

De la Stéatose à la Cirrhose en chemin avec les ultrasons

Professeur Etienne Danse Bruxelles
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Avec l'aide des Prof Jouret-Mourin, Komuta, Starkel, Lanthier, Horsmans

Stéatose

- Contexte global
- Anatomie et histologie hépatique
 - NAFLD et ALD , (N)ASH, Cirrhose
- Apport de l'échographie
- Rôle de l'imagerie
- Situations particulières
- Message à retenir

Stéatose



Contexte

Imagerie

Echographie

Anatomie et histologie

NAFLD - ALD

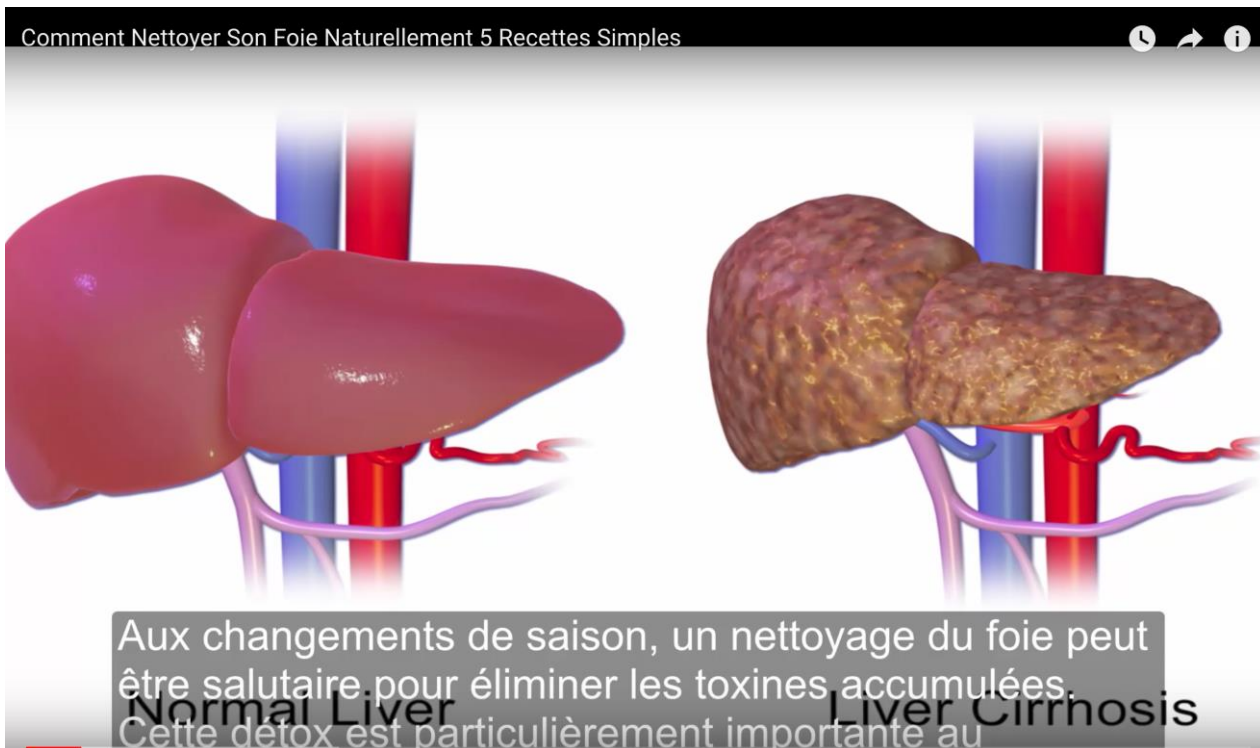
Situations particulières

(N)ASH

Cirrhose

Message

- NAFLD : obésité, résistance insuline, syndrome métabolique
- 30 % population adulte
- 38 % enfants obèses
- ALD : > 20 g alcool par jour
- LES 2 => steatohepatite (N)
(N)ASH => cirrhose



Remèdes de grand mère pour un nettoyage du foie

Cliquez ici pour vous abonnez à notre canal

COMMENT TRAITER UN FOIE TROP GRAS AVEC DES REMÈDES NATURELS

TOUTCOMMENT

WORLD OBESITY DAY

Get Updates!

TAKE ACTION ABOUT WORLD OBESITY DAY INFOGRAPHICS MEDIA DONATE

Save the Date! World Obesity Day is...

Wednesday 11th October 2017

We're looking forward to sharing more information with you in the coming months. In the meantime, find out more about our calls to action this year, and our successful 2016 World Obesity Day campaign on ending Childhood Obesity

World Obesity Day 2017 World Obesity Day 2016

Award Winning! 'Effective Voice of the Year'

STEATOSE HÉPATIQUE

enjeu de l'imagerie

- dépistage
- suivi
- stadification
- complications

Contexte

Imagerie

Echographie

Anatomie et histologie

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(N)ASH

Cirrhose

Message

STEATOSE HÉPATIQUE

enjeu de l'imagerie

- US
- CAP
- IRM
- CT

Contexte

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Anatomie et histologie

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Situations particulières

(N)ASH

Cirrhose

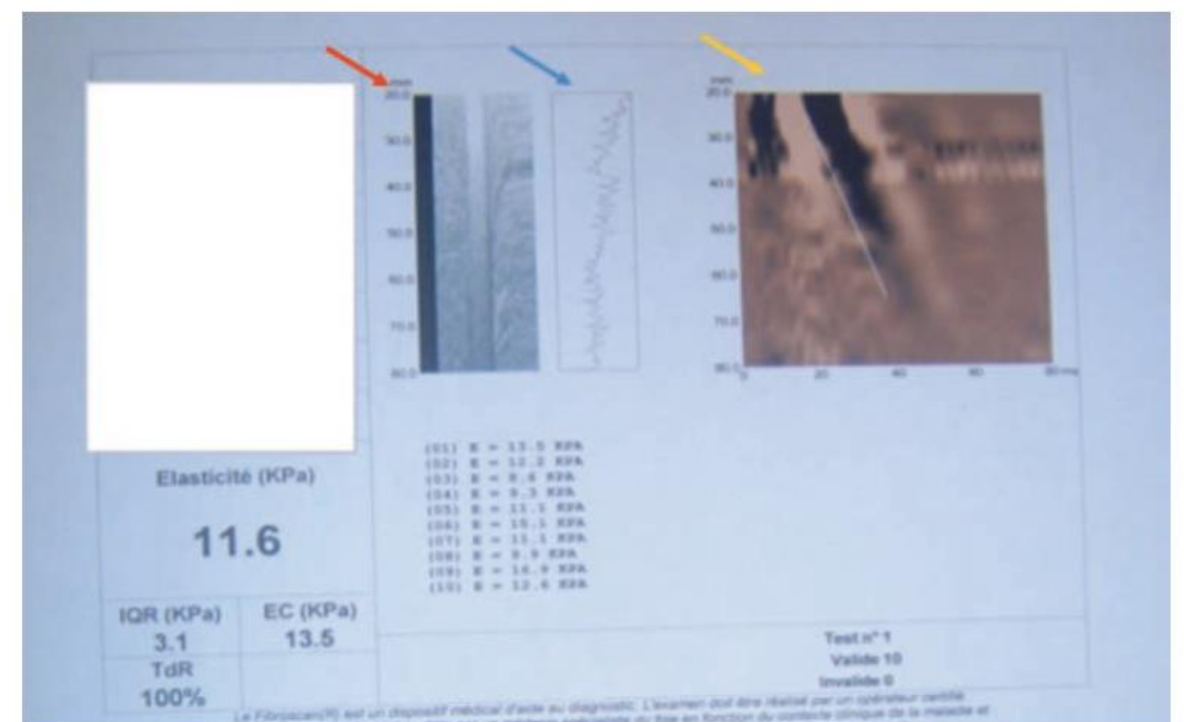
Message

« Controlled Attenuation Parameter »

STEATOSE HÉPATIQUE enjeu de l'échographie



ues lors d'un fibroscanner avec fibrose F4.



STEATOSE HÉPATIQUE enjeu de l'imagerie



Gastroenterology Report, 5(2), 2017, 79–89

doi: 10.1093/gastro/gox012
Advance Access Publication Date: 17 April 2017
Review

REVIEW

Diagnosis of cirrhosis and portal hypertension:
imaging, non-invasive markers of fibrosis and liver
biopsy

Bogdan Procopet¹ and Annalisa Berzigotti^{2,*}

Contexte
Imagerie

Echographie

Anatomie et histologie

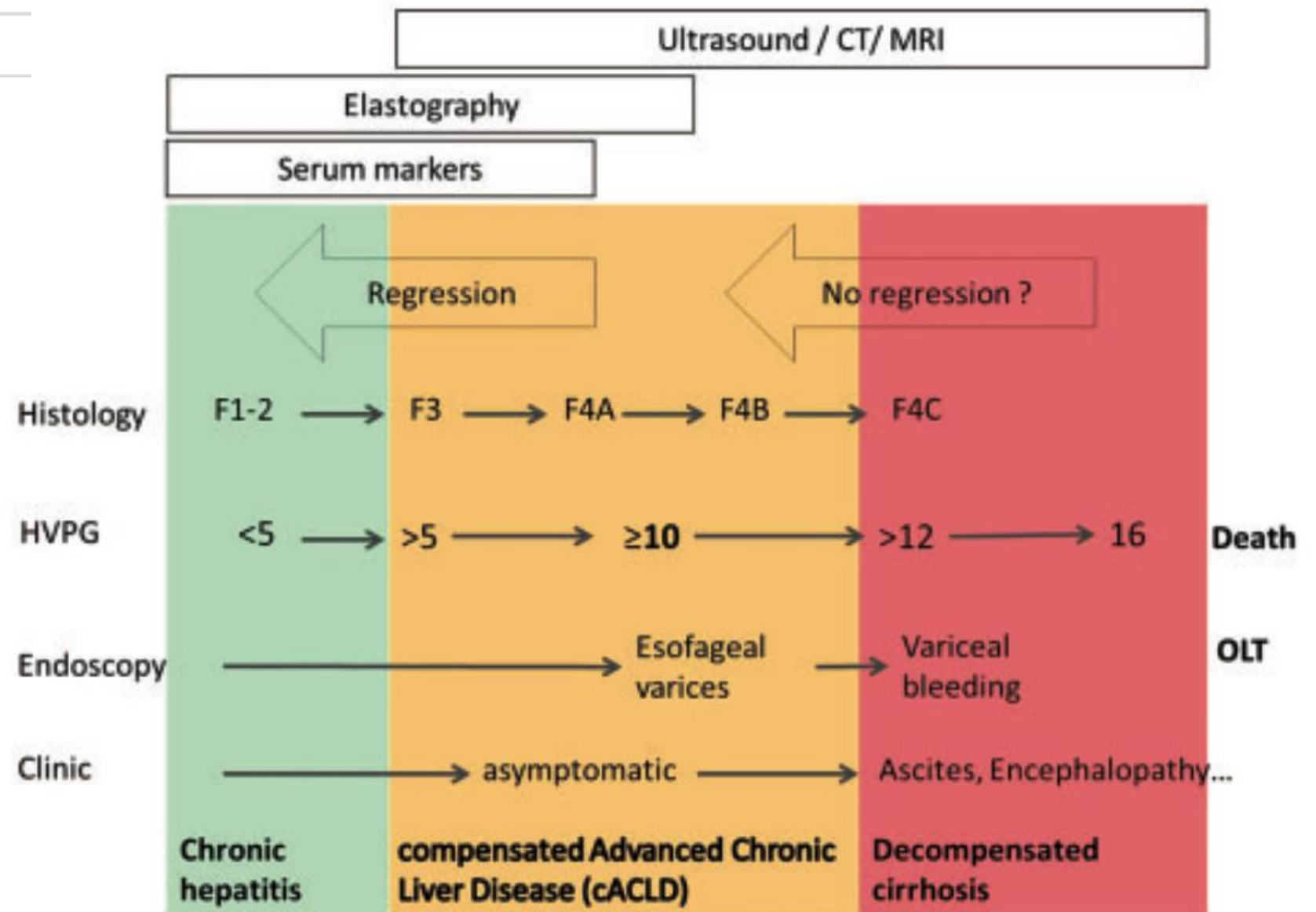
NAFLD - ALD

Situations particulières

(N)ASH

Cirrhose

Message



How to Approach a Patient With Nonalcoholic Fatty Liver Disease



Herbert Tilg

Department of Internal Medicine I, Gastroenterology, Hepatology & Endocrinology, Medical University Innsbruck, Austria

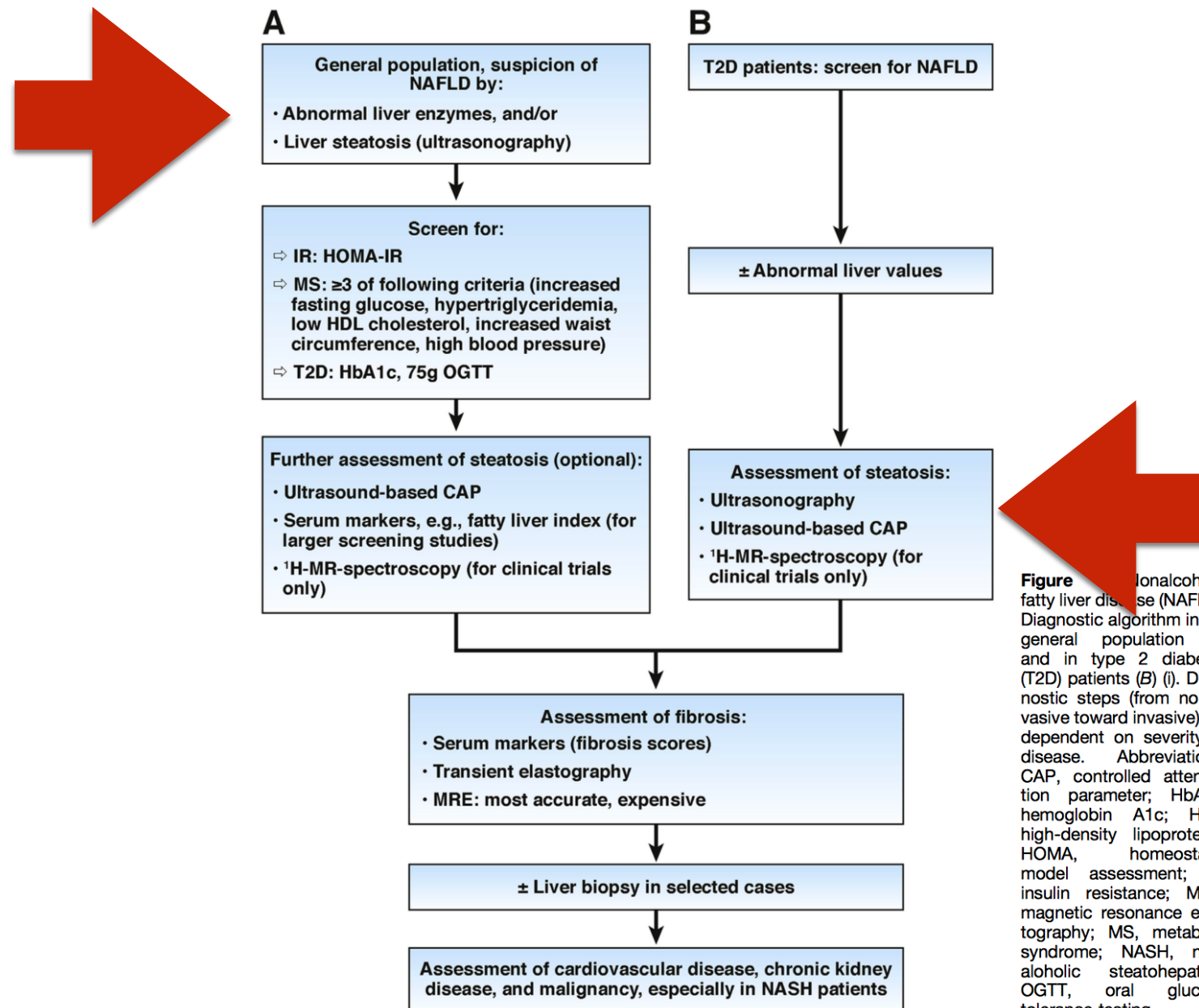


Figure Nonalcoholic fatty liver disease (NAFLD). Diagnostic algorithm in the general population (A) and in type 2 diabetes (T2D) patients (B) (1). Diagnostic steps (from noninvasive toward invasive) are dependent on severity of disease. Abbreviations: CAP, controlled attenuation parameter; HbA1c, hemoglobin A1c; HDL, high-density lipoproteins; HOMA, homeostasis model assessment; IR, insulin resistance; MRE, magnetic resonance elastography; MS, metabolic syndrome; NASH, non-alcoholic steatohepatitis; OGTT, oral glucose tolerance testing.

STEATOSE HÉPATIQUE

enjeu de l'échographie

- Dépistage
- (N)ALD , (N)ASH
- Cirrhose

Contexte

Imagerie

Echographie

Anatomie et histologie

NAFLD - ALD

Situations particulières

(N)ASH

Cirrhose

Message

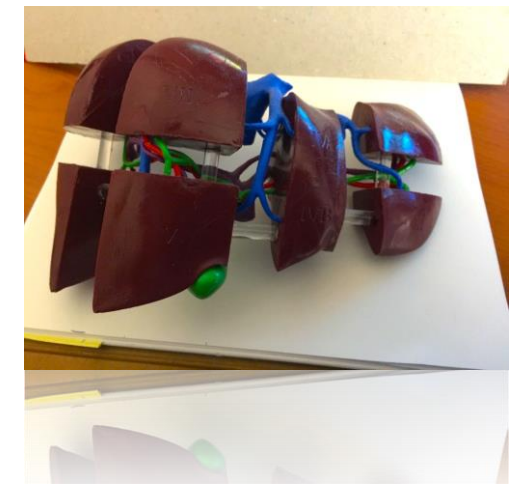




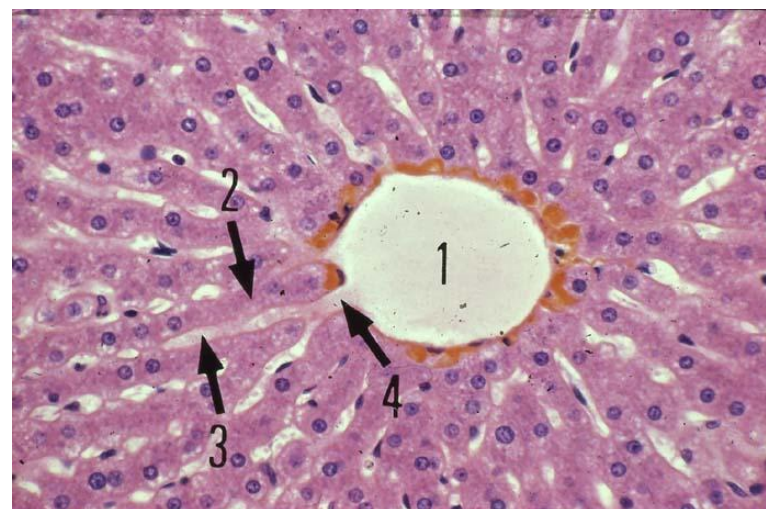
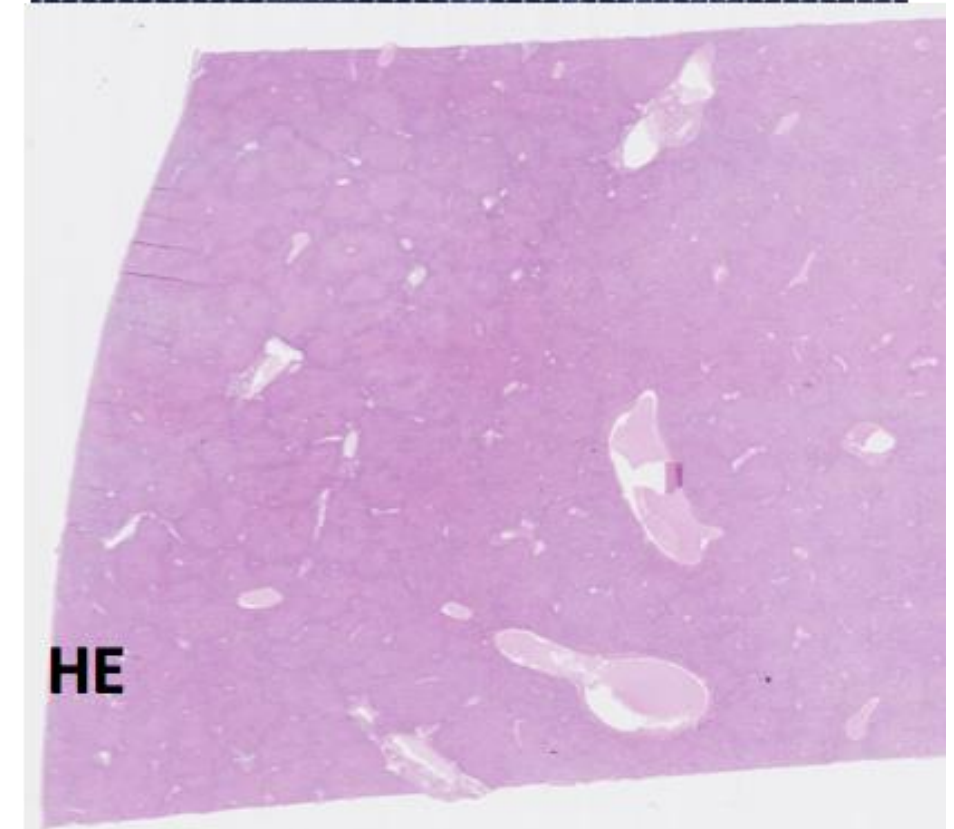
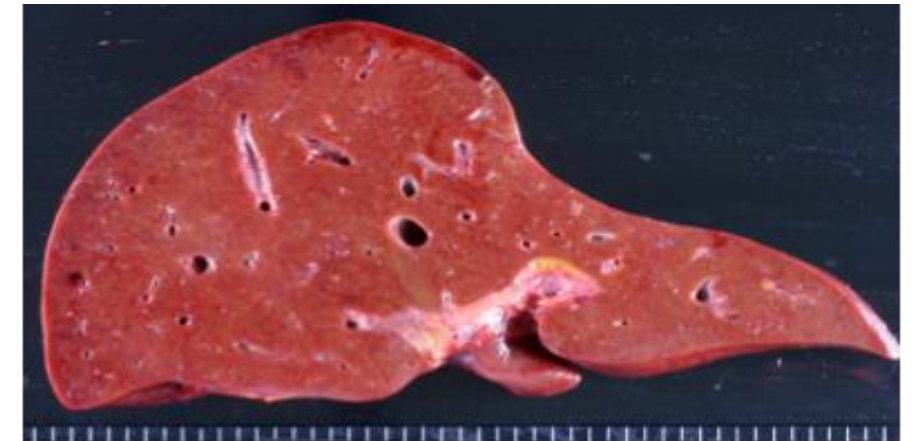
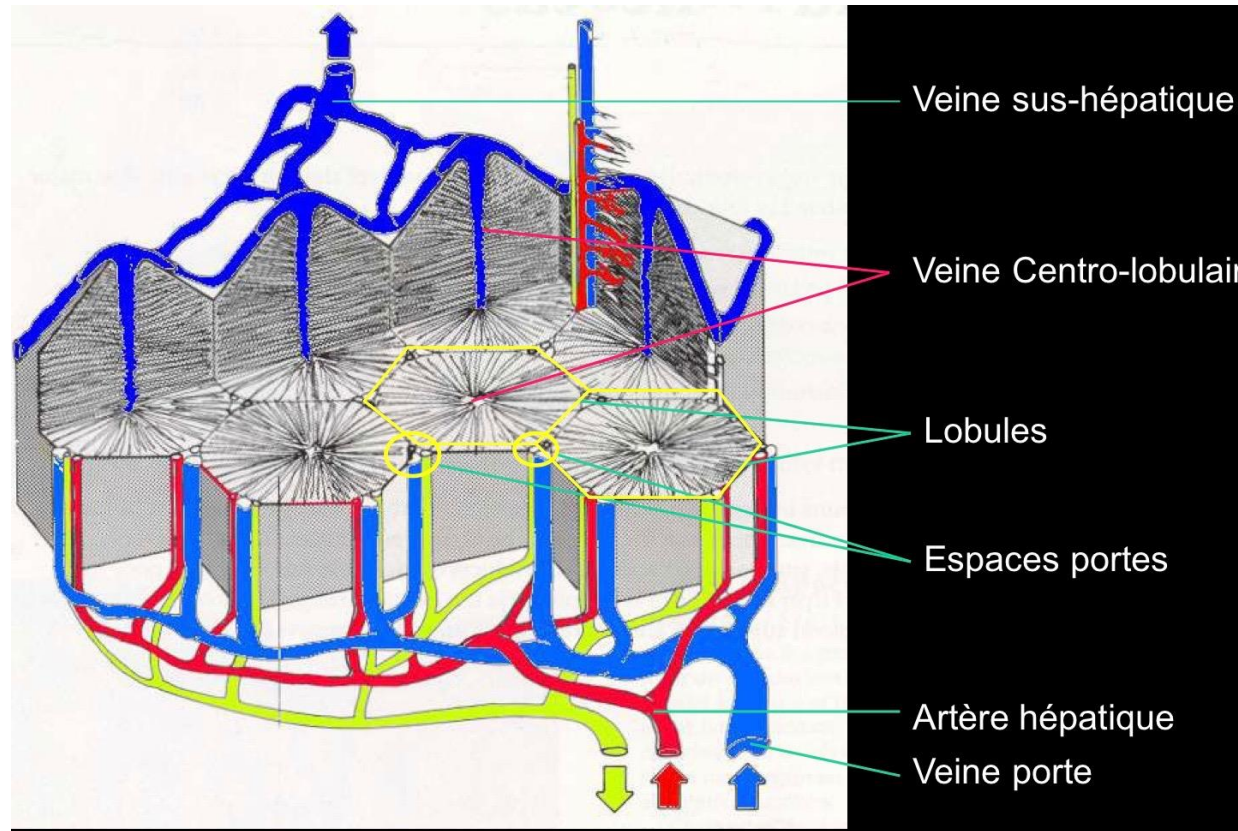
Foie normal



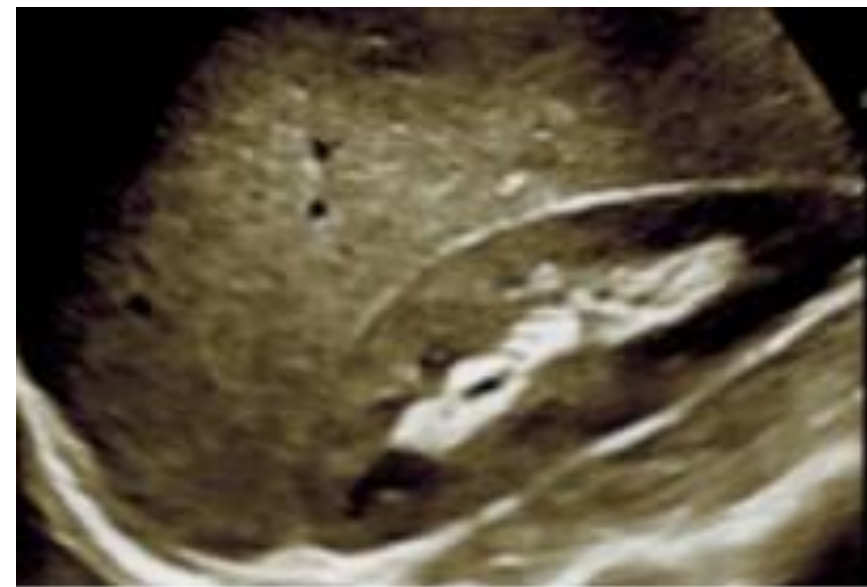
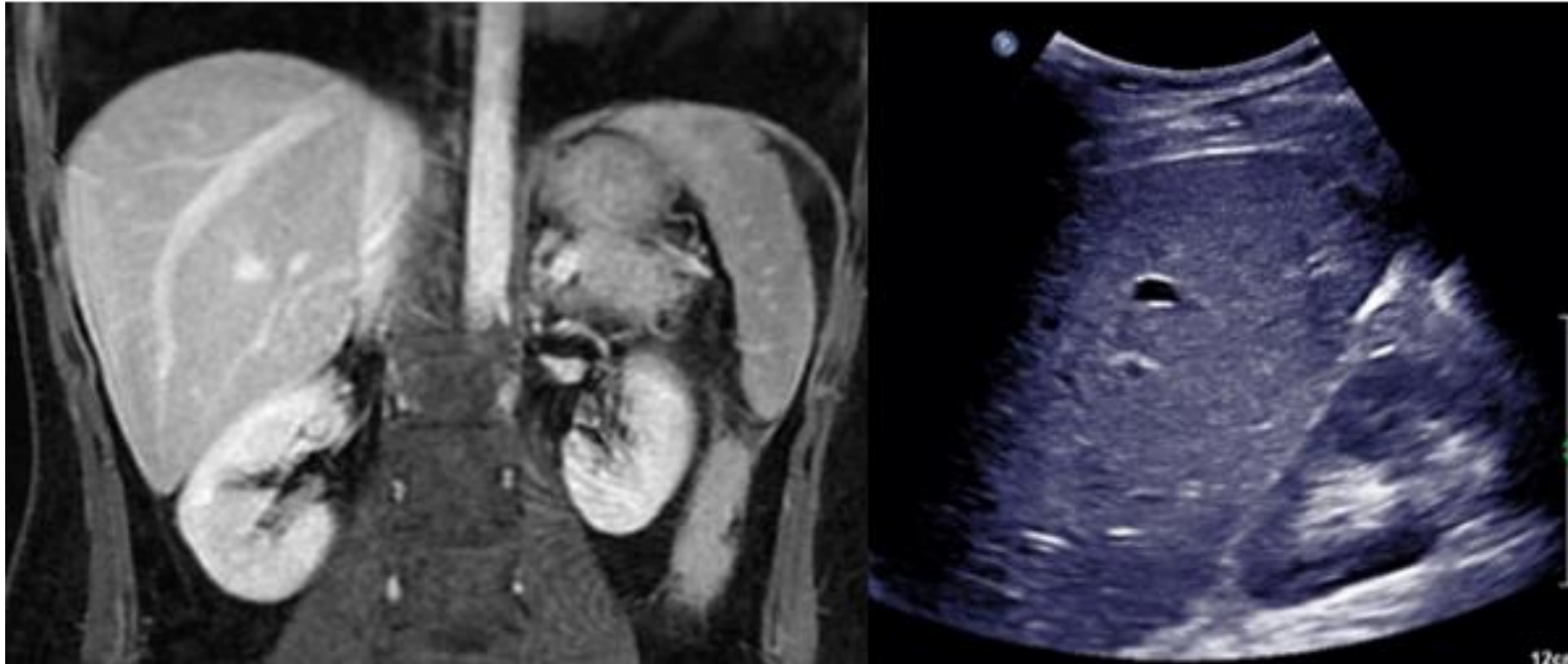
Contexte
Imagerie
Echographie
Anatomie et histologie
NAFLD - ALD
Situations particulières
(N)ASH
Cirrhose
Message



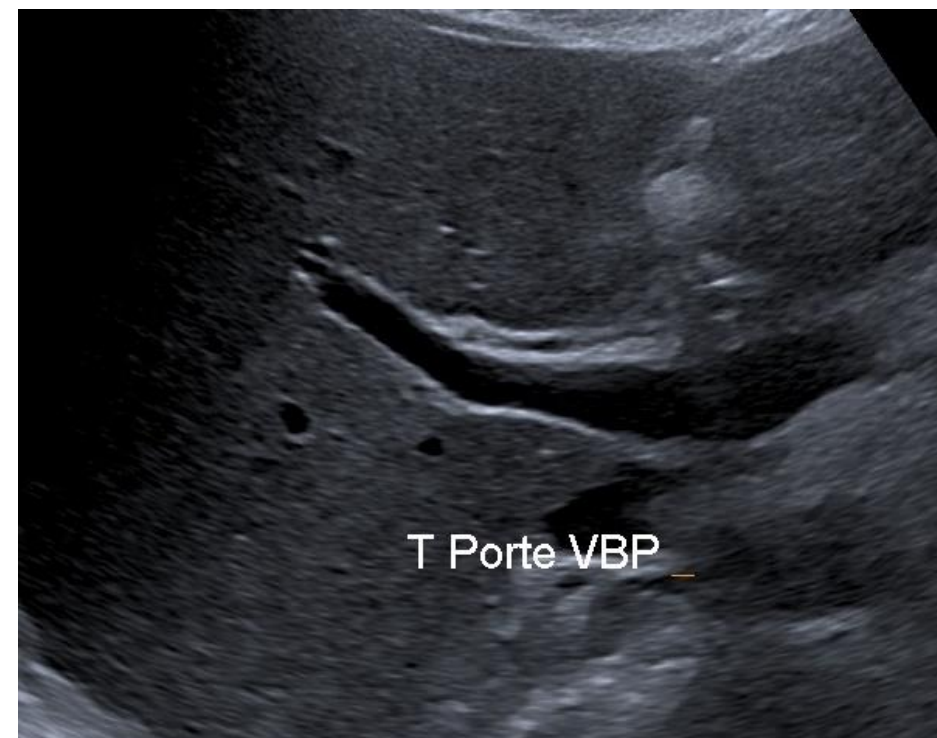
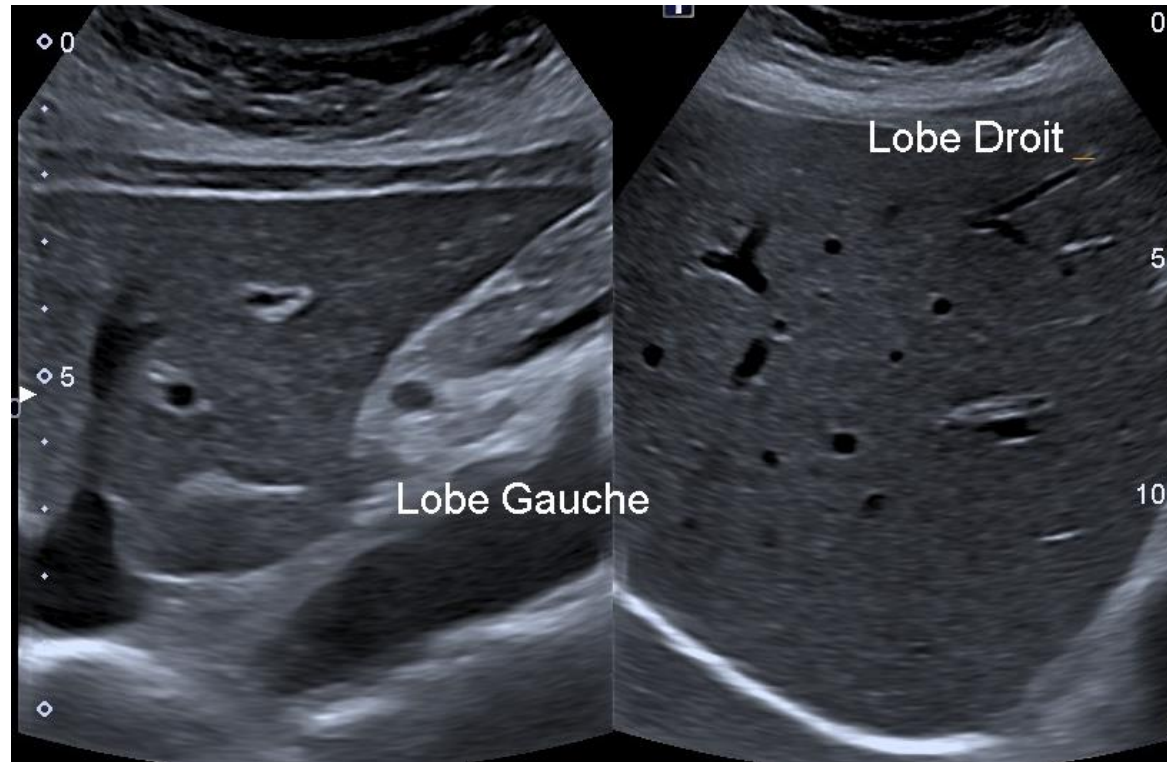
Foie normal



