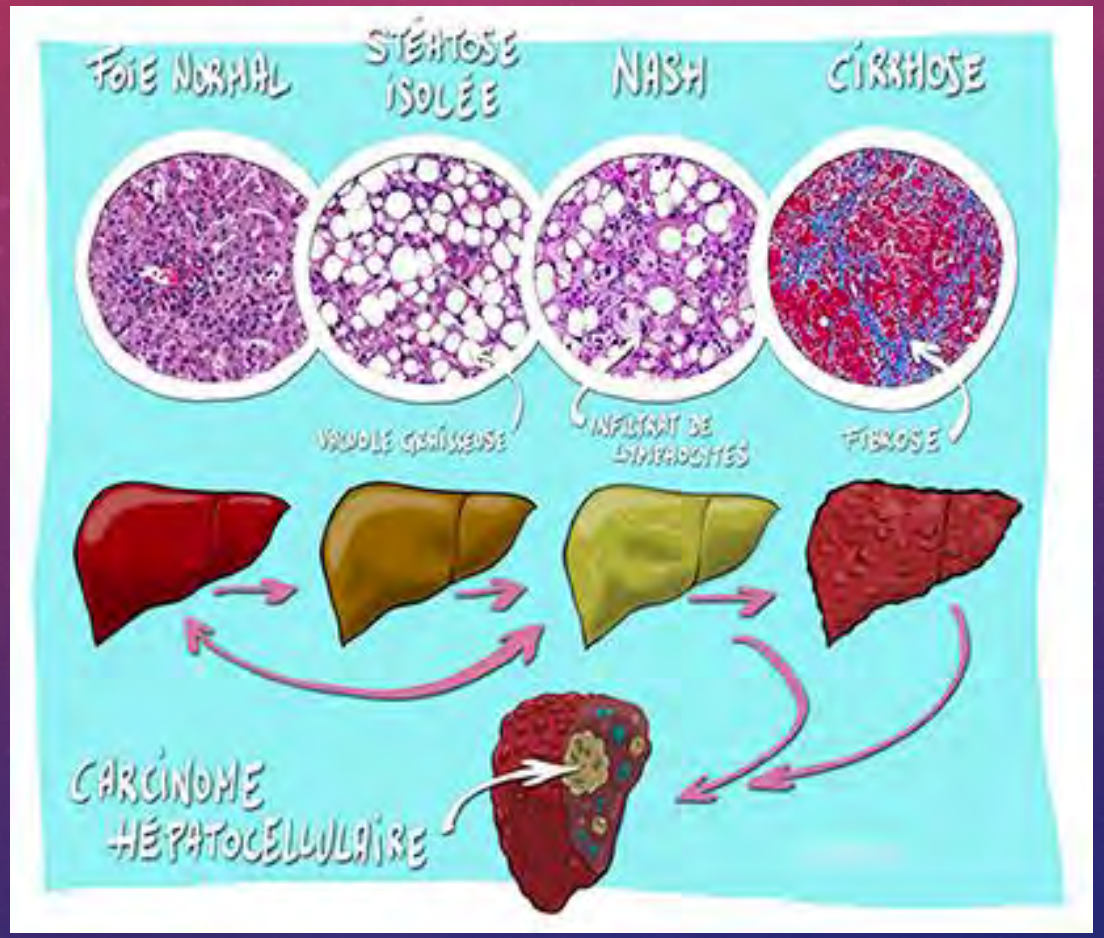
Radiologie Interventionnelle

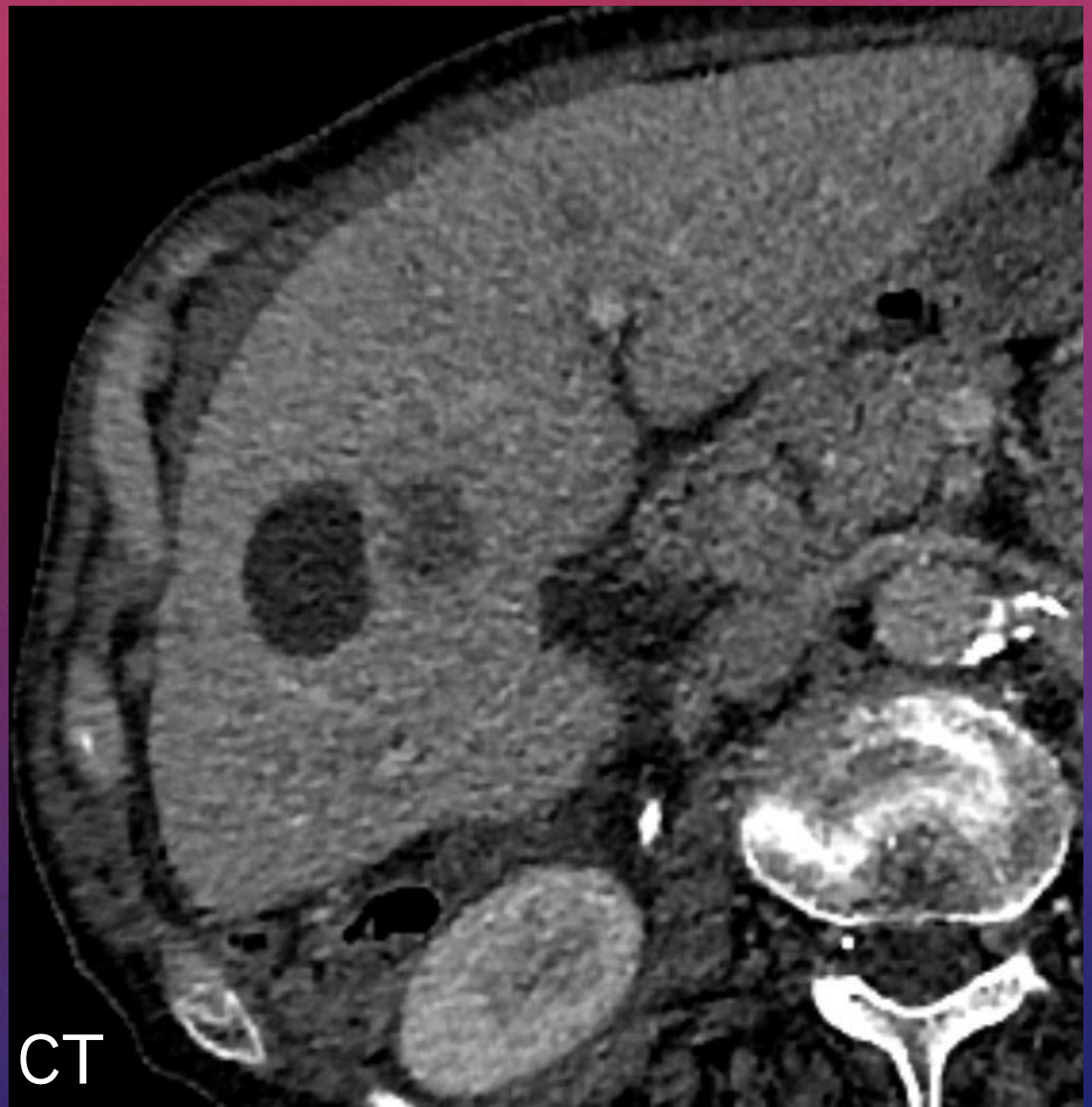
Dr Tsepenshchikov / Dr Constantin
CHVR

«Meilleure contre-indication
c'est l'absence des indications»

