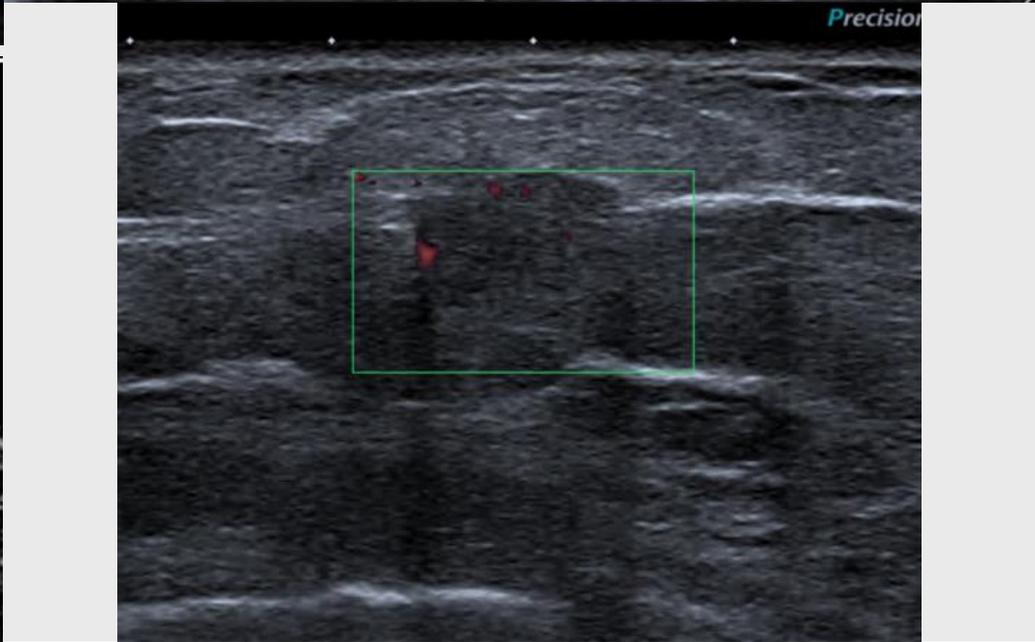
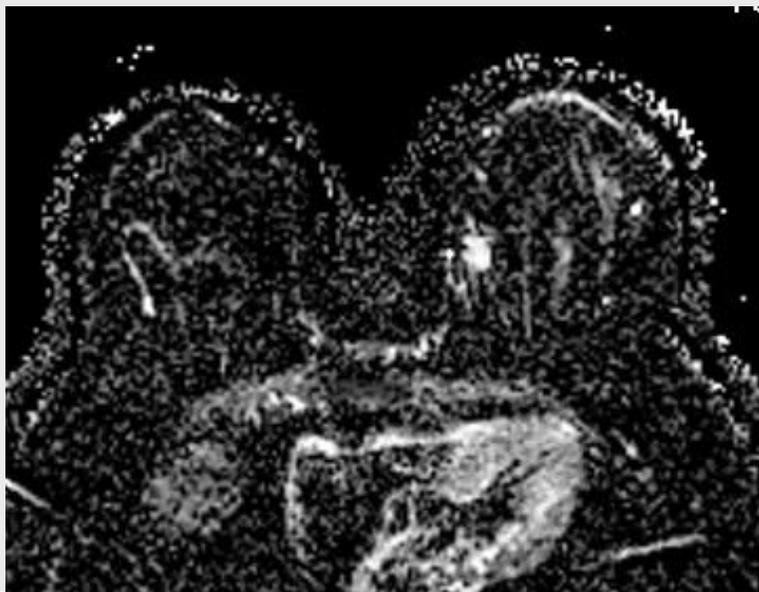
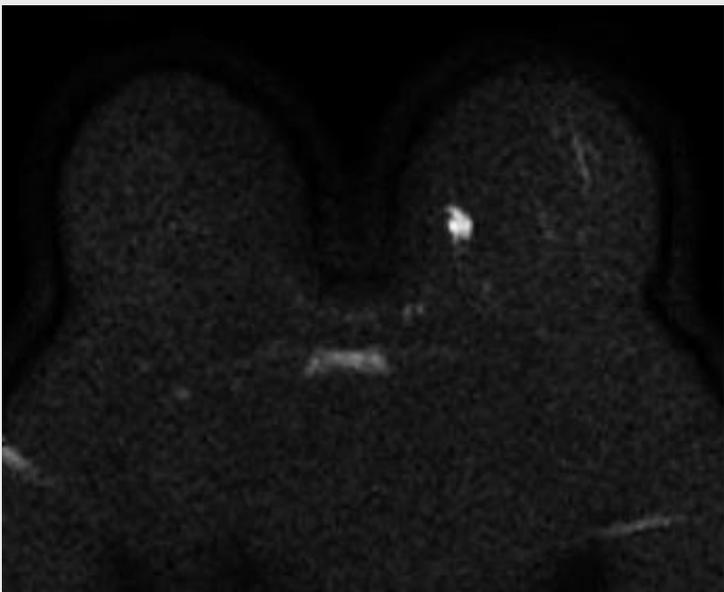
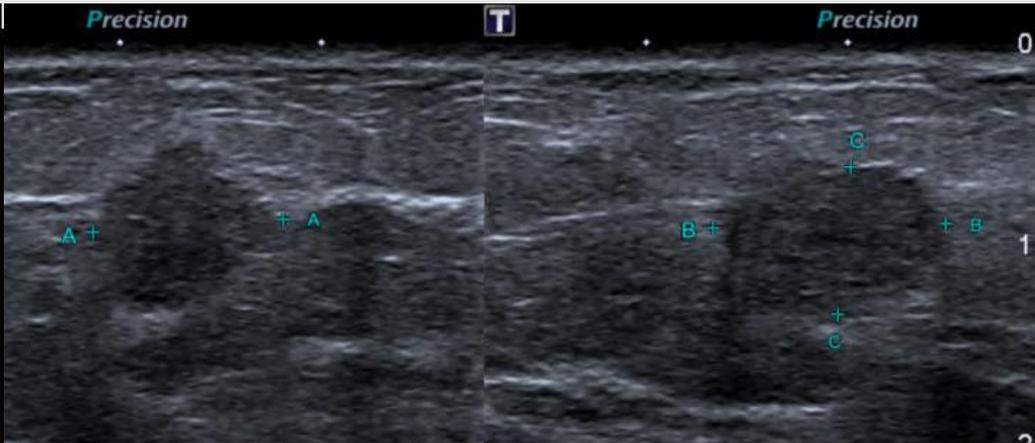
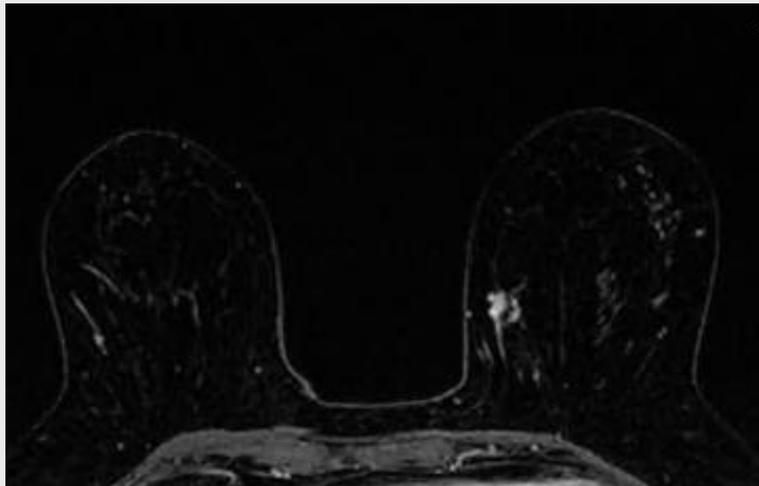
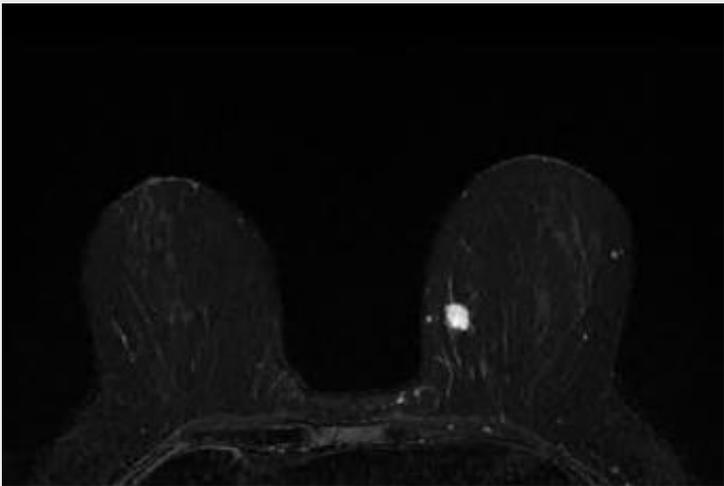
Images Dr Lucie Thibault

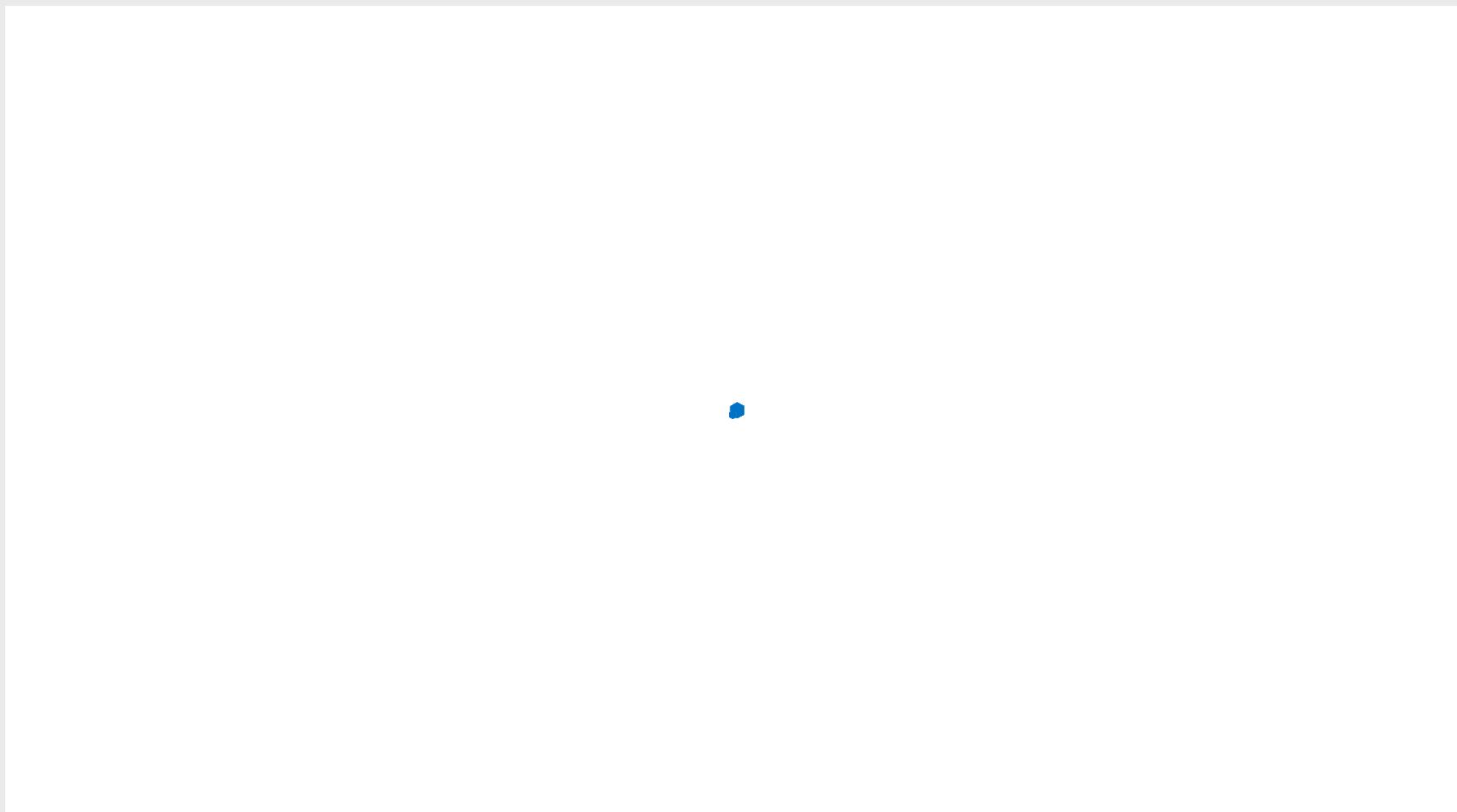


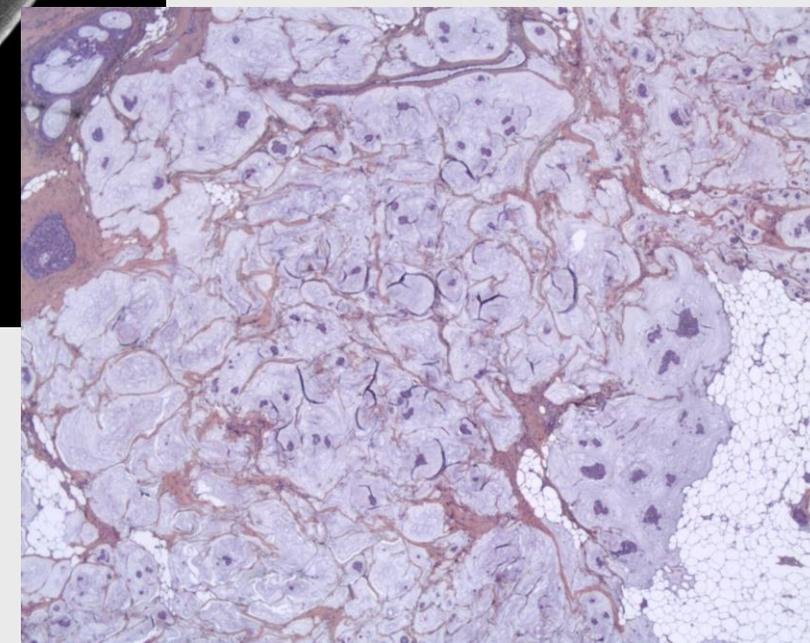
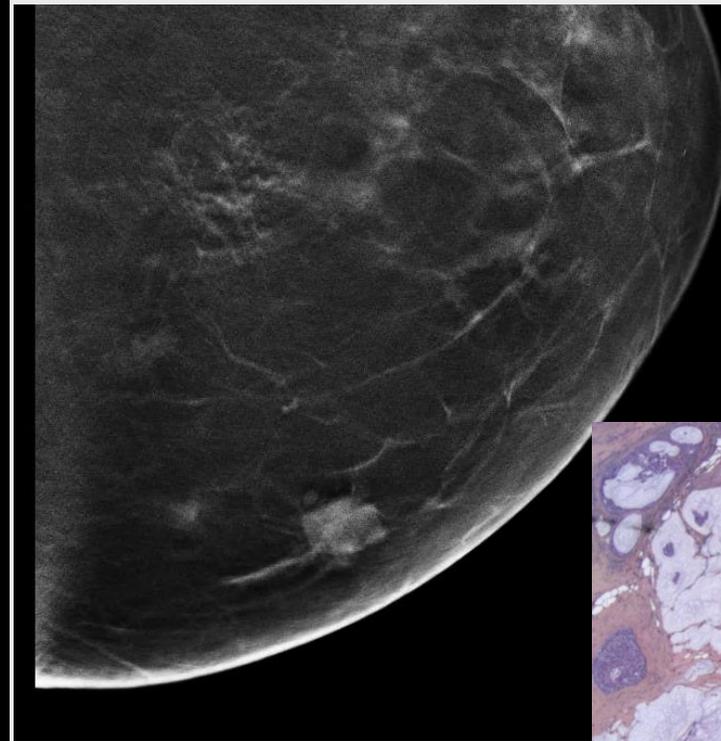
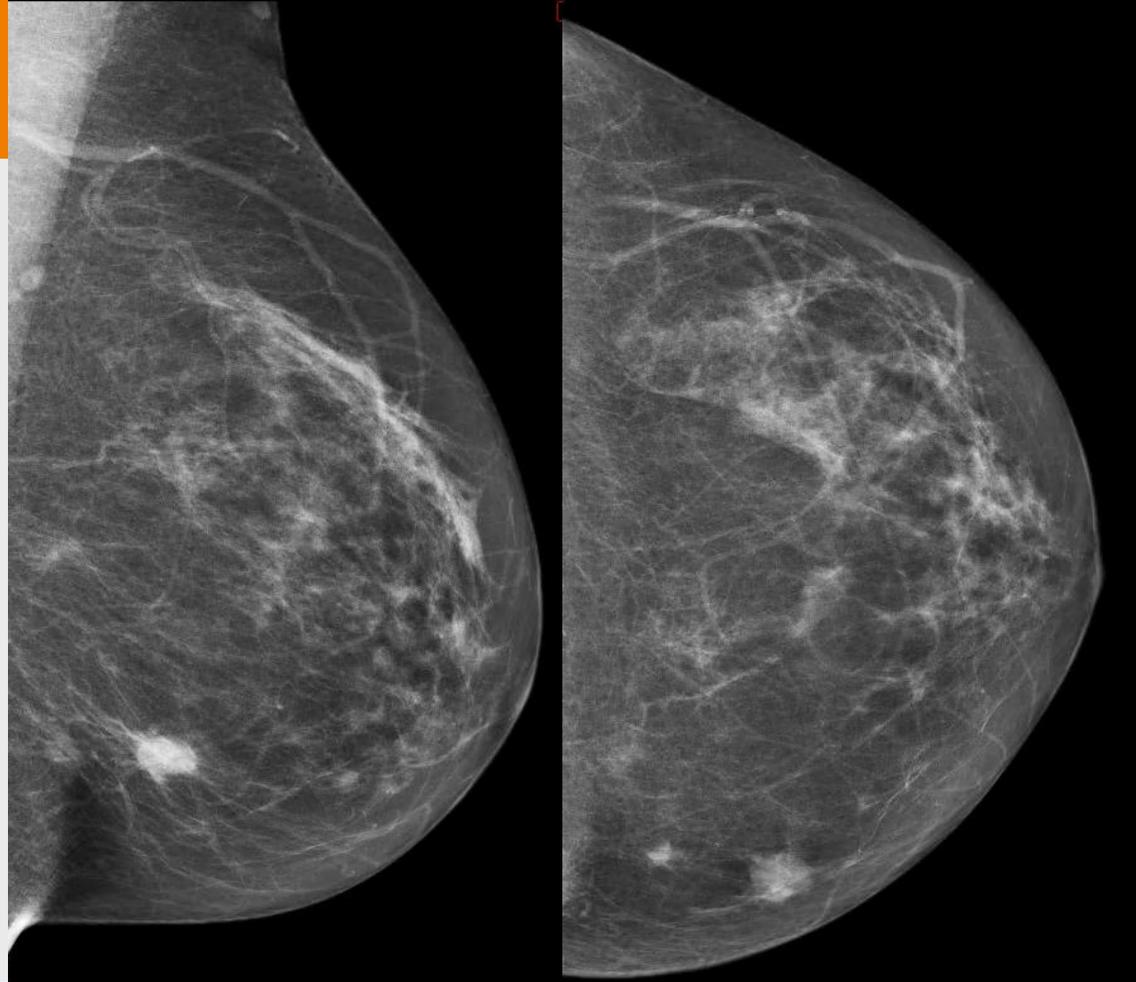


**Carcinome Metaplasique Mixte** associant un contingent a cellules fusiformes majoritaire (80%), de minimes secteurs chondroides, a cellules independantes et osteoclastic-like et un contingent glandulokystique et papillaire a differenciation apocrine (20%)





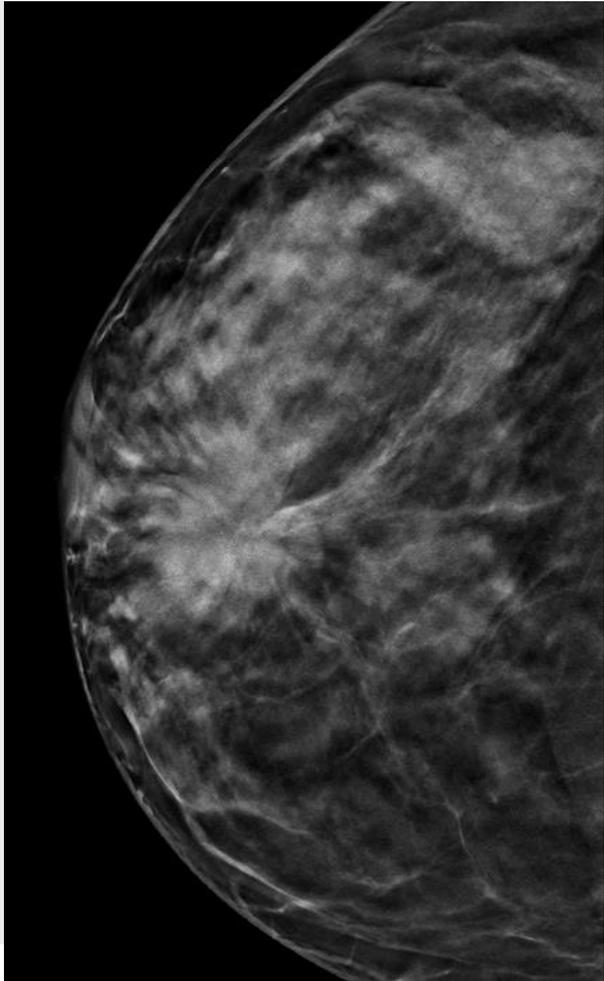
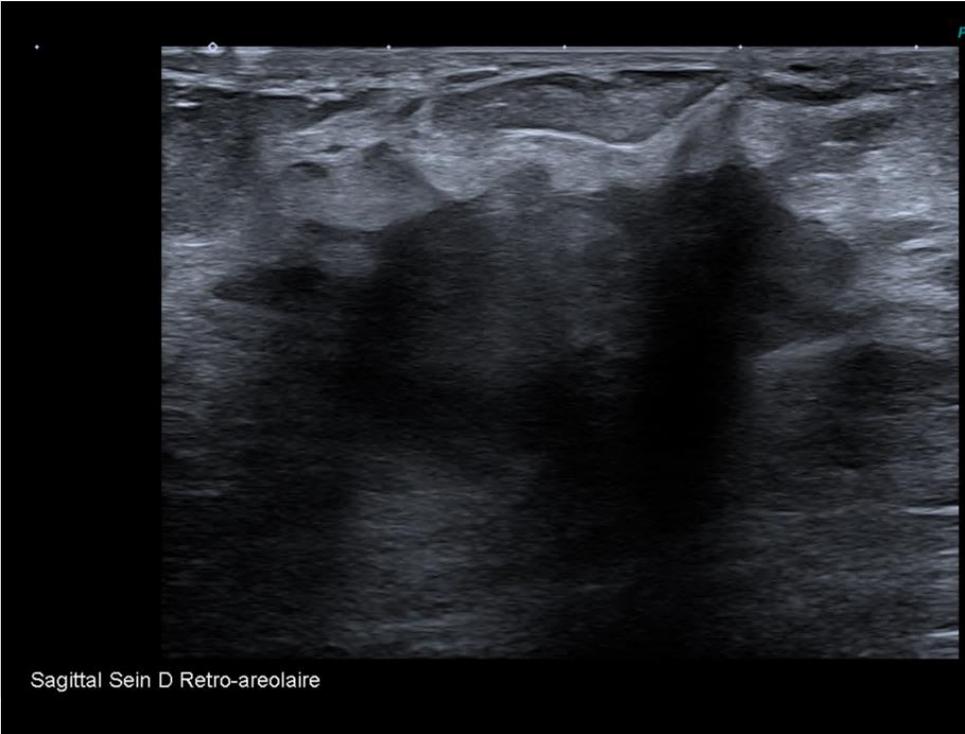
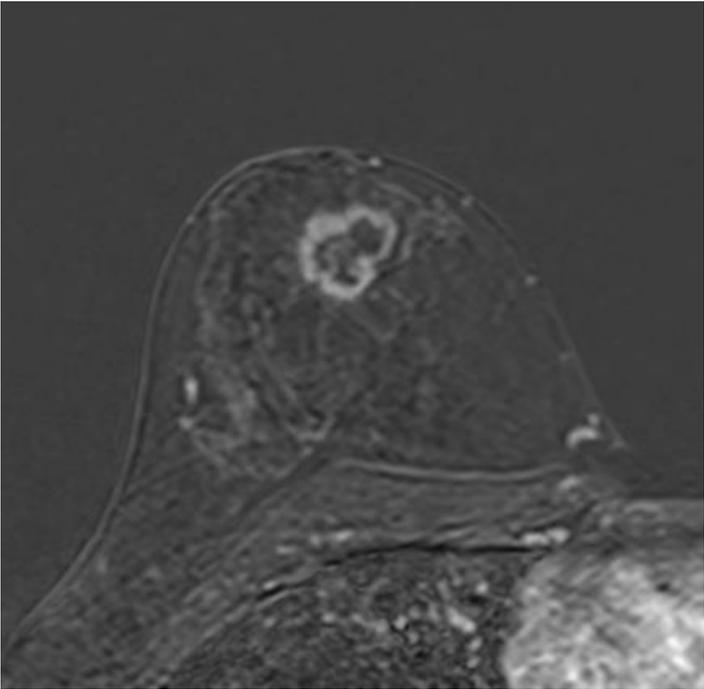