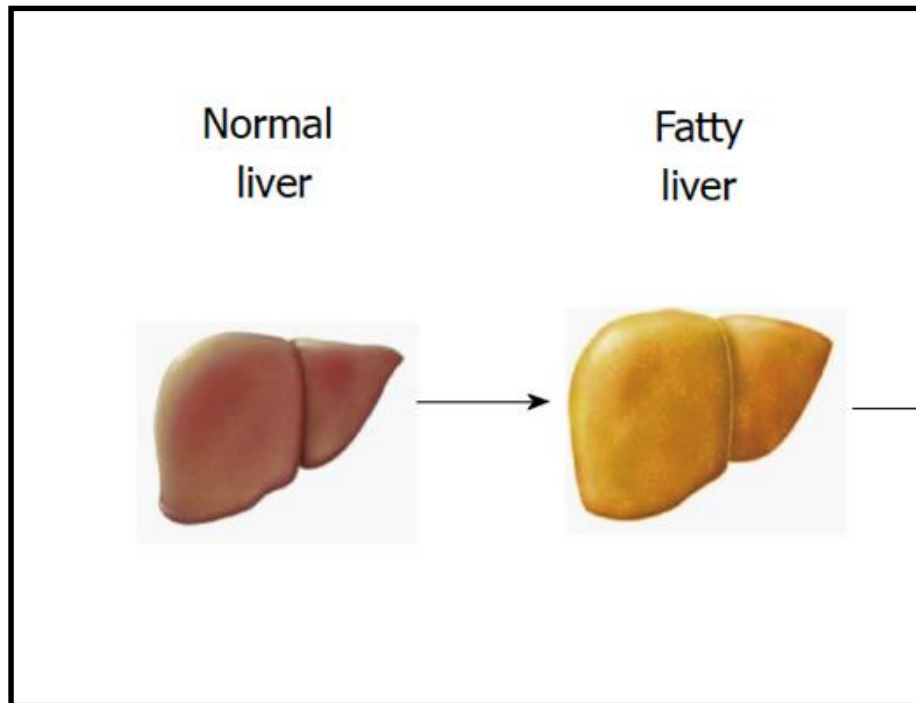
Foie normal échographie



Foie normal échographie



Stéatose



- Hépatocytes graisseux (TG) > 5 %
 - Macrovésiculaire +++ :
 - NAFLD et ALD
 - Microvésiculaire :
 - Médicaments
 - syndrome de Reye, HELLP
 - Stéatose gravidique

Contexte

Imagerie

Echographie

Anatomie et histologie

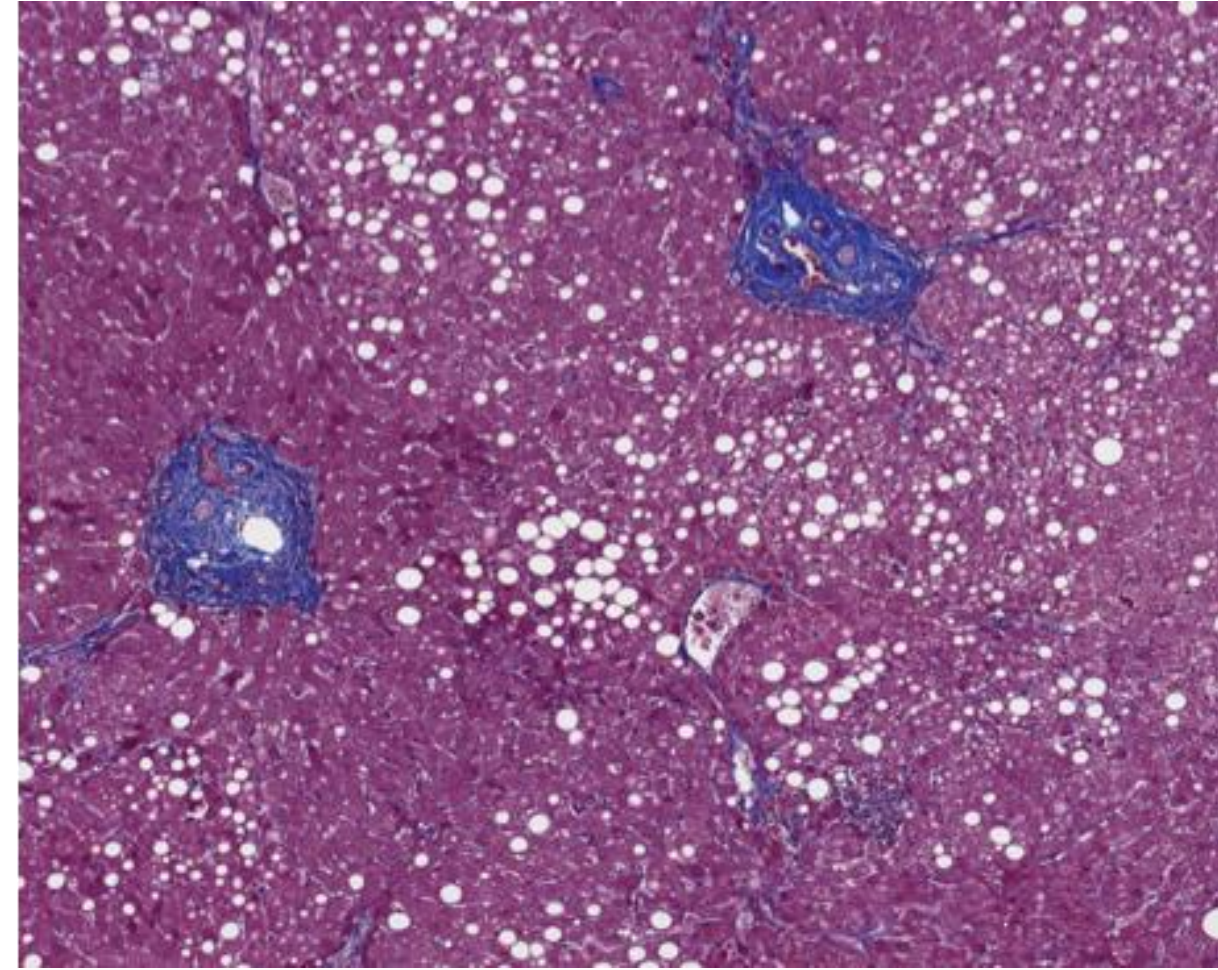
NAFLD - ALD

Situations particulières

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Message





Stéatose

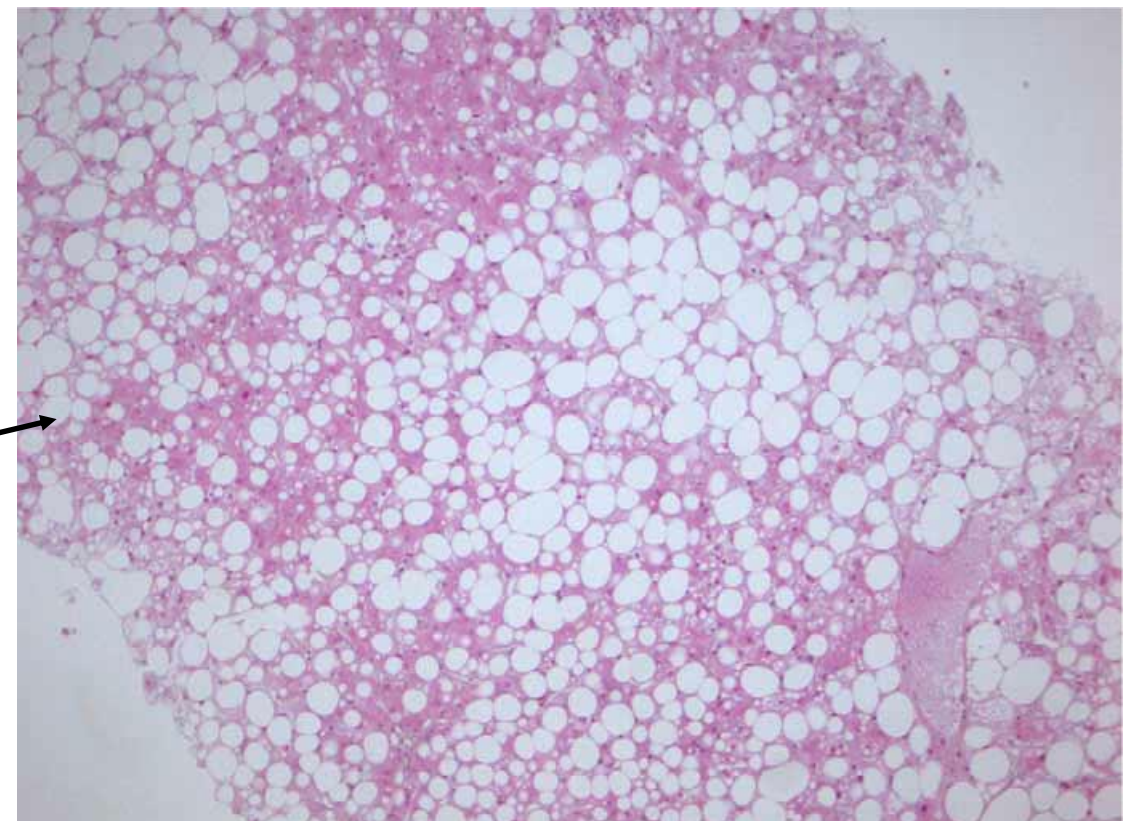
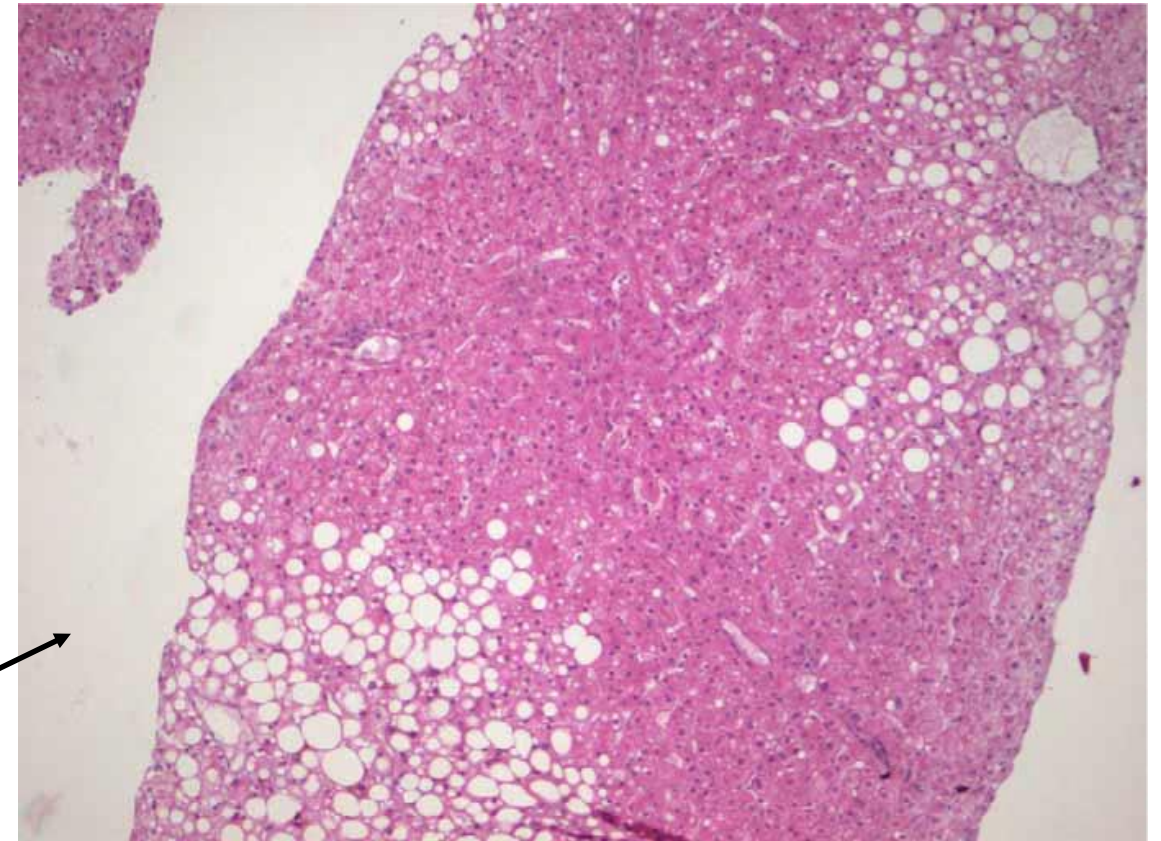
- Gradation : 4 stades

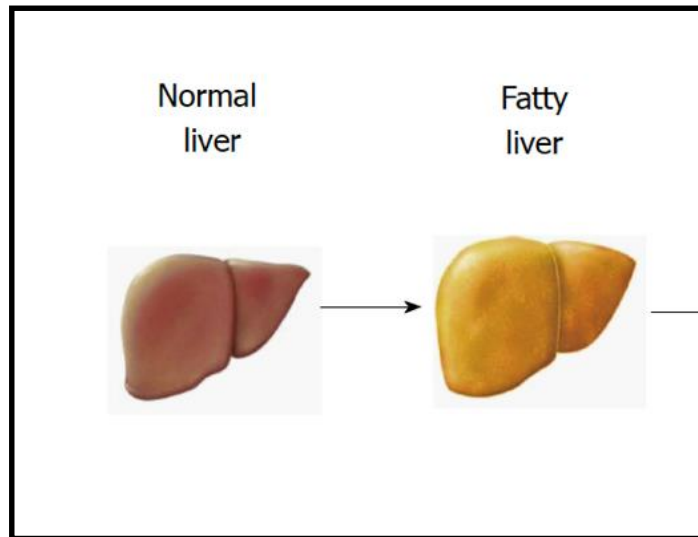
- 0 % / 1-5 %

- 6-33 %

- 34-66 %

- ≥ 67 %...





Stéatose

enjeu de l'échographie



hyperéchogénéité :
objective

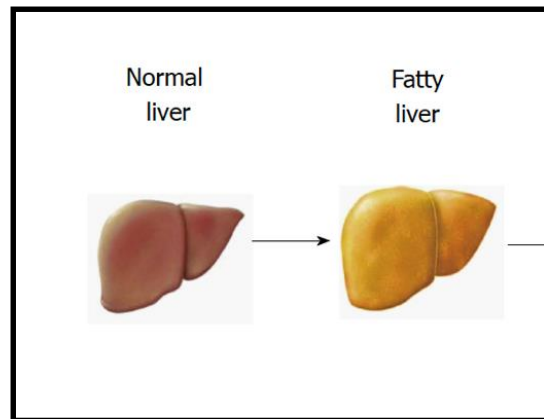
diffuse

signes écho à partir de 30 %

gradient hépato rénal facile

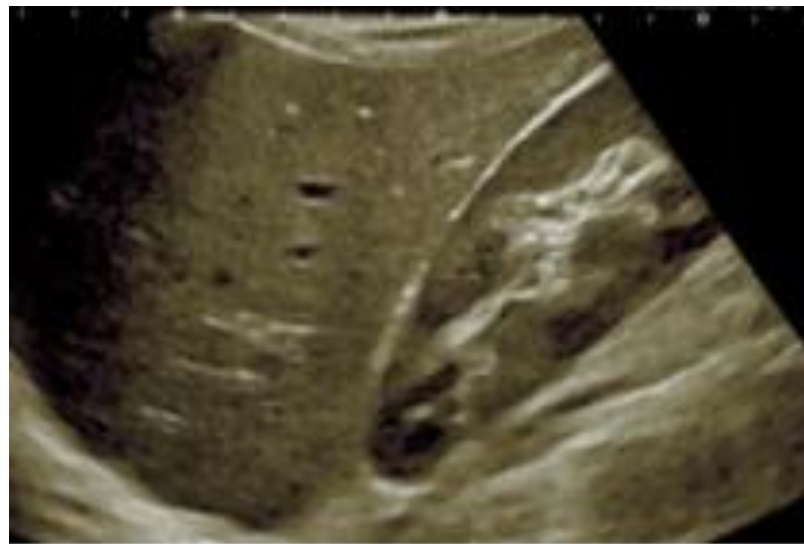
hyperéchogénéité % teneur en graisse

mais difficile de quantifier et non spécifique

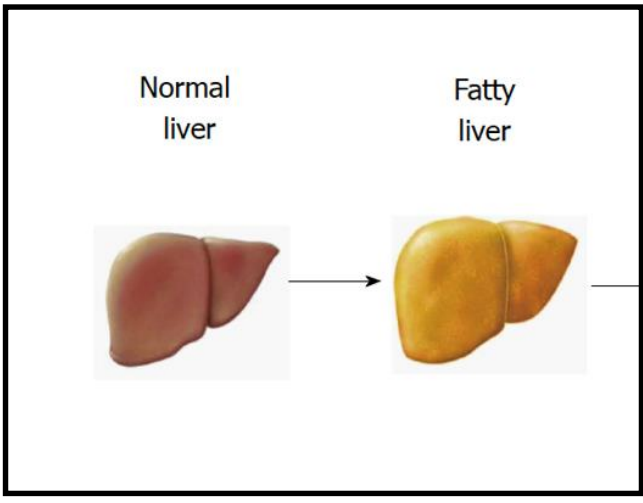


Stéatose

enjeu de l'échographie



60-94 % sensibilité
66-95 % spécificité
Agrément intra-interobservateurs : 72 -76 %



Stéatose

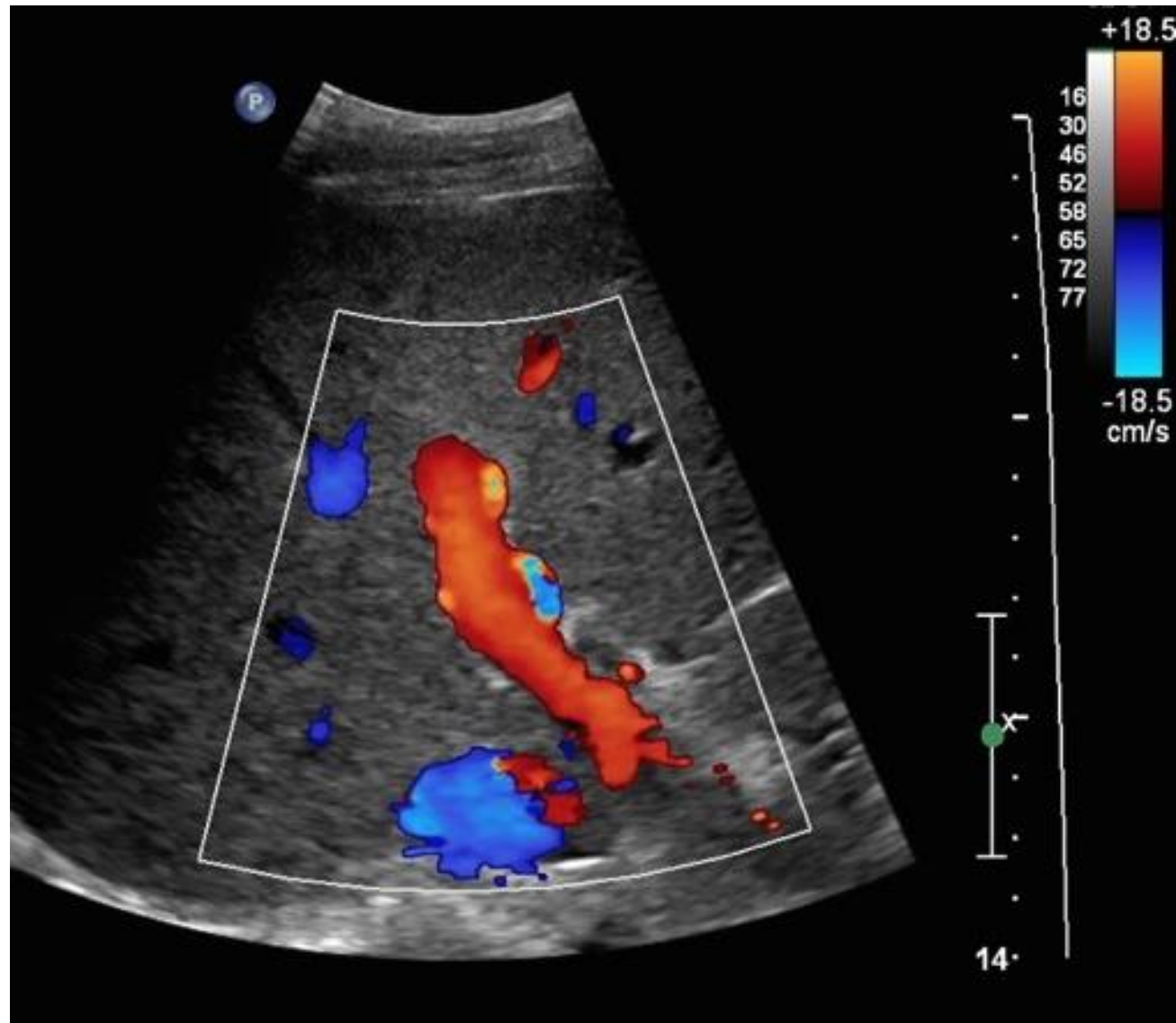
enjeu de l'échographie



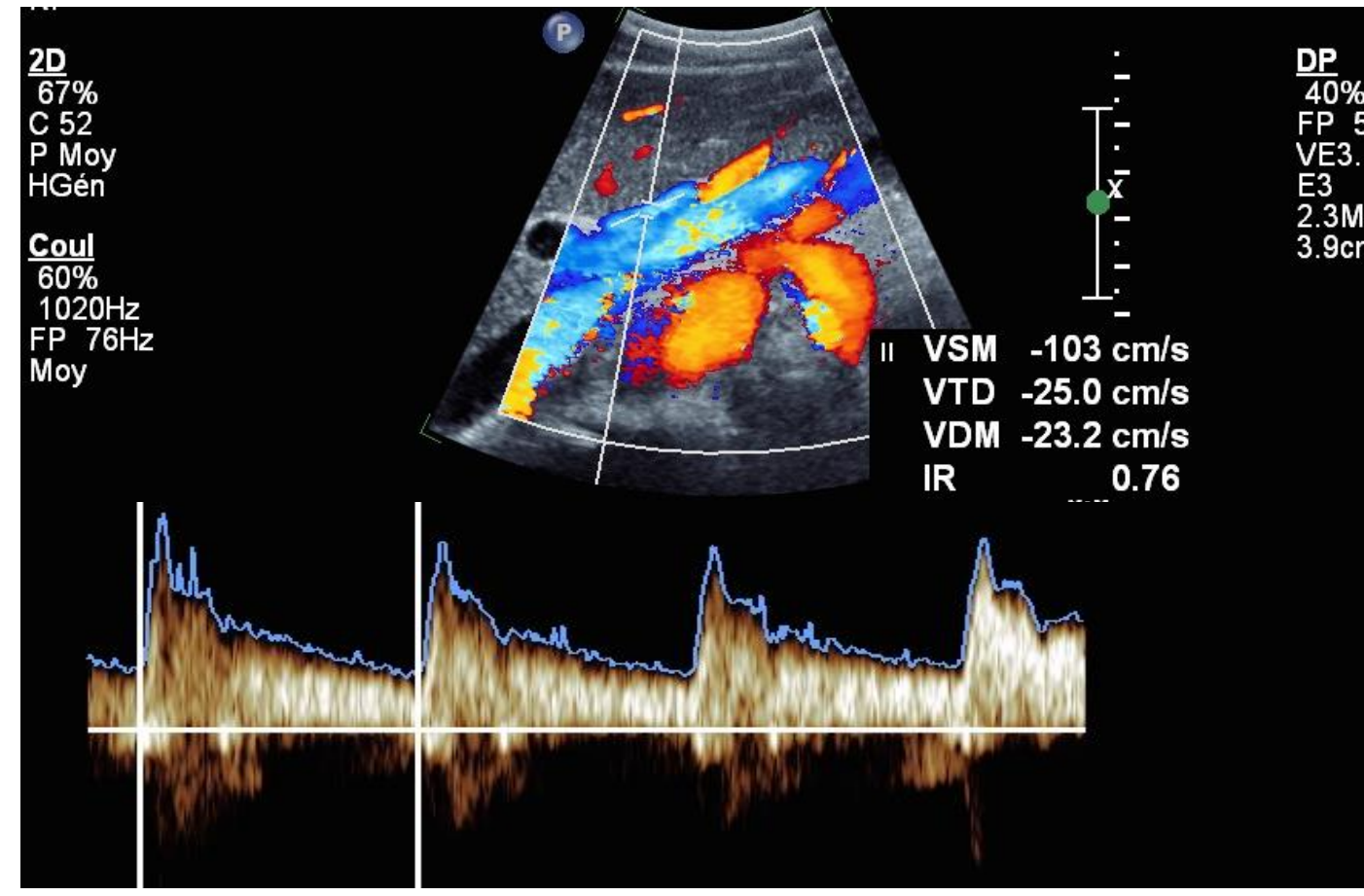
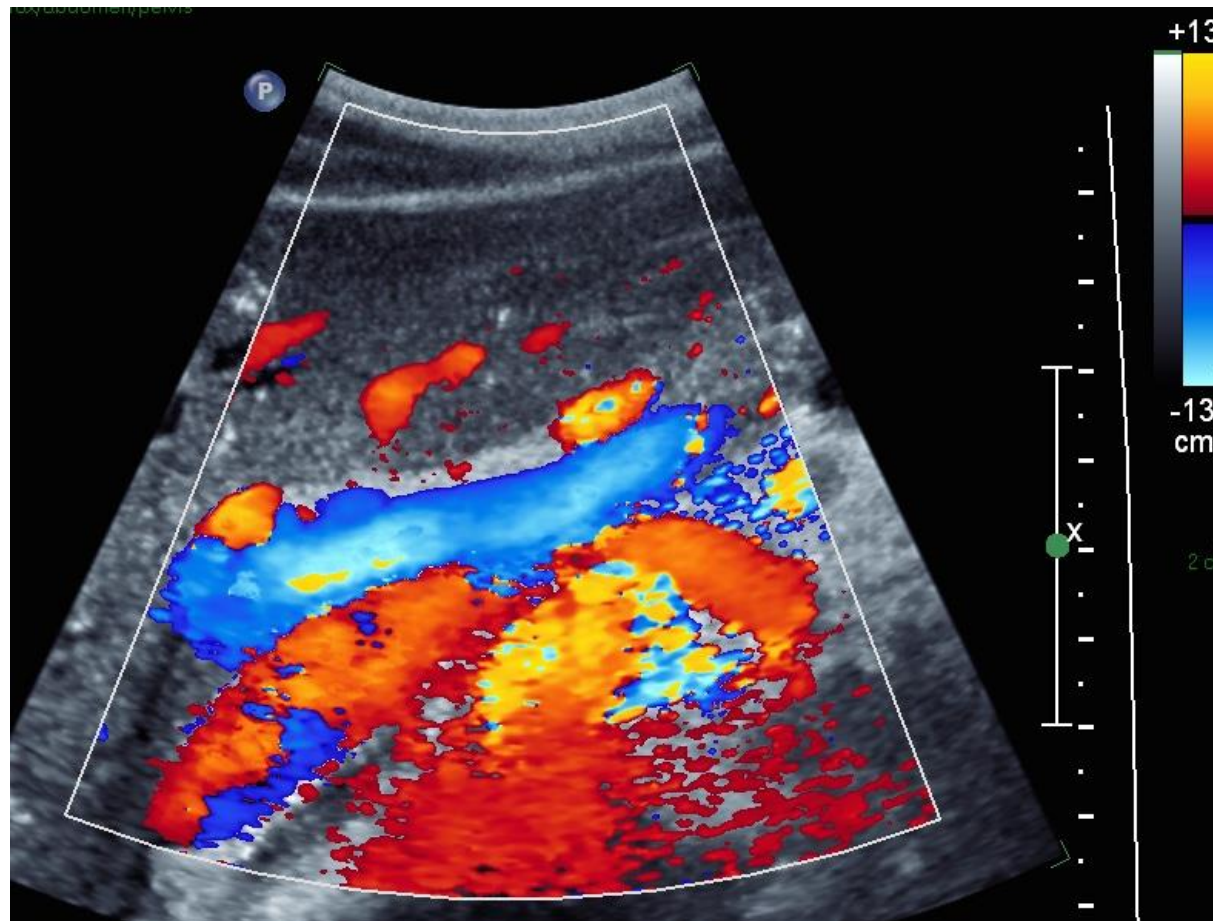
3 GRADES :

- stade mineur : majoration de l'échogénicité du foie par rapport au cortex rénal et à la rate
- stade modéré : diminution de la netteté des parois des veines portes et hépatiques
- stade sévère : difficulté d'identifier le diaphragme.

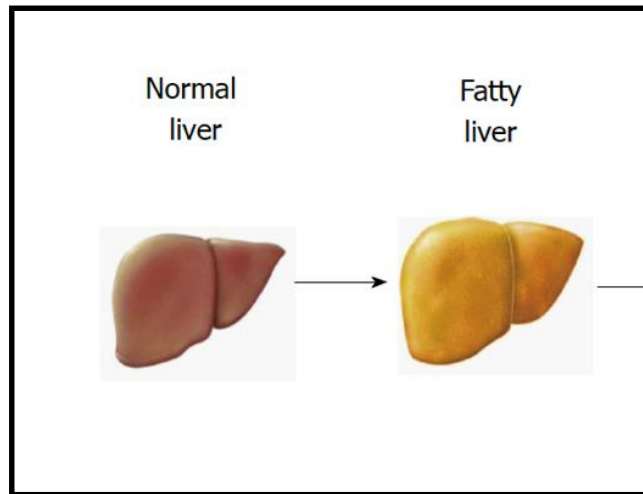




Echantillon du flux dans la veine porte, d'abord en couleur puis quantifié en Doppler



L'artère hépatique propre est une des deux branches aisément visibles au départ du versant droit du tronc coeliaque : elle court en avant du tronc porte et a un flux avec une composante diastolique positive.



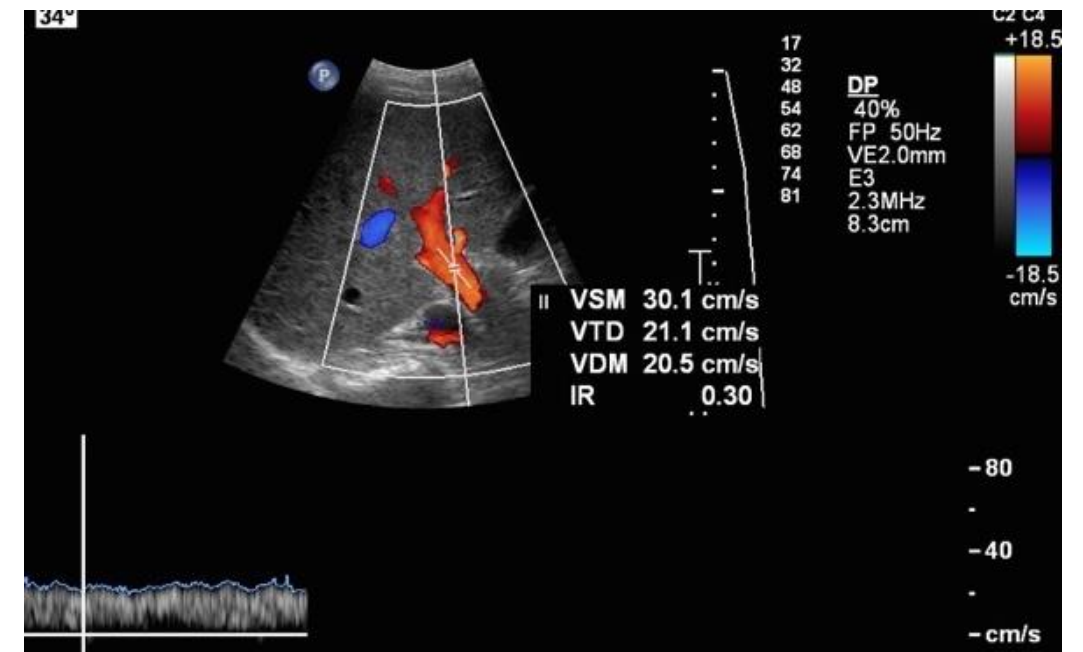
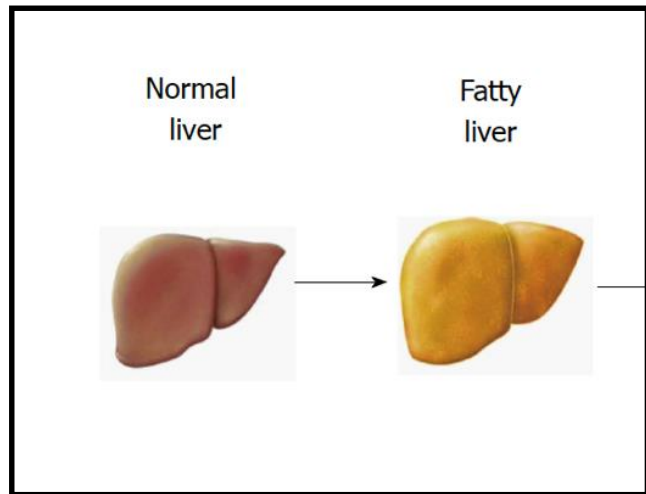
Stéatose

enjeu de l'échographie

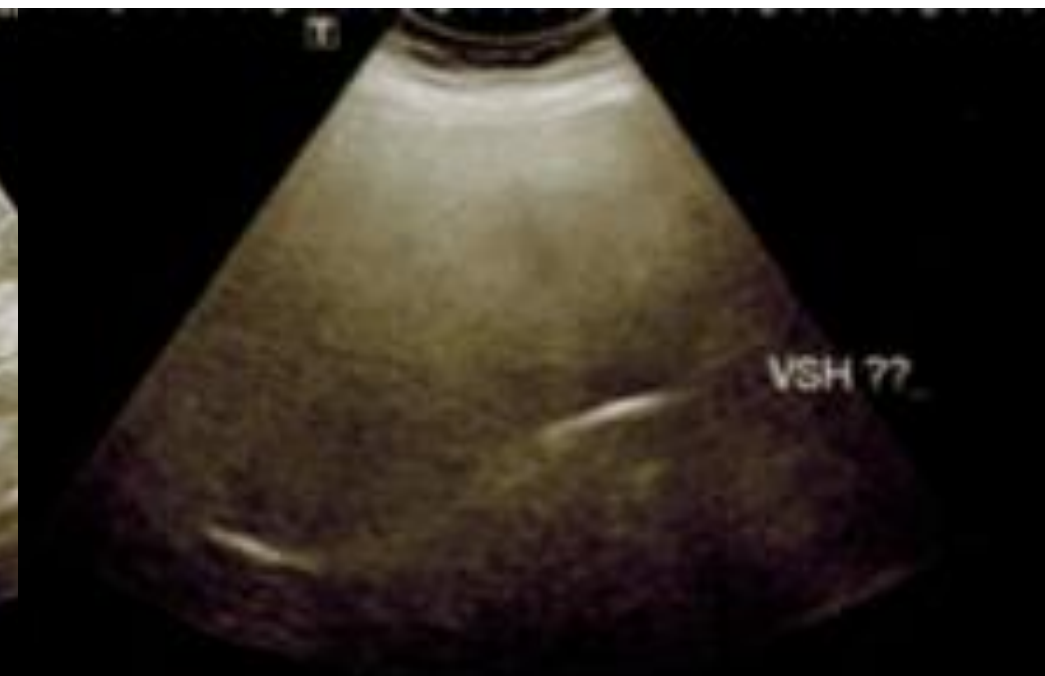


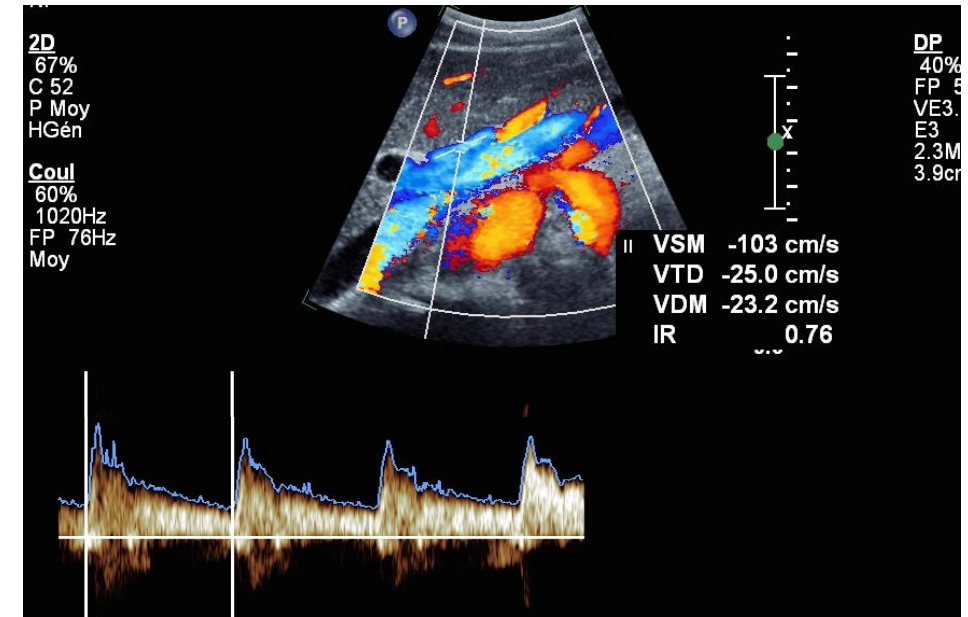
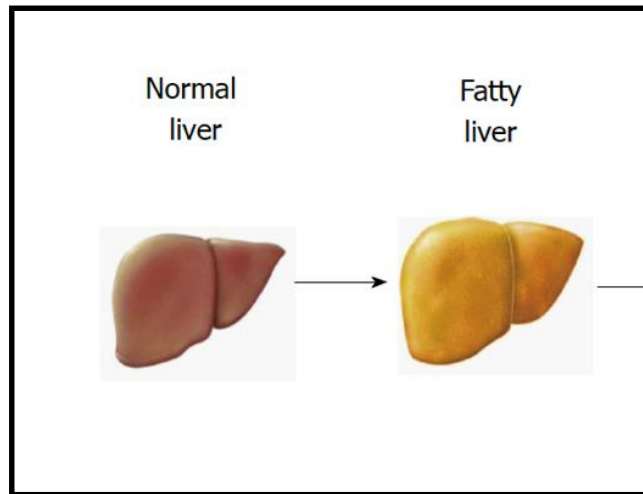
1. 19,6 cm/sec. IR 0,75
2. 17,6 cm/sec IR 0,68
3. 12,7 cm/sec. IR 0,64.



