

Ecoscopia dell'addome: sistema epato-bilio-pancreatico

- .Orientamento ecografico**
- .Anatomia del fegato e delle vie biliari.**
- .Epatopatie diffuse: steatosi, epatite cronica, cirrosi, ipertensione portale.**
- .Calcolosi della colecisti e patologie del pancreas.**
- .Strutture vascolari epigastriche.**

Dott.Andrea Pezzato

Ospedale alto Vicentino – AULSS 7 Pedemontana

UOC di Radiologia

ECOGRAFIA ADDOMINALE: TECNICA DI BASE

- Sonda di tipo convex
- Seguire sempre lo stesso percorso
- Premere
- Individuare le finestre acustiche
- Individuare l'anatomia
- Orientarsi nei piani dello spazio, al variare dell'inclinazione della sonda
- Movimenti lenti e circoscritti
- Esplorare completamente gli organi
- Adattarsi al tipo di paziente



Upper abdominal
transverse and
longitudinal scans



Extended
intercostal scan



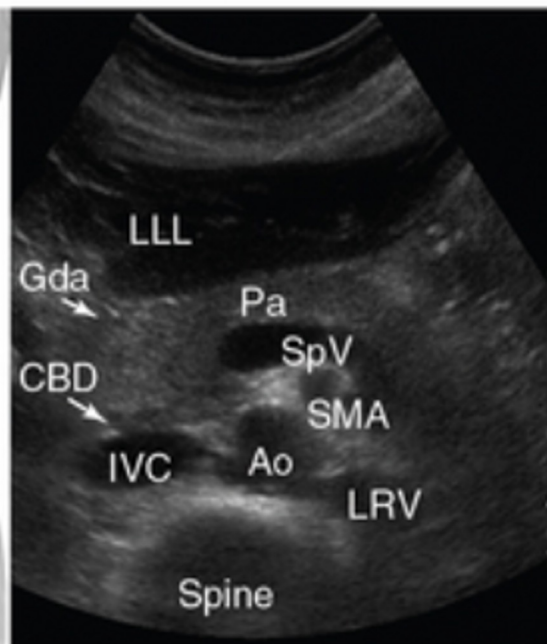
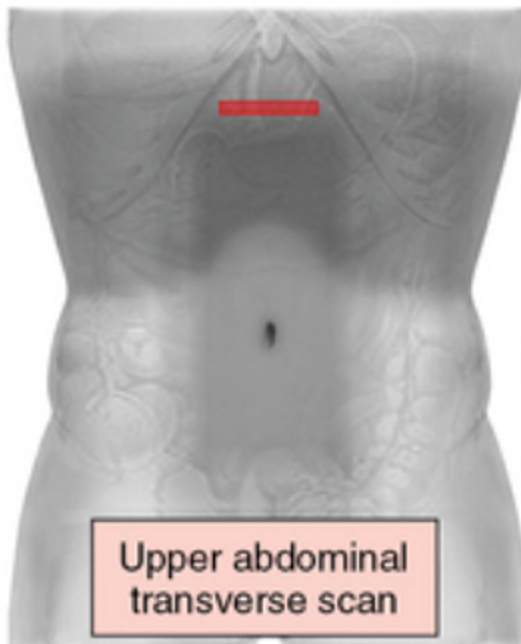
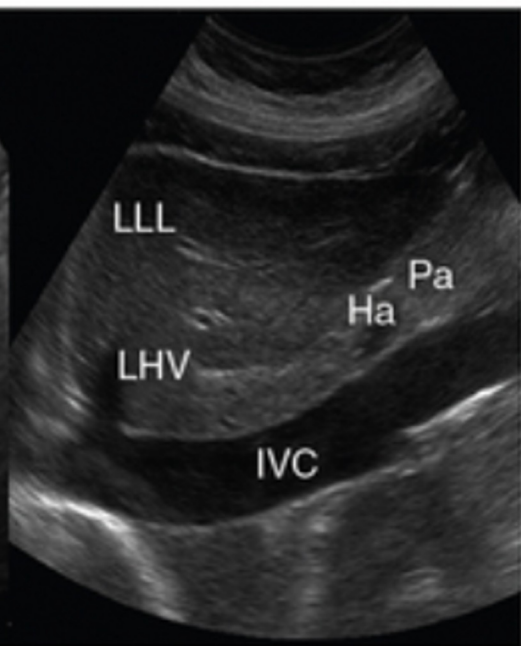
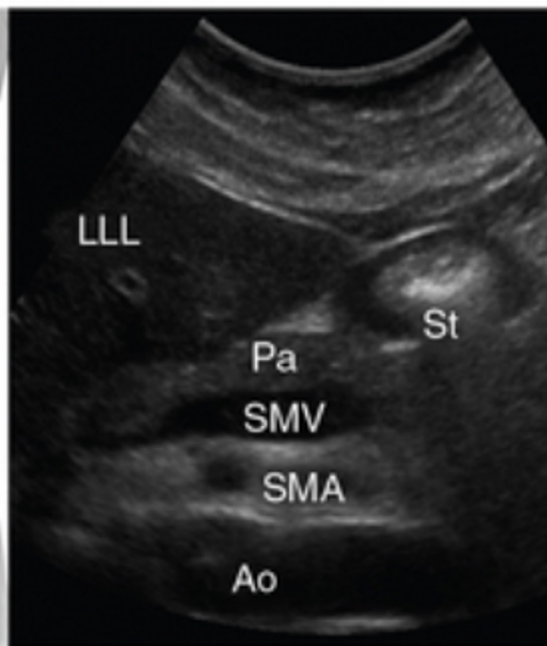
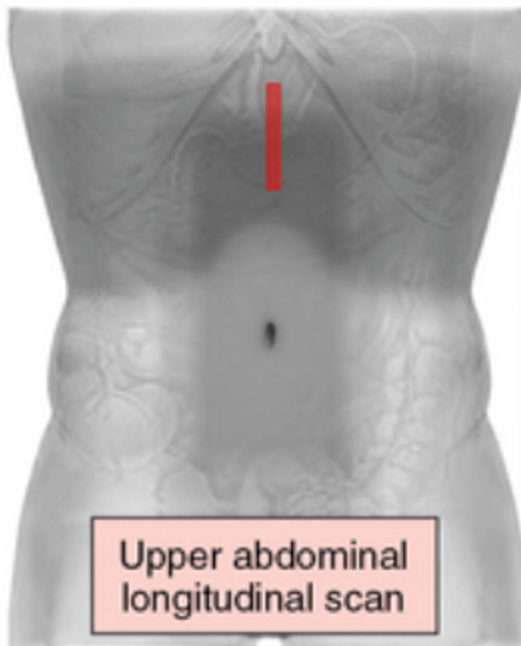
Right subcostal
oblique scan