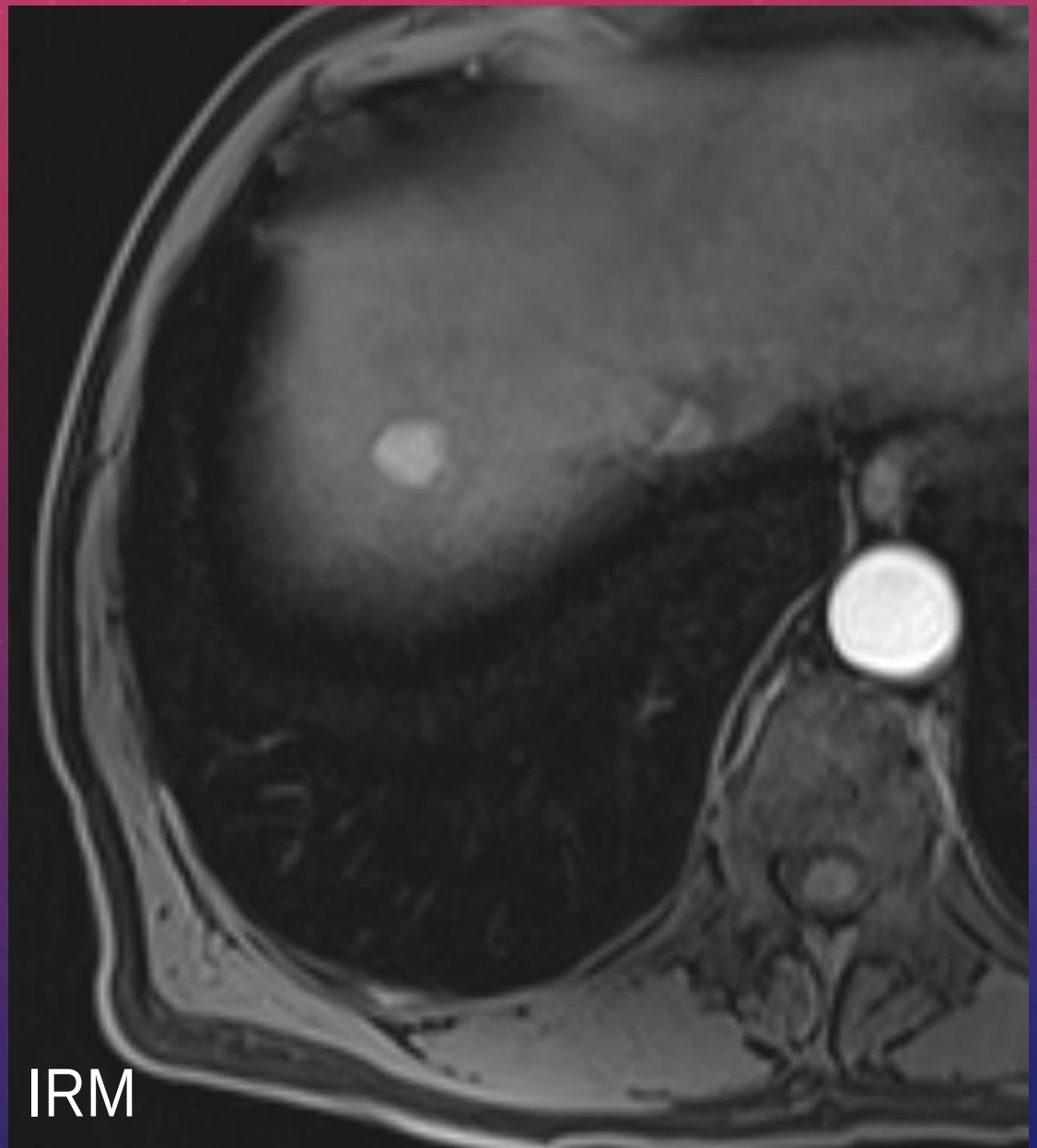


diagnostic histologique

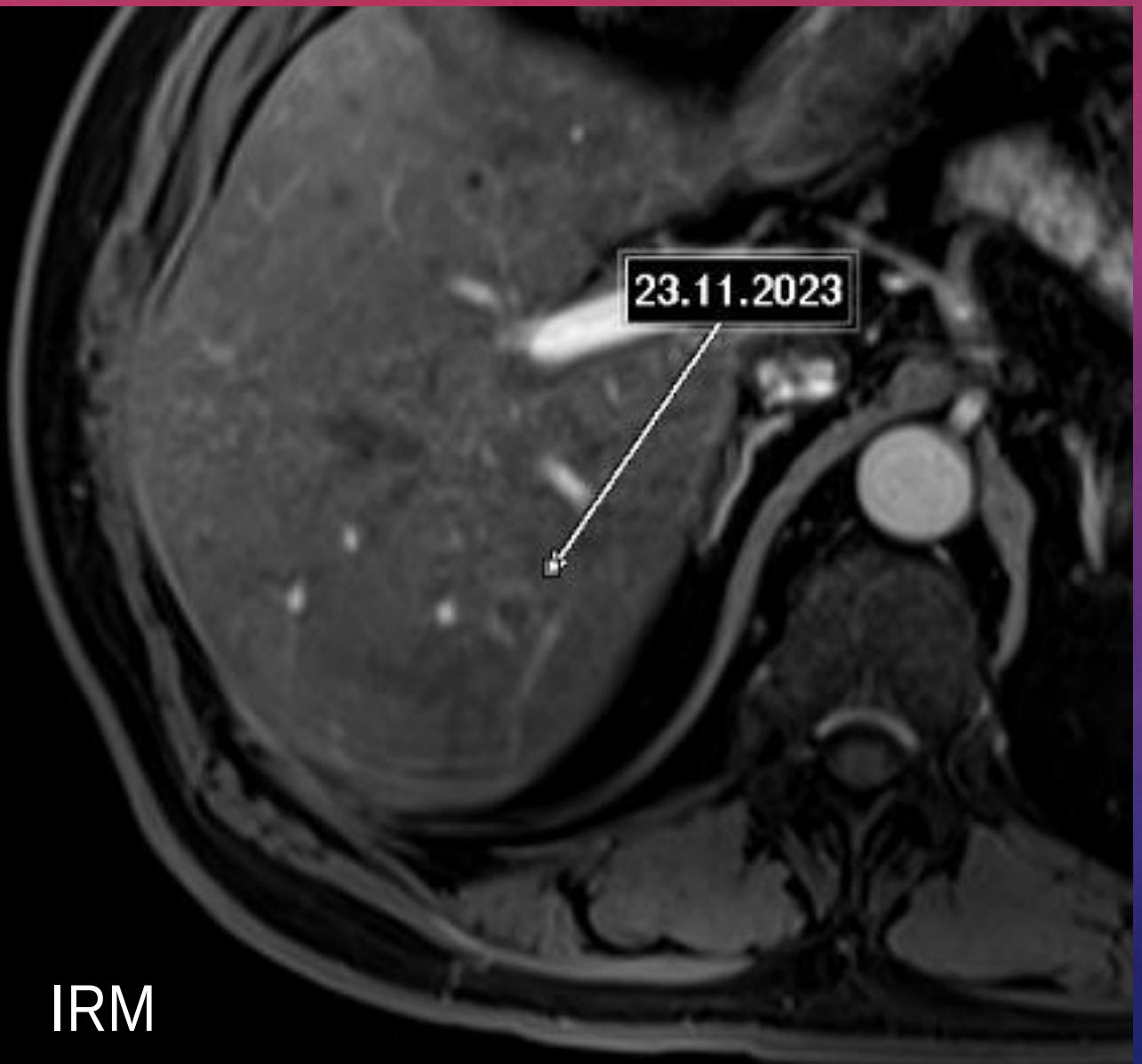
PBH ciblée



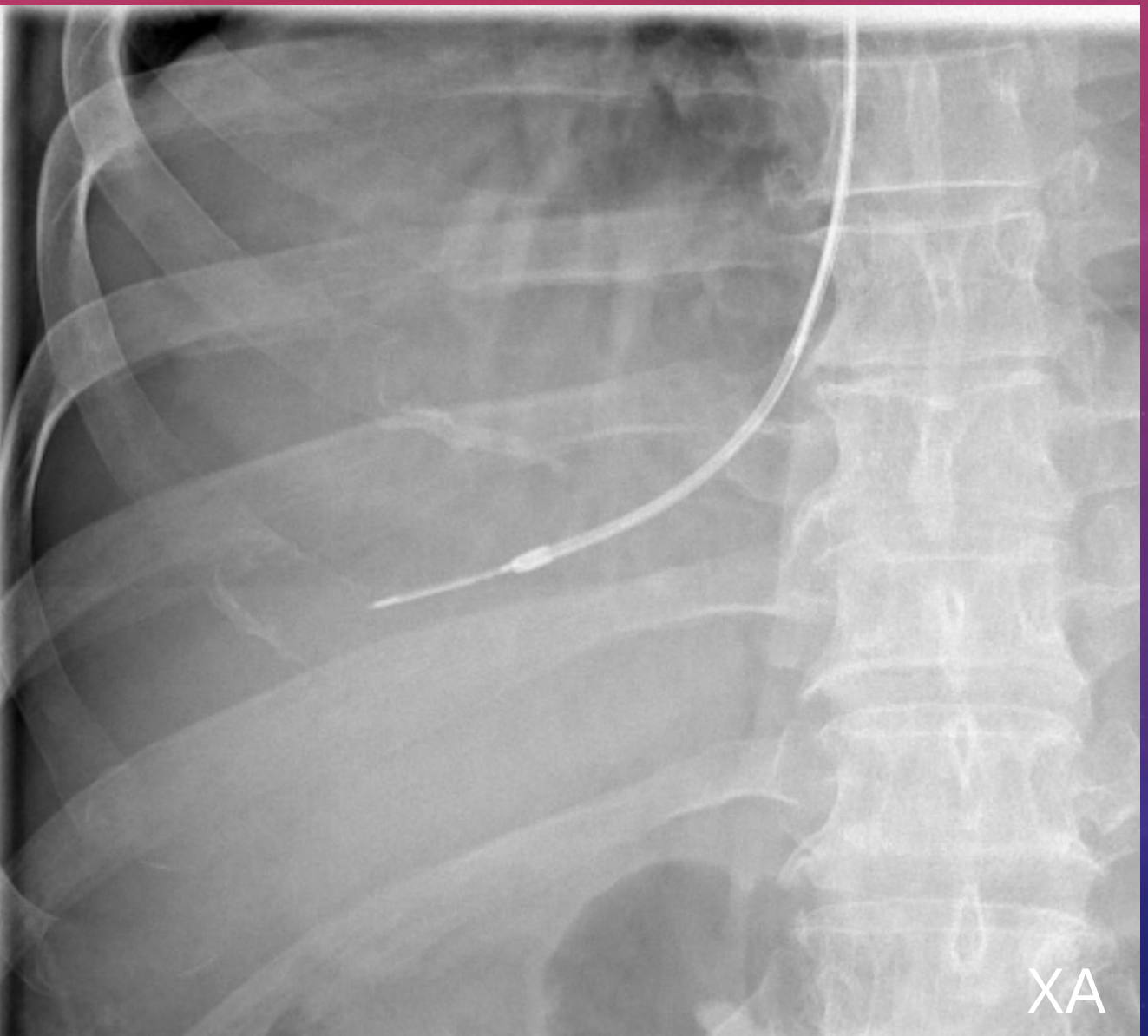
Fusion CT+US

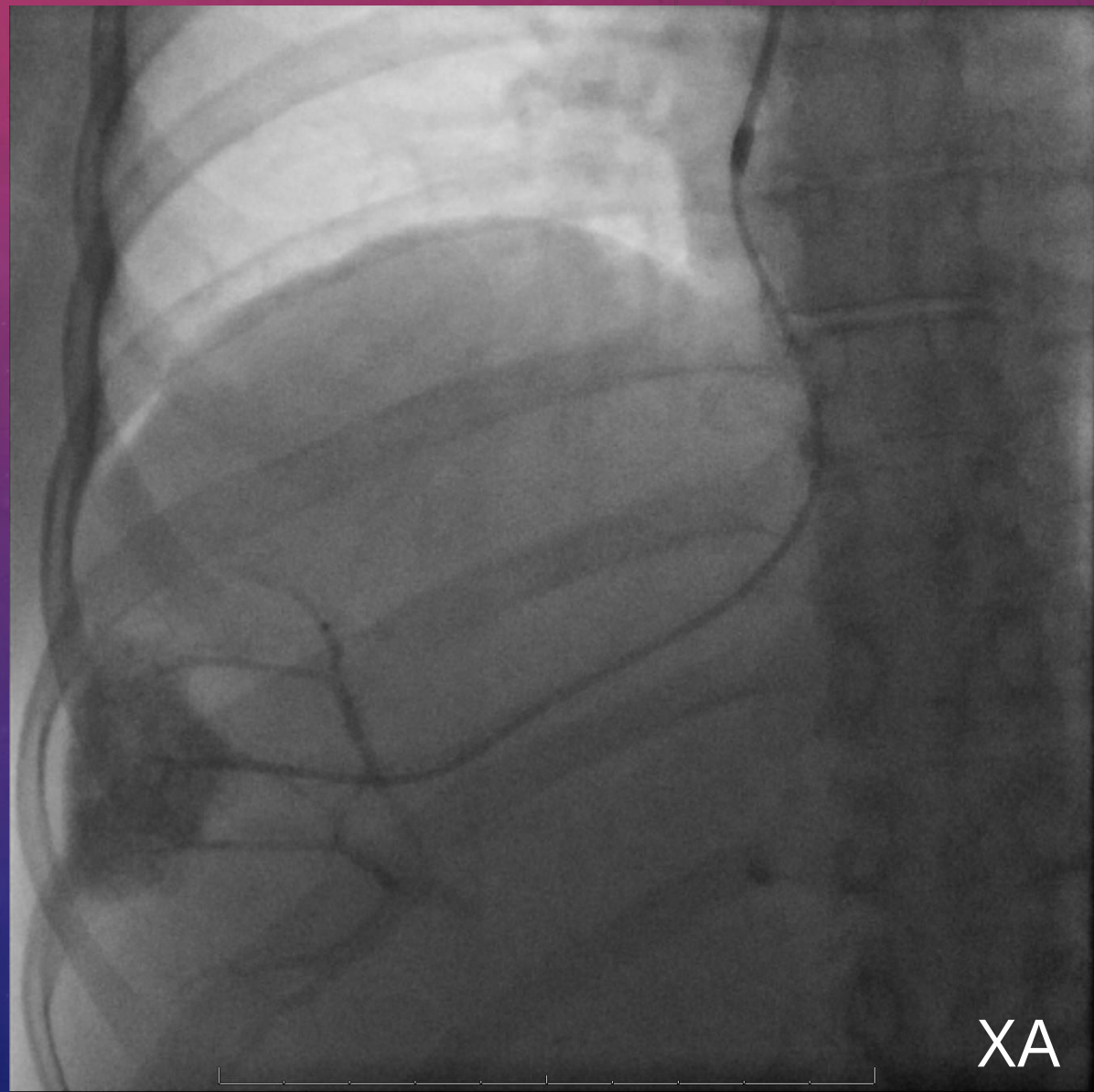


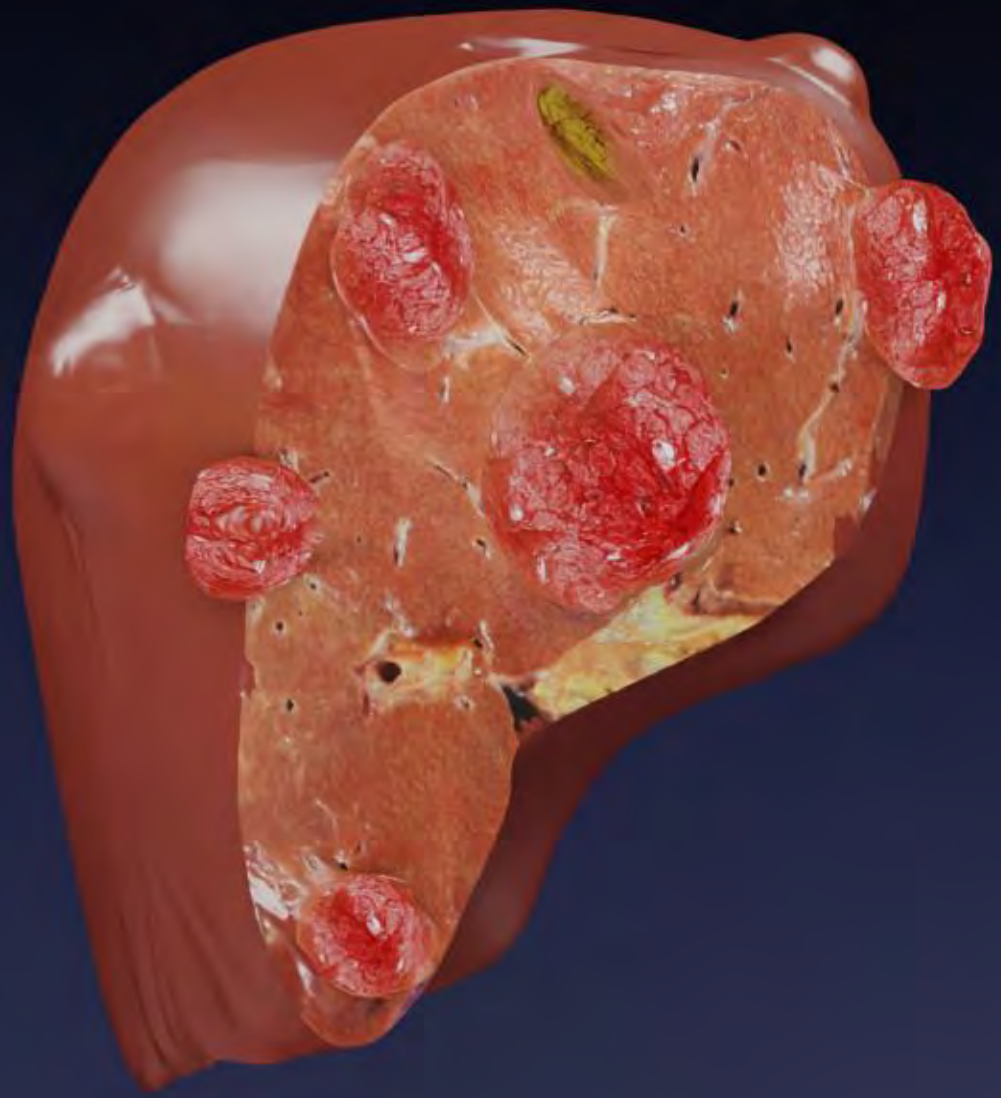
Marquage lésionnel



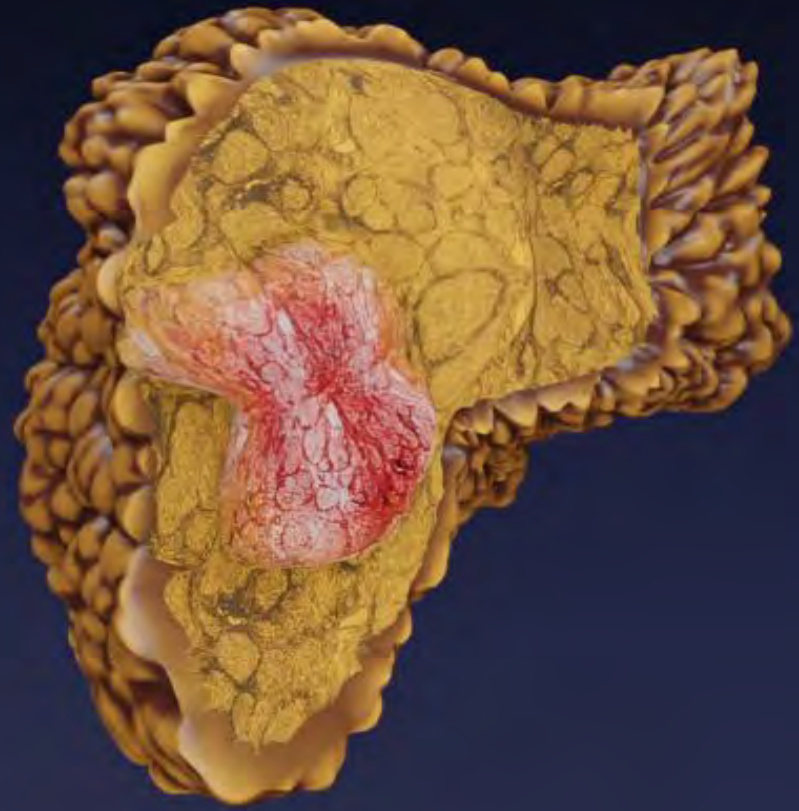
PBH non ciblée + pression





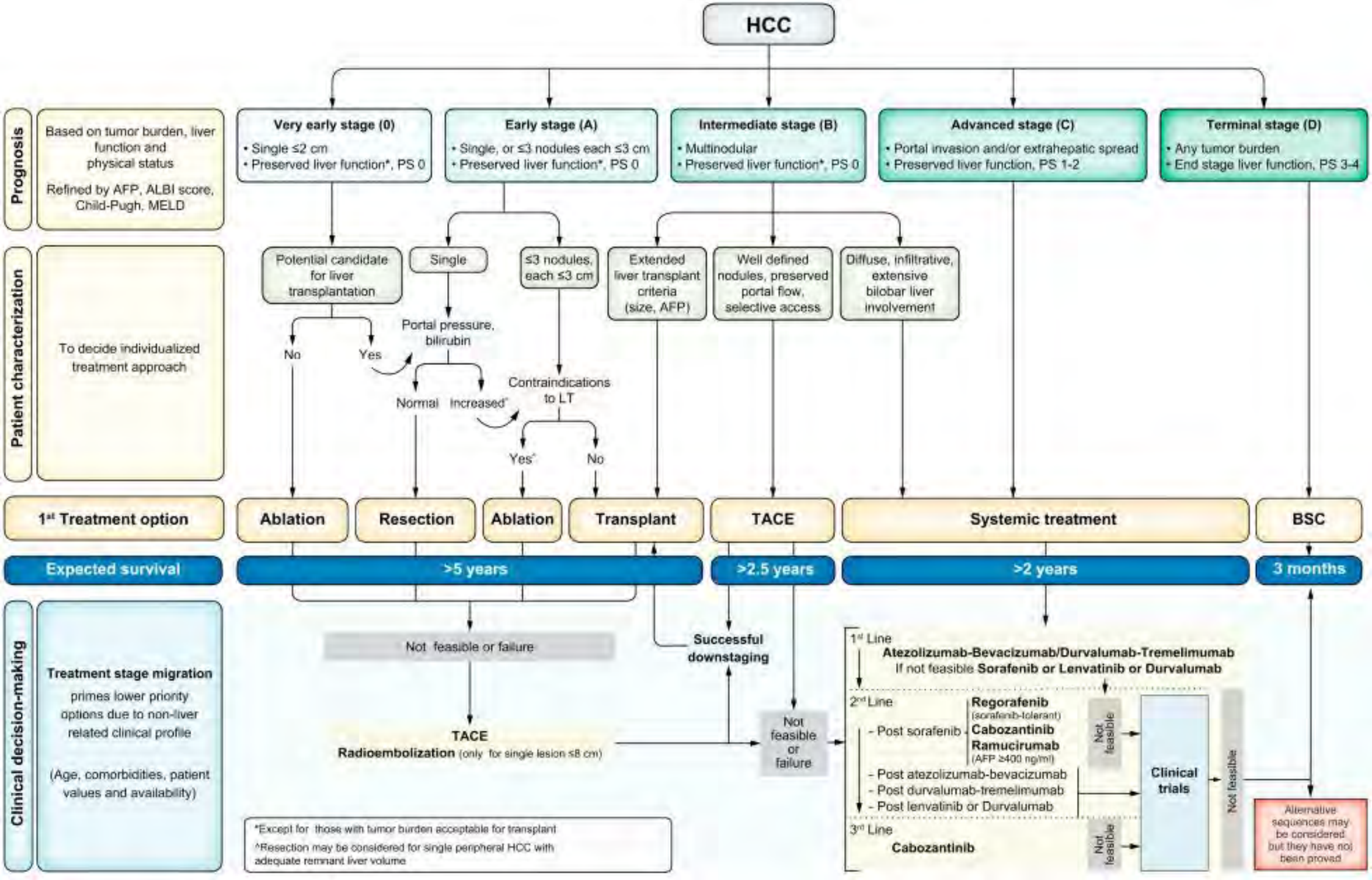


MTS



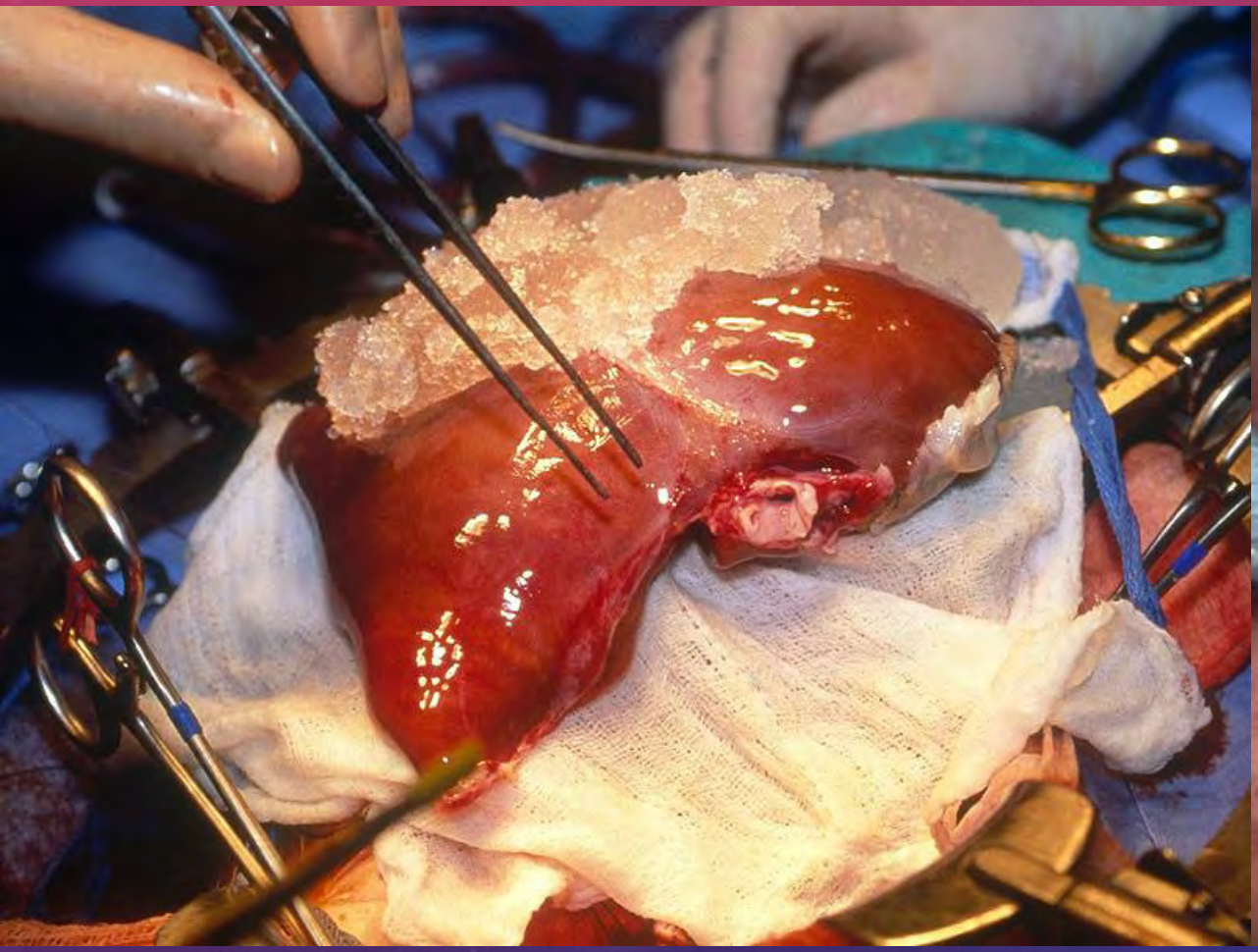
CHC

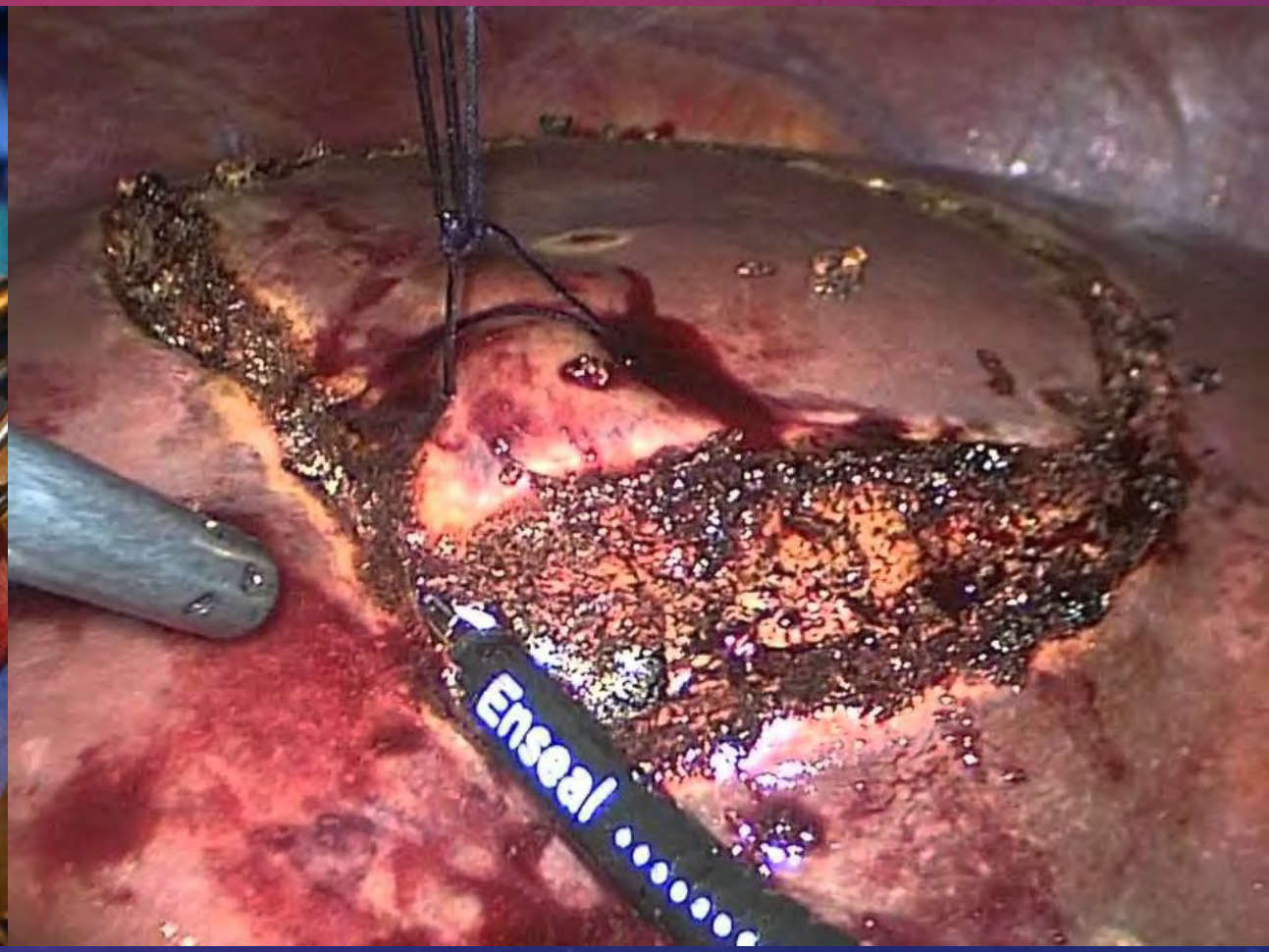
BCLC


HCC
Prognosis
Based on tumor burden, liver function and physical status
Refined by AFP, ALBI score, Child-Pugh, MELD
Very early stage (0)
• Single ≤2 cm
• Preserved liver function*, PS 0
Early stage (A)
• Single, or ≤3 nodules each ≤3 cm
• Preserved liver function*, PS 0
Intermediate stage (B)
• Multinodular
• Preserved liver function*, PS 0
Advanced stage (C)
• Portal invasion and/or extrahepatic spread
• Preserved liver function, PS 1-2
Terminal stage (D)
• Any tumor burden
• End stage liver function, PS 3-4
Patient characterization
To decide individualized treatment approach
Potential candidate for liver transplantation
Single
≤3 nodules, each ≤3 cm
Extended liver transplant criteria (size, AFP)
Well defined nodules, preserved portal flow, selective access
Diffuse, infiltrative, extensive bilobar liver involvement
No
Yes