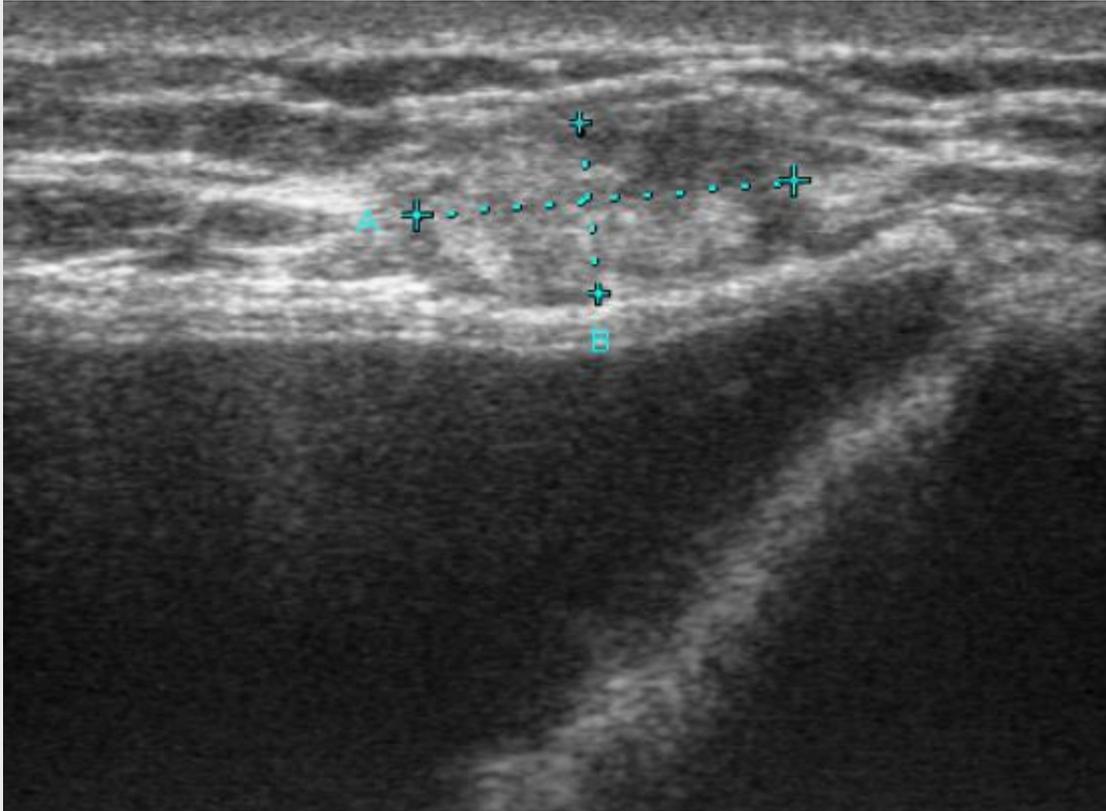


### »»» Carcinome Mucineux

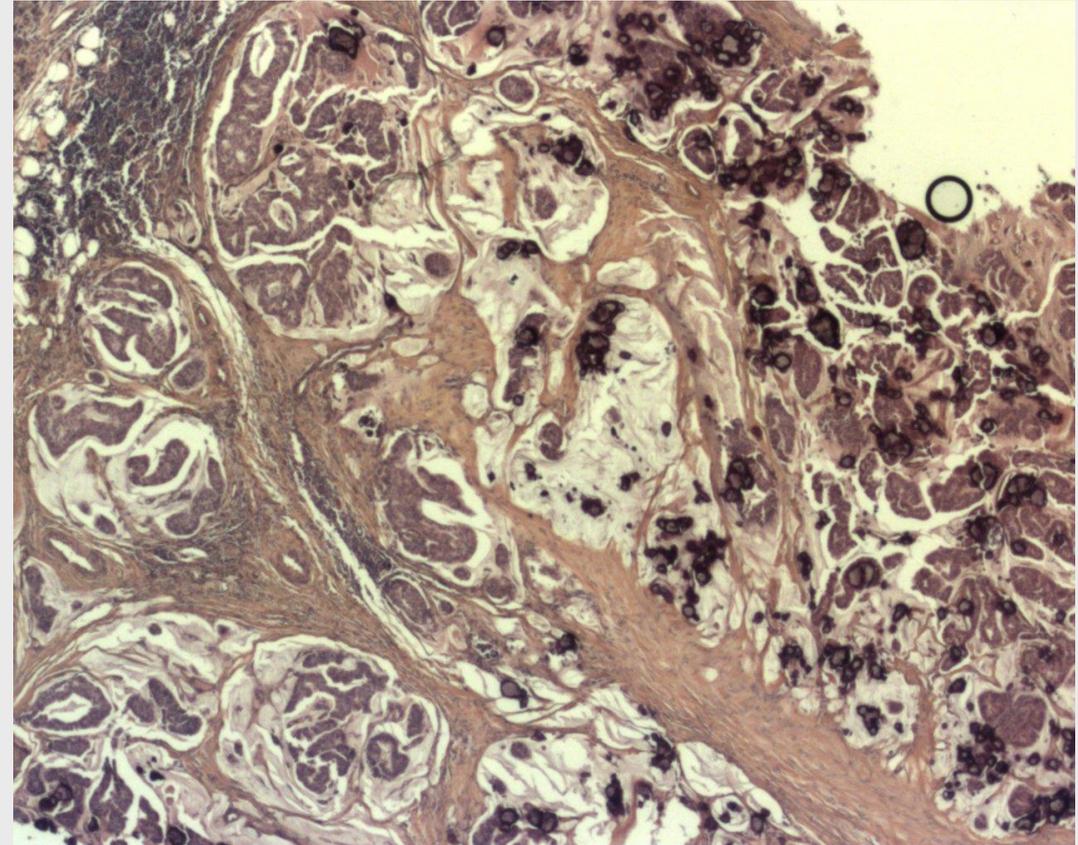
- Taille tumorale : 10 mm
- Grade histopronostique (EE) : 2 (3+2+1), Ki67 12 %
- Presence d'une composante de carcinome canalaire in situ evaluee a 25% situee en peripherie de la composante infiltrante
- Stroma tumoral : 0% de lymphocytes
- Berges glandulaires en tissu sain (marge minimale de tissu sain de 12 mm)
- Ganglion sentinelles indemnes (3N-)

Stade UICC/TNM version 8 : pT1b N0(gs)

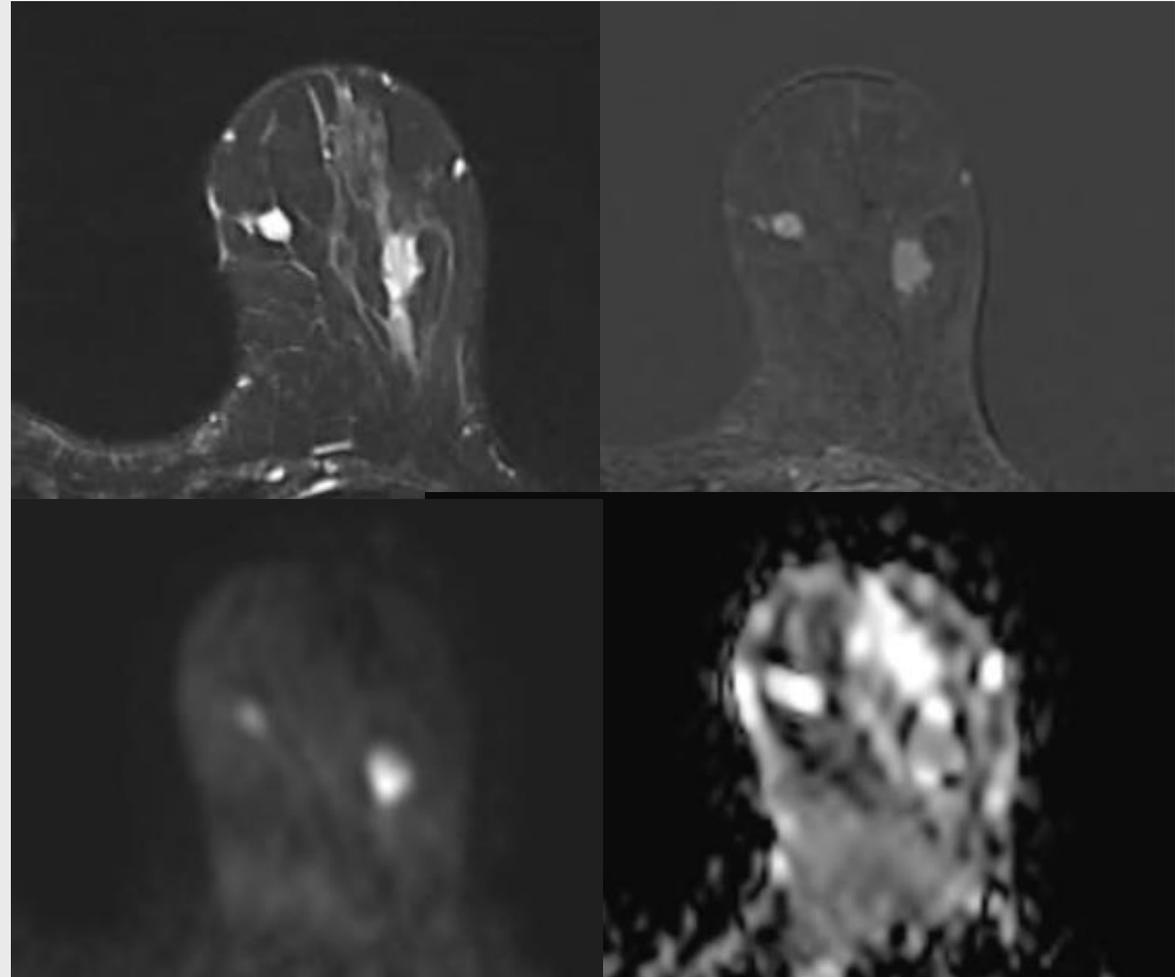


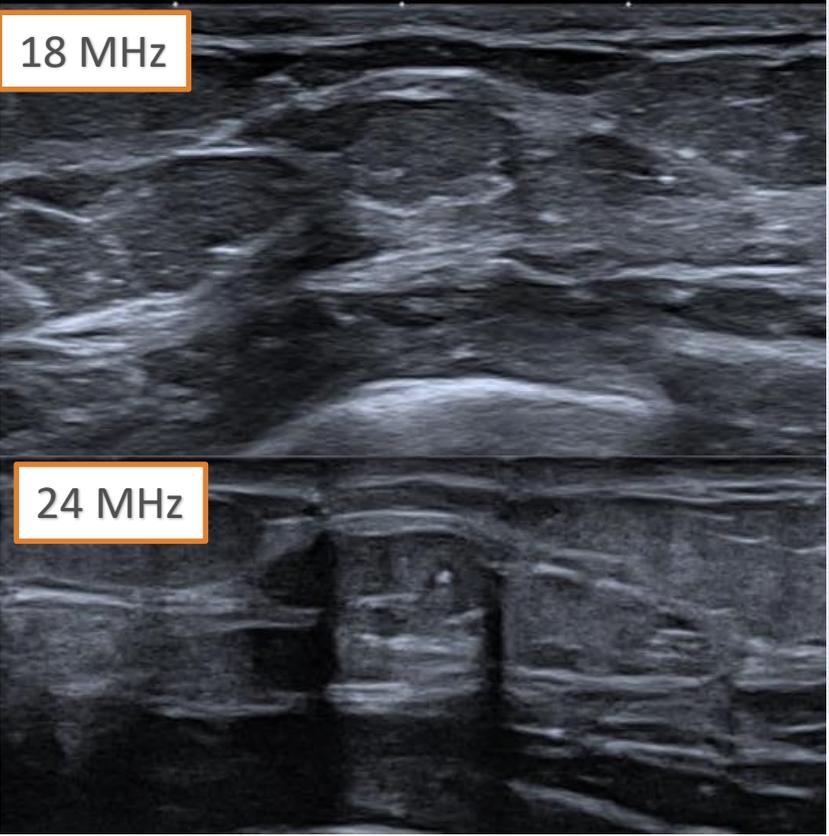
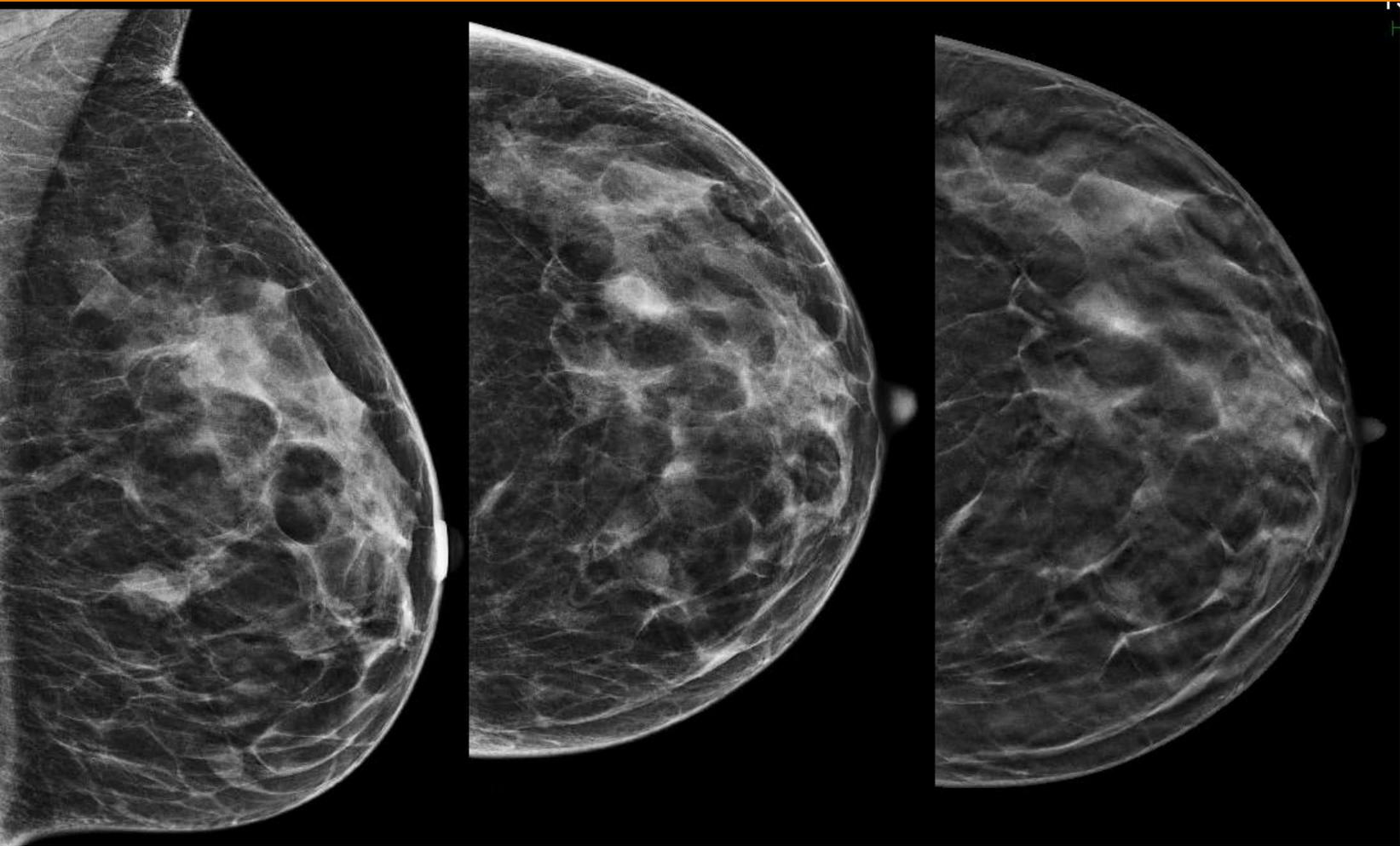


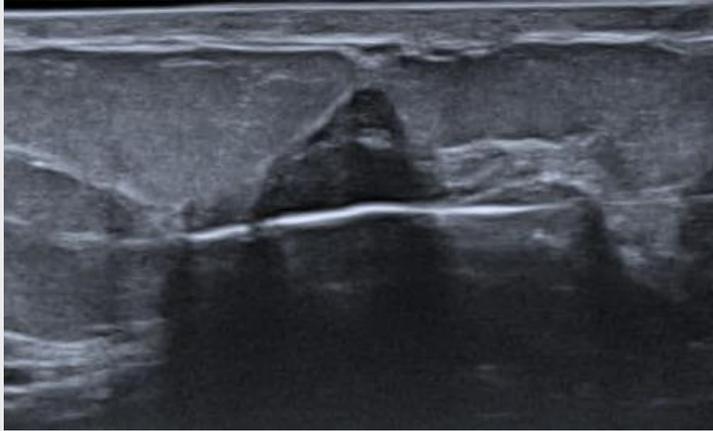
Récidive d'un Carcinome mucineux



60 ans  
ACR6 du QIE  
IRM







Ciblage : contrôle **orthogonal** +++

Fibroadénome à stroma  
« myxoïde »



Fibroadénome à stroma  
fibreux



Images Dr Joanna Cyrta

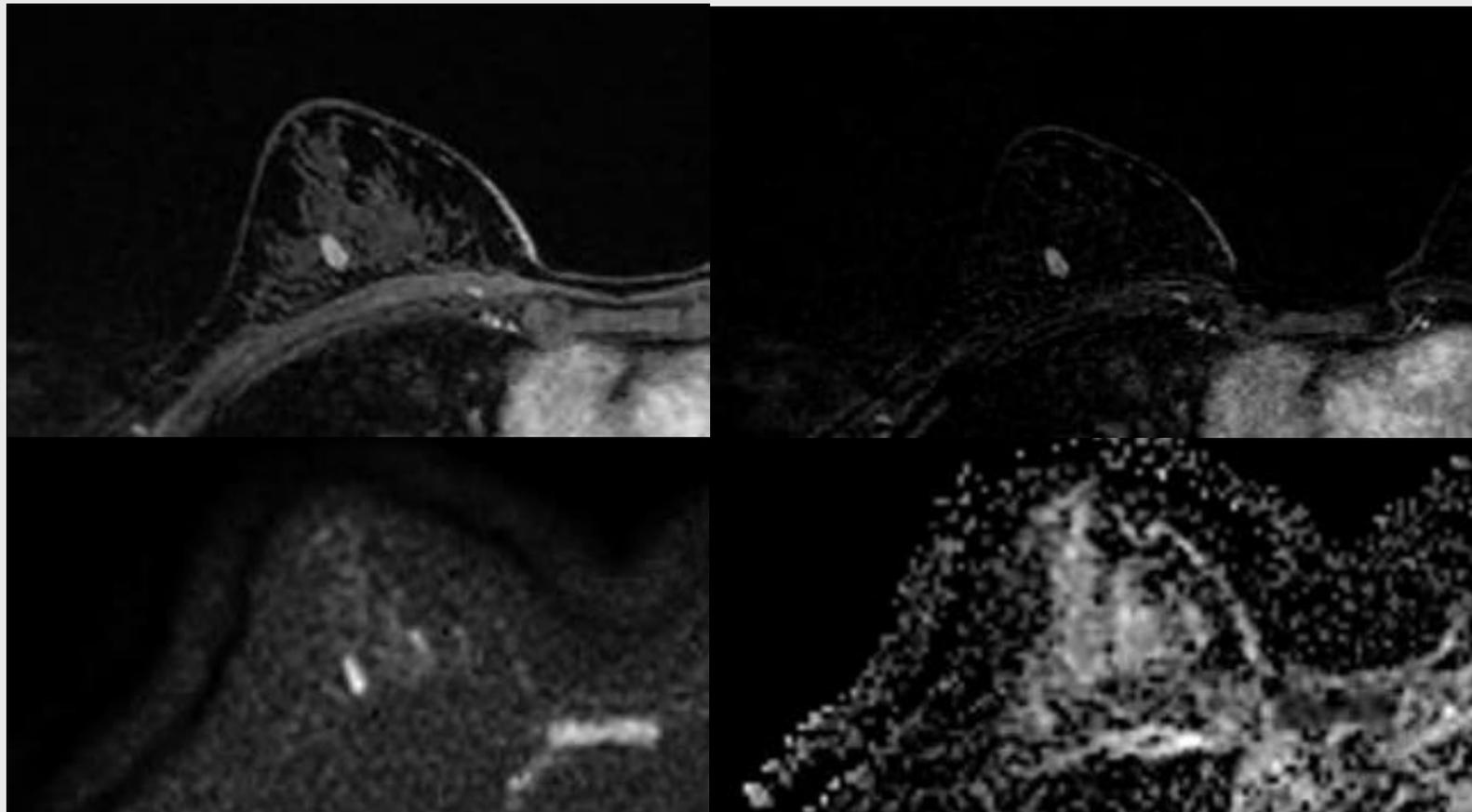
**Matrice Myxoïde**, stroma hypocellulaire

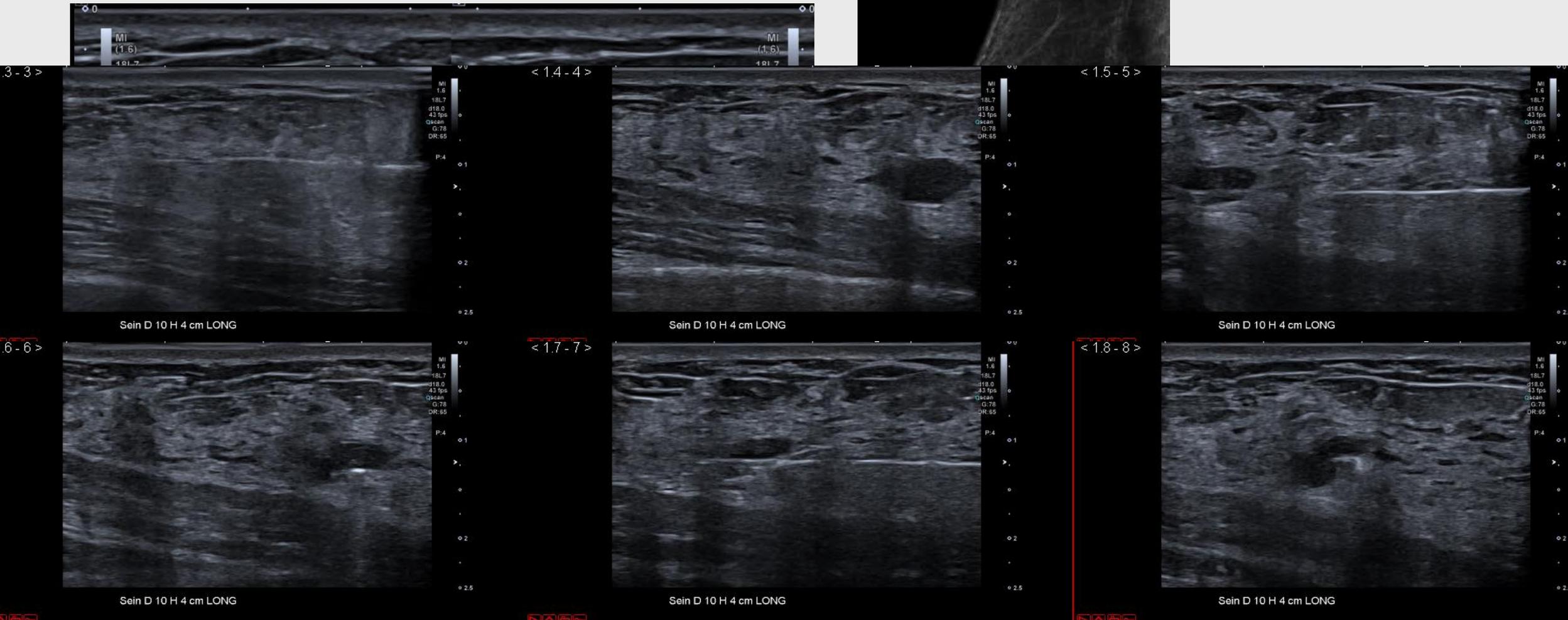
IRM : Rehaussement intense, rapide avec lavage tardif

Autres Variants de fibroadenome:

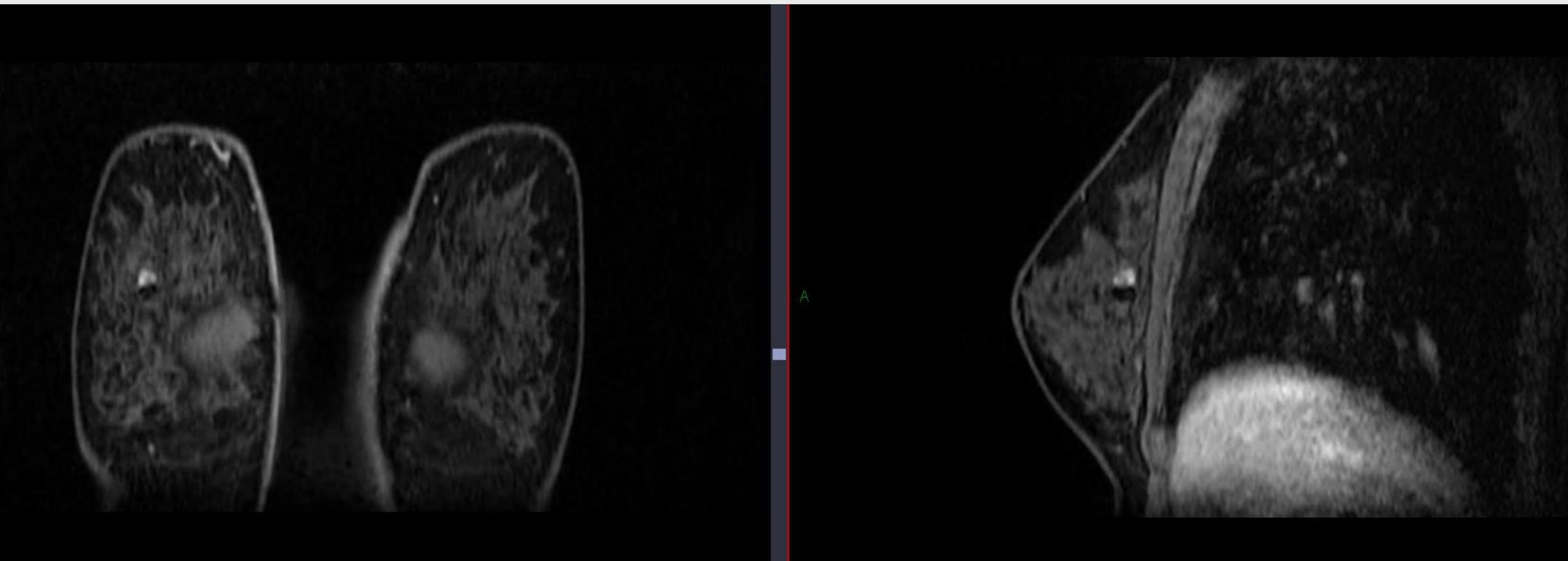
juvenile, géant, complexe, hyalinisé, cellulaire

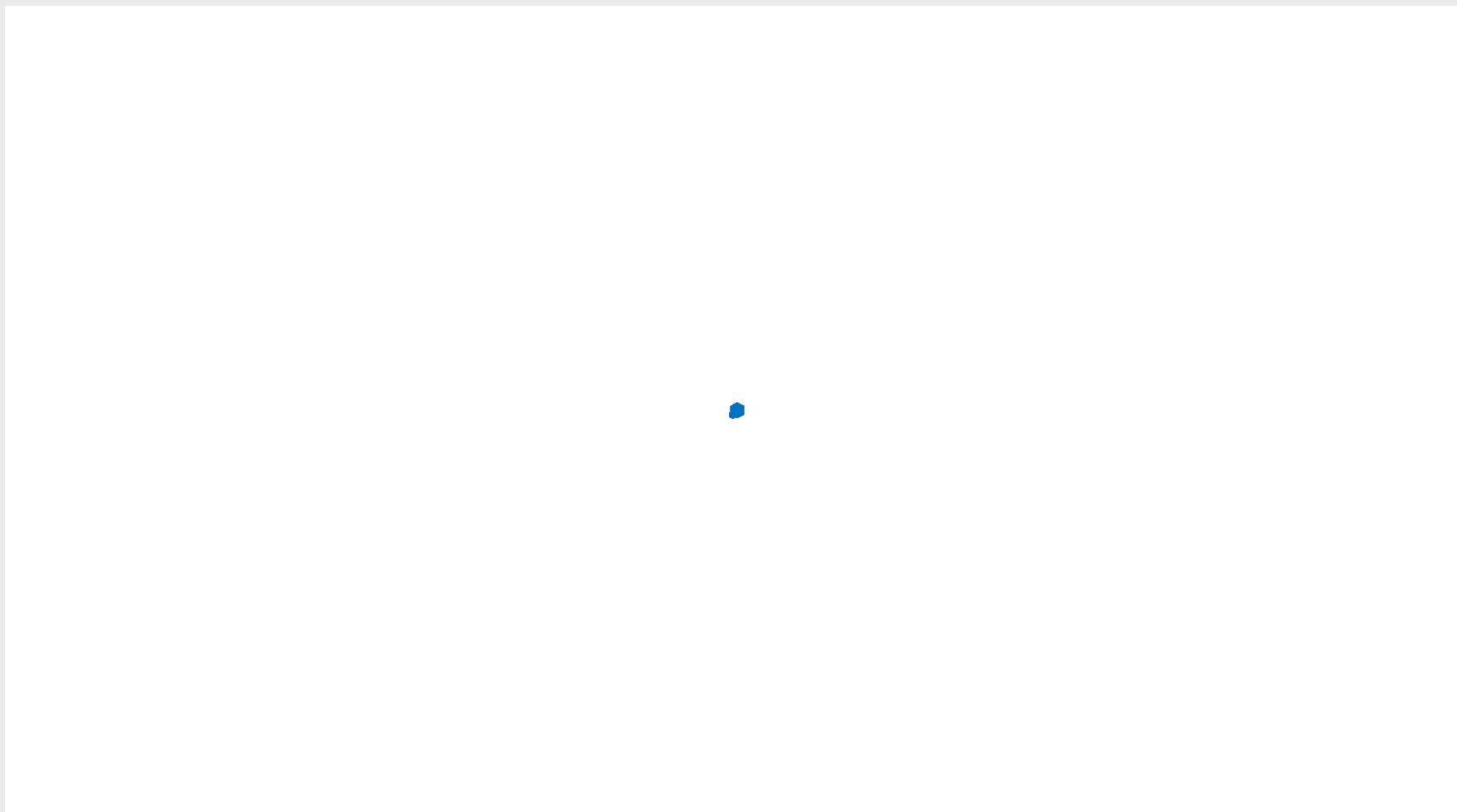
Porteuse d'une altération BRCA2, en suivi annuel Mammo-IRM +/- echo  
En Novembre 2020, description d'une masse évolutive à l'IRM

