

# I. Lésions focales hépatiques

- Tumeurs bénignes
- Tumeurs malignes
  - Primitives
  - Secondaires
- Lésions kystiques

## II. Cirrhose et nodules

## III. Surcharge en graisse et en fer

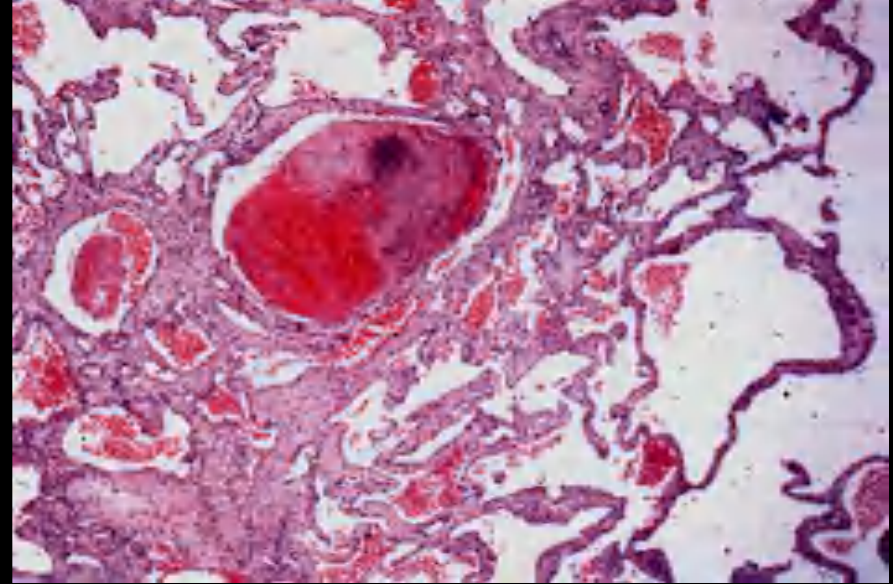
# Lésions bénignes

- Angiomes
- Hyperplasie nodulaire focale
  - Adénomes

# Angiomes

- Lésion bénigne la plus fréquente
- S'observe à tout âge
- Asymptomatique
- Pas de dégénérescence
- Diagnostic par imagerie : arrêt
  - pas de biopsie
  - pas de surveillance
- Attention : contexte de cancérologie , à ne pas porter la diagnostic d'angiome par excès ou par défaut , nécessité d'une certitude diagnostique grâce aux données de l'imagerie

# Angiomes

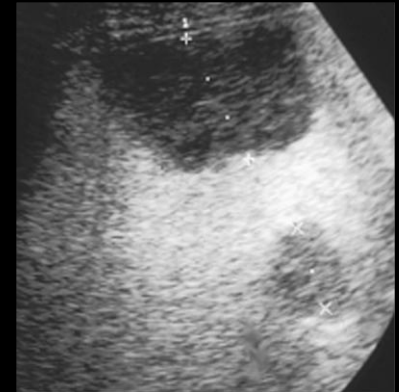
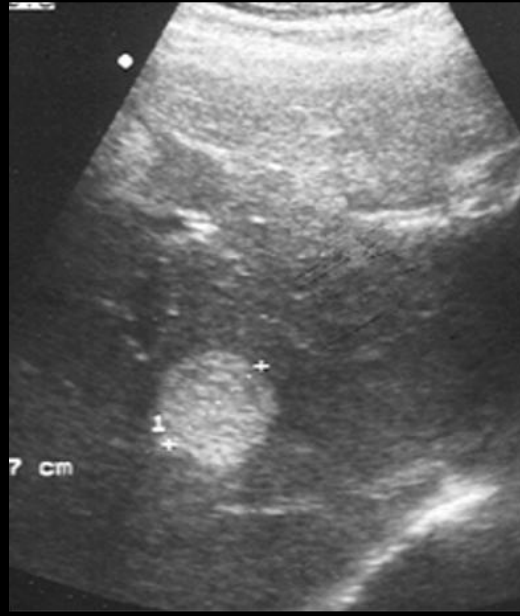


- Macroscopie : lésion unique de couleur rouge foncée
- Micro : lacs sanguins de taille et de forme variable

# Angiomes : échographie

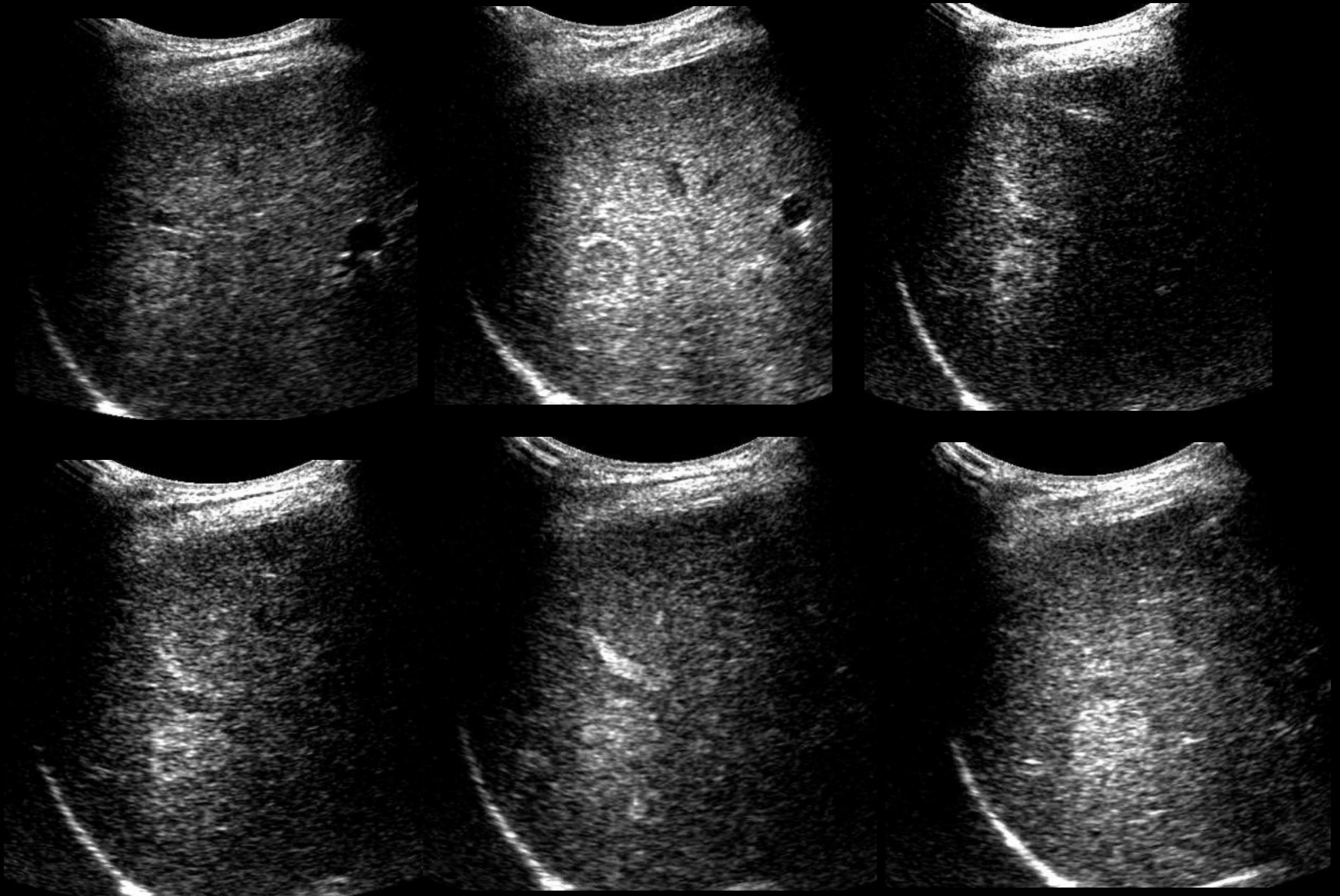


- Lésion hyperéchogène
- Limites nettes
- Renforcement acoustique postérieur
- Qd lésion volumineuse : hétérogène
- Si doute : Echo de contraste

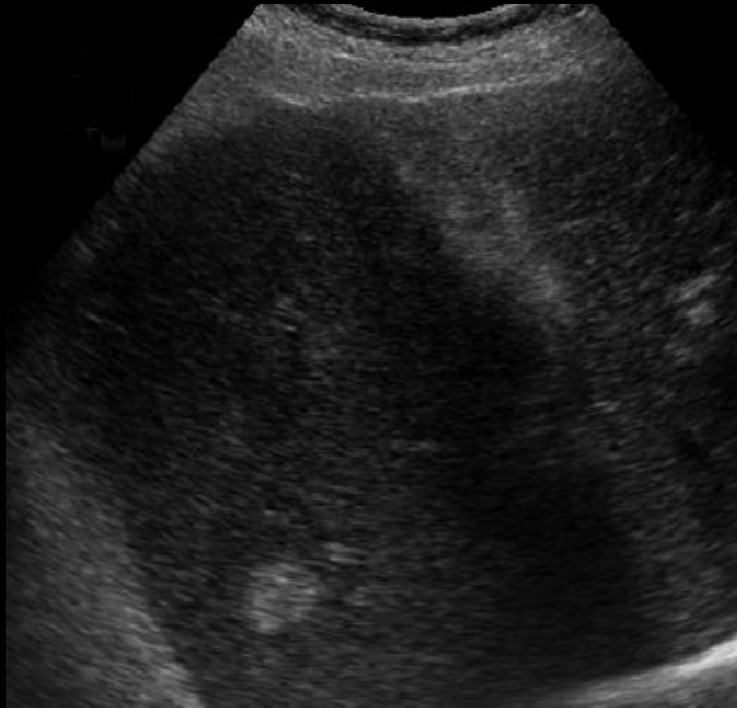


- Attention foie stéatosique
  - Lésion **hypoéchogène**

# Angiomes: échographie avec injection de produit de contraste



# Angiomes: échographie avec injection de produit de contraste



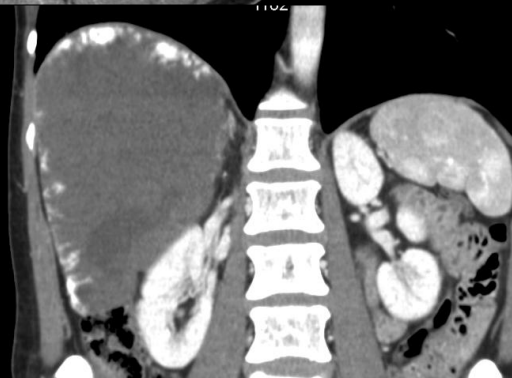
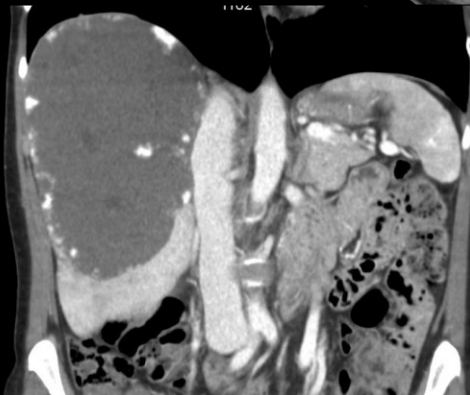
Sans injection



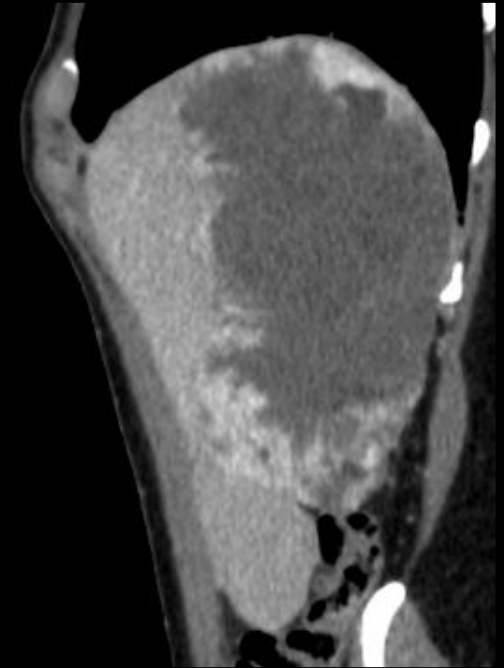
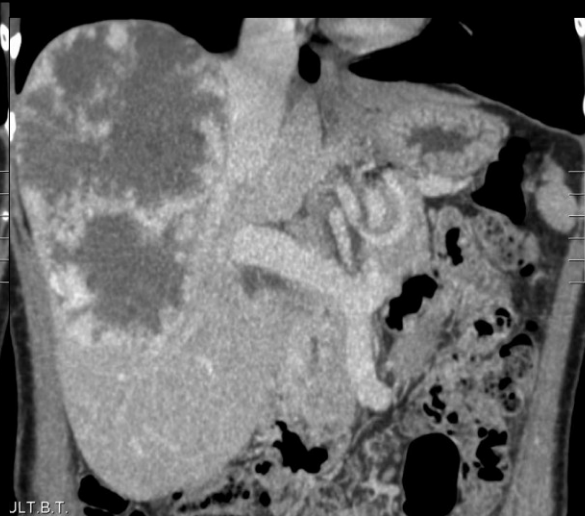
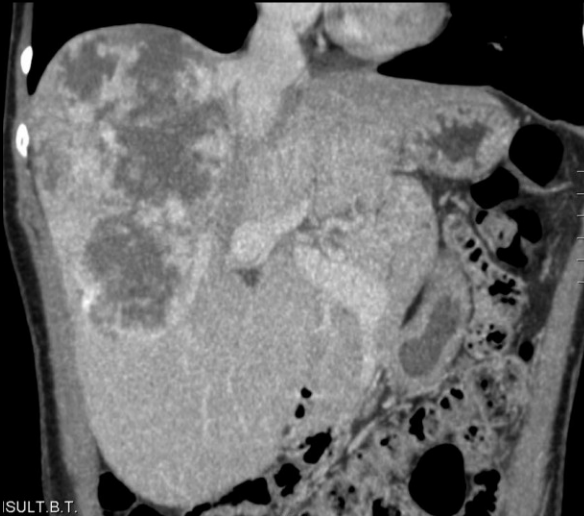
60 secondes

# Angiomes : aspects scanographiques

- Lésion hypodense avant injection
- Prise de contraste périphérique en plaques (mottes) et remplissage centripète
- Persistance de rehaussement au temps tardif
- Parallélisme de rehaussement entre l'angiome et structures artérielles



# Angiomes : aspects scanographiques

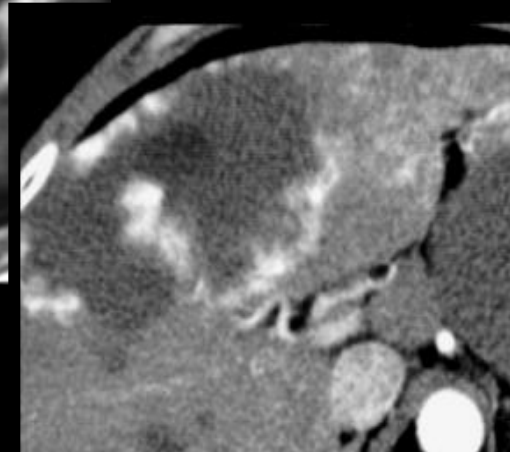
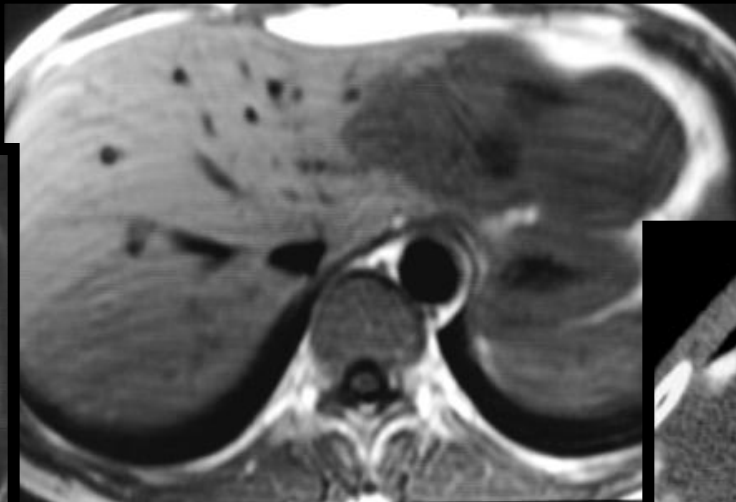
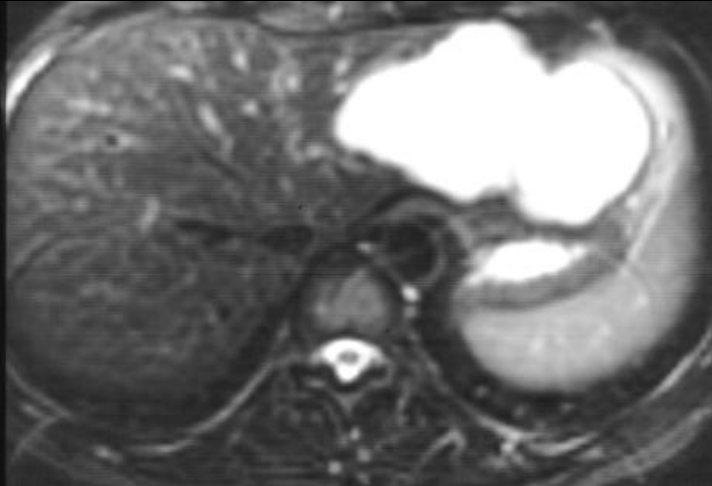


# Angiomes : aspects scanographiques

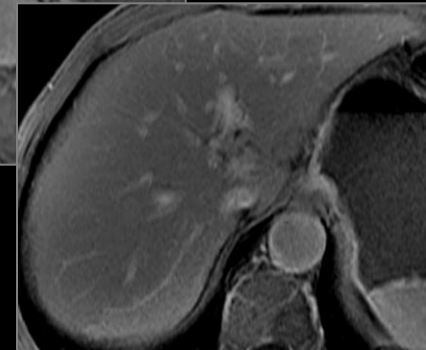
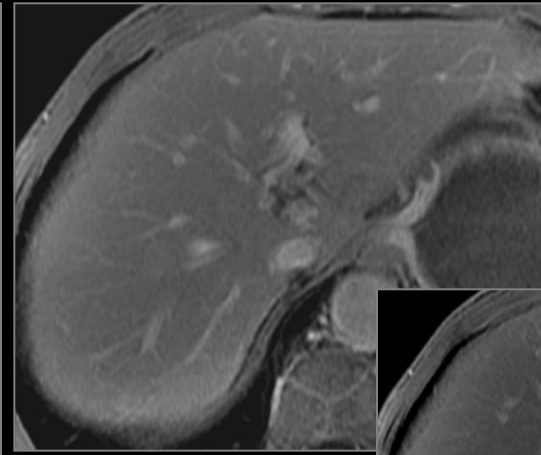
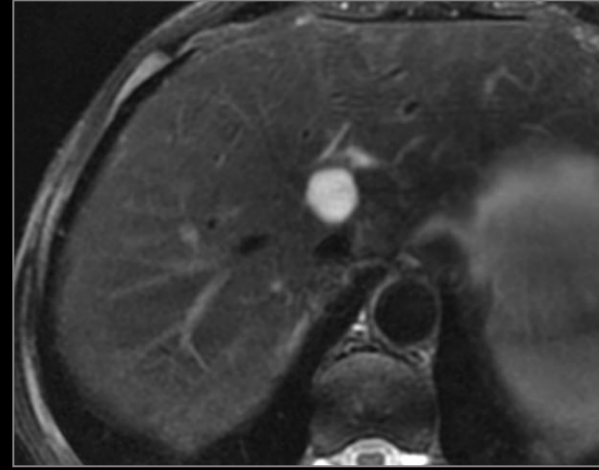
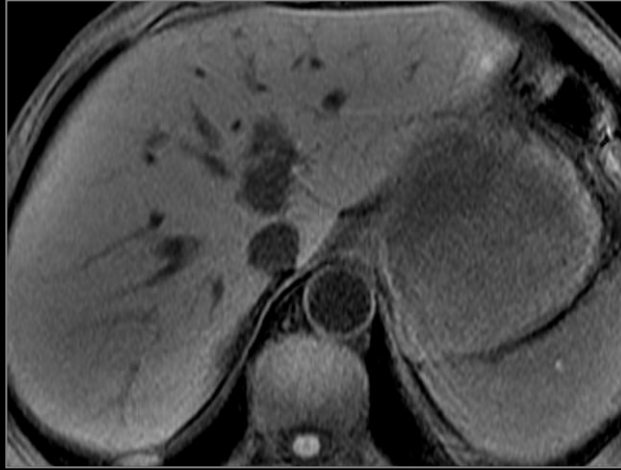


# Angiomes : aspects en IRM

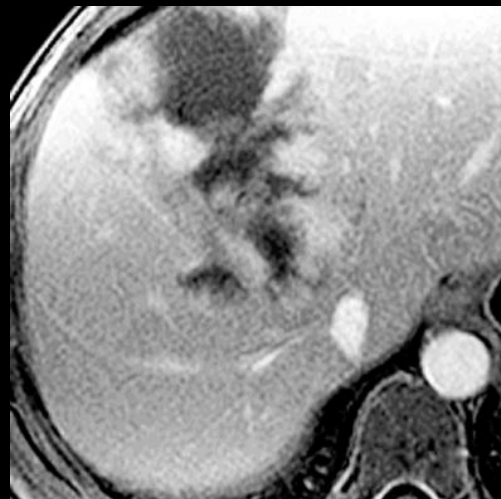
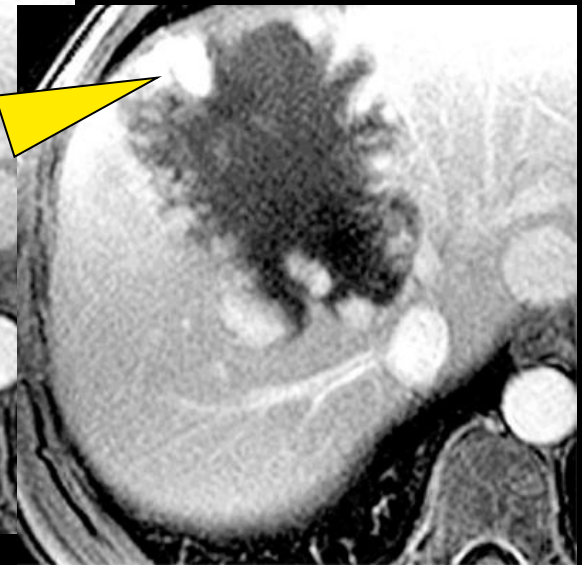
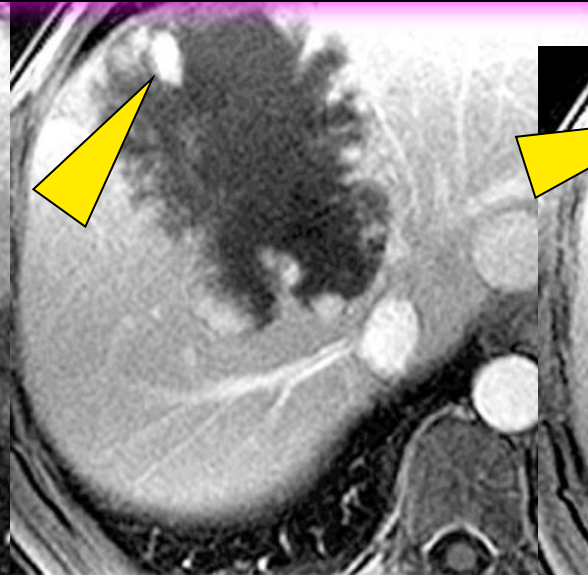
- Hypointense en pondération T1
- Hyperintense en pondération T2 (signal équivalent à celui du LCR)
- Prise de contraste périphérique en plaques (mottes) et remplissage centripète
- Persistance de rehaussement au temps tardif
- Parallélisme de rehaussement entre l'angiome et structures artérielles