Portal pressure, bilirubin
Normal
Increased^
Contraindications to LT
Yes^
No
1st Treatment option
Ablation
Resection
Ablation
Transplant
TACE
Systemic treatment
BSC
Expected survival
>5 years
>2.5 years
>2 years
3 months
Clinical decision-making
Treatment stage migration
primes lower priority options due to non-liver related clinical profile
(Age, comorbidities, patient values and availability)
Not feasible or failure
Successful downstaging
TACE
Radioembolization (only for single lesion ≤8 cm)
Not feasible or failure
1st Line
Atezolizumab-Bevacizumab/Durvalumab-Tremelimumab
If not feasible Sorafenib or Lenvatinib or Durvalumab
2nd Line
- Post sorafenib
Regorafenib (sorafenib-tolerant)
Cabozantinib
Ramucirumab (AFP ≥400 ng/ml)
- Post atezolizumab-bevacizumab
- Post durvalumab-tremelimumab
- Post lenvatinib or Durvalumab
3rd Line
Cabozantinib
Not feasible
Not feasible
Clinical trials
Not feasible
Alternative sequences may be considered but they have not been proved
*Except for those with tumor burden acceptable for transplant
^Resection may be considered for single peripheral HCC with adequate remnant liver volume

La chirurgie est la meilleure option

BCLC / Milan / ALBI / Child-Pugh / MELD





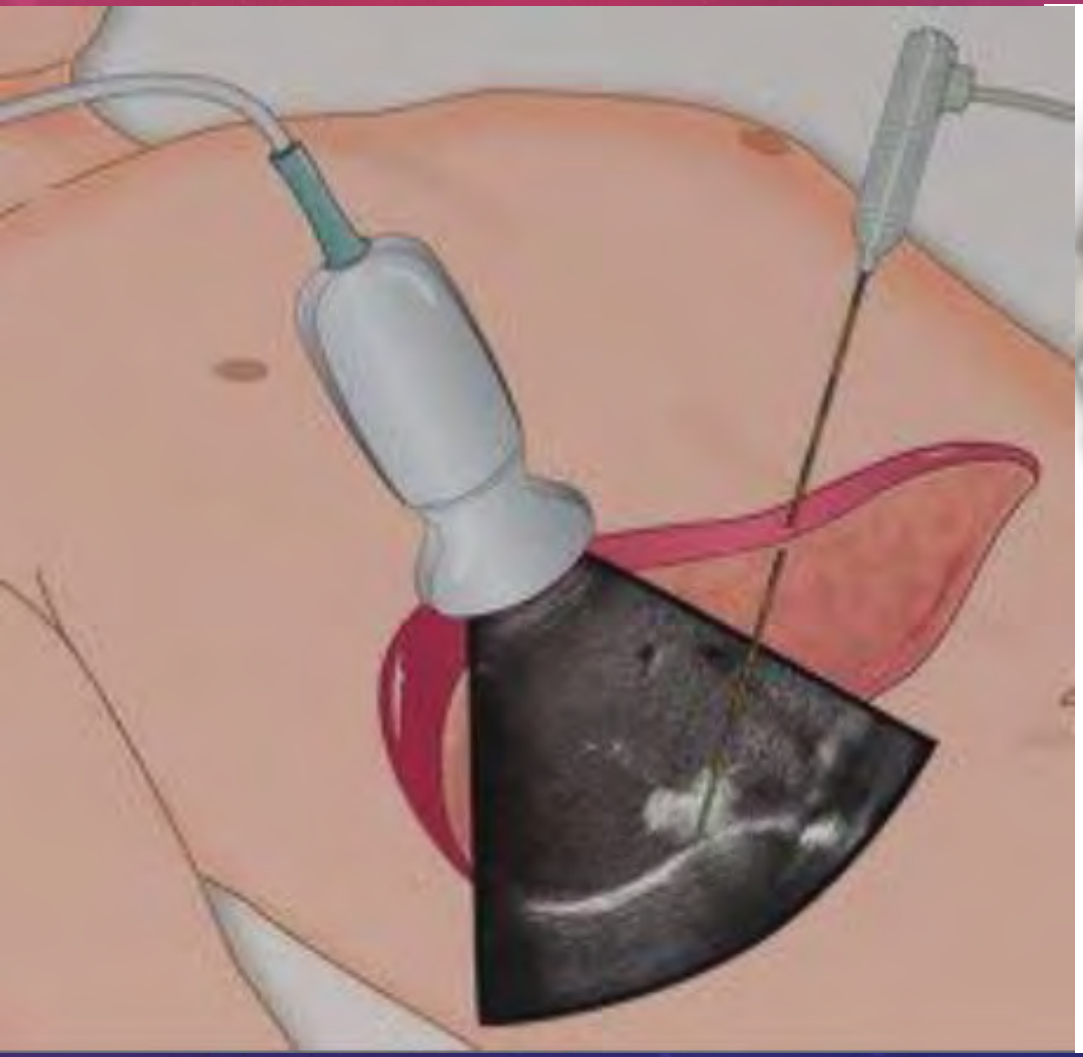
Moins de **20 %** des patients peuvent bénéficier d'un traitement chirurgical