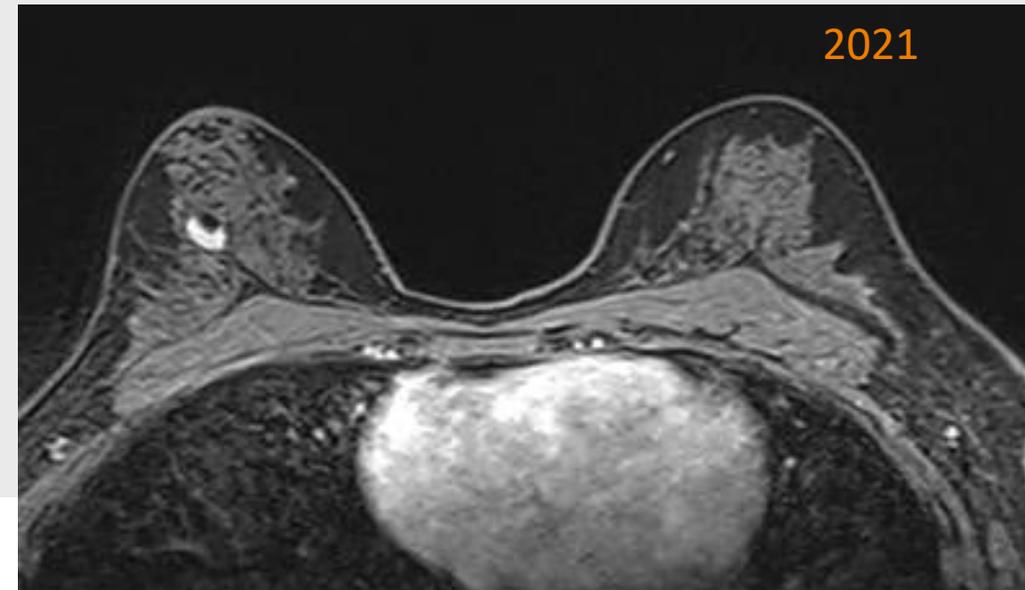
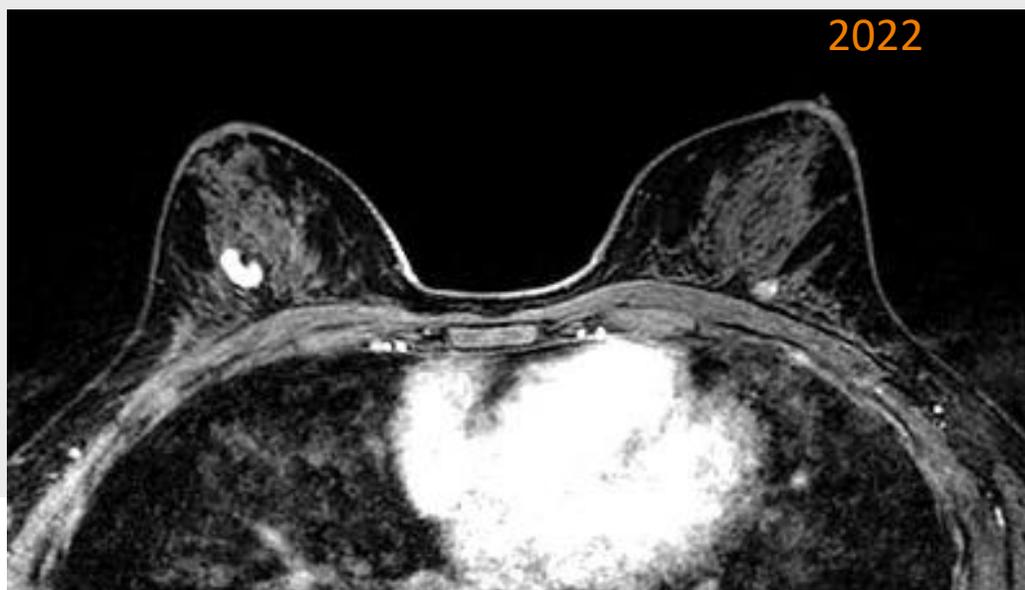
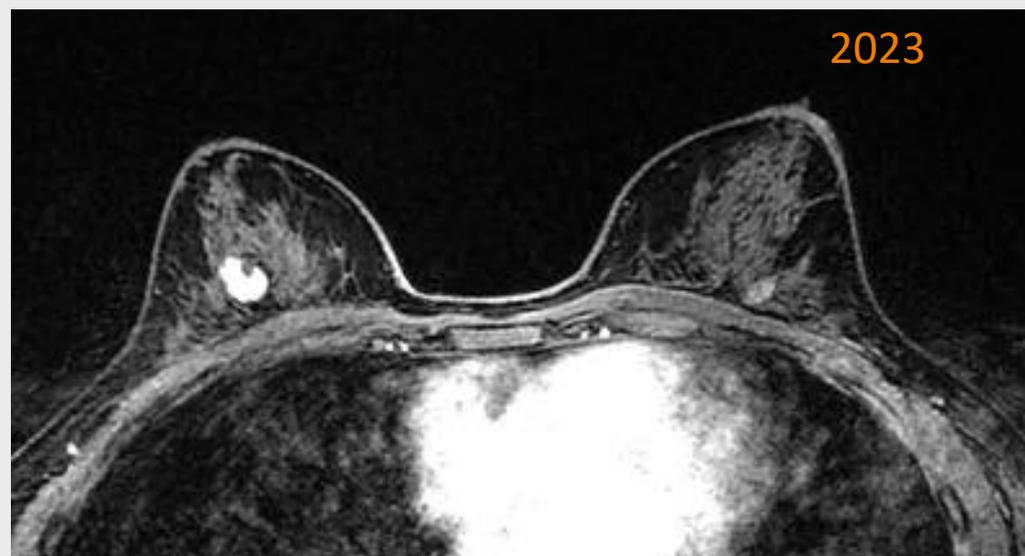
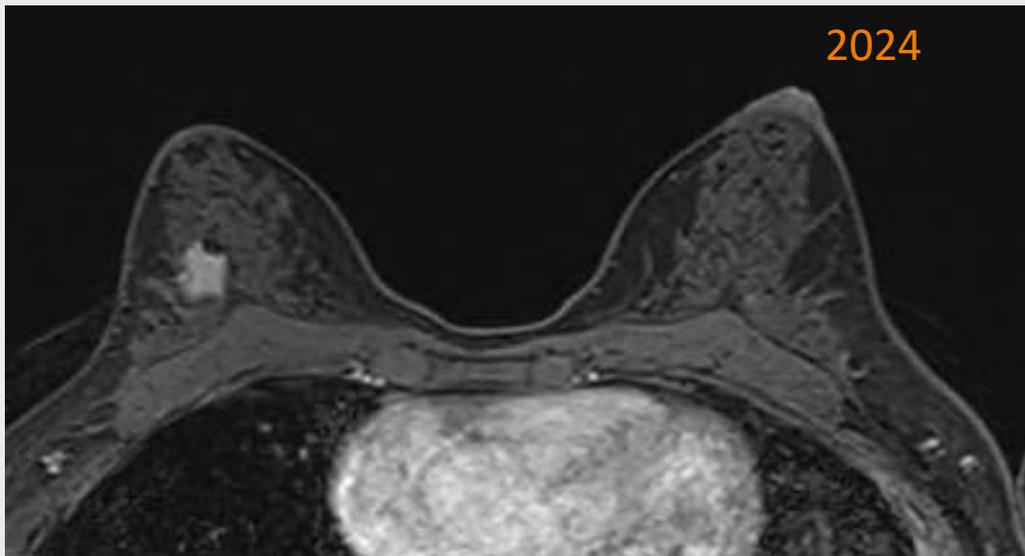


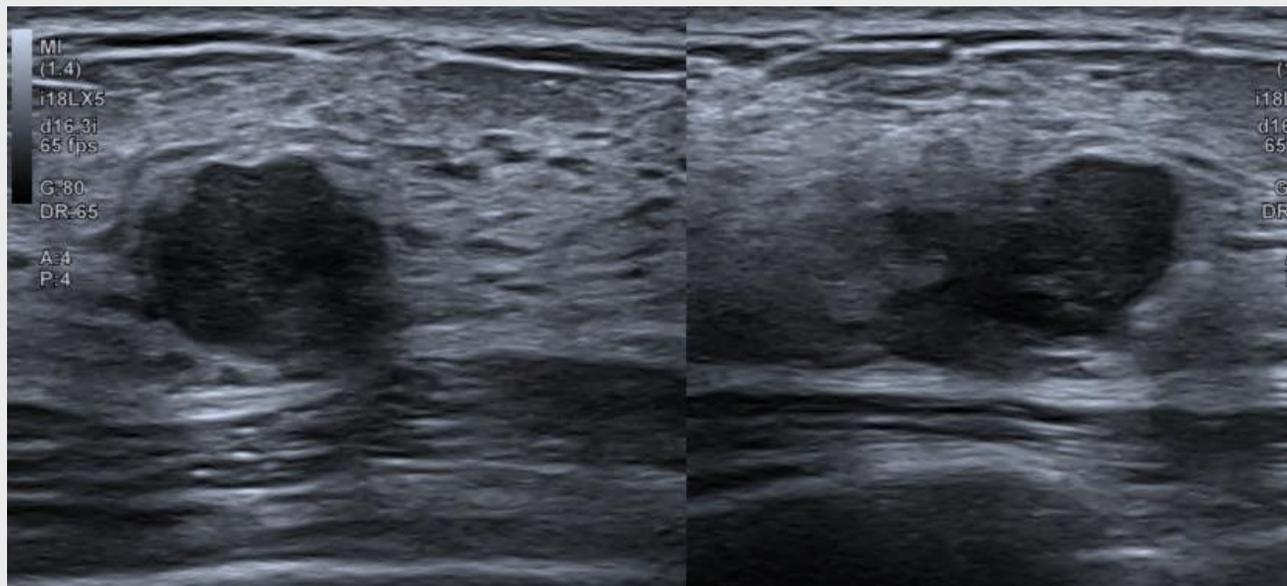


## Mastose Fibreuse Commune



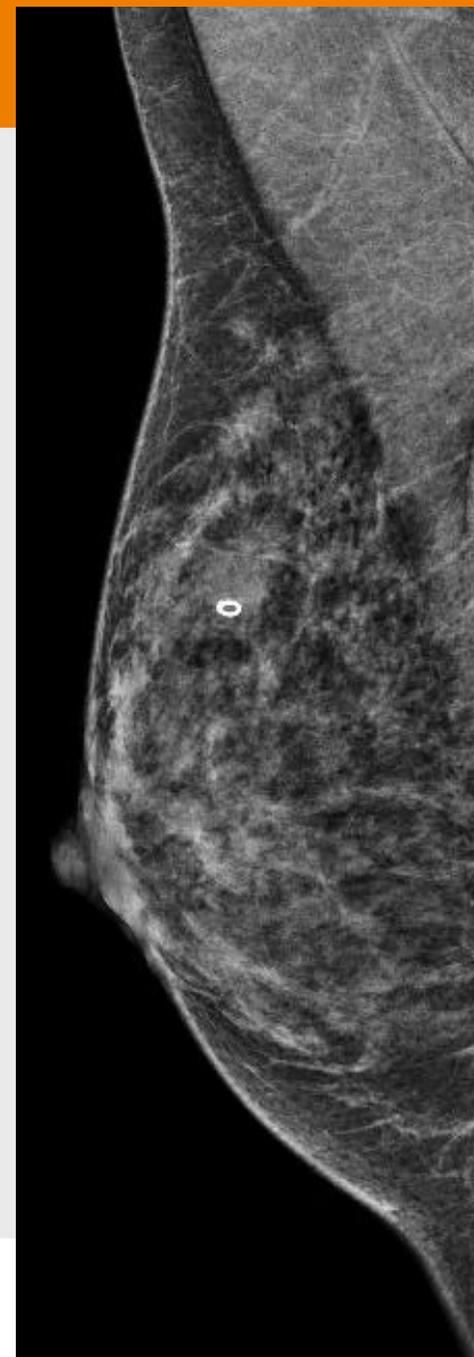






- »»» Carcinome lobulaire infiltrant de type classique
- Taille tumorale : 21 mm
  - Grade histopronostique (EE) : 2 (3+2+1)
  - Index mitotique faible, Ki67 30 %
  - Immunophenotype: RE+, RP+, HER2 score 0 (statut HER2 negatif)
  - Pas d'embolie neoplasique vasculaire
  - Stroma tumoral : 5% de lymphocytes
  - Sans extension retro-mamelonnaire
- Un ganglion sentinelle indemne d'envahissement tumoral.

Stade UICC/TNM version 8 : pT2 N0 (gs)



## HISTOLOGIES SPÉCIFIQUES

Fibroadénome  
Papillome  
Adénome Tubuleux  
Hématome  
Abcès  
Hamartome  
Nécrose graisseuse  
Ganglion  
Kyste  
Fibrome  
PASH

## HISTOLOGIES ASPÉCIFIQUES

Mastopathie fibreuse  
Modifications fibro-kystiques  
Métaplasie apocrine  
Hyperplasie canalaire  
Fibrose Stromale



En cas de masse

Comparaison à la classification BI-RADS pré-biopsie

Contrôle de la concordance radio-histologique

Revue des images de ciblage

Qualité de l'échantillonnage

- Nombre de spécimens

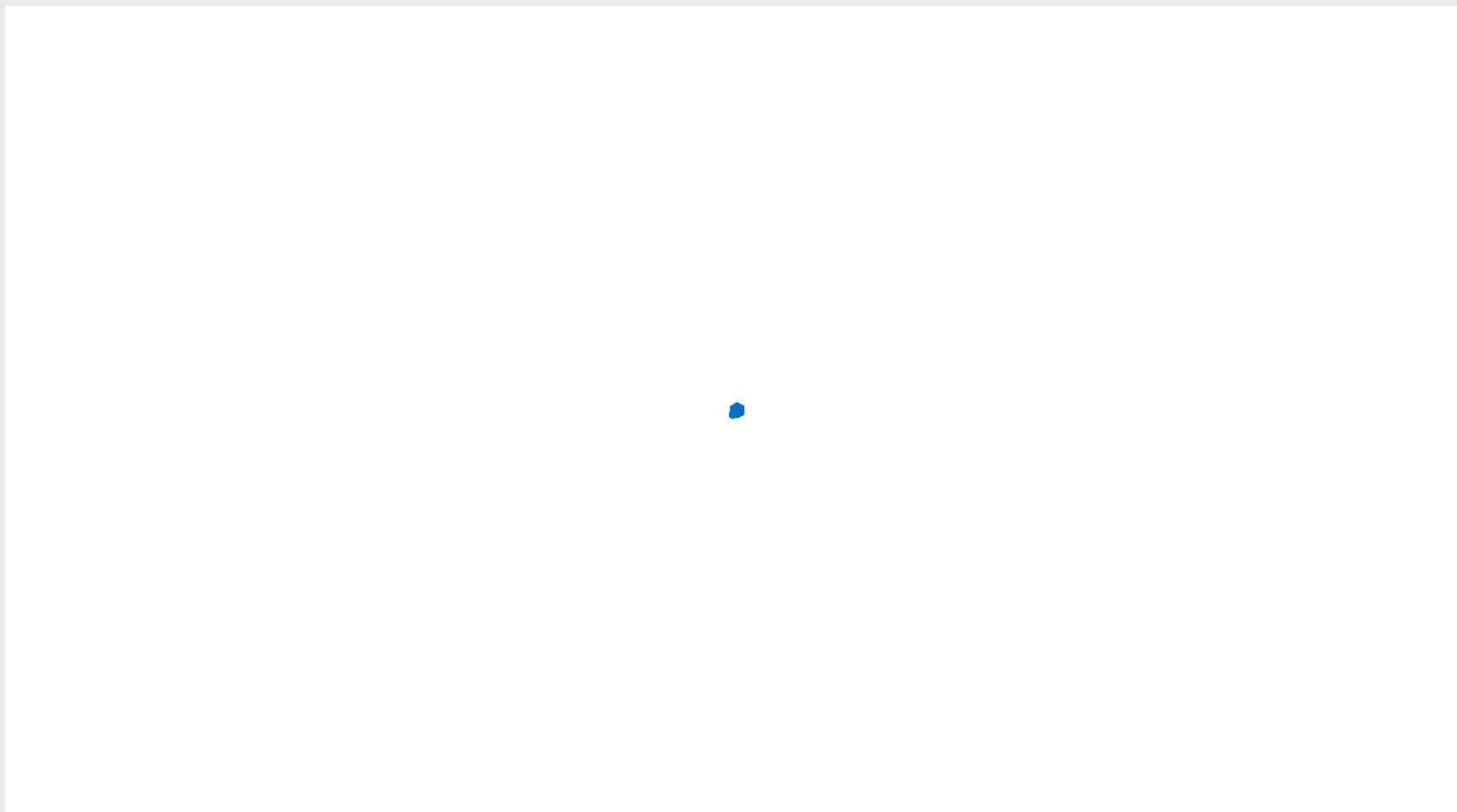
- Etat de la cible après prélèvements

Suivi post biopsie

- Pas de consensus : surveillance à 6 mois

- Reprise du suivi habituel ensuite

Prise en compte du risque individuel



Groupe hétérogène à potentiel malin incertain  
 Risque de sous-estimation de cancer au diagnostic initial et de cancer ultérieur

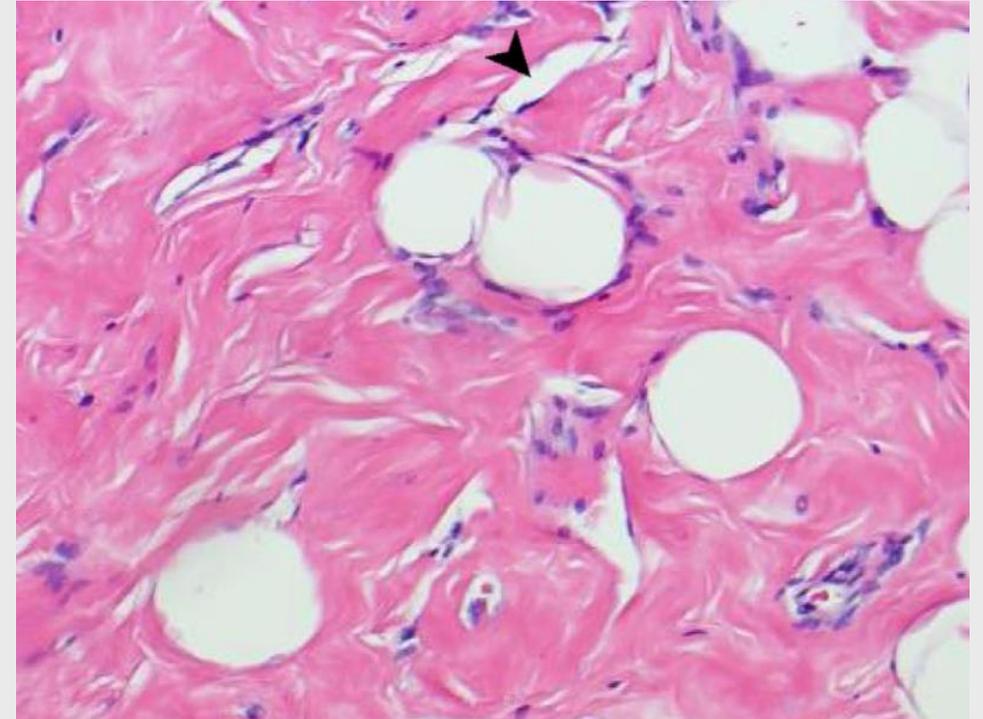
Summary of rates of upgrade to malignancy of commonest B3 lesions.

B3 lesion	Total upgrade to malignancy	Upgrade to DCIS	Upgrade to Invasive
Atypical ductal hyperplasia (ADH) [17-19]	0-50% (22%)	20%	5%
Atypical lobular hyperplasia (ALH) [42]	12%	9%	2%
Classical lobular neoplasia (cLCIS) [41,42]	22%	15%	7%
Flat epithelial atypia (FEA) [60,61]	0-5%	1%	2%
Radial scar/Complex sclerosing lesions (RS/CSL) [77,78]	1-10%	1-5%	1%
Intraductal papilloma (IDP) [87,89]	<10%	5%	2%

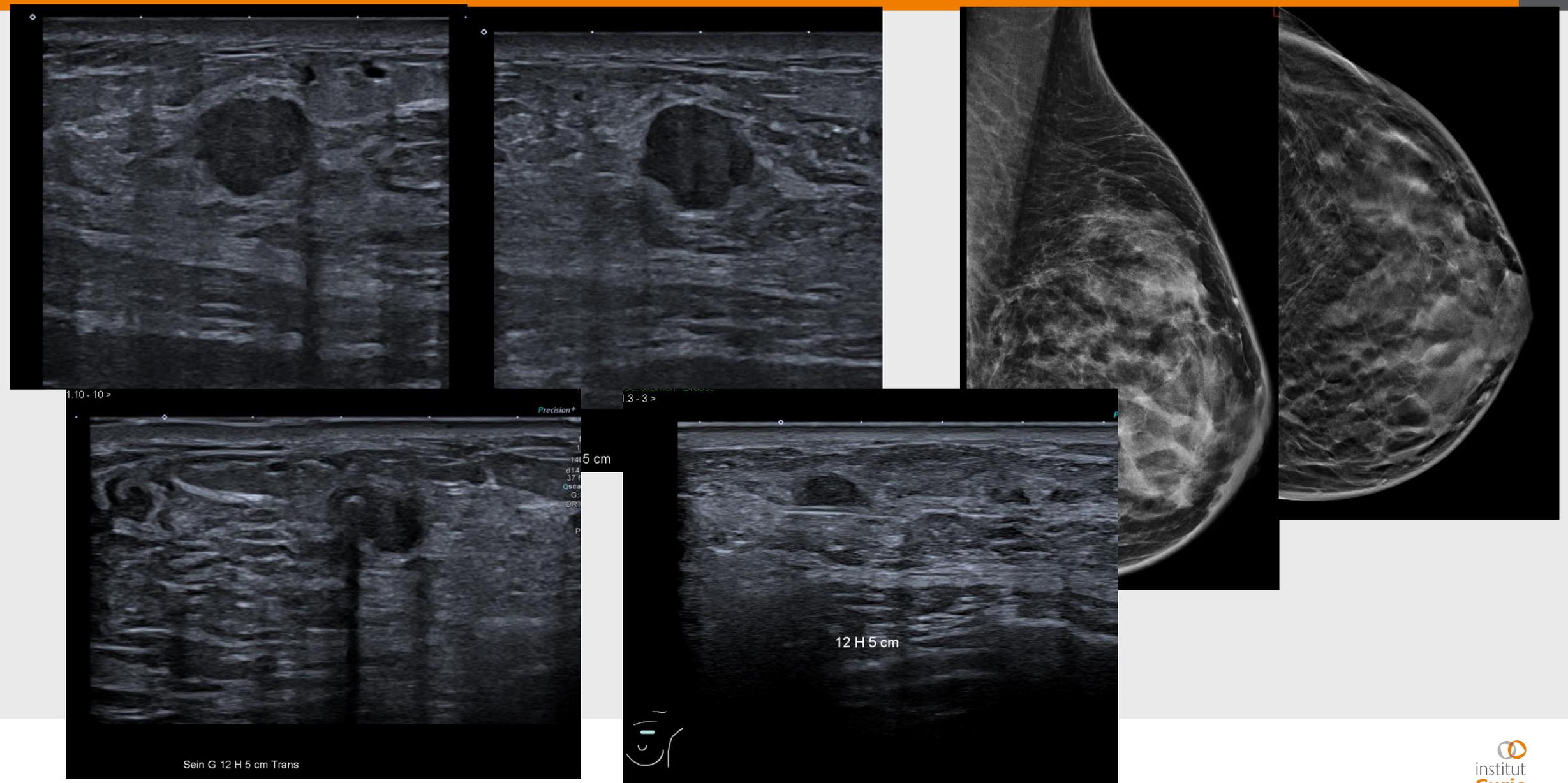
Rubio et al., EJSO 2024

# Hyperplasie Stromale Pseudo Angiomateuse (PASH)

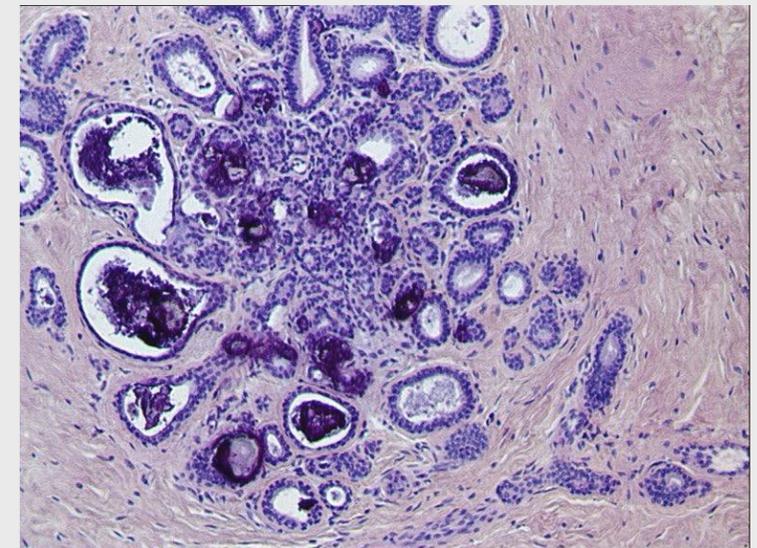
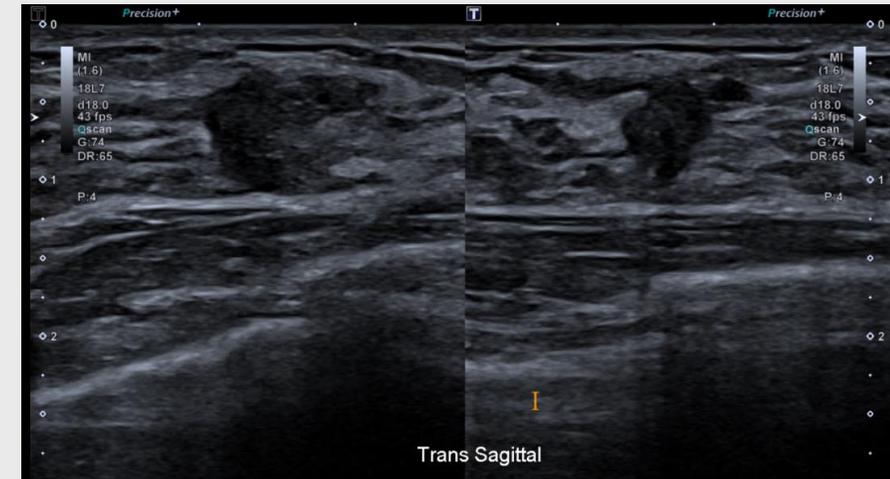
- Présentation non spécifique
- Souvent palpable, en pré-ménopause
- Masse plutôt circonscrite
  - Mime fibroadenome
- Plage hypoéchogène
- IRM :
  - RNM
    - focal, régional ou segmentaire
    - plateau ou progressif
  - Masse
- Pathologie : prolifération anormale du stroma qui forme des fentes simulant des vaisseaux sanguins, sans cellules endothéliales
- Lésion Bénigne