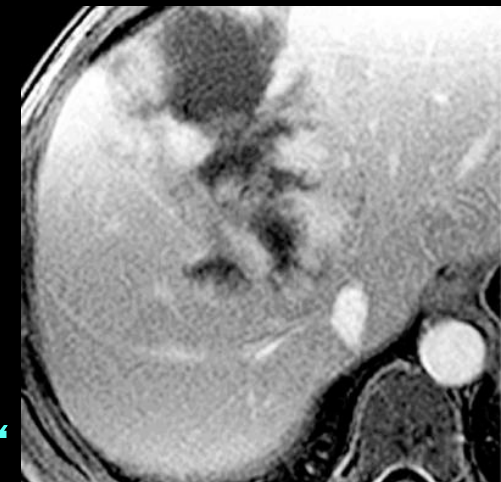
# Angiomes : aspects en IRM



# Angiomes : aspects en IRM



angiome géant



# Angiomes : Difficultés diagnostiques

- **Angiome de petite taille (10-20 mm) :**
  - Délicat de mettre en évidence le rehaussement en plaques
  - Contexte de bilan d'extension cancer, attention à ne pas confondre angiome de petite taille et métastase (compléter par autres examens echo et ou IRM)
- **Angiome à circulation rapide :**
  - Lésions de petite taille inférieure à 20 mm
  - Prise de contraste intense et homogène à la phase artérielle
  - **Critères diagnostiques**
    - Rehaussement parallèle à celui des structures artérielles
    - Persistance au temps tardif (pooling)
    - Hypersignal T2 franc +++

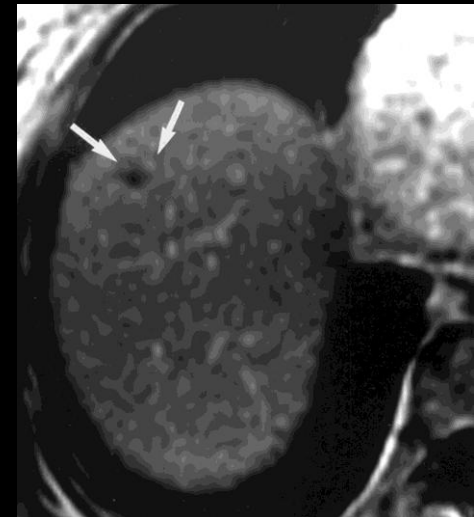
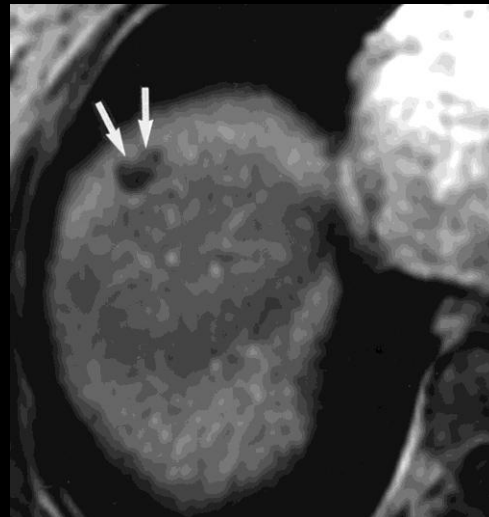
# Angiomes : Difficultés diagnostiques



Homme 56 ans, surveillance post chirurgicale d'un K sigmoïdien

Difficultés diagnostiques

Contextes néoplasiques



# Angiomes : Difficultés diagnostiques

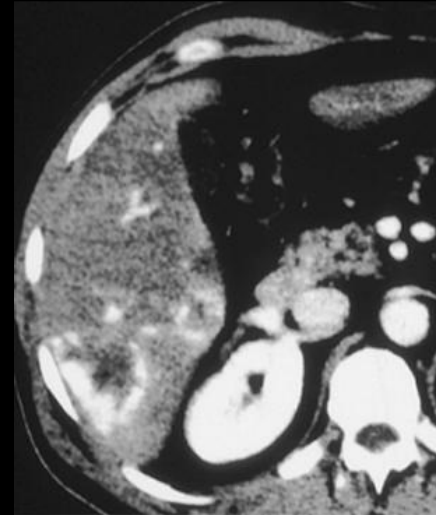
- **Angiome avec shunt artério veineux**
  - Plus fréquent pour les angiomes à flux rapide
  - Rehaussement artériel en périphérie de la lésion
- **Angiomes géants**
  - Aspect hétérogène en pondération T2
  - Signal T2 pas complètement homogène
- **Angiomes à flux lents**
  - Rehaussement très tardif
  - Absence de rehaussement au temps précoce
- **Angiomes scléreux**
  - Tissu fibreux prépondérant ++++
- **Angiomes sur stéatose**
  - Hyperdense en scanner : analyse du rehaussement
  - Aspect en hypersignal T2 +++++++

# Angiomes : Difficultés diagnostiques

CT avt inj

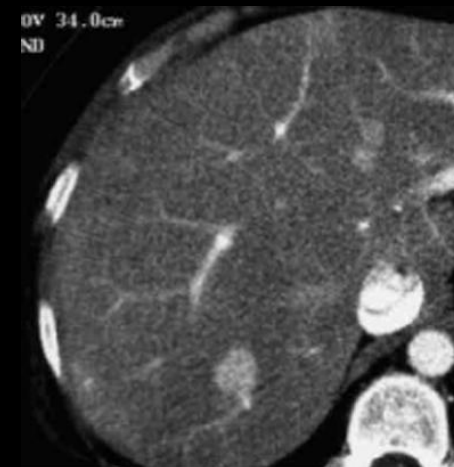
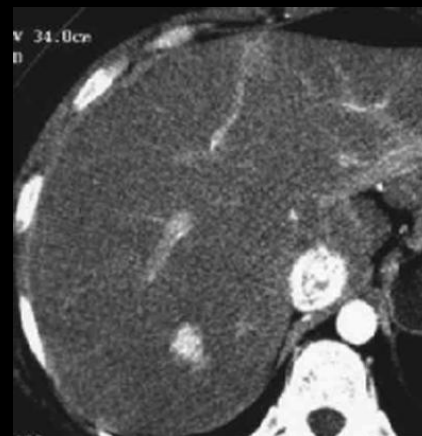


CT 1 ' 30



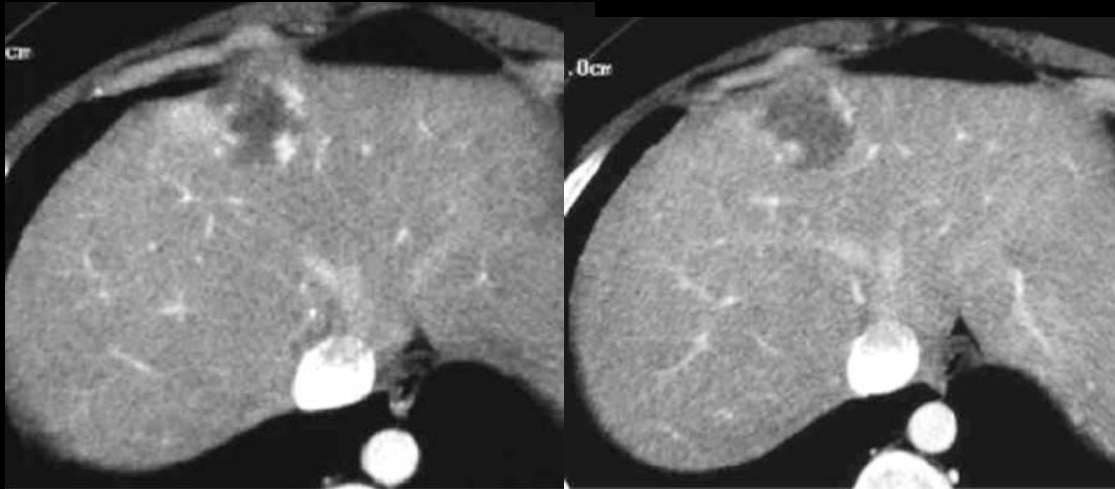
angiomes sur foie stéatosique !!

CT avt inj

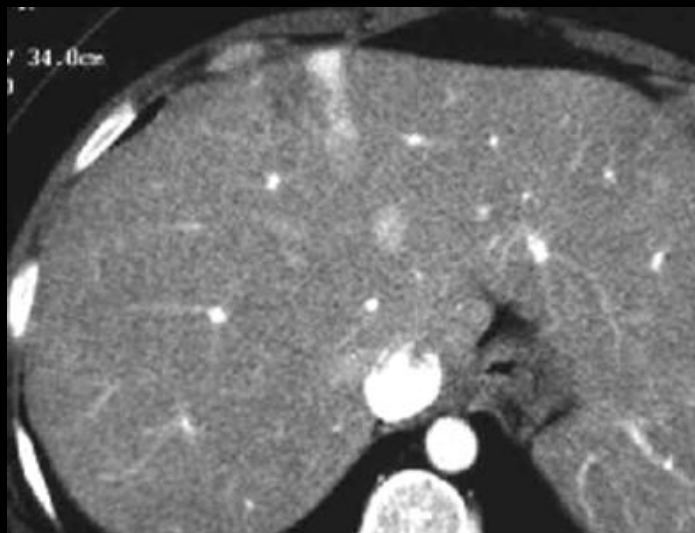


# Angiomes : Difficultés diagnostiques

## Angiomes avec shunt artério veineux



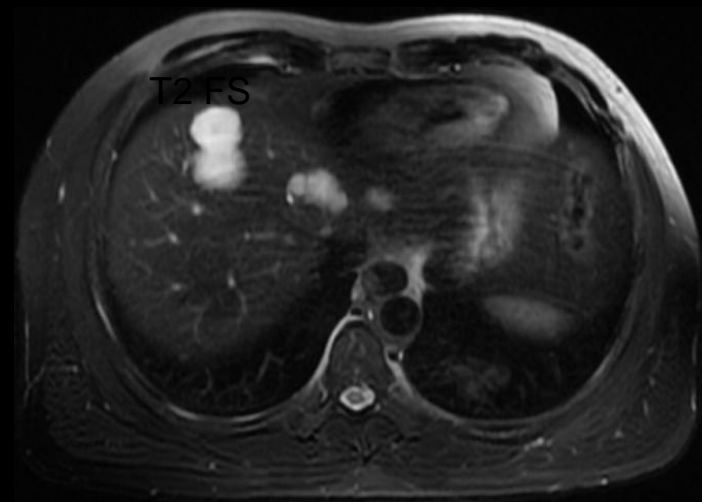
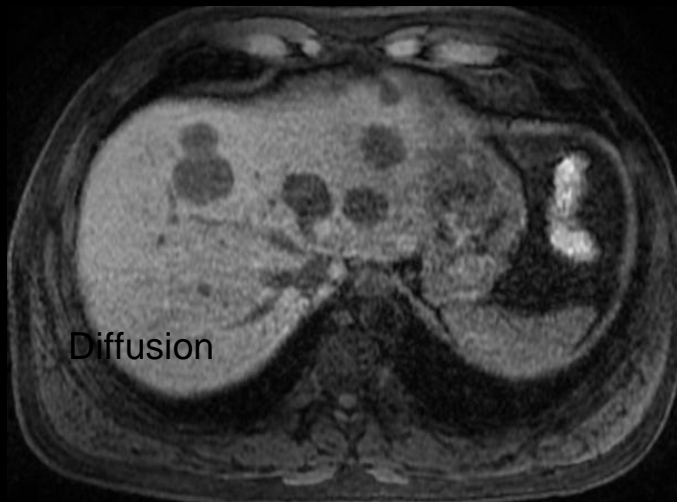
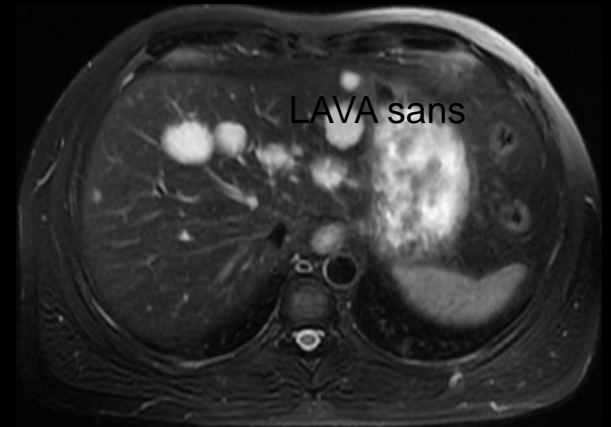
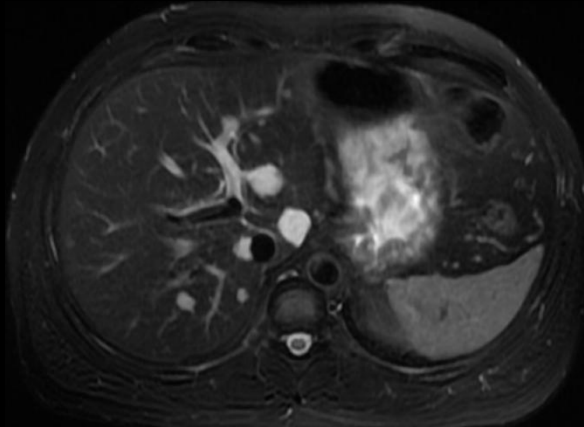
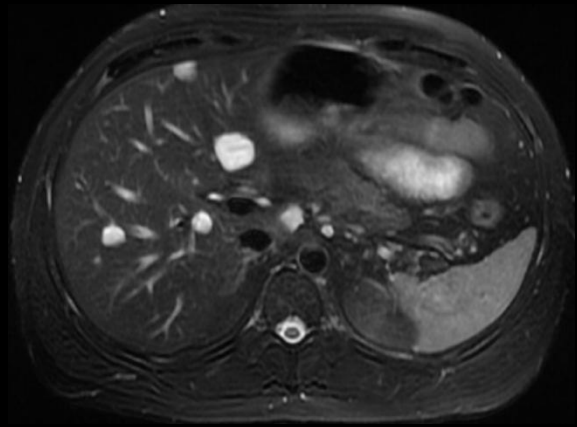
CT 50 "



CT 3 '

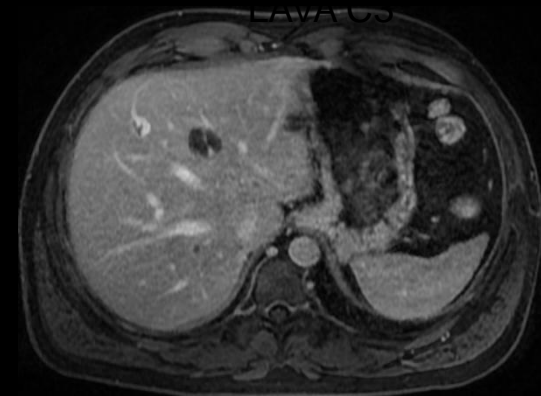
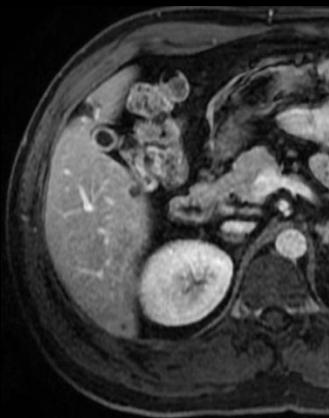
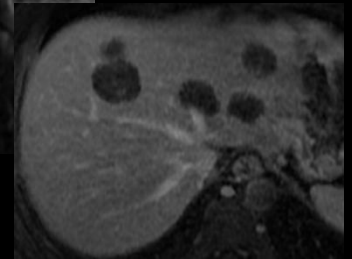
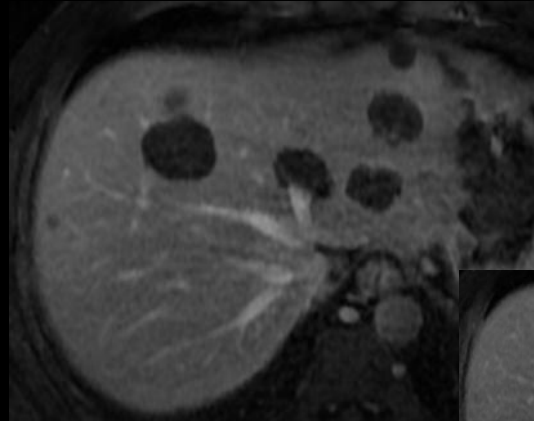
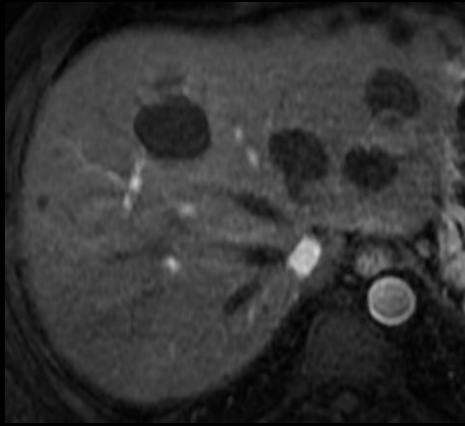
# Angiomes : Difficultés diagnostiques

## Angiomes à flux lent



# Angiomes : Difficultés diagnostiques

## Angiomes à flux lent

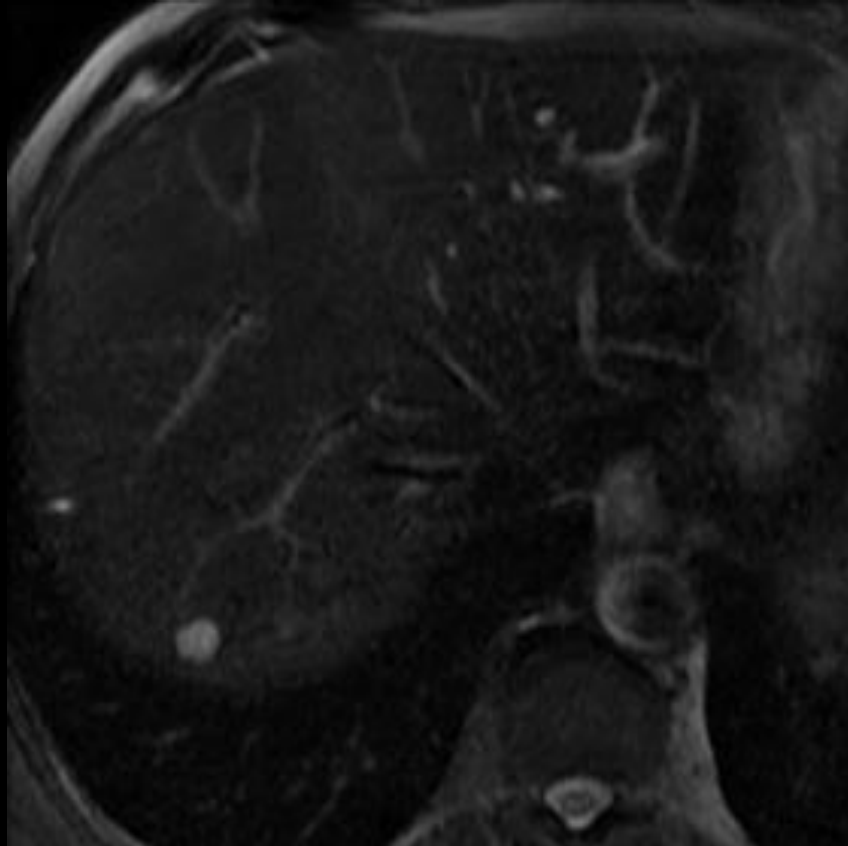


# Angiomes : Difficultés diagnostiques

## Angiomes à flux lent



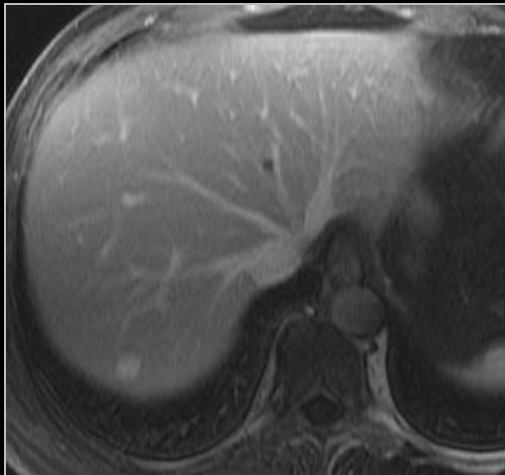
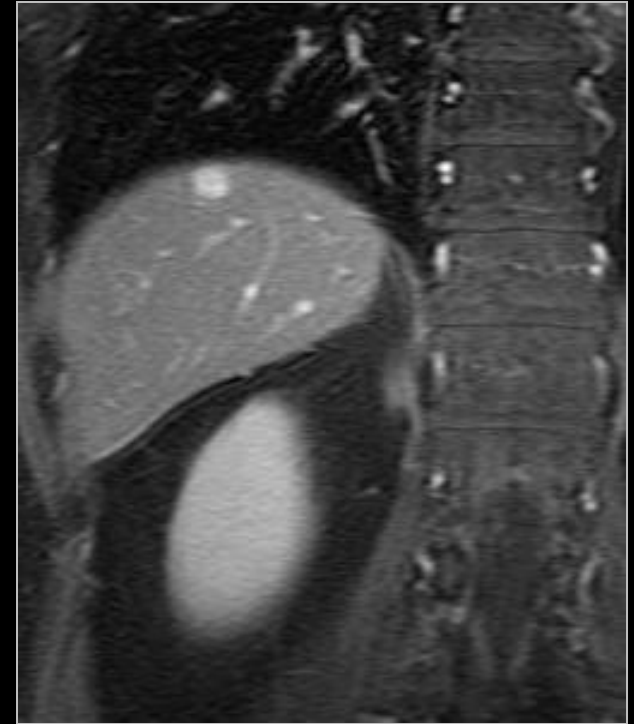
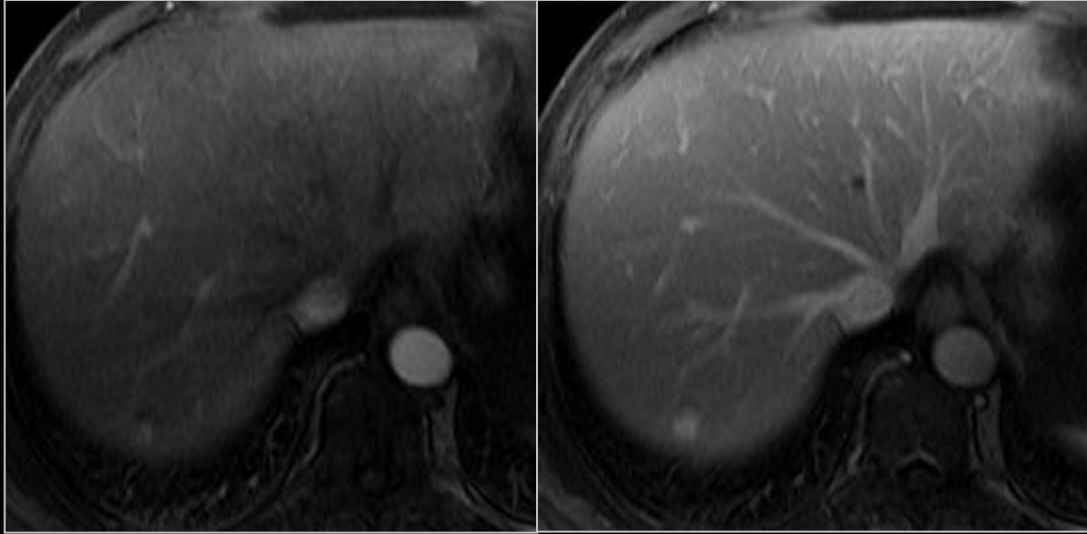
# Angiomes de petite taille