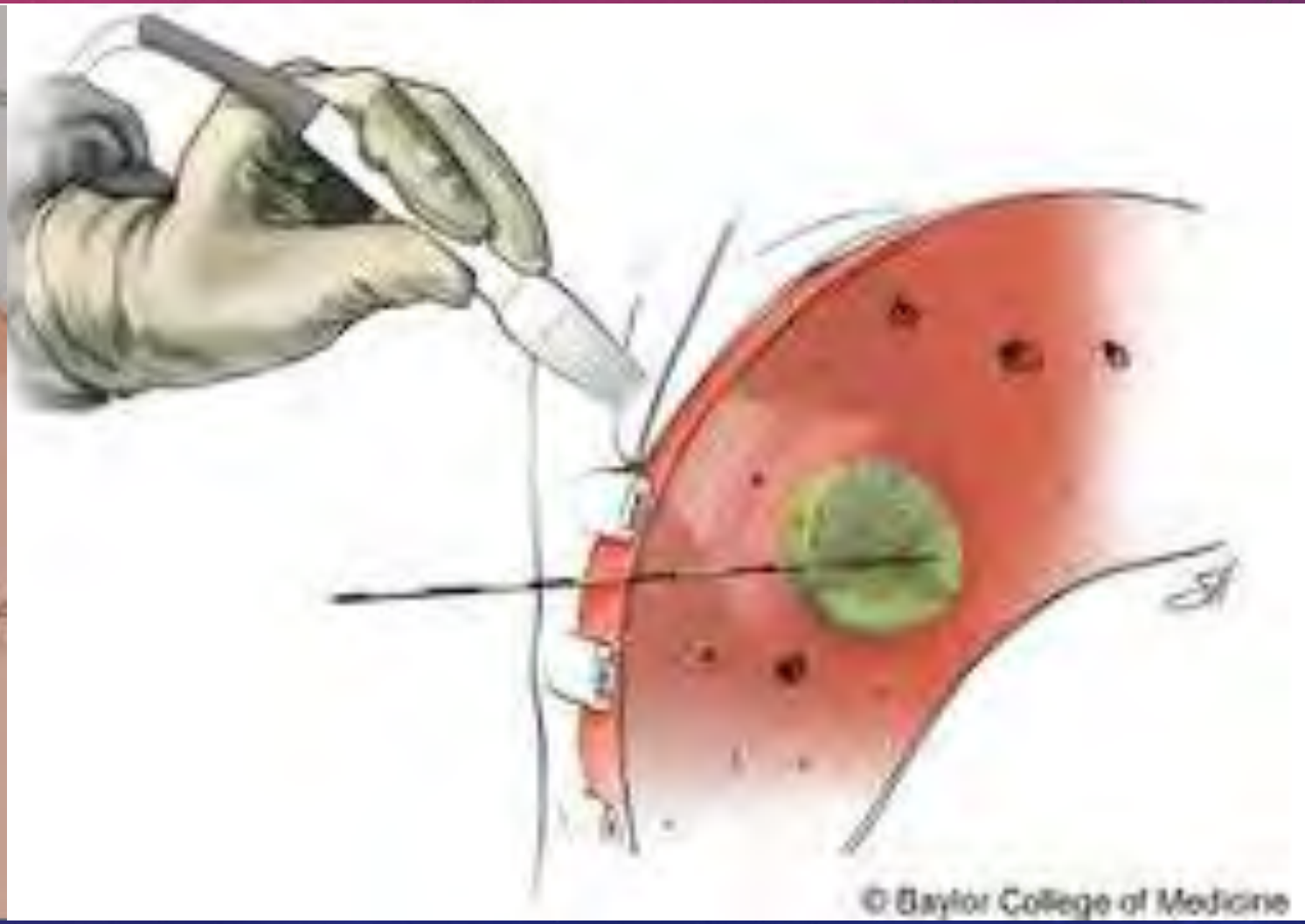
(Early / Intermediate stage - A,B)

DOI: 10.1002/hep.23181.

Le choix pour les **80 %** restants est RI

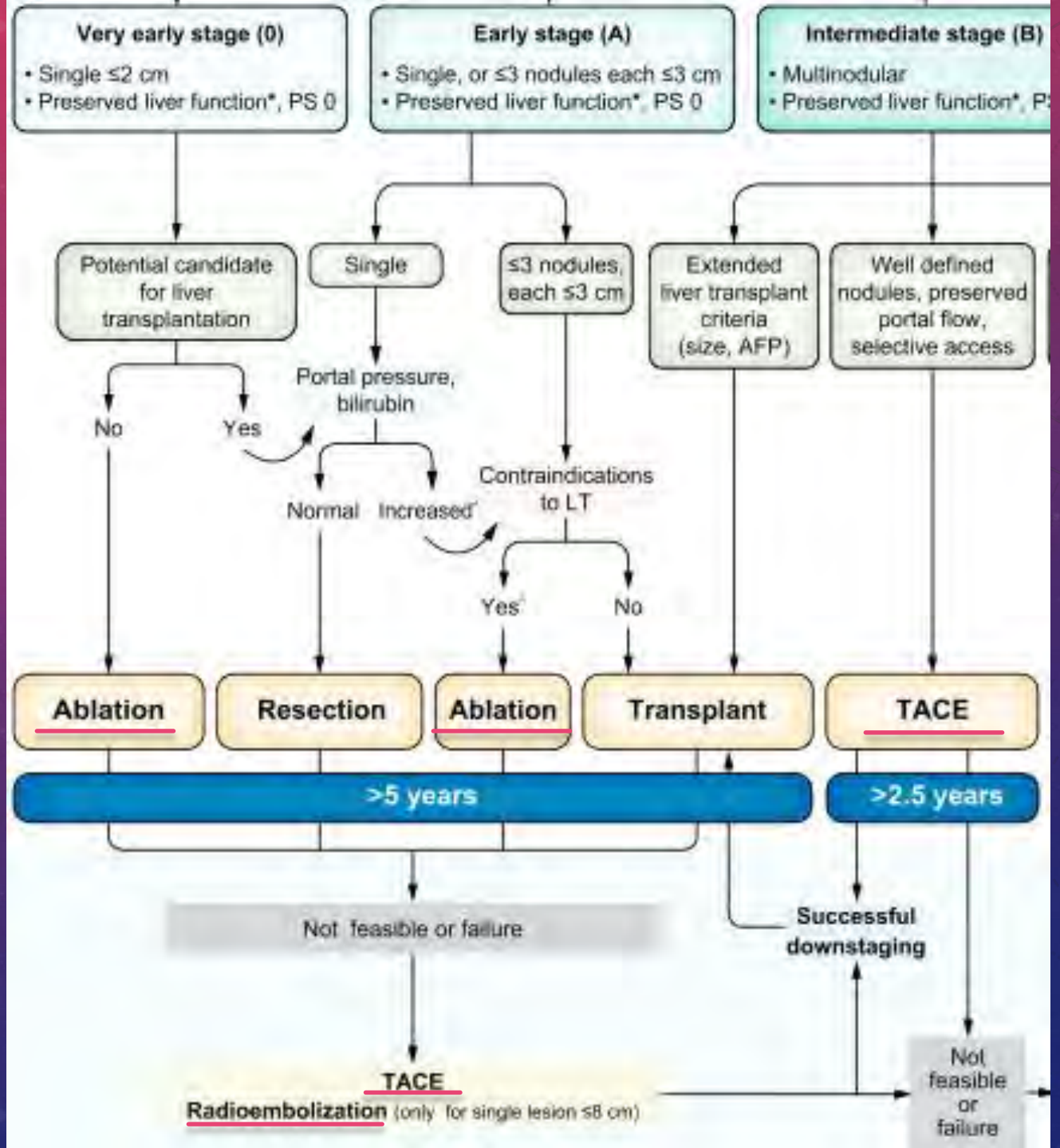
(Early / Intermediate stage - A,B)





DOI: 10.1002/hep.23181.


CYTOTOXIC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• Multinodular
• Preserved liver function*, P
Potential candidate for liver transplantation
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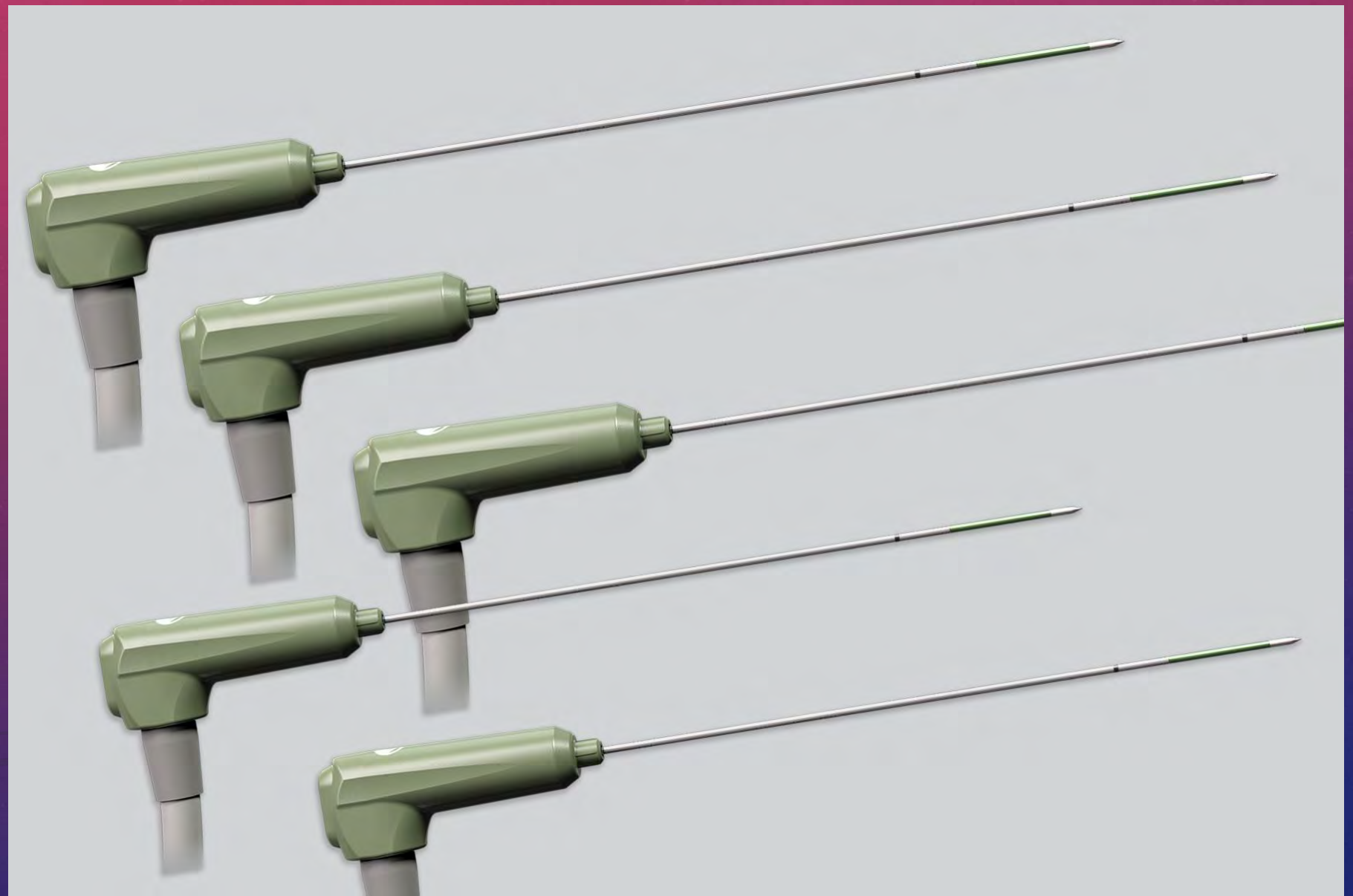
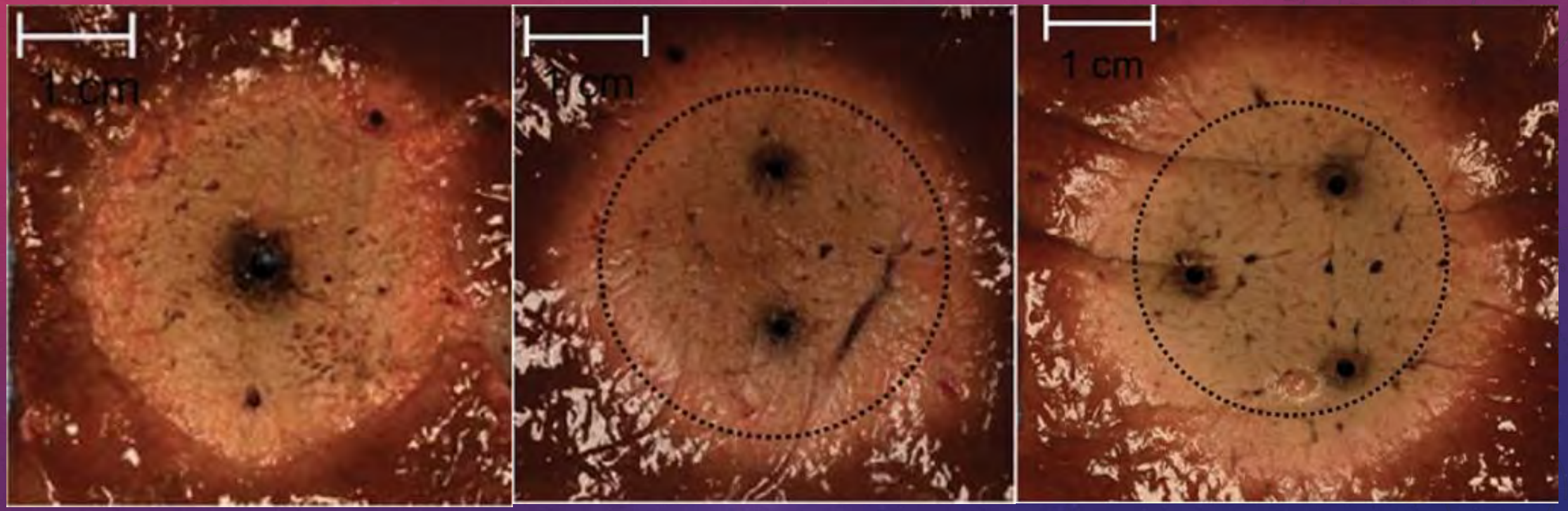
Ablation
Resection
Ablation
Transplant
TACE
>5 years
>2.5 years
Not feasible or failure
Successful downstaging
TACE
Radioembolization (only for single lesion ≤8 cm)
Not feasible or failure

MWA «NeuWave»