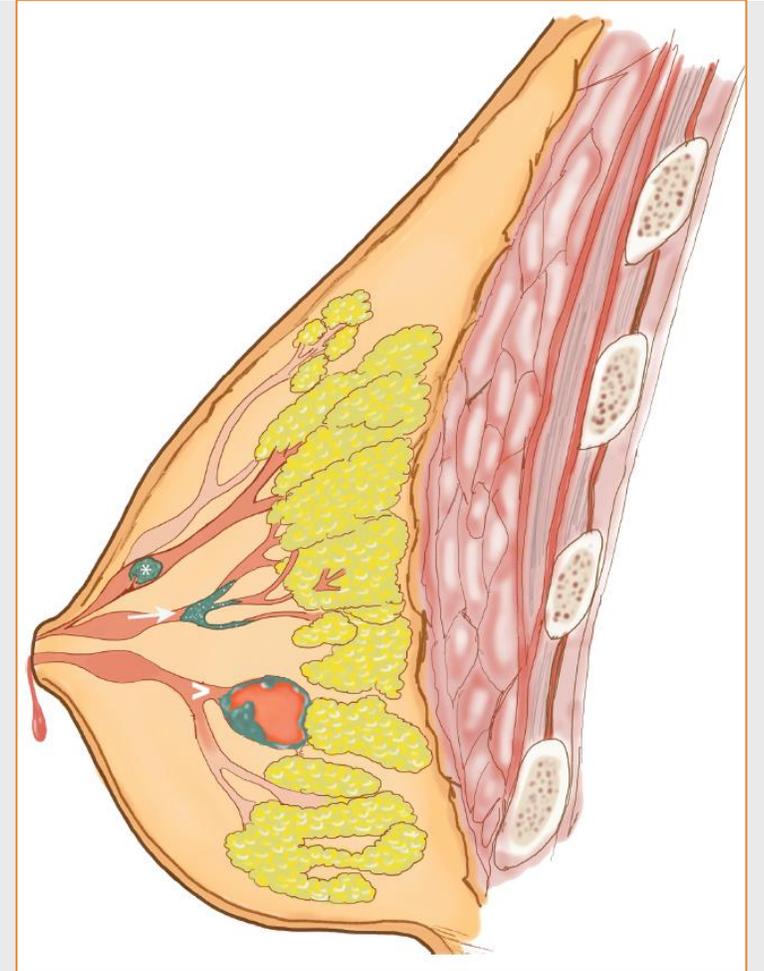
Raj SD et al., Current Problems in Diagnostic Radiology 2017



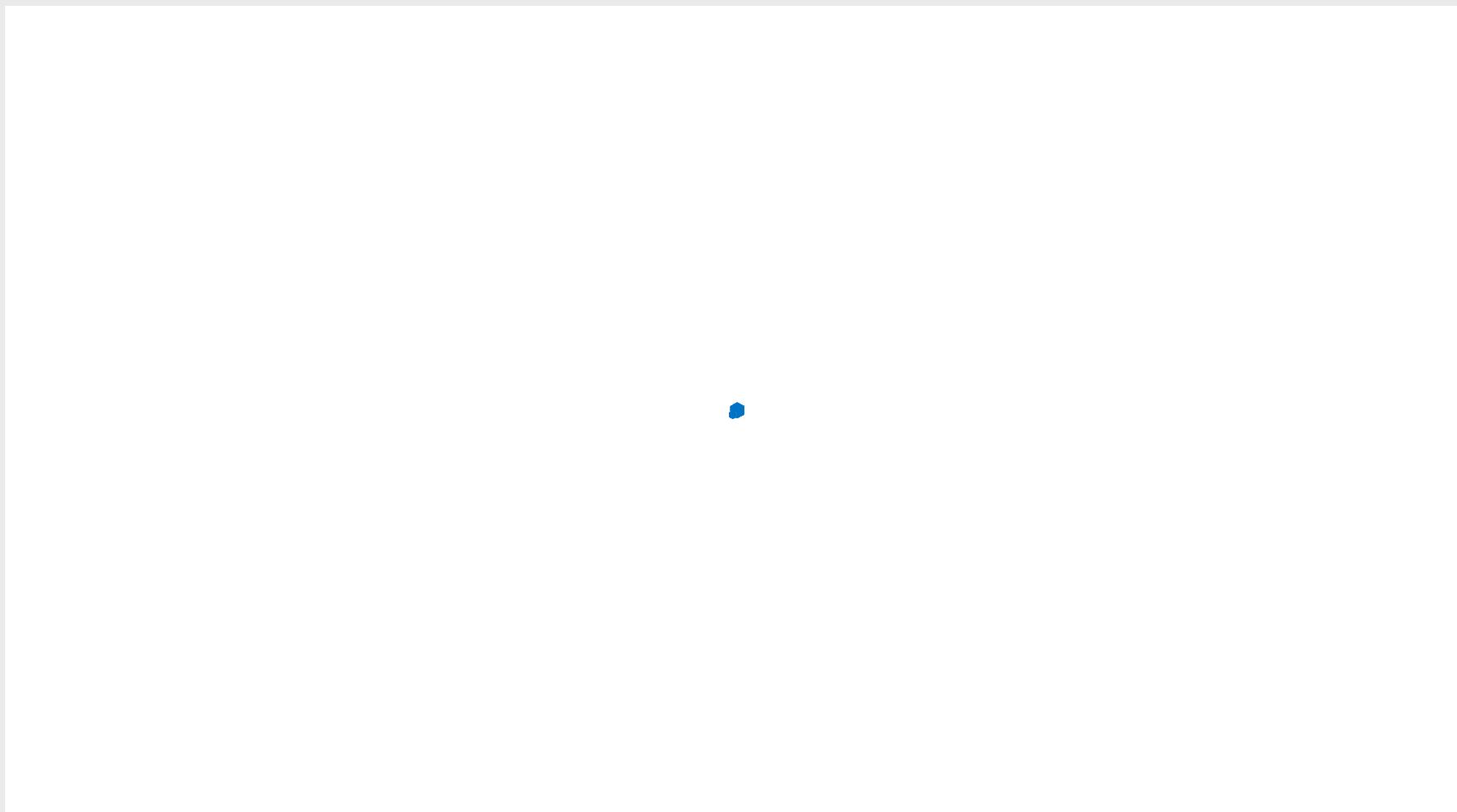
- **Adénose** : Prolifération bénigne avec dilatation et distorsion des acini
- **Fibrose** stromale périlobulaire induisant une sclérose
- Architecture lobulaire préservée, mais distordue
- Présentation variable en Imagerie, pouvant simuler un carcinome infiltrant
- Masse : contours irréguliers voire spiculés, volontiers classée ACR5
  - Discordant BENIN
- Distorsion architecturale
- Microcalcifications (40–55 % des cas)



Tumeurs mammaires rares  
Projections intracanalaires type masse,  
avec un axe fibrovasculaire et un revêtement  
épithélial  
Echographie +++: nodule solide homogène  
ou lésion intracystique complexe  
Mammographie : masse  $\pm$  microcalcifications



Nunez DL et al., Breast Cancer Management 2020



**Table 1. Papillary breast lesion classification.**

**Benign papillary lesions**

1. Intraductal papilloma (solitary)
2. Intraductal papillomatosis

**Atypical papillary lesions**

1. Intraductal papilloma with atypical hyperplasia
2. Papilloma with DCIS

**Malignant papillary lesions**

**Noninvasive:**

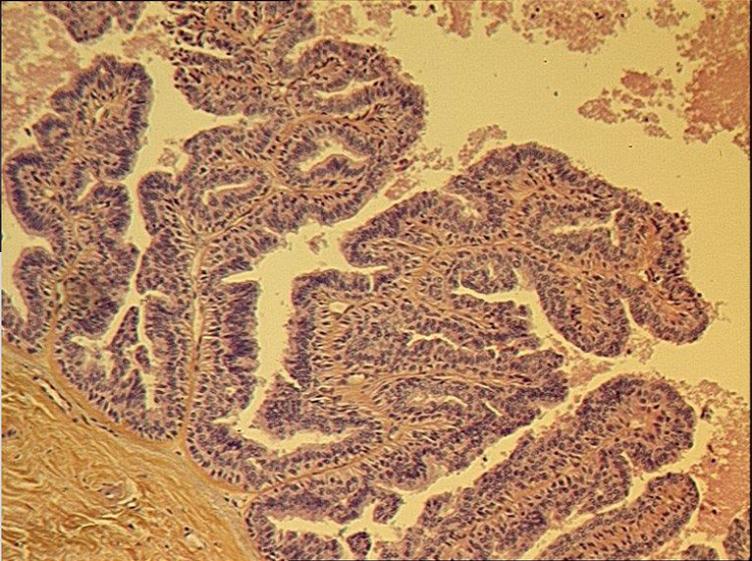
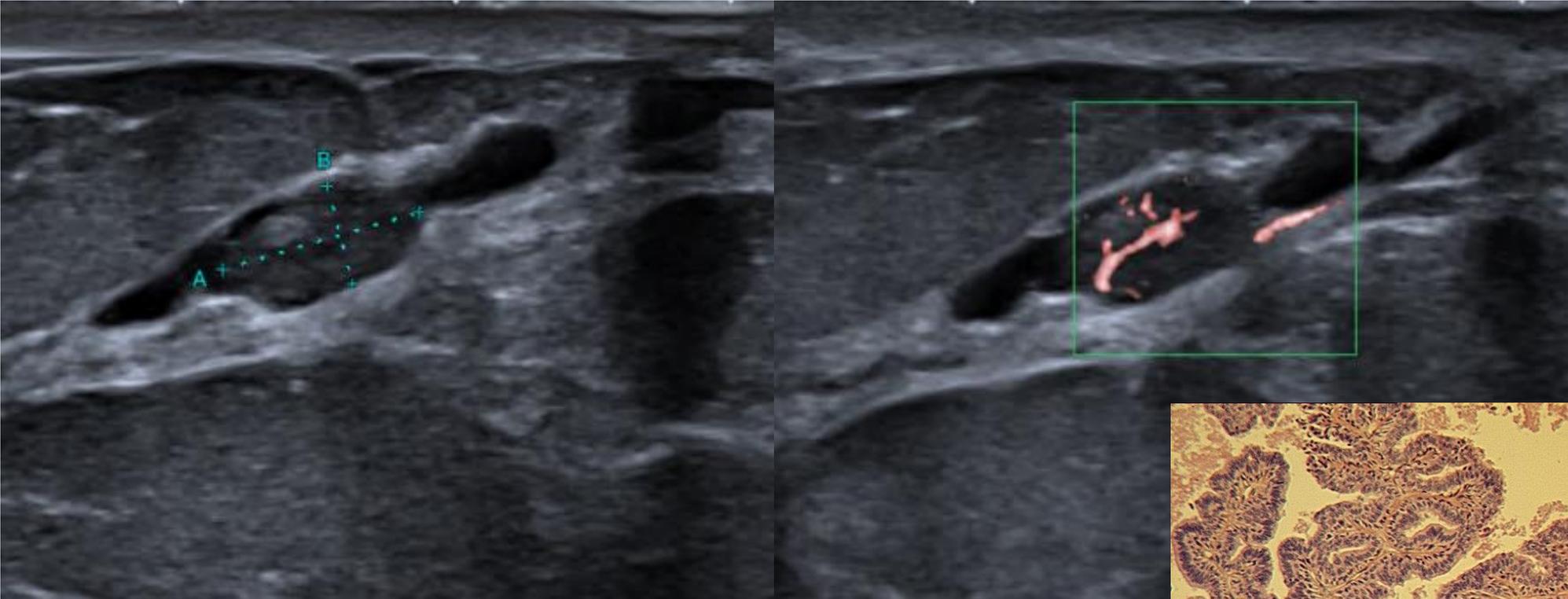
1. Papillary ductal carcinoma *in situ*
2. Encapsulated papillary carcinoma
3. Solid papillary carcinoma

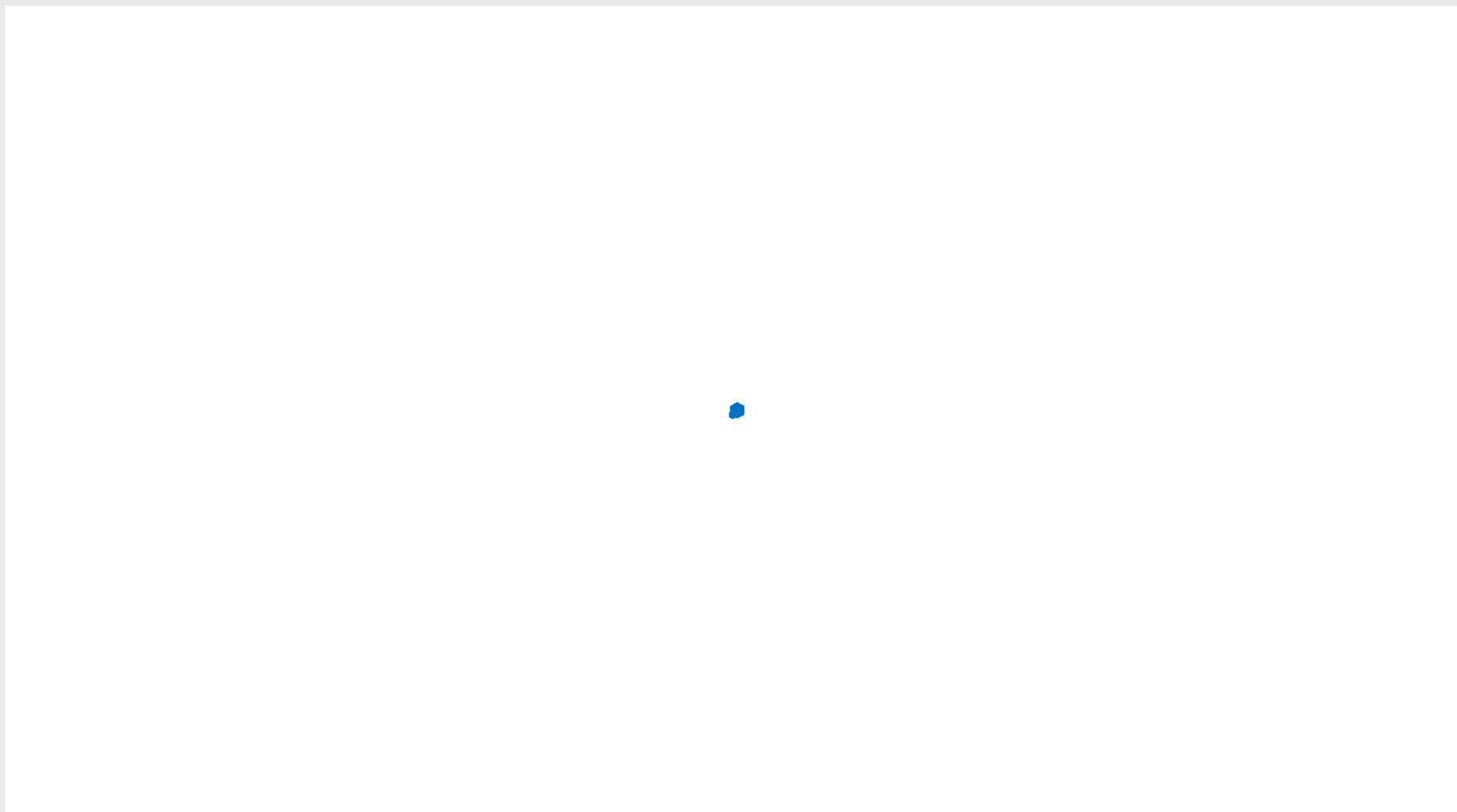
**Invasive:**

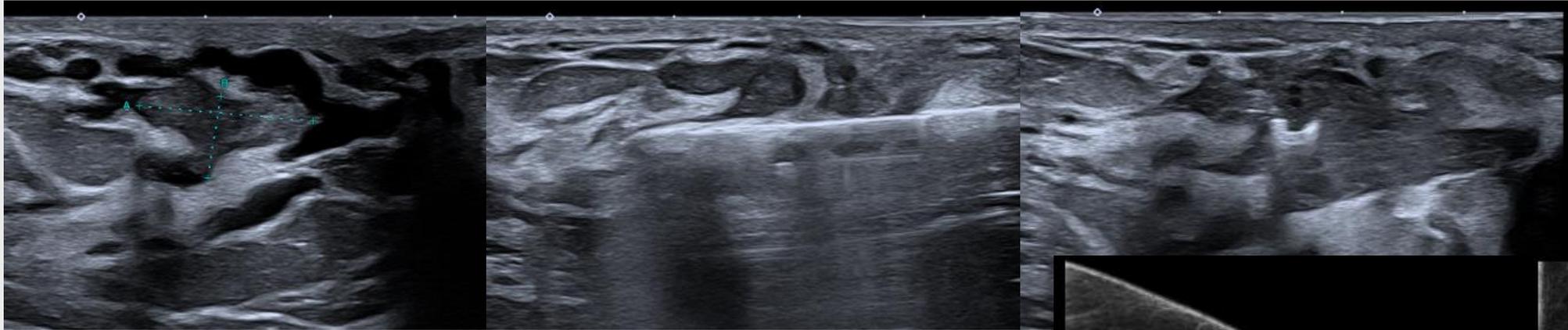
1. Invasive papillary carcinoma
2. Invasive micropapillary carcinoma

DCIS: Ductal carcinoma *in situ*.

Nunez DL et al, Breast Cancer Management 2020







Imagerie de la Femme 35 (2025) 26–39



ELSEVIER

Disponible en ligne sur  
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[www.sciencedirect.com](http://www.sciencedirect.com)

Elsevier Masson France  
**EM|consulte**  
[www.em-consulte.com](http://www.em-consulte.com)



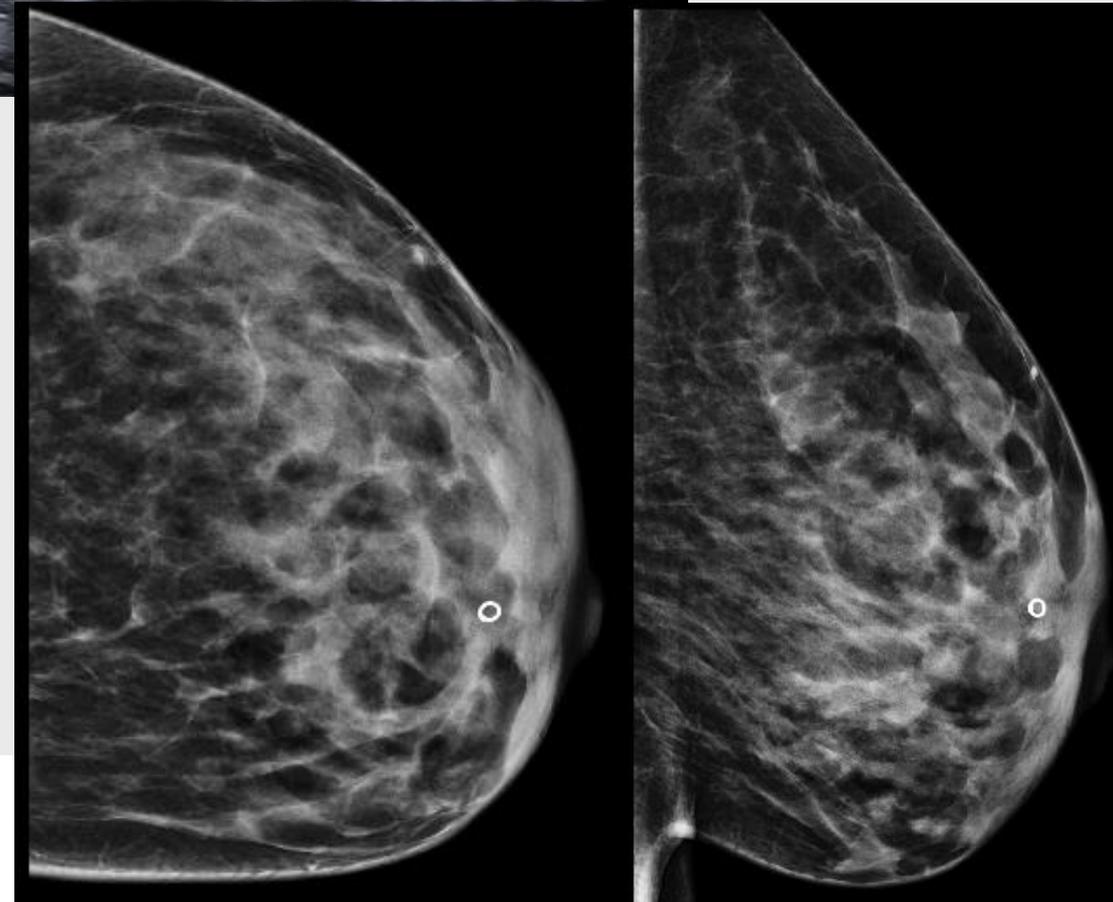
MISE AU POINT

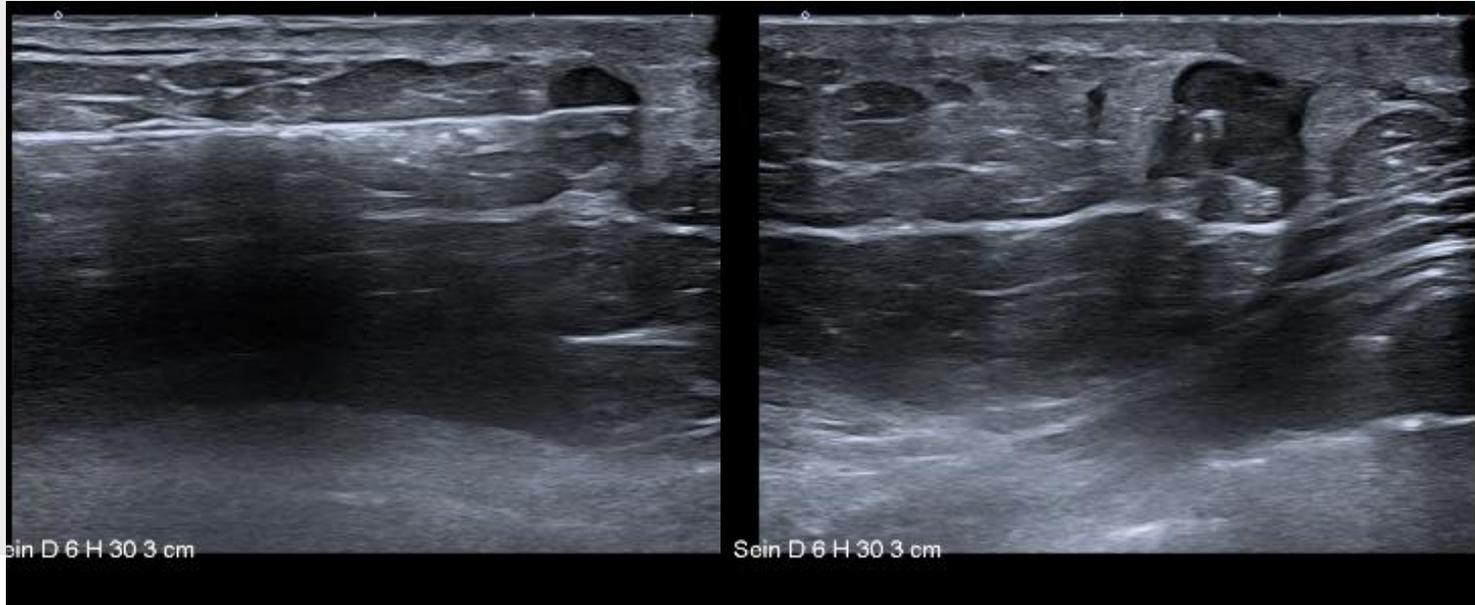
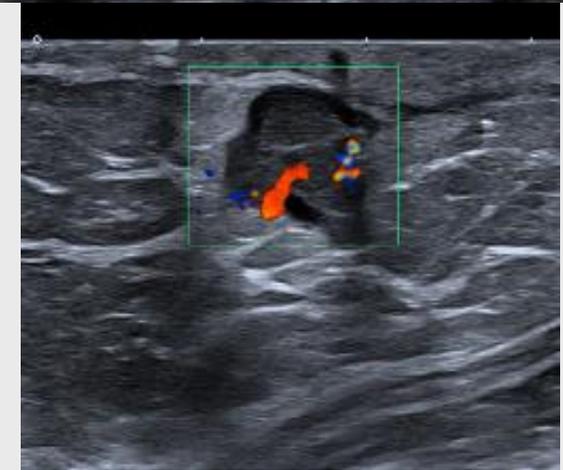
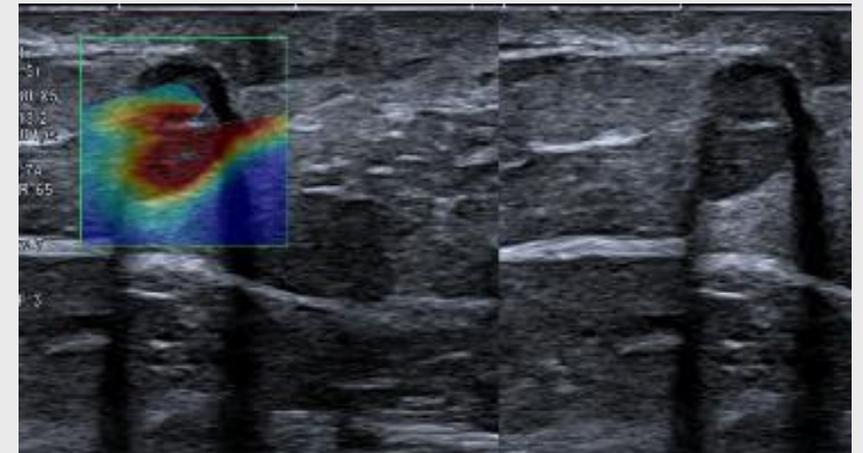
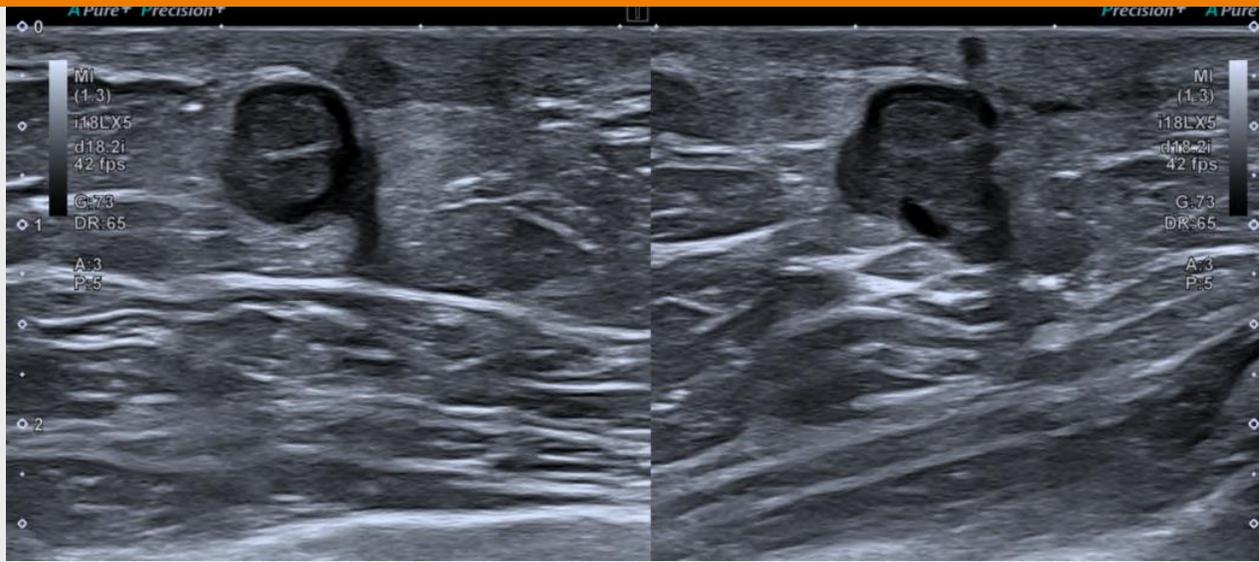
## Prise en charge des lésions mammaires à risque : rappels et mise à jour selon les recommandations européennes de 2024



*Management of high-risk breast lesions: Overview and updates according to the 2024 European Guidelines*