T2

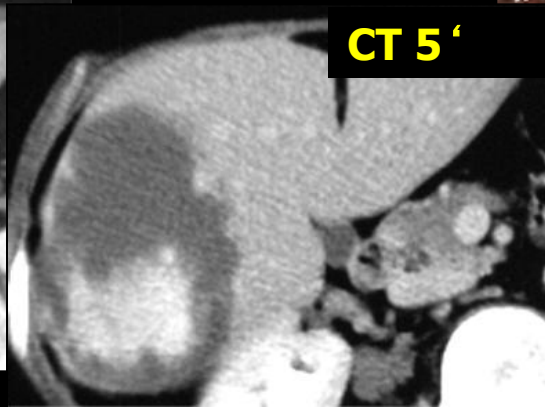
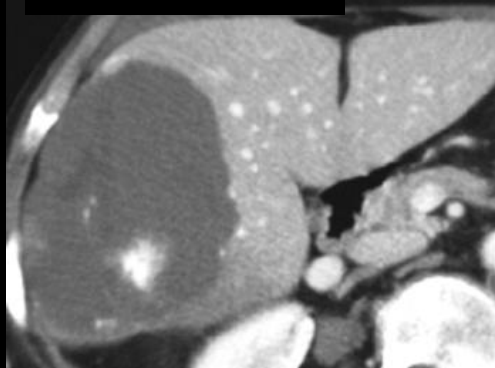
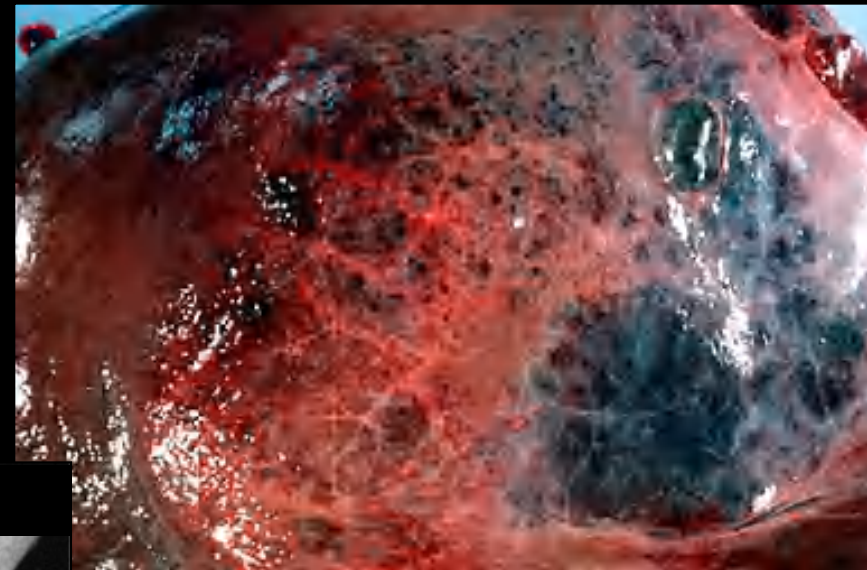
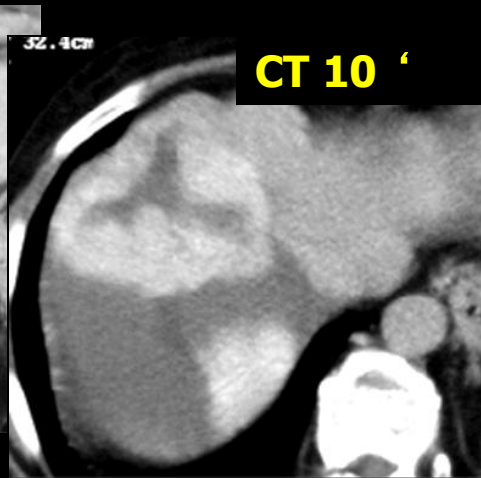
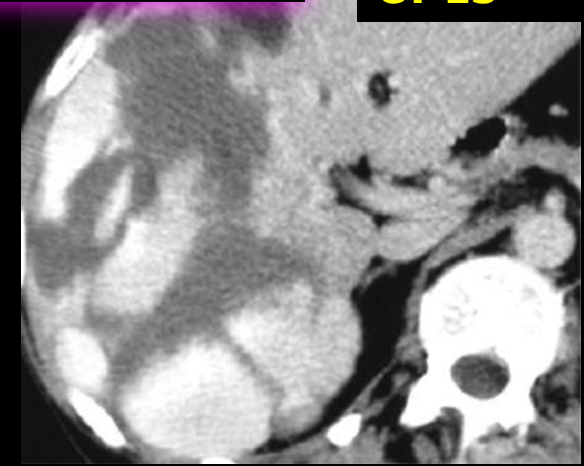
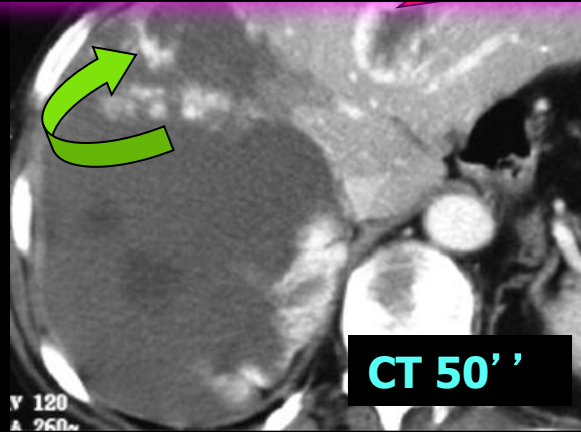
# Angiomes de petite taille

Dynamiques  
ap. injection



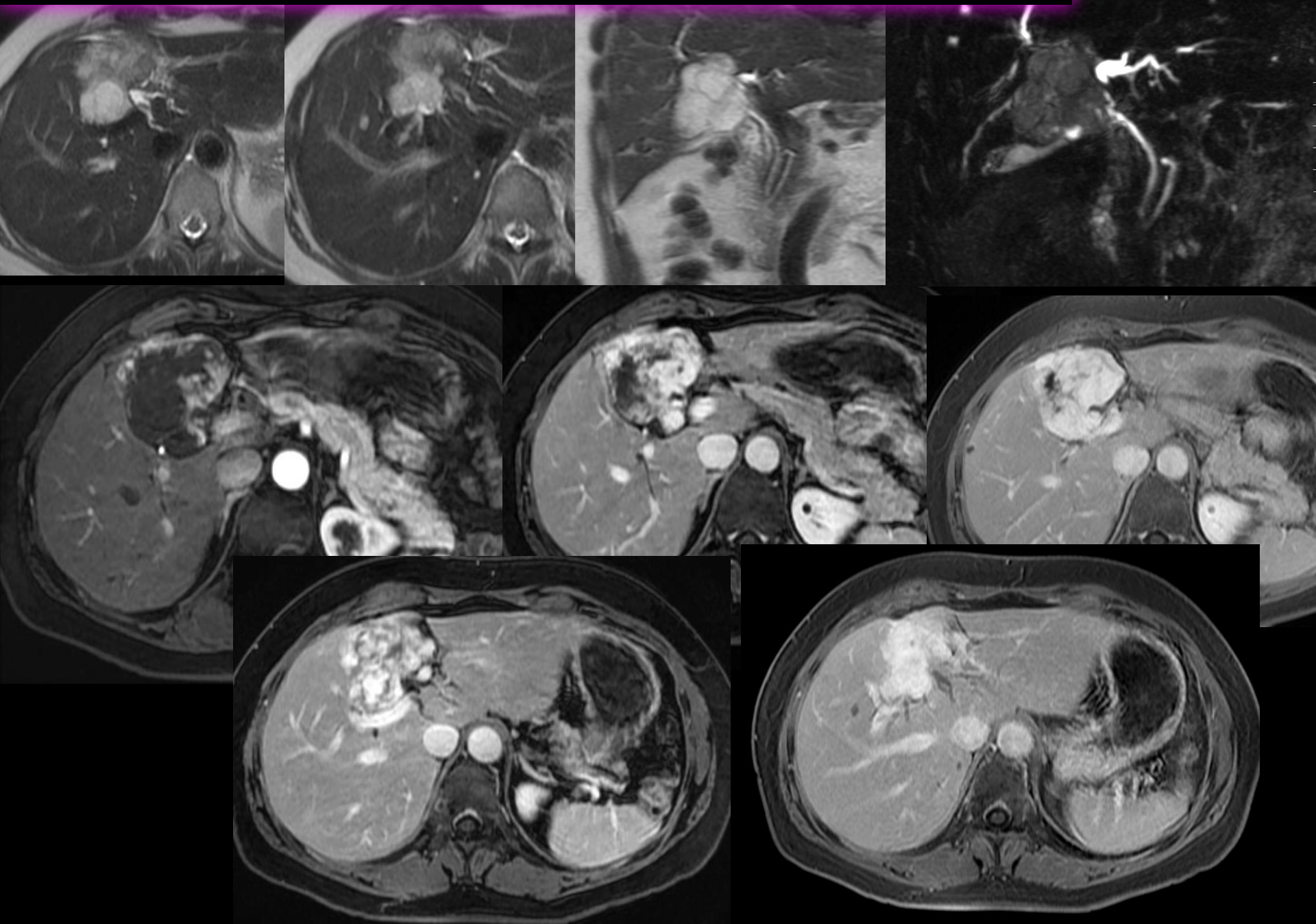
Tardives

# Angiomes : Difficultés diagnostiques

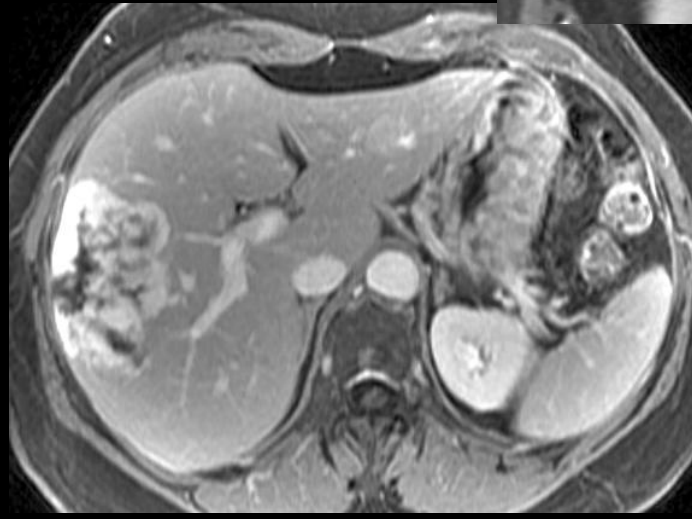
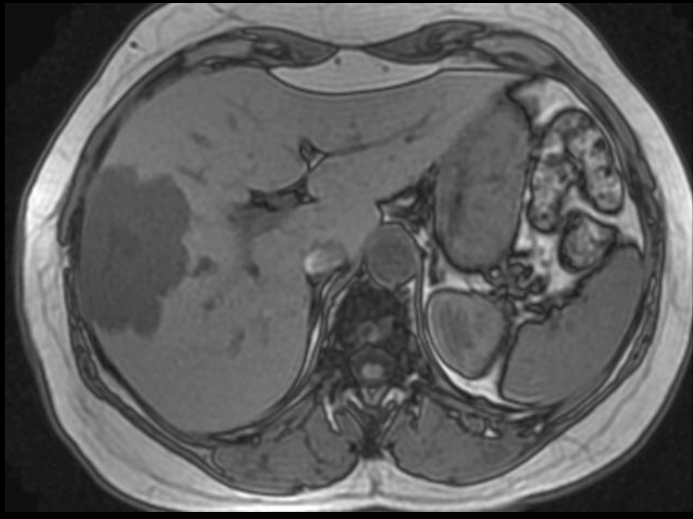
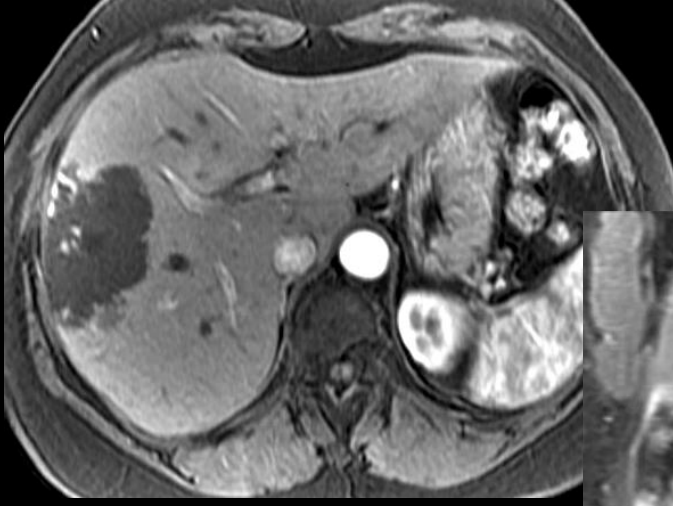
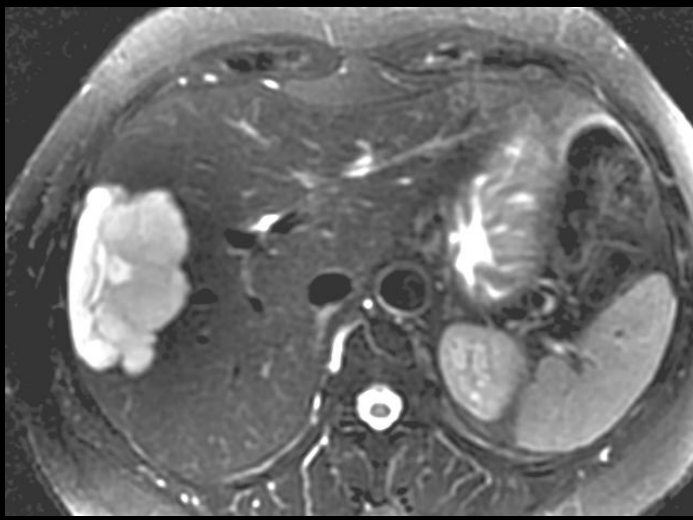


angiomes géants; cinétique  
de rehaussement +++

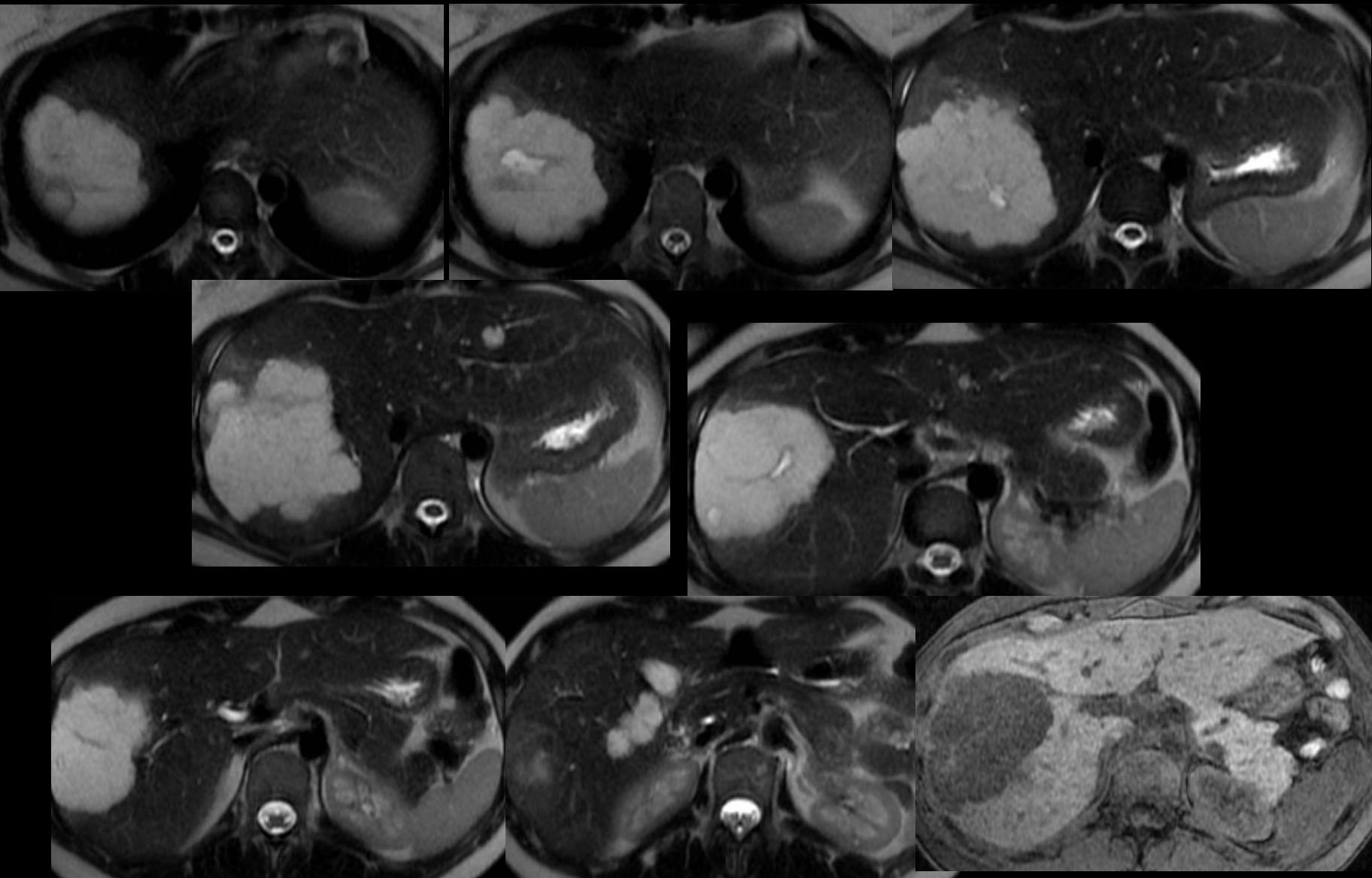
# Angiomes : Difficultés diagnostiques



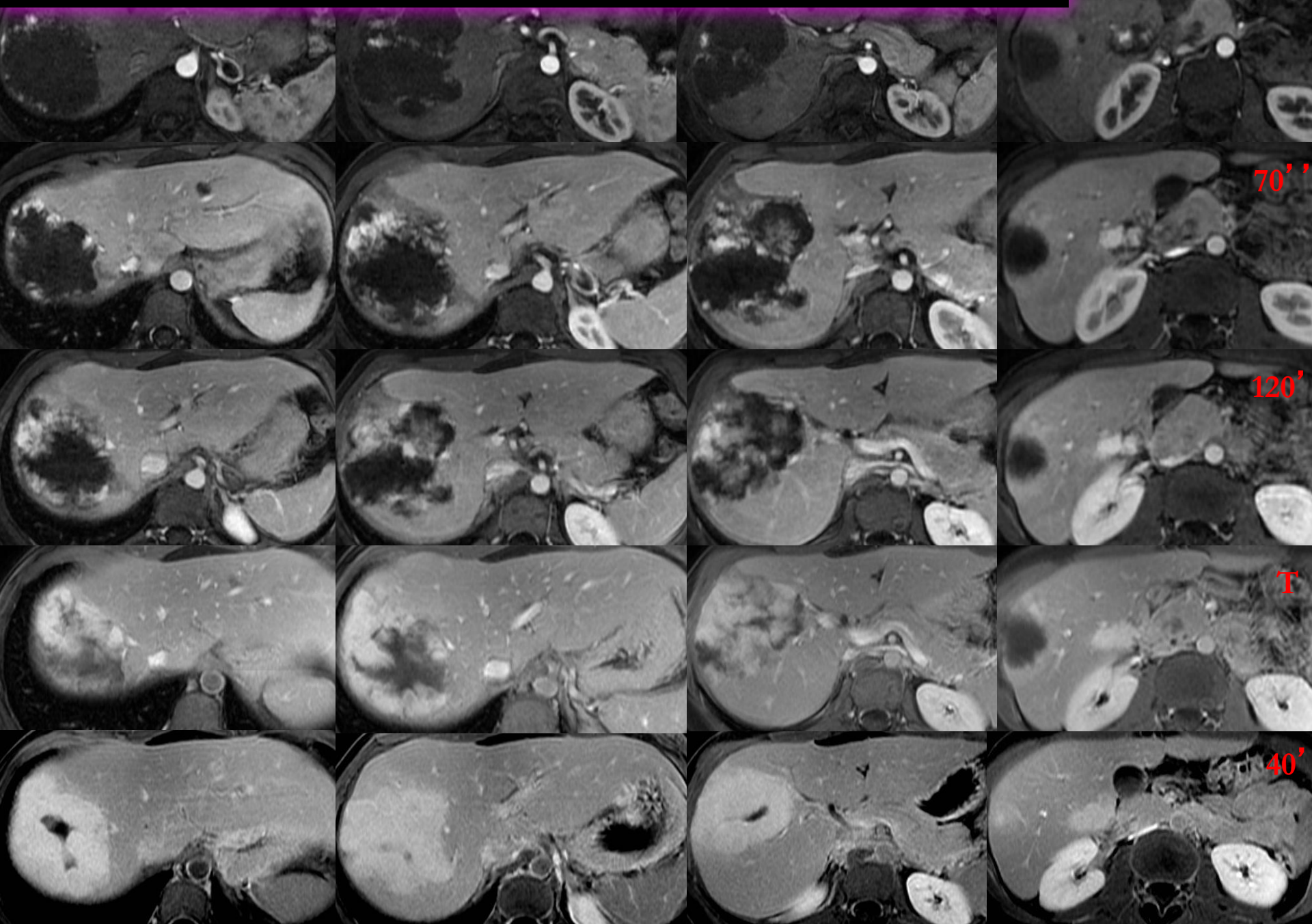
# Angiomes : Difficultés diagnostiques



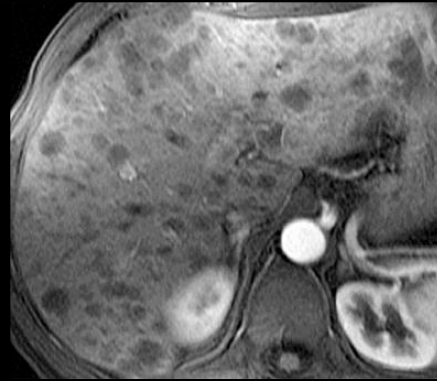
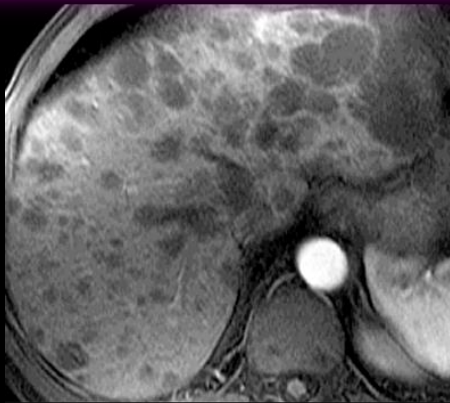
# Angiomes : Difficultés diagnostiques



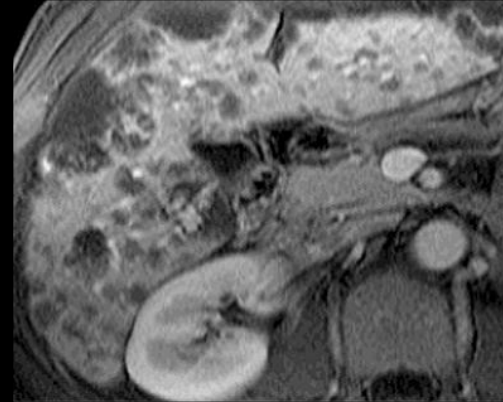
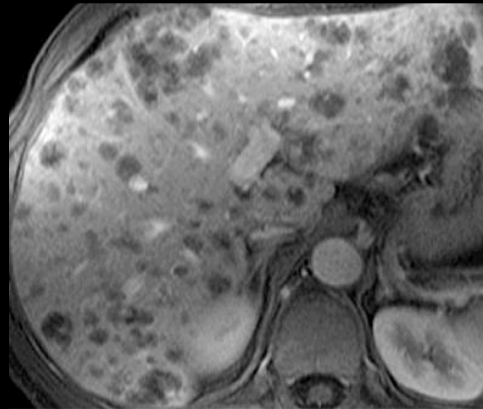
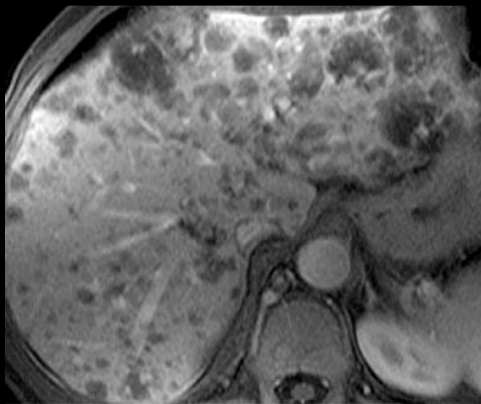
# Angiomes : Difficultés diagnostiques



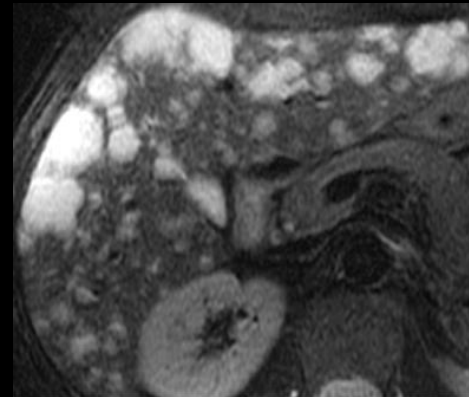
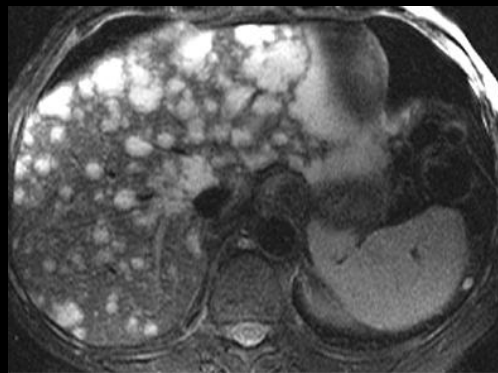
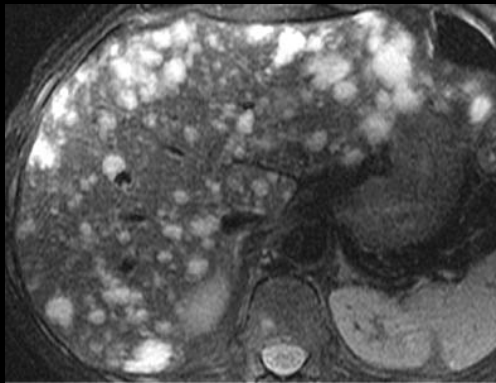
# Angiomes : Difficultés diagnostiques



MR  
T1  
45"



MR  
T1  
60"



MR  
T2

hémangiomatose disséminée; diagnostic échographique de métastases !!!