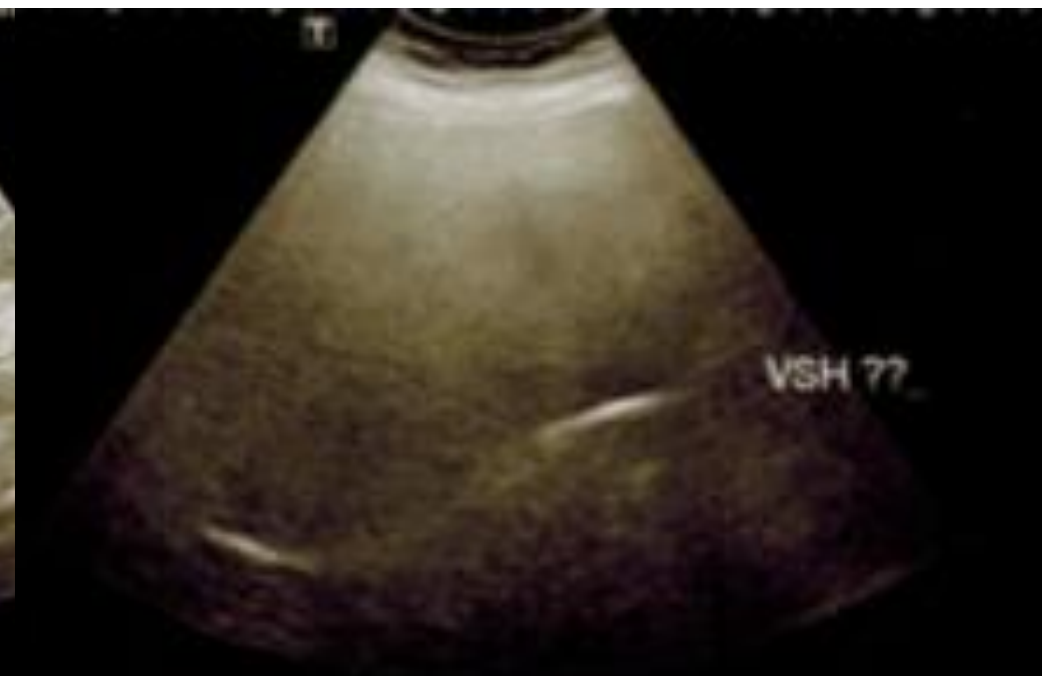


1. 19,6 cm/sec. IR 0,75
2. 17,6 cm/sec IR 0,68
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STEATOSE HÉPATIQUE

enjeu de l'imagerie

- US
- CAP
- IRM
- CT

Sonographic quantification of a Hepato-Renal Index for the assessment of hepatic steatosis in comparison with 3T proton magnetic resonance spectroscopy

European Journal of Gastroenterology & Hepatology. 26(1):88–94, JAN 2014

José L. Martín-Rodríguez; Juan P. Arrebola; [and 3 more](#)

DOI: 10.1097/MEG.0b013e3283650650

[View more ▼](#)

CLINICAL—LIVER

Magnetic Resonance Imaging More Accurately Classifies Steatosis and Fibrosis in Patients With Nonalcoholic Fatty Liver Disease Than Transient Elastography



Kento Imajo,¹ Takaomi Kessoku,¹ Yasushi Honda,¹ Wataru Tomeno,¹ Yuji Ogawa,¹ Hironori Mawatari,¹ Koji Fujita,¹ Masato Yoneda,¹ Masataka Taguri,² Hideyuki Hyogo,³ Yoshio Sumida,⁴ Masafumi Ono,⁵ Yuichiro Eguchi,⁶ Tomio Inoue,⁷ Takeharu Yamanaka,² Koichiro Wada,⁸ Satoru Saito,¹ and Atsushi Nakajima¹

Computerized ultrasound image analysis for noninvasive evaluation of hepatic steatosis.

Georgiana Nagy^{1*}, Mihai Munteanu^{1*}, Mihaela Gordan², Romeo Chira¹, Mihaela Iancu³, Doinita Crisan⁴, Petru Adrian Mircea¹

Med Ultrason 2015; 17(4): 431-436 433

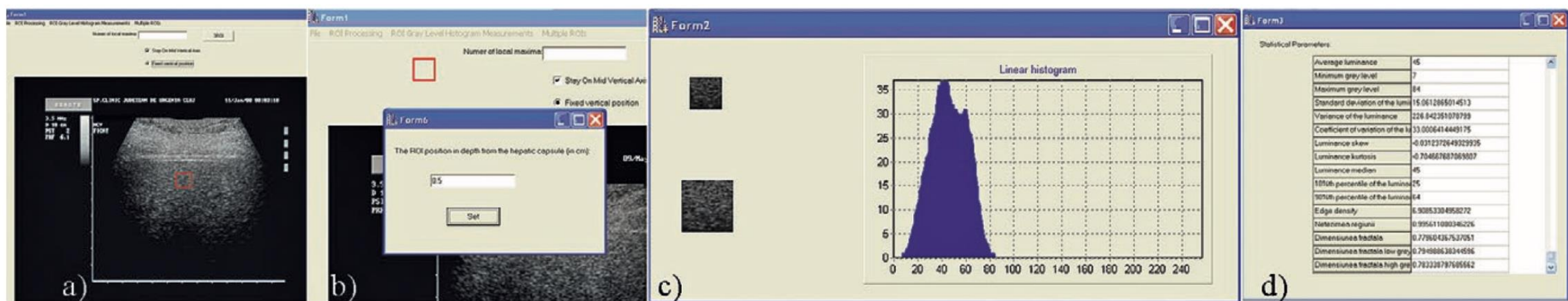


Fig 1. The software interfaces of the Windows application developed for USICA during different processing steps: a) after selecting and opening the US image to be analyzed; b) positioning the region of interest; c) displaying the smoothed linear grey levels (intensity) histogram of the region of interest; d) as a result of feature extraction, the numerical values of the echogenicity and local texture features used in the analysis are displayed.

Hepatorenal Index as an Accurate, Simple, and Effective Tool in Screening for Steatosis

Richard H. Marshall¹
Marna Eissa
Edward I. Bluth
Paul M. Gulotta
Nancy K. Davis

OBJECTIVE. The hepatorenal index has been reported to be a sensitive and noninvasive test to quantify steatosis, but it is cumbersome and time-consuming and requires specialized software. The aim of this study was to improve and simplify the hepatorenal index calculation and determine whether it is an effective tool for differentiating patients with steatosis from those without steatosis, thereby eliminating the need for biopsy in a large number of patients.

MATERIALS AND METHODS. One hundred one patients who had undergone ultrasound-guided percutaneous liver biopsy at our institution were selected from a patient da

1,28

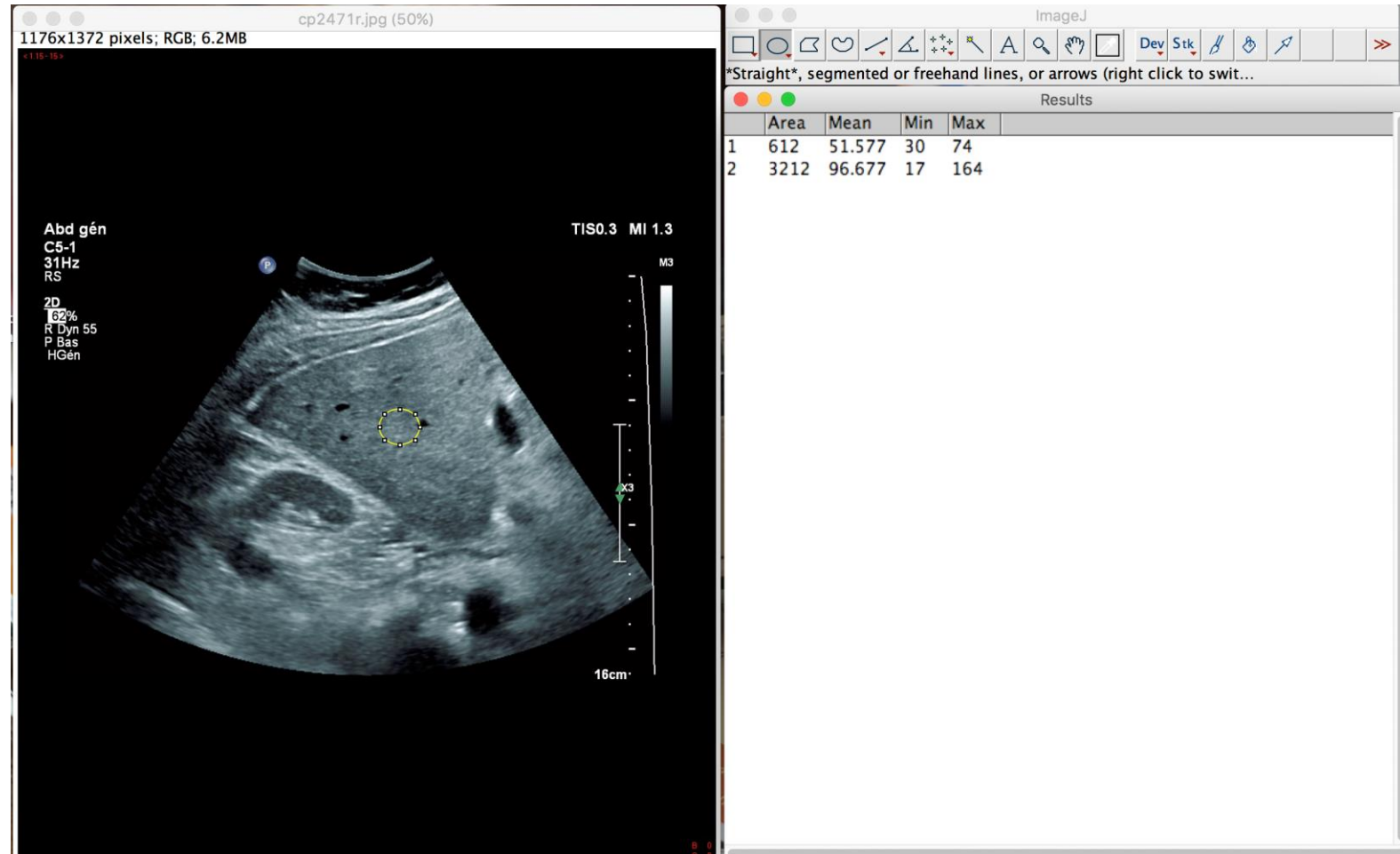
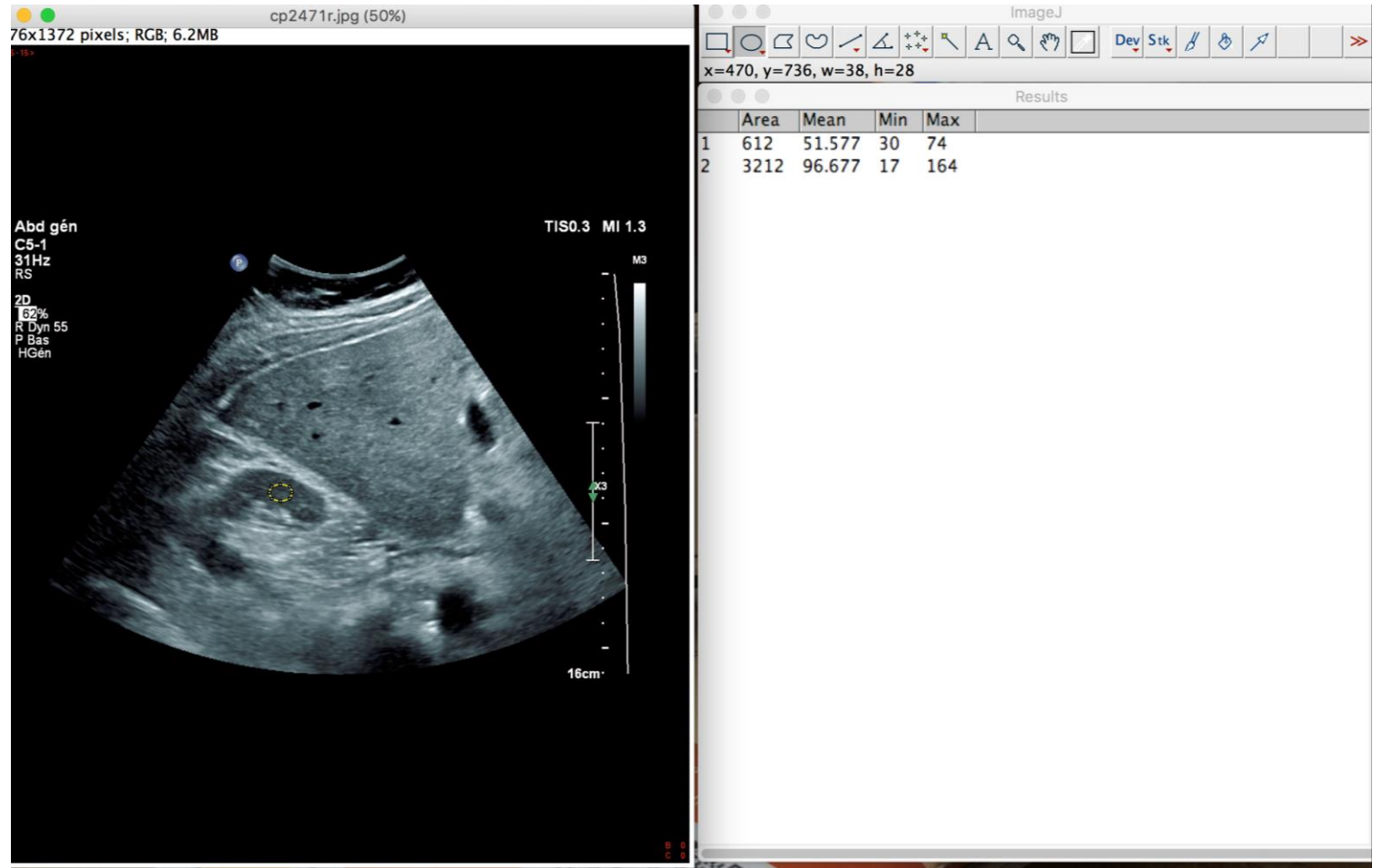
AJR 2012; 199:997–1002

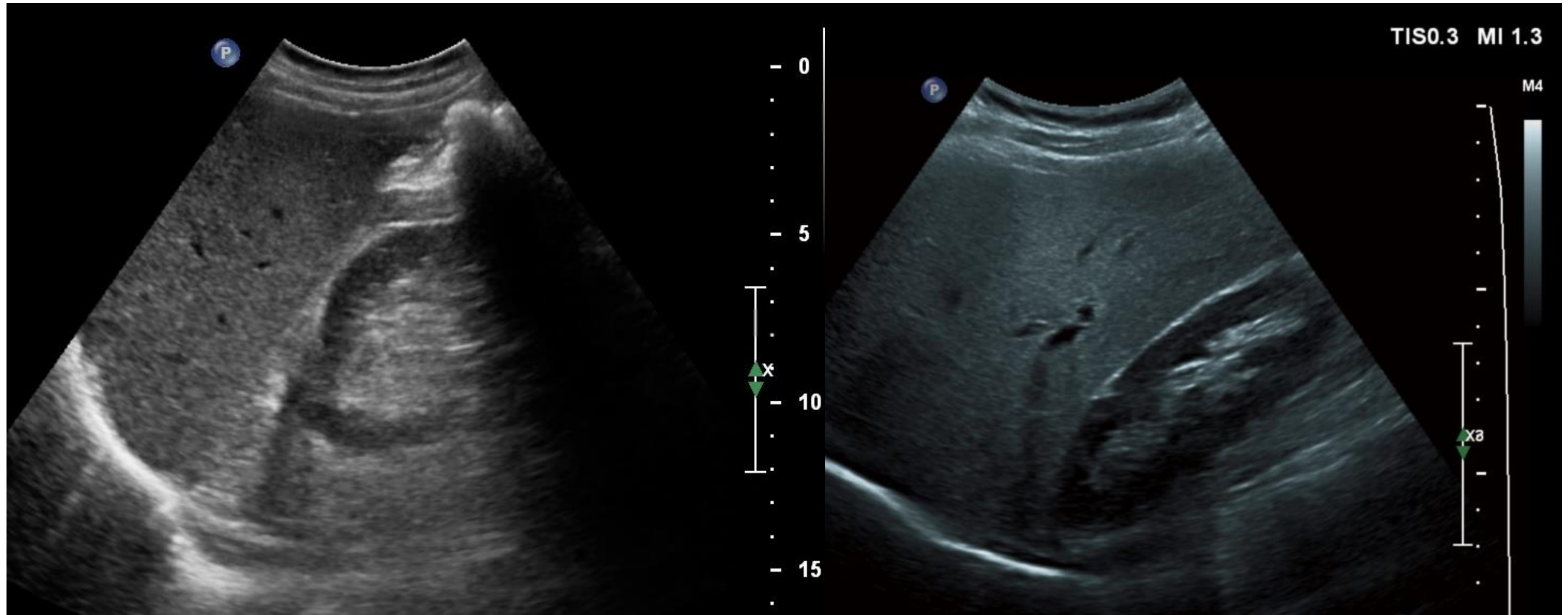
TABLE I: Breakdown of Hepatorenal Index Values in Patients Without Steatosis and Patients With Steatosis

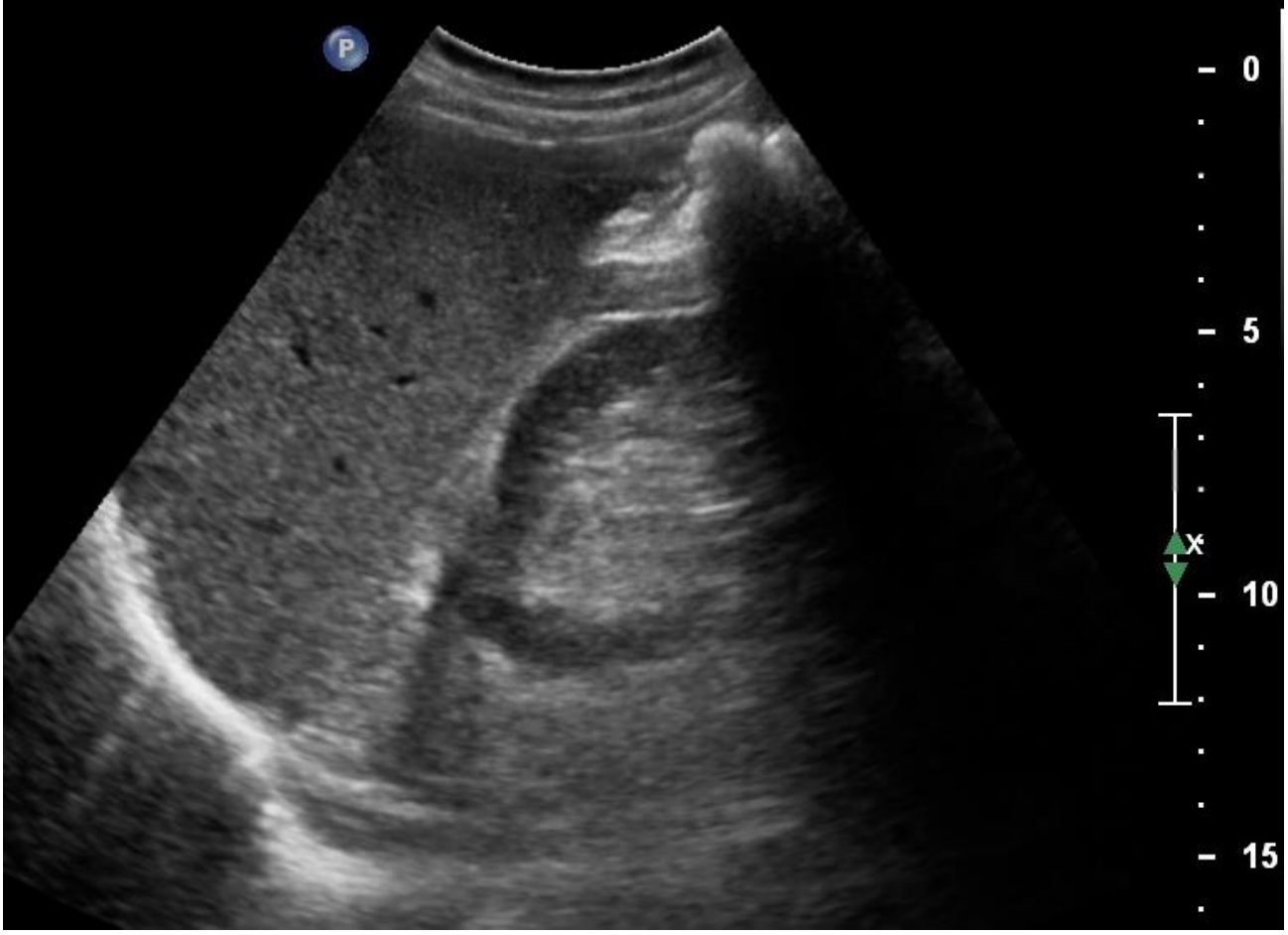
Steatosis	No. of Patients	Hepatorenal Index Values		
		Mean \pm SD	Median	Minimum, Maximum
None ($\leq 5\%$)	63	1.27 \pm 0.25	1.27	0.77, 2.00
Some ($> 5\%$)	38	2.05 \pm 0.67	1.83	1.30, 4.20



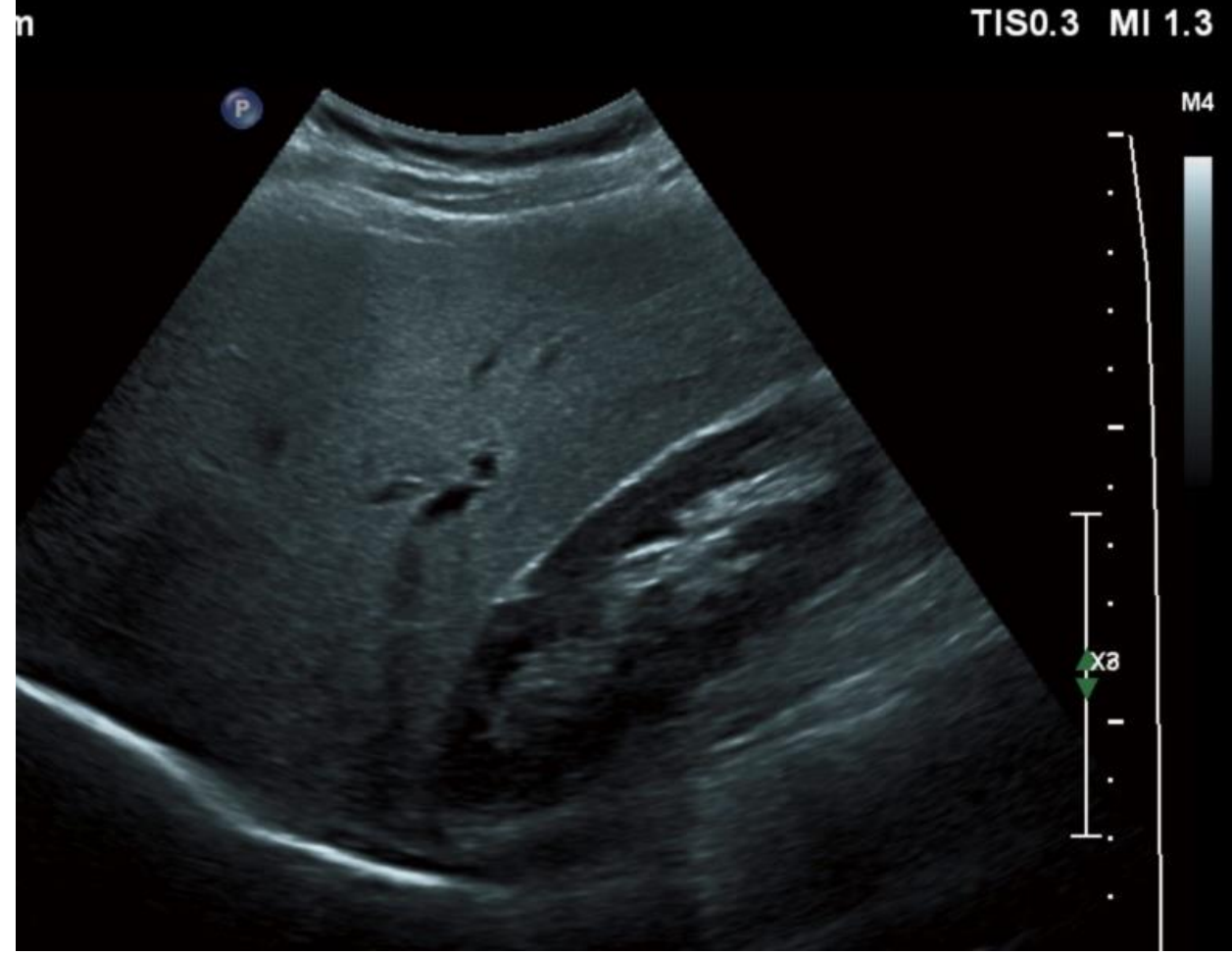
Index Foie/Rein = 1,88







2,05	308
------	-----



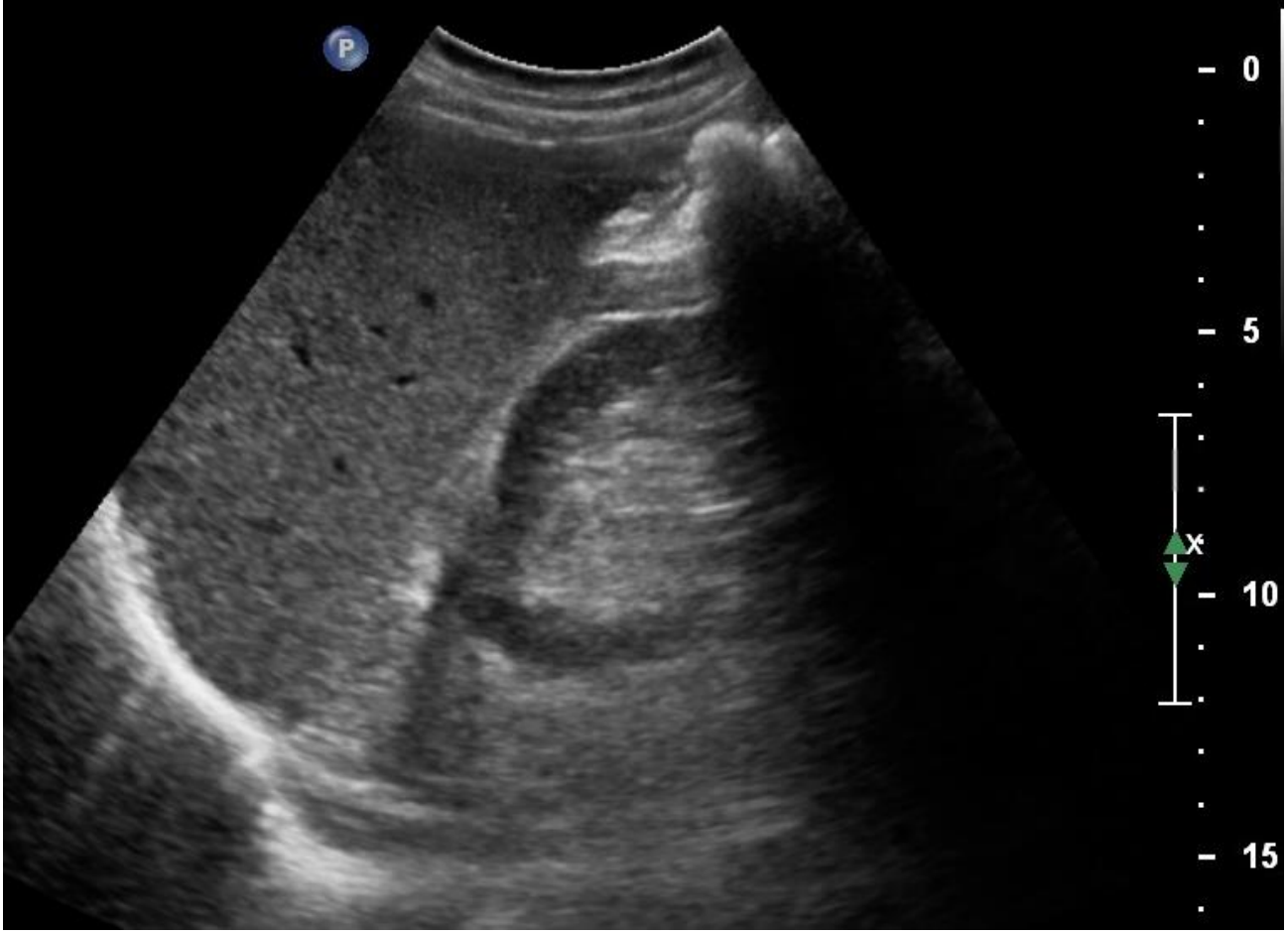
1,77	302
------	-----

CAP (n = 127)

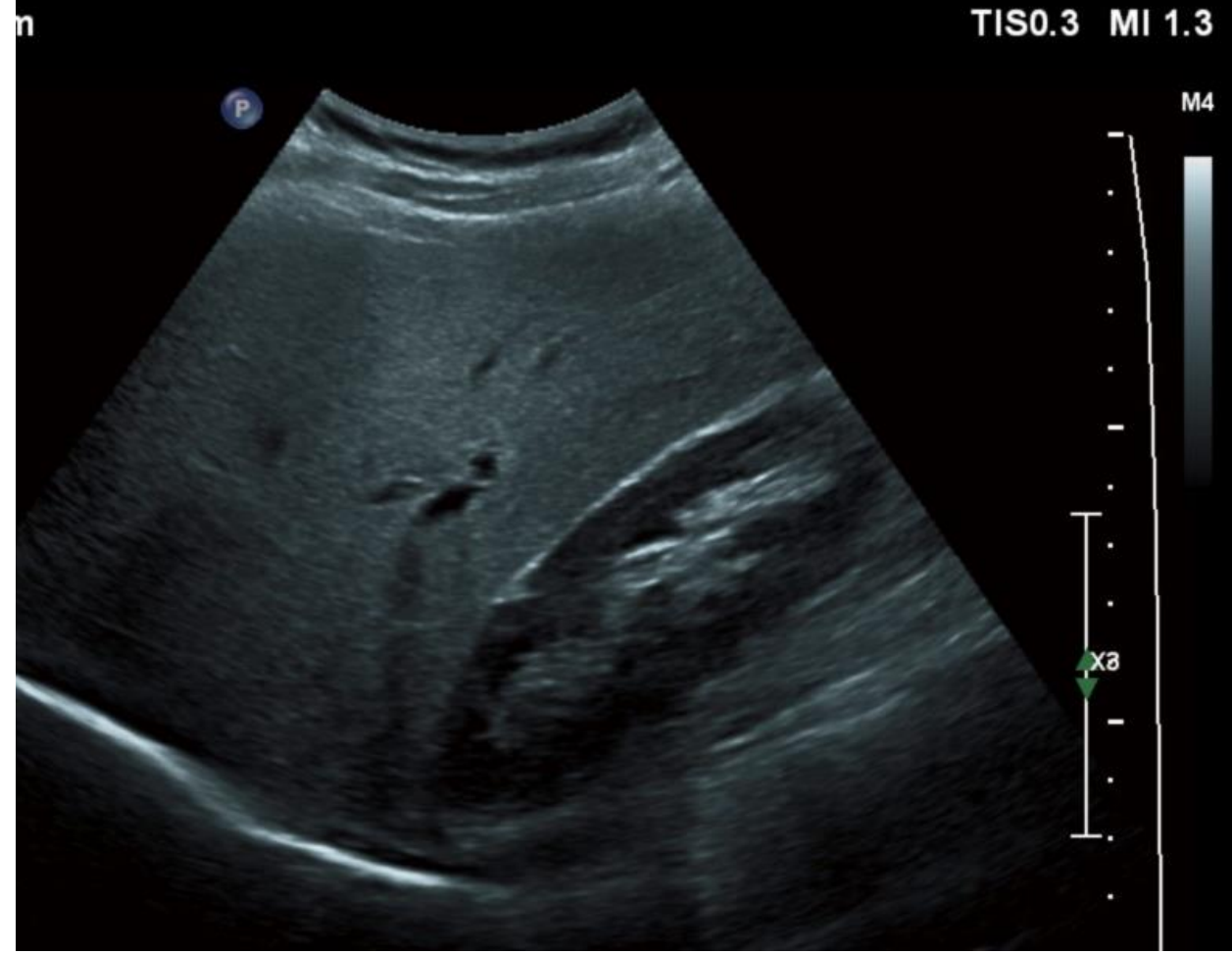
Steatosis grade
≥ 1
≥ 2
≥ 3

Cutoff level, dB/m	AUROC	95% CI	Se, %	Sp, %	PPV, %	NPV, %	vs PDFFF P value
236	0.88	0.80–0.95	82.3	91.0	98.9	66.7	.048 ^a
270	0.73	0.64–0.81	77.8	80.5	73.1	75.4	<.001 ^a
302	0.70	0.58–0.83	64.3	73.6	76.3	94.2	.015 ^a





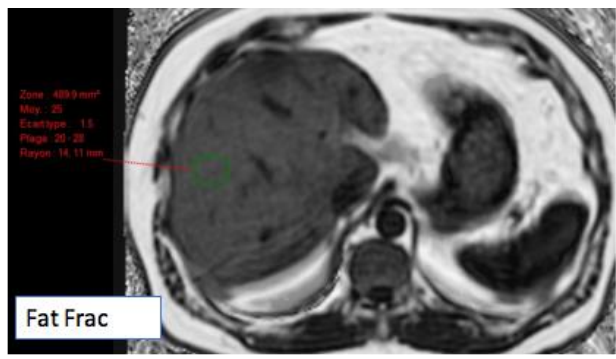
2,05	308
------	-----



1,77	302
------	-----

Table 4. Diagnostic Accuracy of PDFF and CAP in Detecting Each Grade of Steatosis

Steatosis grade	PDFF (n = 127)							CAP (n = 127)							vs PDFF P value
	Cutoff level, %	AUROC	95% CI	Se, %	Sp, %	PPV, %	NPV, %	Cutoff level, dB/m	AUROC	95% CI	Se, %	Sp, %	PPV, %	NPV, %	
≥1	5.2	0.96	0.92–1.00	90.0	93.3	89.2	51.9	236	0.88	0.80–0.95	82.3	91.0	98.9	66.7	.048 ^a
≥2	11.3	0.90	0.82–0.97	78.9	84.1	84.5	78.4	270	0.73	0.64–0.81	77.8	80.5	73.1	75.4	<.001 ^a
≥3	17.1	0.79	0.65–0.94	73.7	81.0	63.2	95.3	302	0.70	0.58–0.83	64.3	73.6	76.3	94.2	.015 ^a