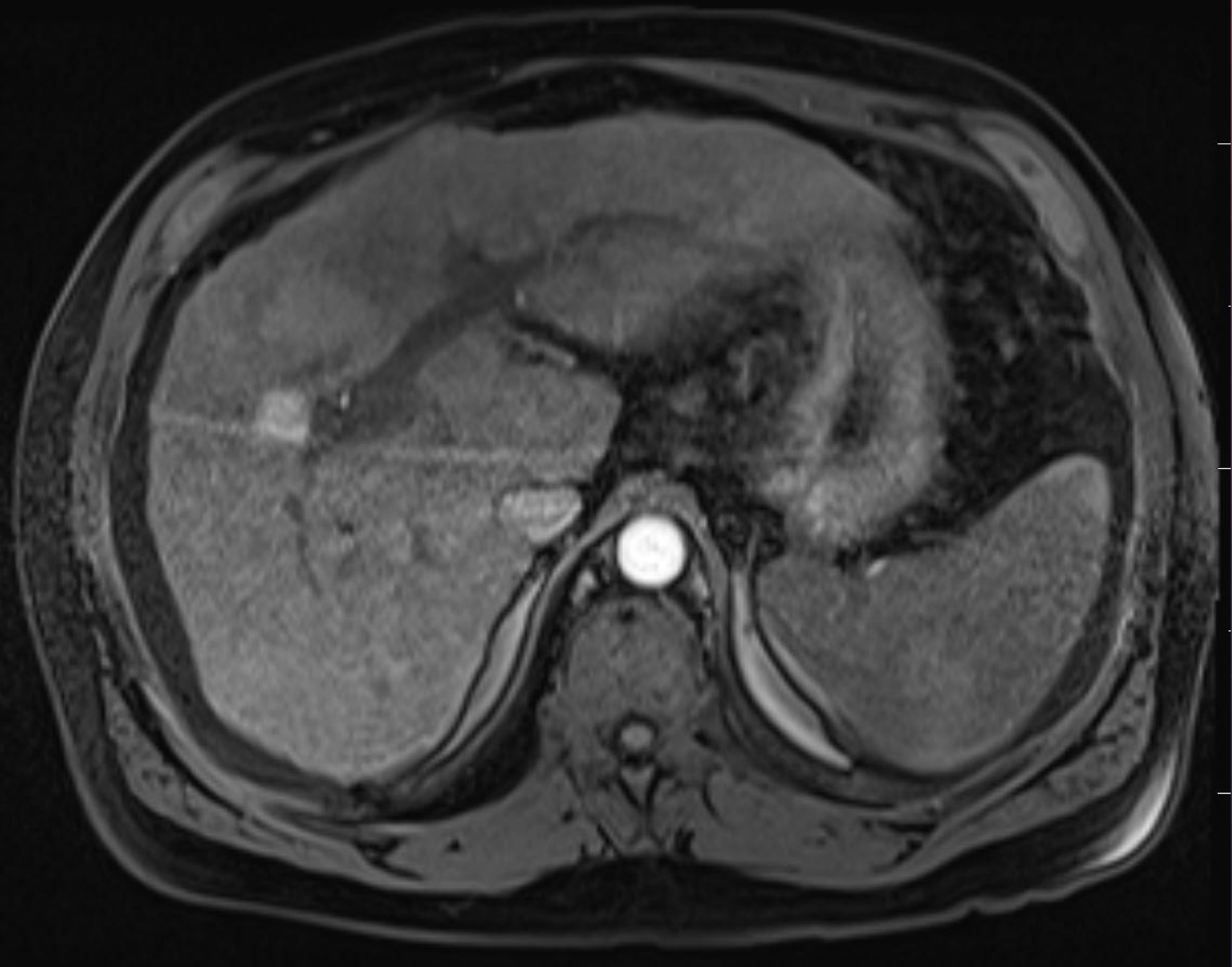


1x90W
5 min

2x45W
5 min

3x30W
5 min

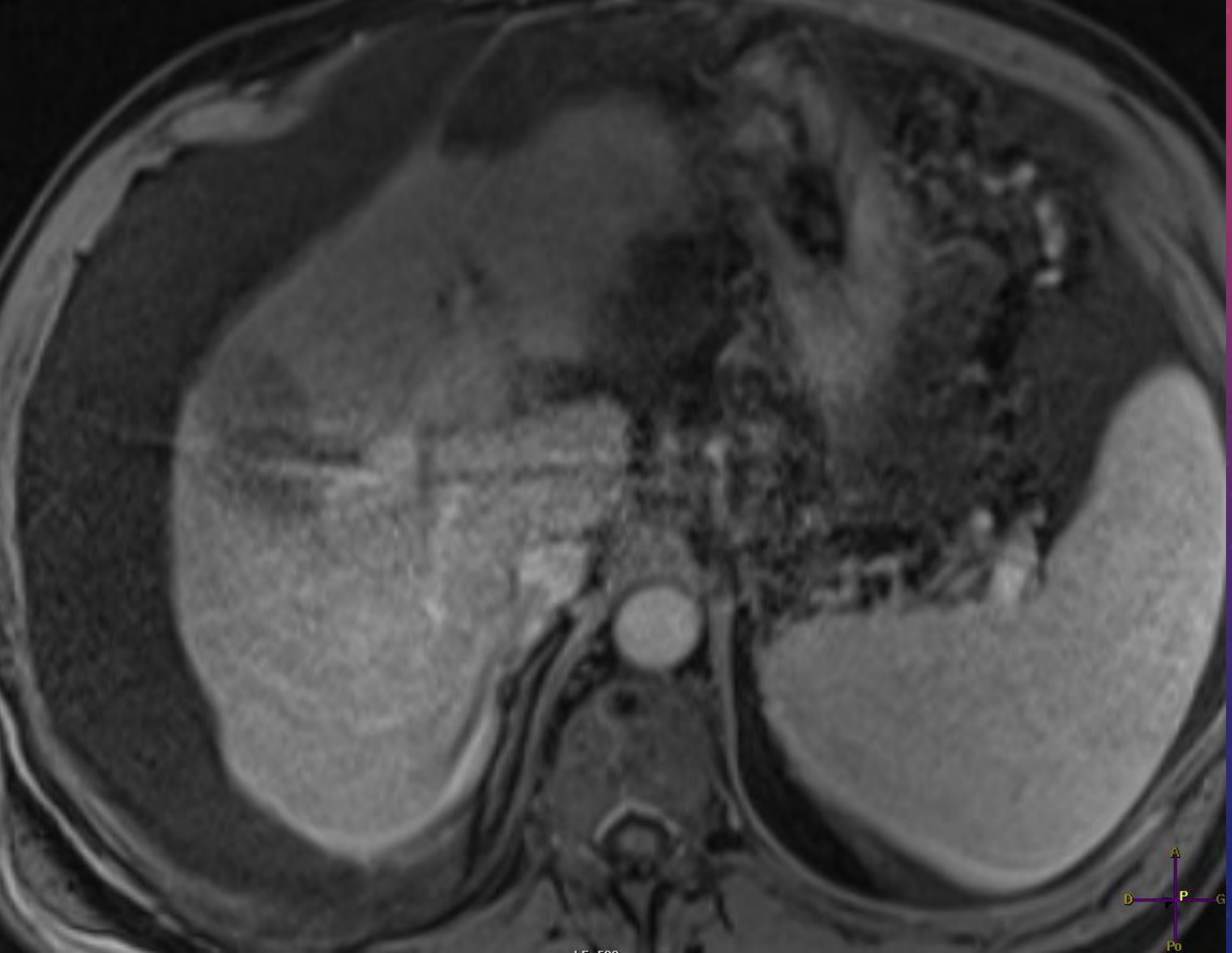
DOI: 10.1016/j.jvir.2010.04.007



NASH, Child-Pugh B9

CHC 18мм V-VIII

CT 24H

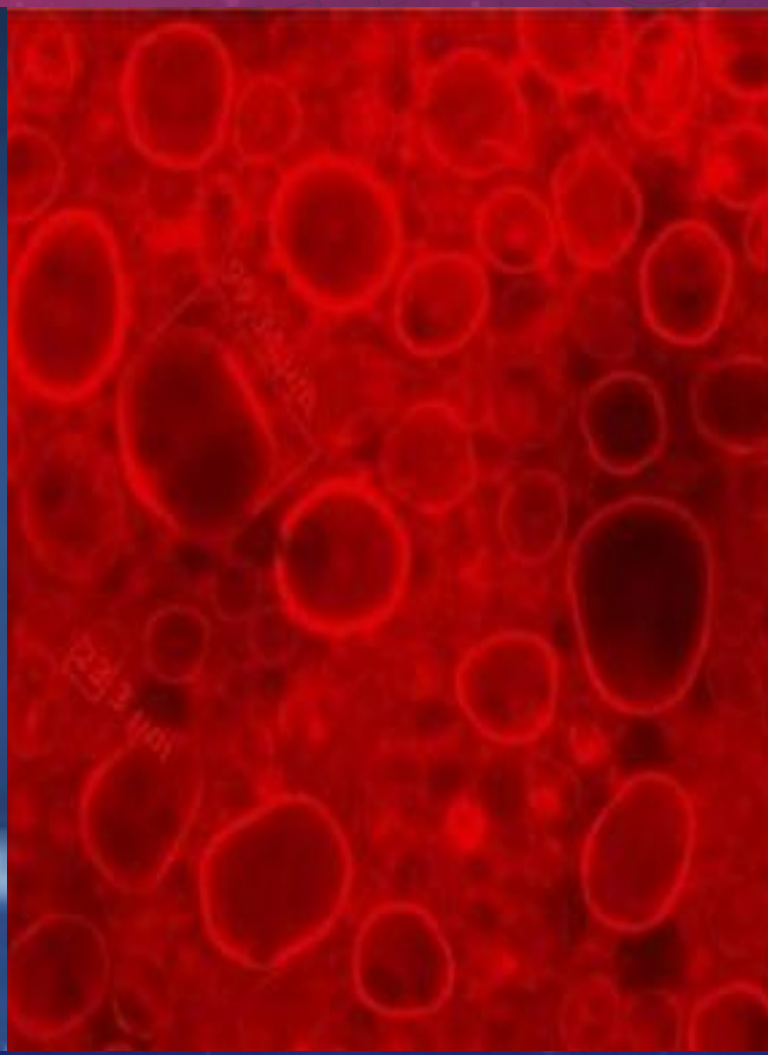


IRM 6 mois

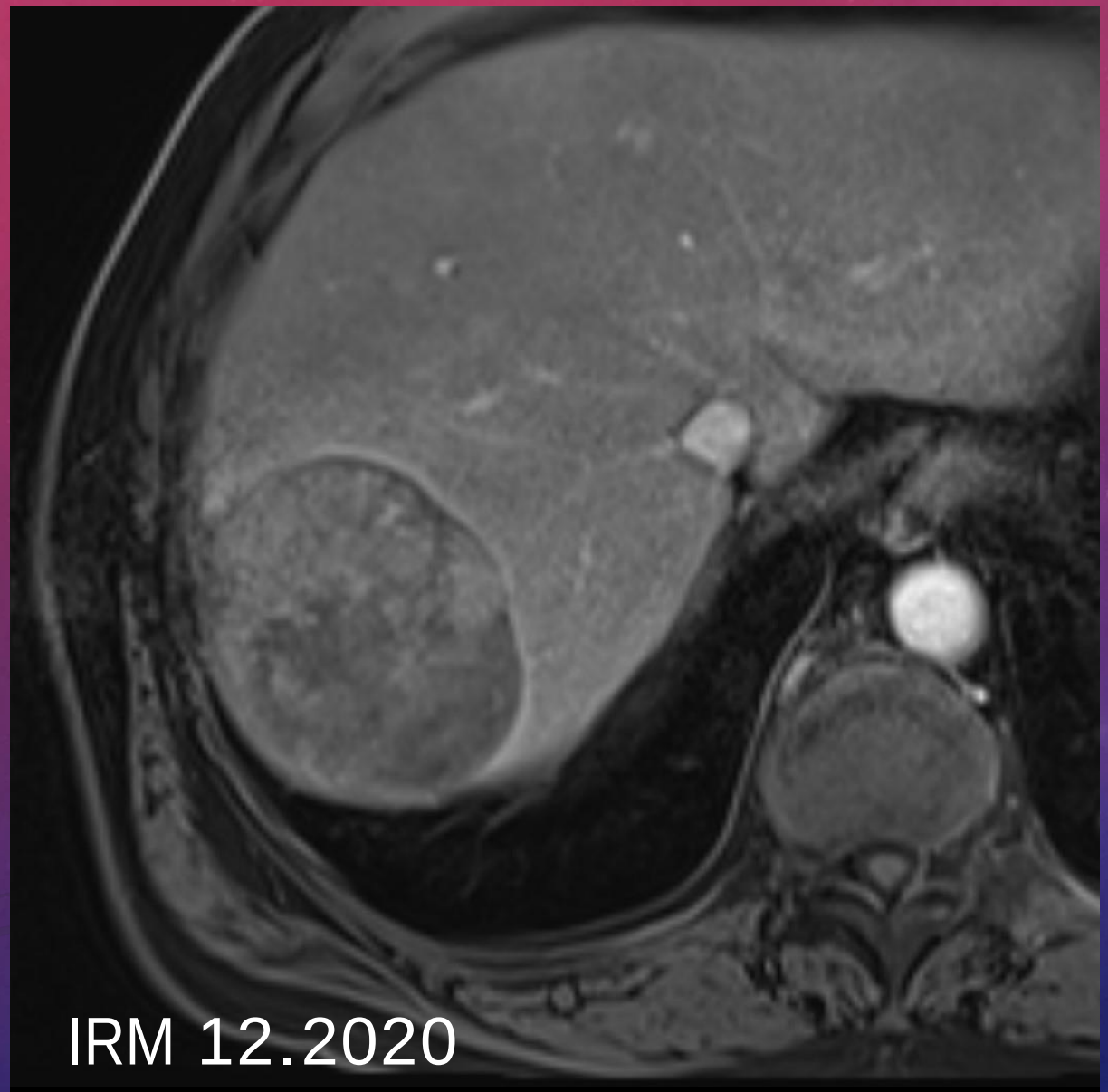

CYTOTOXIC

TACE

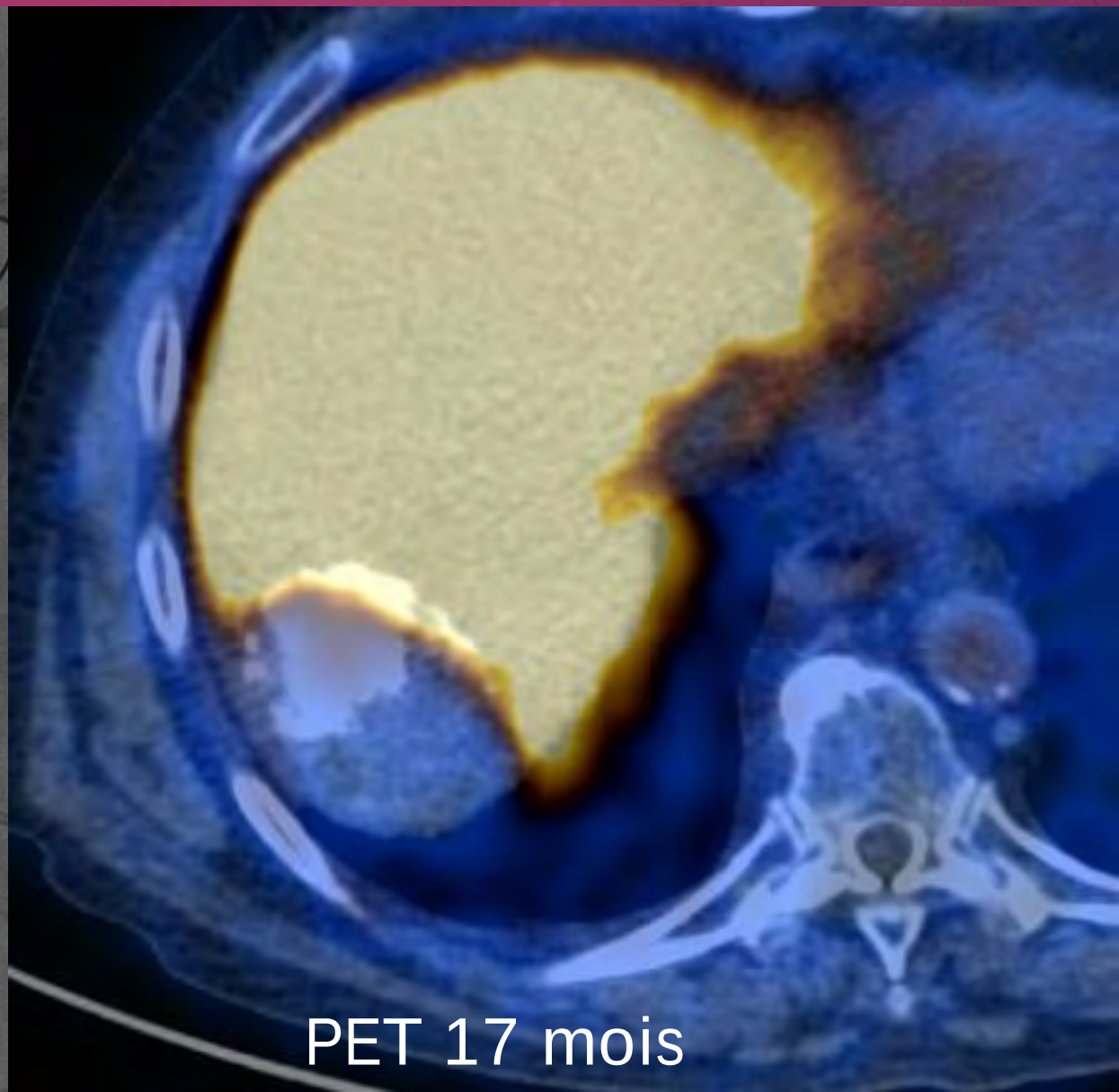

LIPIODOL® ULTRA FLUID
DIN 00386685
10 ml
HUILE ÉTHIODÉE - ETHIODIZED OIL
Voie lymphatique - Through lymphatic vessels
Guerbet
1 vial of 25ml
Doxorubicin
"Ebewe" 50mg/25ml
Concentrate for solution for infusion.
Administration: intravenous, bladder instillation.
50mg