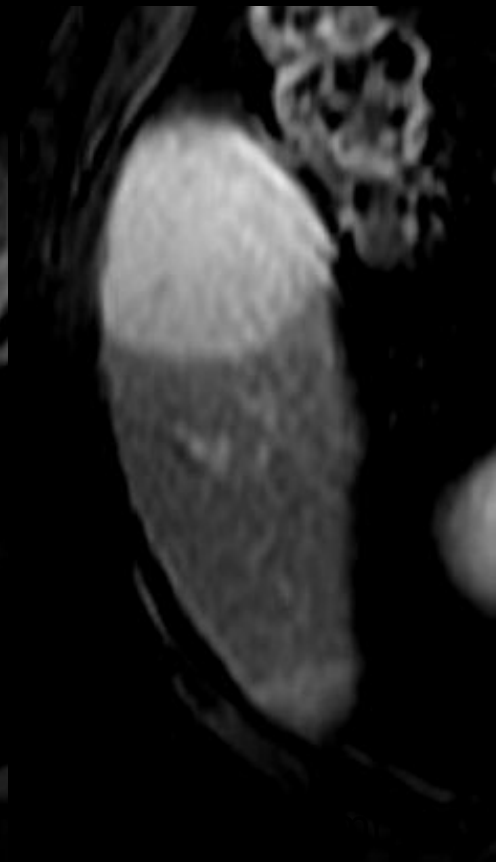
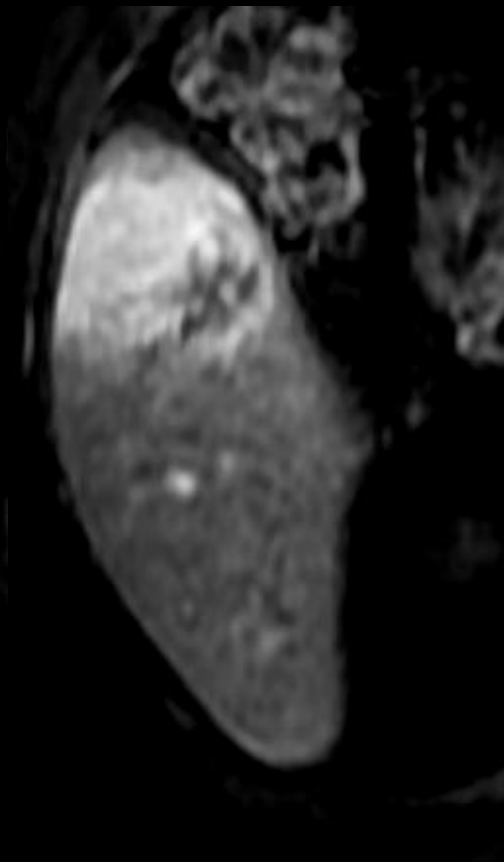
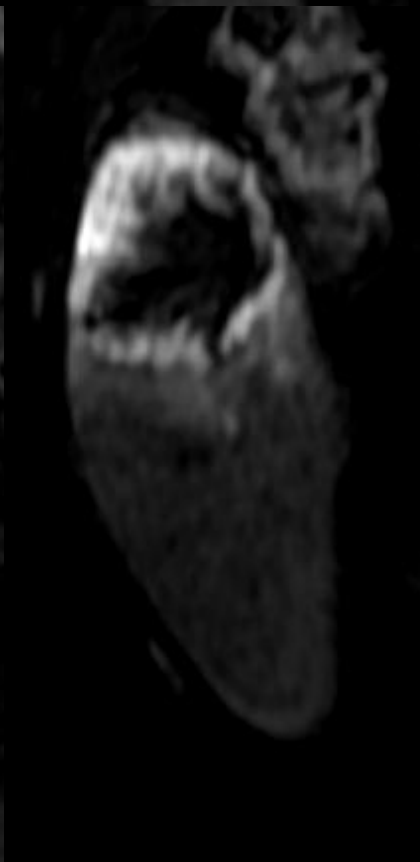
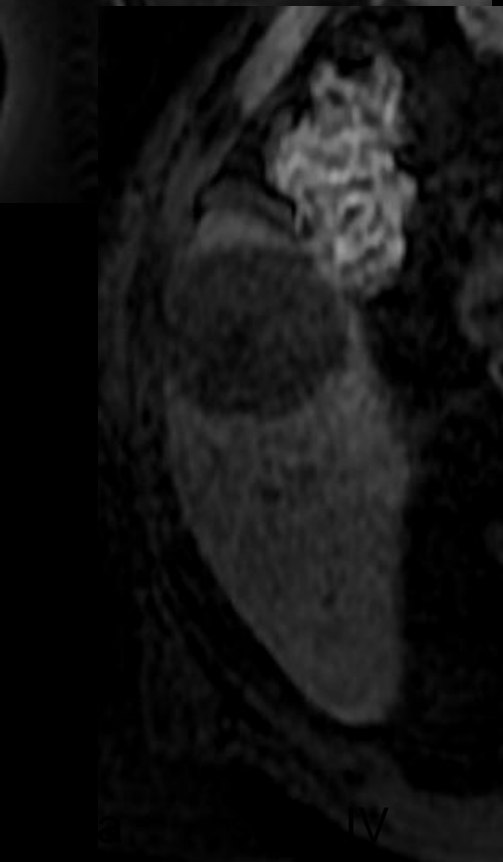
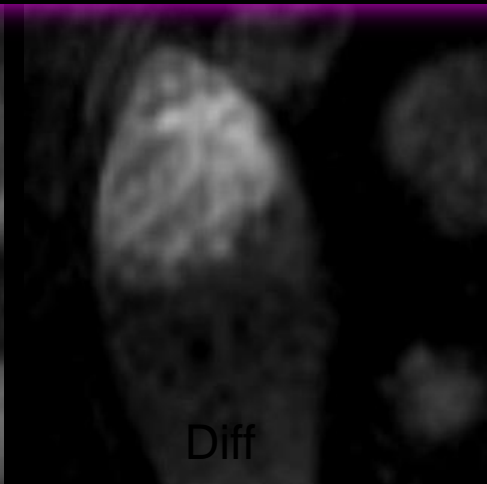
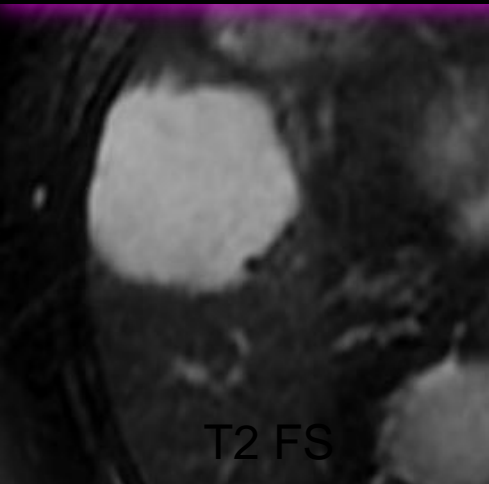
# Angiomes : évolution



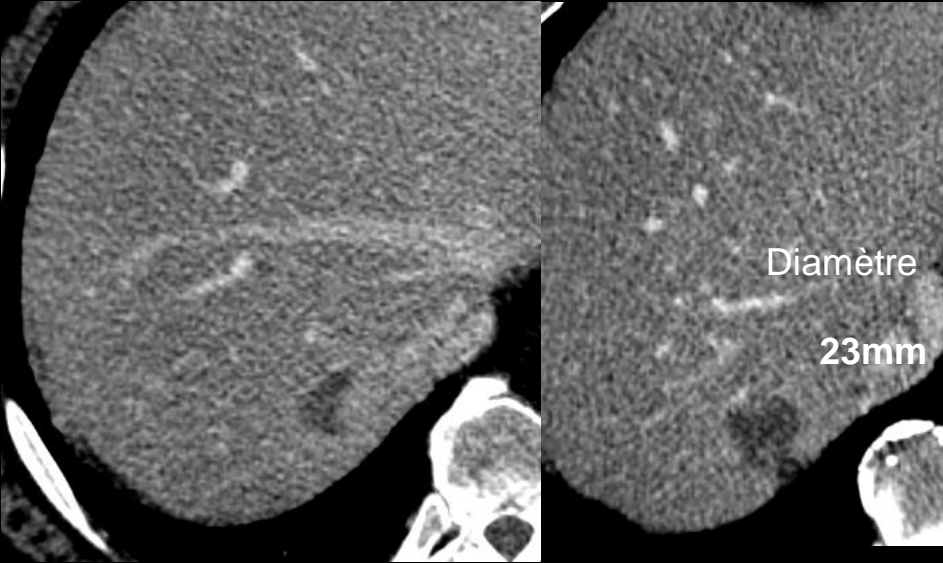
Patient de 67 ans, scanner pour iléite.  
Découverte fortuite de lésions hépatique

Sémiologie classique d'un ANGIOME

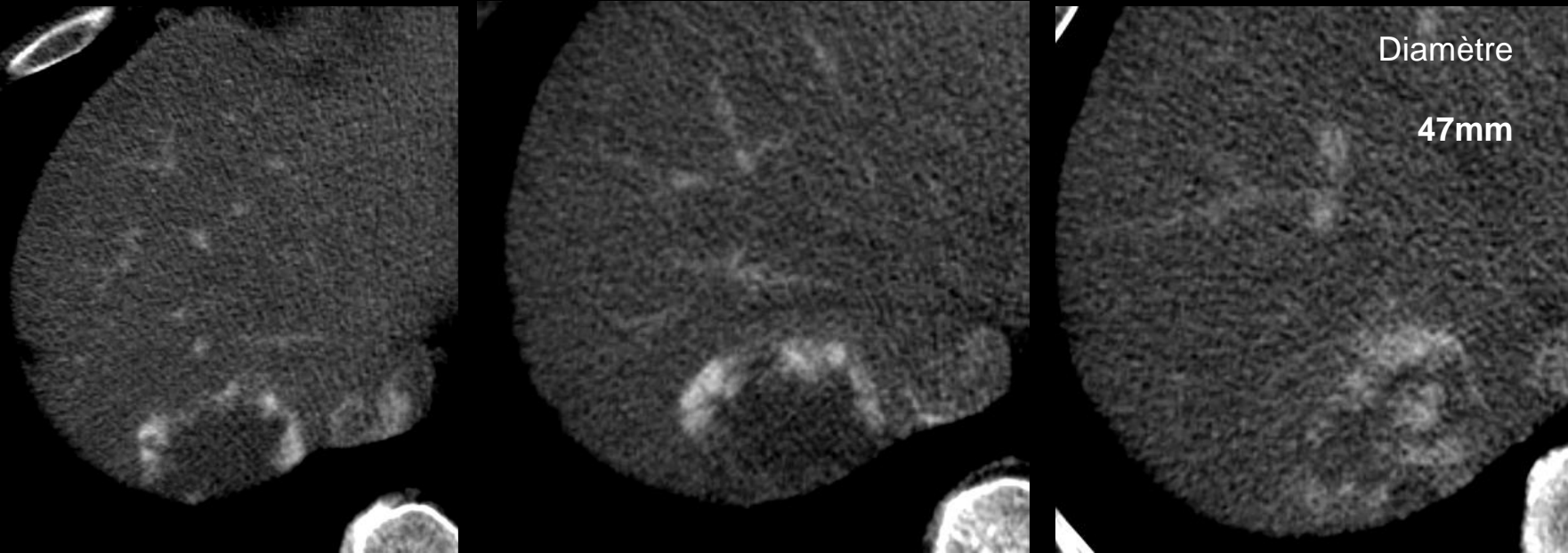
# Angiomes : évolution

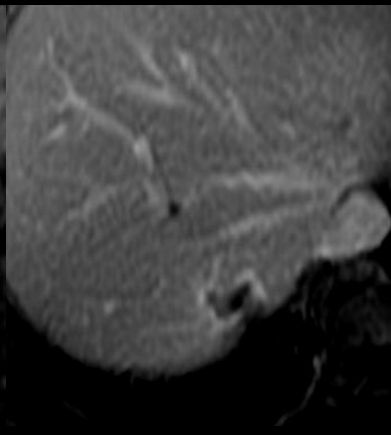
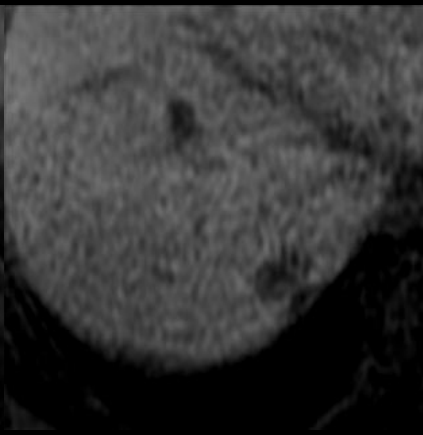
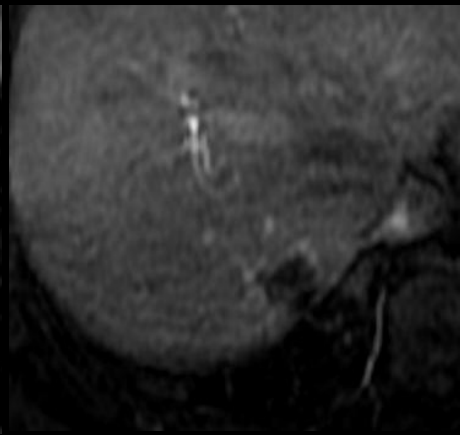
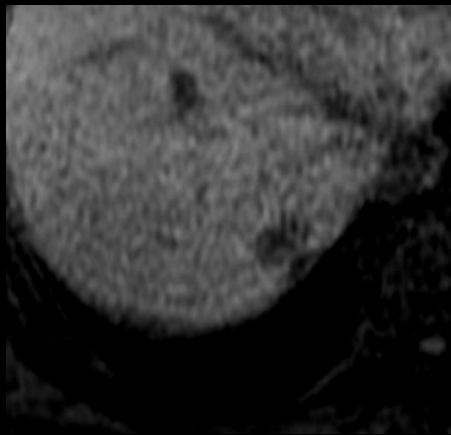
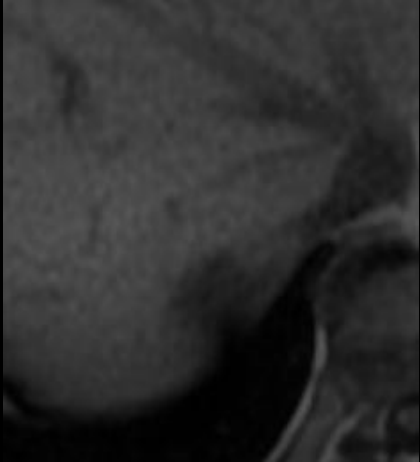
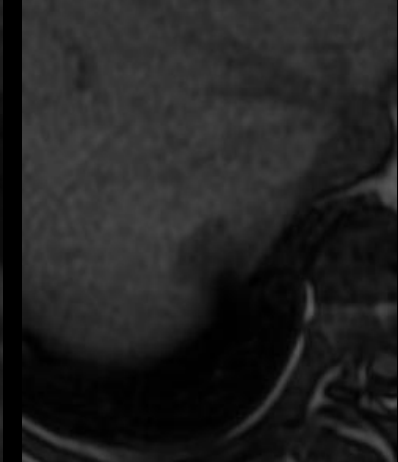
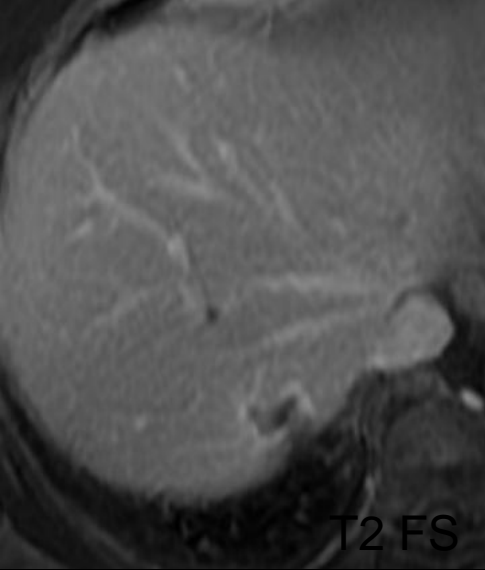


Sur ce même scanner, 2de lésion hépatique



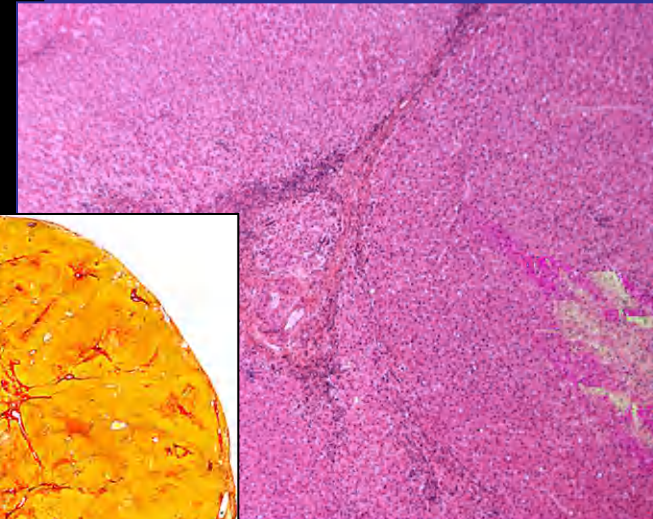
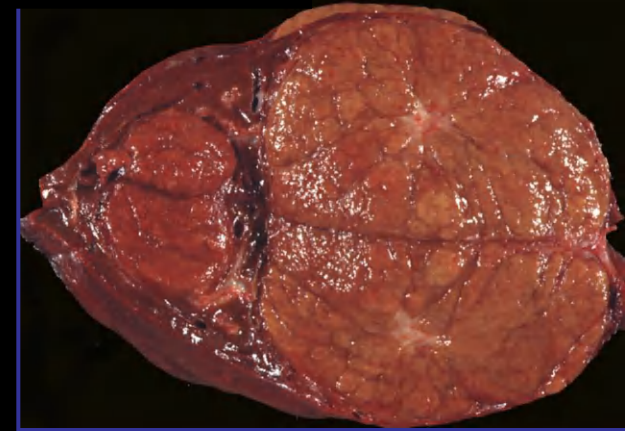
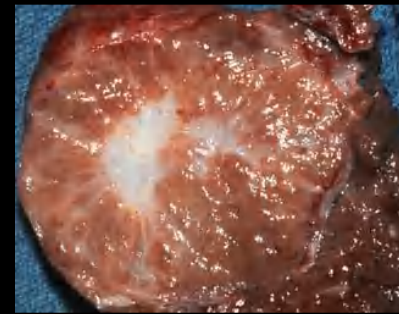
ATCD, sur un scanner thoracique réalisé 5 ans auparavant:





# Hyperplasie nodulaire focale

- Seconde tumeur bénigne la plus fréquente
- Asymptomatique
- Pas de dégénérescence
- Macro : tumeur lobulée, non encapsulée
- Bien limitée
- Cicatrice fibreuse centrale
- Hépatocytes normaux

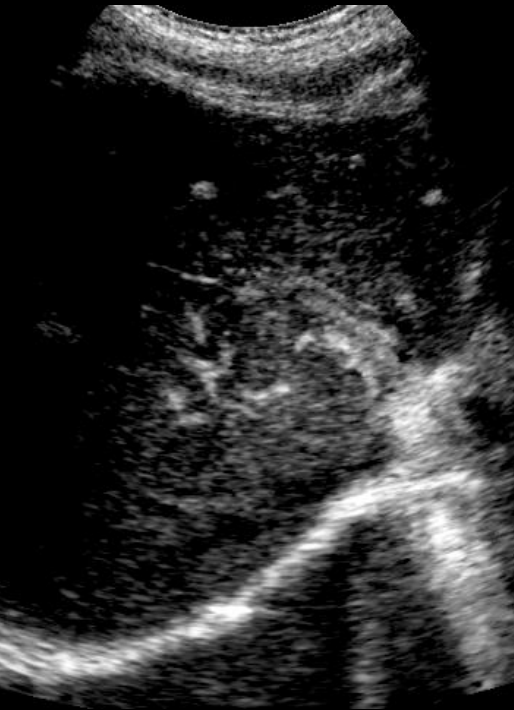


Lésion bénigne causée par une  
**réponse hyperplasique à une  
anomalie vasculaire localisée**

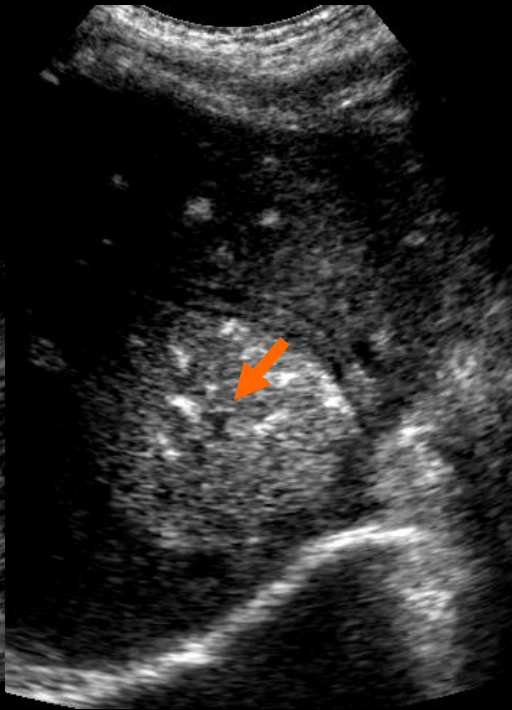
# Hyperplasie nodulaire focale : chographie et échographie avec injection de produit de contraste