Gastroenterology 2016;150:626–637

CLINICAL—LIVER

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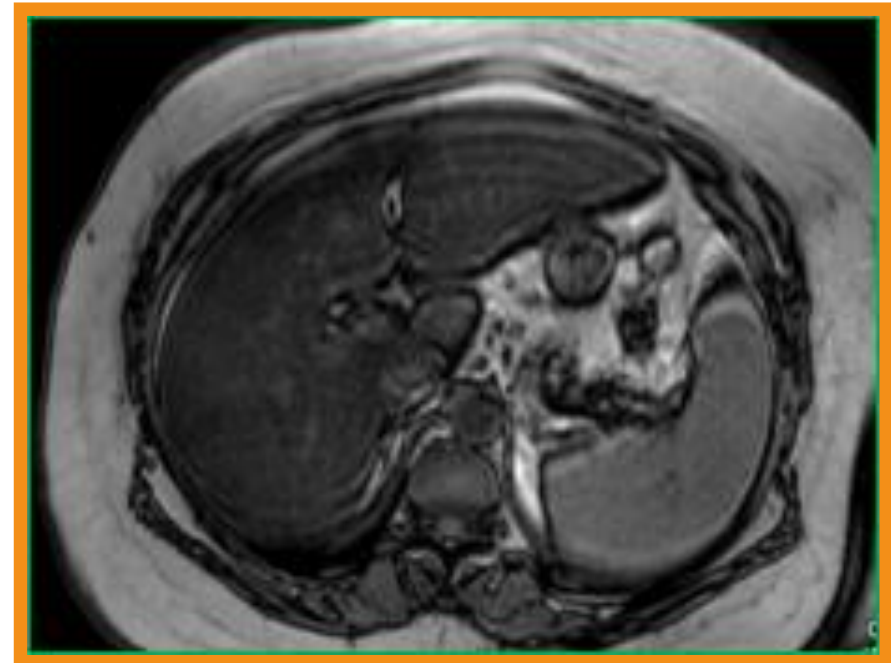


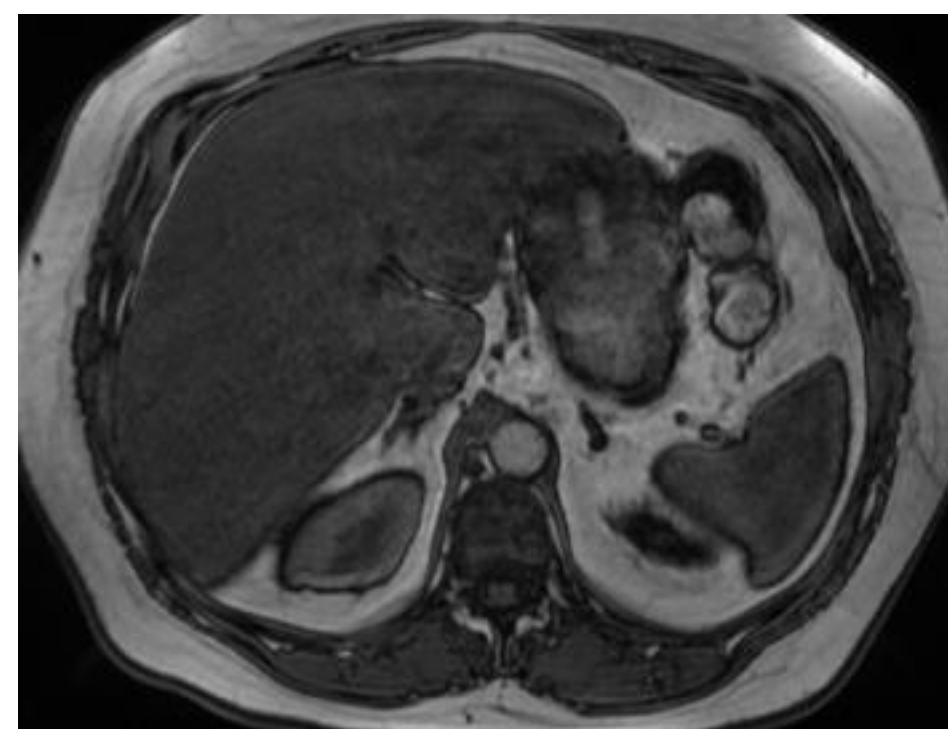
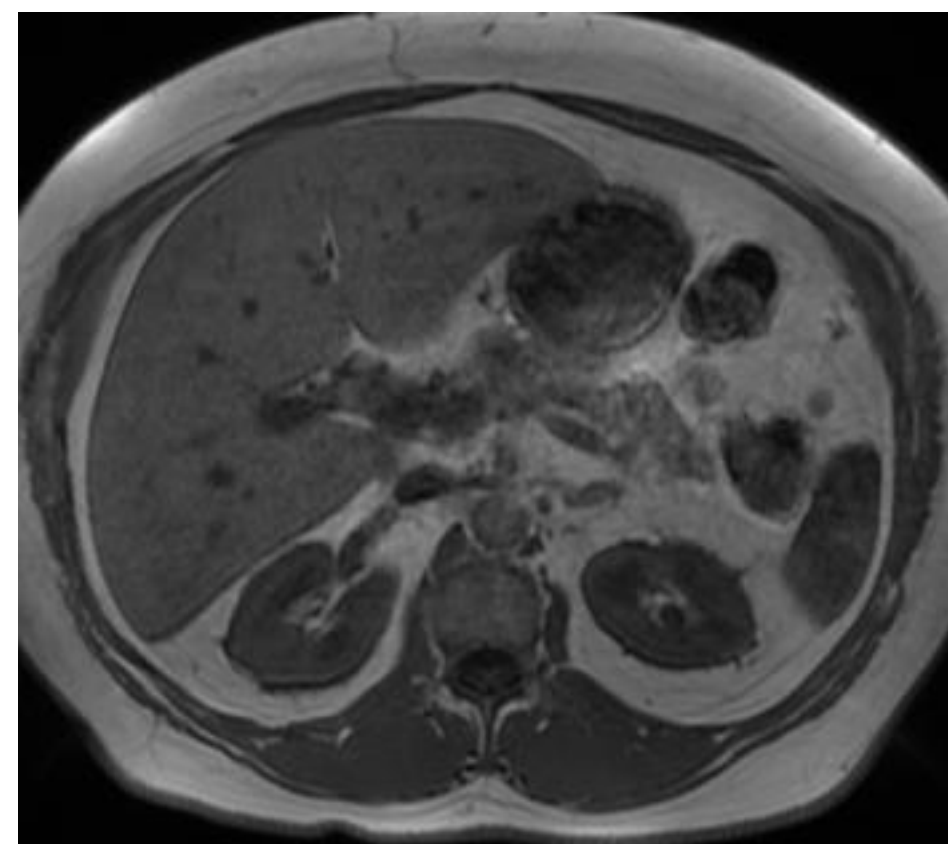
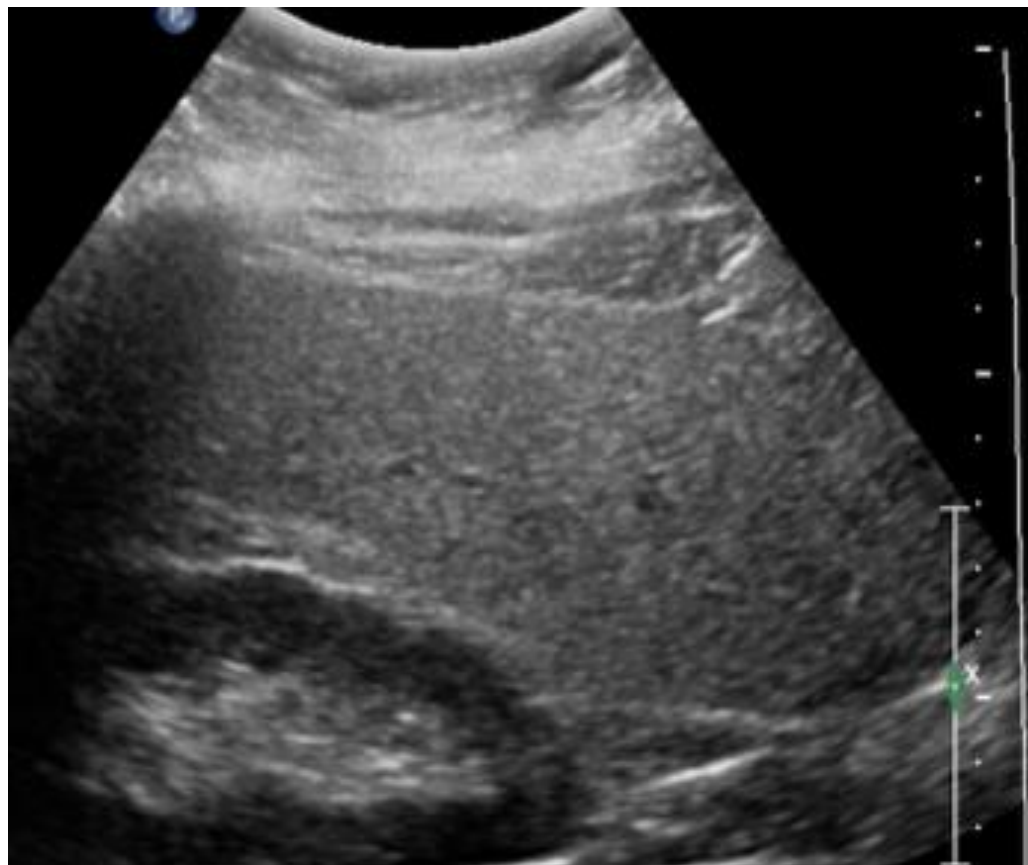
STEATOSE HÉPATIQUE

enjeu de l'imagerie

- US
- CAP
- IRM
- CT

- US (1, 30 %)
- CAP (1, 5 %)
- IRM (2, 5 % *)
- CT (? 30 %)

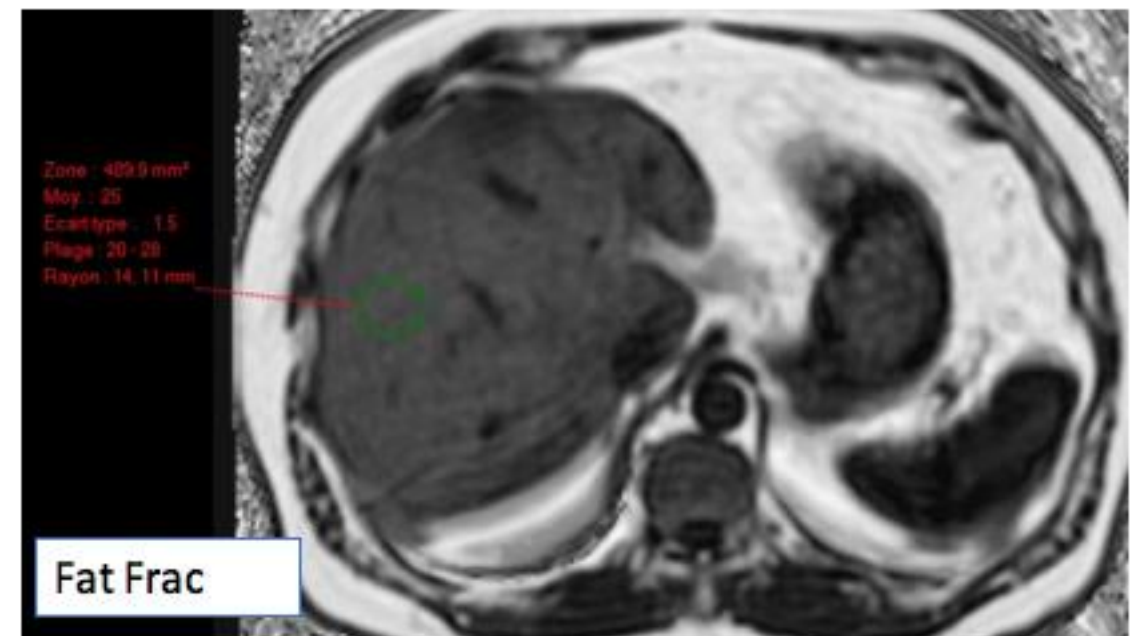






Stéatose hépatique sévère de grade 3 :

- En échographie, atténuation du faisceau acoustique, foie hyperéchogène, gradient hépatorenal nettement majoré, et mauvaise délimitation de la coupole diaphragmatique droite.
- En IRM, la séquence « out of phase » montre une chute de signal du foie, en raison de la stéatose. Les séquences dédiées à la quantification de la stéatose montrent une valeur de 25 % de charge graisseuse du foie.



Stéatose



Stéatose : focalisée

territoires préférentiels

drainage variable
teneur en insuline

Contexte

Imagerie

Echographie

Anatomie et histologie

NAFLD - ALD

Situations particulières

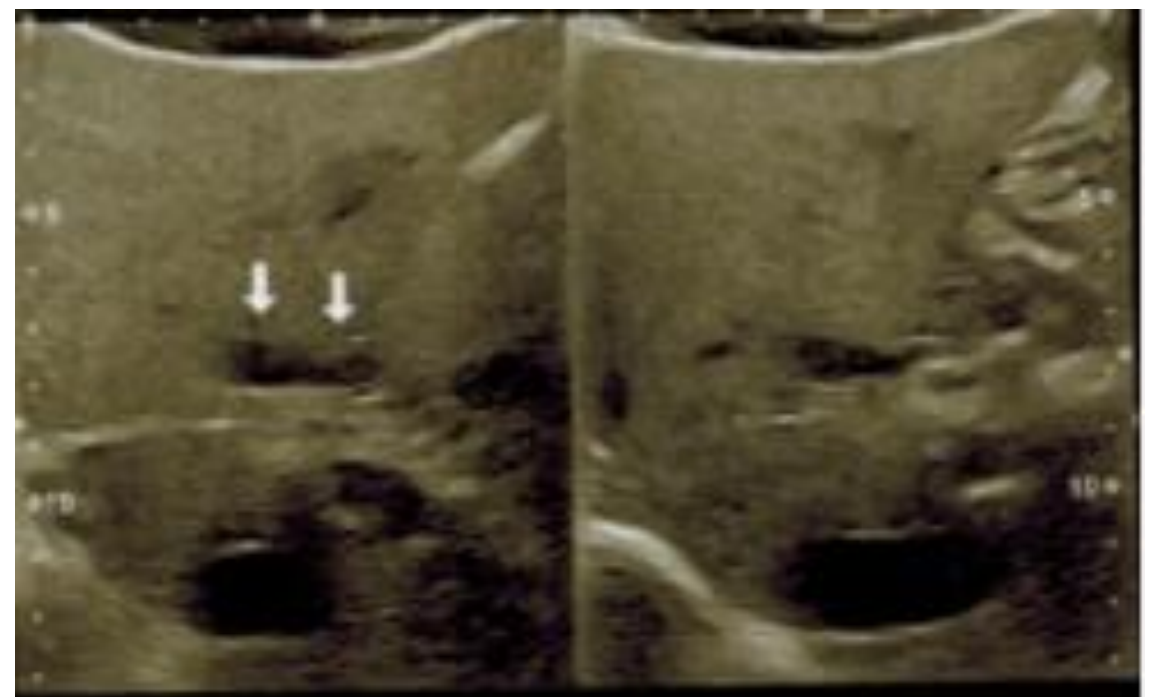
(N)ASH

Cirrhose

Message

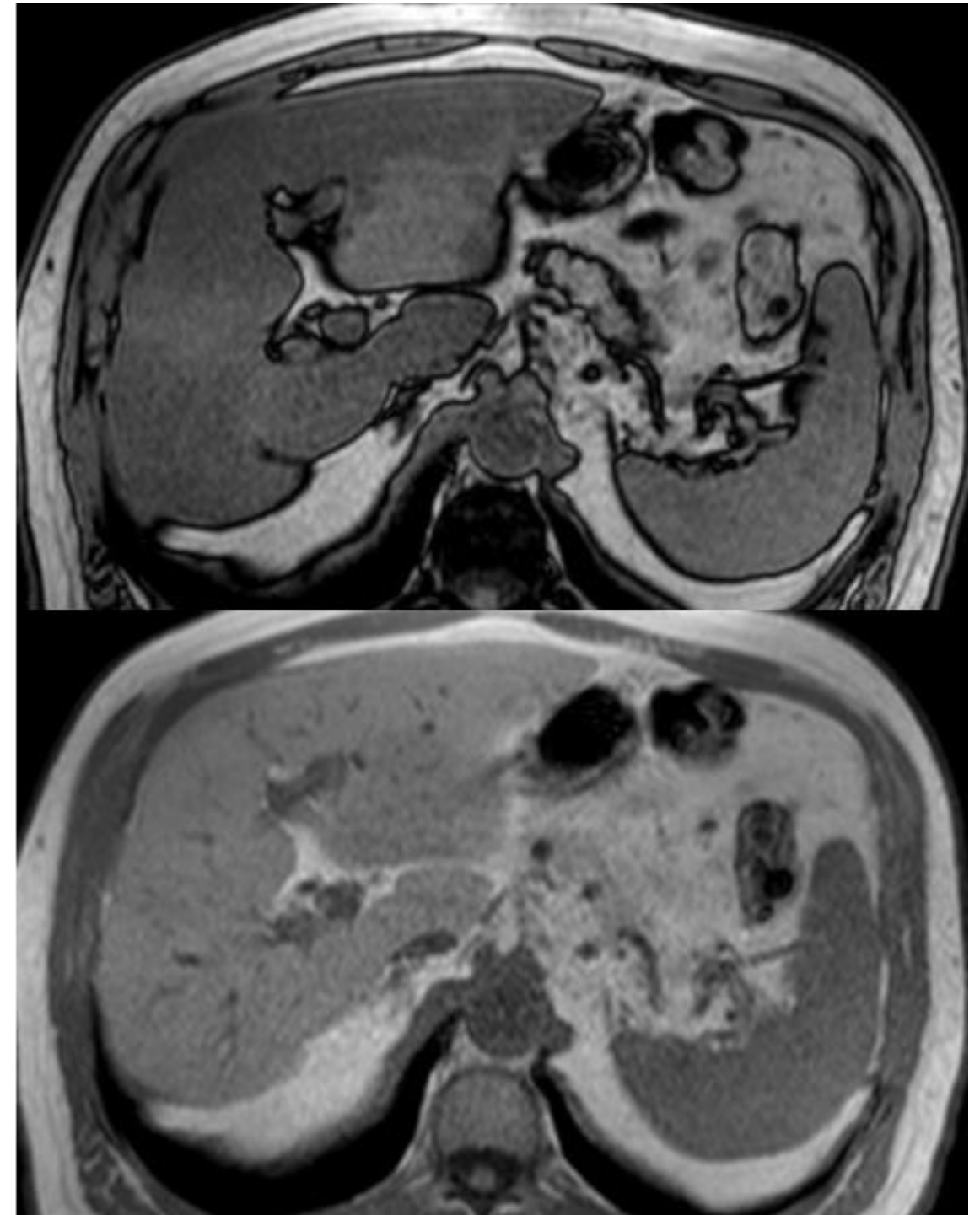
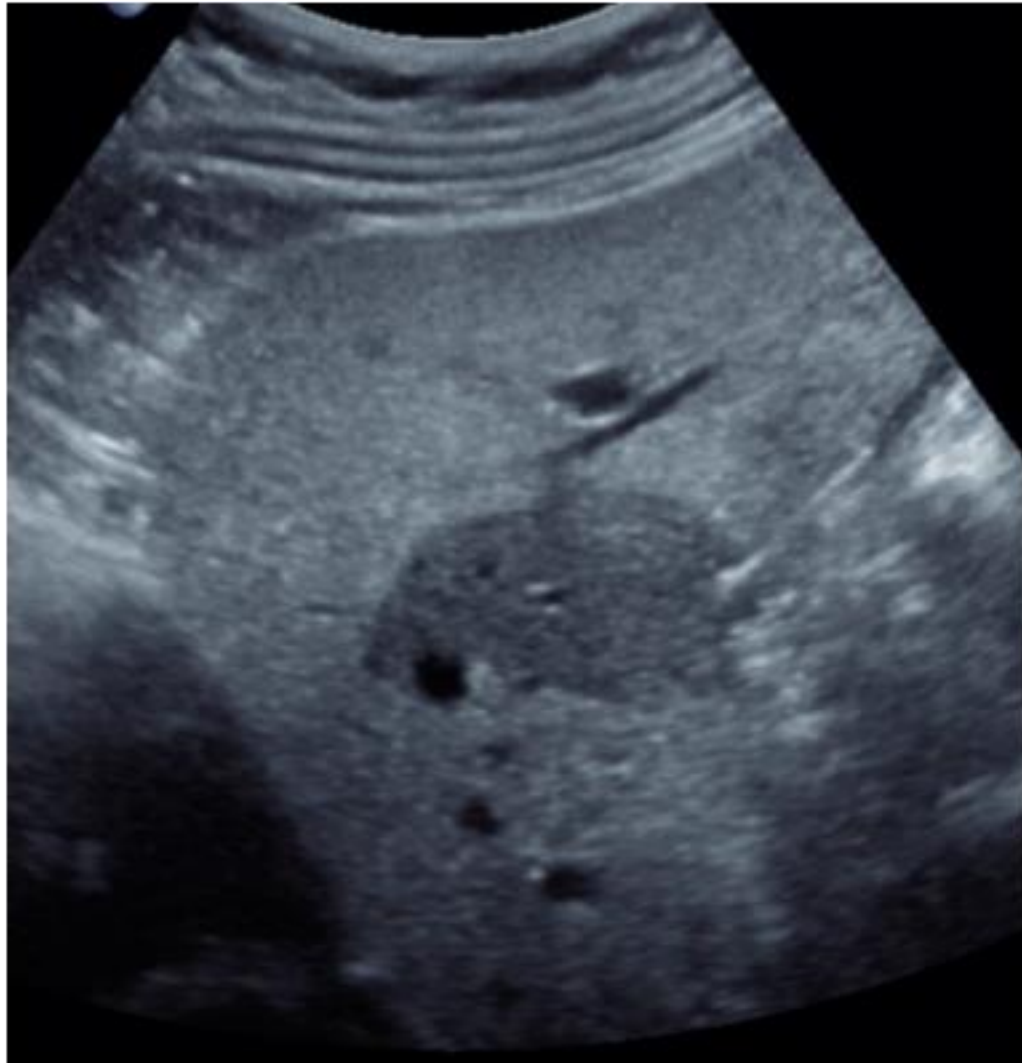
Stéatose

plages géométriques



Stéatose



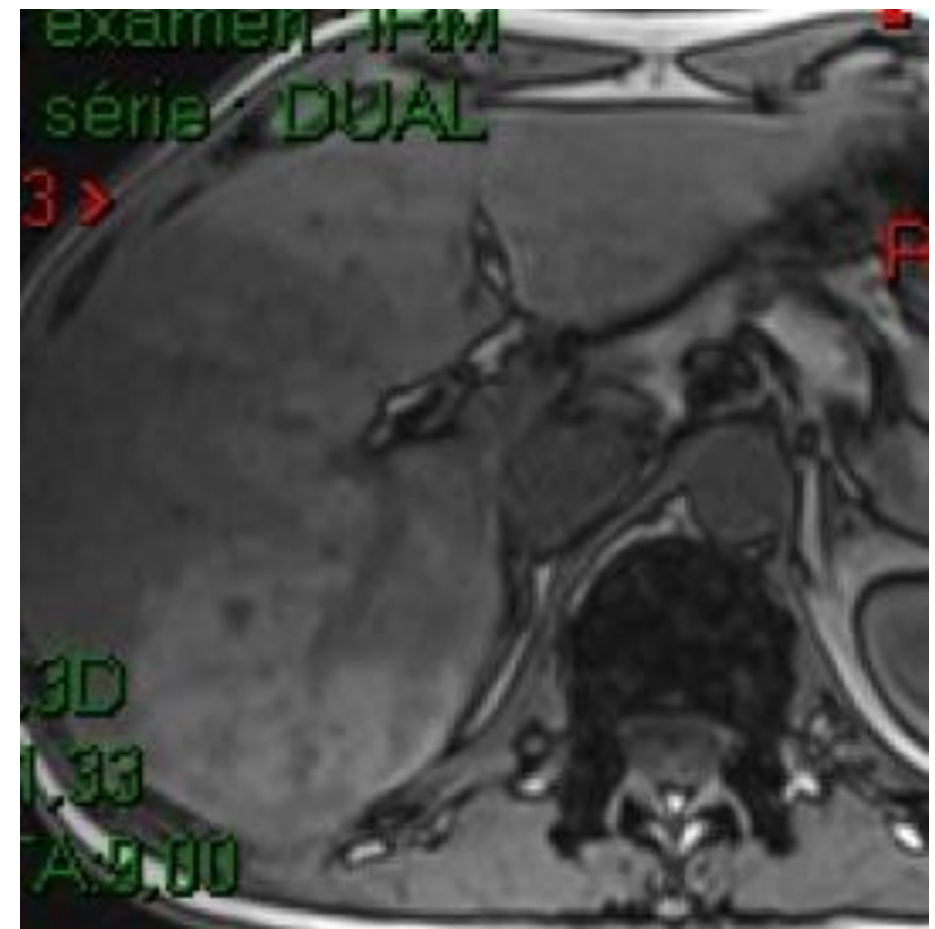
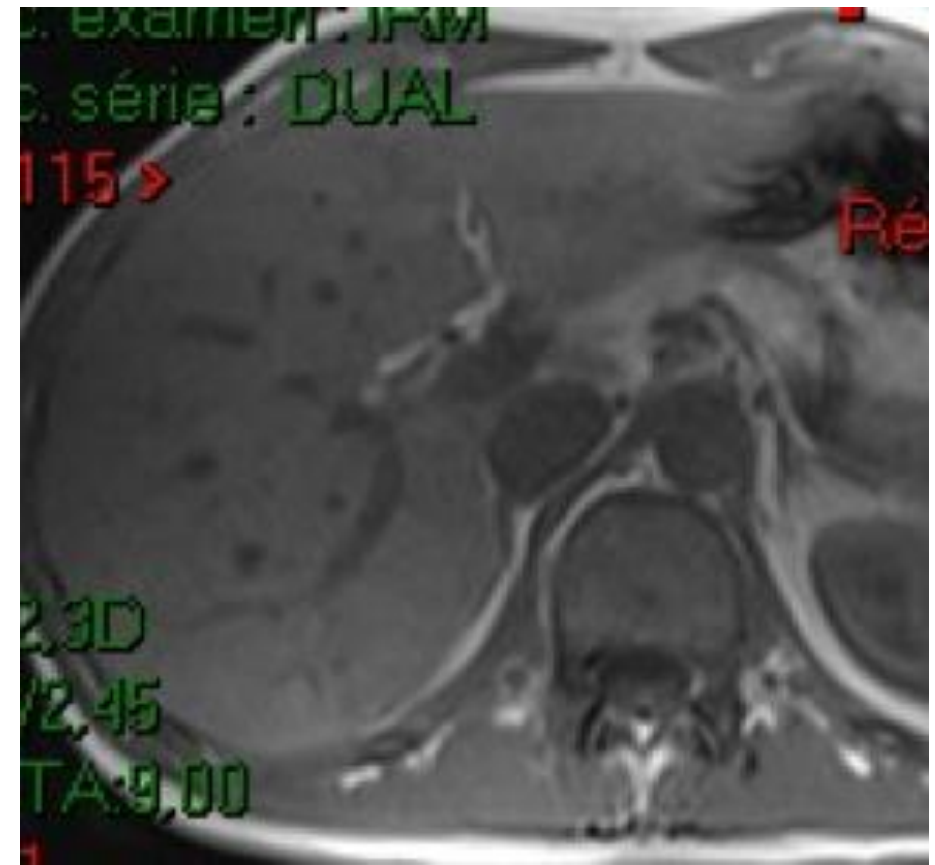
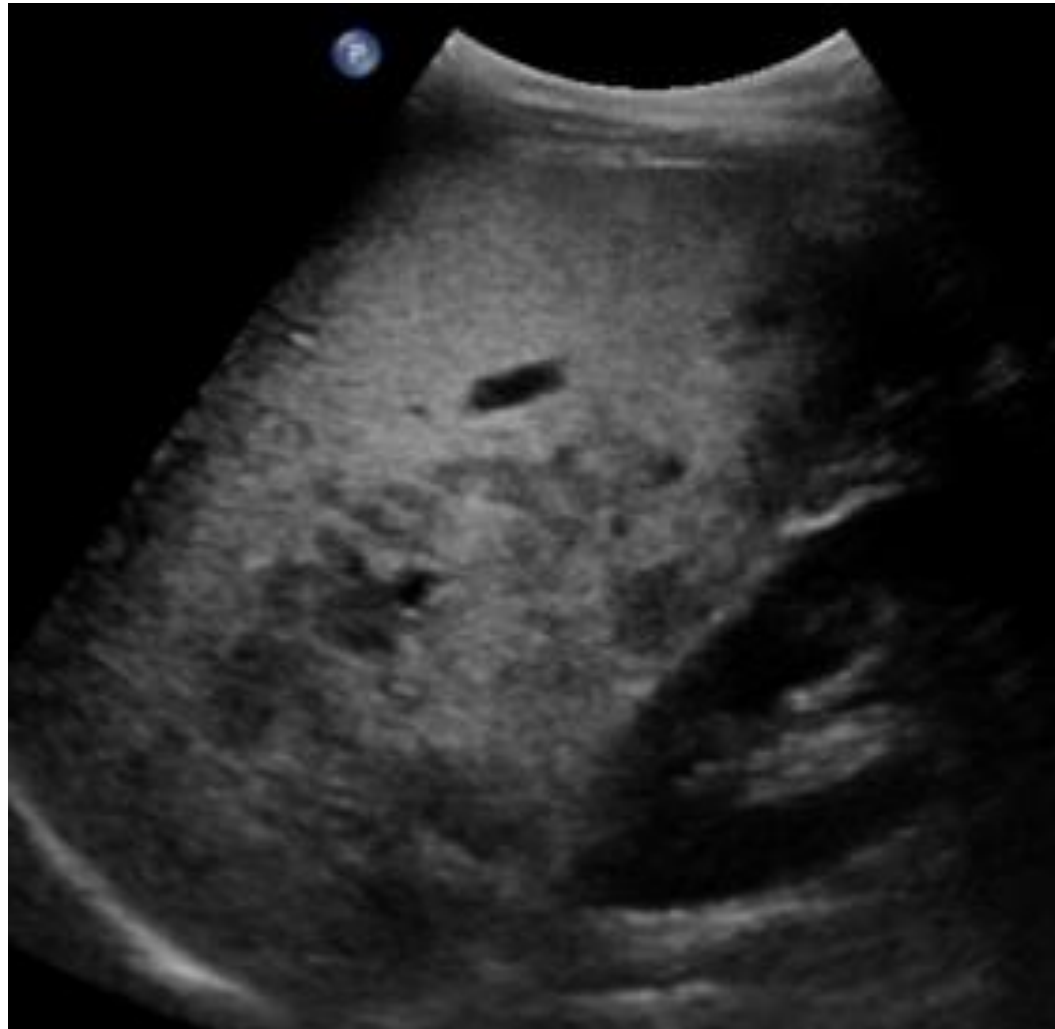


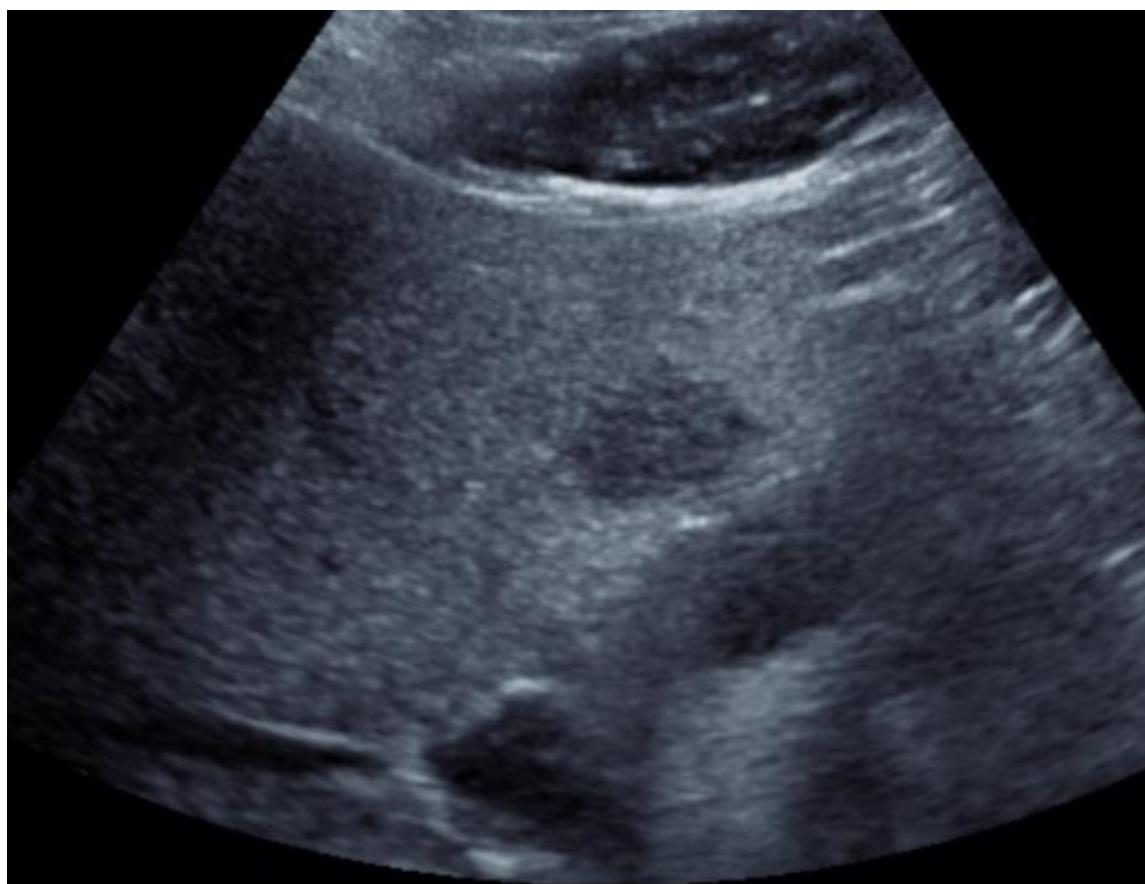
Site d'épargne stéatosique dans le foie gauche :

- US , masse hypoéchogène homogène.
- En IRM, en séquence T1 in/out, la masse est hyperintense sur l'image « out of phase » et isointense sur l'image « in phase », çàd signant sa nature de tissu hépatique normal.