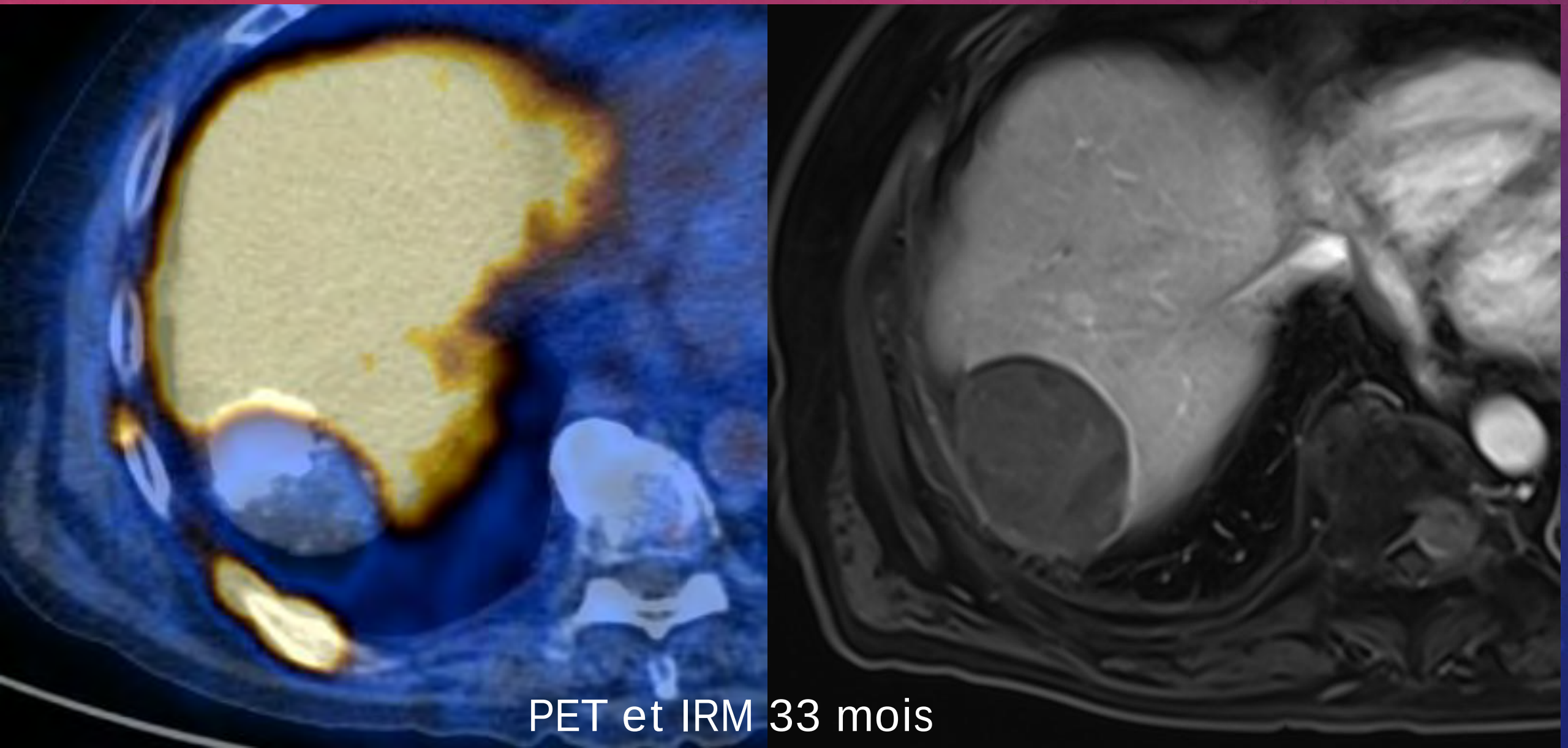
TACE



TACE



TACE

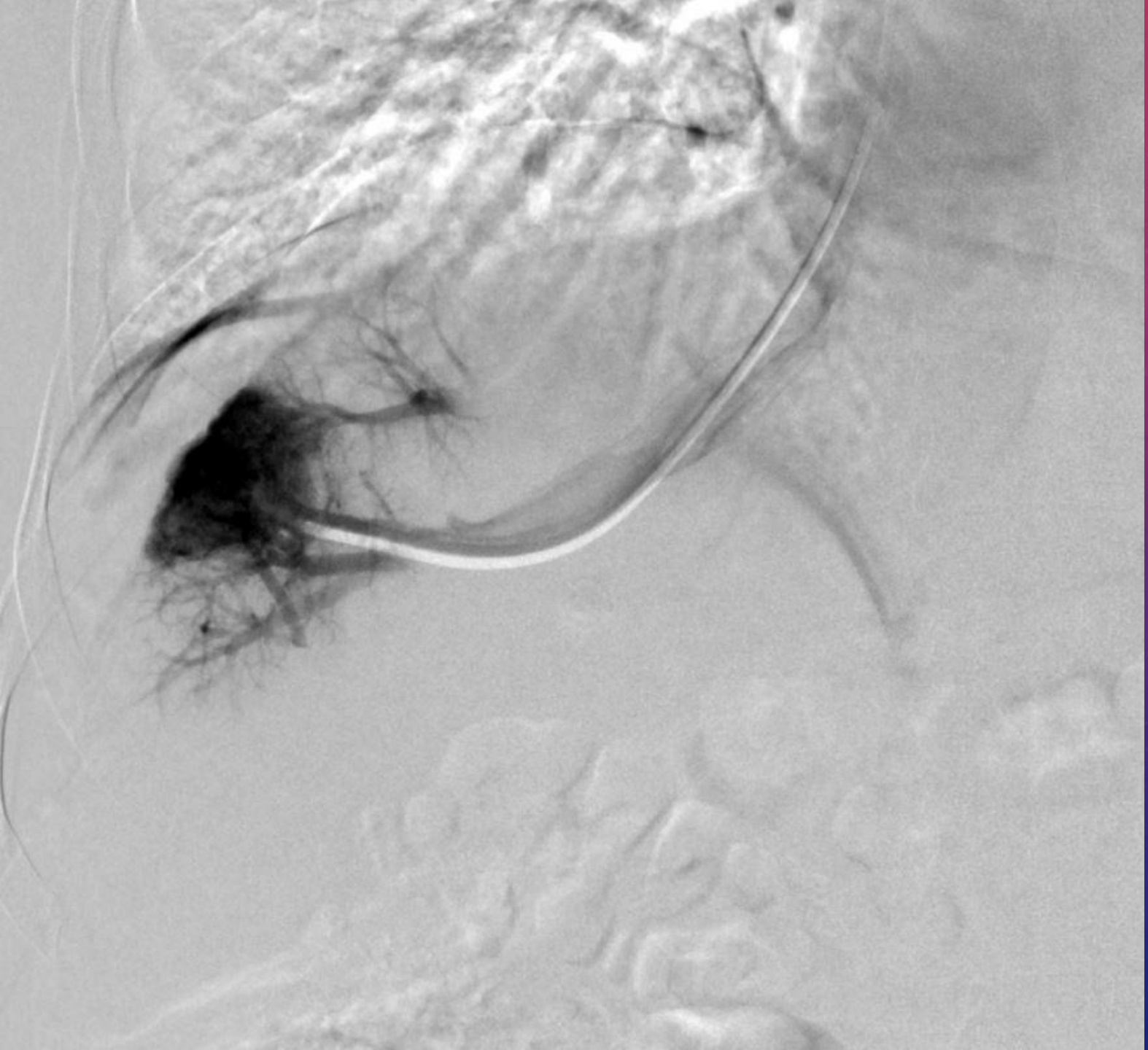


PET et IRM 33 mois

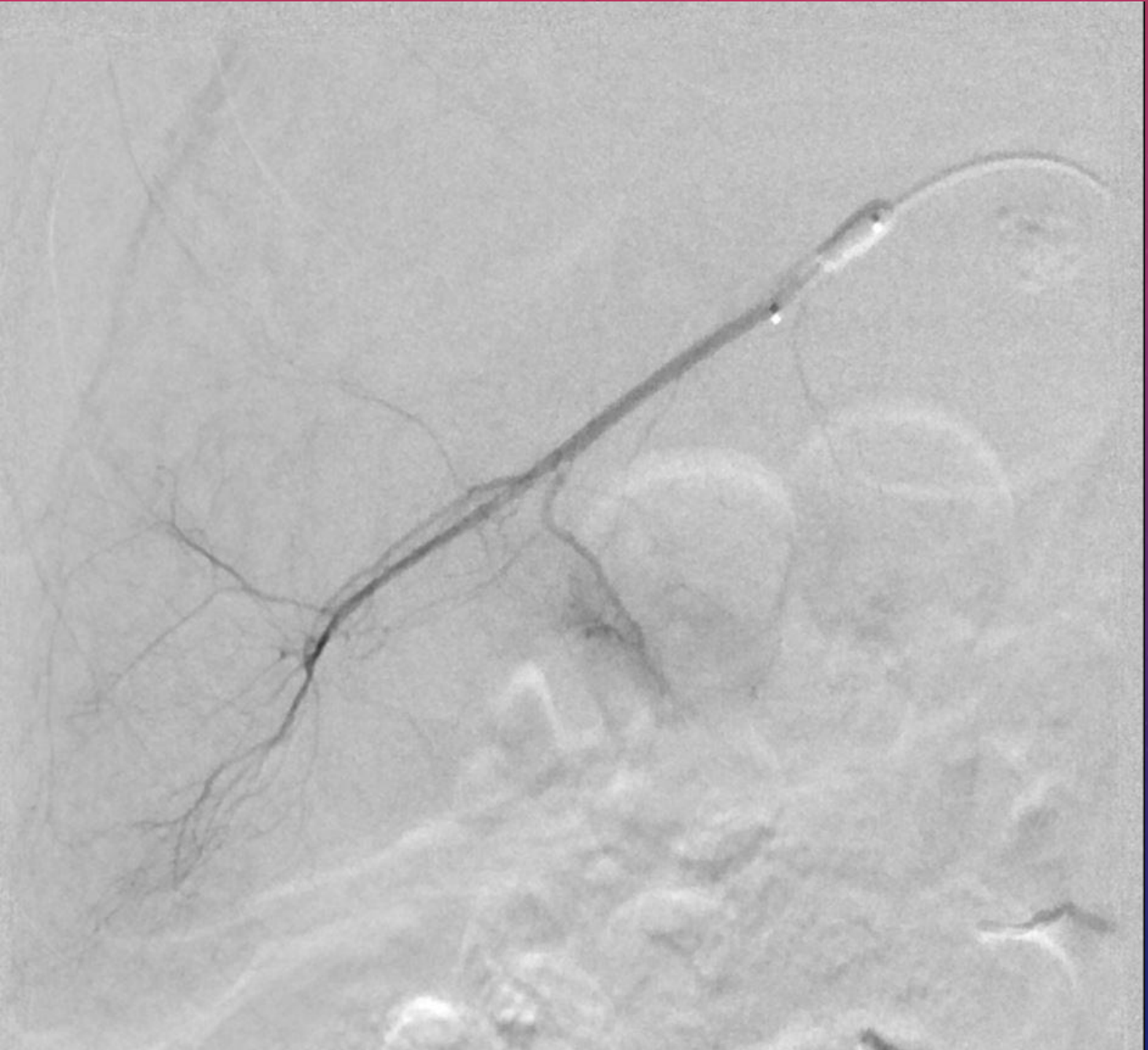
traitement combiné

TACE+MWA

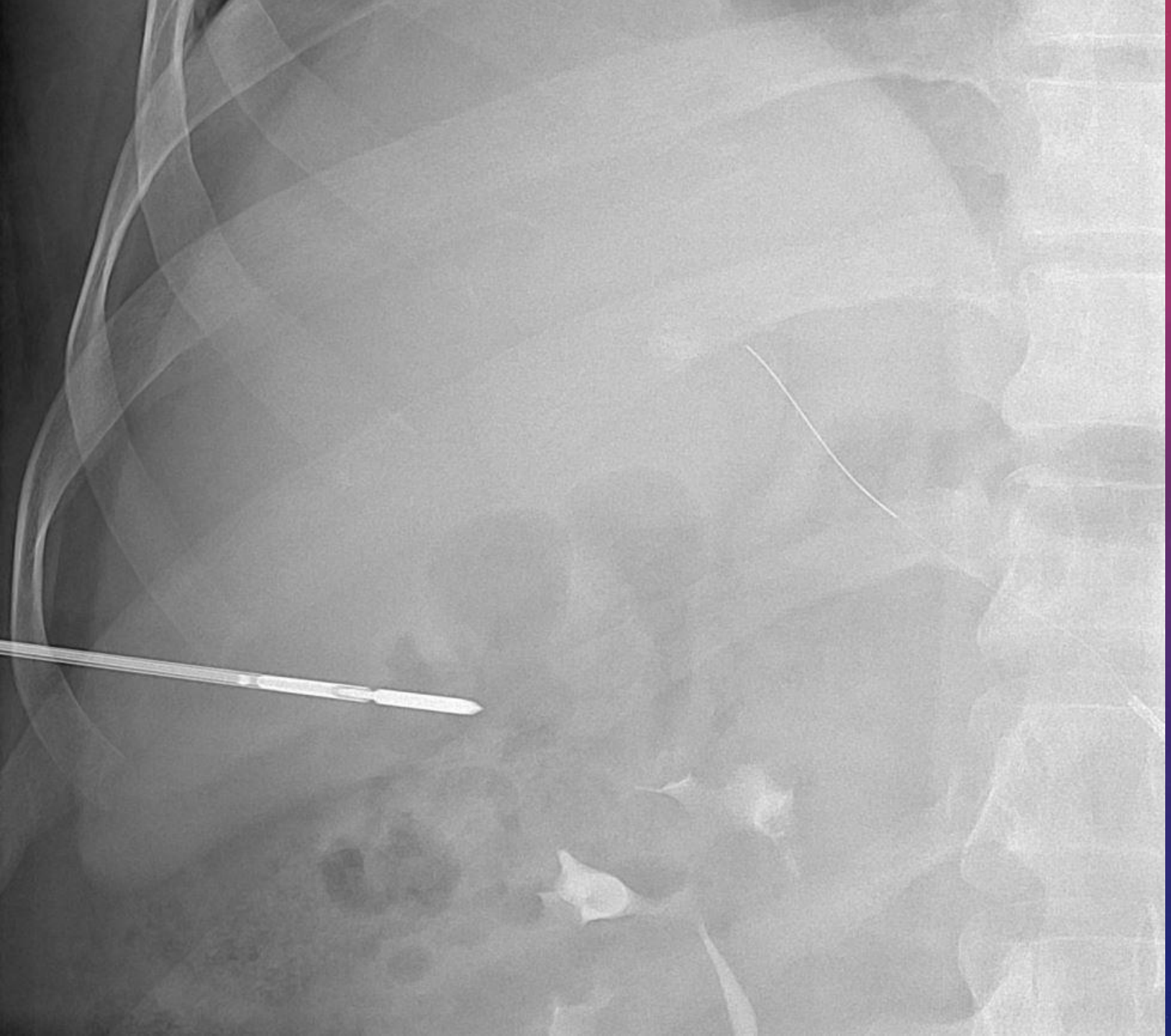
M, 43 ans
Hépatite virale B
Child-Pugh A5
CHC 21мм V