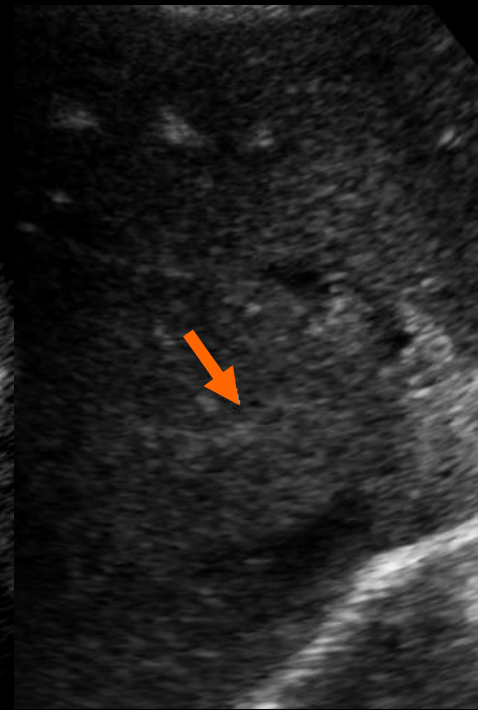
**Sans injection**



**15 secondes**



**25 secondes**

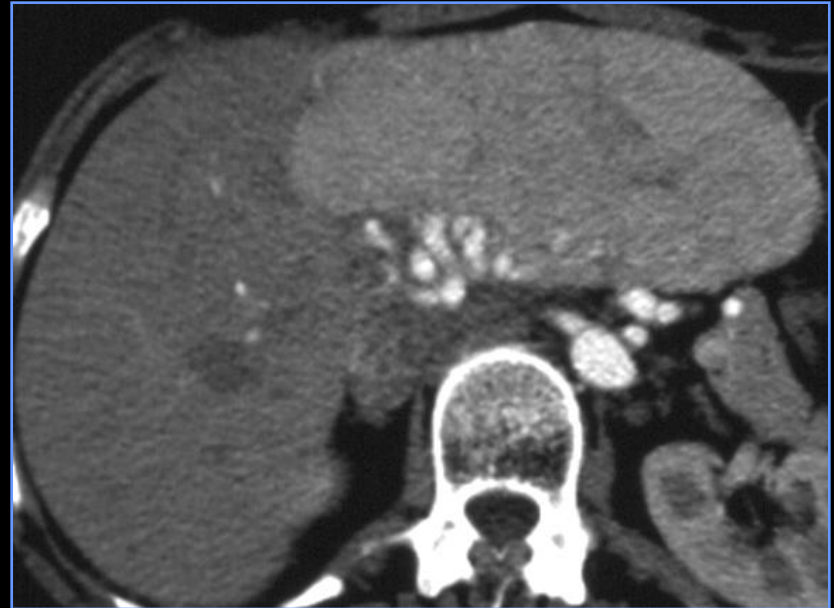


**120 secondes**

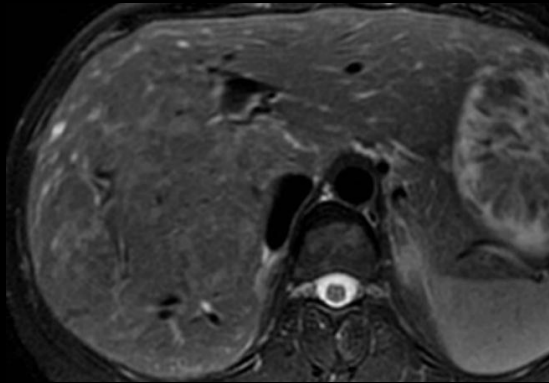
## HNF : sémiologie typique

- Lésion hypervasculaire au temps artériel
- Homogène/foie sur les acquisitions plus tardives
- Prise de contraste intense ET homogène quelle que soit sa taille
- Cicatrice centrale sauf si inf à 2 cm
- Isosignal/parenchyme sain en T2
- HNF est 20 à 40 fois plus fréquente que l'adénome même chez des femmes utilisant une contraception orale
- Les HNF atypiques sont souvent des formes histologiques particulières (formes « télangiectasiques » n'existent plus : désormais rattachées au groupe des adénomes)

## HNF : sémiologie typique



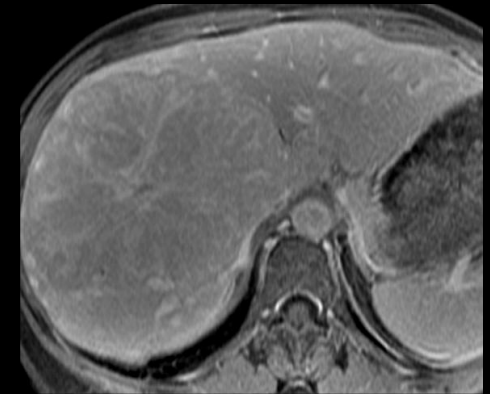
# HNF : sémiologie typique



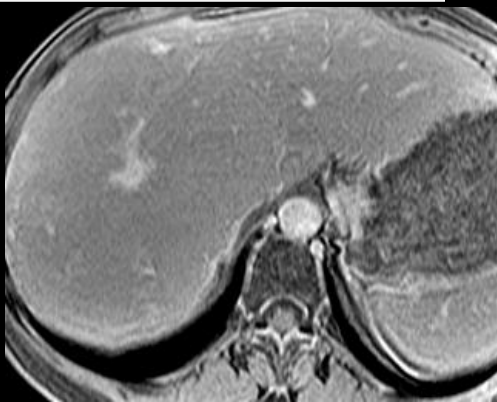
Je regarde le T2 :  
isosignal T2



Rehaussement précoce  
massif de toute la lésion



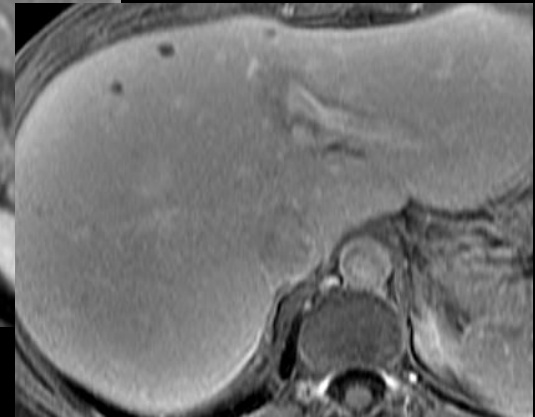
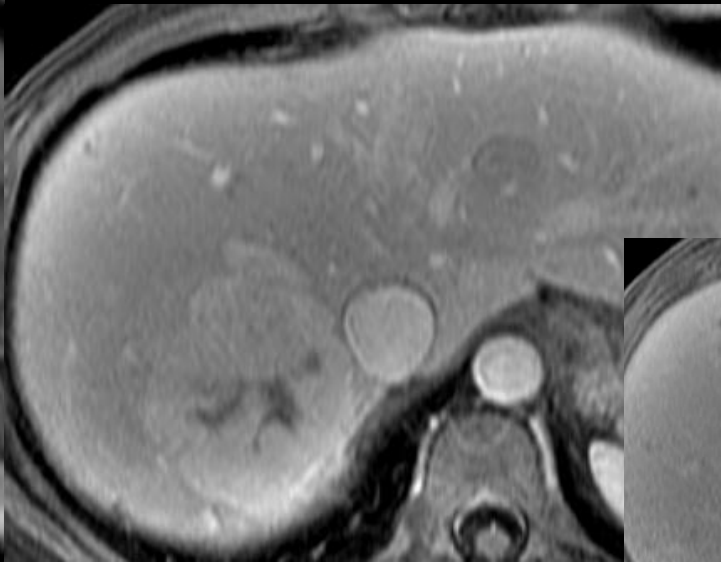
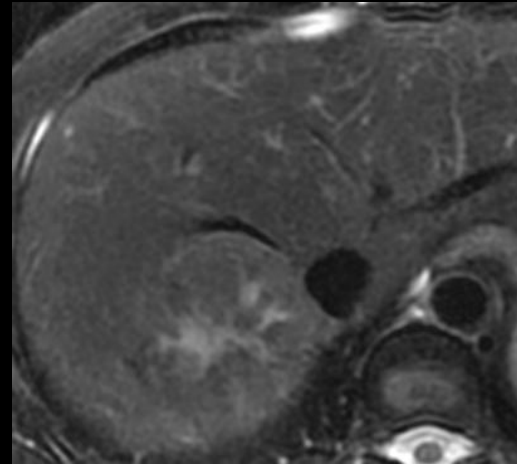
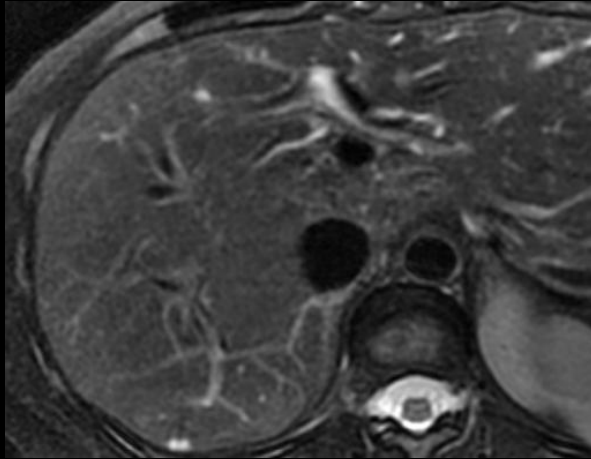
Je regarde le comportement  
portal : homogénéisation



Je n'oublie pas l'acquisition tardive :  
cicatrice fibreuse centrale

**Hyperplasie  
nodulaire et  
focale**

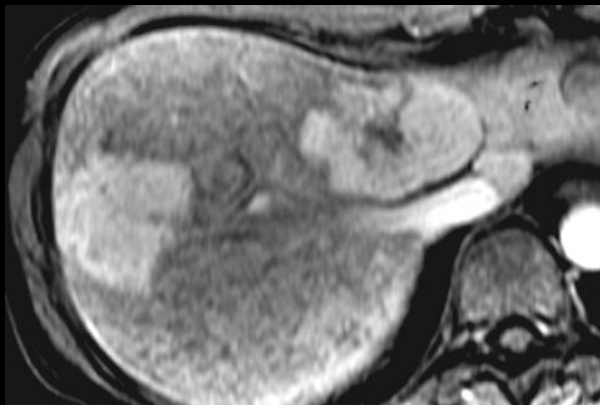
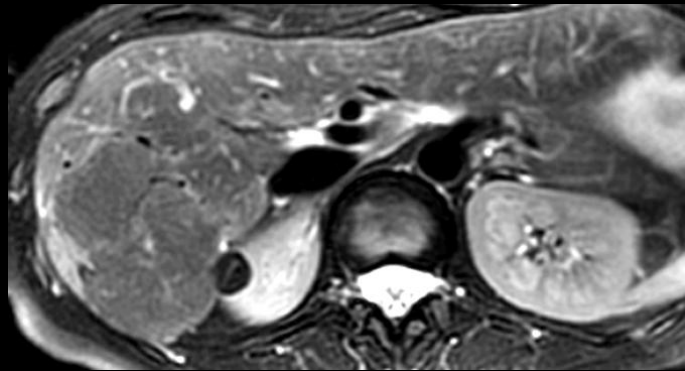
# HNF : sémiologie typique



# HNF : sémiologie typique

Souvent multiples +++++

Association avec angiomes dans 20% des cas



# HNF : sémiologie typique



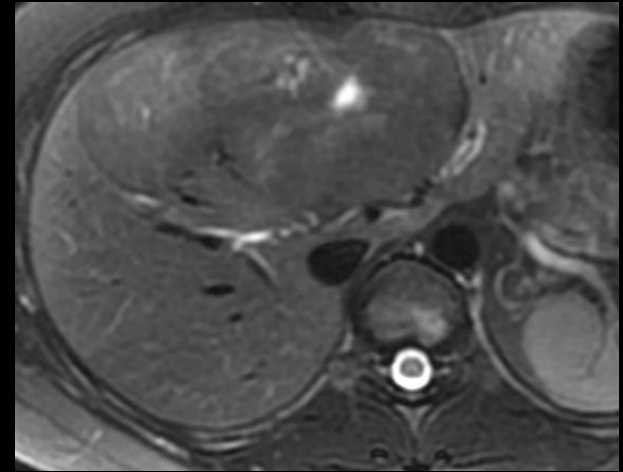
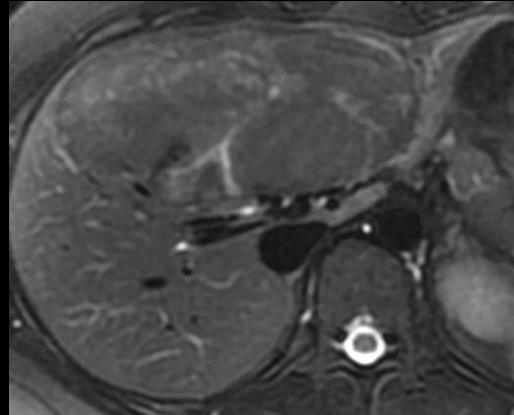
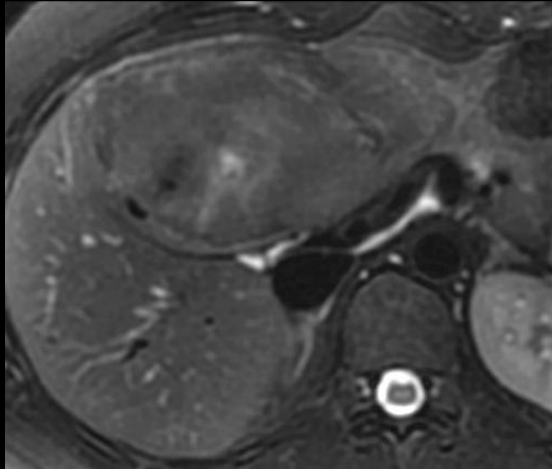
2 lésions



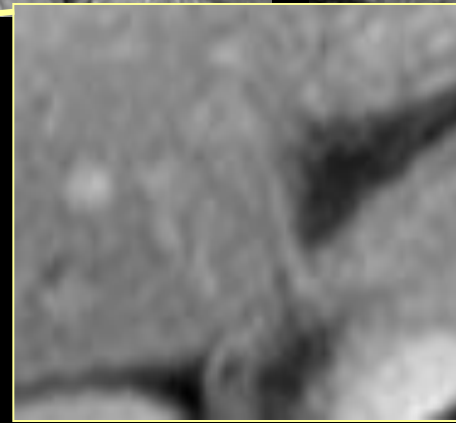
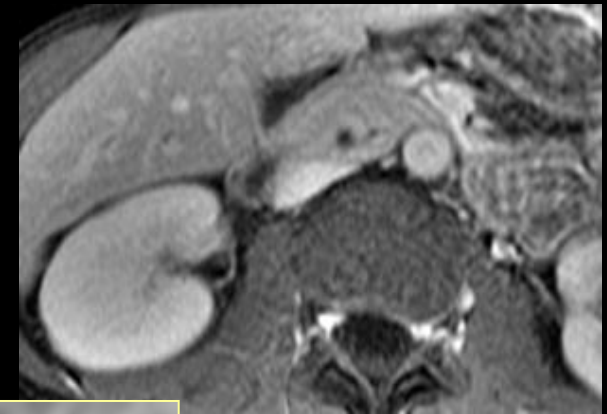
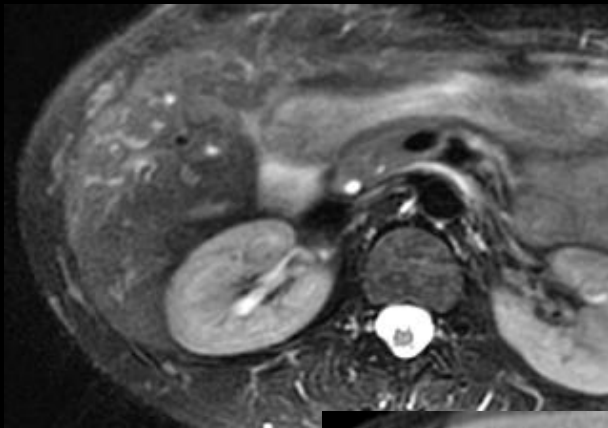
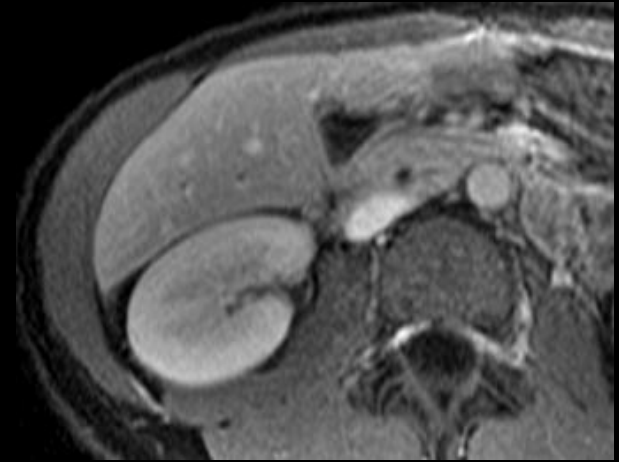
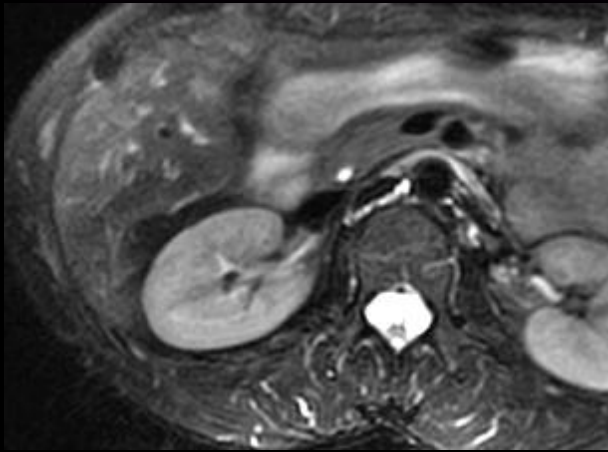
-1 lésion en HT2 liquidien, rehaussement précoce centripète avec remplissage tardif : angiome

-1 lésion en isoT2, rehaussement précoce massif, homogénéisée au temps portal, cicatrice fibreuse centrale

# HNF : sémiologie atypique

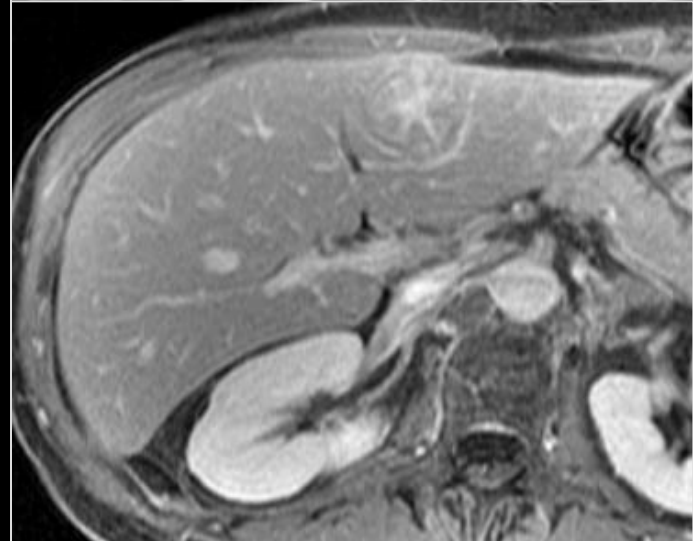
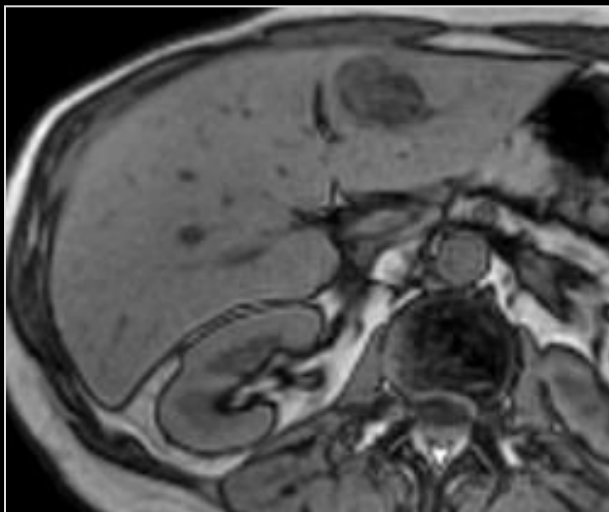
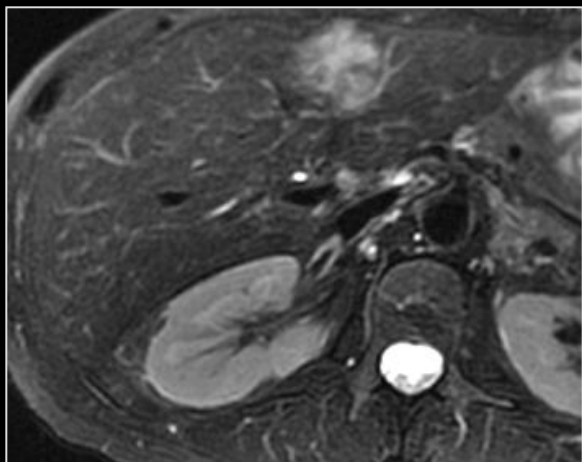
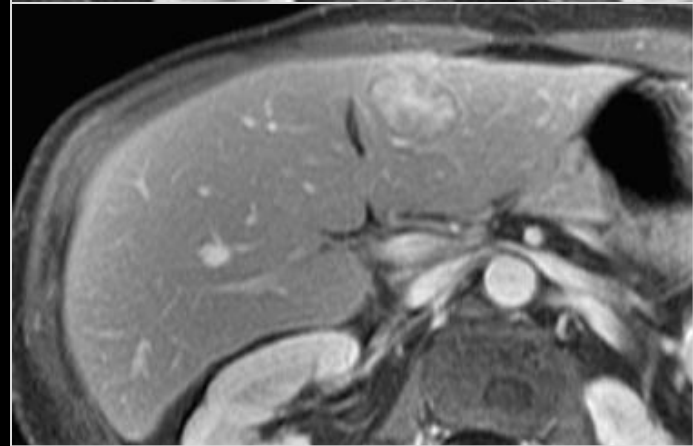
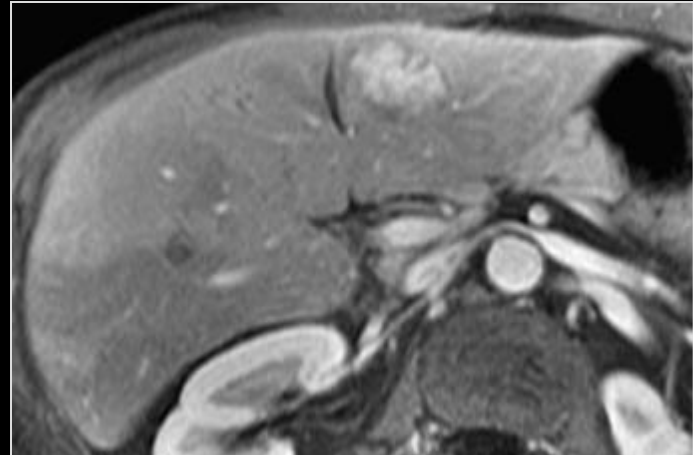
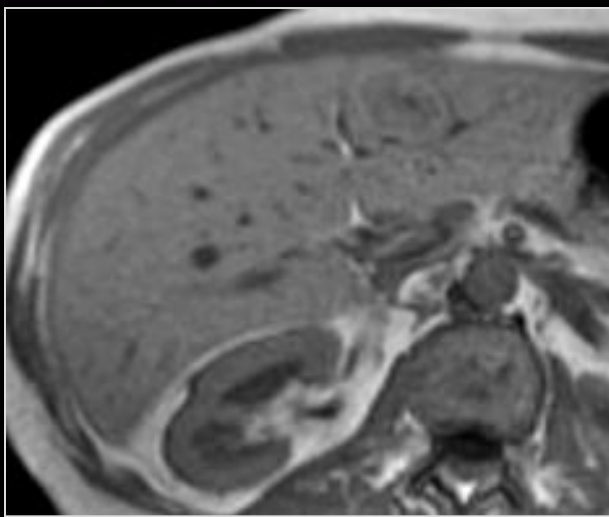
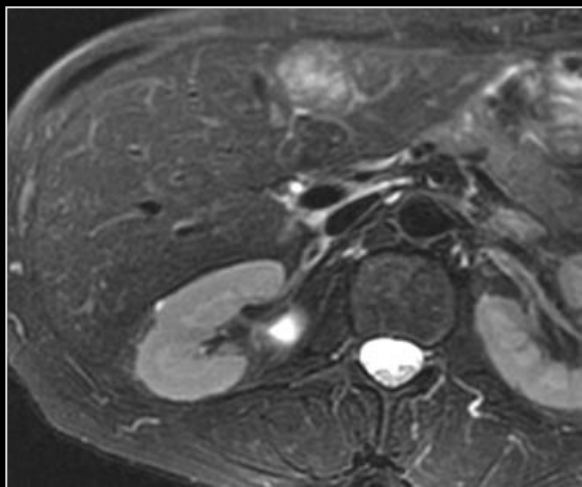