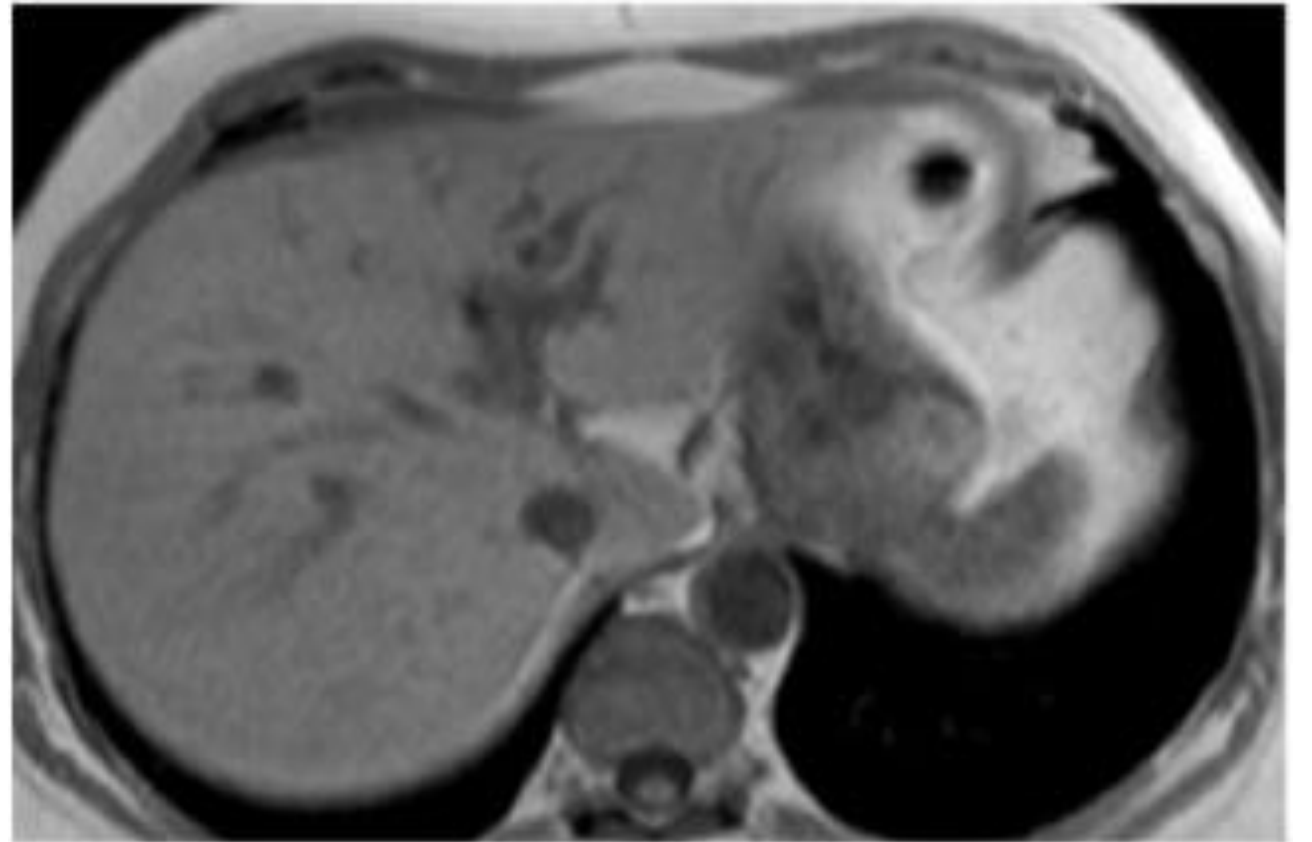
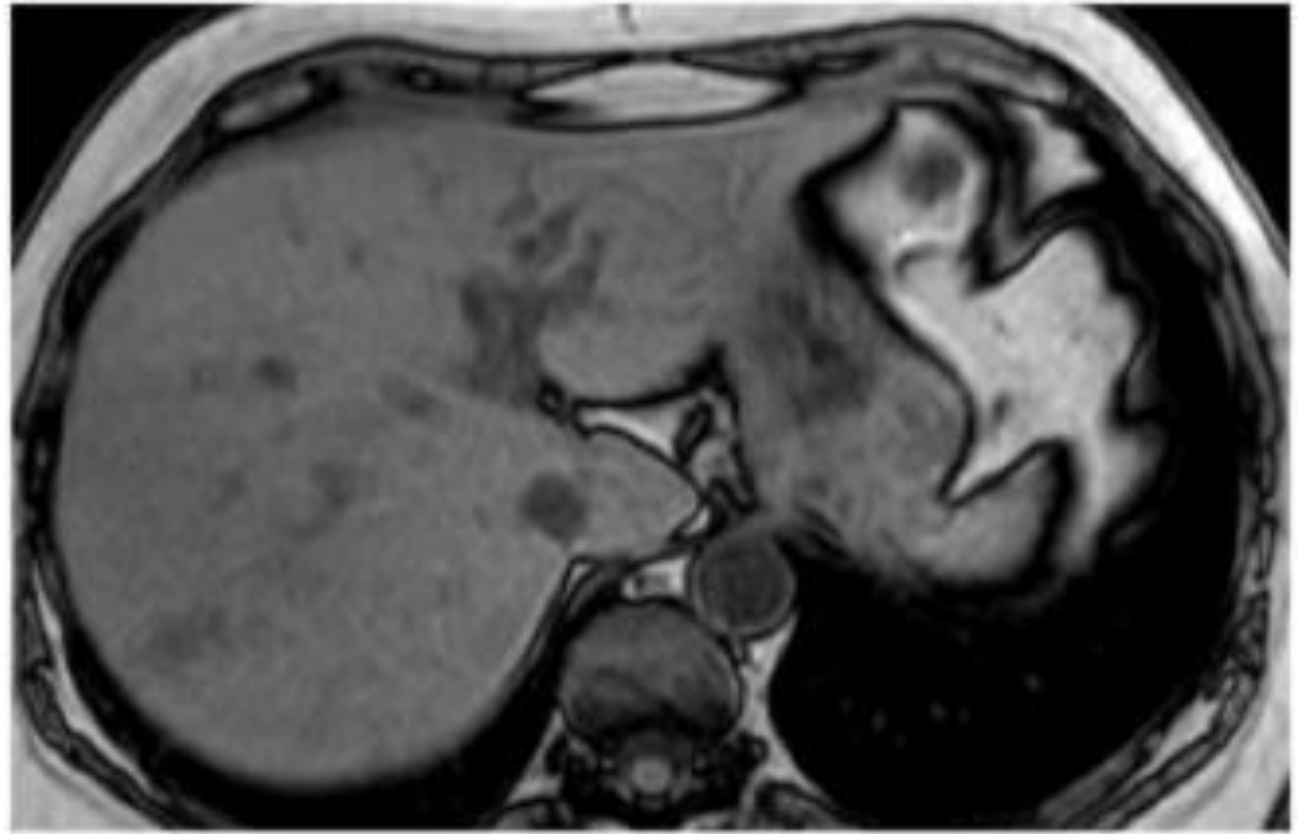
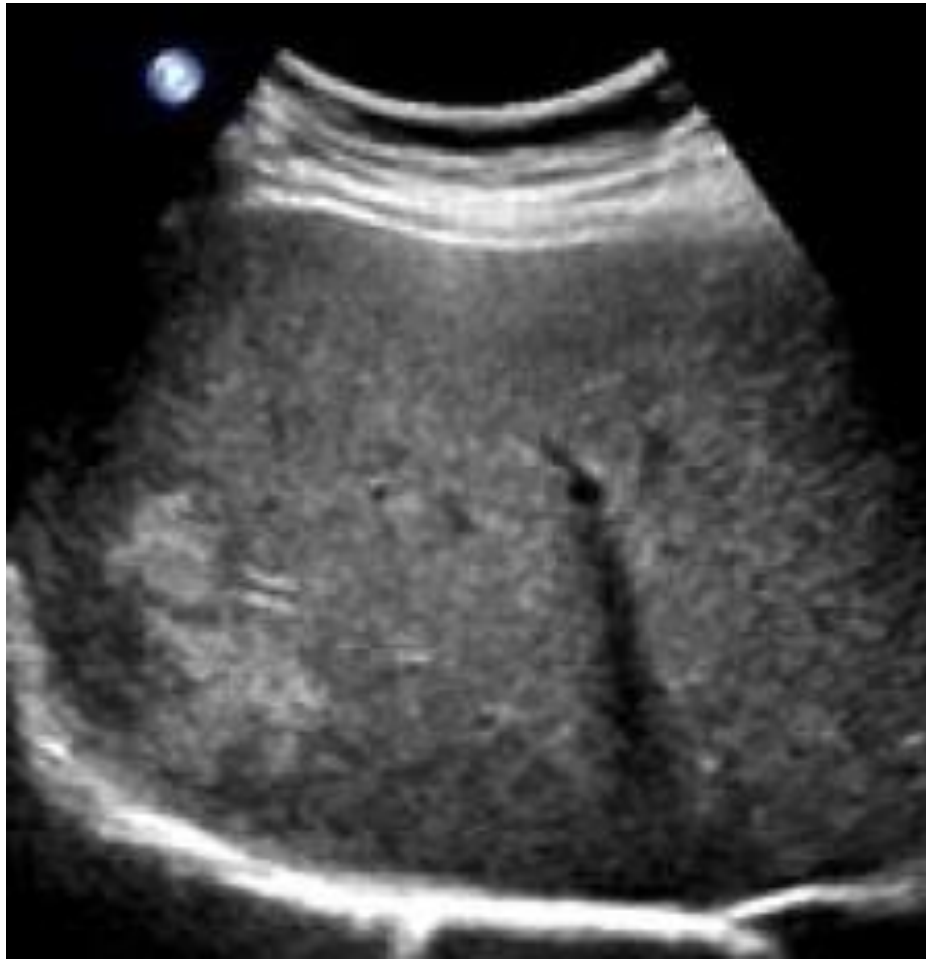
Sites d'épargne stéatosique, qui s'accompagnent d'une conservation des contours hépatiques et un respect des vaisseaux, qui ne sont pas repoussés ou occlus

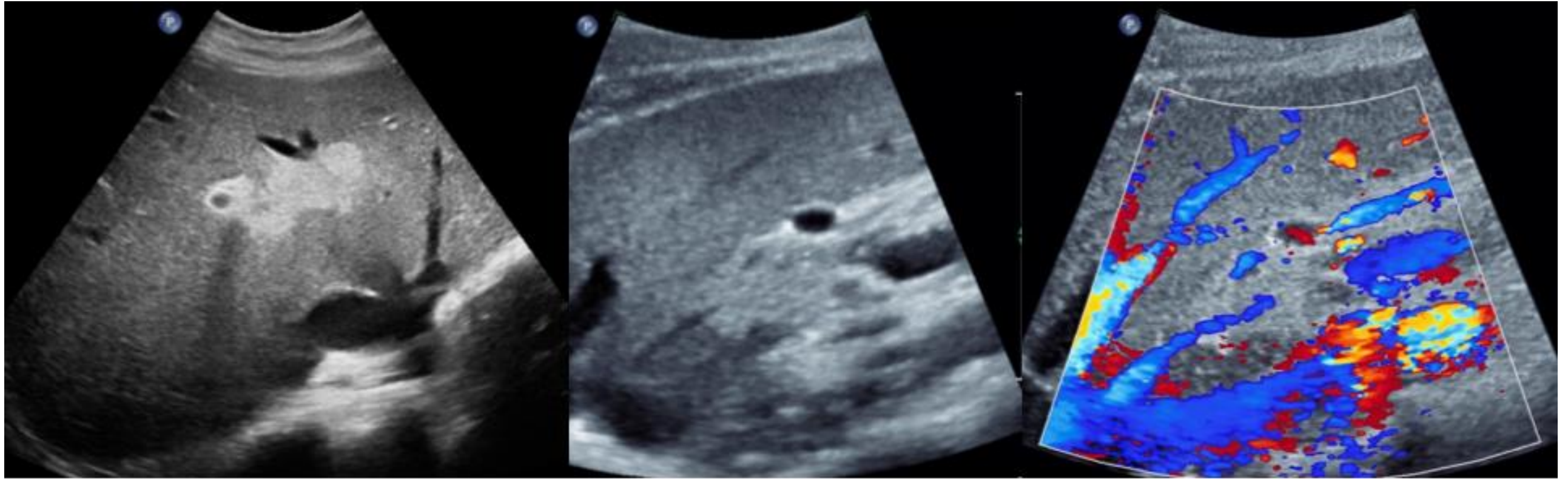




Sites d'épargne stéatosique :

- US montrant une masse hypoéchogène dans le lobe gauche du foie
- En IRM, en séquence T1 in/out, la masse est hyperintense sur l'image « out of phase » et hypointense sur l'image « in phase », çàd signant sa nature de tissu hépatique normal.

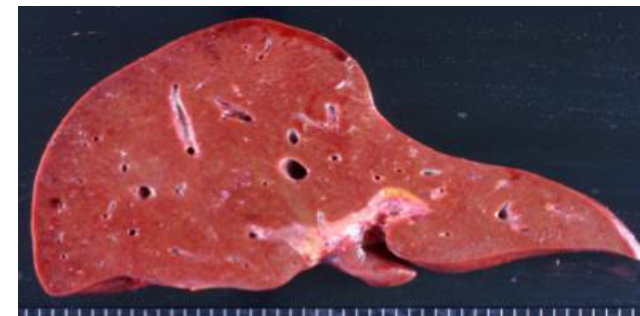




Stéatose focale: ces foyers hyperéchogènes respectent les contours vasculaires et hépatiques.

Hémochromatose-Stéatose

- Hémochromatose :
 - isolée : pas de signe de surcharge en fer visible en écho
 - compliquée d'une stéatose : on voit la stéatose en écho
 - Évolution vers la fibrose puis la cirrhose et ses complications
- Hyperferritinémie
 - NAFLD et AFLD



STEATOSE HÉPATIQUE

enjeu de l'échographie



Stades évolutifs

NAFLD

=> stéatose

=> **NASH** => CIRRHOSE

ALD

=> hépatite alcoolique

=> **ASH** => CIRRHOSE

Contexte

Imagerie

Echographie

Anatomie et histologie

NAFLD - ALD

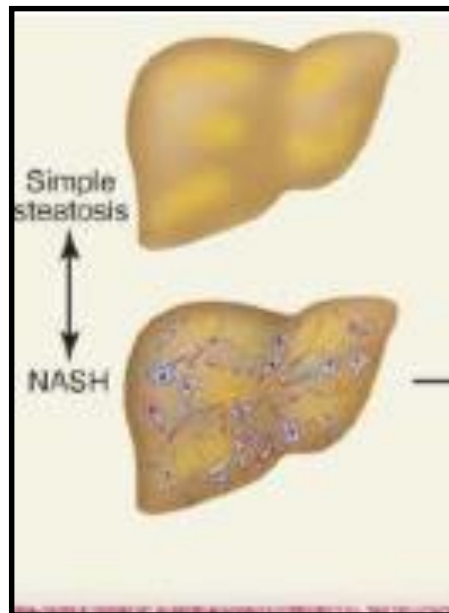
Situations particulières

(N)ASH

Cirrhose

Message

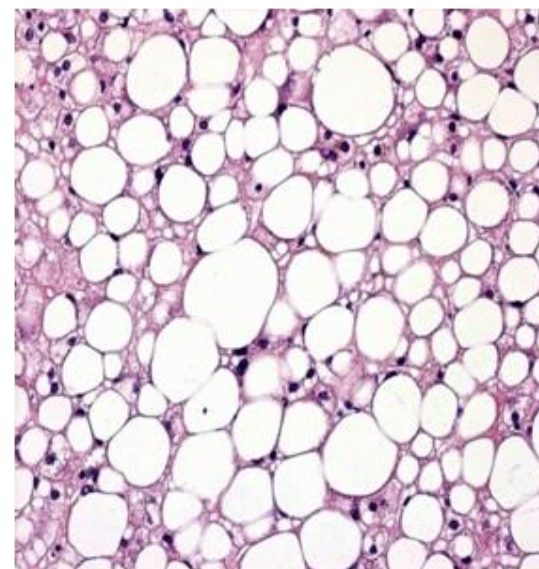
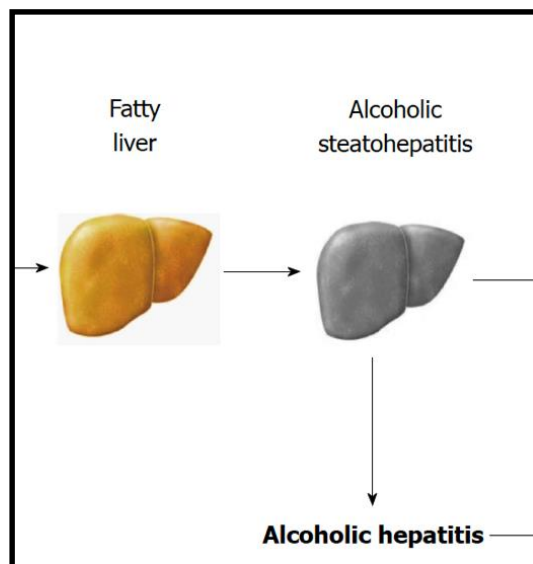
Stéatohépatite / (N)ASH



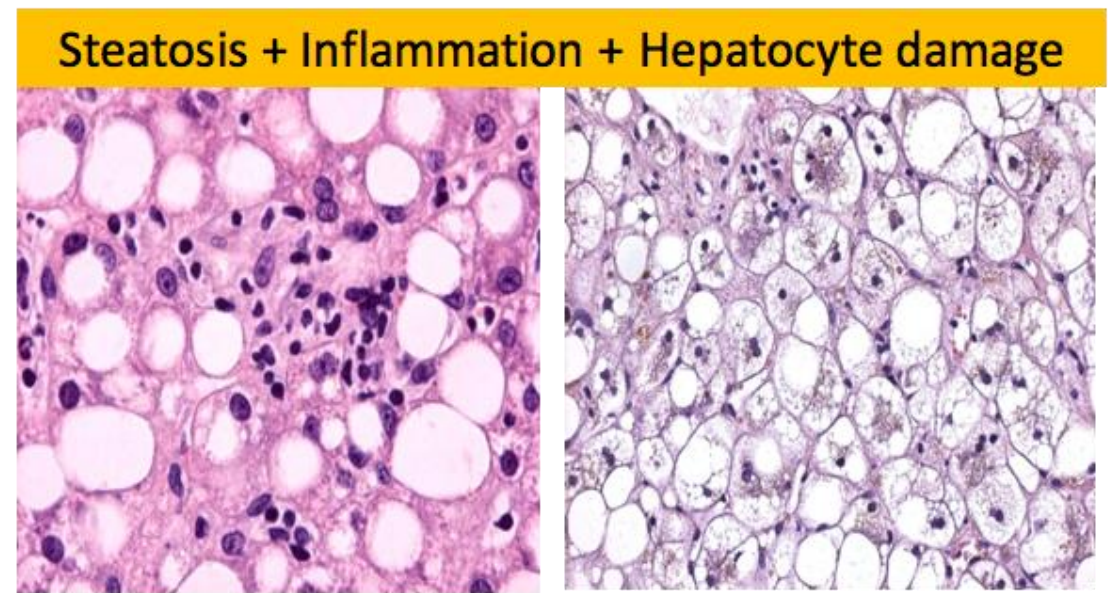
micro lésions inflammatoires (ir)réversibles
 ballonisation hépatocytes
 corps de mallory
 fibrose
 (feutrage sinusoides , souffrance hépatocytes , cirrhose)

NAFL

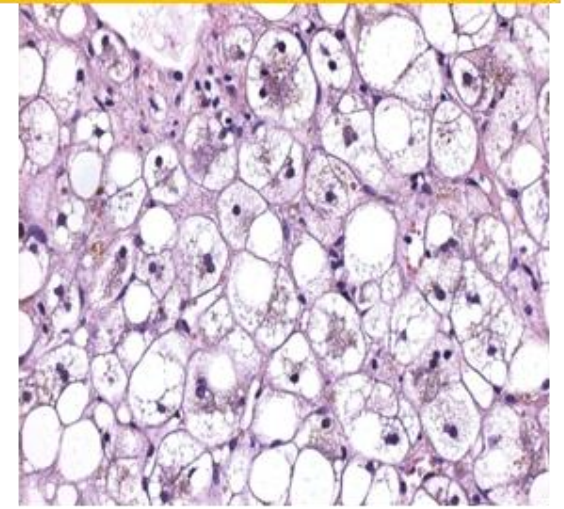
NASH



Steatosis



Steatosis and inflammation



Ballooned hepatocytes

* Fibrosis, Acidophil bodies, Mallory-denk bodies are not required for the diagnosis.

Stéatohépatite



est il possible de repérer cette transformation ?
homogénéité ?
contours + irréguliers ?
atténuation post / diaphragme ?
artère hépatique ?
VSH ?

Comparison of Doppler ultrasound and transient elastography in the diagnosis of significant fibrosis in patients with nonalcoholic steatohepatitis

Rabia Ergelen,¹ Yusuf Yilmaz,² Ruslan Asedov,¹ Cigdem Celikel,³ Hakan Akin,² Onur Bugdayci,¹ Ersan Altun,⁴ Davut Tuney¹

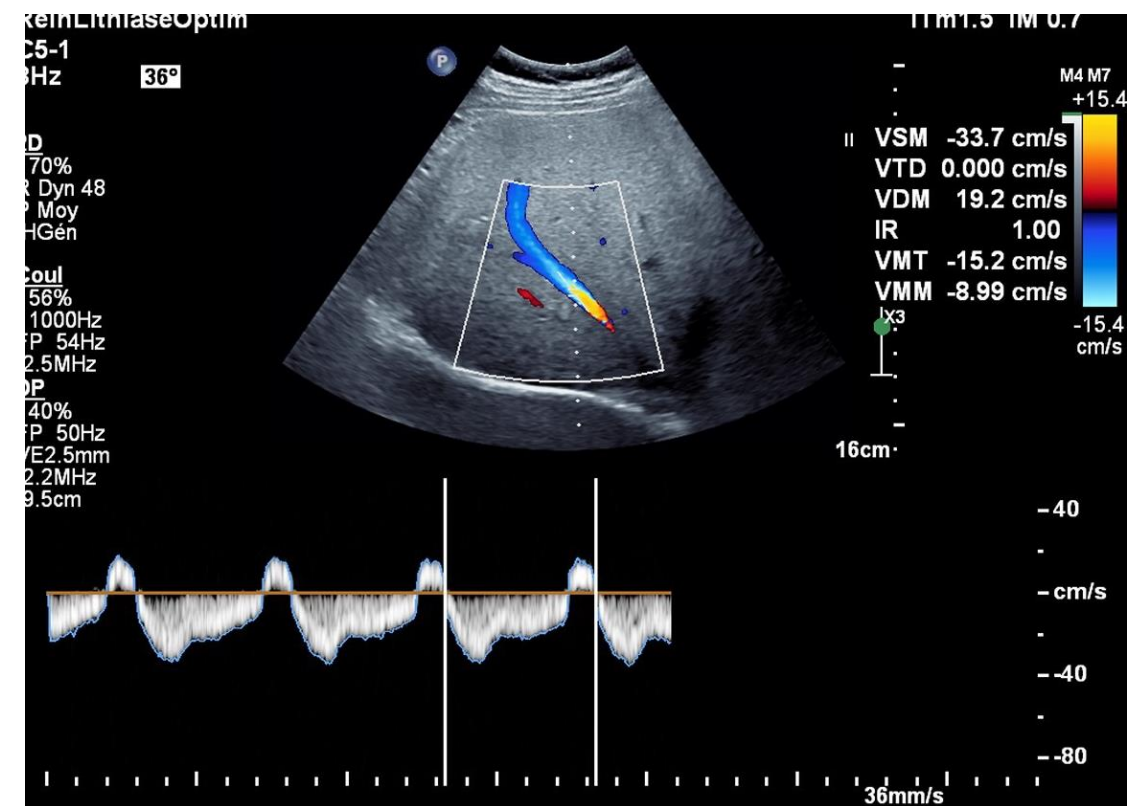
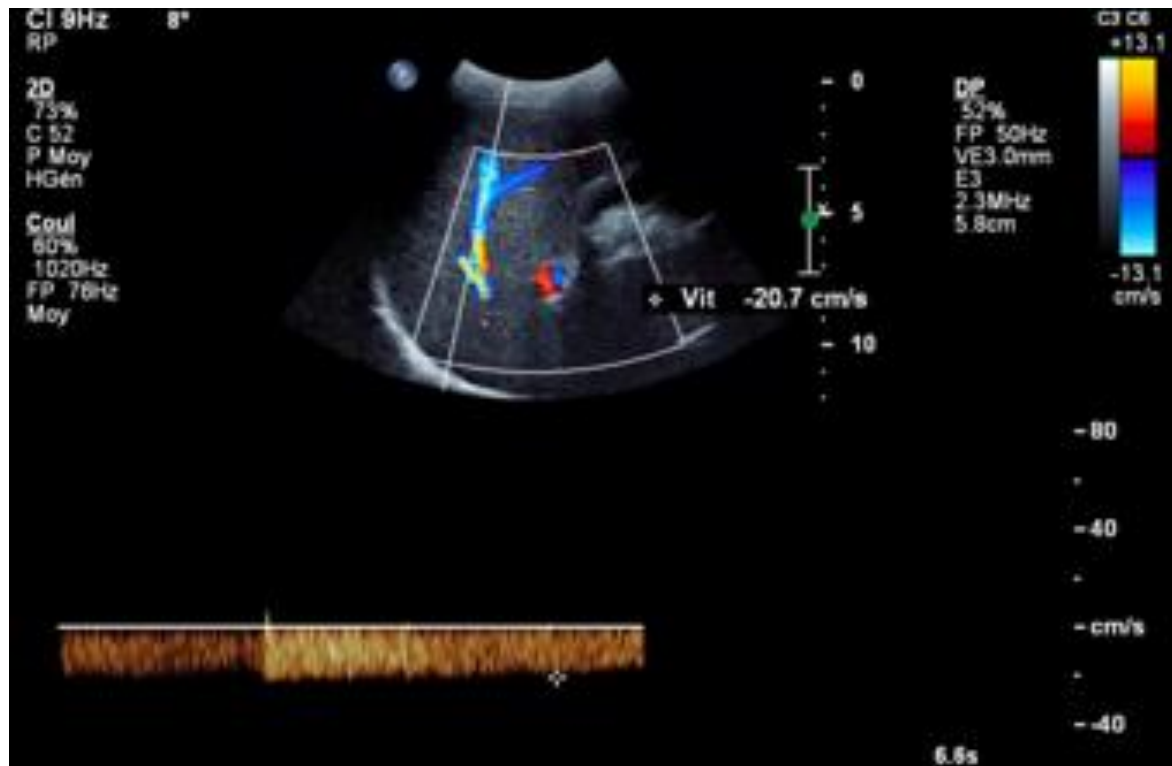
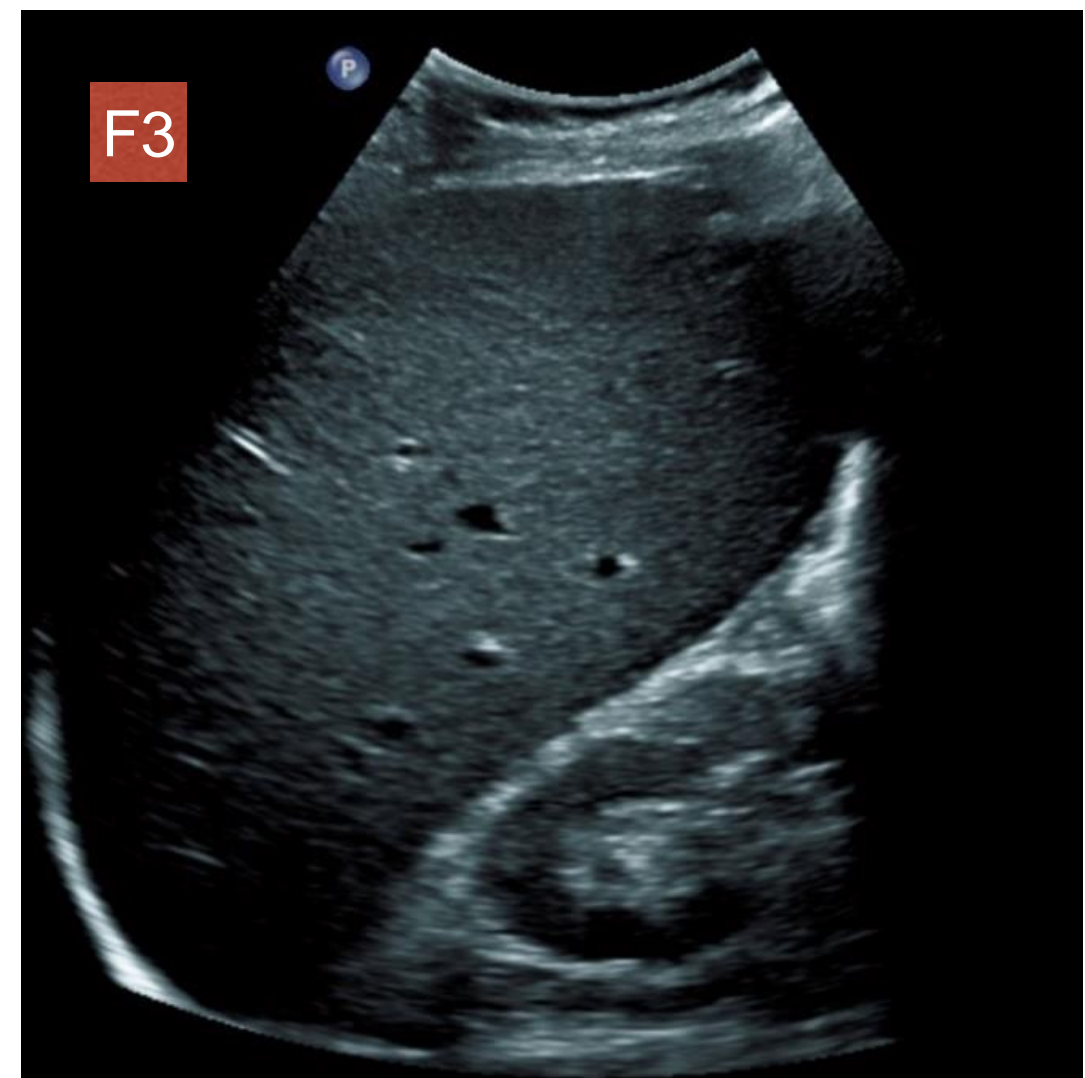
¹Department of Radiology, School of Medicine, Marmara University, Kayışdağı cad. Yayla Sokak, Mimoza Konutları No:41 A blok Daire:17, 34750 Küçükbakkalköy-Kadıköy, Istanbul, Turkey

²Department of Gastroenterology, School of Medicine, Marmara University, Istanbul, Turkey

³Department of Pathology, School of Medicine, Marmara University, Istanbul, Turkey

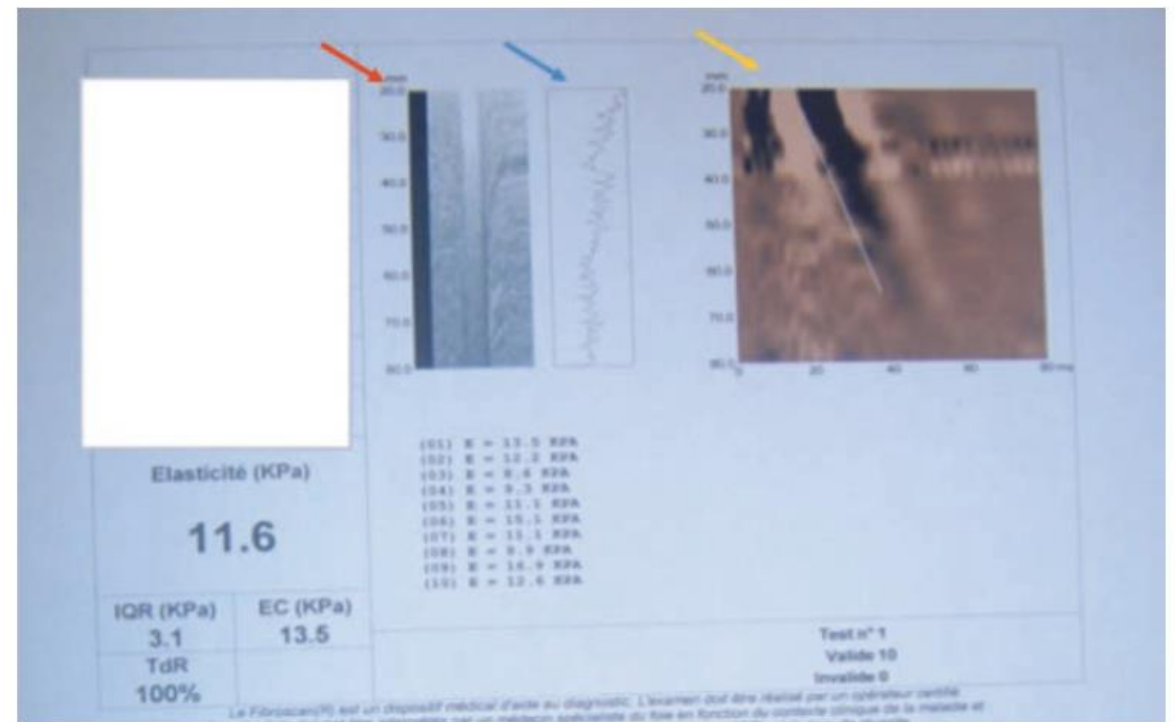
⁴Department of Radiology, University of North Carolina, School of Medicine, Chapel Hill, NC, USA

VPO < 16 cm/sec
IR > 0,75 , SI > F2 : IR >=0,81
Démodulation VSH





ues lors d'un fibroscanner avec fibrose F4.



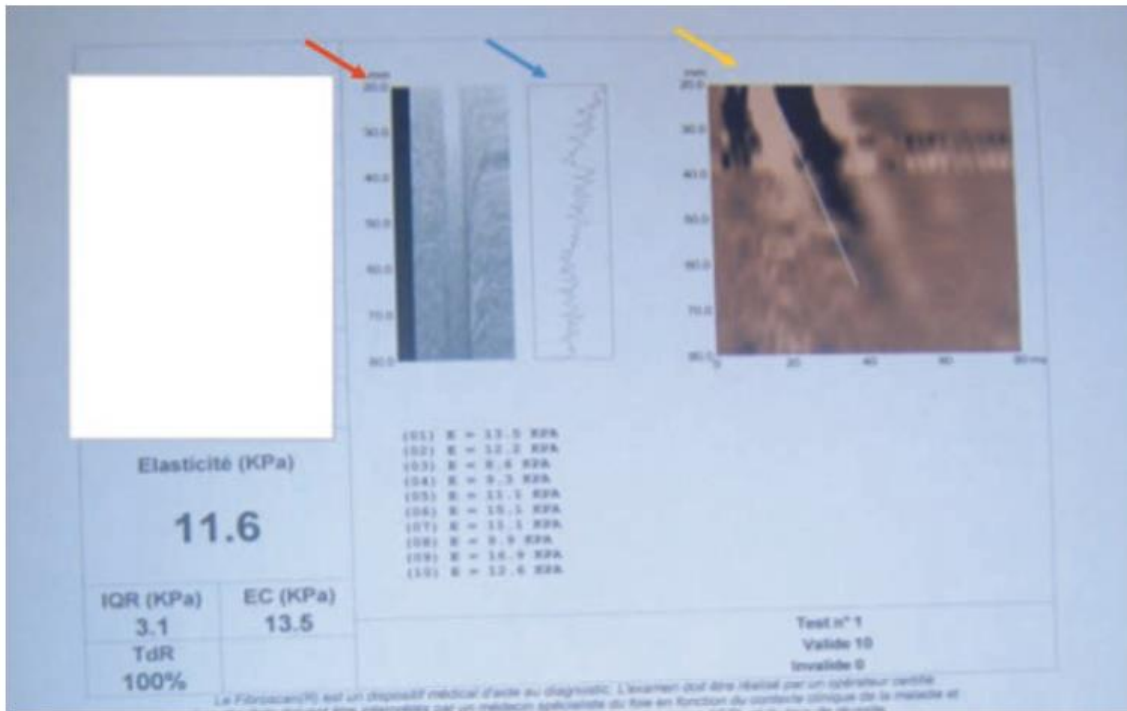
17-7-2017

CAP 323

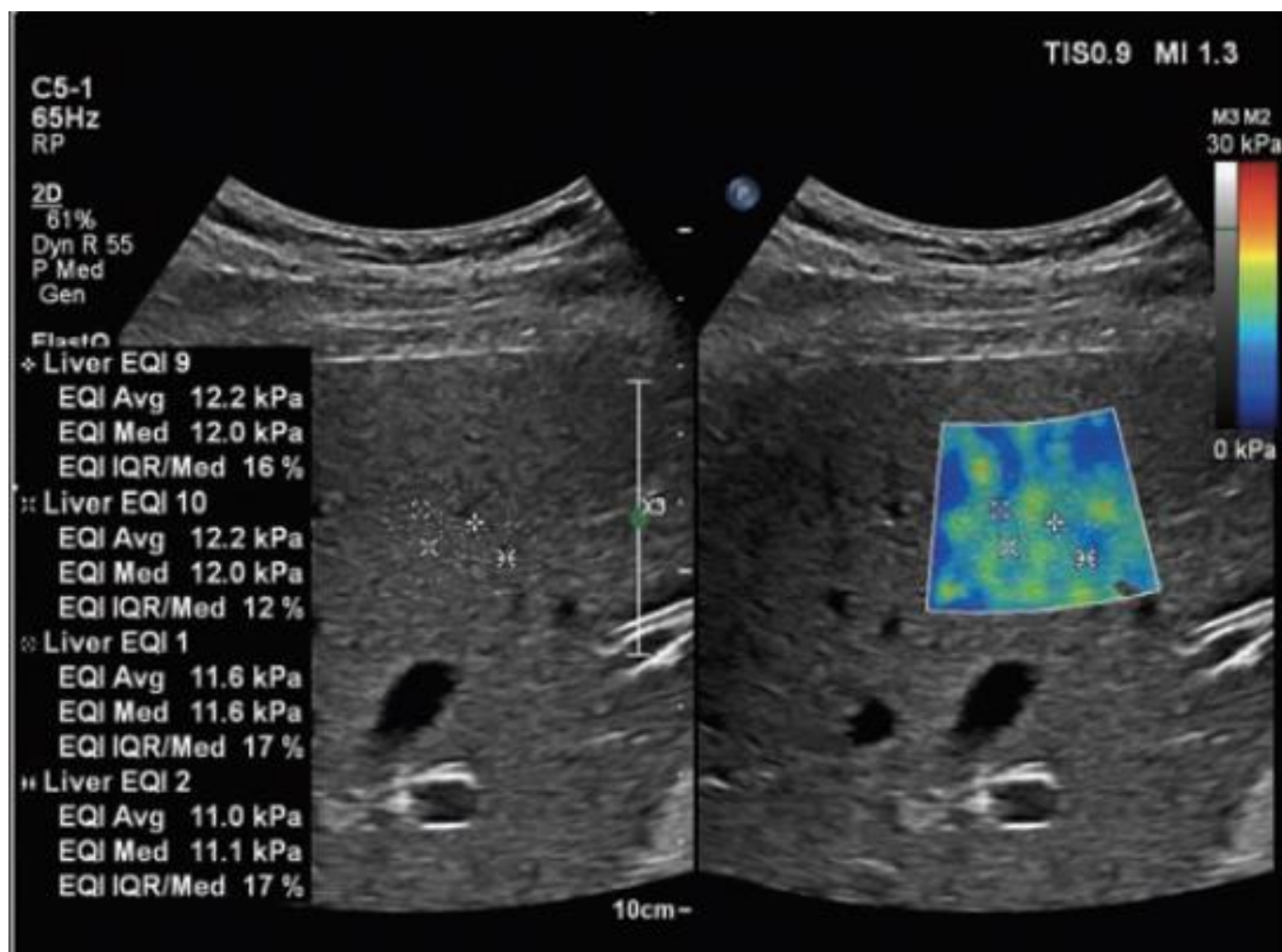
kPa 38,6 (fibroscan) F4



ues lors d'un fibroscanner avec fibrose F4.