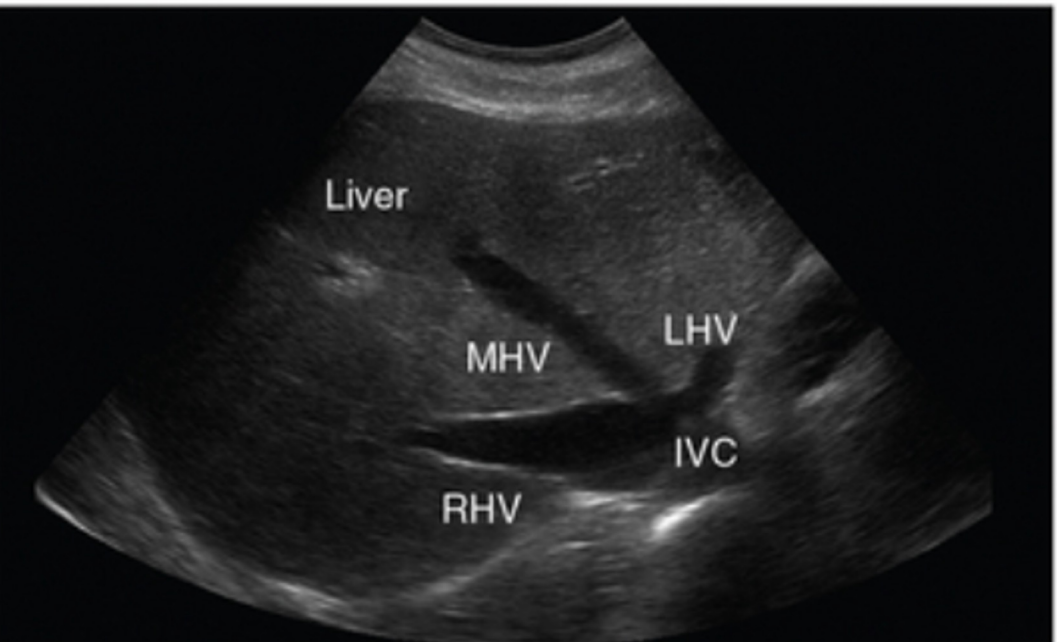
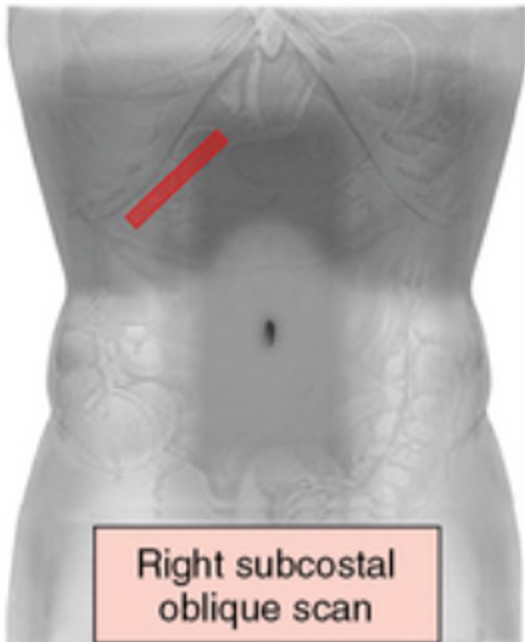
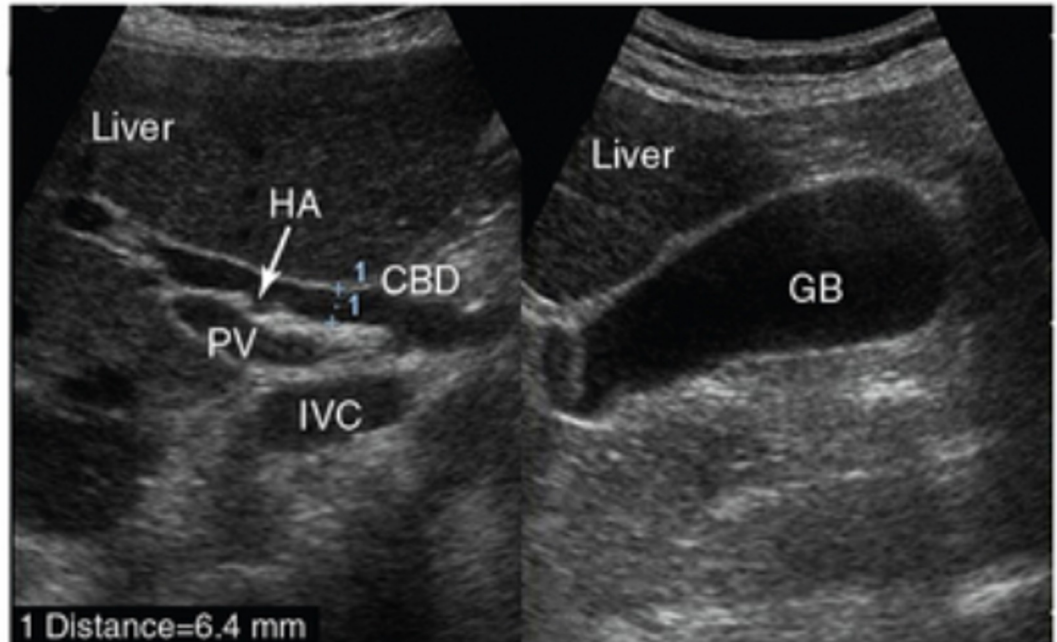
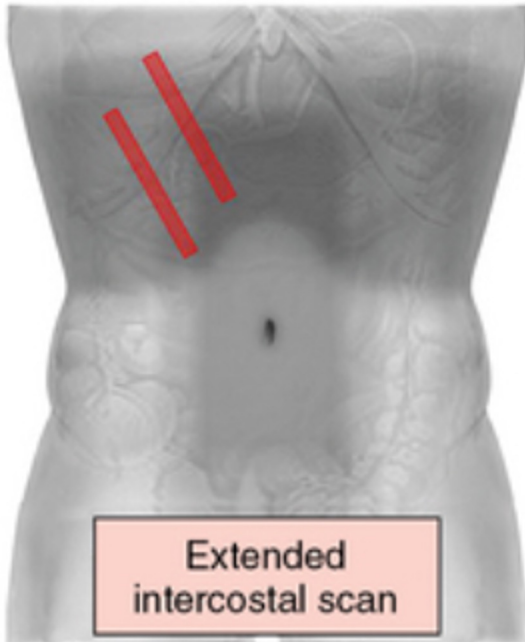