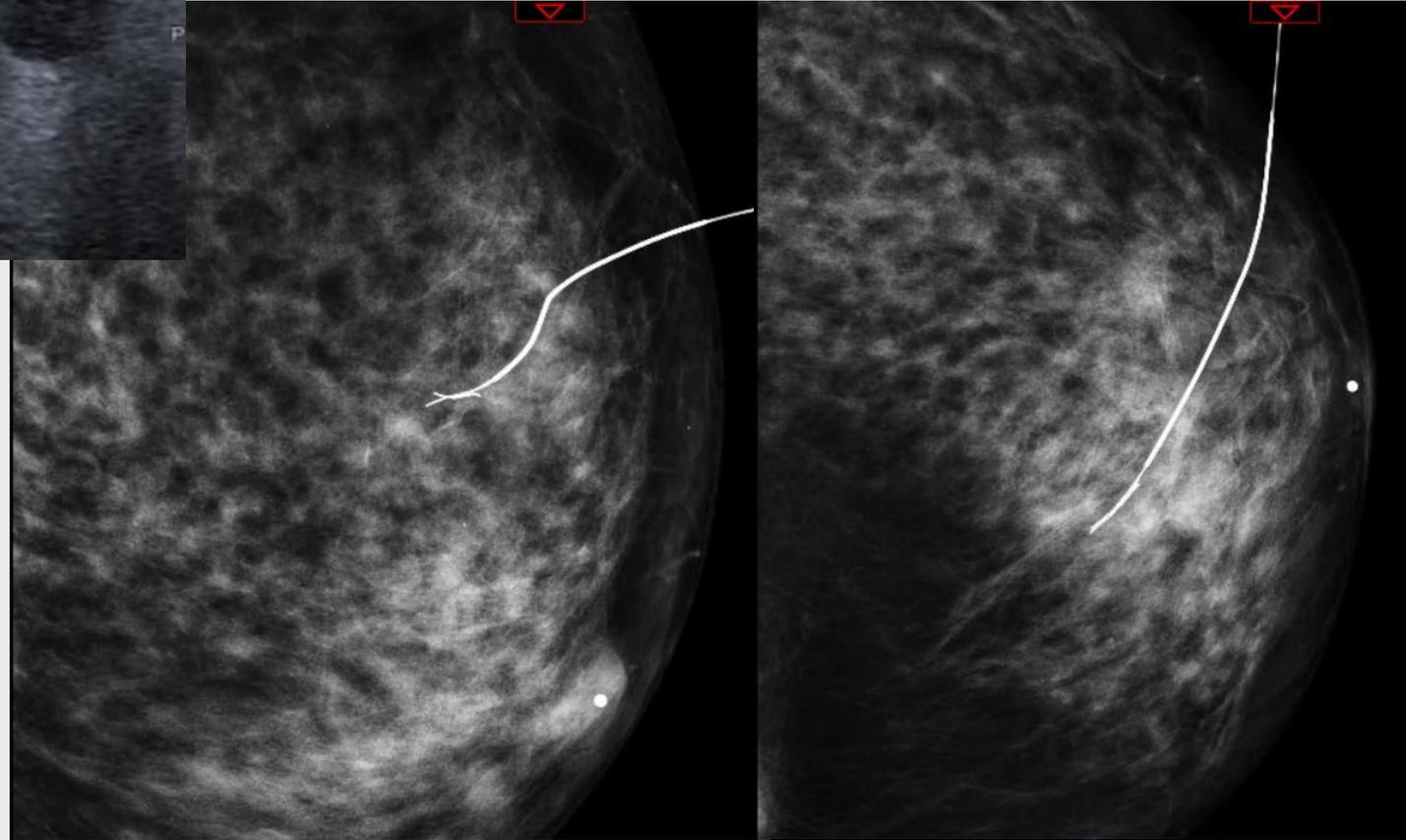
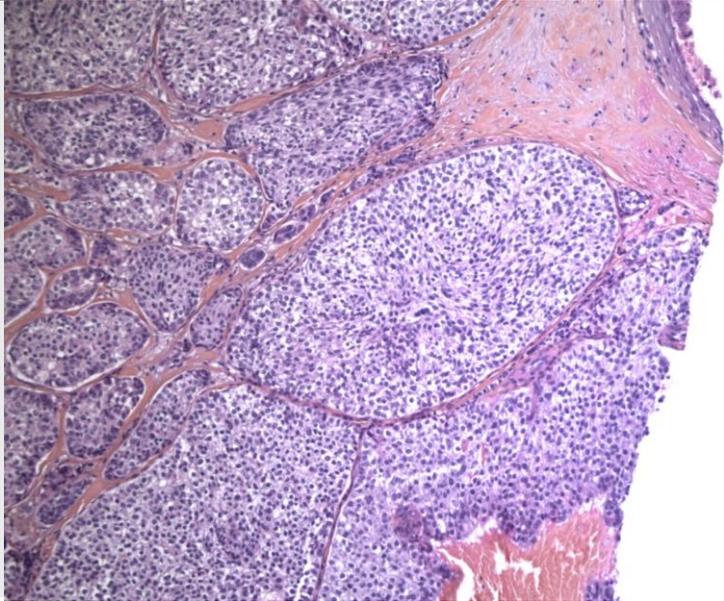
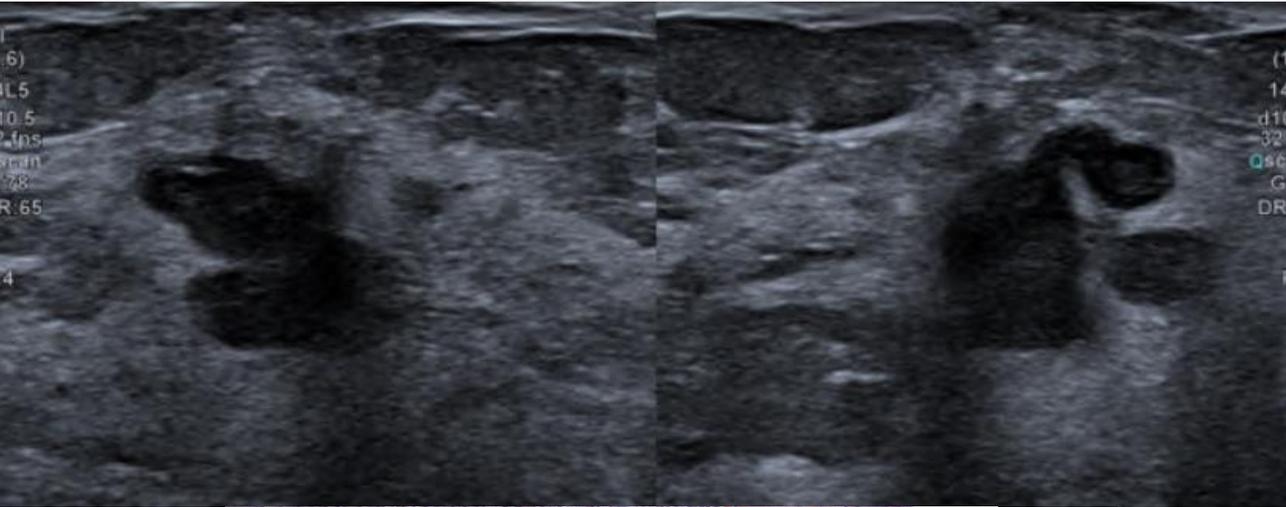
Constance Rivière<sup>a,\*</sup>, Aurélie Jalaguier-Coudray<sup>a,b</sup>,  
Estelle Pipon-Habert<sup>a</sup>, Florian Pesce<sup>c</sup>,  
Antonia Boisselier<sup>a</sup>

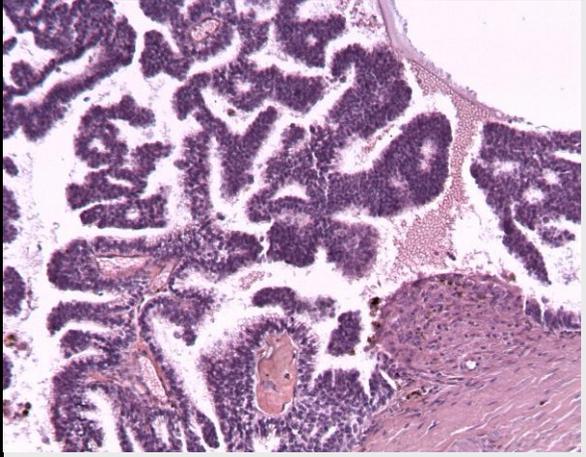
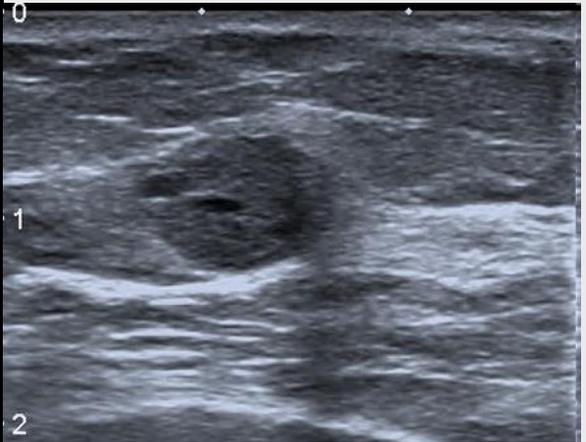
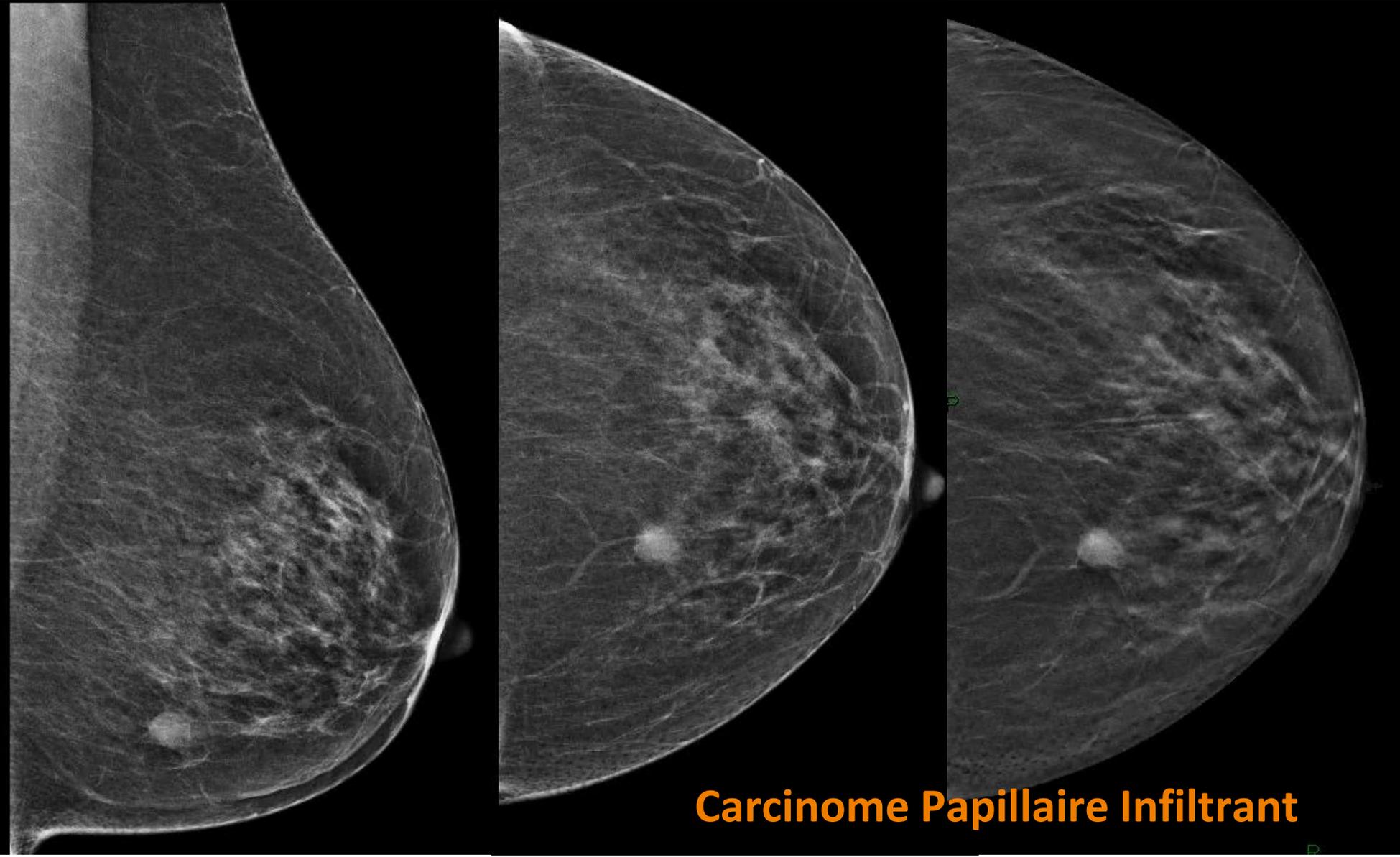




## Carcinome Papillaire Encapsulé

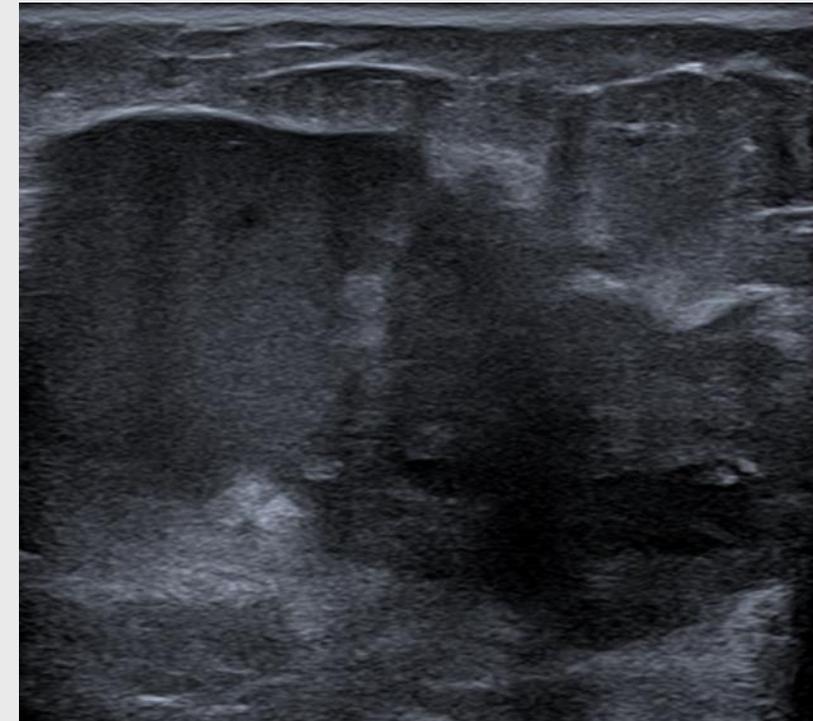
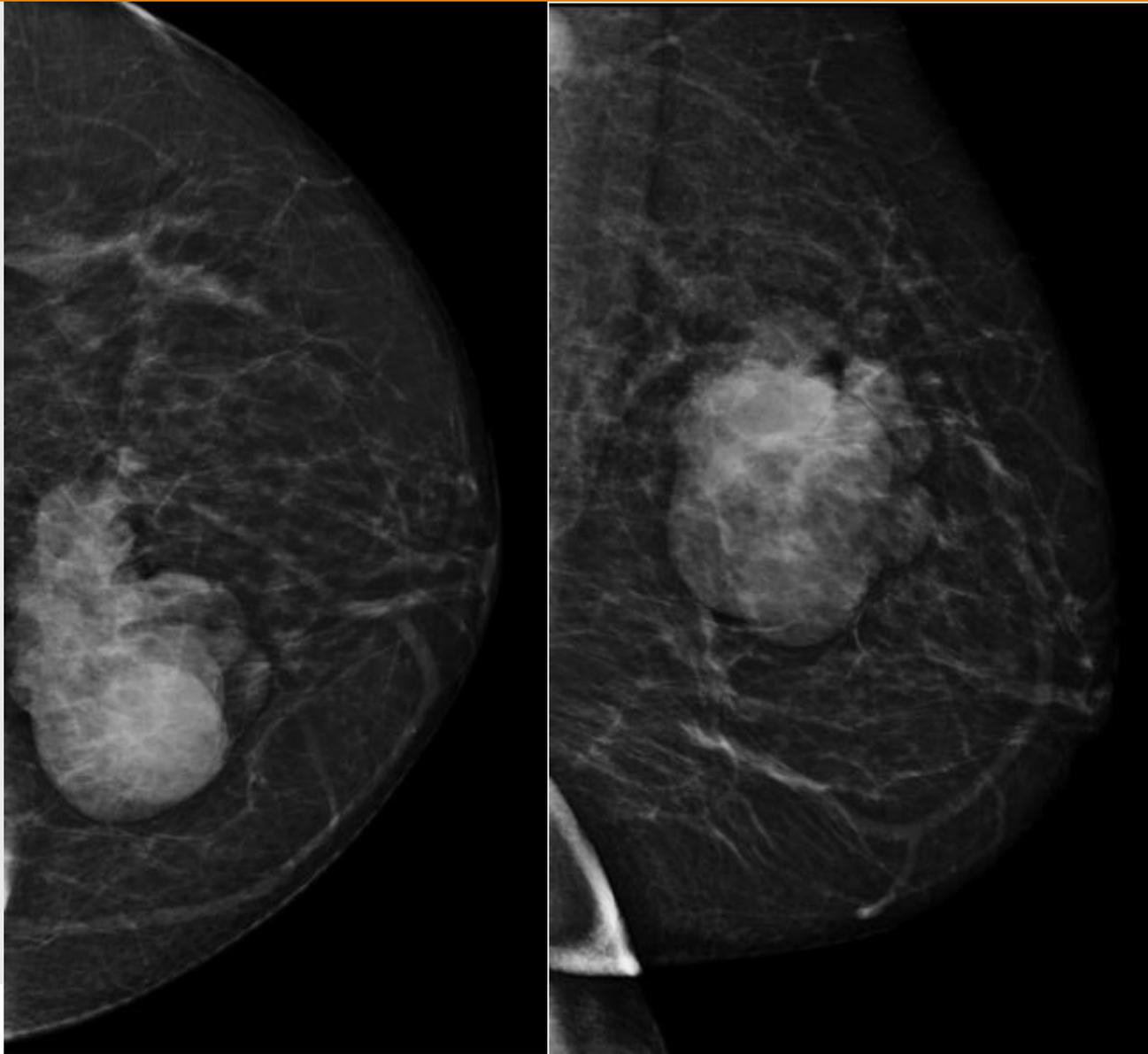
## Carcinome Papillaire Solide

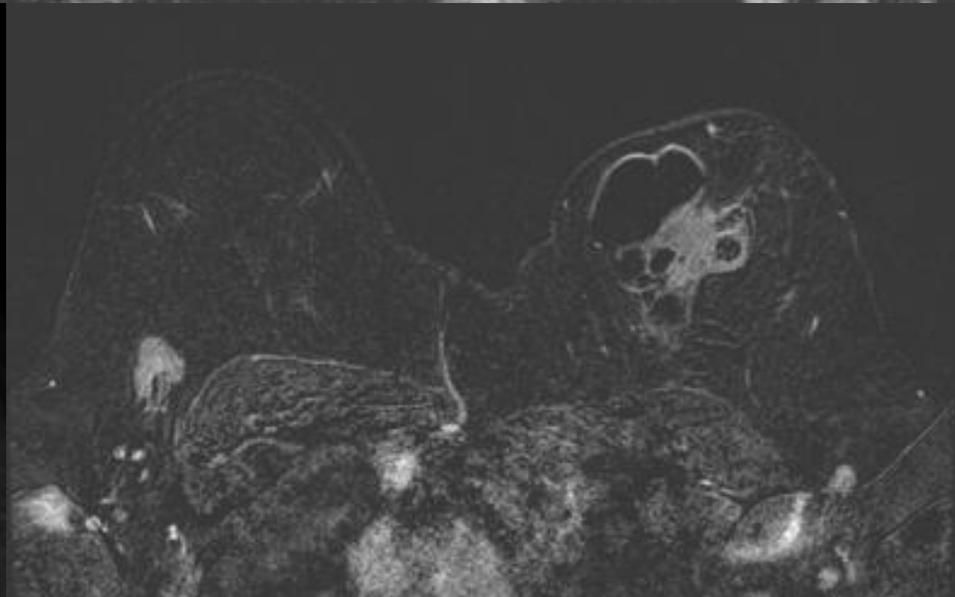
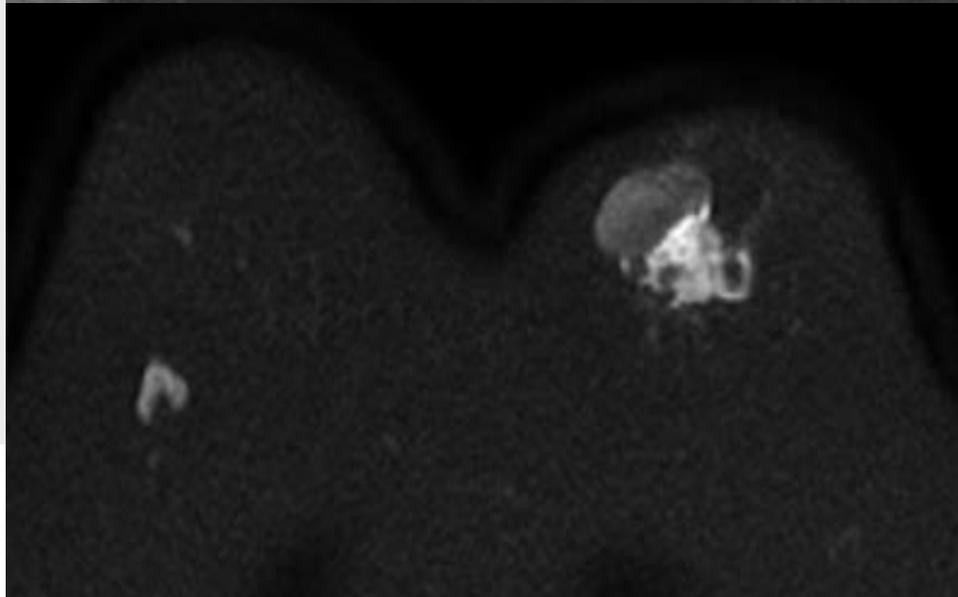
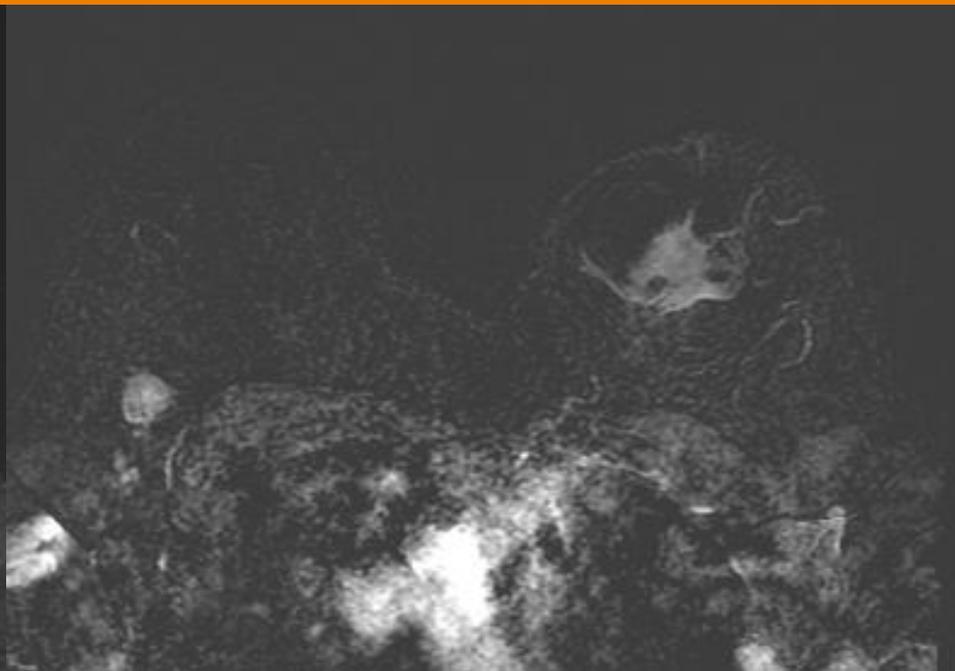
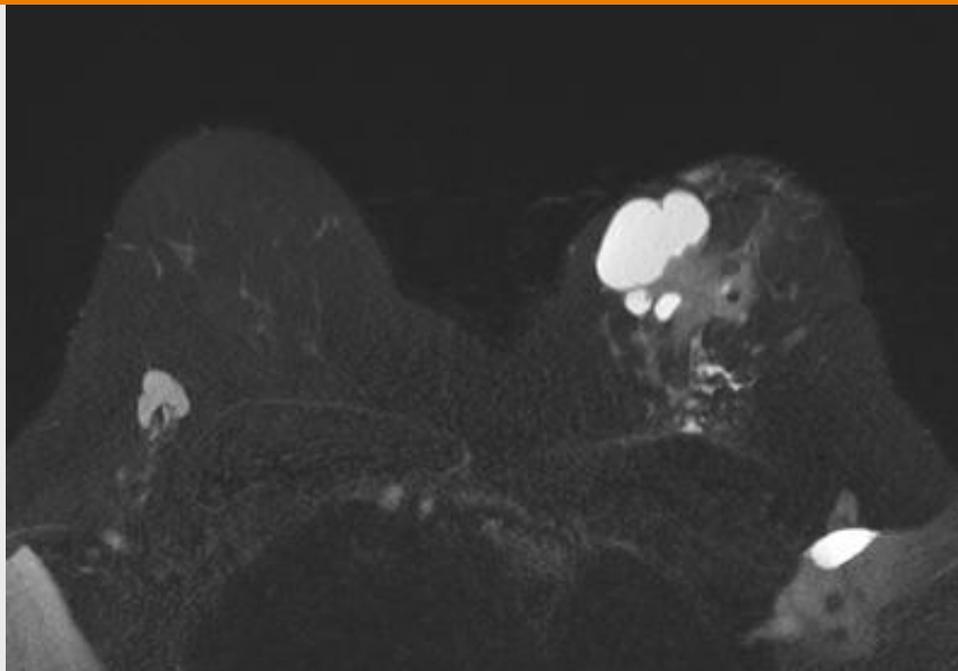




**Carcinome Papillaire Infiltrant**

## Carcinome Micropapillaire Infiltrant



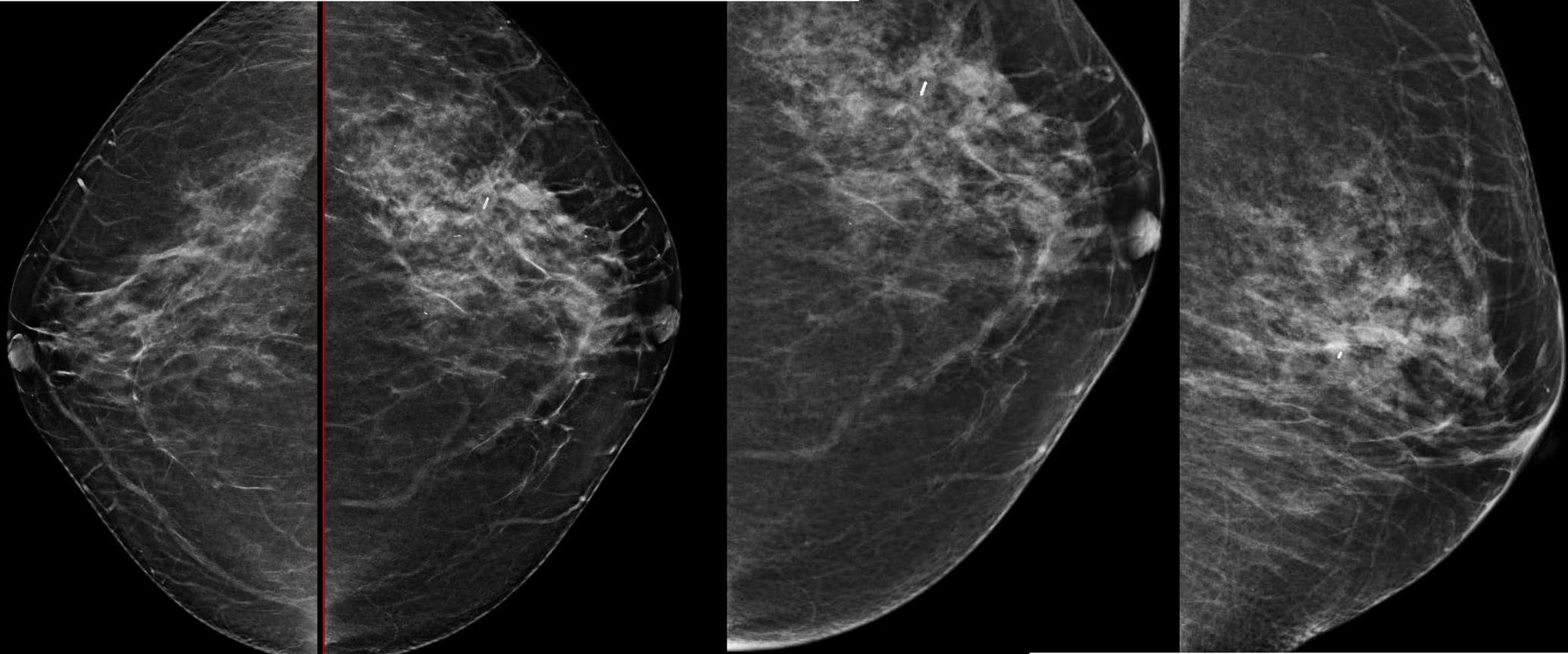


macrobiopsies stéréotaxiques du sein gauche le 14 janvier 2025.