	Maladie cholestatique
F4	
F3-F4	< 17,3
F3	<15,6
F2-F3	<14,7
F2	<11,1
F1-F2	
F0-F1	< 7,1
	kPa



F0-F1	4,2 (3,7-5,4)	kPa
F2	5,2 (4,4-6,0)	kPa
F3	7,0 (5,8-9,4)	kPa
F4	12,3 (8,3-19,3)	kPa

(d'après [32]).

31. Poynard T et al. *Liver fibrosis evaluation using real-time shear wave elastography: applicability and diagnostic performance using methods without a gold standard.* J Hepatol, 2013. **58**(5): 928-35.
32. Ferraioli G et al. *Accuracy of real-time shear wave elastography for assessing liver fibrosis in chronic hepatitis C: a pilot study.* Hepatology, 2012. **56**(6): 2125-33.



cirrhose



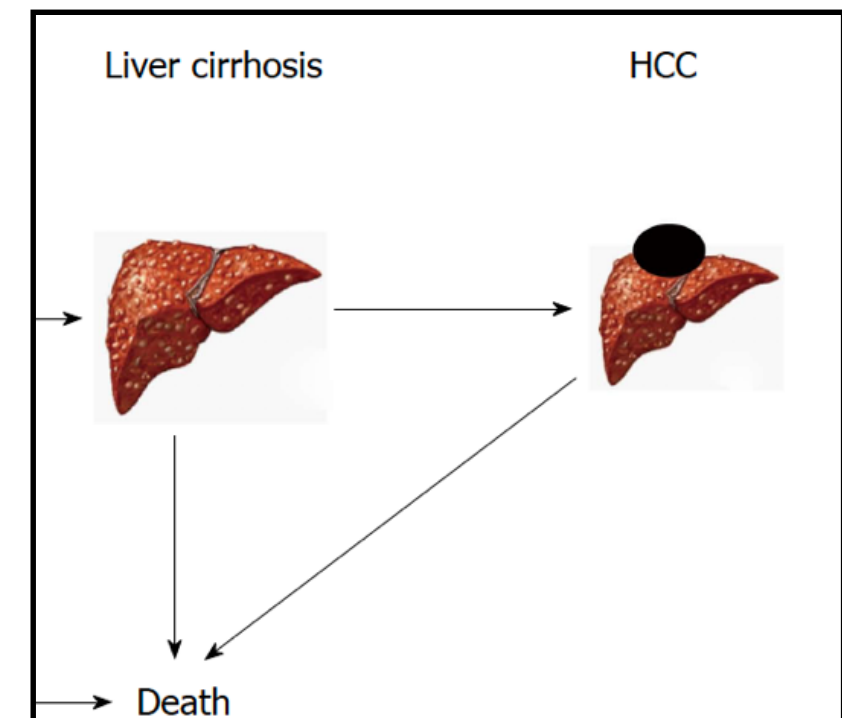
(vient du grec ancien : couleur rousse du foie inspirée par Laénec)

10 à 15 % des NASH
risque CHC augmente de 3% par an

Contexte
Imagerie
Echographie
Anatomie et histologie
NAFLD - ALD
Situations particulières
(N)ASH
Cirrhose
Message



ILLUSTRATION BY FLOYD E. HOSMER

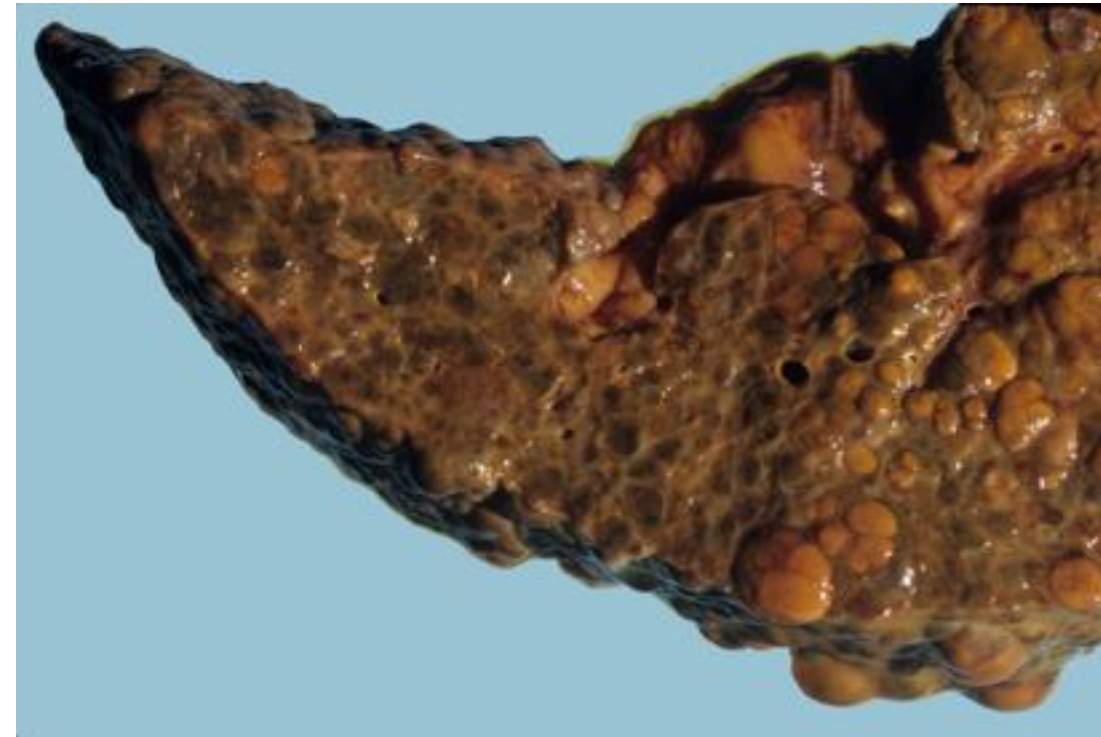




cirrhose

agression tissulaire → processus destruction /réparation

nodule de régénération hépatocytaire
fibrose mutilante cicatricielle



Contexte

Imagerie

Echographie

Anatomie et histologie

NAFLD - ALD

Situations particulières

(N)ASH

Cirrhose

Message

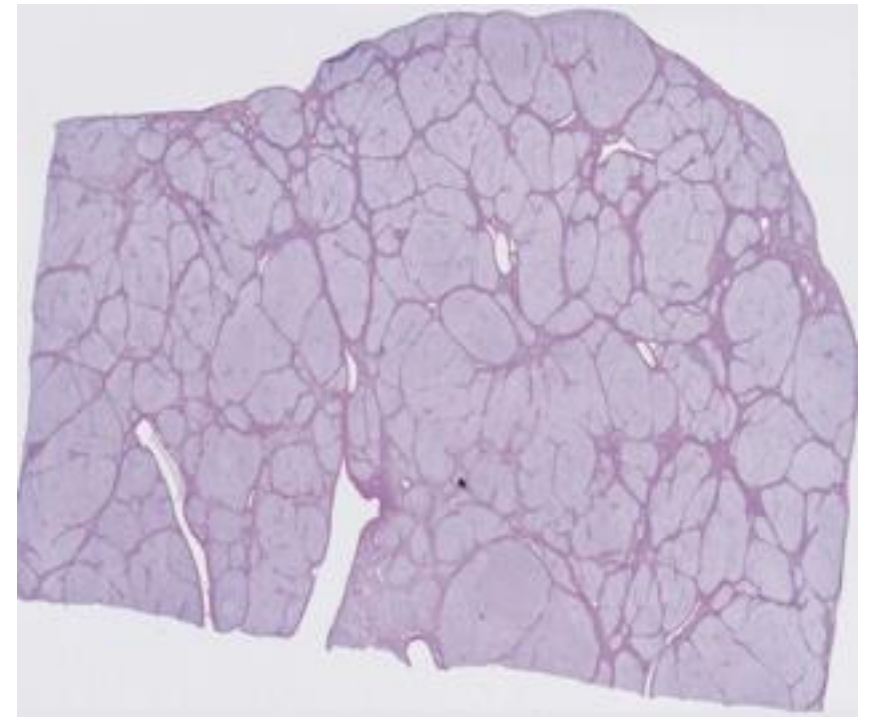
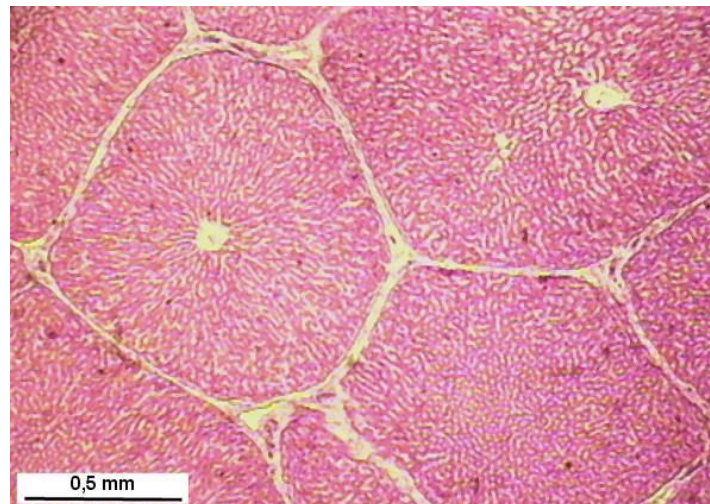


cirrhose

fibrose espaces portes
hépatocytes anormaux/ atrophie cellulaire
augmentation travées fibreuse
cercle vicieux
régénération anarchique
nodules d'hépatocytes sans veine centro lobulaire



Contexte
Imagerie
Echographie
Anatomie et histologie
NAFLD - ALD
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(N)ASH
Cirrhose
Message





cirrhose

ECHOGRAPHIE

HPM / atrophie
échostructure nodulaire
contours irréguliers (fibrose rétractile et nodules)
dysmorphie (segment I , IV)
variations flux portal

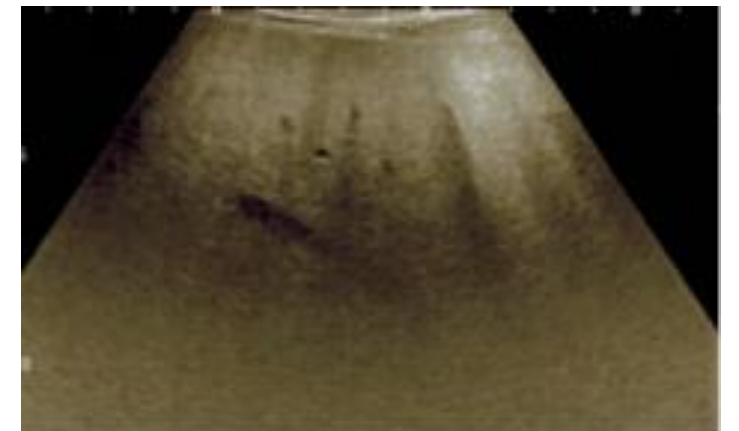
Cirrhosis and Chronic Liver Failure: Part I. Diagnosis and Evaluation

JOEL J. HEIDELBAUGH, M.D., and MICHAEL BRUDERLY, M.D.
University of Michigan Medical School, Ann Arbor, Michigan



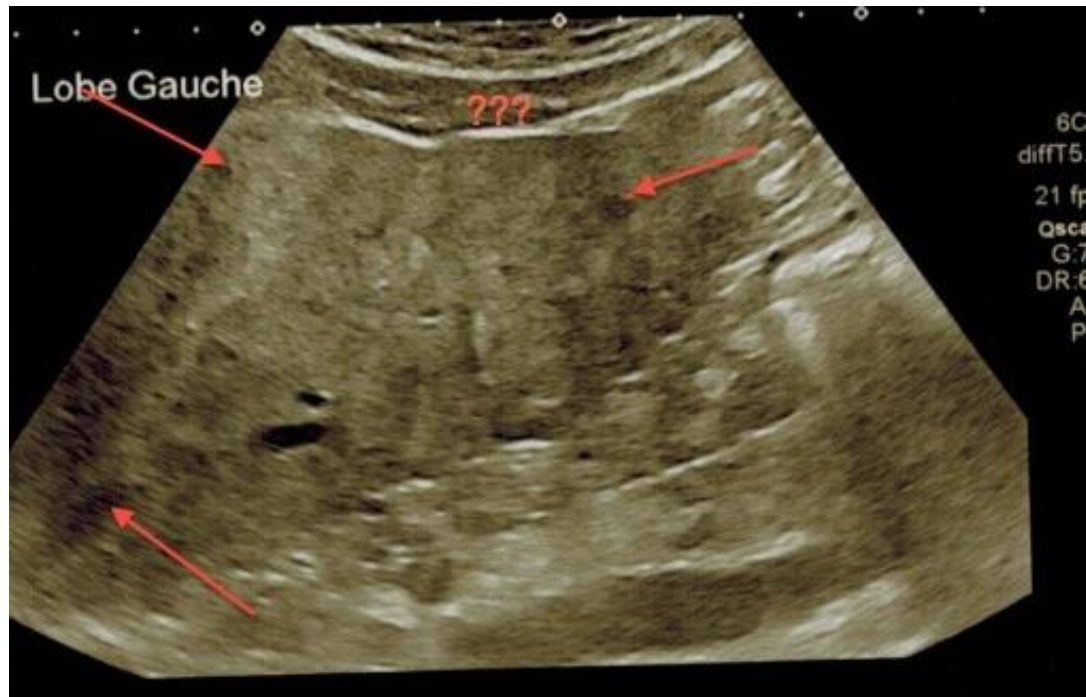
cirrhose

ECHOGRAPHIE



cirrhose

ECHOGRAPHIE



nodules ???



cirrhose



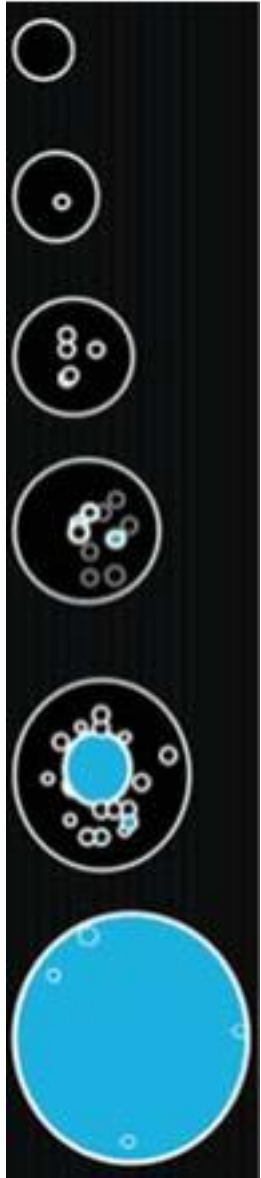
Nodule de régénération

Nodule dysplasique

Carcinome hépatocellulaire



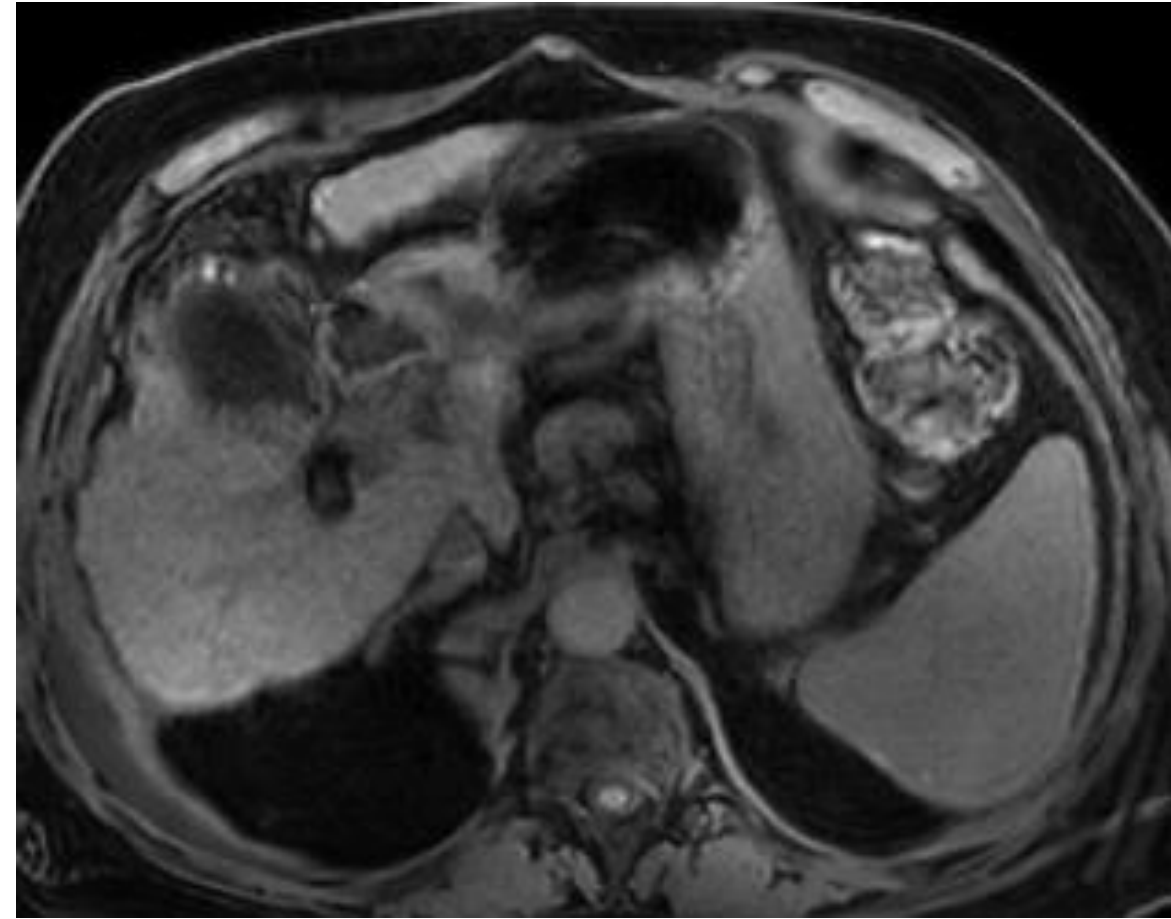
Il semble exister un continuum évolutif entre ces trois entités, ces transitions s'accompagnant d'une augmentation de la taille, de la cellularité et de la néoangiogenèse de ces différents nodules



Cirrhose

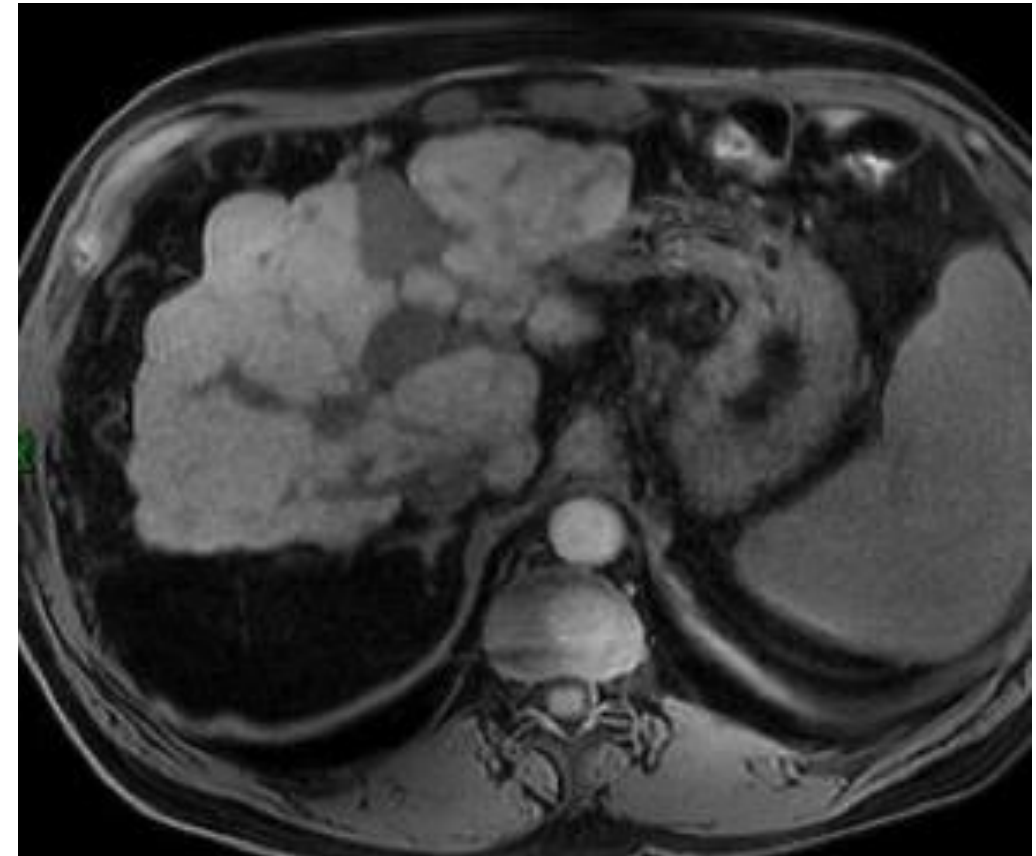
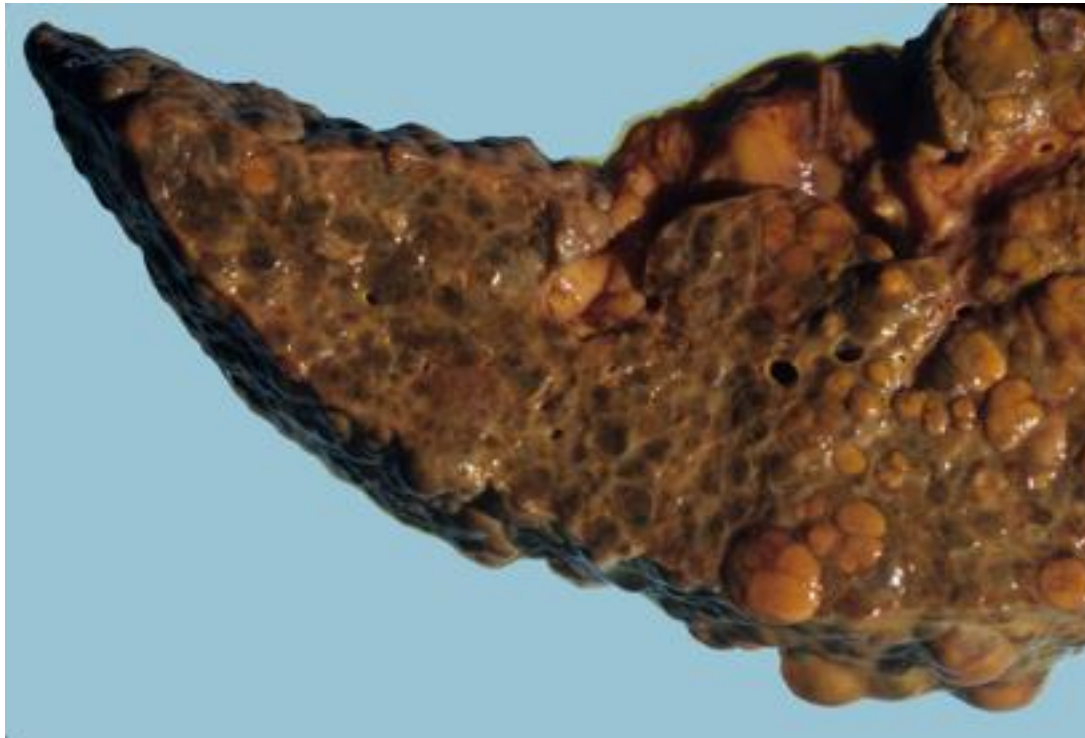
- Atrophie en particulier du lobe droit
- Hypertrophie du lobe caudé et du lobe gauche
- Contours nodulaires
- Hypertension portale
 - Splénomégalie
 - Ascite
 - Circulation veineuse portosytémique
 - Diminution de la vitesse dans la veine porte
- TIPSS

cirrhose





cirrhose





US et Cirrhose décompensée:

- Veine porte ? Ascite ?
- Hépatocarcinome ?

Original Article

Ultrasonographic scoring system score versus liver stiffness measurement in prediction of cirrhosis

Kyoung Min Moon^{1*}, Gaeun Kim^{2*}, Soon Koo Baik^{3,4,5}, Eunhee Choi⁵, Moon Young Kim^{3,4,5}, Hyoun A Kim³, Mee Yon Cho⁶, Seung Yong Shin³, Jung Min Kim³, Hong Jun Park³, Sang Ok Kwon³, and Young Woo Eom⁴

Table 1. Ultrasonographic and Doppler features used to evaluate liver cirrhosis

Clinical features	Score		
	0	1	2
Surface and edge	smooth and sharp	mildly irregular and mildly blunted	irregular and blunted
Parenchyma echogenicity	Fine	mildly coarse	coarse
Right lobe atrophy	absent [*]		present [†]
Spleen size (cm)	<10	10-14	>14
Splenic vein diameter (cm)	<0.7	0.7-0.9	>0.9
Hepatic vein waveform	Triphasic	bi or monophasic	

The total score from six ultrasonographic indices including surface nodularity and edge shape (0-2), parenchyma echogenicity (0-2), right lobe atrophy (0-2), spleen size (0-2), splenic vein diameter (0-2) and hepatic vein waveform (0-1) was calculated.

^{*}Right lobe maximal oblique diameter >7 cm with no subphrenic ascites.

[†]Right lobe maximal oblique diameter <10 cm with subphrenic ascites.



pas de stéatose et pas d'alcool



ORIGINAL ARTICLE / *Digestive*

Doppler ultrasonography helps discriminate between cirrhotic and non-cirrhotic patients with viral B and C hepatitis



G. Soker^{a,*}, A. Bahadir Ozturk^b, B. Gulek^a, F. Kuscu^c,
U. Bilge Doğan^d, C. Yilmaz^a

Table 3 - Doppler values of cirrhotic and non-cirrhotic groups.

	Chronic hepatitis without cirrhosis group (n = 70)	Cirrhosis group (n = 30)	P value
HVRI	0.87 ± 0.38	0.45 ± 0.40	< 0.05
MMPV (cm/s)	21.8 ± 5.9	15.9 ± 6.1	< 0.05
HARI	0.66 ± 0.70	0.75 ± 0.06	< 0.05
HAPI	1.20 ± 0.32	1.56 ± 0.34	< 0.05

Hypertension Portale

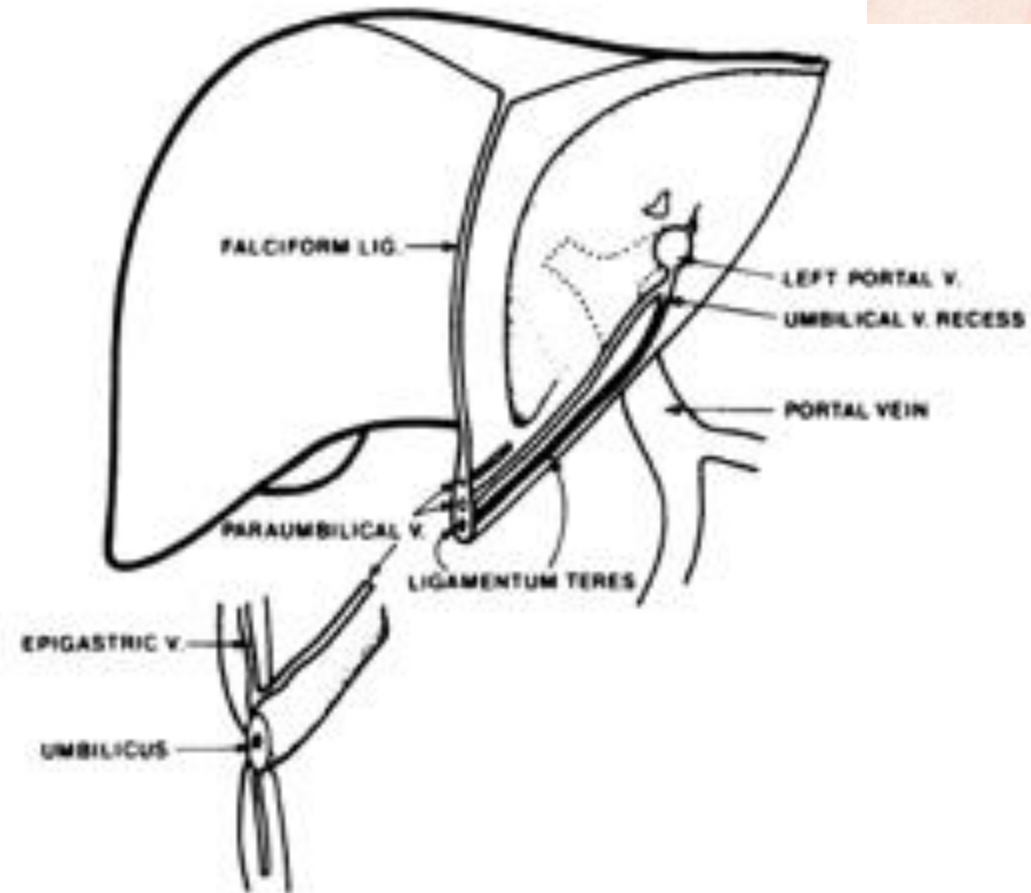
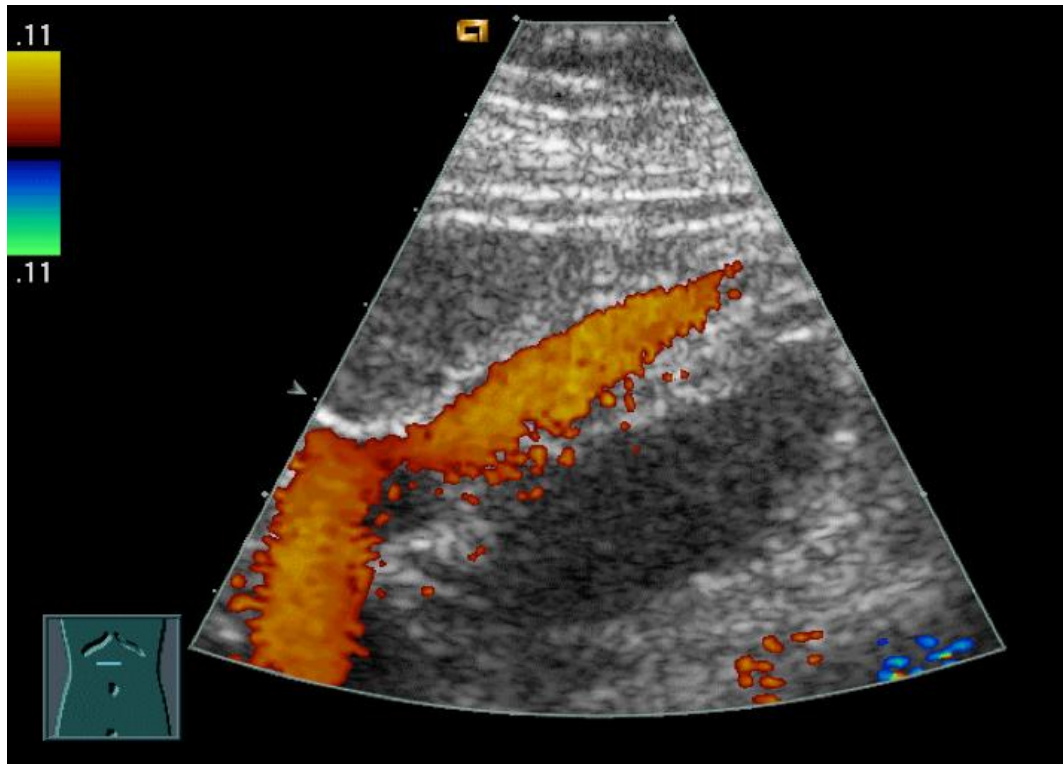
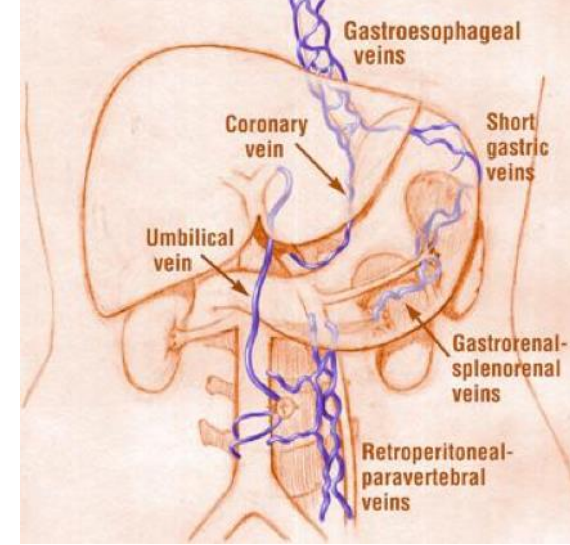


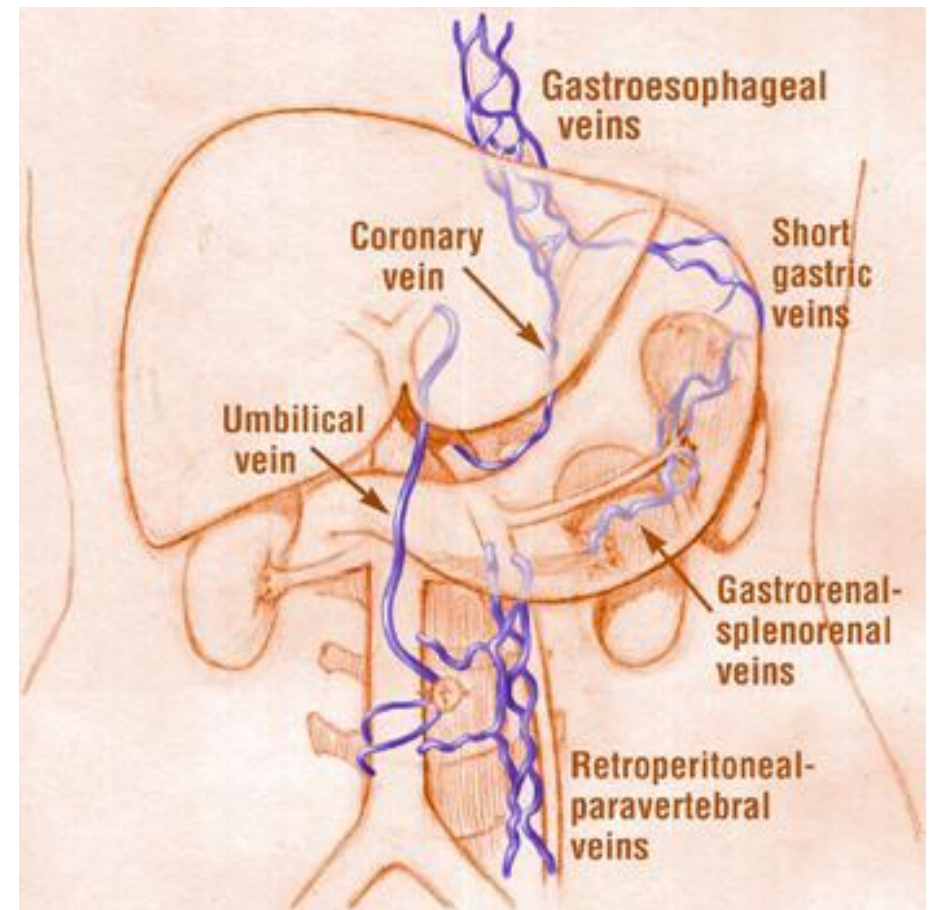
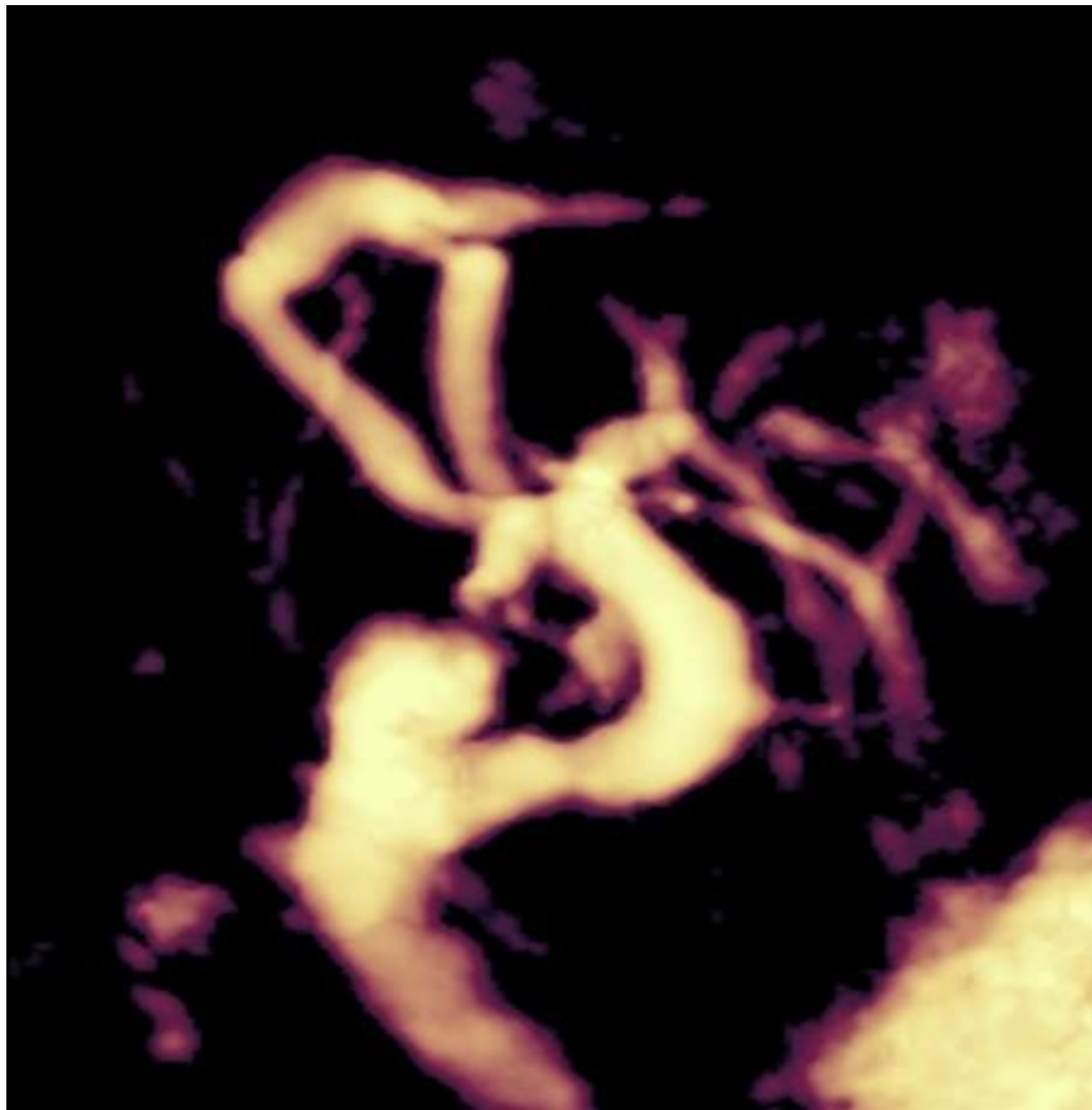
Fig. 1.—Anatomy of falciform ligament showing umbilical vein recess (Baumgarten recess) and its relation to paraumbilical vein.