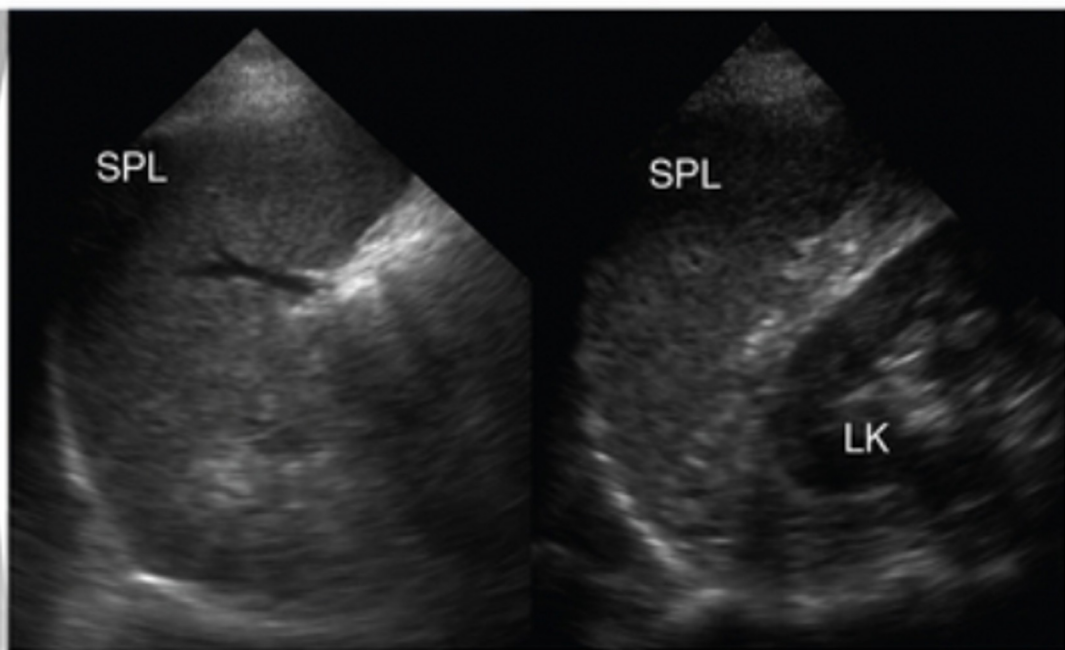
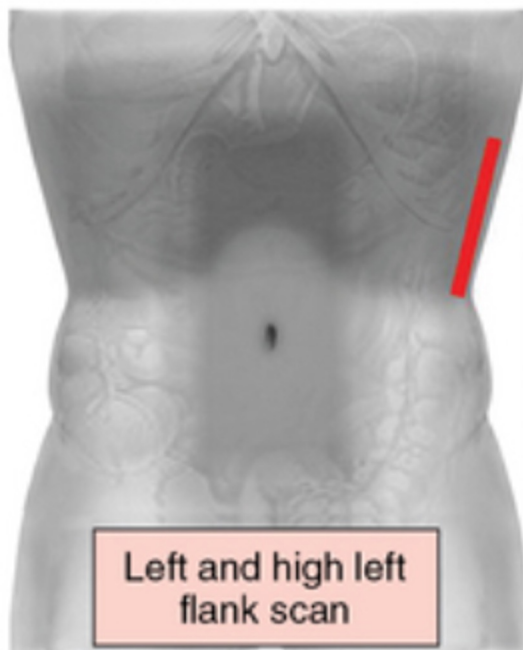
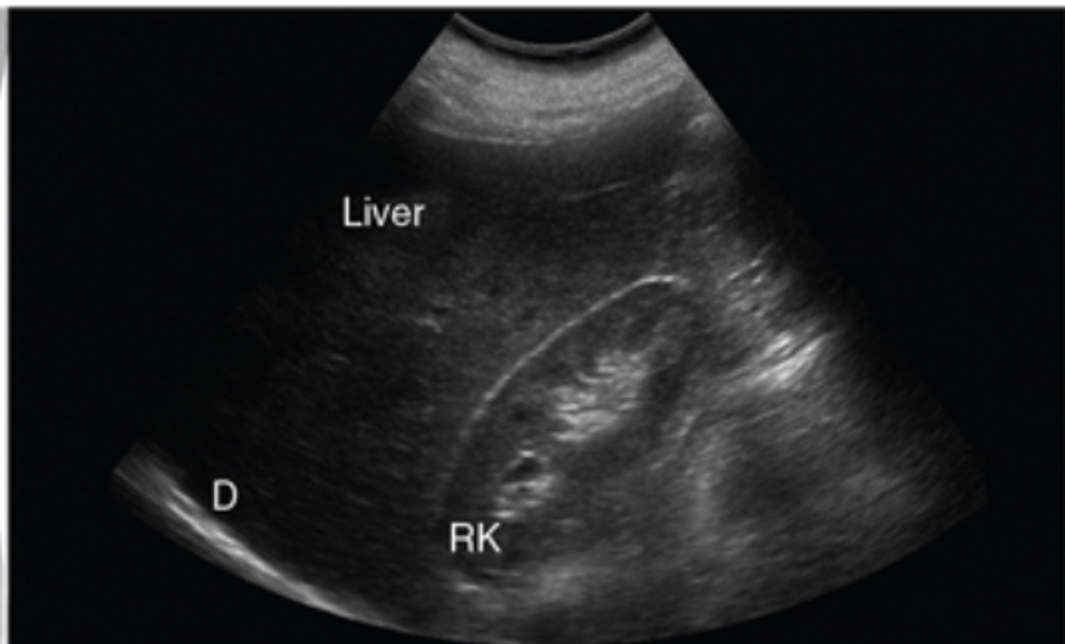
Right flank scan