Gradient porto systémique
19 mmHg



TACE sV

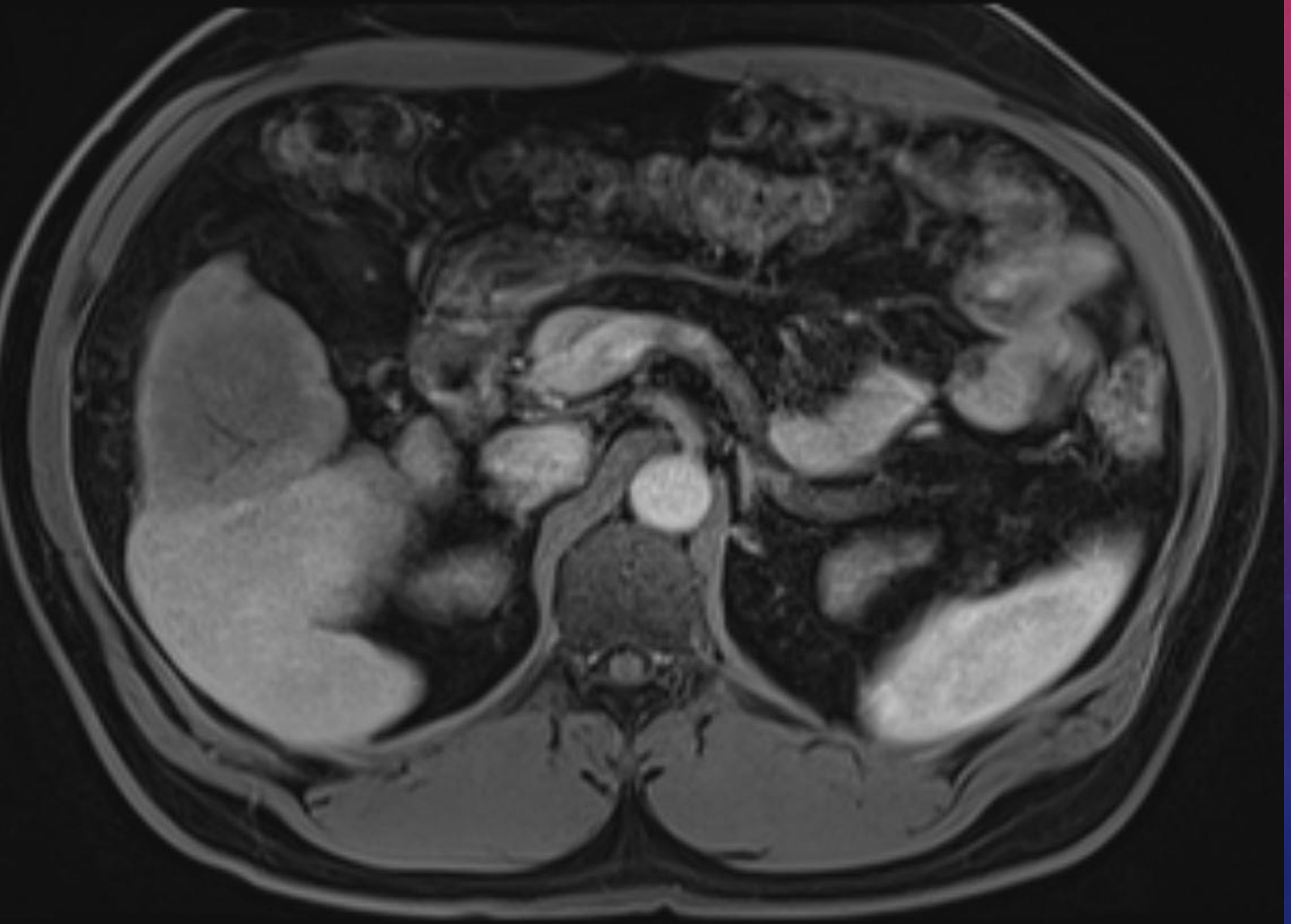


MWA sV
60 W, 15 min

TACE + la veine porte

«segmentectomie»

CT 24h



IRM 9 mois

SIRT

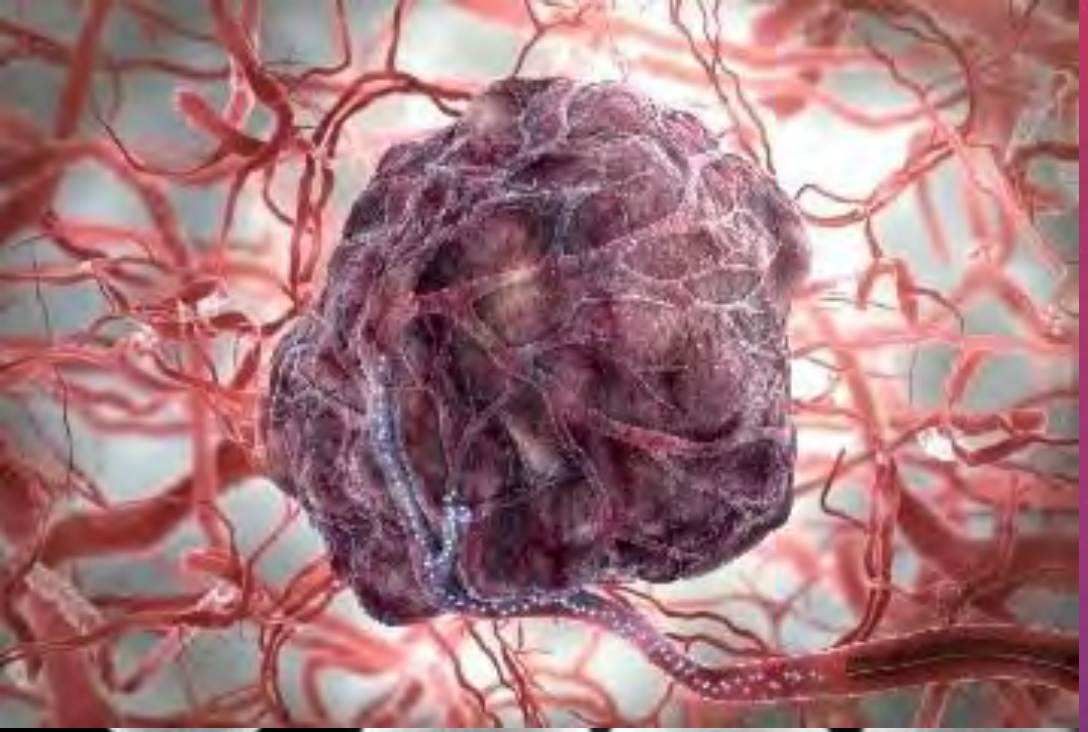
radiothérapie interne sélective (depuis 01.2023)

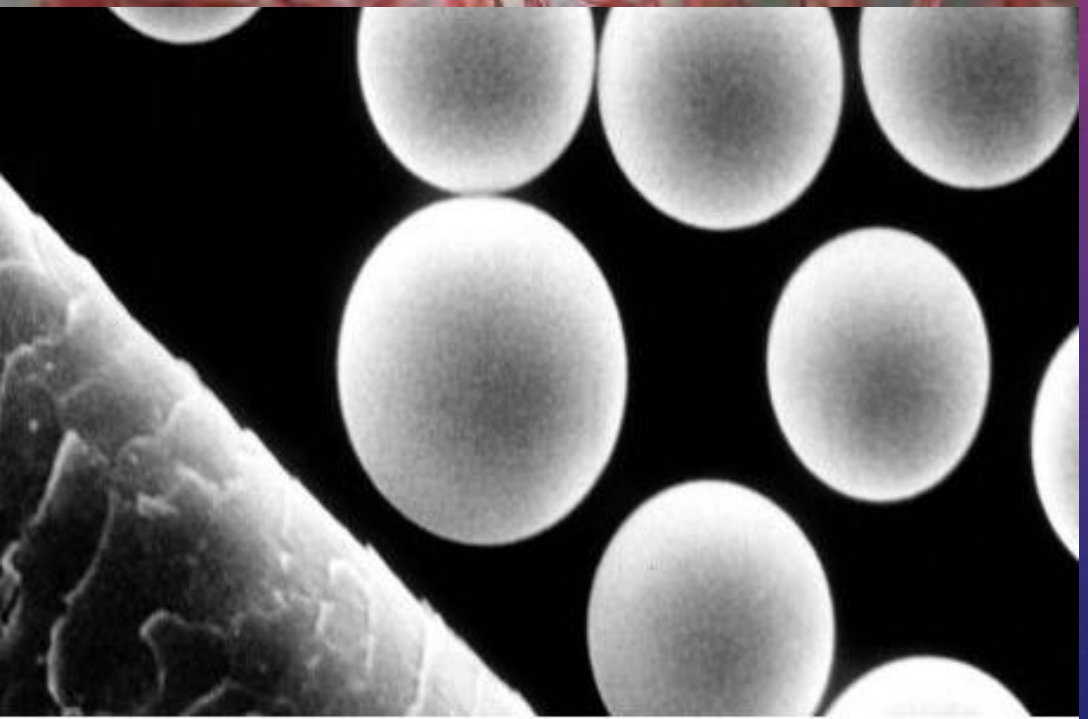
Boston Scientific
Advancing science for life™

THERASPHERE™
Y-90 Glass Microspheres

Dr Vincent SOUBEYRAN
médecin adjoint,
médecine nucléaire

Dre Yolande PETEGNIEF
physicienne médicale



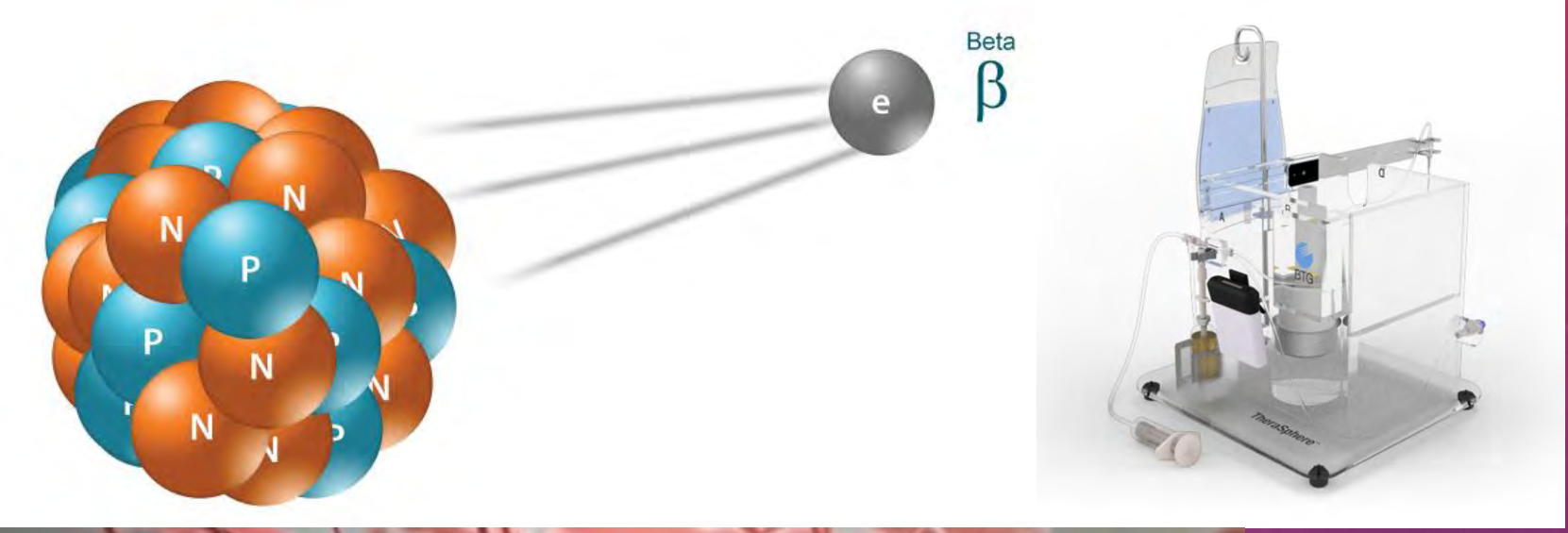


Boston Scientific
Advancing science for life™

THERASPHERE™
Y-90 Glass Microspheres

SIRT:

microsphères de verre
diamètre 15-35 µm
0.025 mm



Boston Scientific
Advancing science for life™

THERASPHERE™
Y-90 Glass Microspheres

SIRT:

Yttrium-90 émission Bêta
Énergie 0,9367 MeV
Pénétration tissulaire 2,5 mm (max. 11 mm)

TheraSphere™ fights HCC at All Stages

CURATIVE INTENT

PALLATION

Bridging & Downstaging to Surgery

12.5 YEARS
MEDIAN OVERALL SURVIVAL[1]

Radiation Segmentectomy

6.7 YEARS
MEDIAN OVERALL SURVIVAL[2]

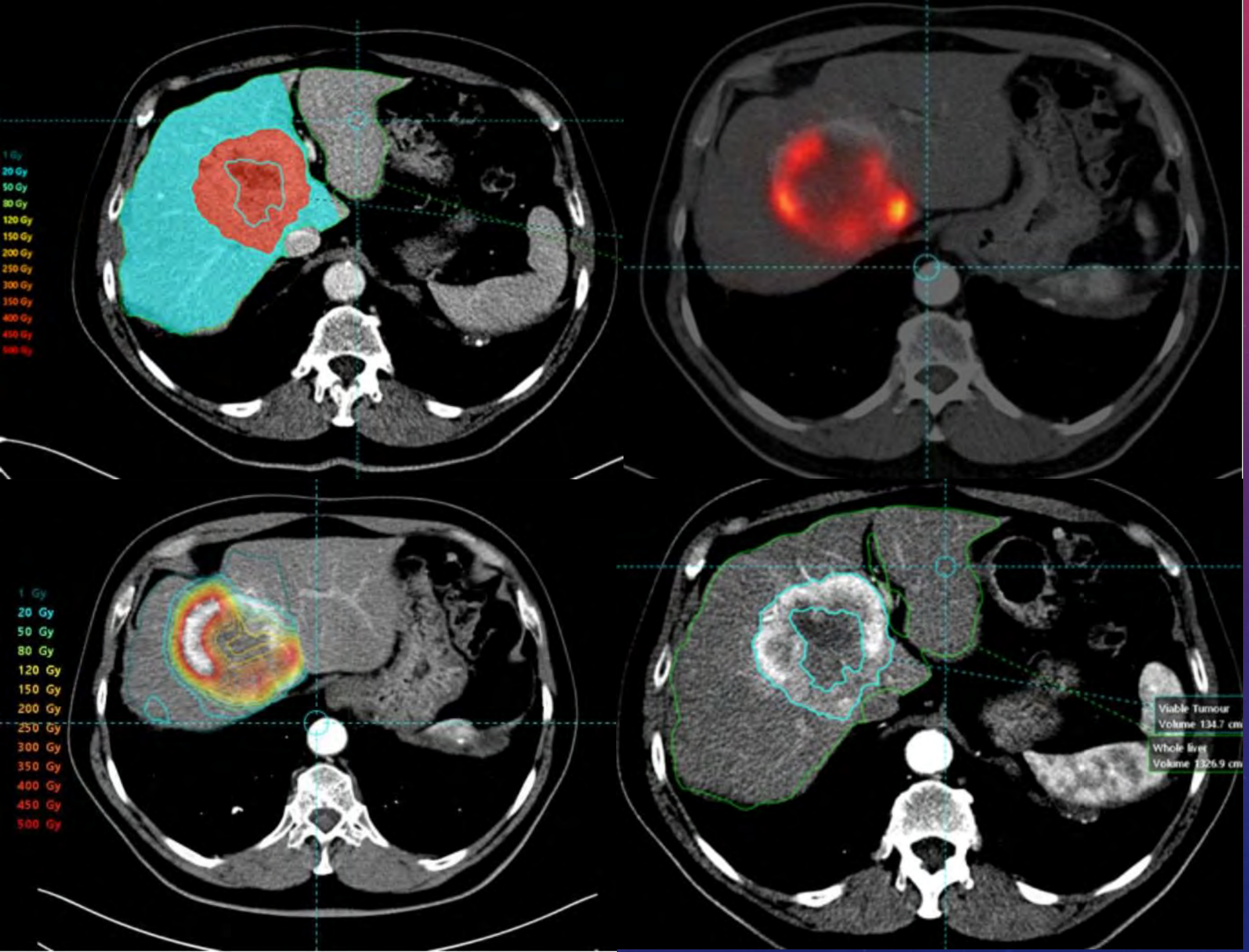
Radiation Lobectomy

3.1 YEARS
MEDIAN OVERALL SURVIVAL[3]

LOBAR (±PVT)