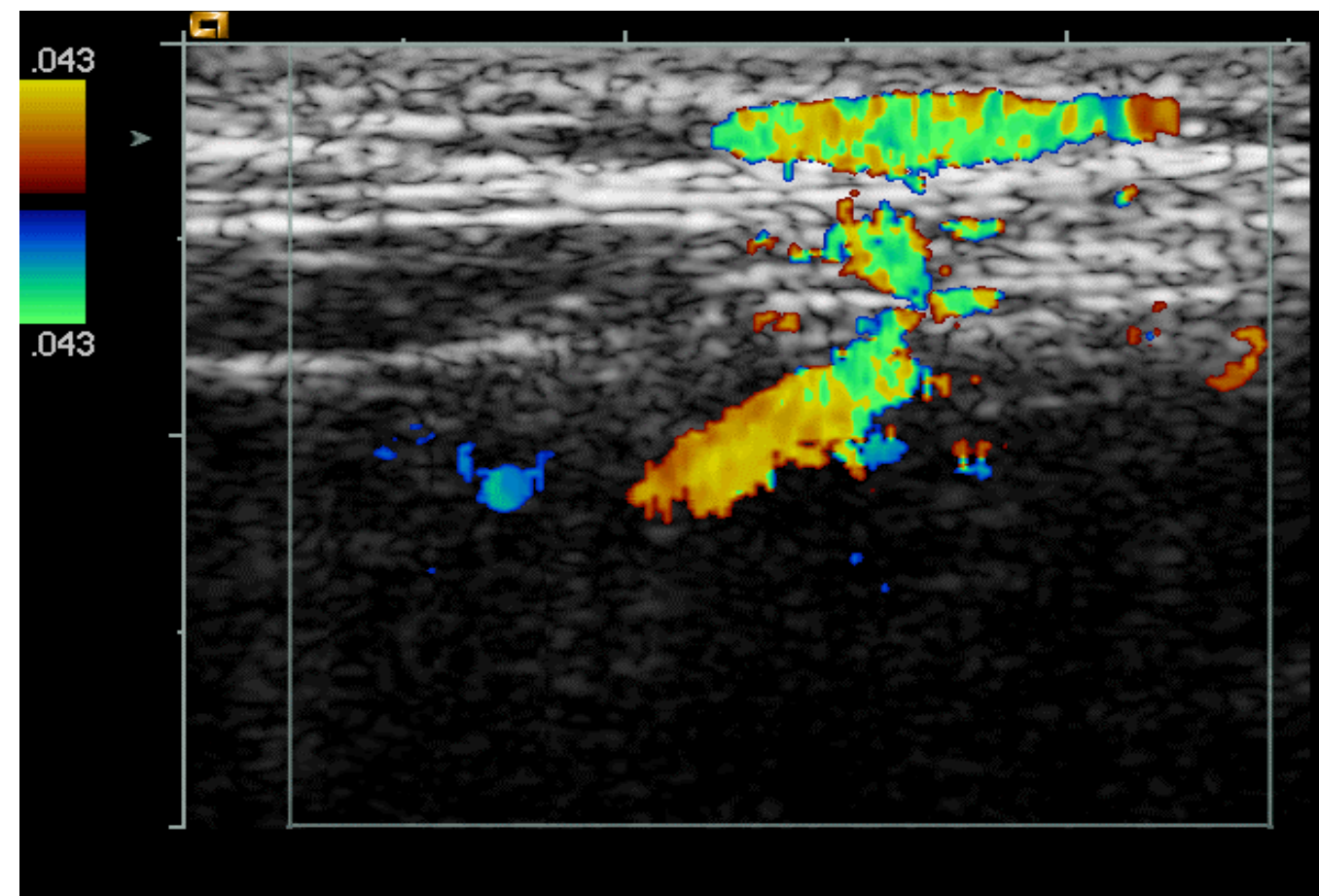
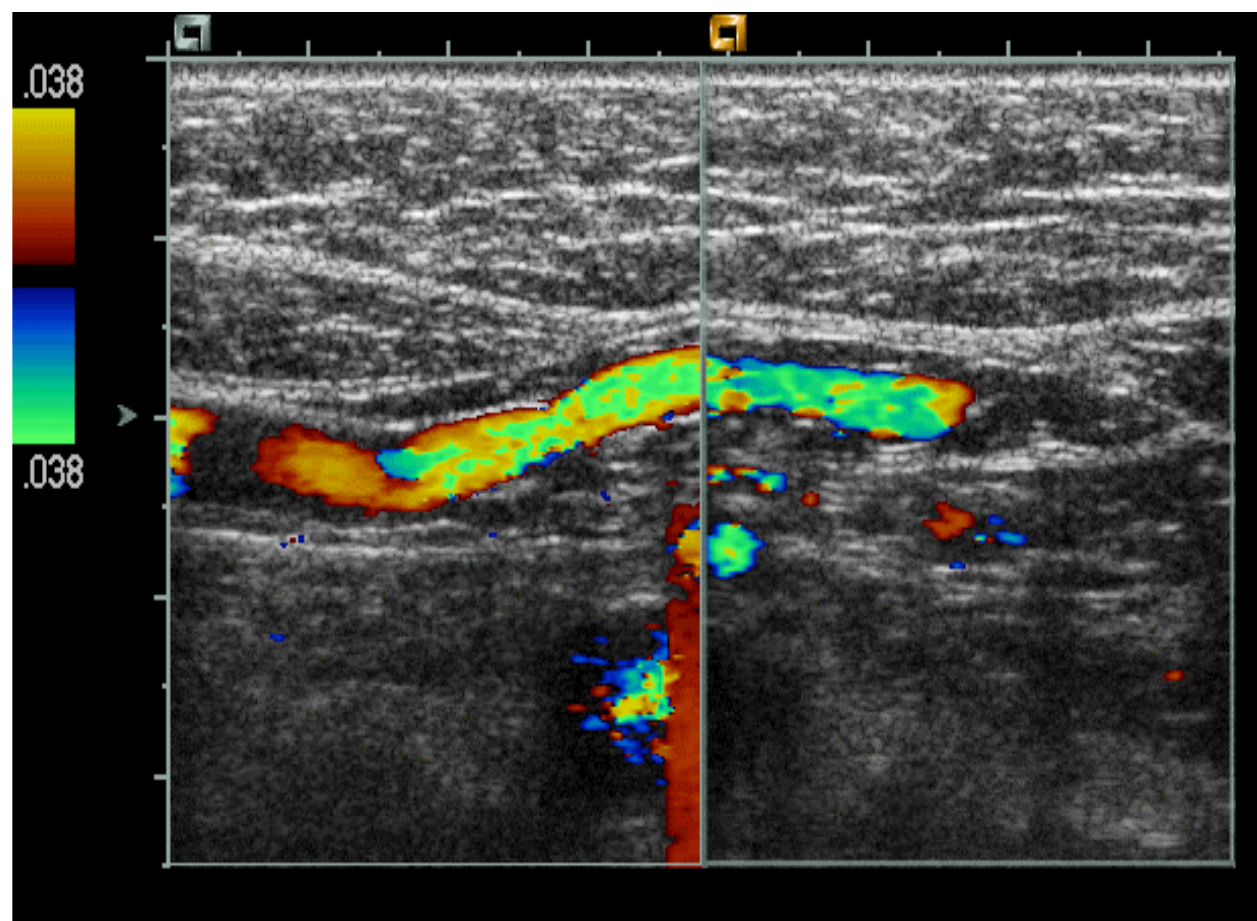
The Recanalized Umbilical Vein in Portal Hypertension: A Myth

Michel Laforune¹
André Constantin¹
Guy Breton¹
André G. Légaré¹
Pierre Lavoie²

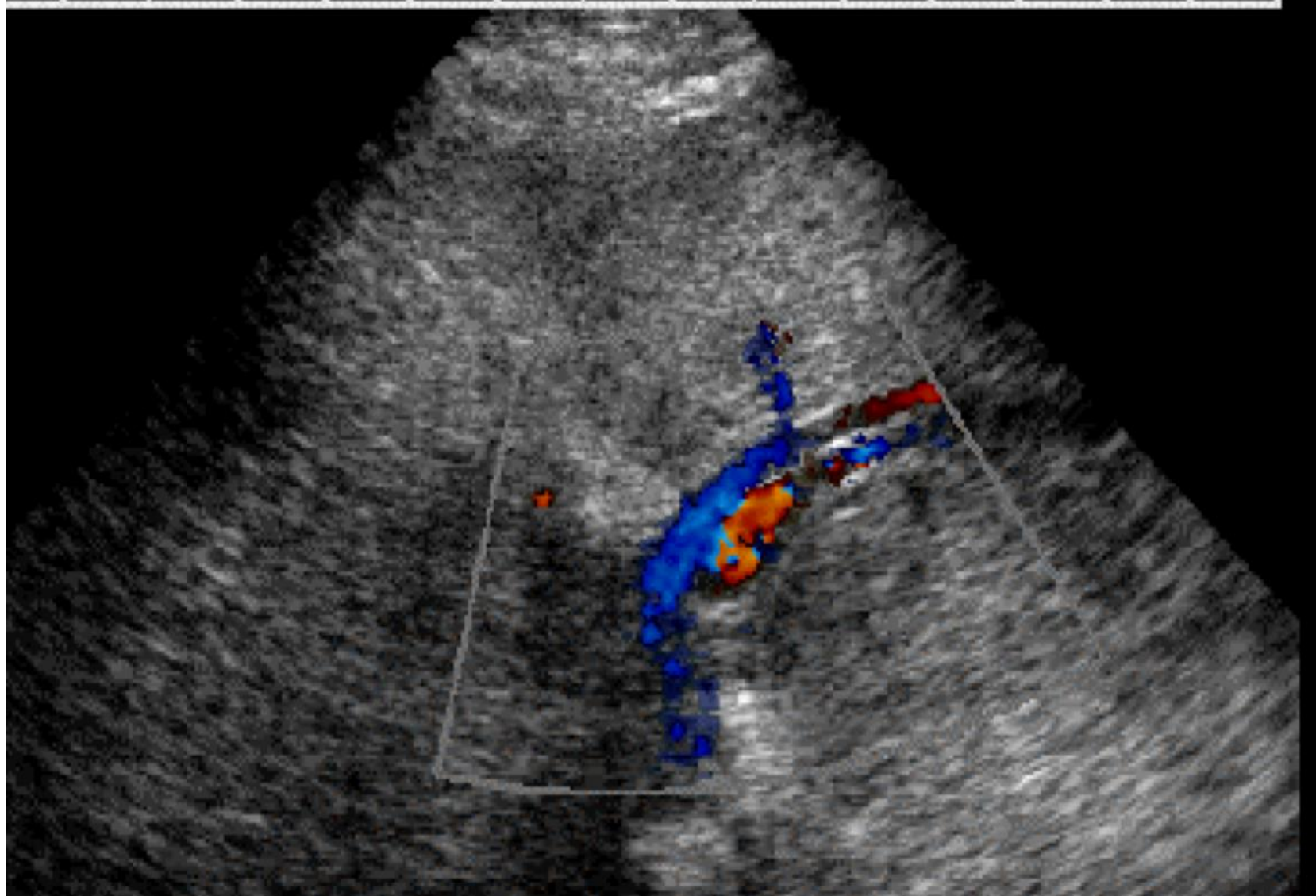
The demonstration of a vessel in the falciform ligament, traditionally presumed to be a recanalized umbilical vein, is an important sonographic sign of portal hypertension. This vessel was sought in 200 umbilicoportographies (all portal hypertensive) and in 41 autopsy-dissected falciform ligaments (34 normal and seven cirrhotic). The normal falciform ligament contained one to three tiny collapsed paraumbilical veins. In cirrhotics, the number and caliber of paraumbilical veins increased. A recanalized umbilical vein was never found. The authors conclude that the umbilical vein does not recanalize in portal hypertension. The vessel involved is actually an enlarged paraumbilical vein.

AJR 144:549-553, March 1985
0361-803X/85/1443-0549
© American Roentgen Ray Society

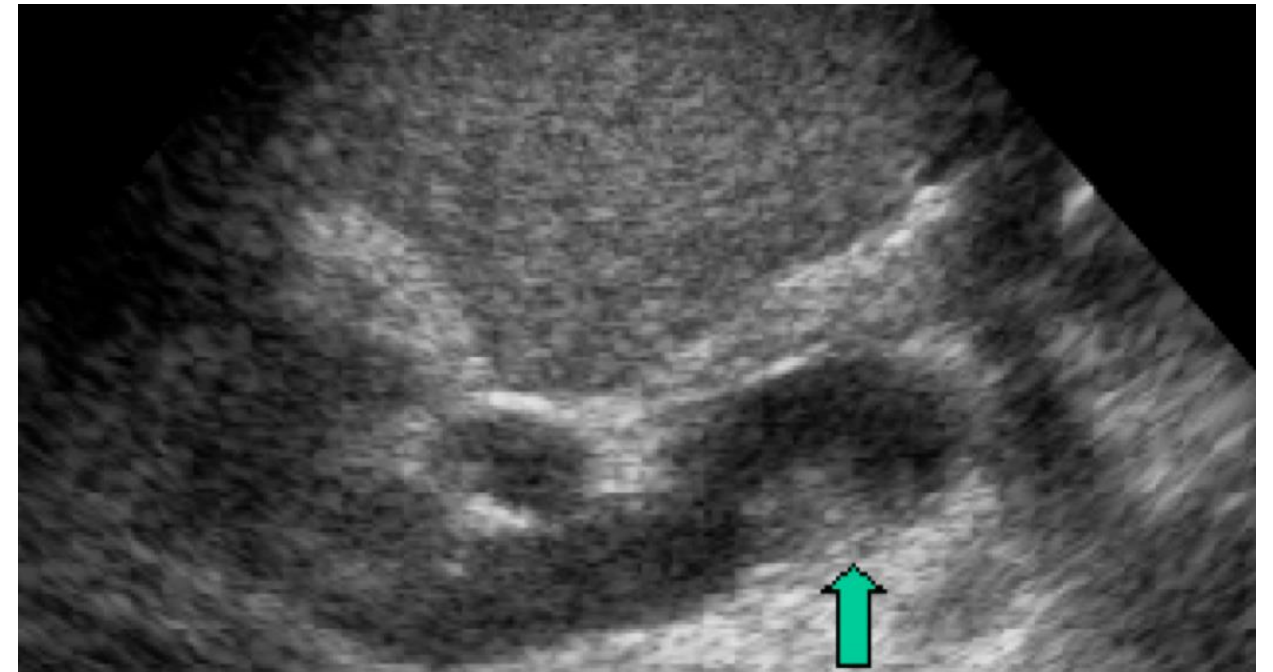
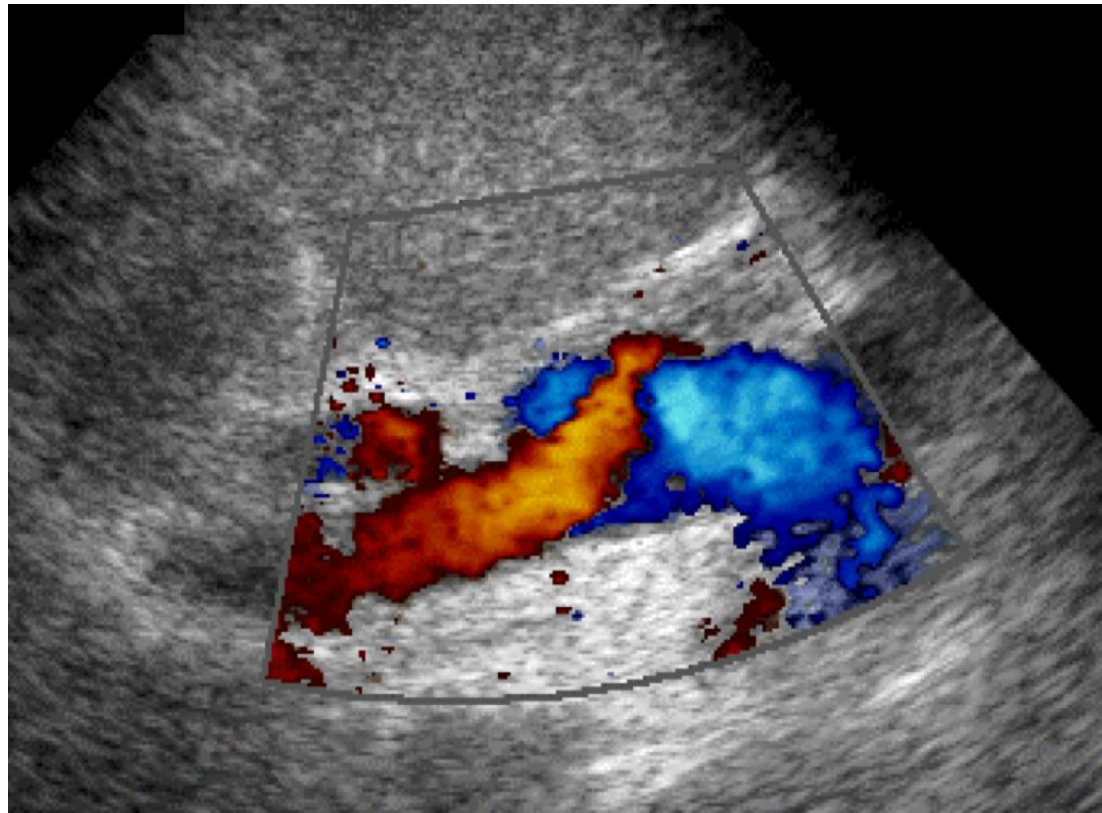




Lacis de collatérales développées aux dépens d'une veine paraombilicale reperméabilisée et suivie au niveau du péritoine pariétal jusqu'au niveau de l'ombilic

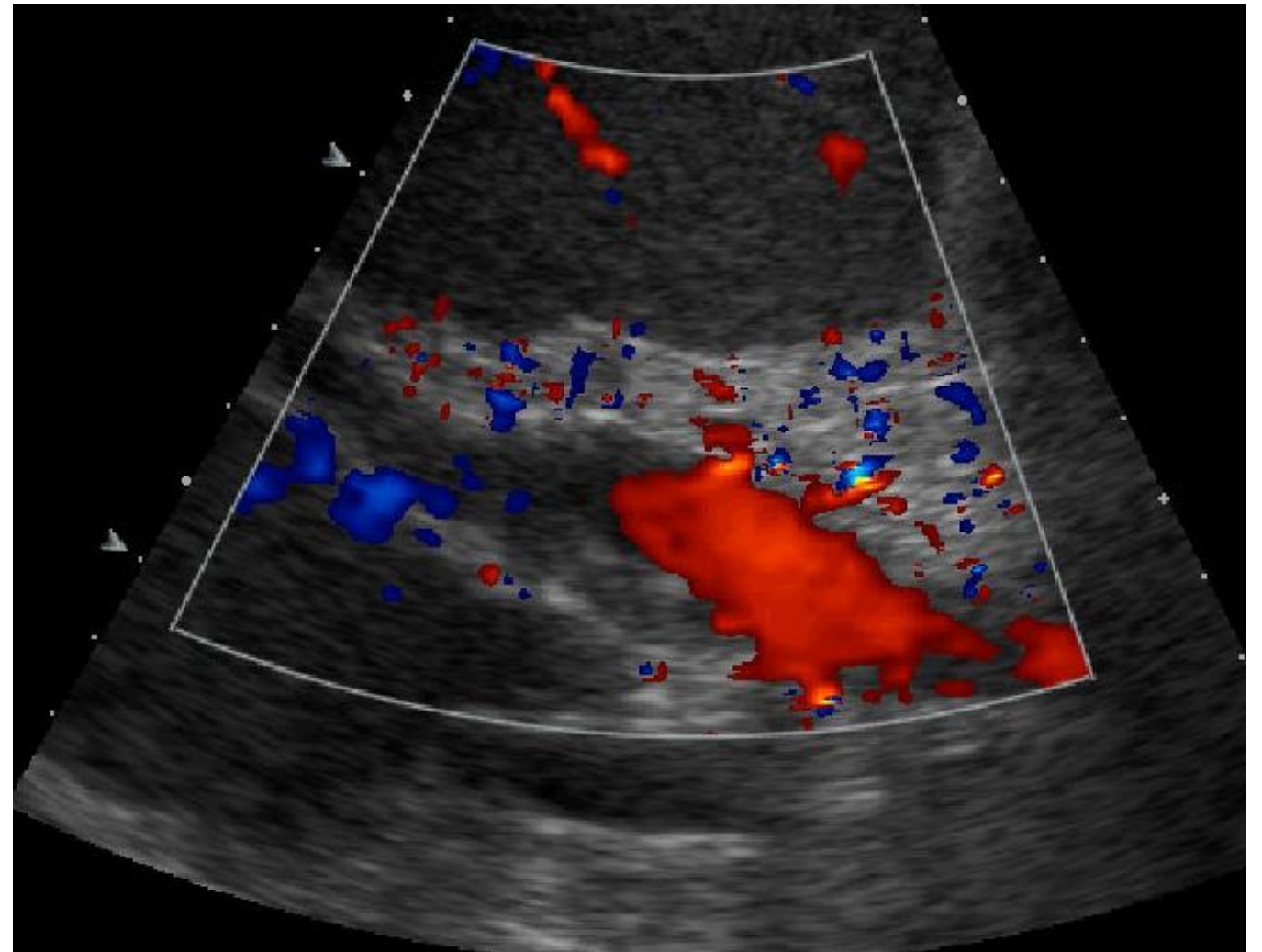
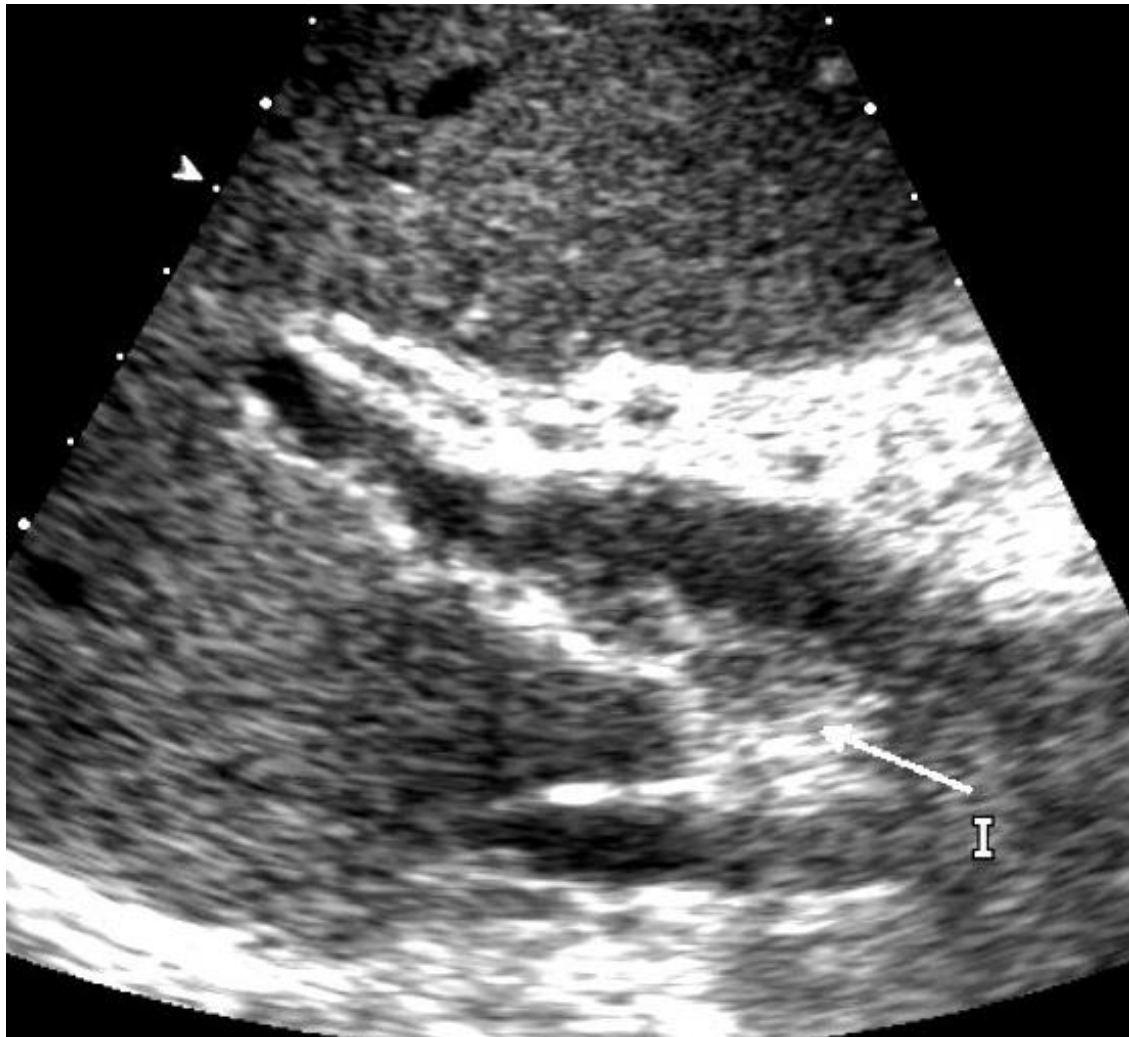


Inversion du flux dans les branches portes gauches avec hyperartérialisation compensatrice.

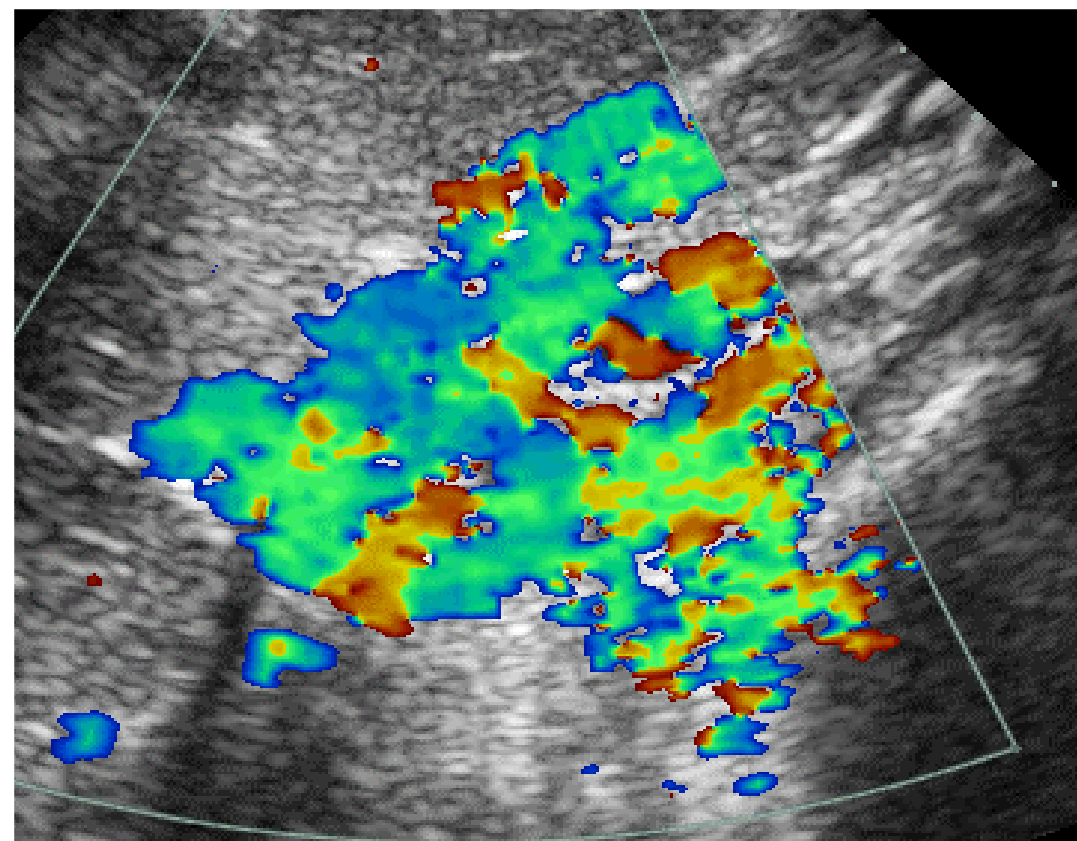
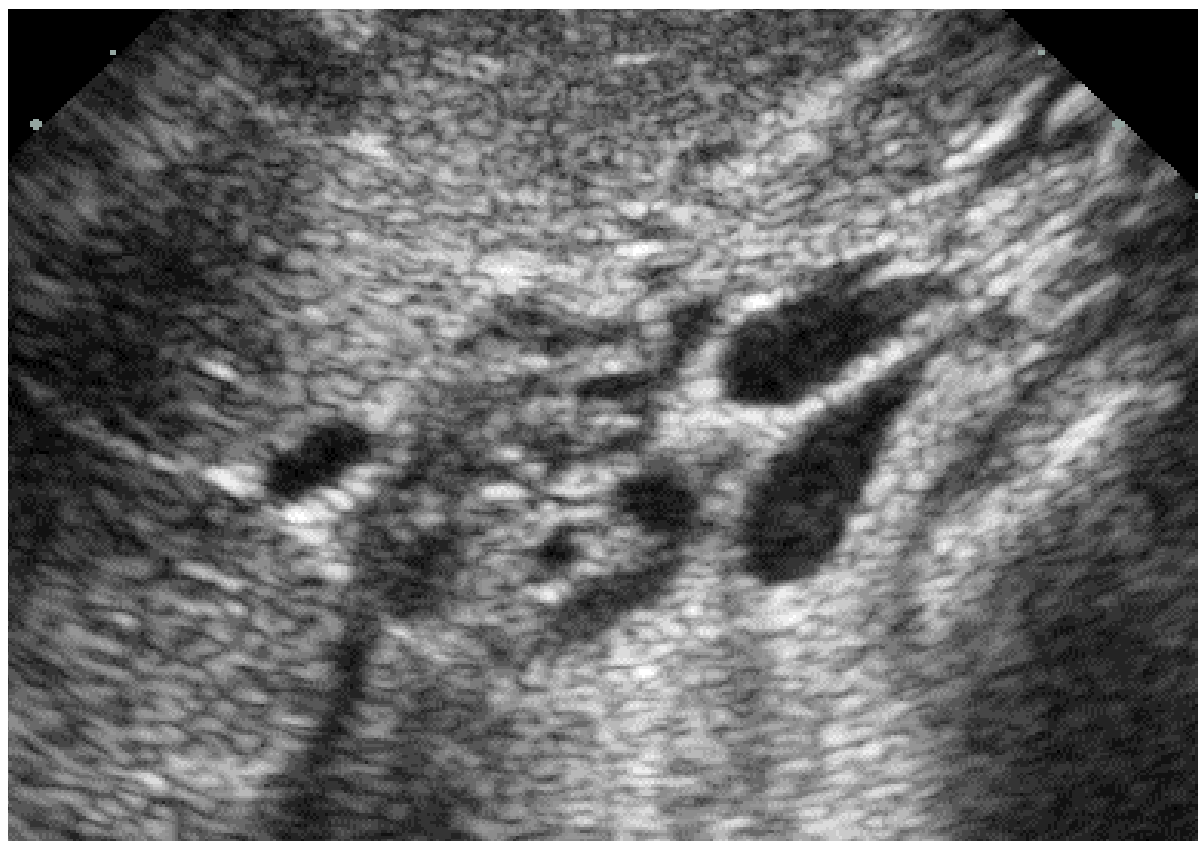