Left and high
left flank scans







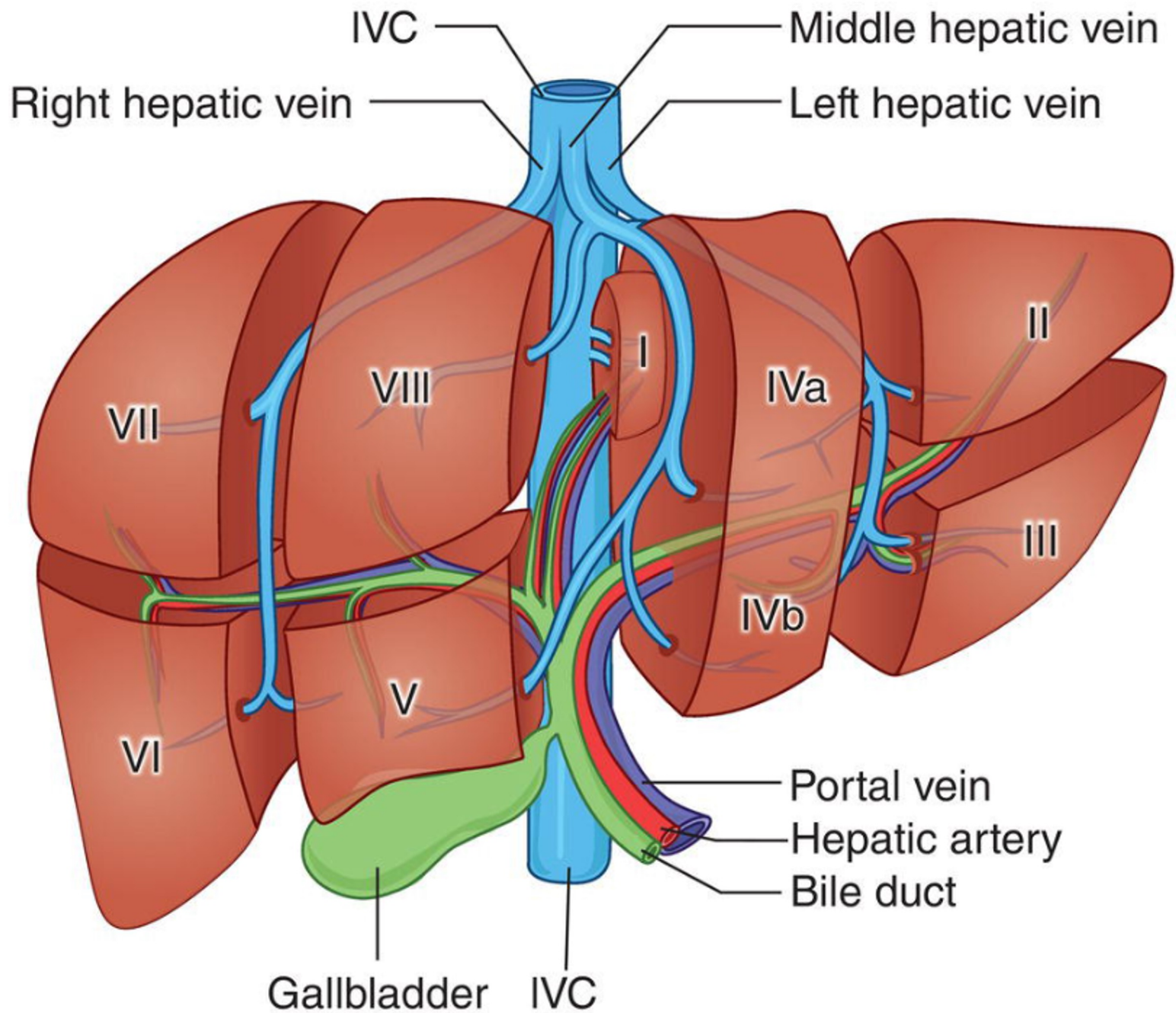
FEGATO: ANATOMIA

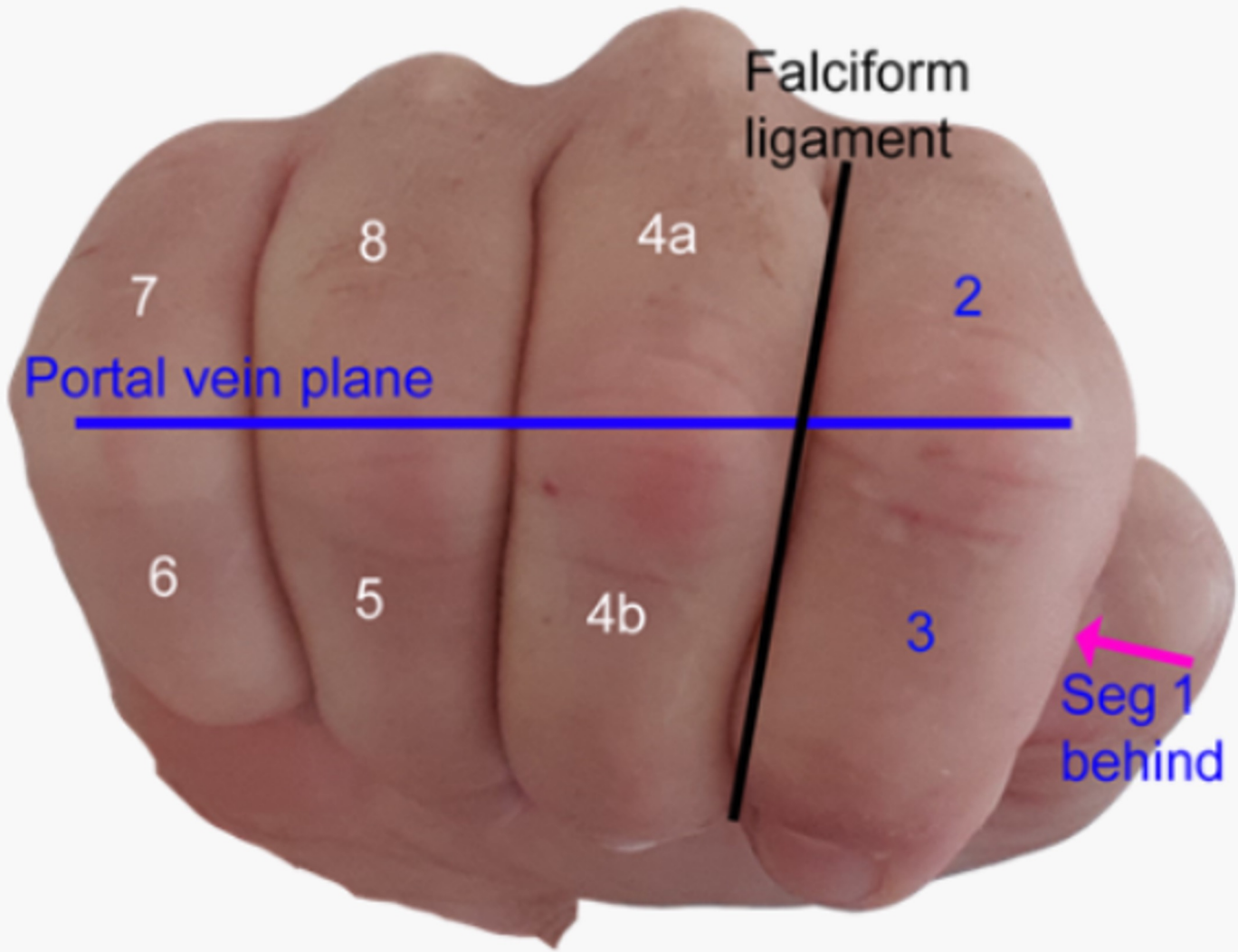
DIMENSIONI: normali (diametro longitudinale Lobo dx ≤ 15 cm), aumentate o ridotte, ipertrofia del lobo sn e caudato, ampliamento della fossa colecistica.