Un clip posé. Radiographie des prélèvements visible calcifications présentes.

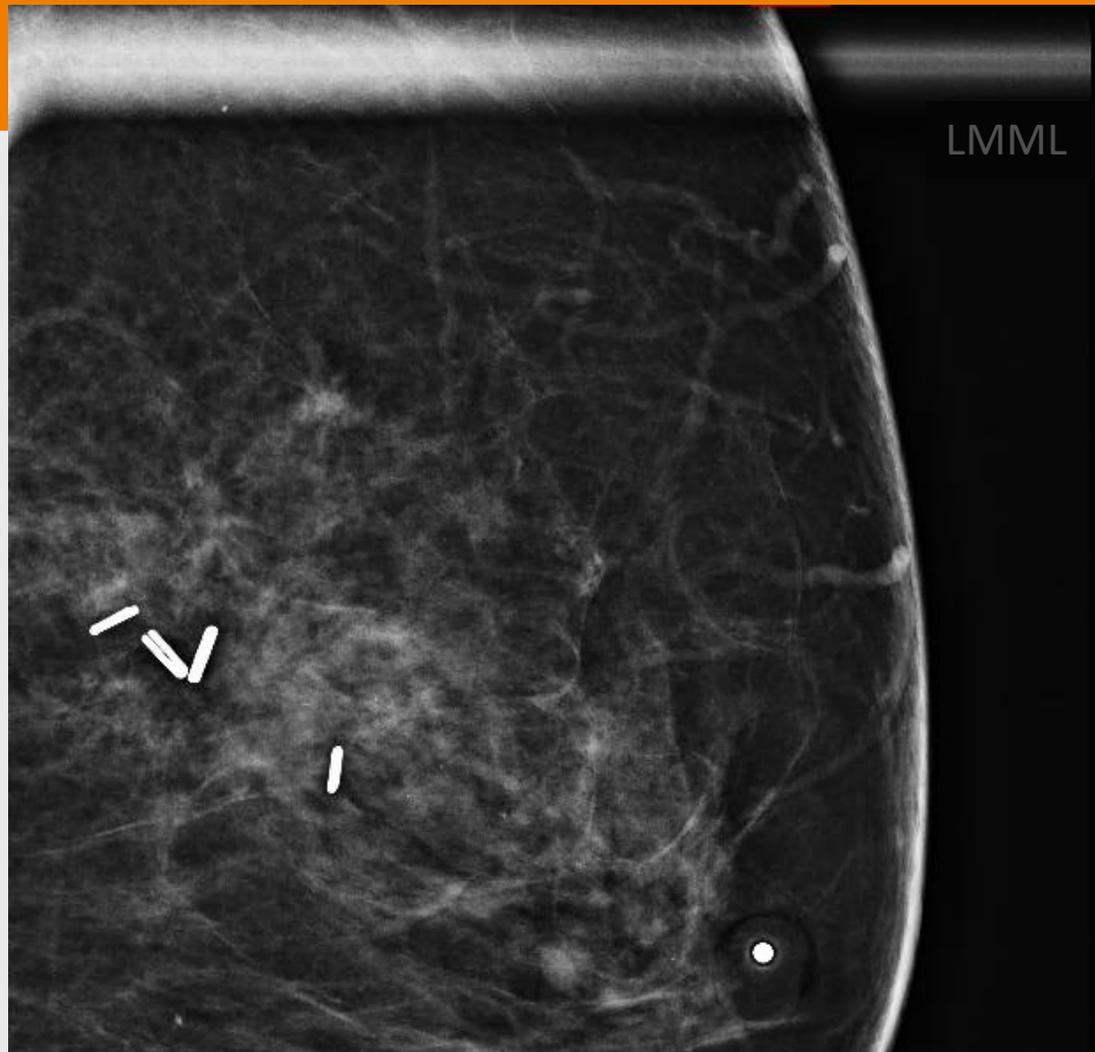
**Histologie : papillo adénome et hyperplasie canalaire atypique associée.**

Étalement d'un écoulement mamelonnaire gauche : **placards de cellules d'interprétation difficile. prolifération papillaire ?**





LMCC



LMML

CAT ?

»» Mastectomie partielle gauche (UQE) :

Carcinome Canalaire In Situ

- Grade : Haut

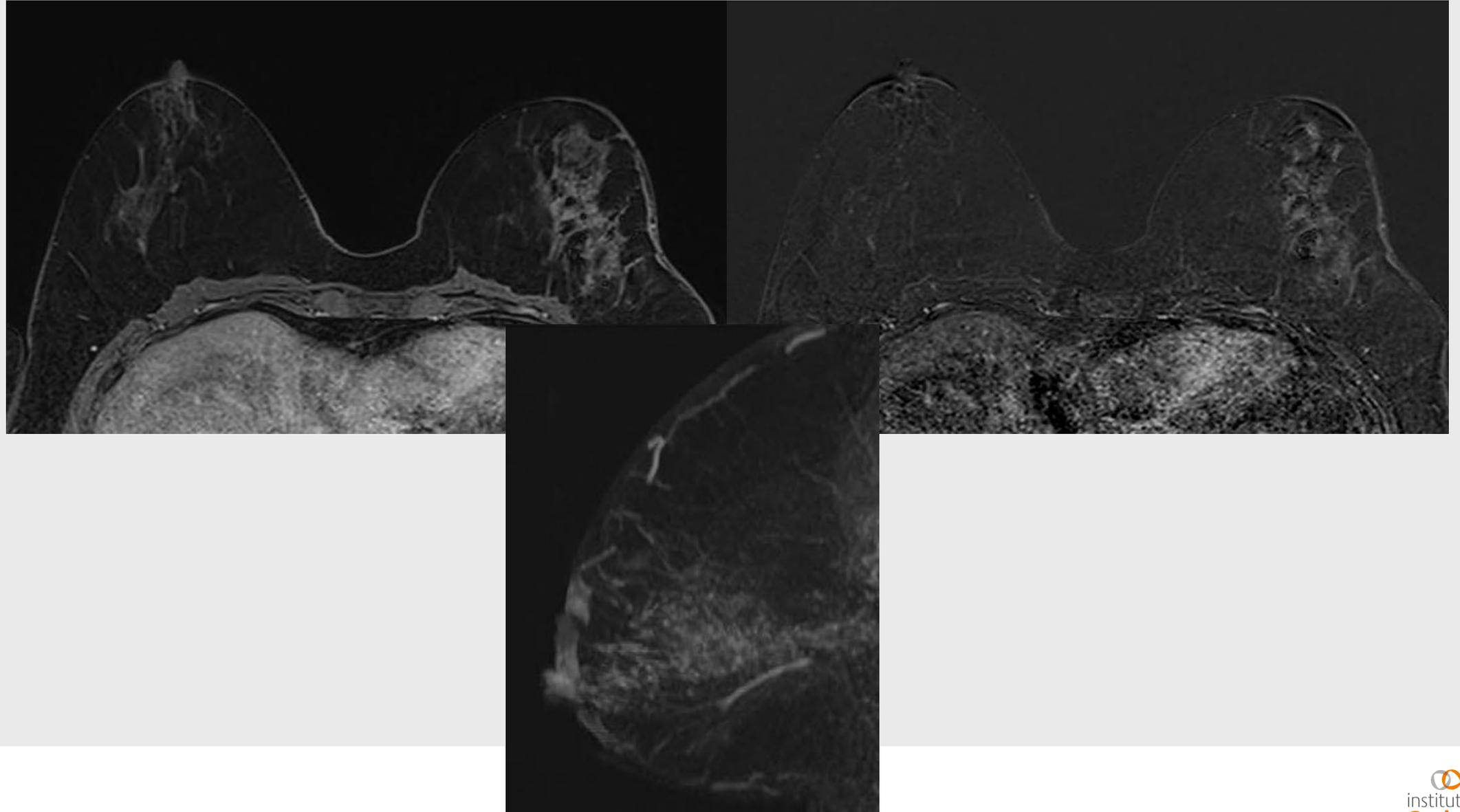
- Etendue des lésions : 45 mm

- Absence de composante microinfiltrante ou infiltrante

- TILS : 5%

- CCIS située au contact des limites externe et interne, à moins de 1 mm de la limite inférieure et à 1,5 mm de la limite supérieure.

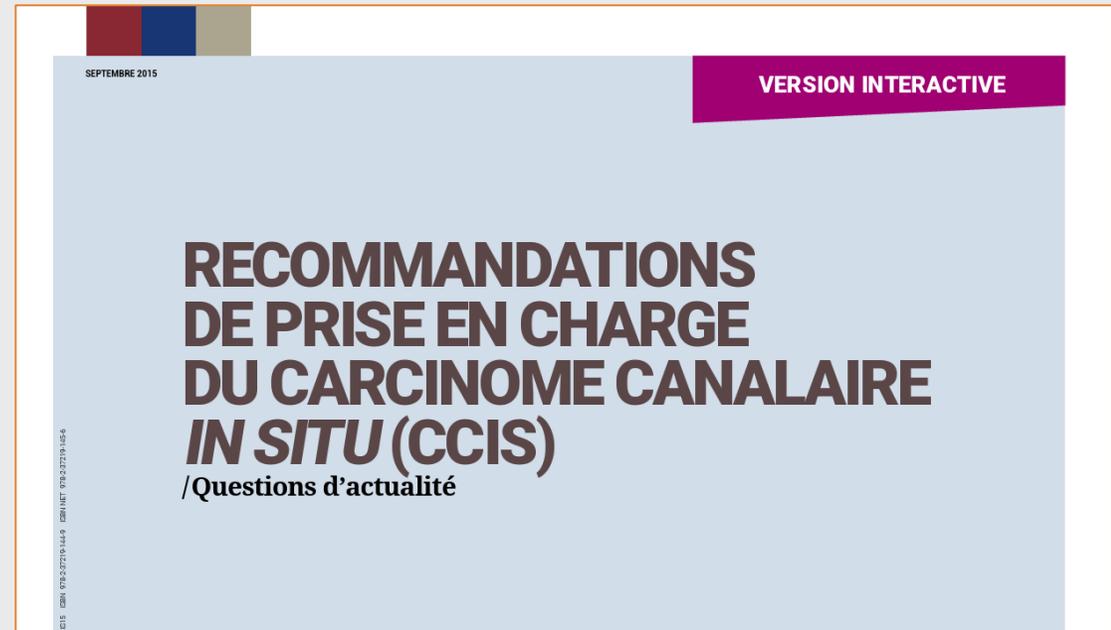
Classification TNM (8ème édition, UICC 2017) : pTis (CCIS)



IRM non indiquée pour évaluation pre-operatoire des CCIS

Sauf quand :

- Femmes à haut risque
- Maladie de Paget ou bilan radiologique standard normal
- Discordance radio-clinique



Pitarch et al. *Insights into Imaging* (2025)16:70  
<https://doi.org/10.1186/s13244-025-01947-1>



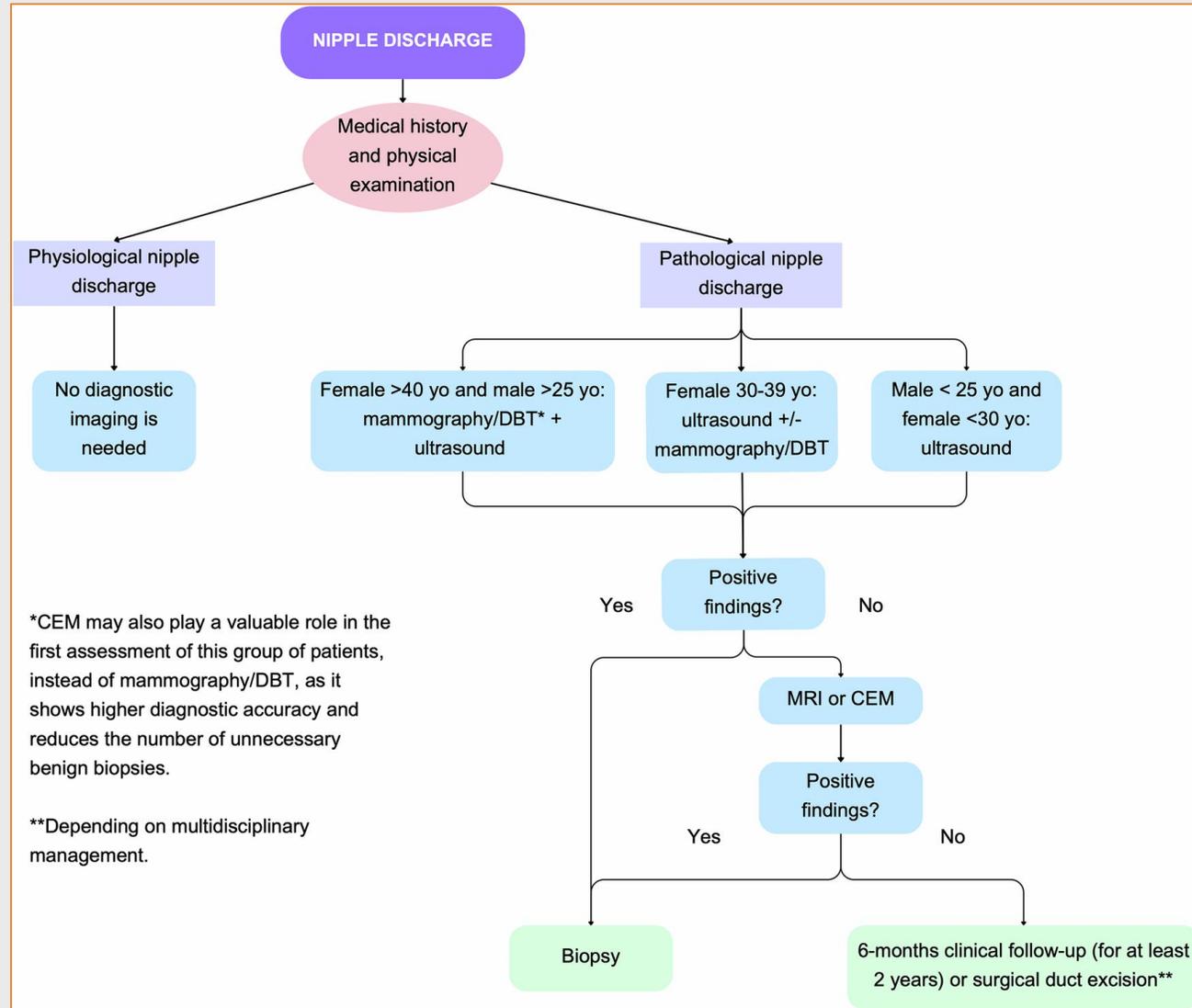
EDUCATIONAL REVIEW

Open Access



## An update on multimodal imaging strategies for nipple discharge: from detection to decision

Mireia Pitarch<sup>1\*</sup>, Rodrigo Alcantara<sup>1</sup>, Laura Comerma<sup>2</sup>, Ivonne Vázquez de Las Heras<sup>2</sup>, Javier Azcona<sup>1</sup>, Antonia Wiedemann<sup>3</sup>, Maja Prutki<sup>4</sup> and Eva Maria Fallenberg<sup>3</sup>

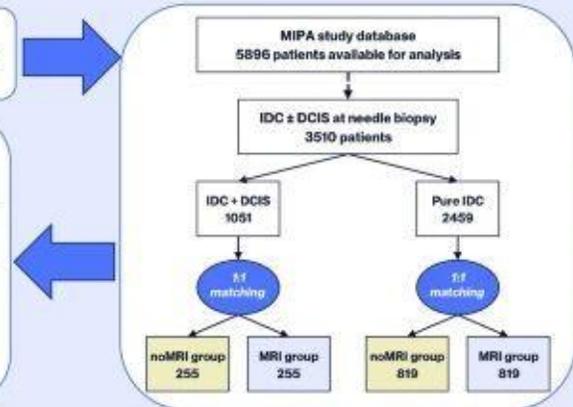


**MIPA Study :**  
IRM pré-opératoire diminue le taux de re-intervention, sans augmenter le taux de mastectomies totales des CCIS **purs**

**Preoperative breast MRI for invasive ductal carcinoma with or without a DCIS component at needle biopsy: influence on surgical outcomes in the MIPA study**

Does the impact of preoperative MRI on surgical outcomes differ between patients with pure invasive ductal carcinoma (IDC) versus IDC+ductal carcinoma in situ (DCIS) at needle biopsy?

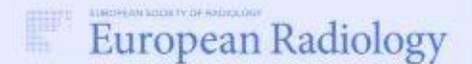
	IDC + DCIS		Odds ratio for the MRI group	Pure IDC		Odds ratio for the MRI group
	noMRI group	MRI group		noMRI group	MRI group	
First-line mast.	6.3%	13.3%	2.30 (p = 0.011)	12.1%	12.9%	1.06 (p = 0.864)
Reoperations	10.8%	9.4%	0.88 (p = 0.788)	7.9%	2.6%	0.31 (p < 0.001)
Overall mast.	7.5%	14.5%	2.11 (p = 0.016)	13.7%	13.6%	0.99 (p = 1.000)



**In patients with IDC+DCIS at needle biopsy, MRI did not reduce reoperations and increased mastectomies. In patients with pure IDC at needle biopsy, MRI reduced reoperations without increasing mastectomies.**

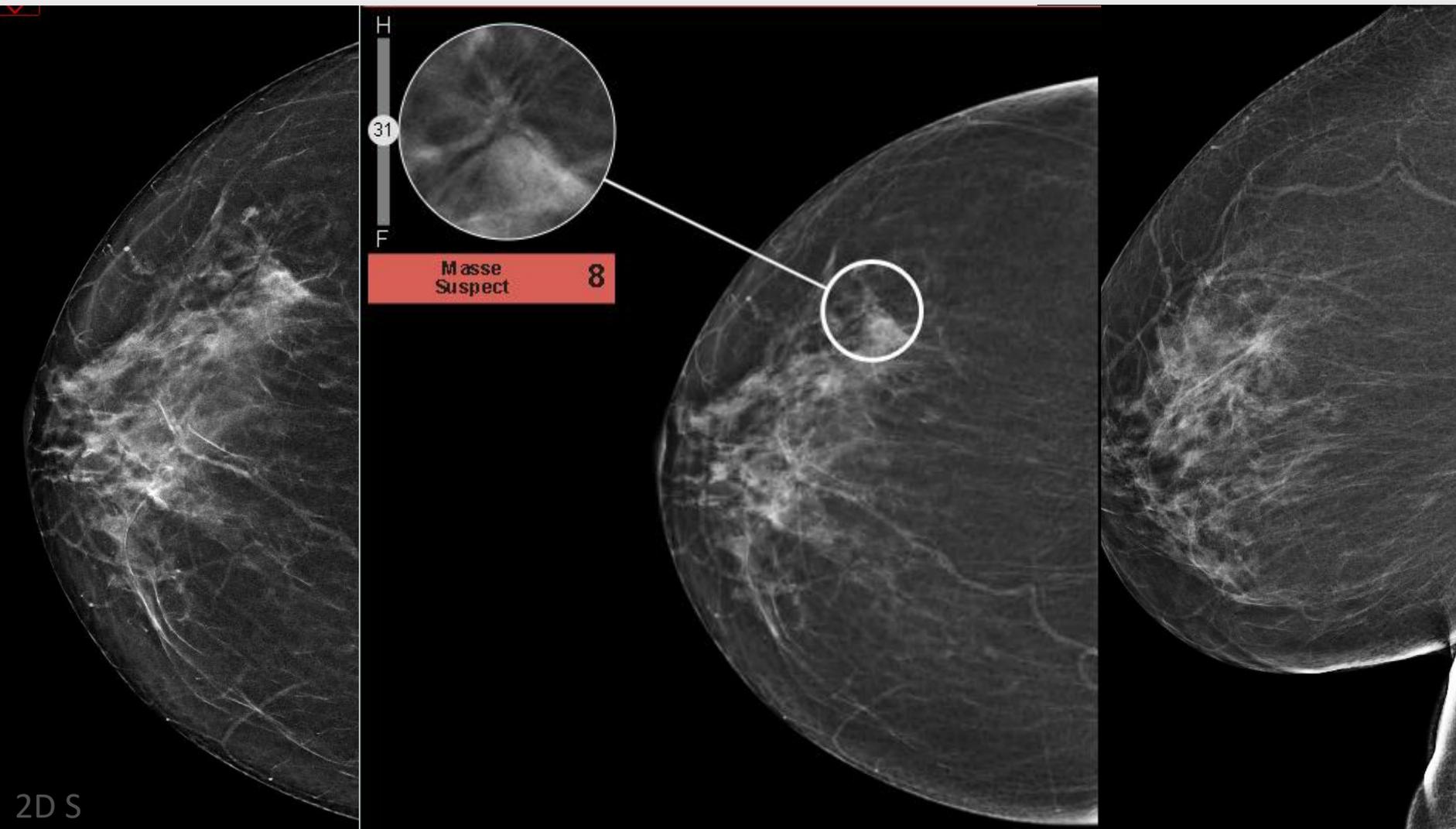


Eur Radiol (2025) Cozzi A, Di Leo G, Houssami N et al;  
DOI: 10.1007/s00330-025-11572-7

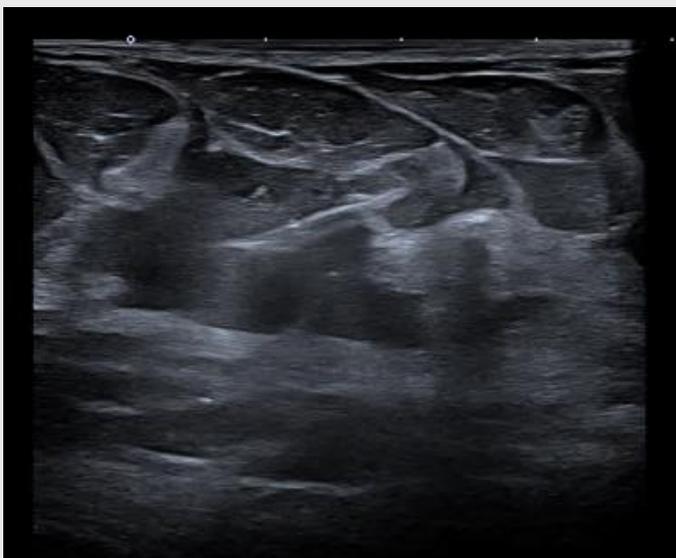


Sein droit : ACR 4, pour une asymétrie de densité de l'union des quadrants externes droits s'effaçant sous compression localisée se traduisant en échographie par une plage atténuante de 9 mm. Pas d'adénopathie.

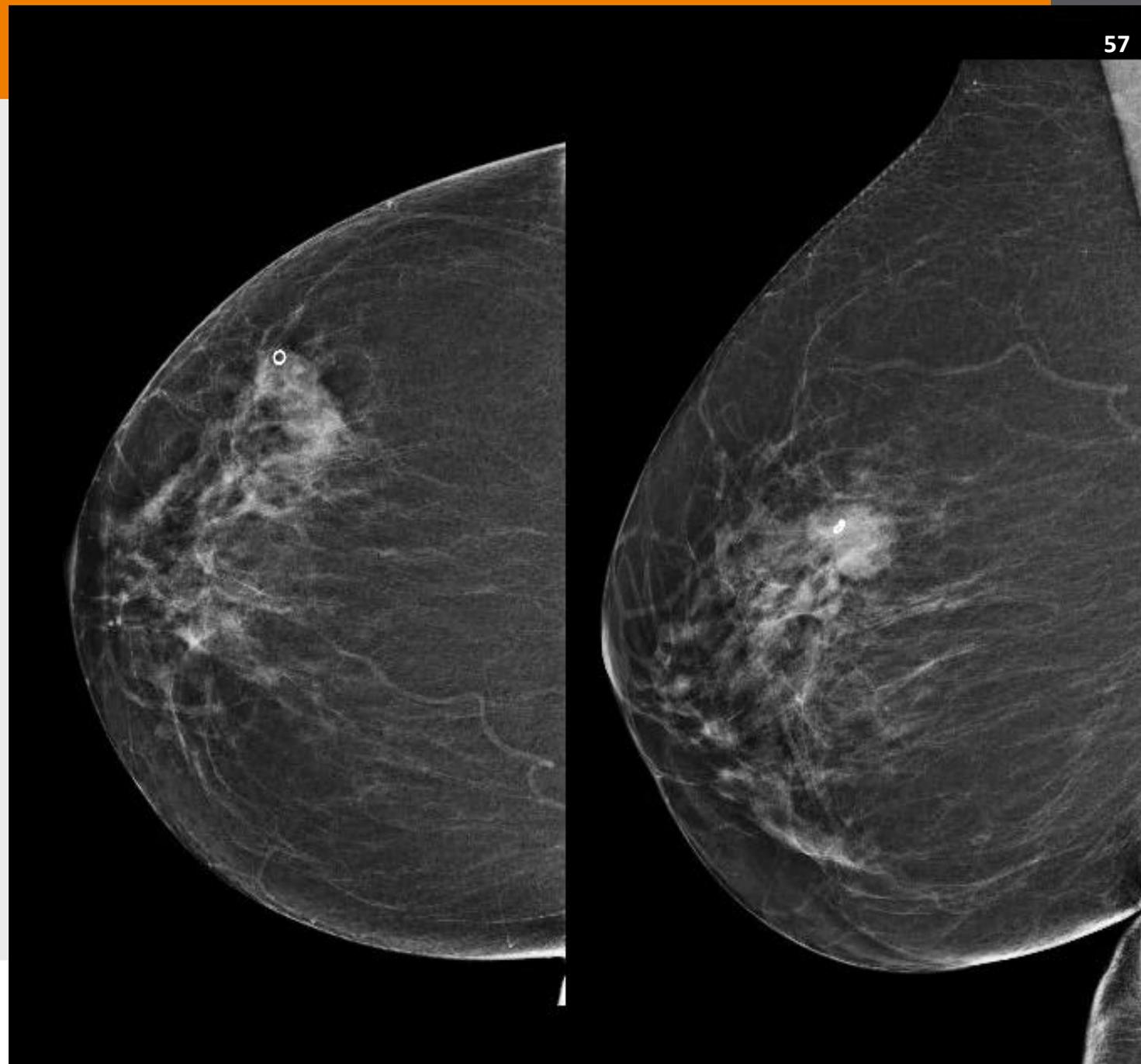
Sein gauche ACR 2



Microbiopsie  
 → CCIS de bas grade  
 possiblement par  
 colonisation d'un  
 papilloadénome