# HNF : sémiologie atypique



Femme, 40 ans

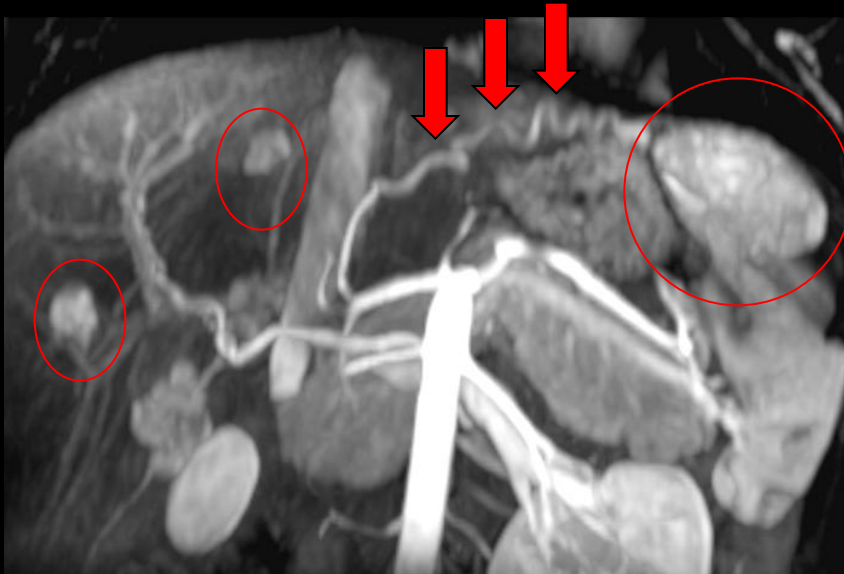
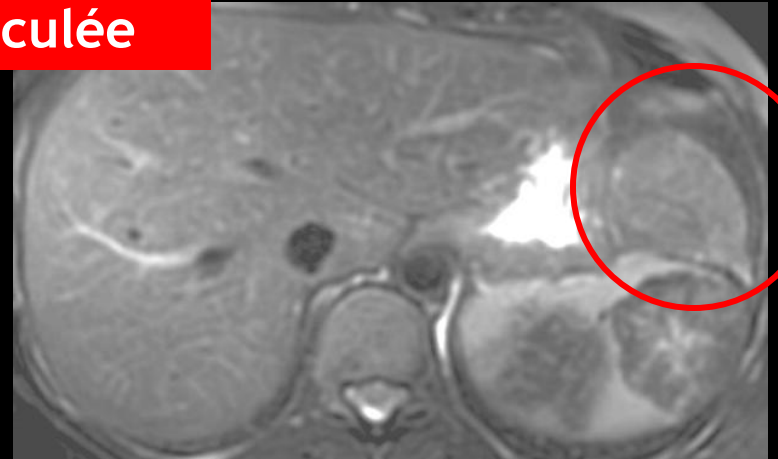
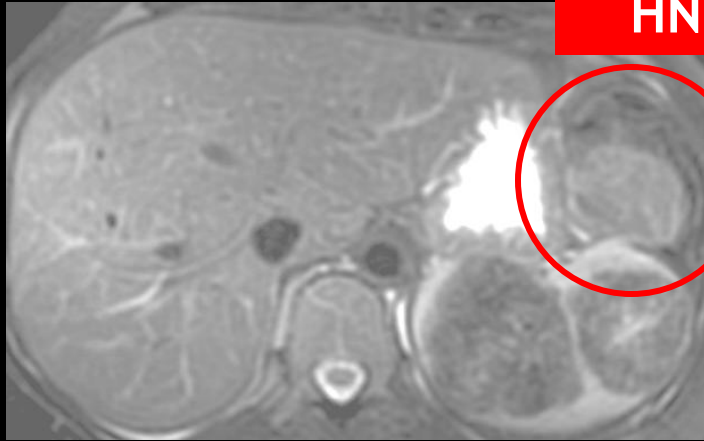
# HNF : sémiologie atypique



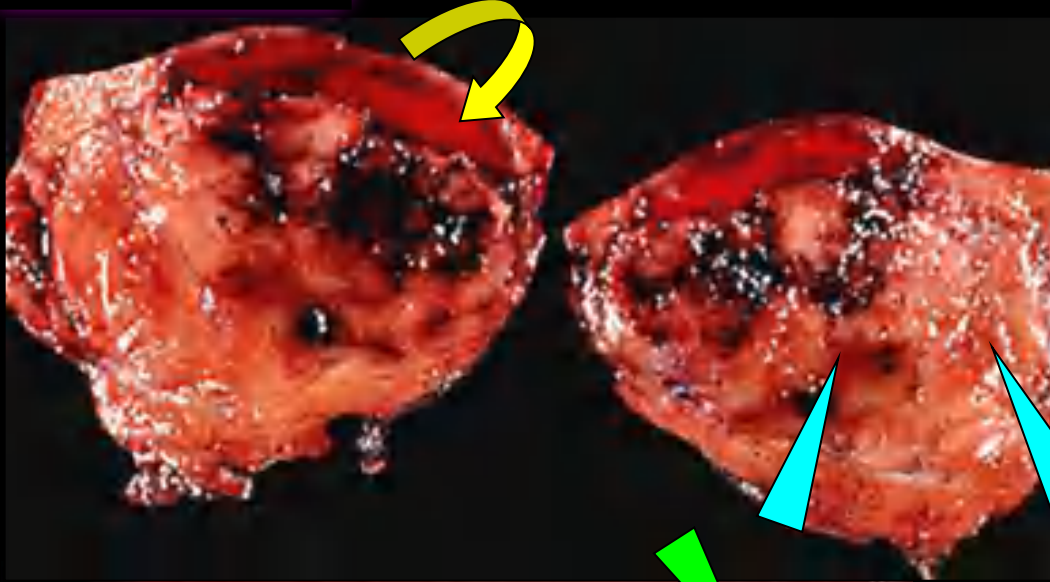
Femme, 60 ans

# HNF : sémiologie atypique

HNF pédiculée

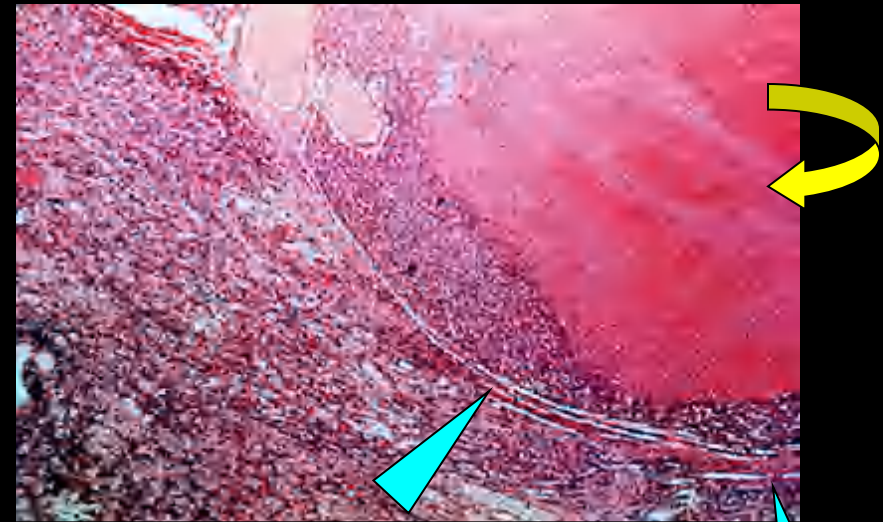


# Adénome



Tumeur bénigne constituée d' hépatocytes organisés en cordons; pas de vx portes ni VCL ni canalicule biliaire

Parois vasculaires fines, capsule fibreuse, hémorragies, lacs biliaires et surcharge graisseuse

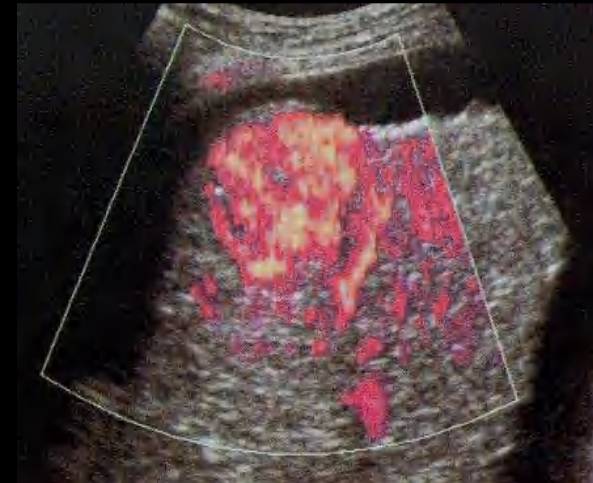
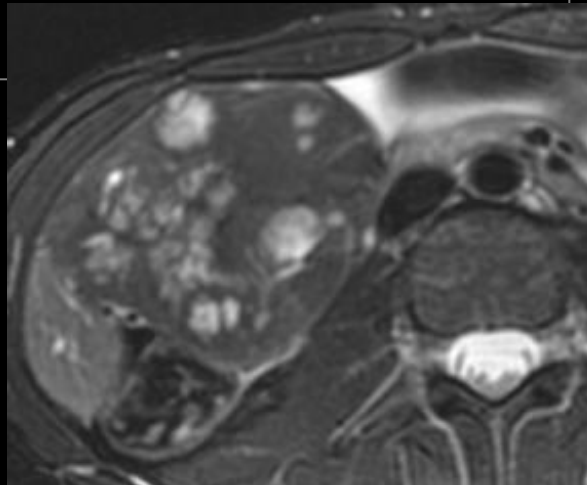


La **pélio**se intratumorale (cavités kystiques contenant du sang et communiquant avec les sinusoides hépatiques) explique le caractère hémorragique de l' adénome

# Adénome

## Tumeur Hypervascularisée

- Hépatocytaire
- Pas de cellules de Küpfer
- Nécrose, Calcifications, Hémorragie, Stéatose
- Adénomatose 60%
- Dégénérescence?
- COP/stéroïdes  
/anabolisants/grossesse/  
diabète/ glycogénose Ia



## ① Adénome hépatocellulaire avec mutation HNF-1:

- 35%
- lésions stéatosiques +++
- femmes 95%
- association à l' HNF

# Genetics and Imaging of Hepatocellular Adenomas: 2011 Update<sup>1</sup>

### CME FEATURE

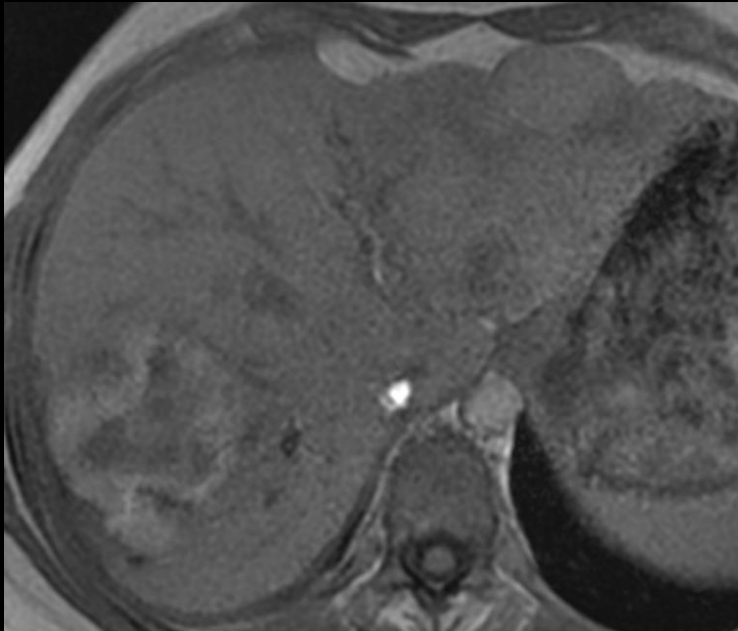
See [www.rsna.org/education/lrg\\_cme.html](http://www.rsna.org/education/lrg_cme.html)

*Venkata S. Katabathina, MD • Christine O. Menias, MD • Alampady K. P. Shanbhogue, MD • Jaishree Jagirdar, MD • Raj Mohan Paspulati, MD Srinivasa R. Prasad, MD*

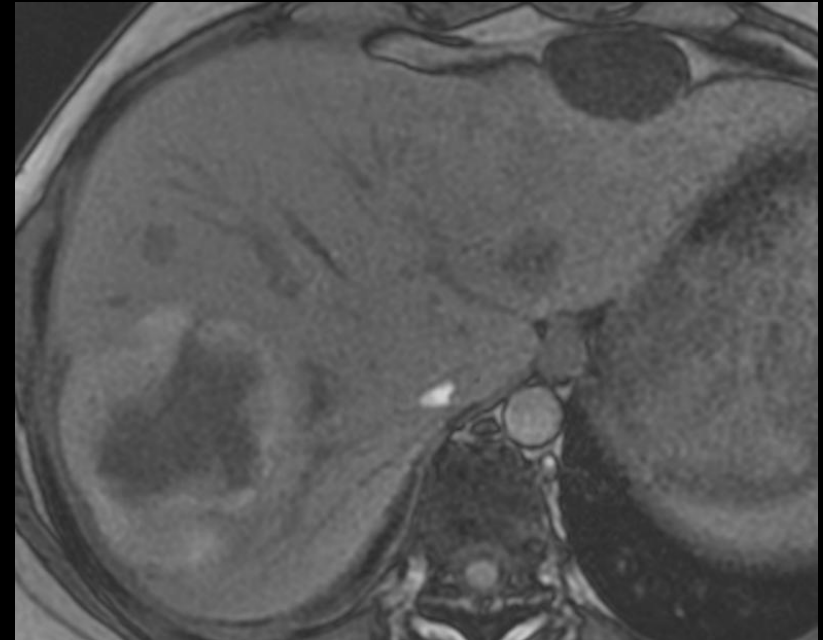
④ Adénome hépatocellulaire sans mutation HNF-1 $\alpha$  ou mutation  $\beta$ -caténine et sans surexpression des protéines inflammatoires: 5%

# Adénome graisseux

In Phase

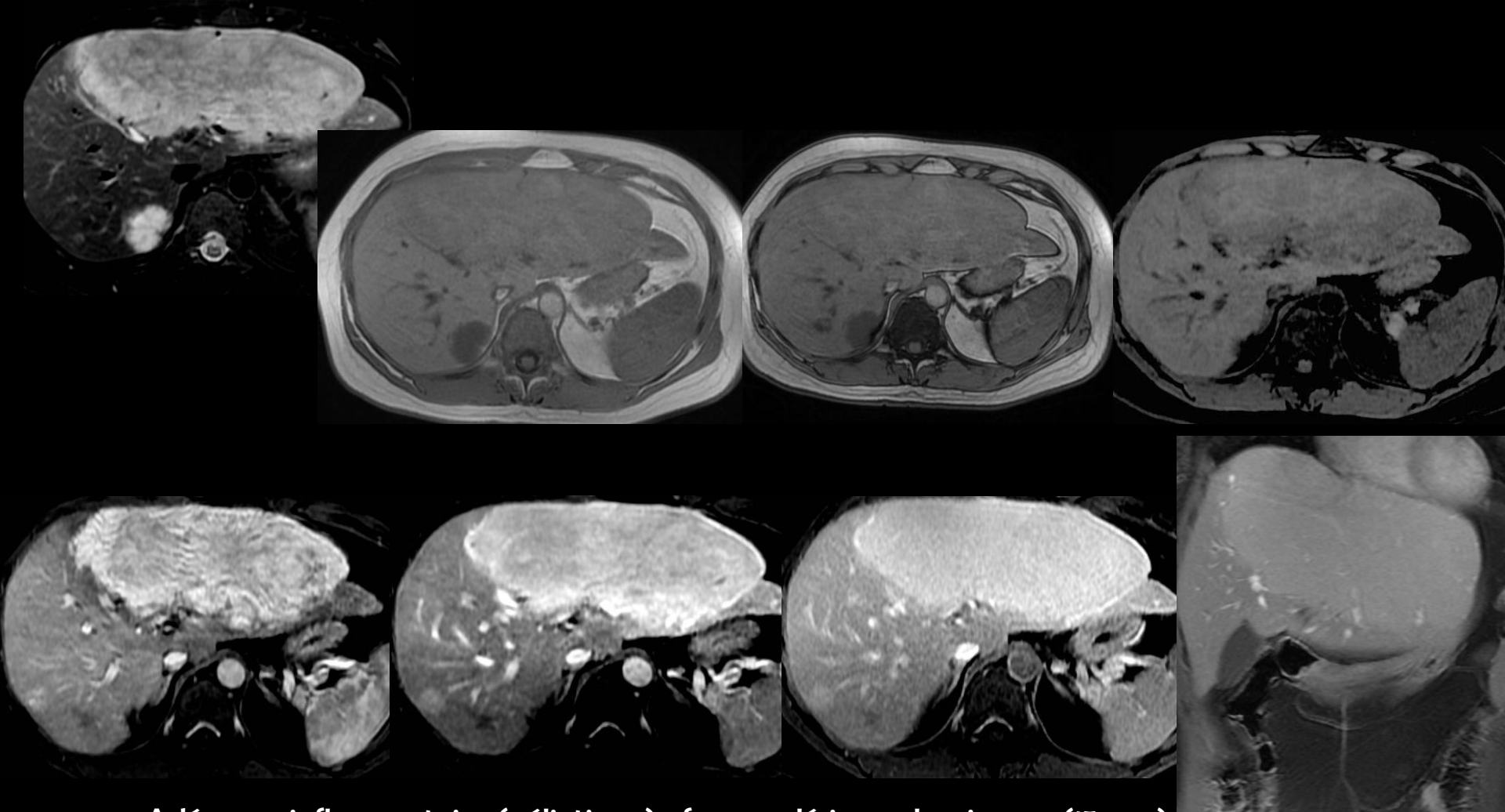


Out of Phase



Plutôt les adénomes avec  
mutation HNF 1

# Adénome inflammatoire(télangiectasique)



Adénome inflammatoire (pélotique) : femme, lésion volumineuse (15 cms)

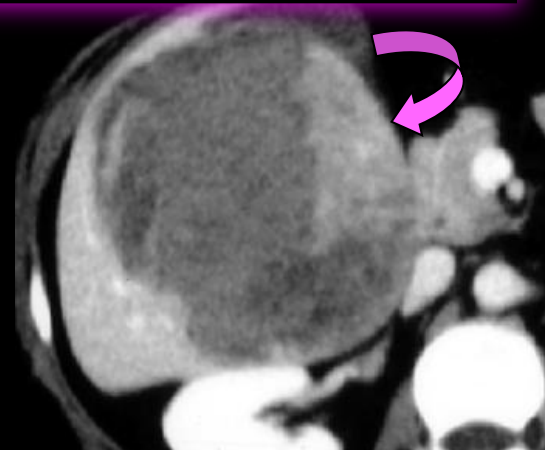
# Adénome hémorragique



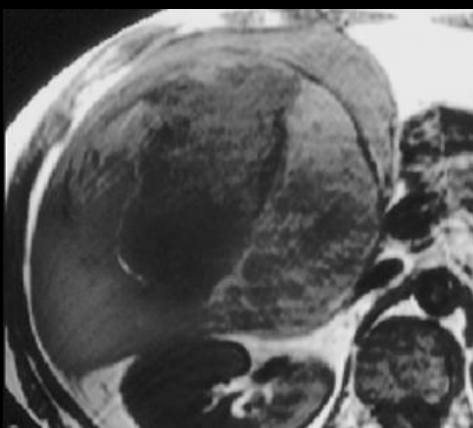
CT avant injection



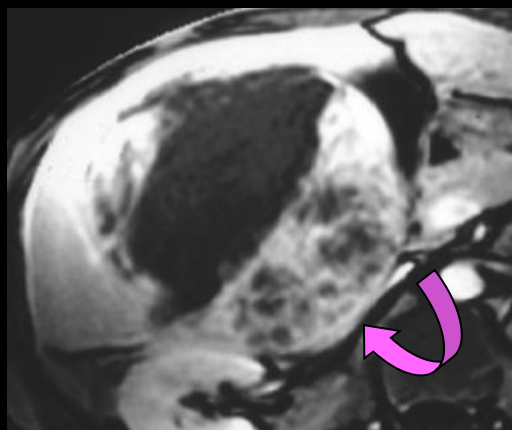
CT 45 "



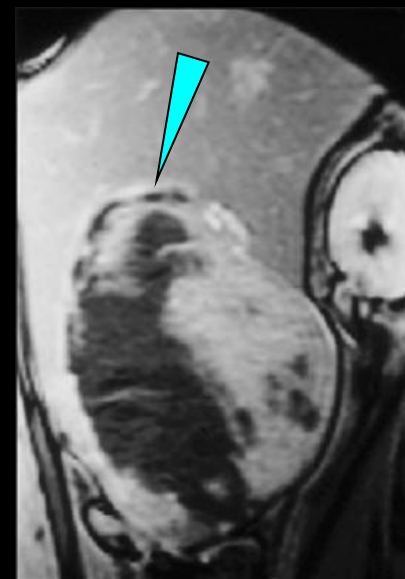
CT 1'30



SE T1



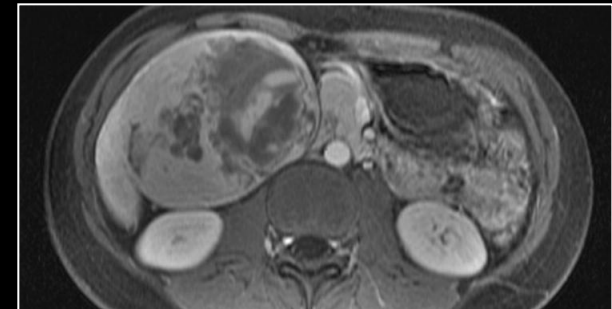
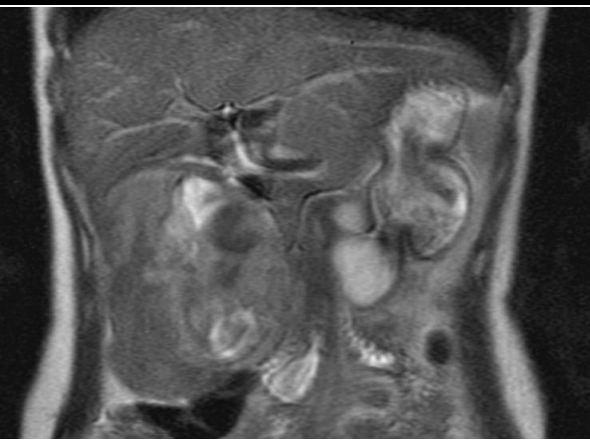
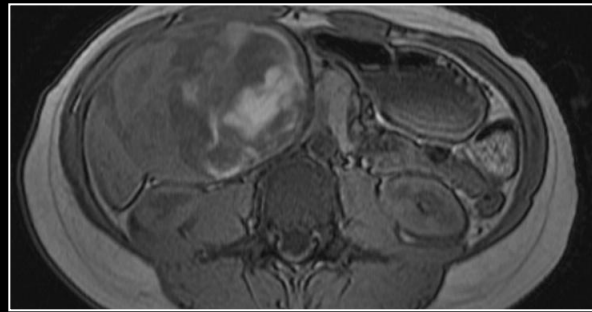
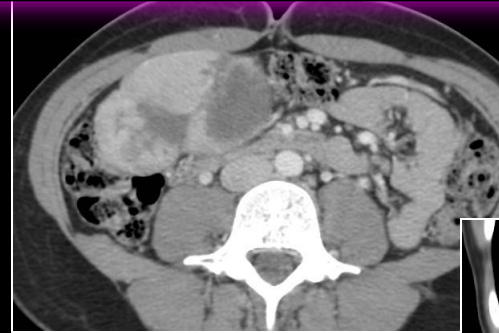
SE T1 2'