2.2 YEARS
MEDIAN OVERALL SURVIVAL[4*]

[1] Bridging and Downstaging: Gabr, A., Kulik, L., Mouli, S., Riaz, A., Ali, R., Desai, K., Mora, R.A., Ganger, D., Maddur, H., Flamm, S., Boike, J., Moore, C., Thornburg, B., Alasadi, A., Baker, T., Borja-Cacho, D., Katariya, N., Ladner, D.P., Caicedo, J.C., Lewandowski, R.J. and Salem, R. (2020), Liver Transplantation Following Yttrium-90 Radioembolization: 15-year Experience in 207-Patient Cohort. Hepatology. Accepted Author Manuscript. doi:10.1002/hep.31318 >=30% hepatic reserve. [2] Rad Seg: Lewandowski RJ, Gabr A, Abouchaleh N et al. Radiation segmentectomy: potential curative therapy for early hepatocellular carcinoma. Radiology. 2018; 287(3): 1050-1058. [3] Rad Lob: Gaba RC et al. Ann Surg Oncol 2009;16:1587–96. [4] PVT + Lobar : Garin et al, J Clin Oncol 38, 2020 (suppl 4; abstr 516) **Utilized personalized dosimetry method with >205 Gy to the inde.*



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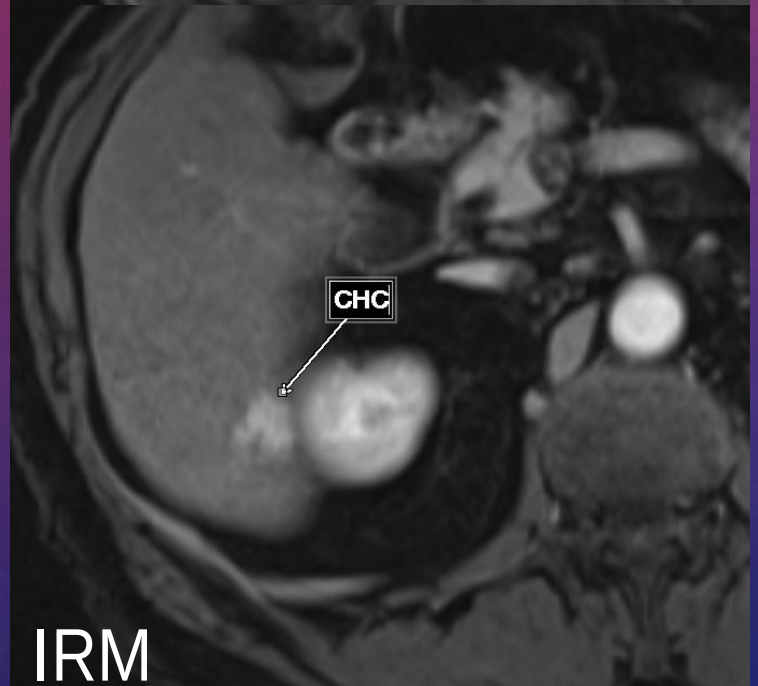
THERASPHERE™
Y-90 Glass Microspheres

Simplicit^{90}Y

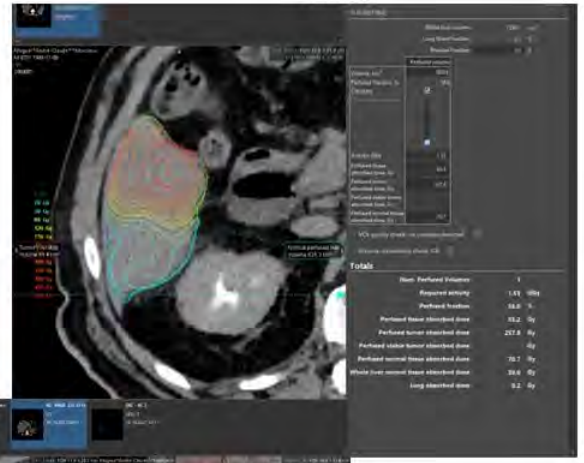


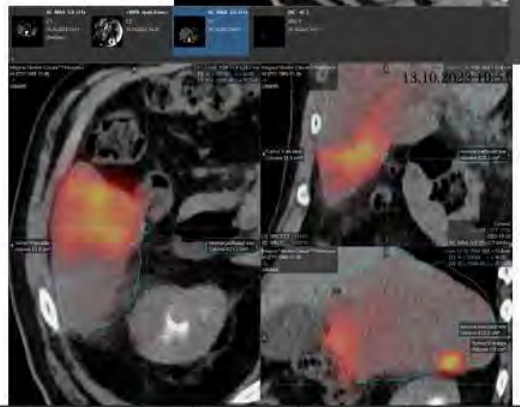
IRM

Hopital du Valais CHVR

Dosimétrie de planification SPECT MAA du 20.10.2023 (premier examen le 13.10.2023)

Item	Dosimetry
Name	Magnin^André-Claude^^Monsieur^
Patient ID	2068065
Age	73 Y
Date of Birth	06.11.1949
Acquisition Date	13.10.2023





Reserve hépatique 43%
Shunt pulmonaire 0,3%

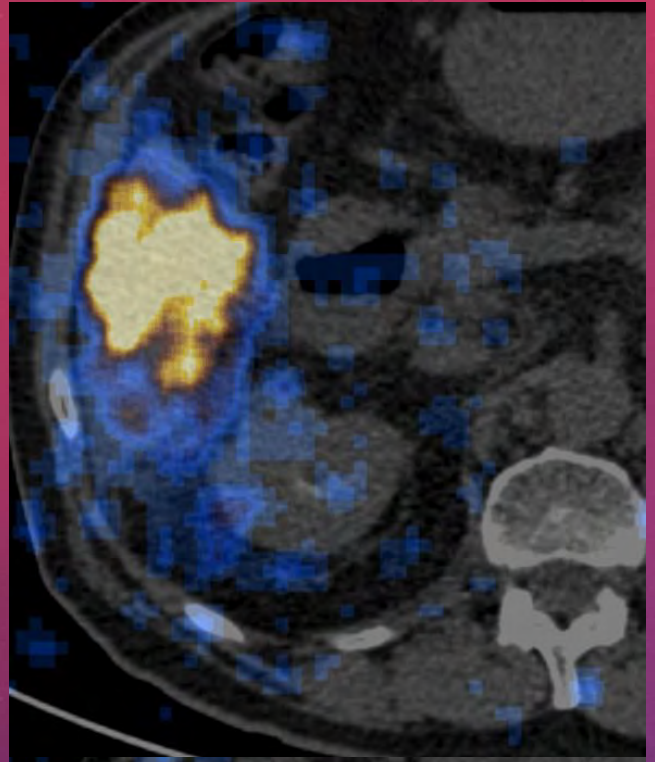
Contraintes de dose :
Foie total normal (1500cc) 40 Gy
Foie normal perfusé (823cc) 70 Gy

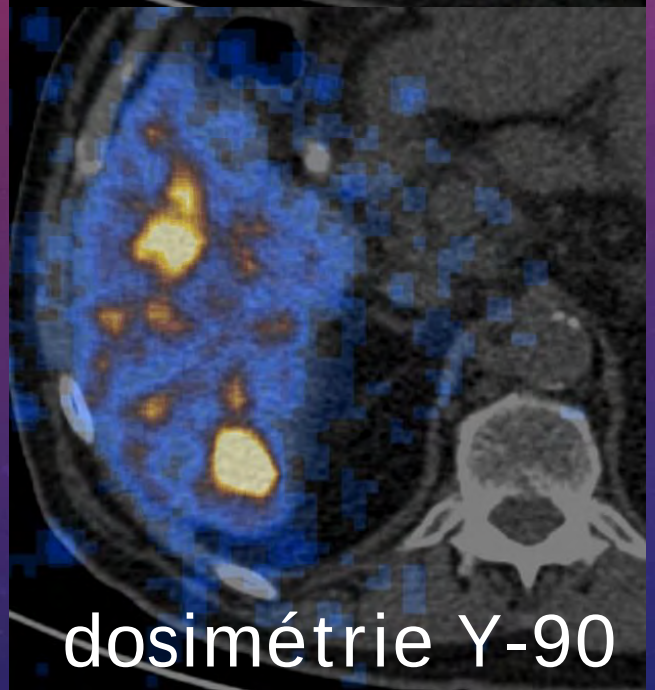
Tumeur V (52cc) Dose>205 Gy 66% du volume
Tumeur VI (2cc sur CBCT avec marges 1cm)
Dose>205 Gy 59% du volume

Num. Perfused Volumes	Required activity, GBq	Perfused fraction, %	Perfused tissue absorbed dose, Gy	Perfused tumor absorbed dose, Gy	Perfused viable tumor absorbed dose, Gy	Perfused normal tissue absorbed dose, Gy	Whole liver normal tissue absorbed dose, Gy	Lung absorbed dose, Gy
1	1.55	56.8	83.2	257.8		70.7	39.0	0.2

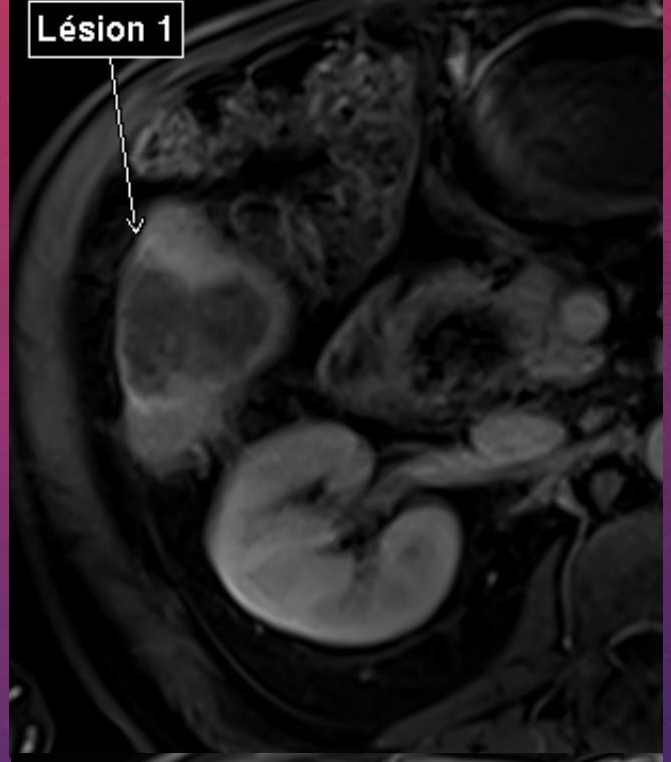
VOI quality check: no overlaps detected
Volume consistency check: OK

Dosimétrie compartimentale du 20.10.2023
Commande de 14,5 GBq de Therasphere calibré au 22.10.2023 12:00 EST



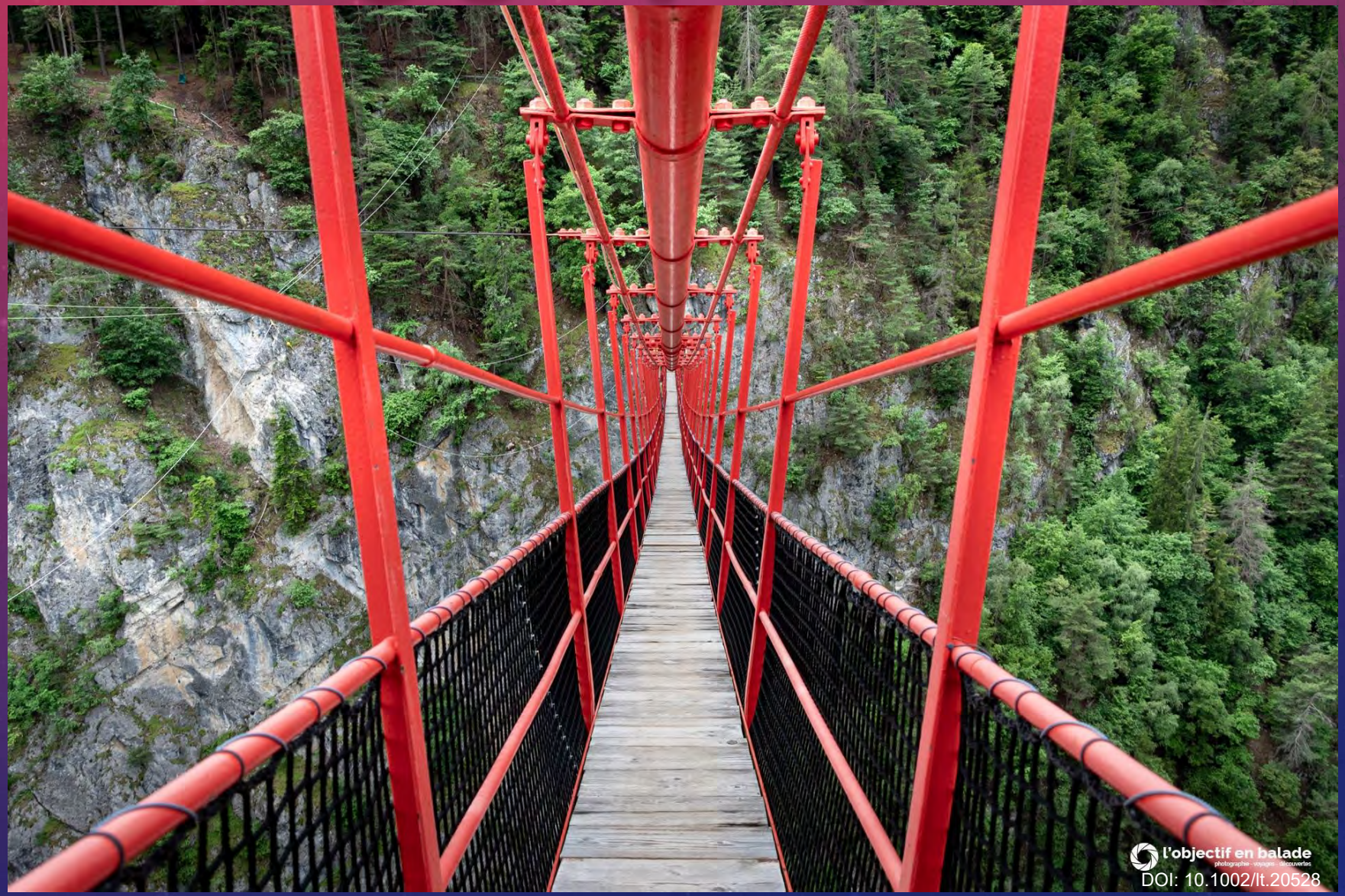


dosimétrie Y-90



IRM 3 mois

RI propose possibilité de traitement curatif, ainsi que downstaging et «pont» pour transplantation.



DOI: 10.1002/lt.20528 DOI: 10.1245/s10434-008-0071-3.