Carcinome infiltrant NS, Luminal A  
Mastectomie partielle + GS



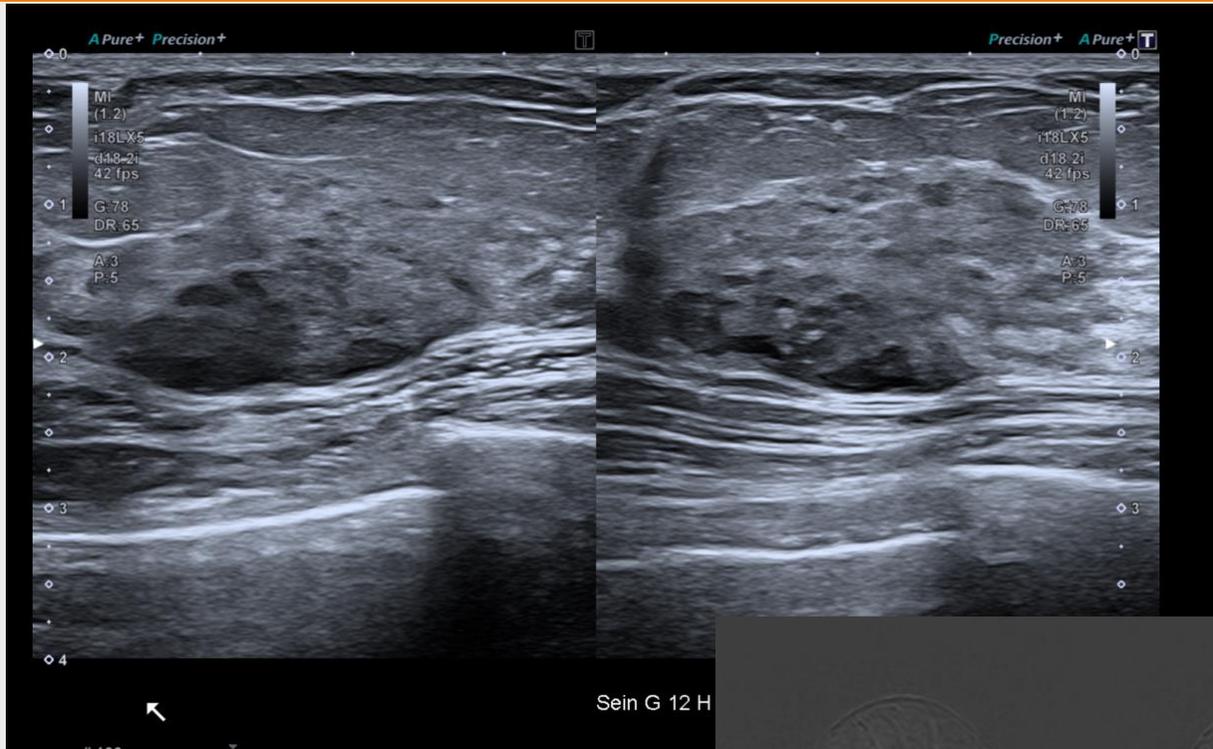
Berges  $\leq 2$  mm

Prise en charge axillaire

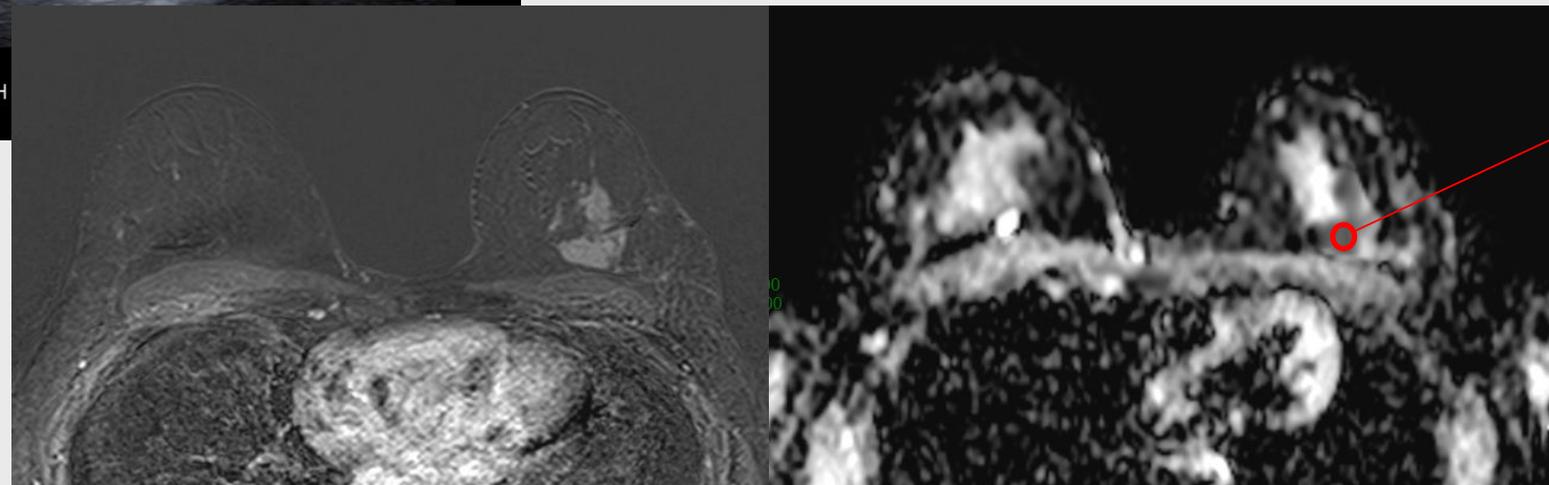
- Omission du GS
- Indications limitées de GS dans le CCIS :  
mastectomie totale, masse palpable ou en  
imagerie

Chirurgie, la ou une CNA aurait pu être  
indiquée ?

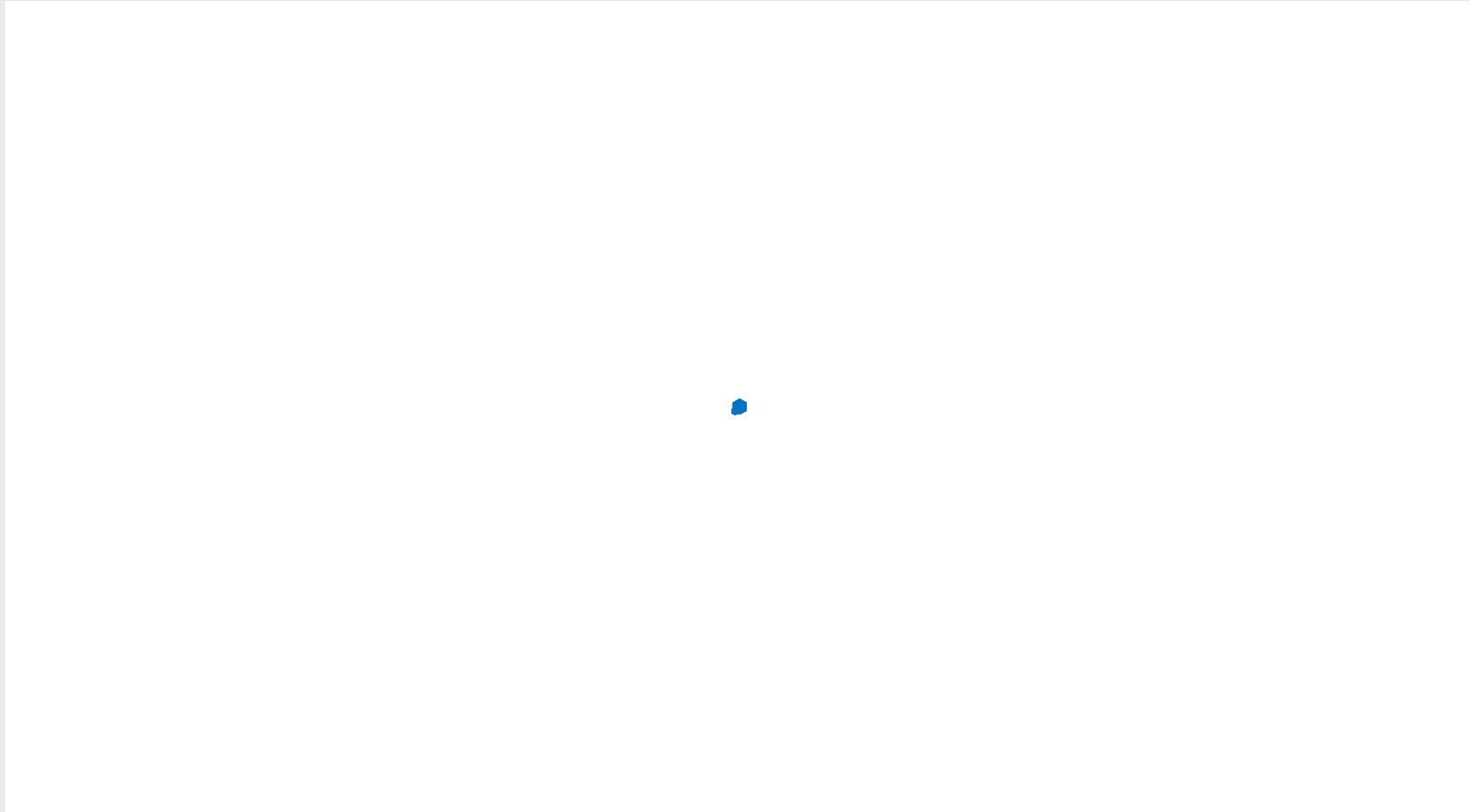
# Une hypothèse Diagnostique ?

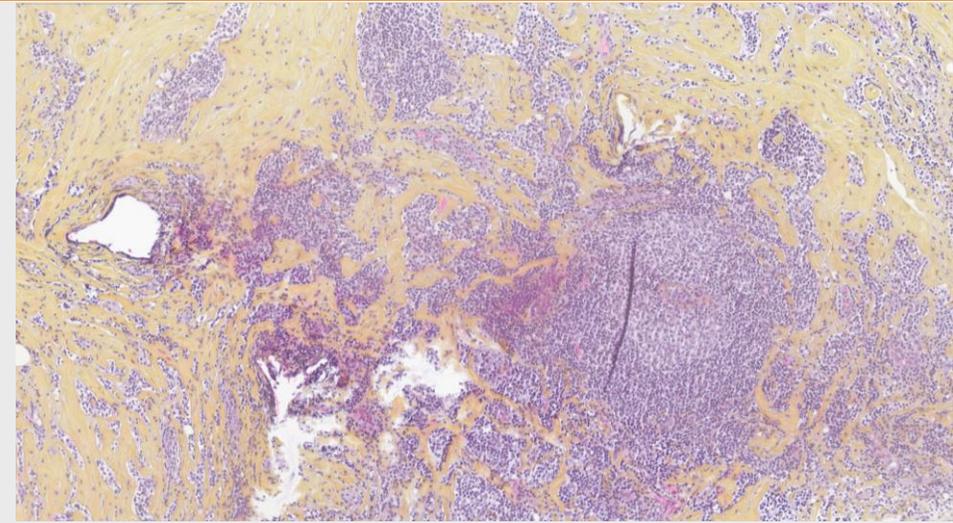
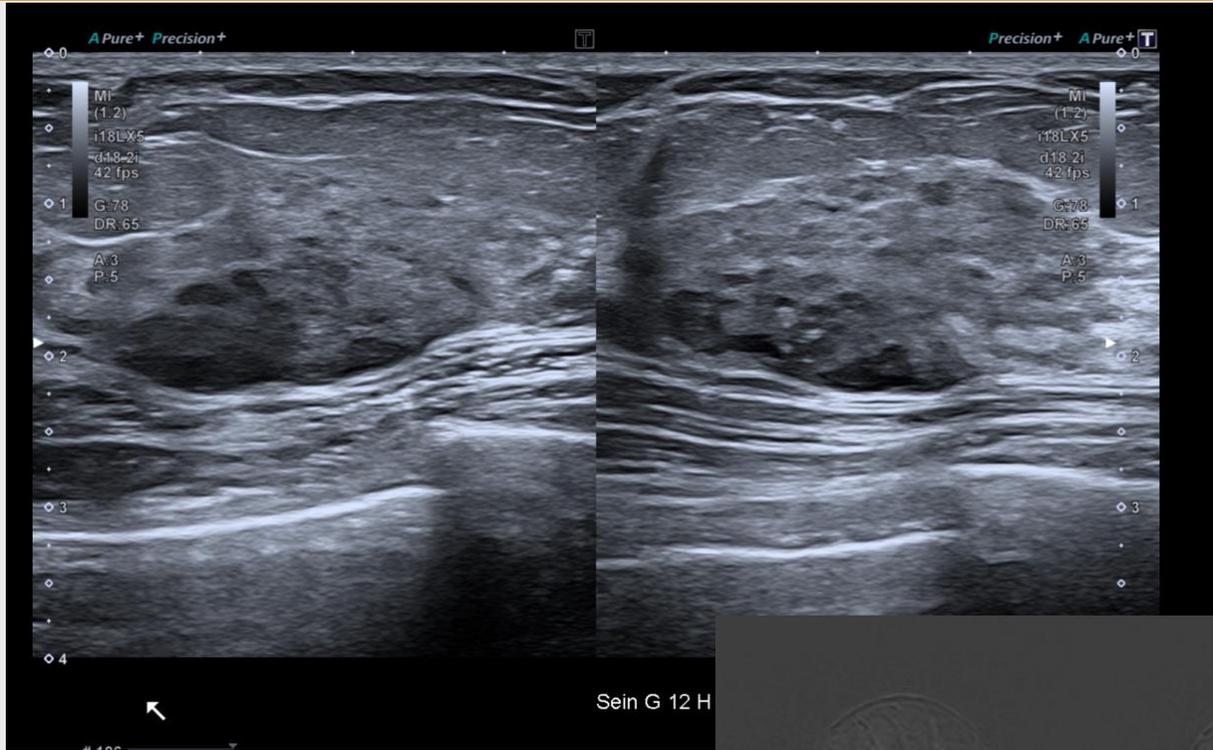


Sein G 12 H



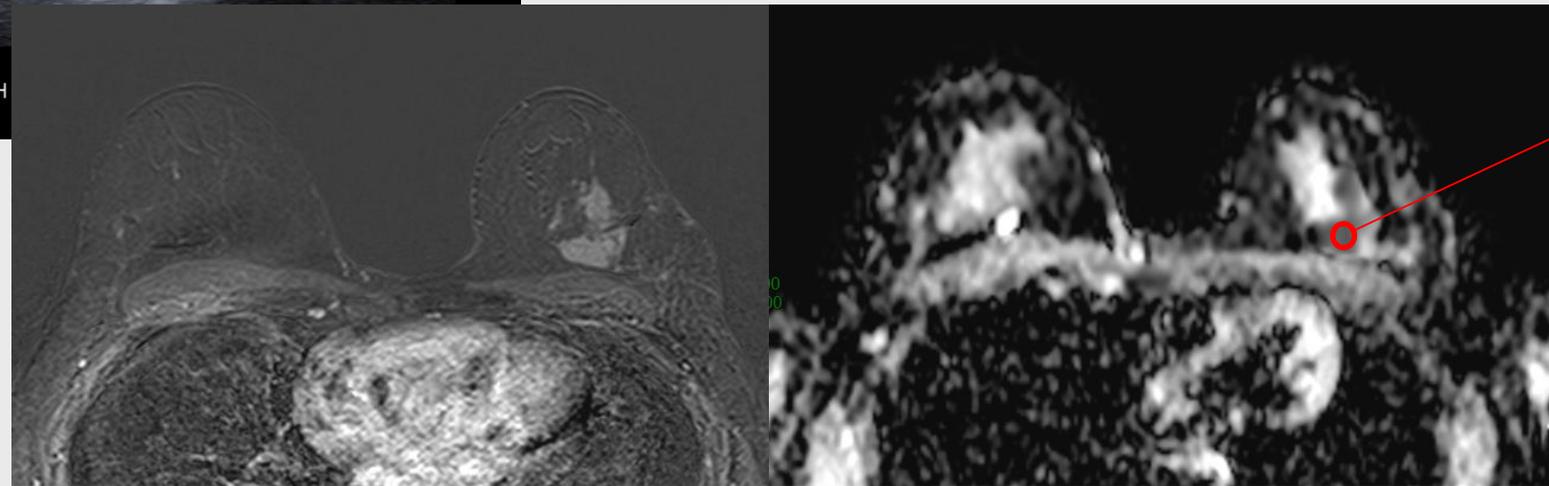
ADC = 0,69





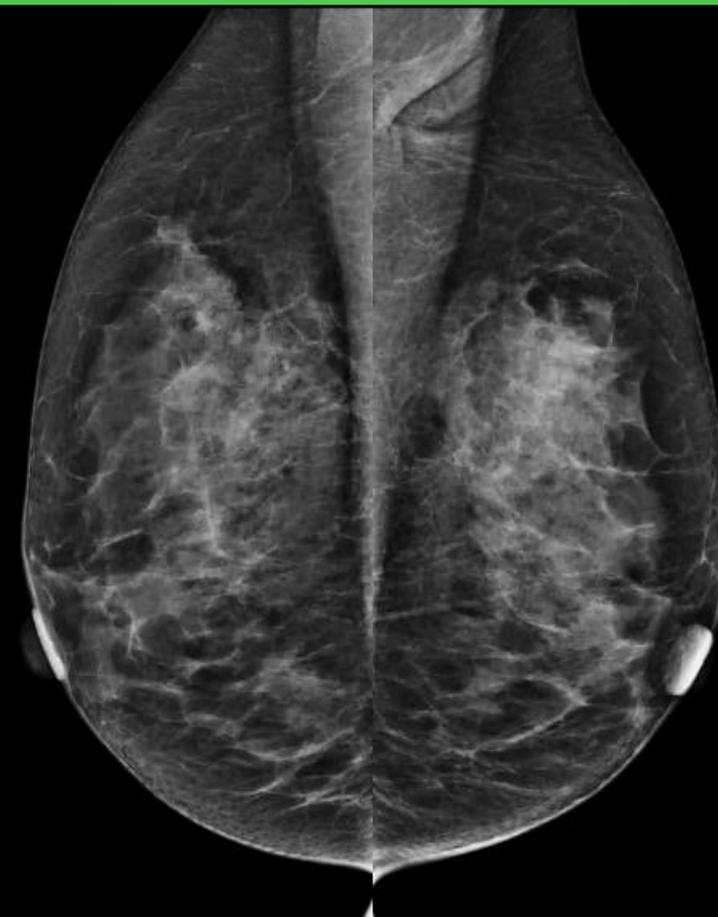
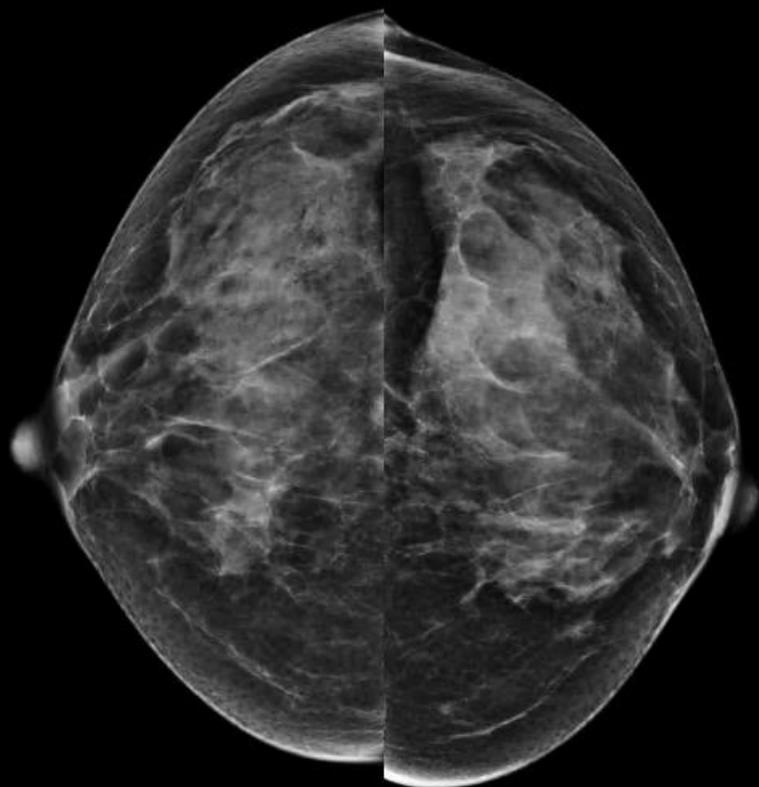
Images Dr Lucie Thibault

## Lymphome B Folliculaire



ADC = 0,69

## BÉNIN (LECTURE ADDITIONNELLE RECOMMANDÉE)



☐ Corrélation radio-histologique = pilier de la prise en charge sénologique

 Un résultat histologique bénin ne suffit pas à conclure : il faut juger de sa **pertinence vis-à-vis de l'image initiale**

 Anticiper l'histologie probable oriente le compte-rendu, la stratégie de prélèvement et le suivi

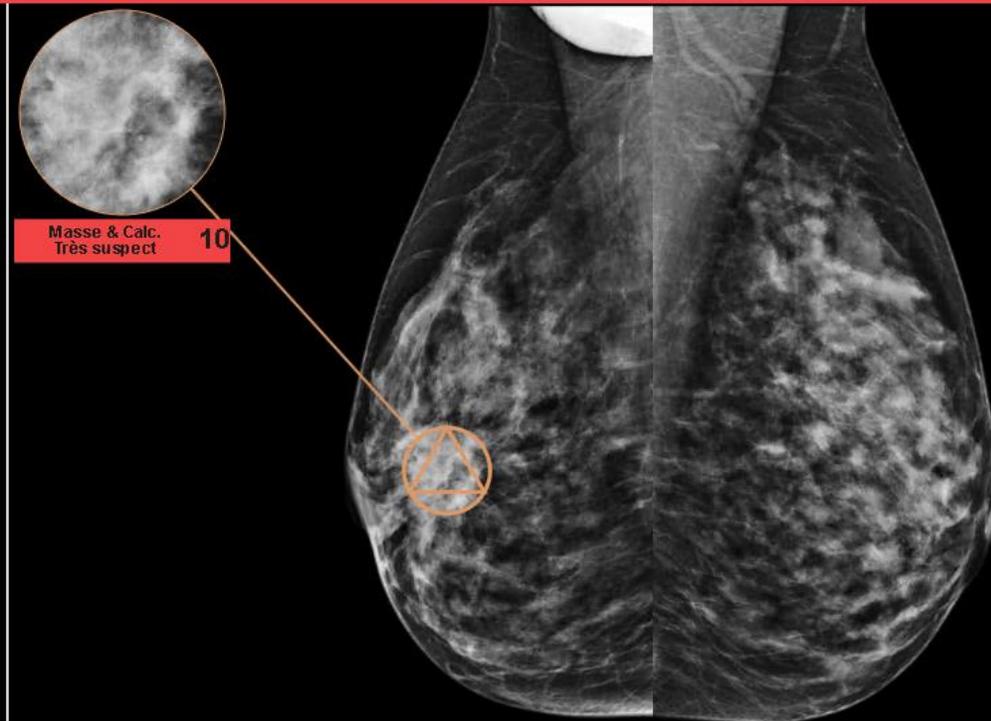
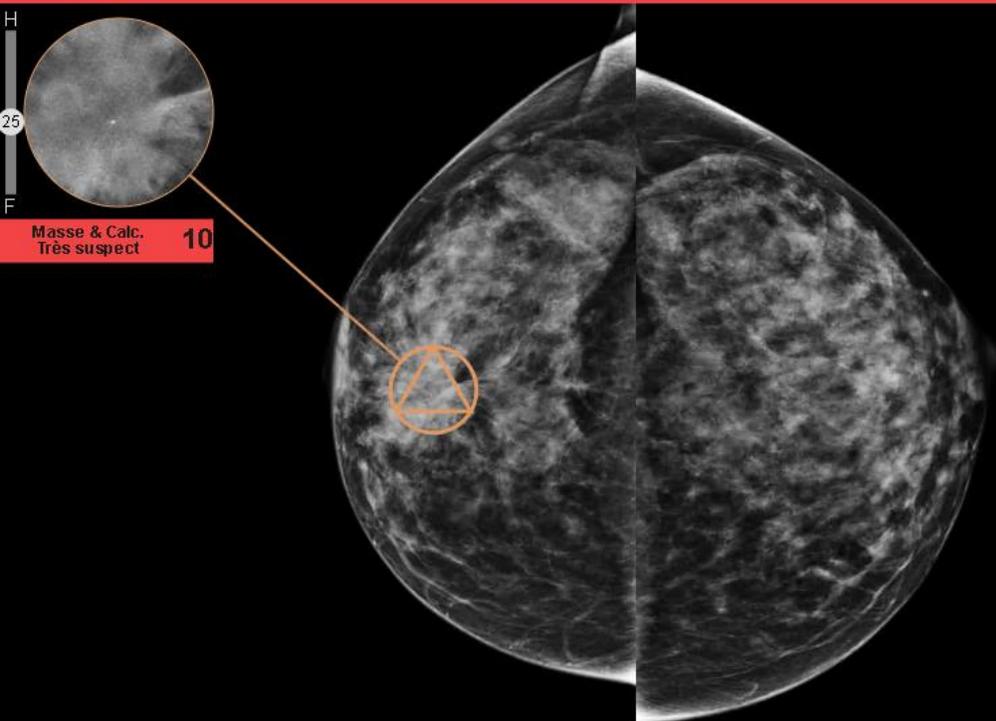
Merci aux équipes de Radiologie et de Pathologie de l'Institut Curie !