ECOSTRUTTURA: ecostruttura normale; iperecogena (bright liver); a chiazze; granulosa (coarse pattern); nodulare (coarse nodular pattern)

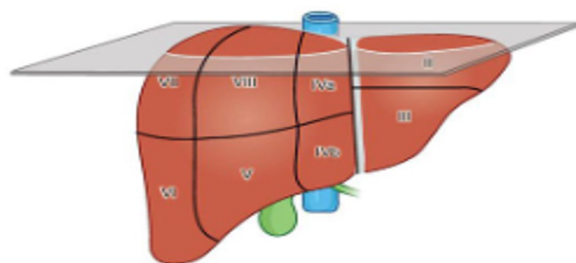
MARGINI: regolari, irregolari, policiclici

Characteristic	Appearance
Size	<15 cm
Echogenicity	\geq Right kidney, \leq pancreas, <spleen
Parenchyma	Homogeneous
Surface	Smooth

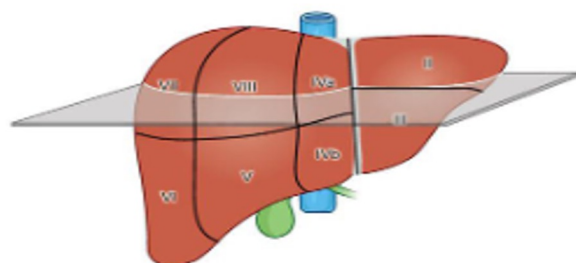




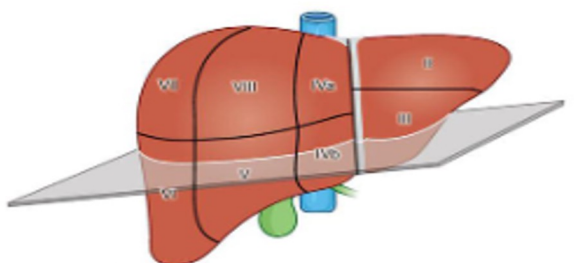
Dorsal view



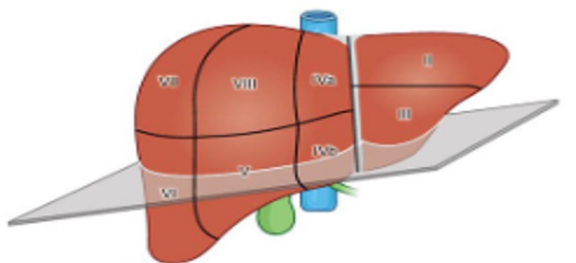
(a)



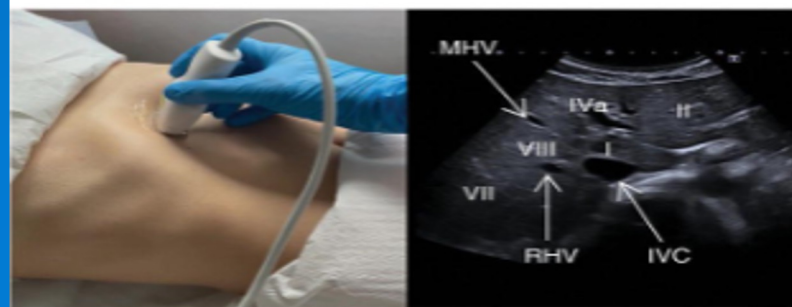
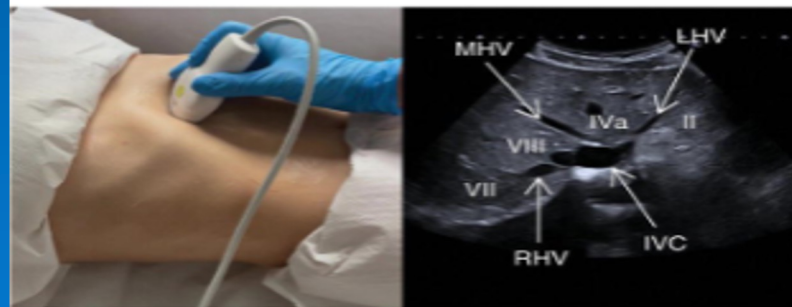
(b)