SE T1 6'

adénome hépatique hémorragique, femme 34 ans

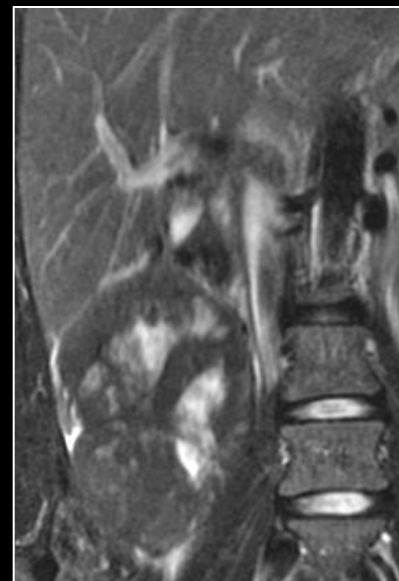
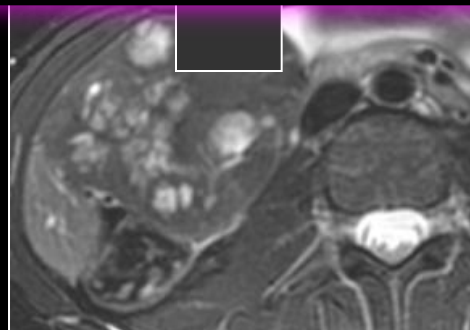
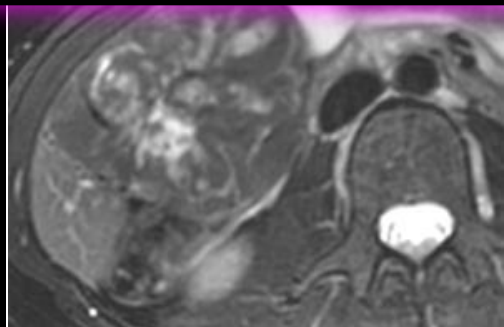
# Adénome hémorragique



Homme 25 ans, douleurs en HCD, biologie normale

**Adénome hémorragique**

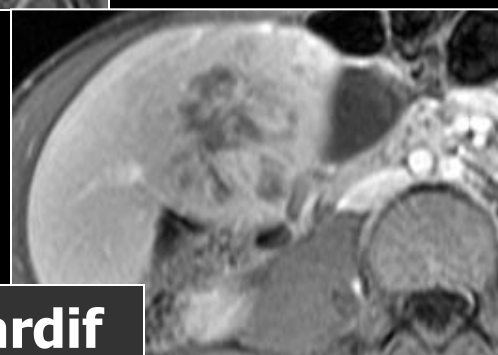
# Adénome hémorragique



**T1 gado précoce**

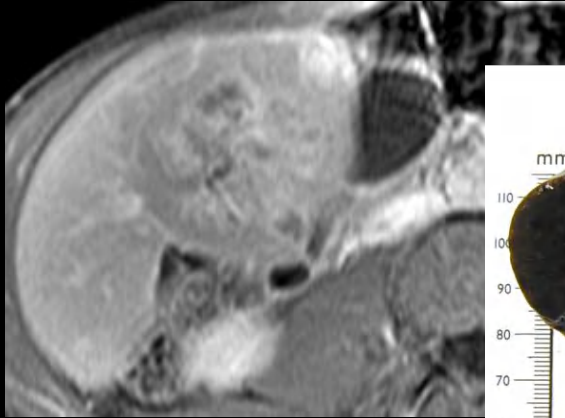
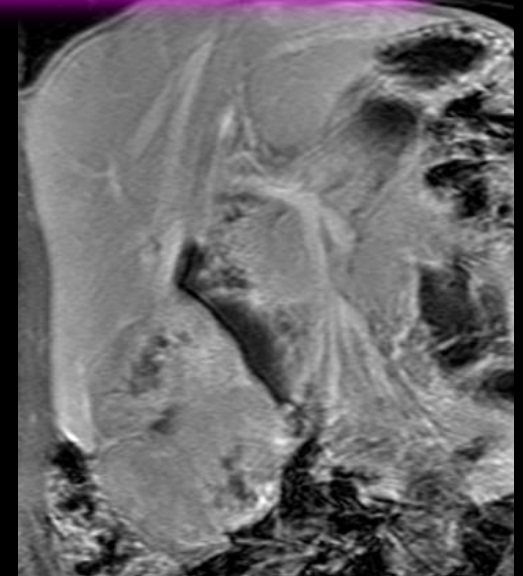
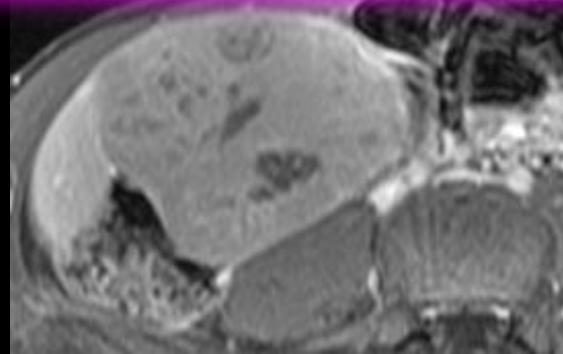
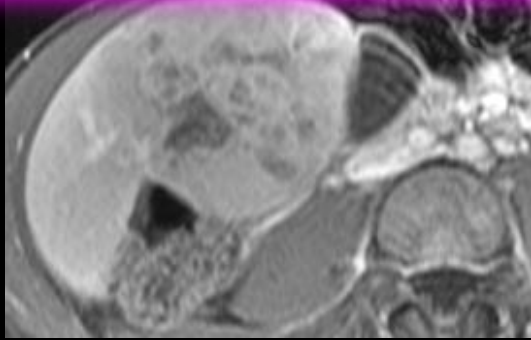


**T1 gado tardif**



**Jeune femme 23 ans ; découverte d'une masse abdominale lors d'une consultation pour début d'une contraception.**

# Adénome hémorragique



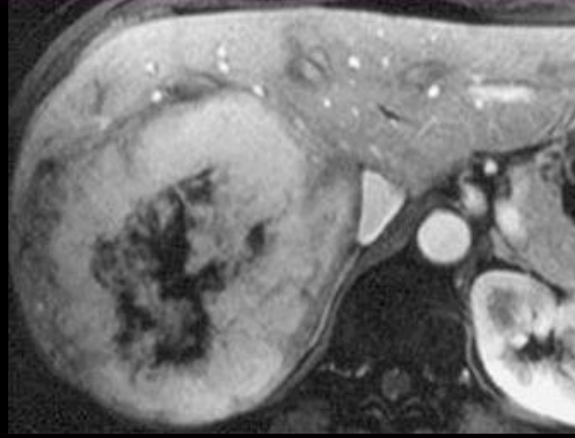
**Adénome remanié**

par des hémorragies anciennes

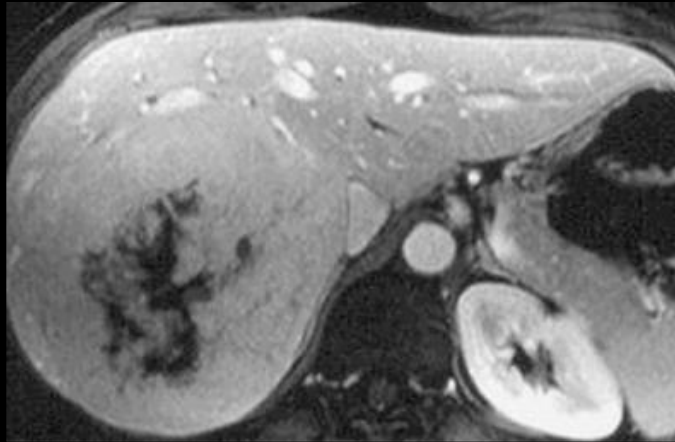
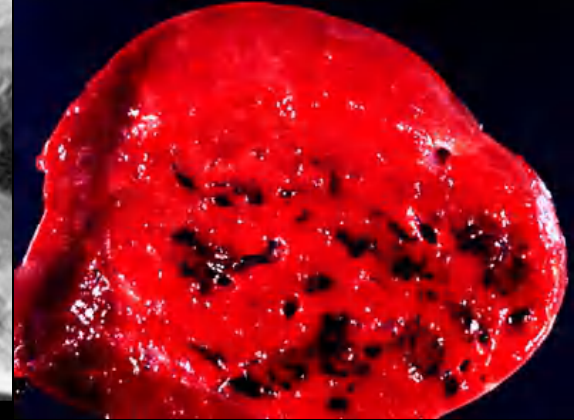
# Adénome hémorragique



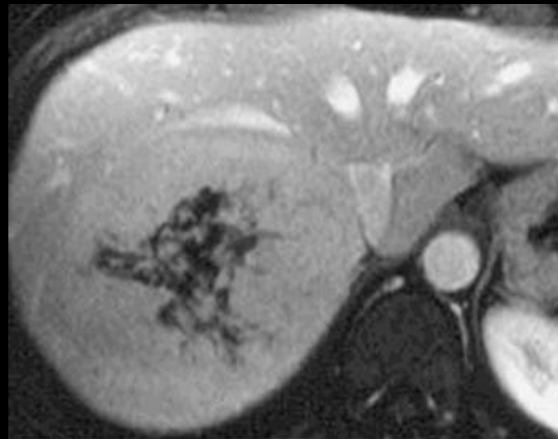
EG T1 sans Fat Sat



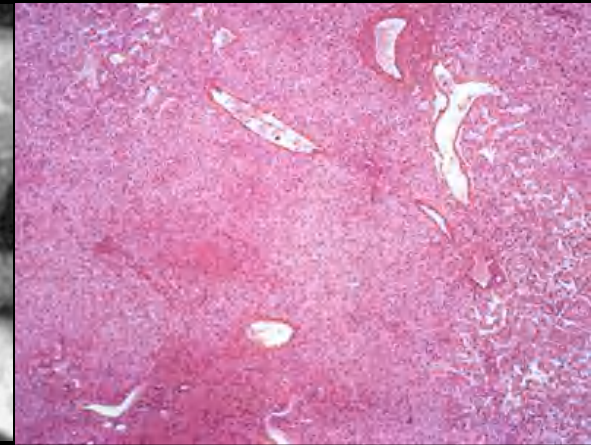
T1 50" avec Fat Sat



T1 70" avec Fat Sat

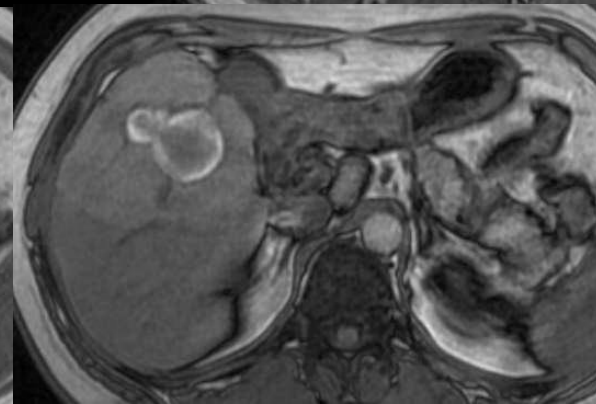
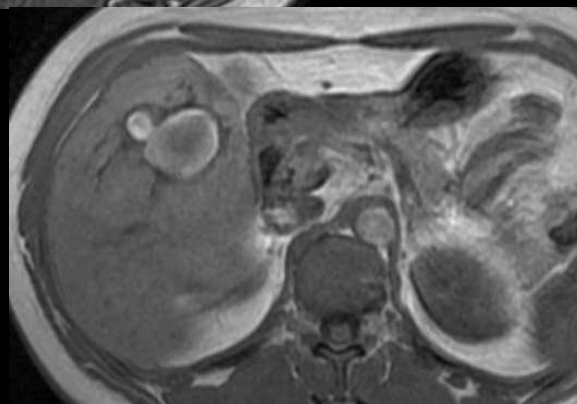
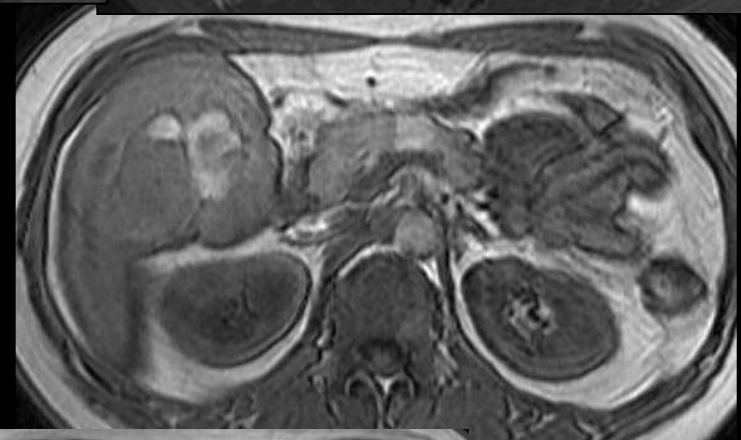
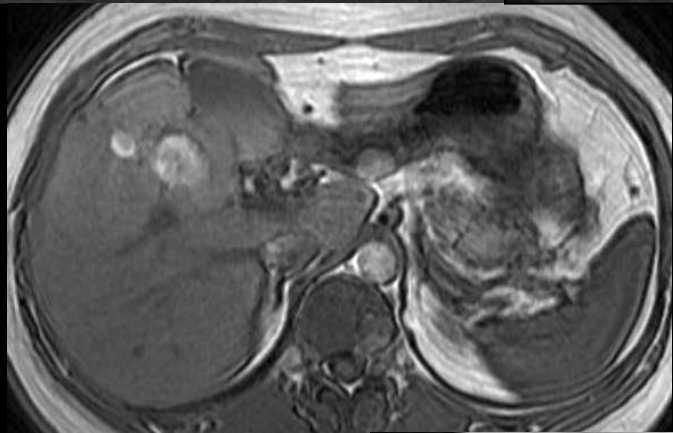
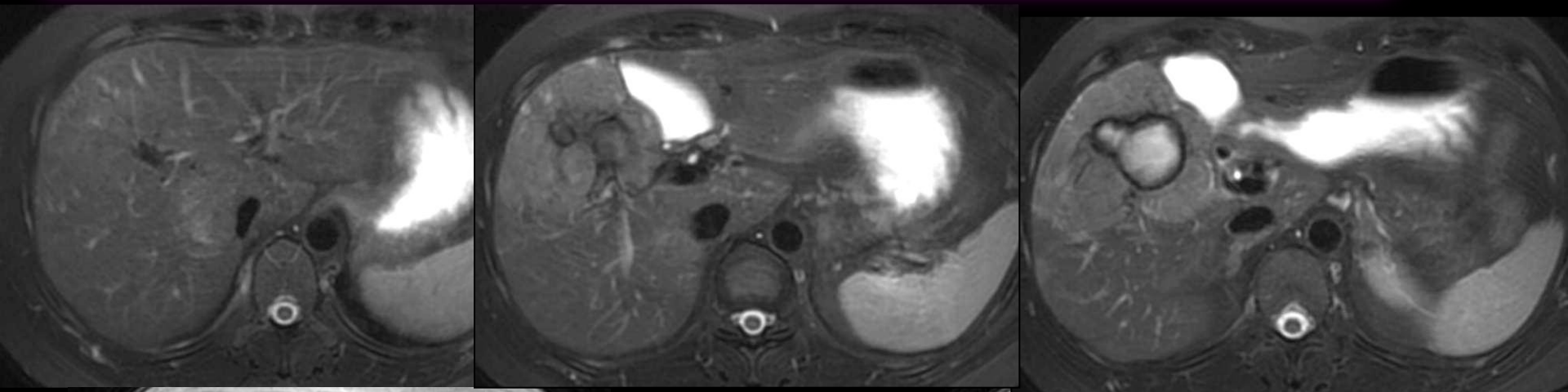


T1 2' avec Fat Sat

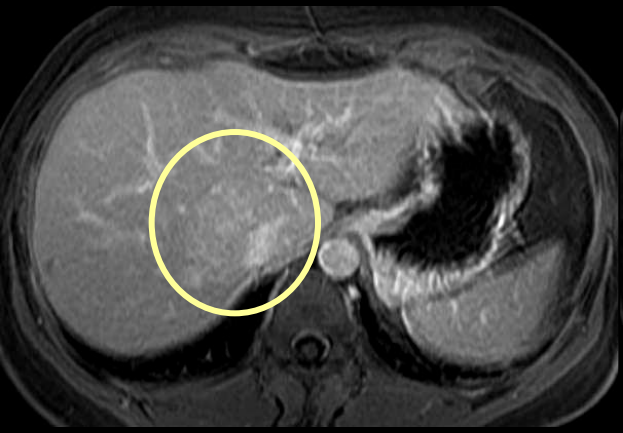
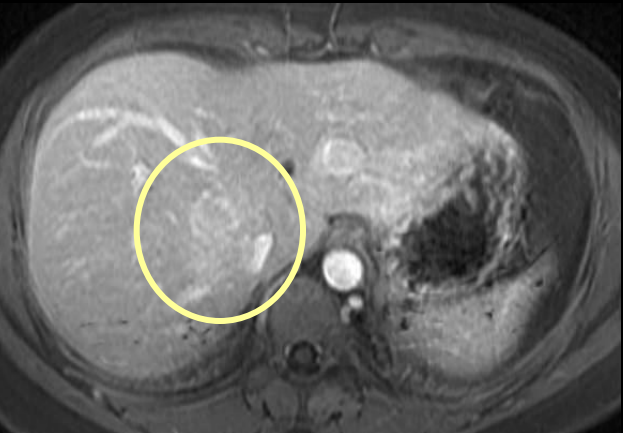
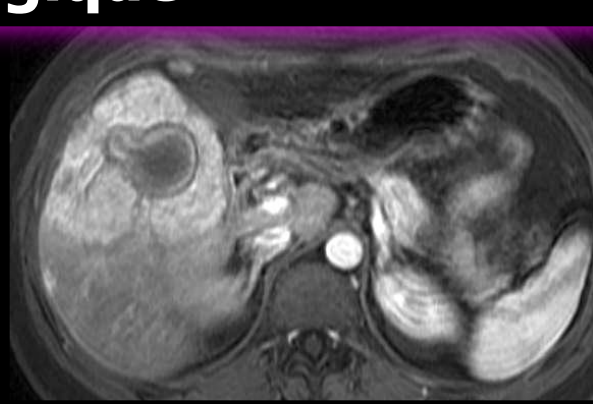
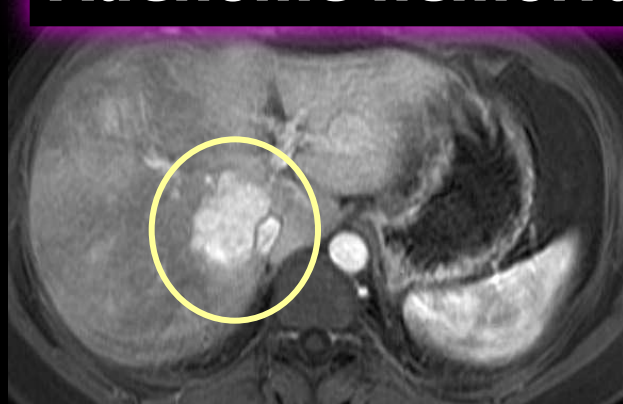


**Adénome hépatique nécrosé non hémorragique, femme 37 ans**  
**Diagnostic différentiel macroscopique impossible avec CHC sur foie non cirrhotique !!**

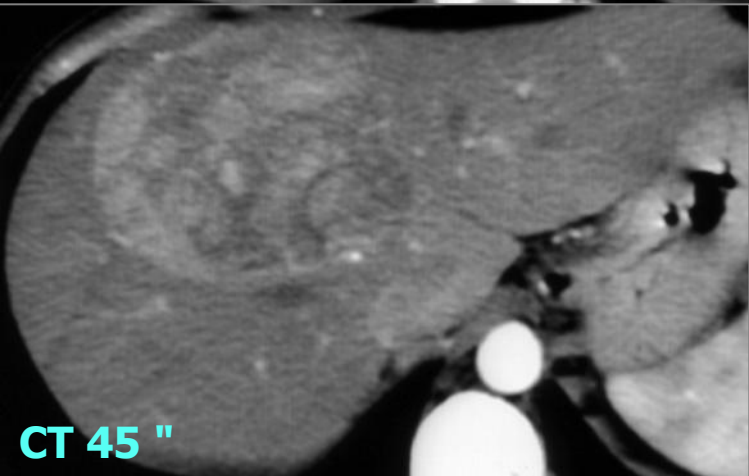
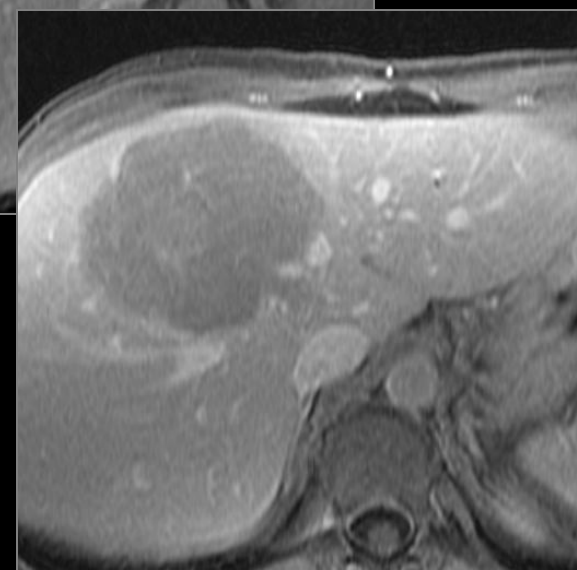
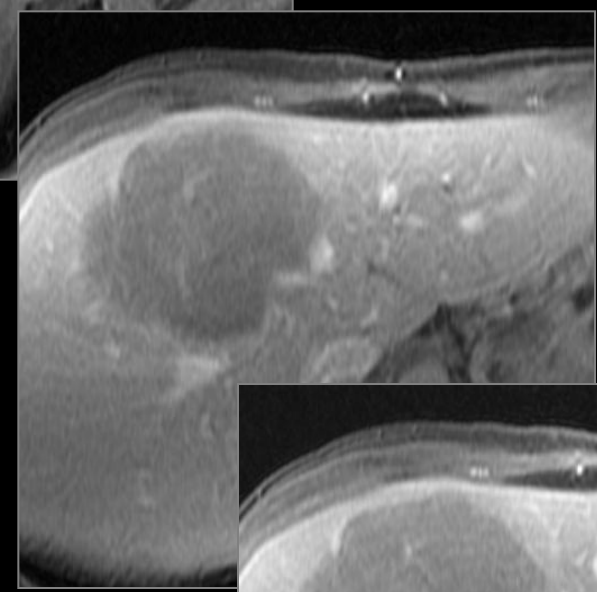
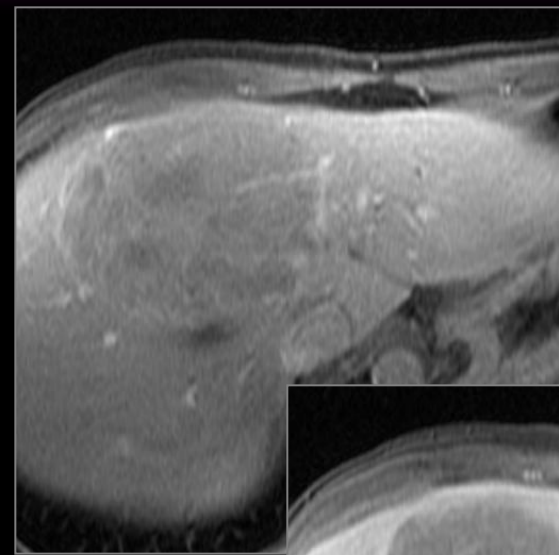
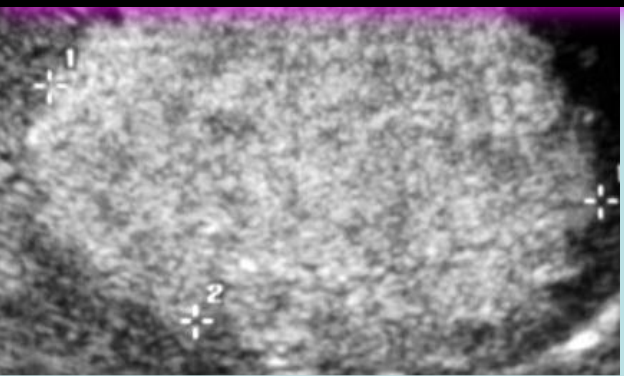
# Adénome hémorragique