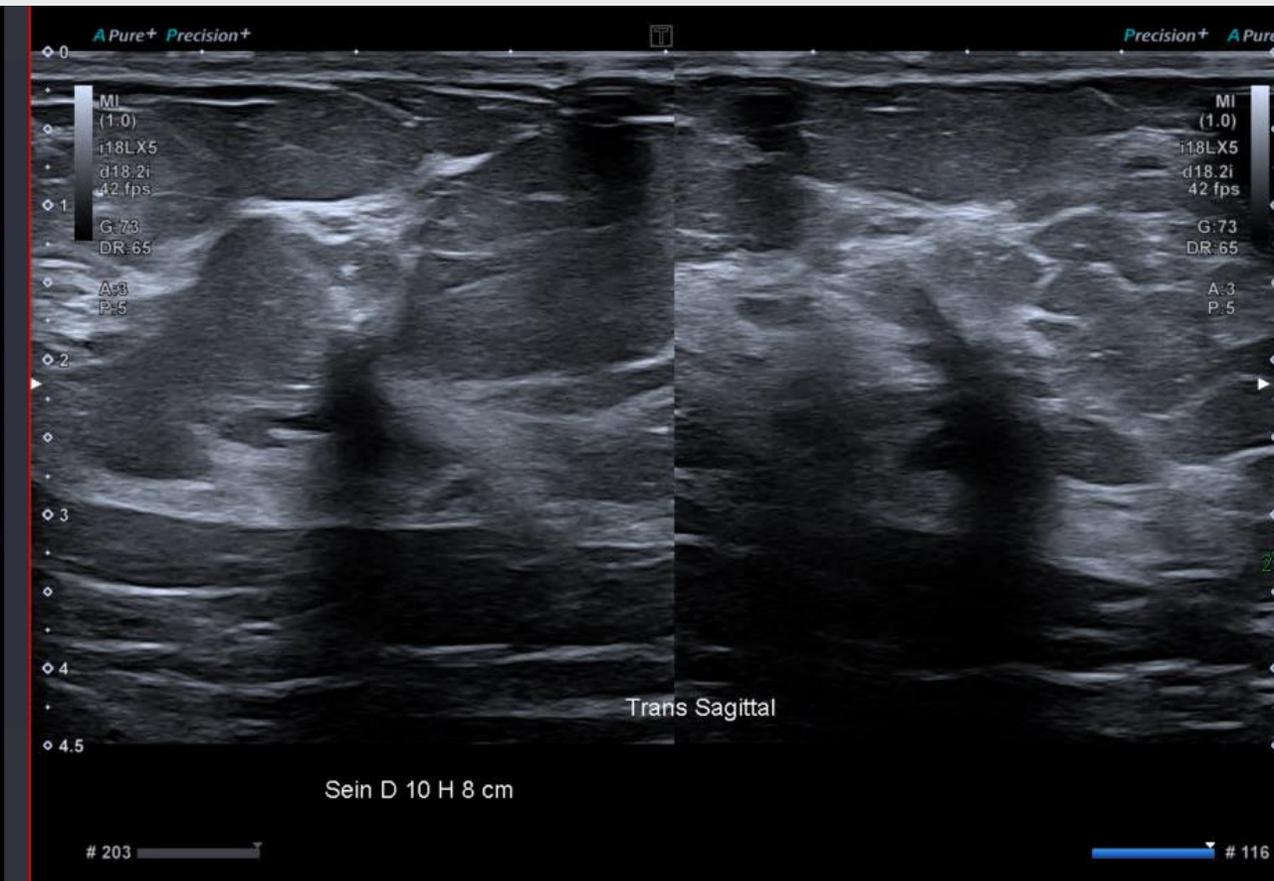
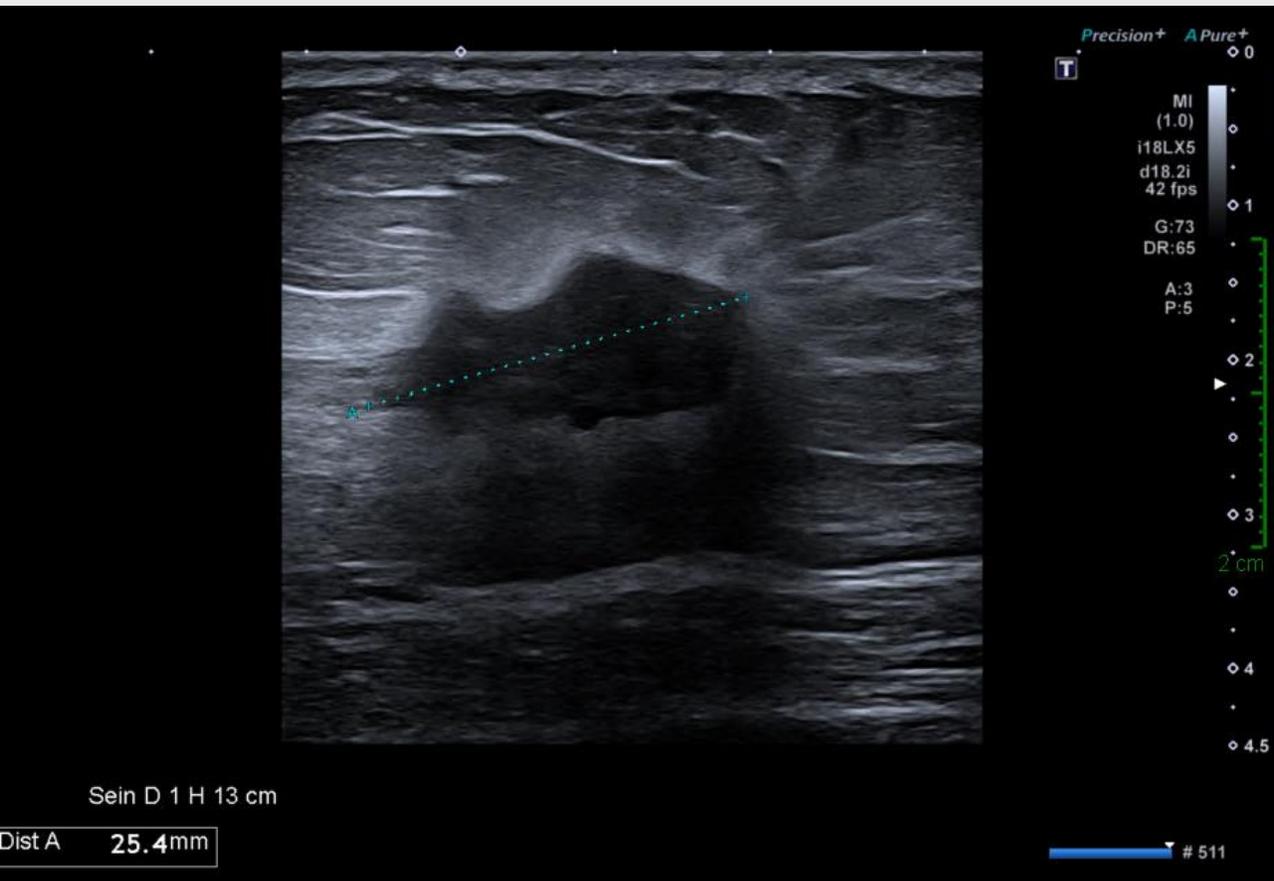


Soutenu  
par



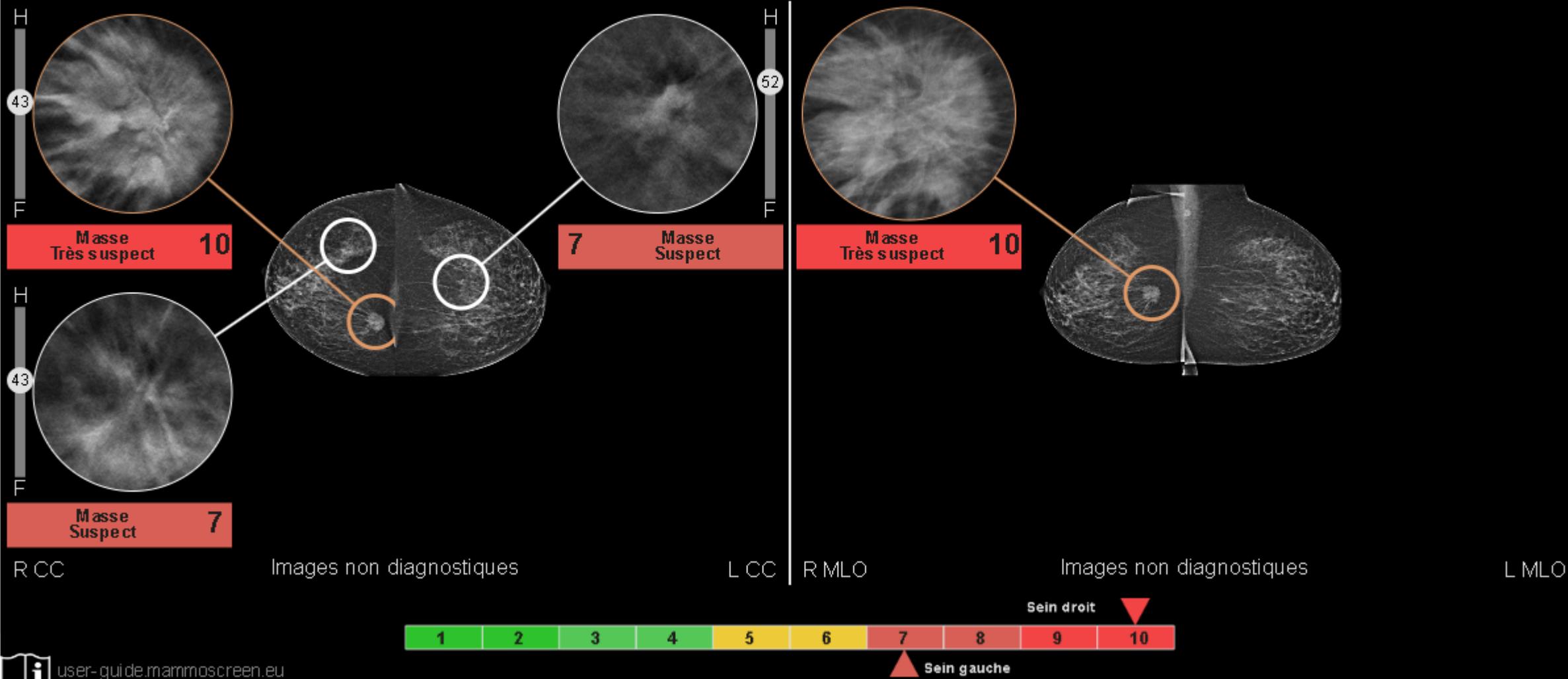
## EXAMENS COMPLÉMENTAIRES - SEIN DROIT

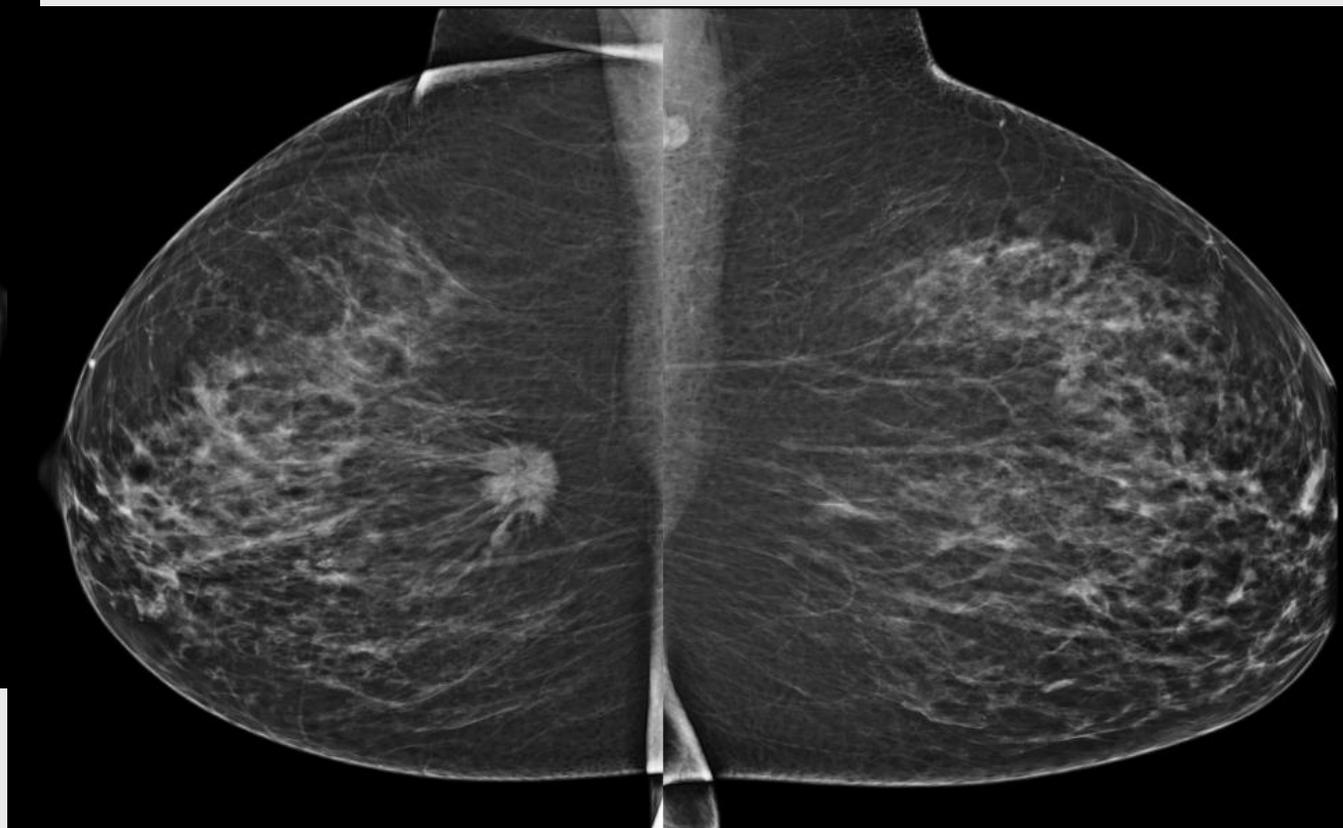
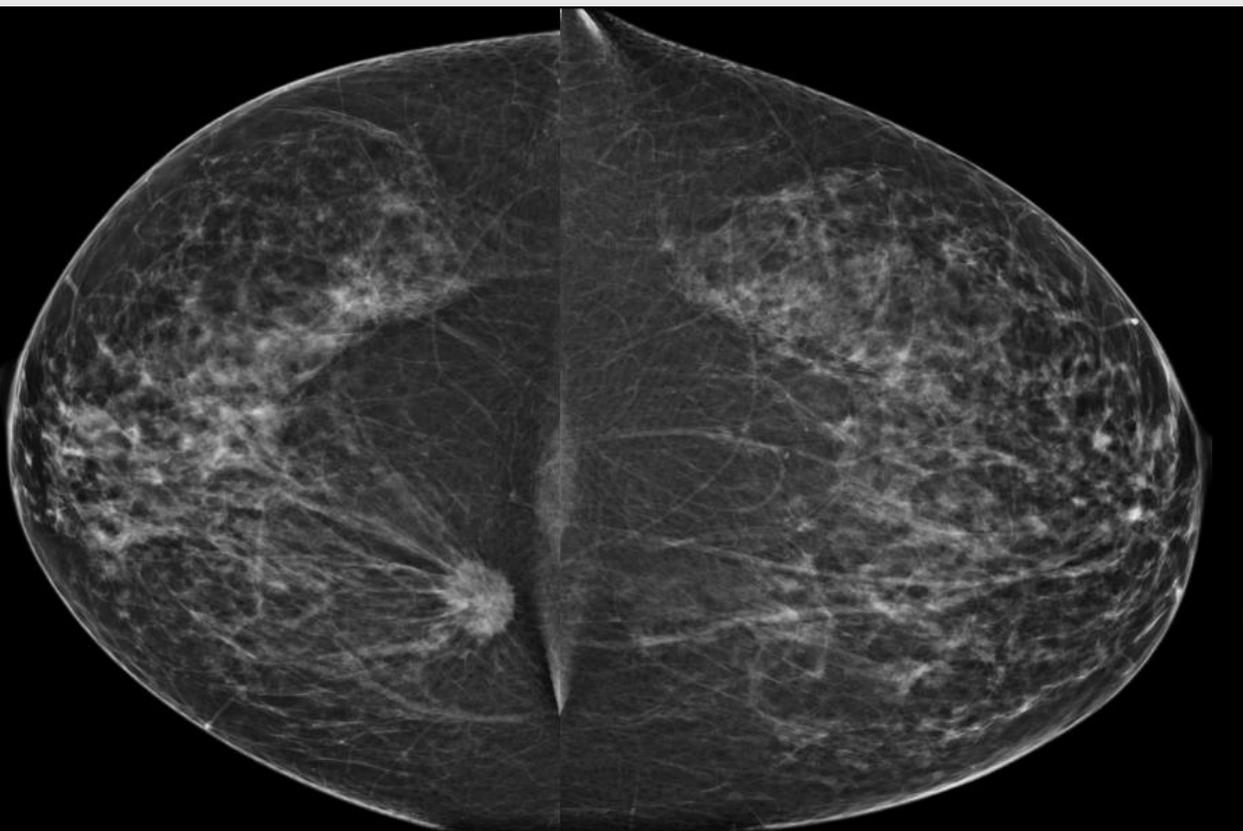


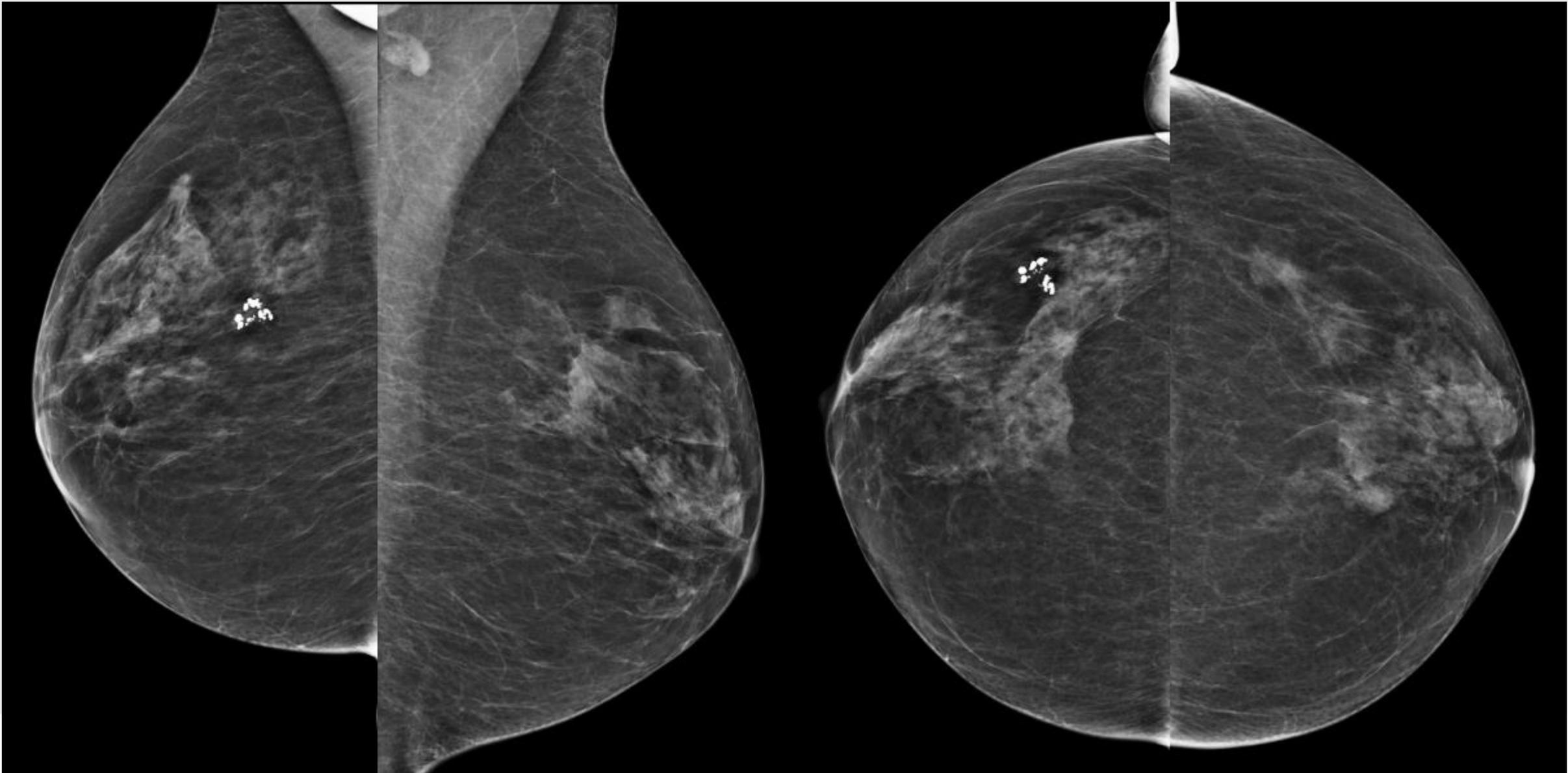


## EXAMENS COMPLÉMENTAIRES - SEIN DROIT

Version d'évaluation. Ce logiciel n'est pas destiné à un usage médical en l'état.







## EXAMENS COMPLÉMENTAIRES - SEIN DROIT

31

H

F

Masse Très suspect 10

R CC

Images non diagnostiques

L CC

R MLO

Masse Très suspect 10

Images non diagnostiques

L MLO

Filtrage: ⓘ

Montrer bénins

Montrer probt. bénins

1 2 3 4 5 6 7 8 9 10

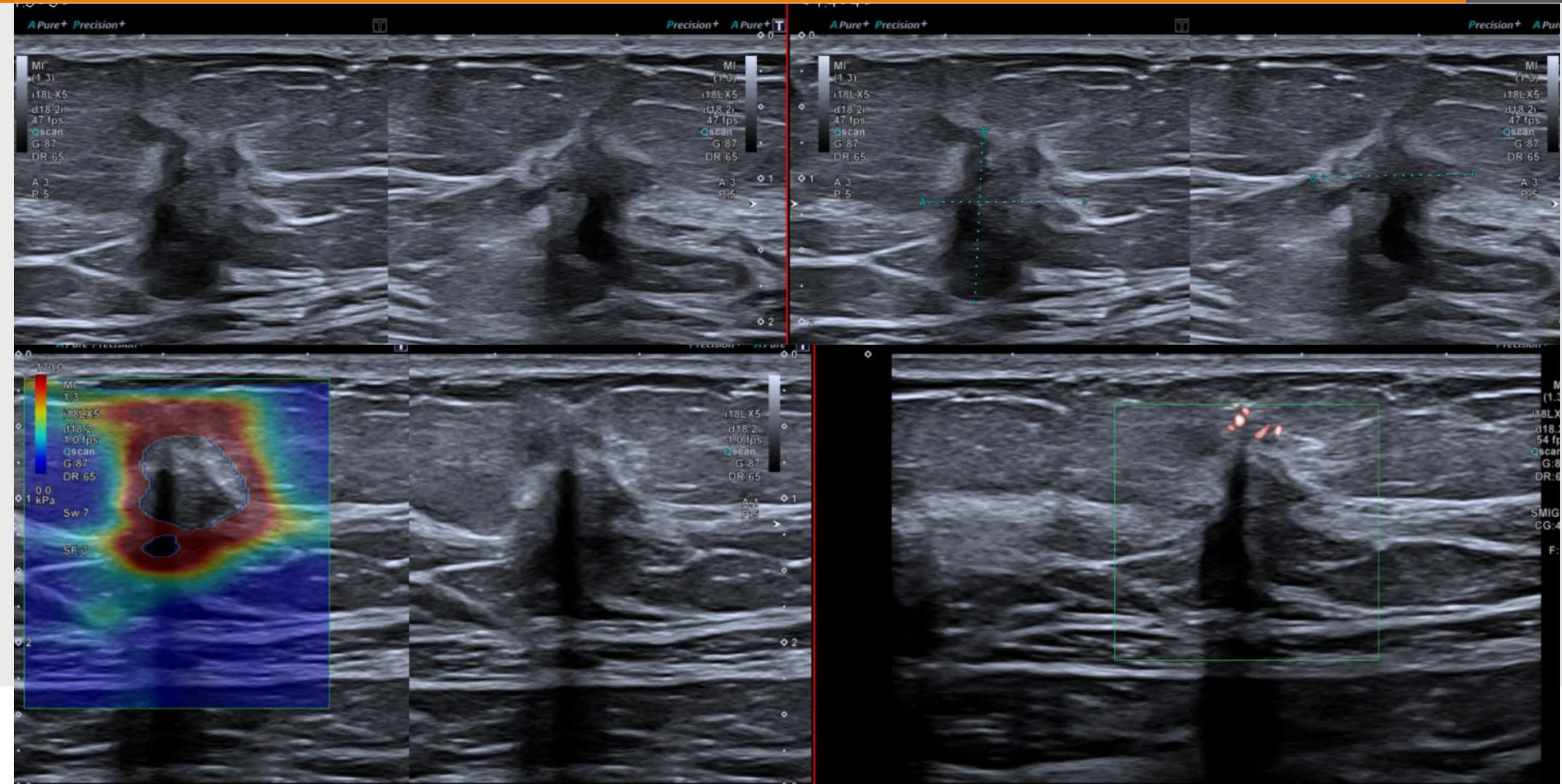
Sein gauche

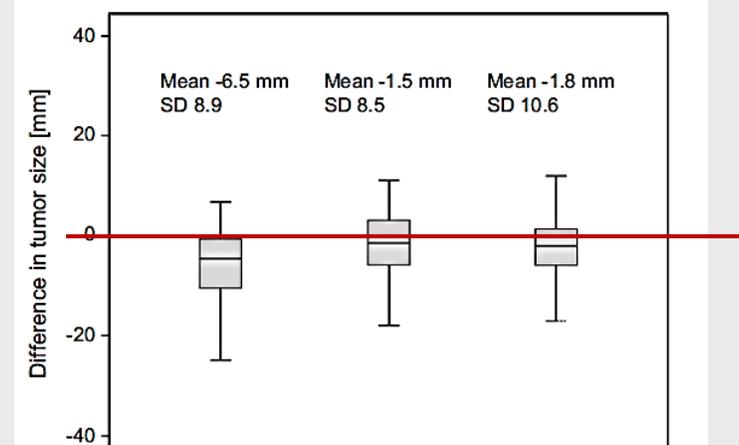
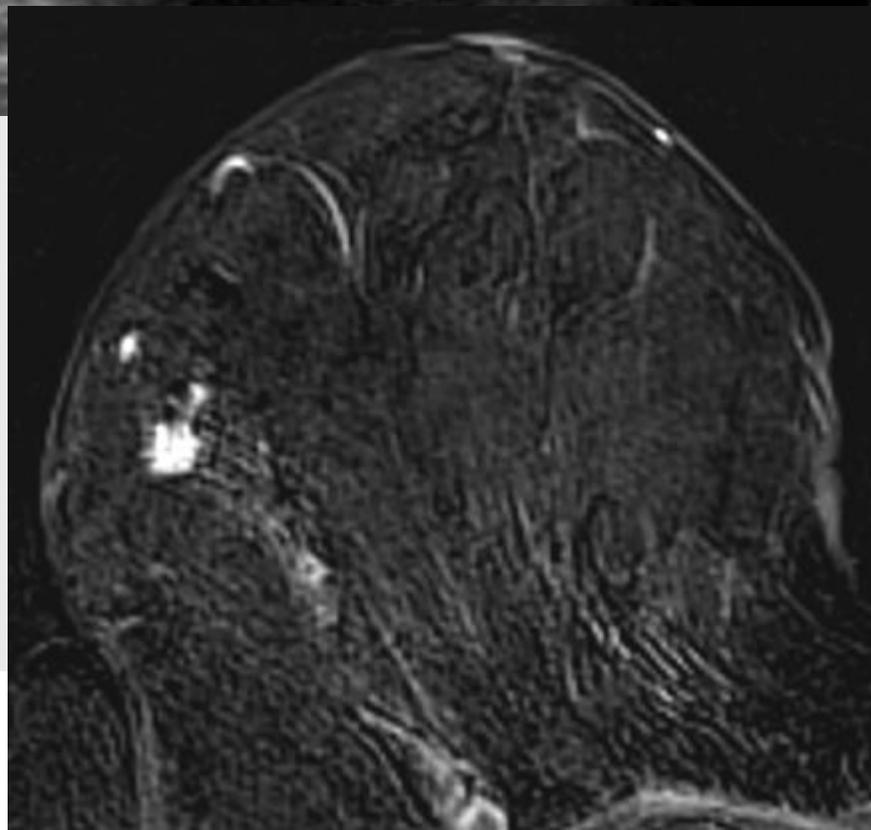
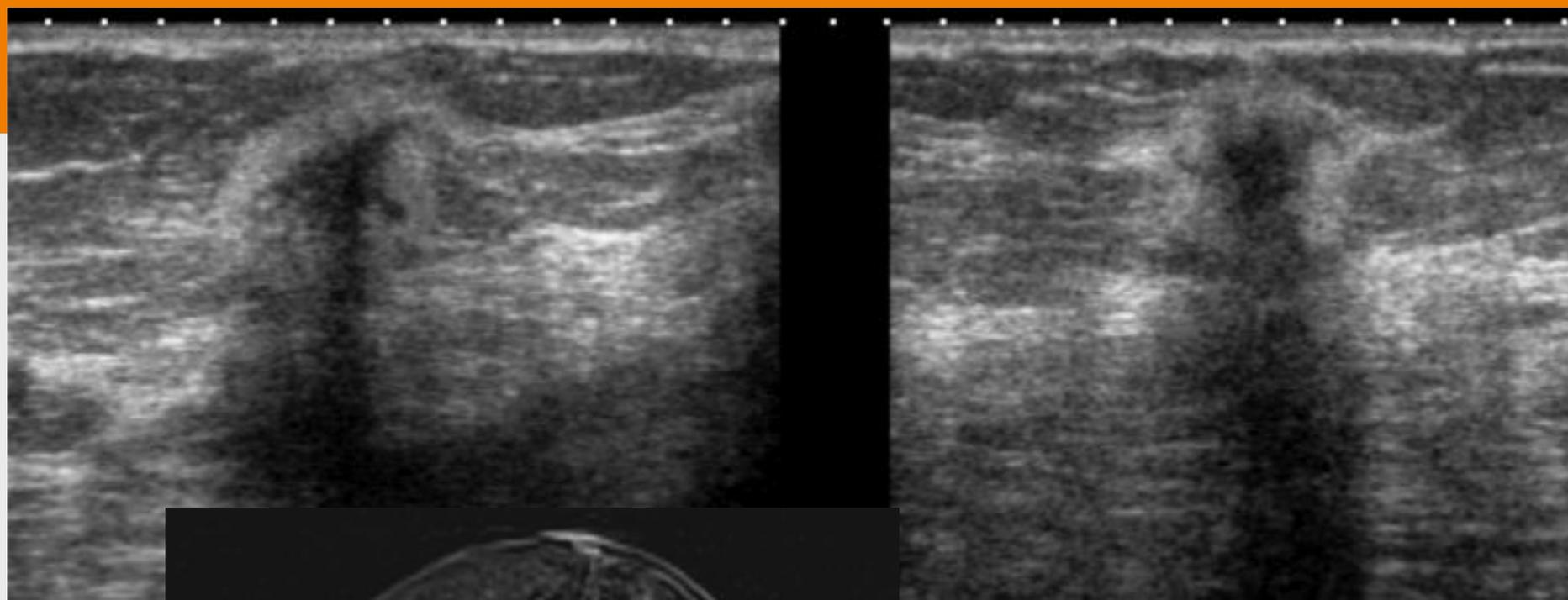
Sein droit

Résumé de l'analyse d'image

FFDM DBT DBT+FFDM

MammoScreen™ v1.4.4-EU





US Halo - US halo + Mammo