(c)



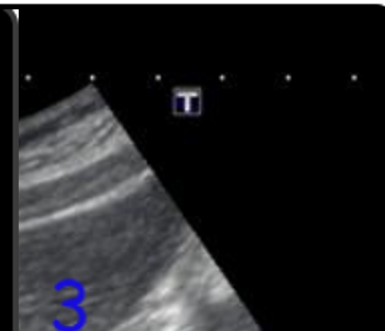
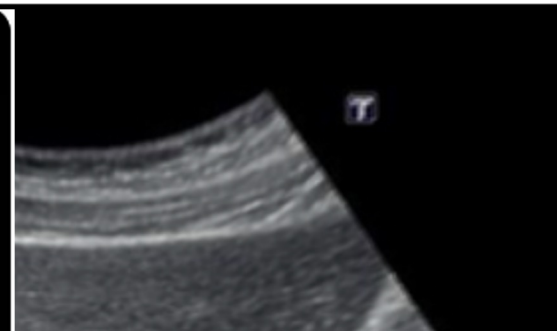
(d)



Rt Lobe Liver Trans

8

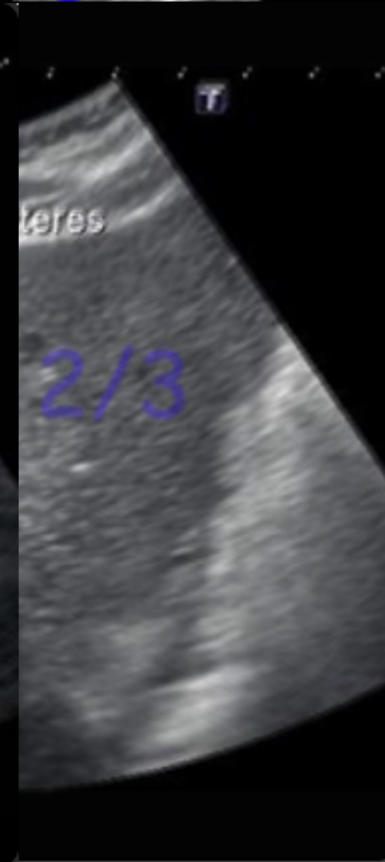
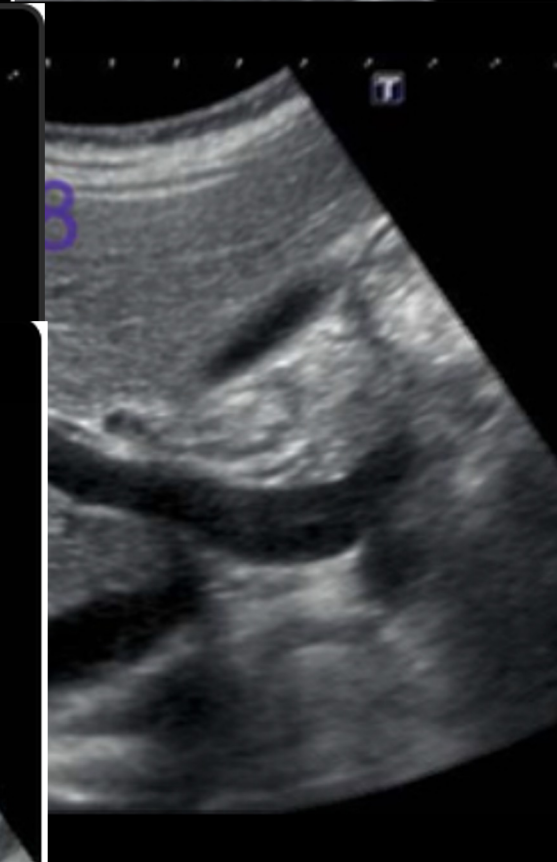
4a