# Adénome hémorragique



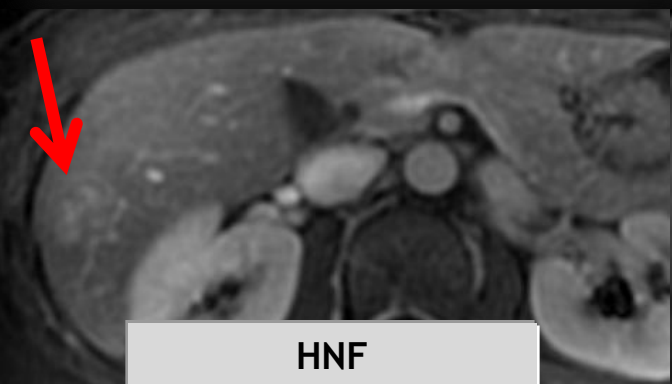
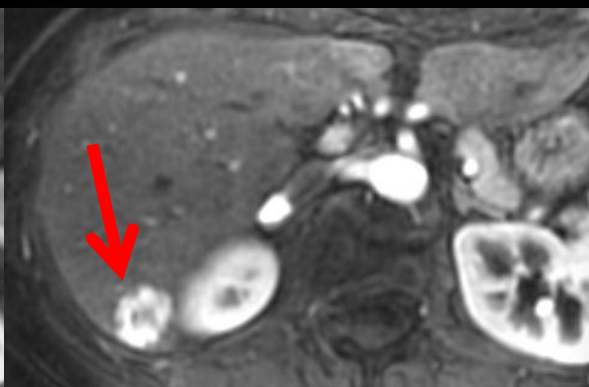
# Adénome avec wash out



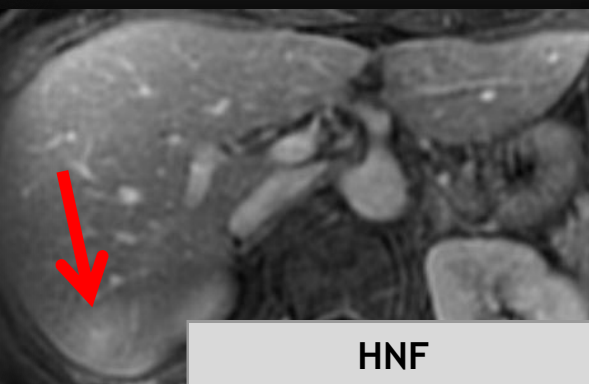
CT avant injection

CT 45 "

# Adénome avec wash out



HNF



HNF



Adénome

## Adénome : apport de l'IRM

- Pondération T2: **hétérogénéité**
- Pondération T1 avant gado: **remaniements hémorragiques**
- Pondération T1 après gado: **hypervascularisation**, prise de contraste **moins intense, moins homogène**
- In Phase / Out of Phase : **présence de graisse intrahépatocyttaire**

# Tumeurs rares : Angiomyolipome

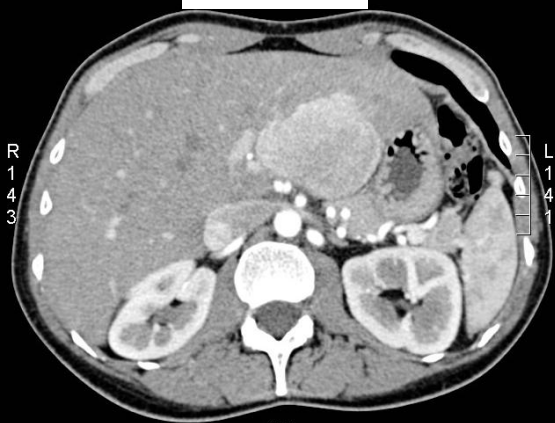
Observation Benoit DUPAS-CHU Nantes



30 sec

70 sec

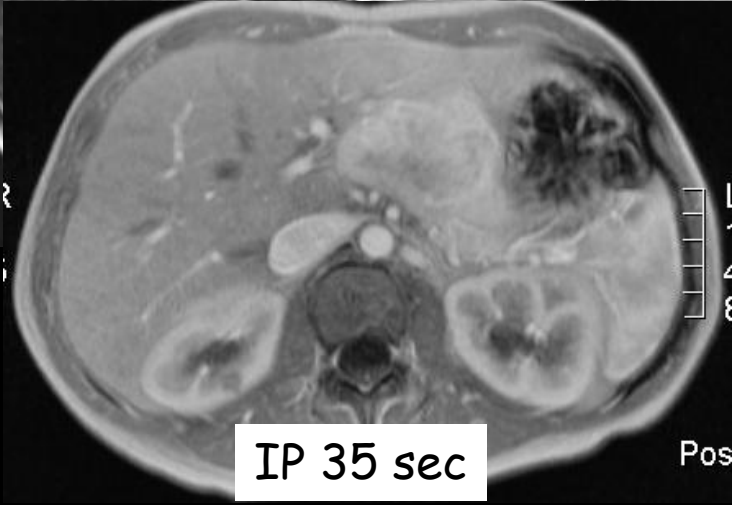
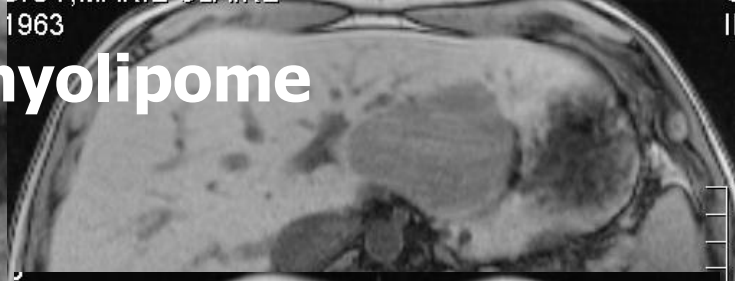
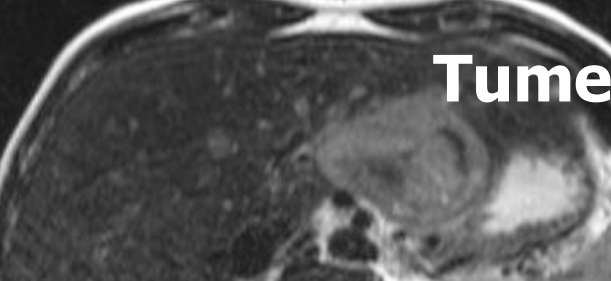
3 min



A11

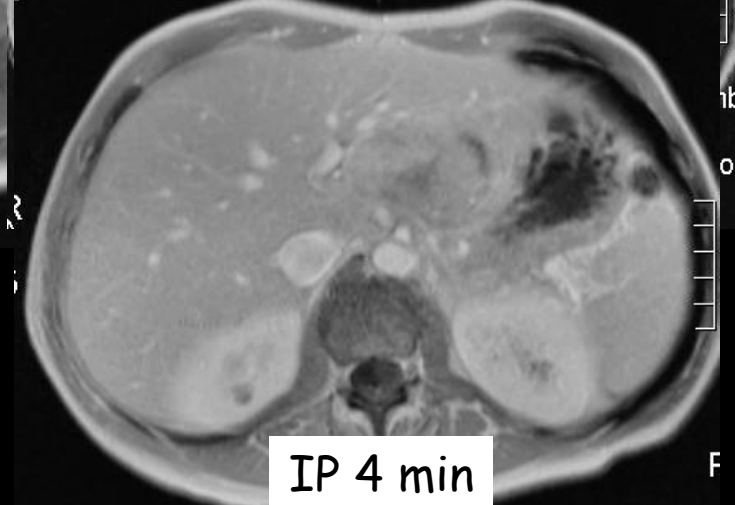
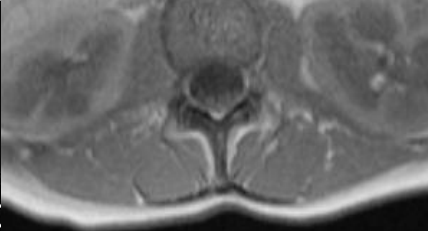
A11

# Tumeurs rares : Angiomyolipome

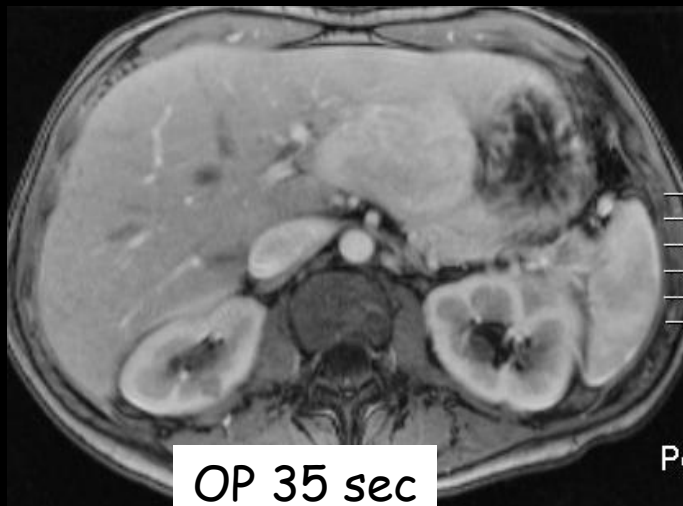


IP 35 sec

Pos

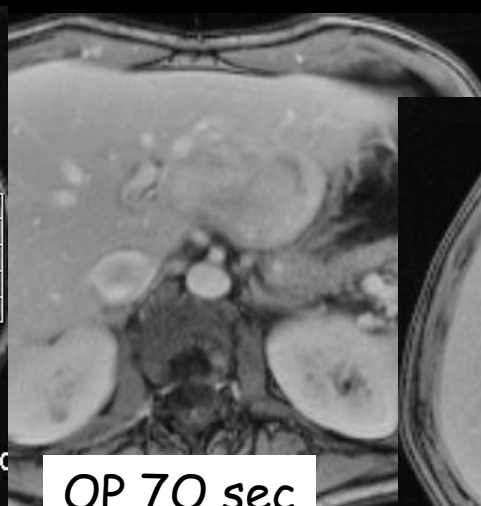


IP 4 min

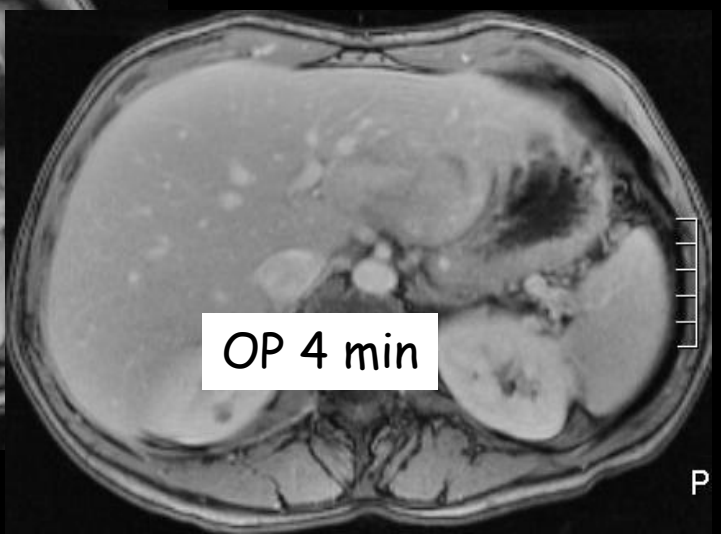


OP 35 sec

Pos

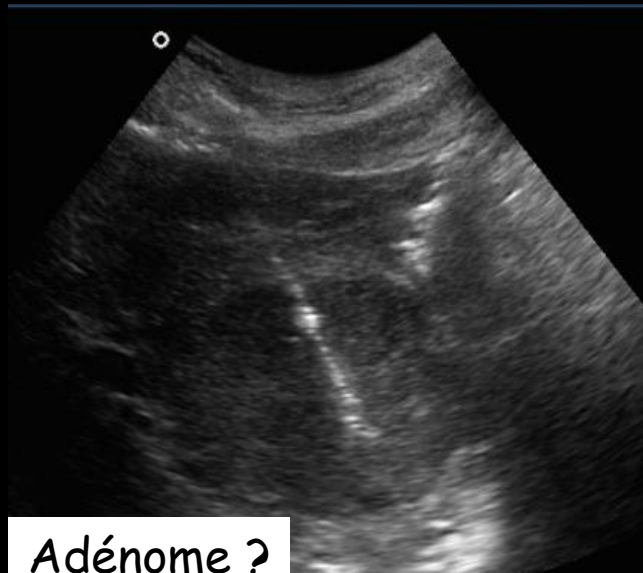


OP 70 sec

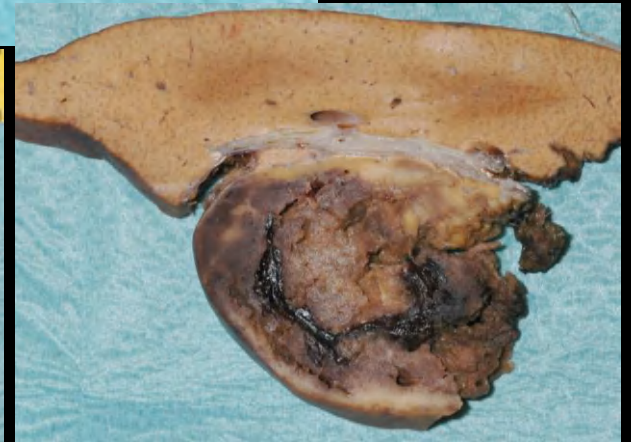


OP 4 min

P

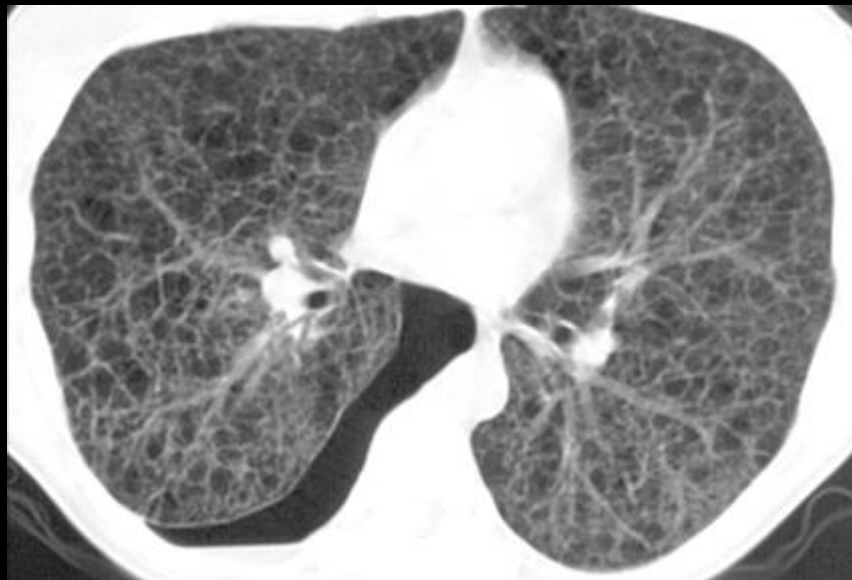


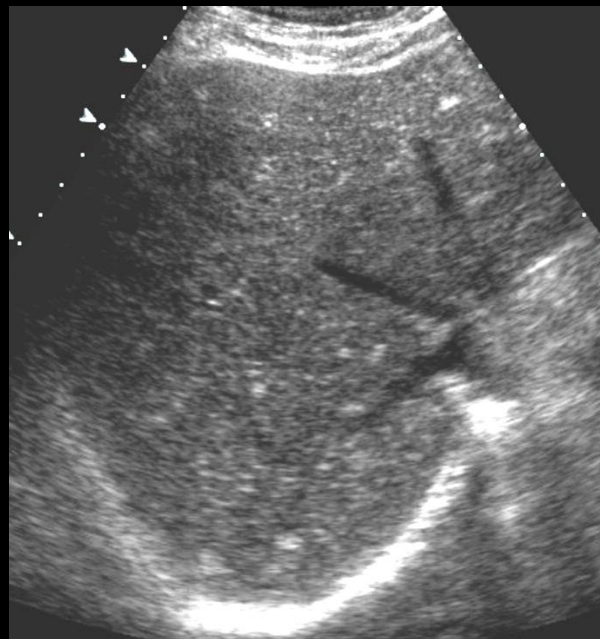
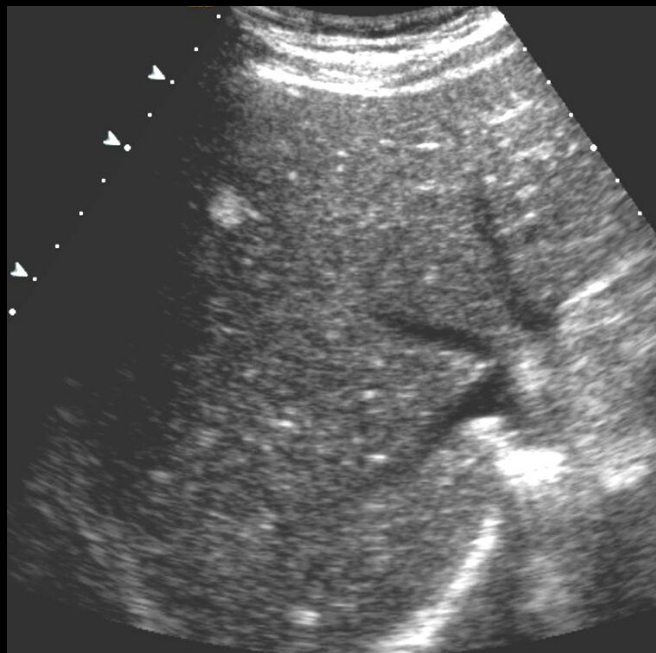
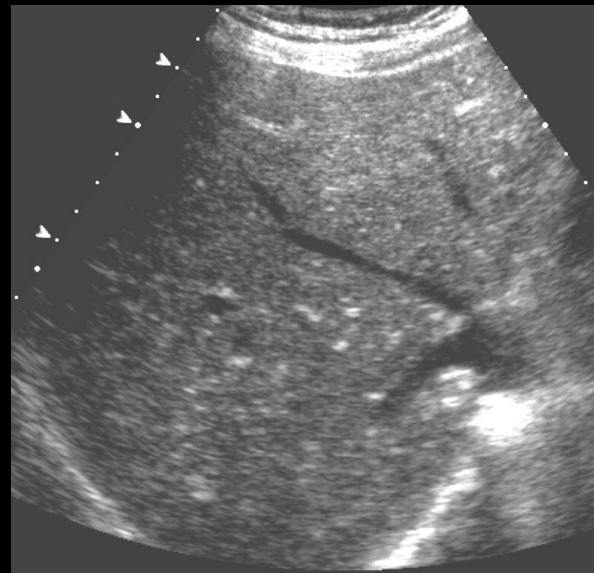
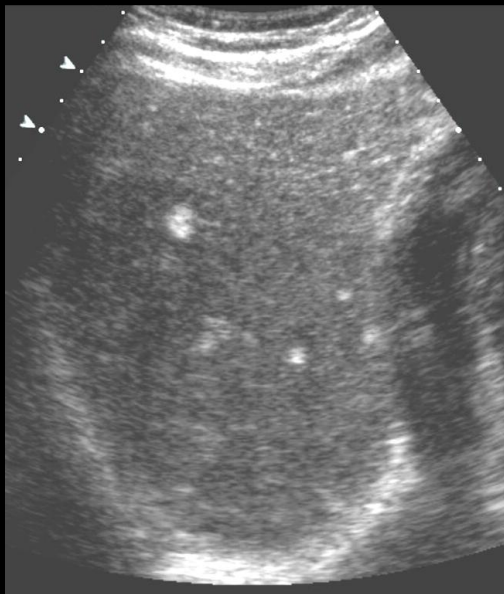
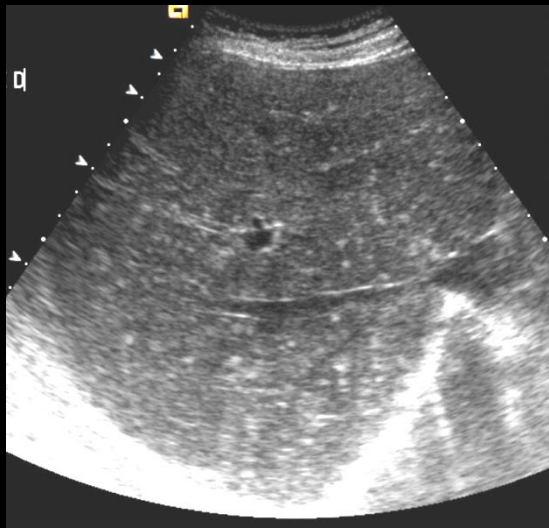
Adénome ?



Angiomyolipome  
de type épithélioïde de 7,5 cm  
immunohistochimie +++

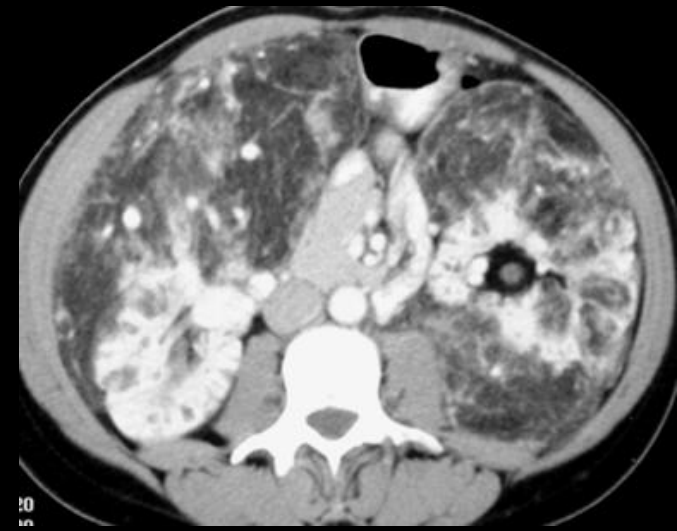
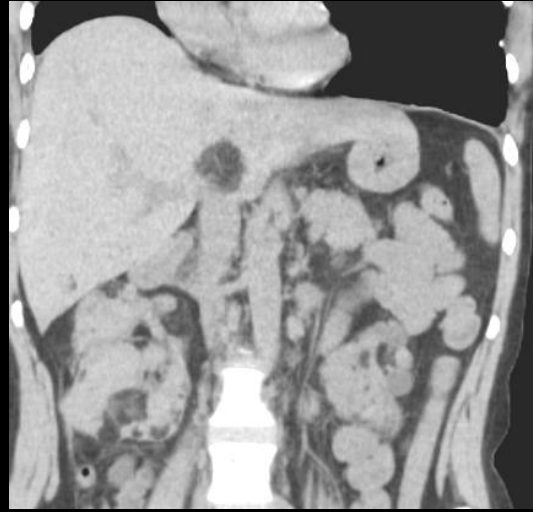
Observation Benoit DUPAS-CHU Nantes





Angiomyolipomes rénaux et hépatiques  
dans le cadre d'une sclérose tubéreuse  
de Bourneville





Femme, 57 ans

ATCD de cancer du sein  
trois ans auparavant

# Tumeurs rares : Pseudo tumeur inflammatoire

Observation Benoit DUPAS-CHU Nantes