Flux inversé dans le tronc porte et la veine splénique

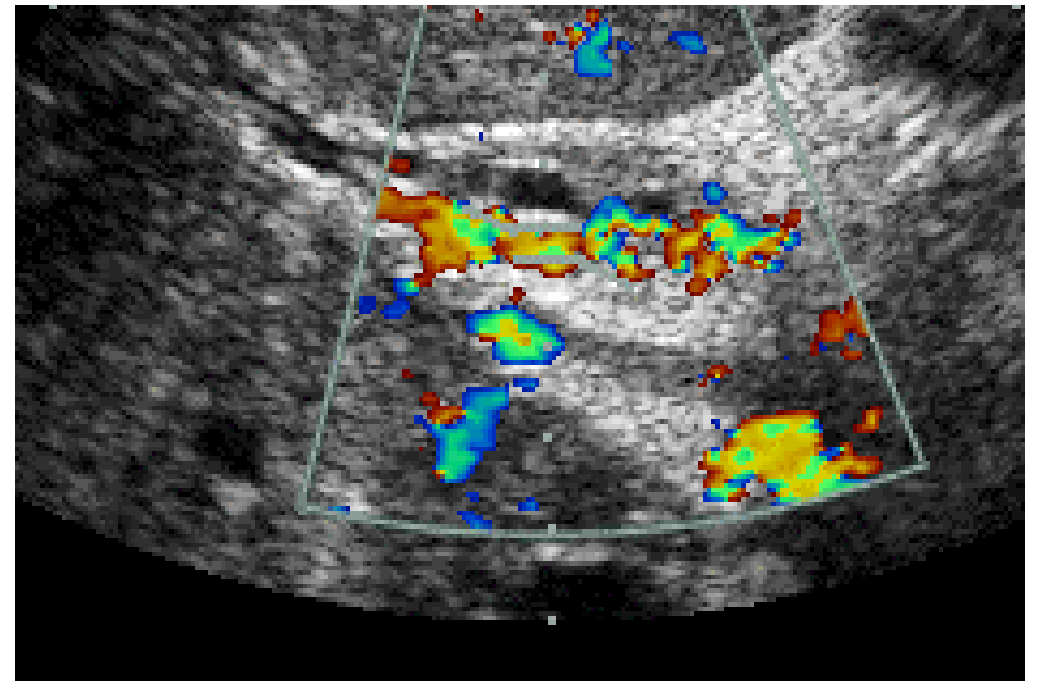
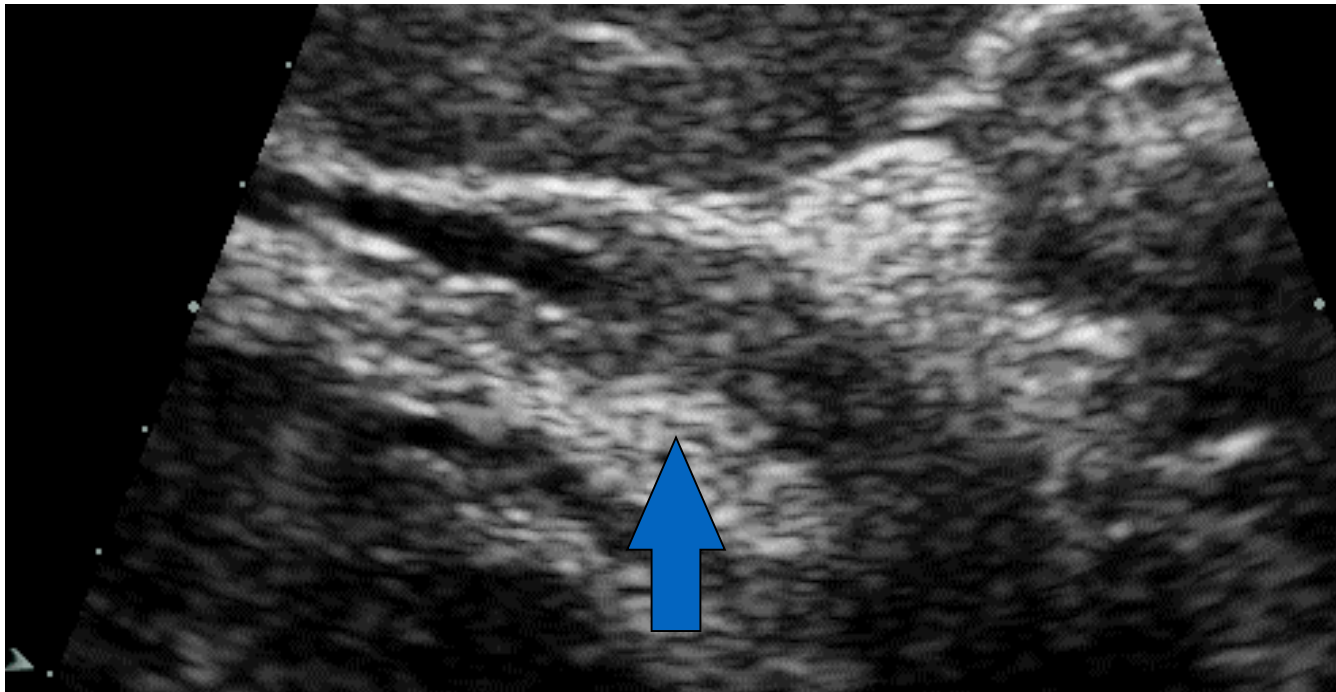
En mode B, thrombus partiel, masqué par le flux couleur



Flux porte de bonne
direction mais
thrombose porte murale
partielle



Cavernome
« classique »



Vrai cavernome :

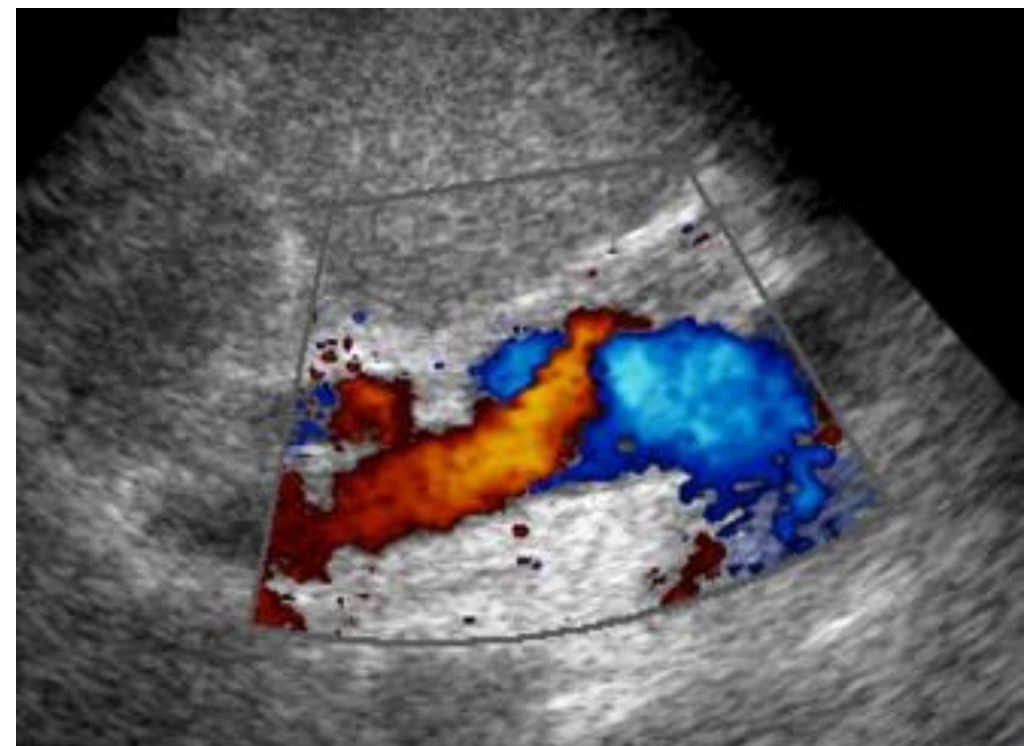
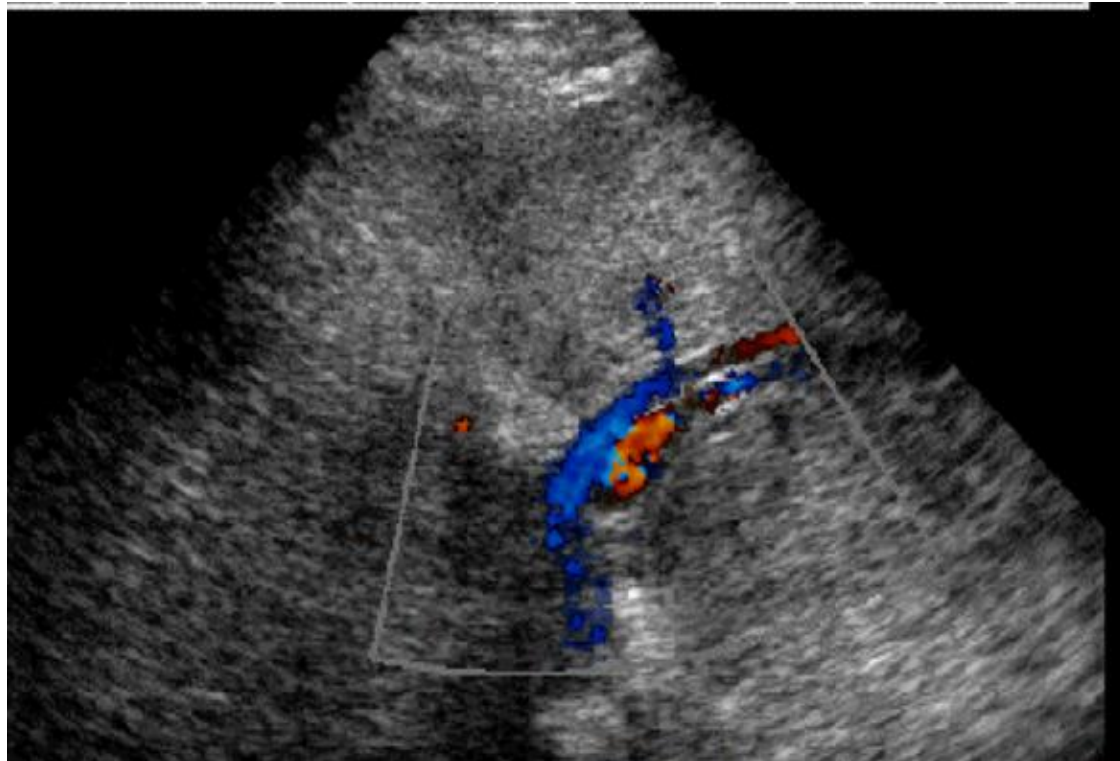
- en mode B , masse échogène autour de la VBP
- en mode Couleur, la zone d'épaississement de la voie biliaire est richement vascularisée

Images in Hepatology

Pseudoparallel Channel Sign on Ultrasonography in Alcoholic Hepatitis

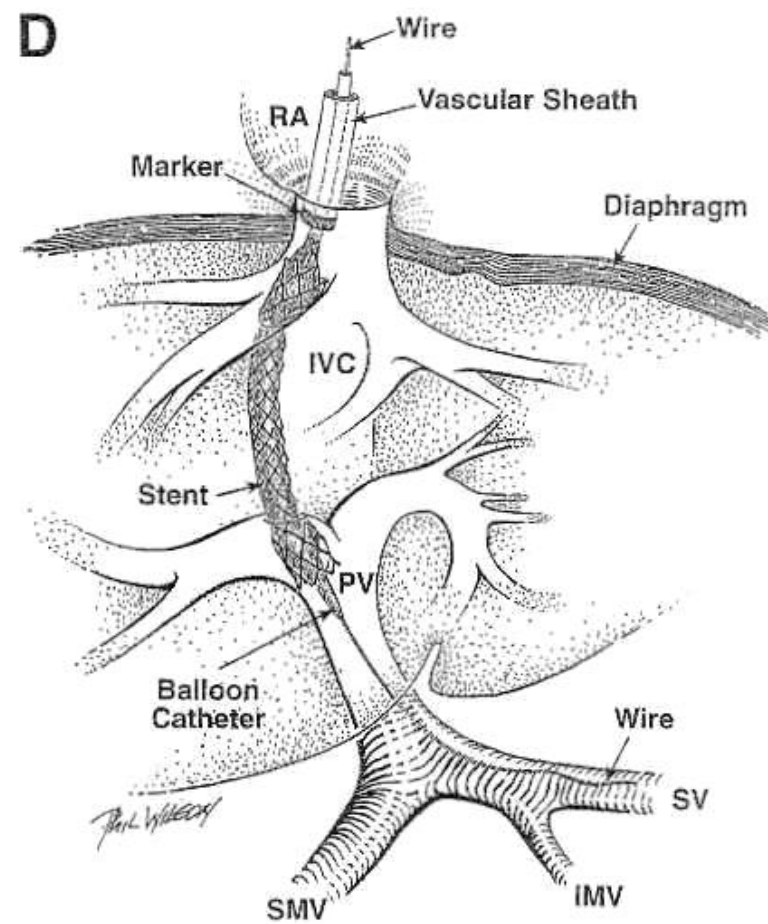
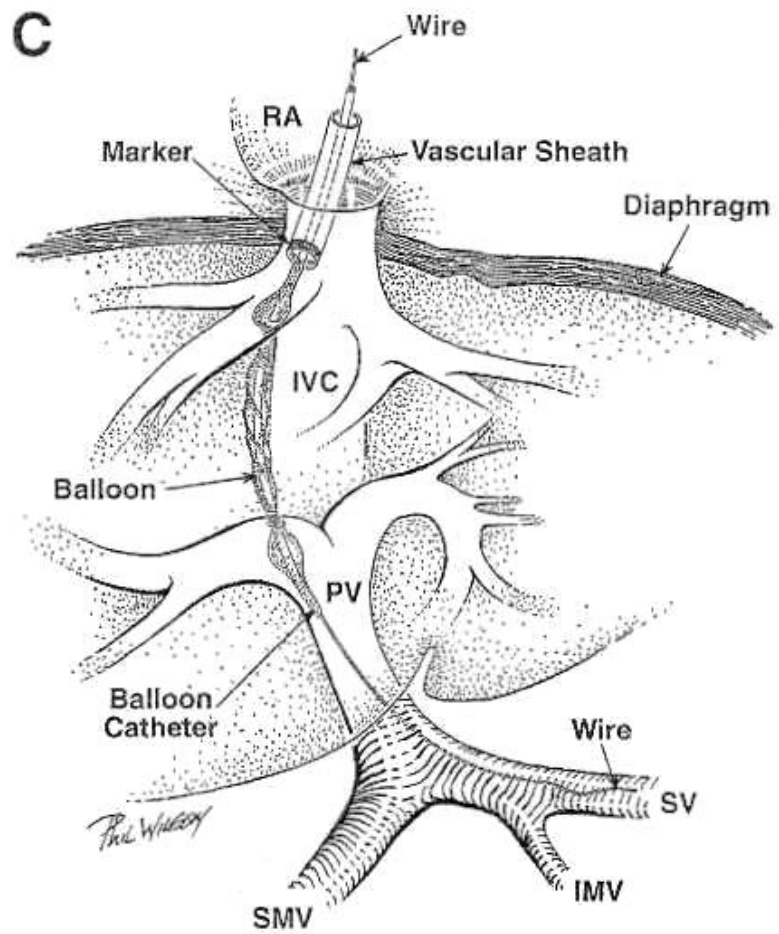
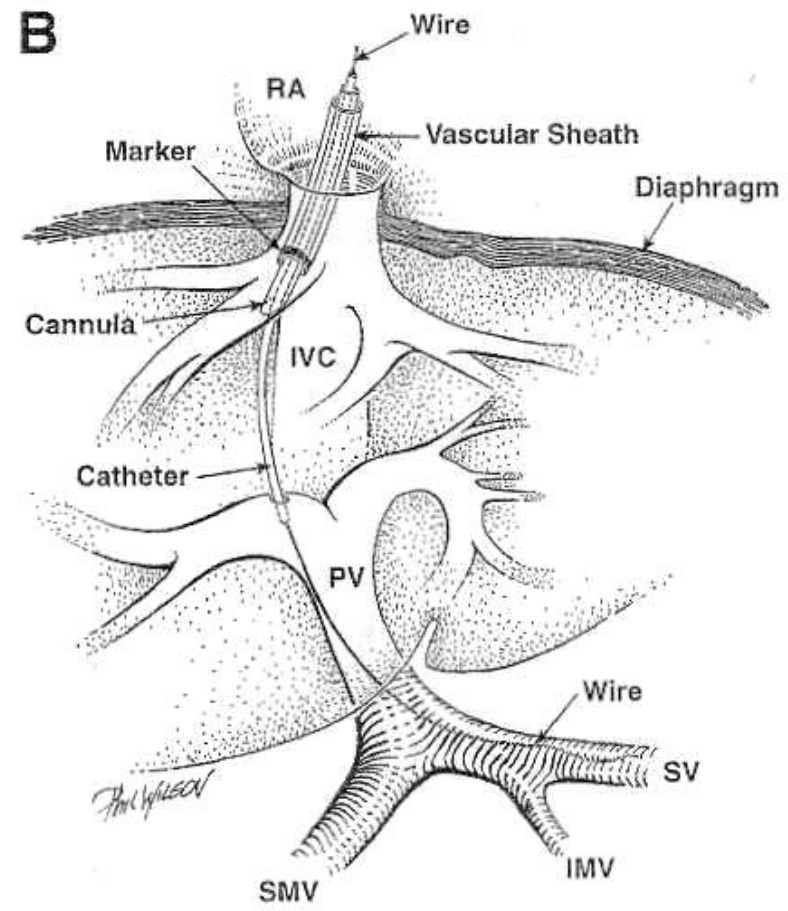
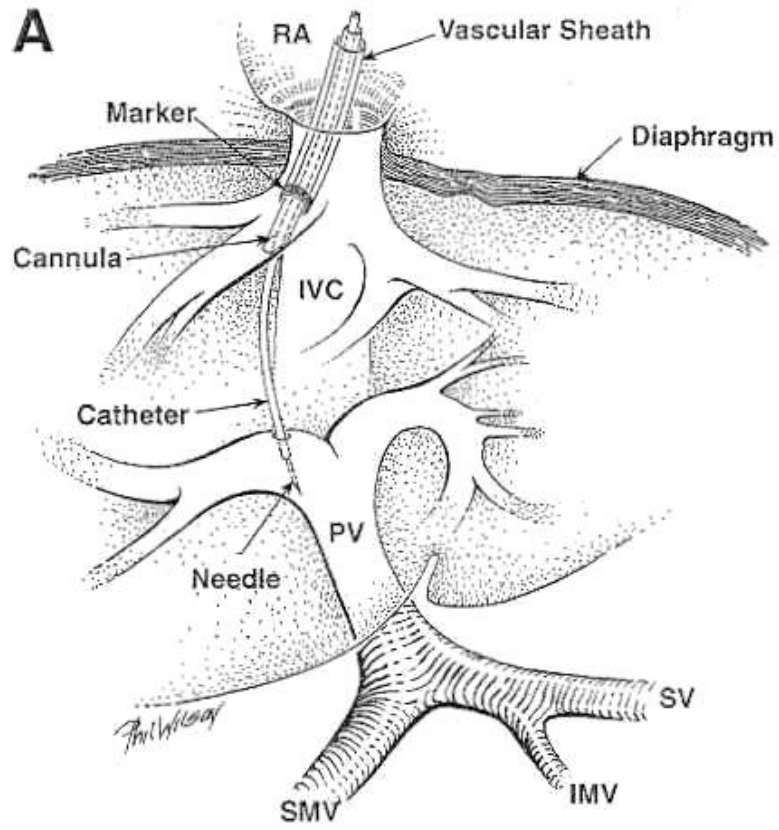
Vijay Bodh^{*}, Navin Kalra^{*}, Radha K. Dhiman[†]

^{}Department of Radiodiagnosis, and [†]Department of Hepatology, Postgraduate Institute of Medical Education and Research, Chandigarh 160012, India*

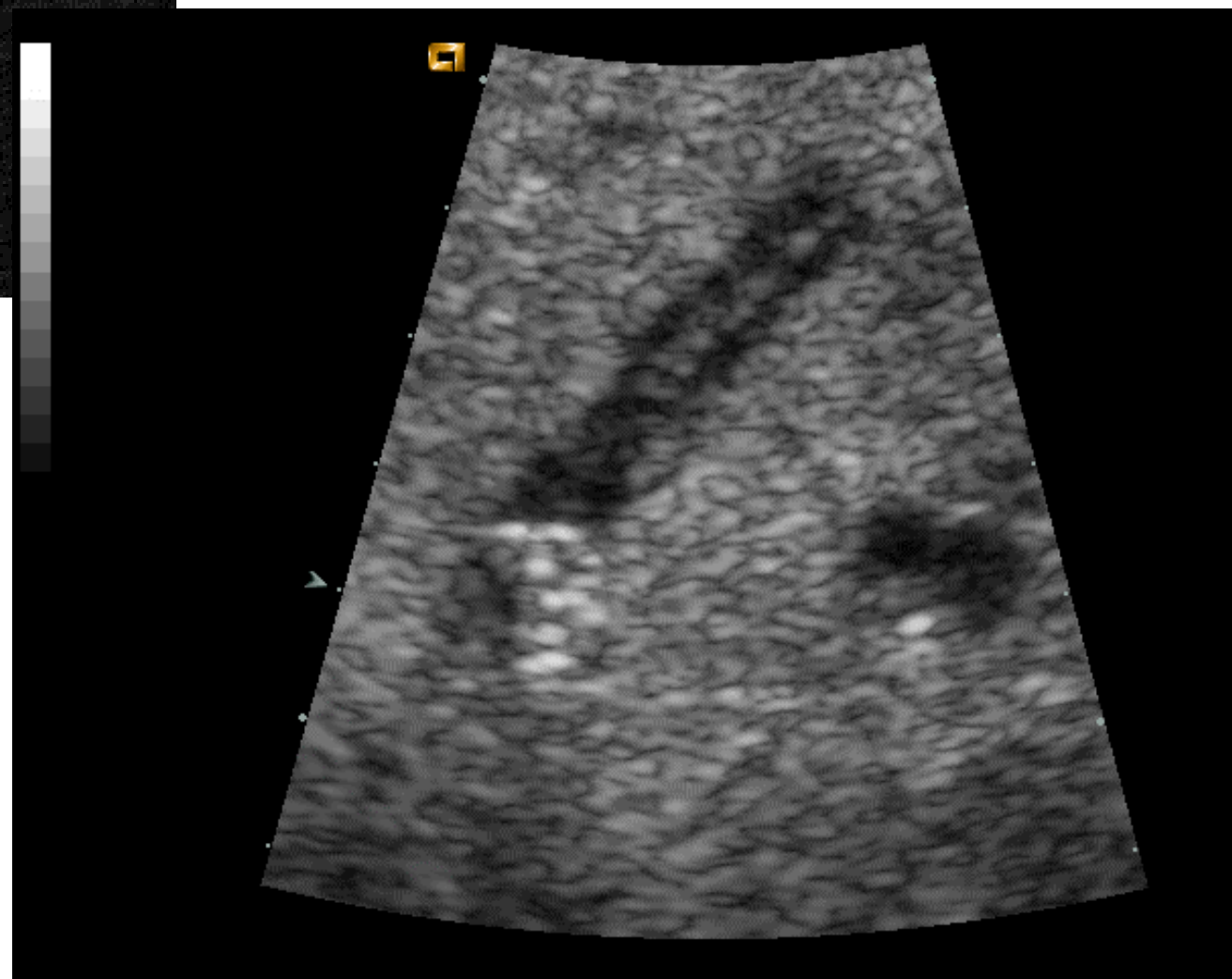
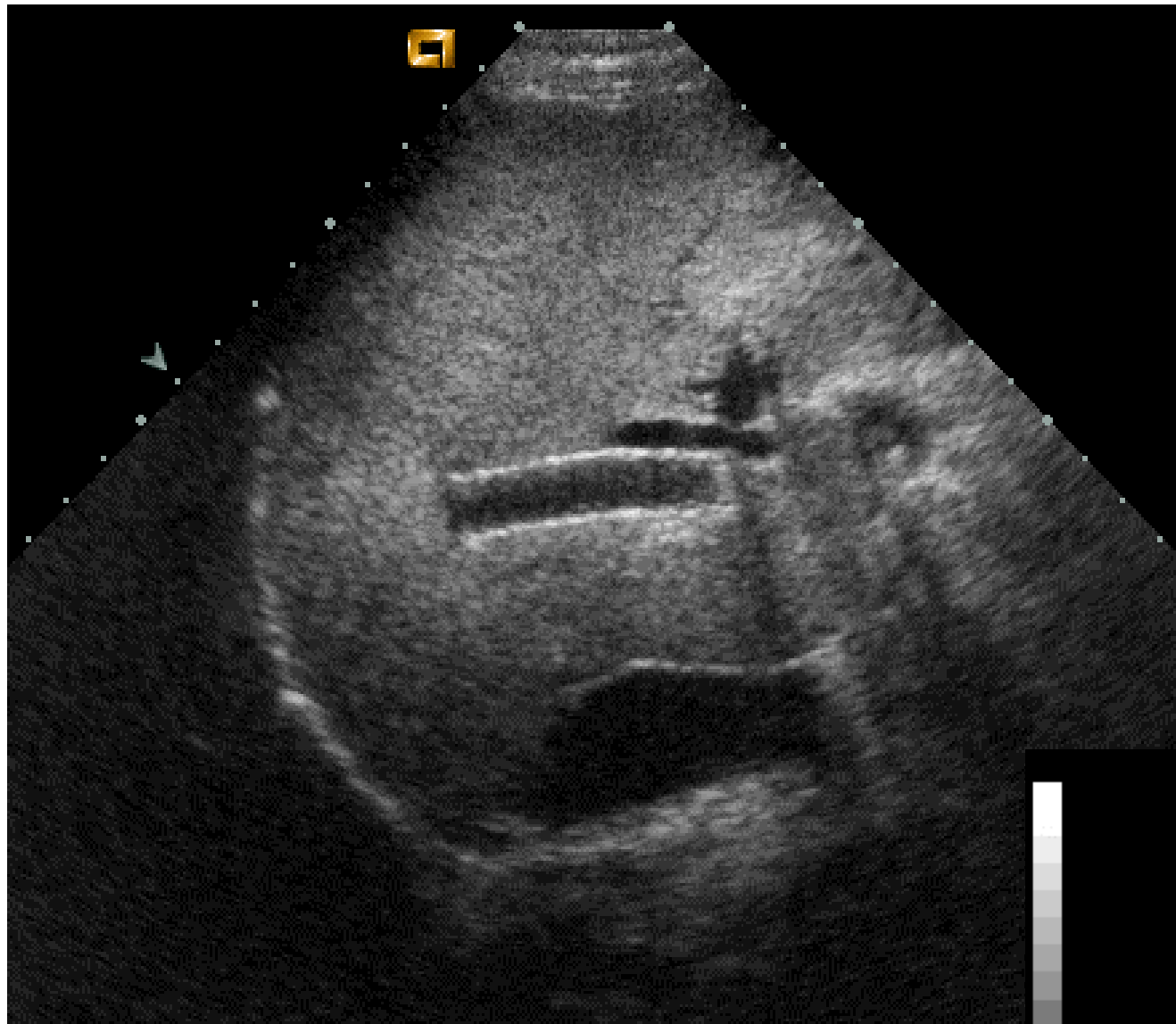


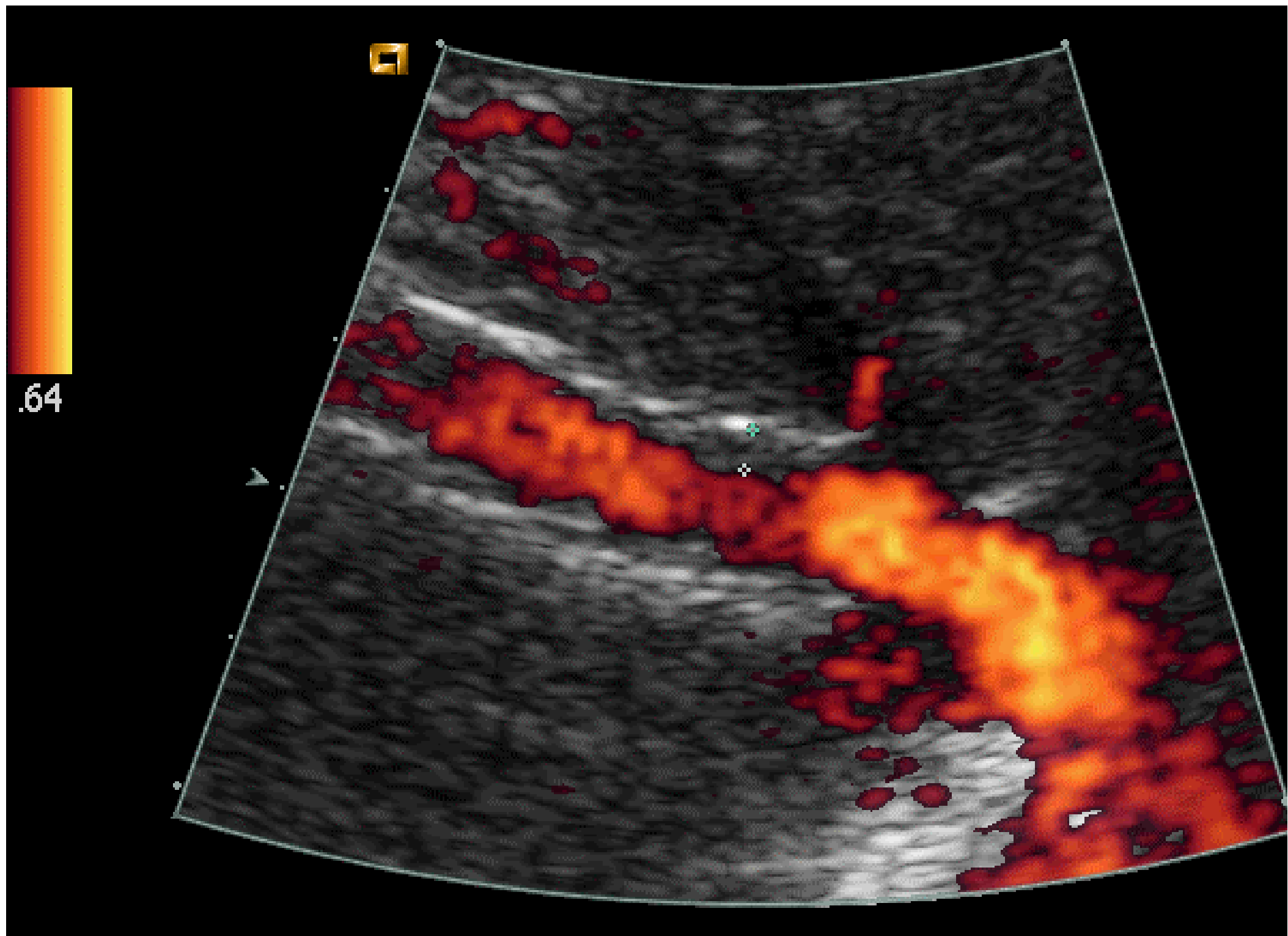
Shunts porto-caves intra-hépatiques par voie transjugulaire (TIPS)

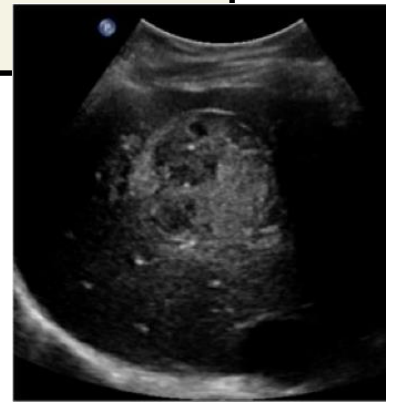
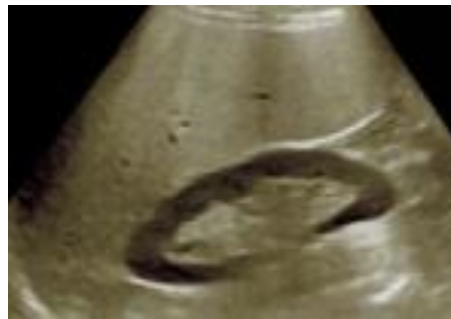
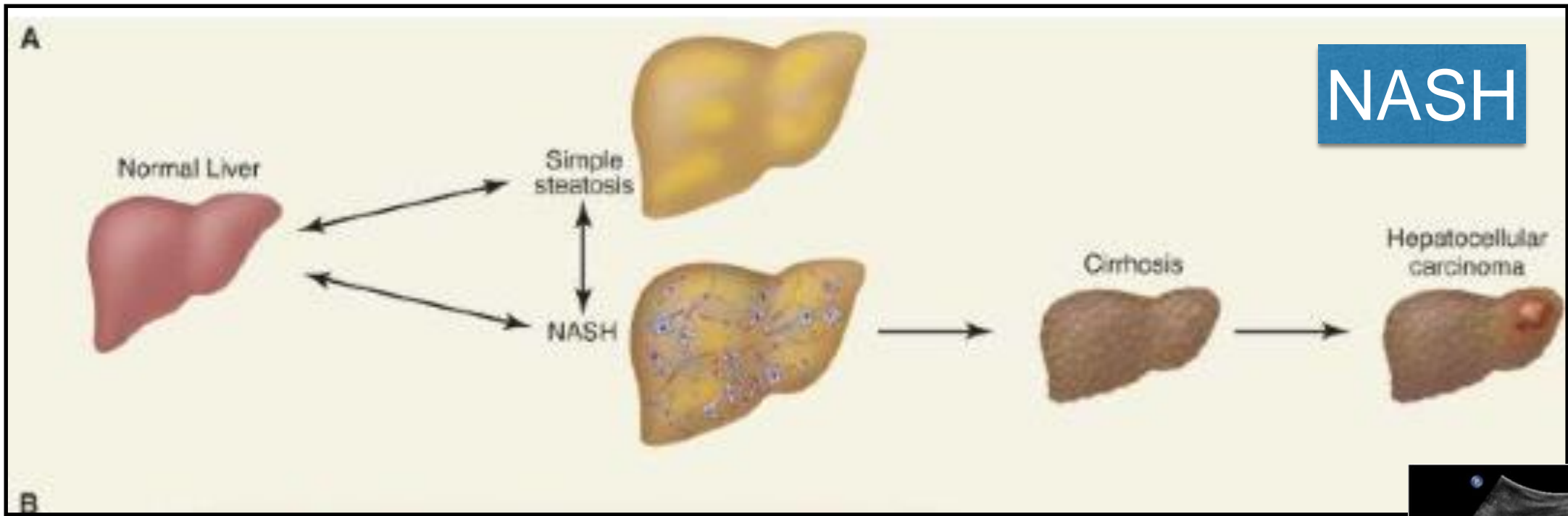
- Indications:
 - Ascites médico-résistantes
 - Hémorragies par rupture de VO récidivantes
 - Budd-Chiari



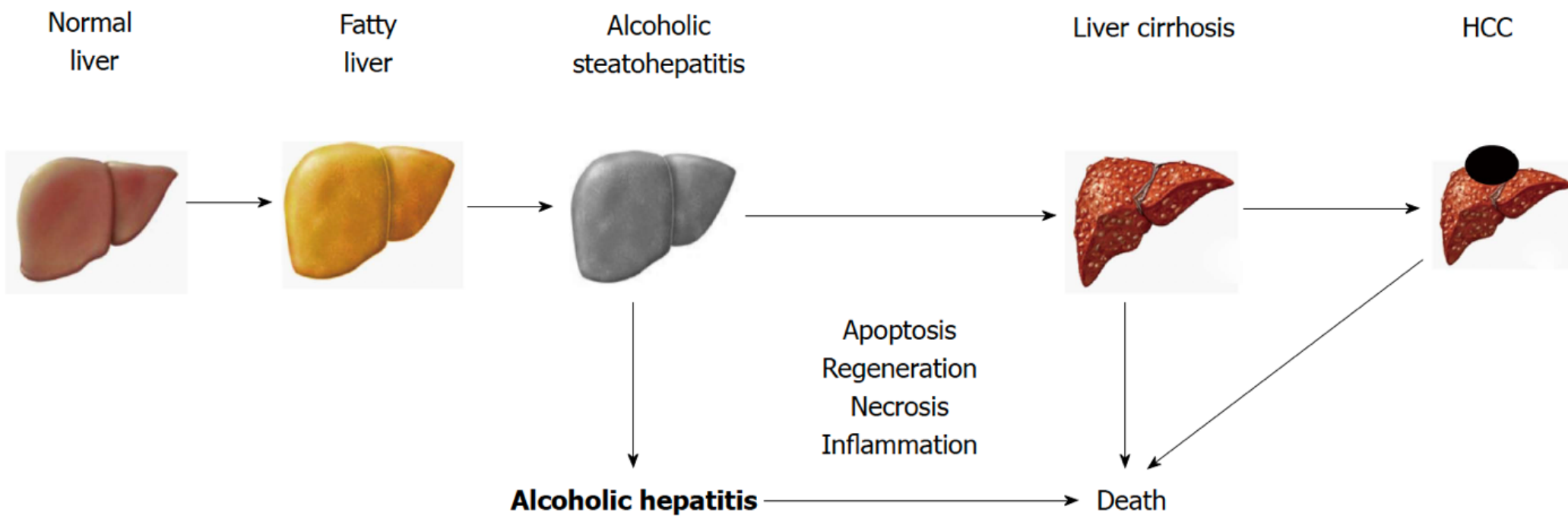








Mueller S *et al.* Non-invasive assessment of ALD



ASH

Stéatose hépatique

Le chemin vers la cirrhose

intérêt et limites de l'échographie

les +

diagnostic facile d'un foie stéatosique
signes de dysmorphie hépatique
complications de la cirrhose : HTP

les -

Gradation de la stéatose
appréciation subjective de la fibrose
diagnostic de CHC ds un foie hétéronodulaire

Stéatose hépatique

Le chemin vers la cirrhose

intérêt et limites de l'échographie

Compte rendu idéal :

- aspect du foie
- flux (VPO, IR)
- rate
- ascite

Contexte

Imagerie

Echographie

Anatomie et histologie

NAFLD - ALD

Situations particulières

(N)ASH

Cirrhose

Message





A consommer avec modération

Professeur Etienne Danse Bruxelles
Docteur Pascale Plaquet Péronne- Amiens