Rt Lobe Liver Long

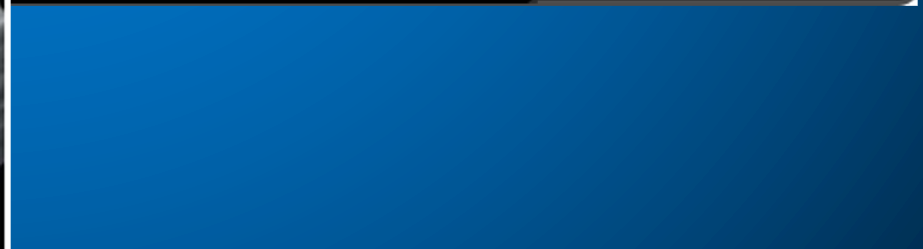
8

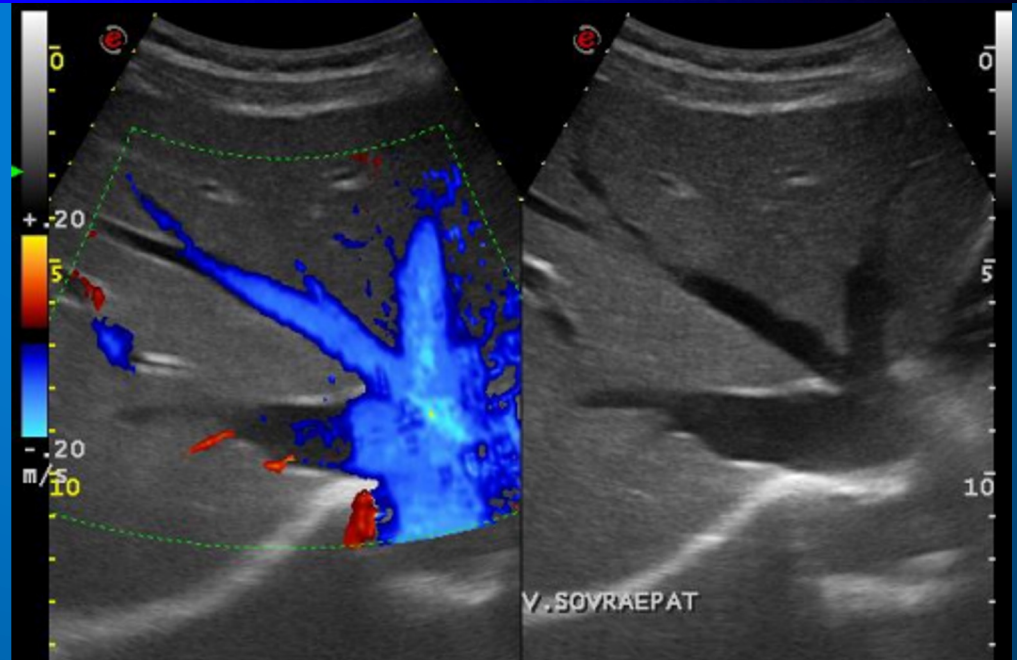
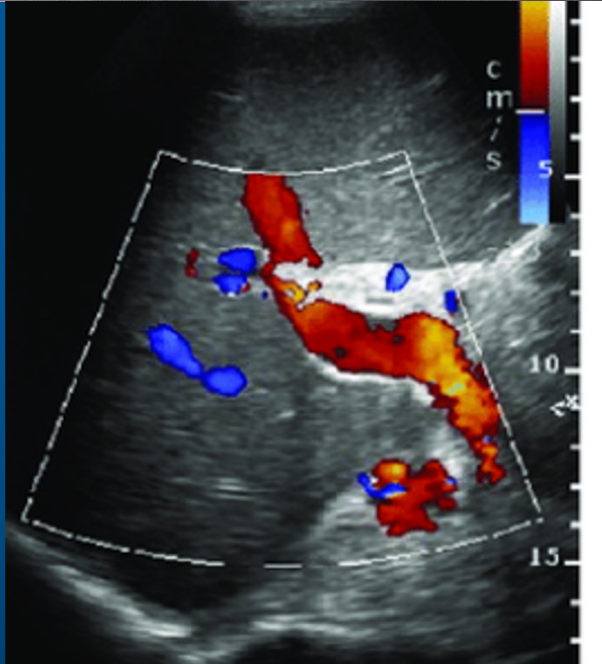
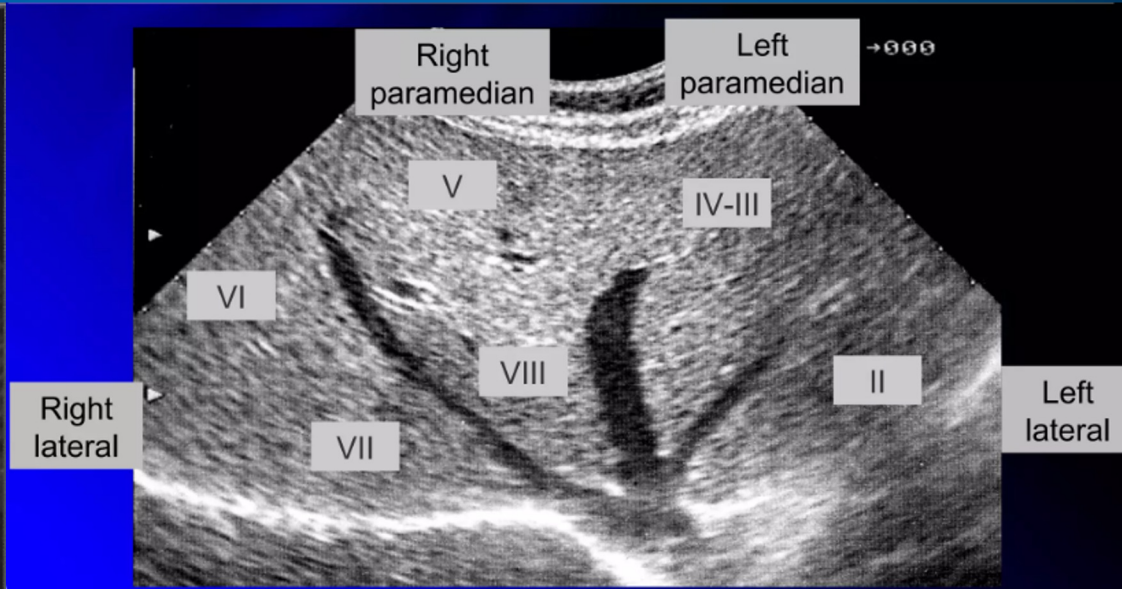
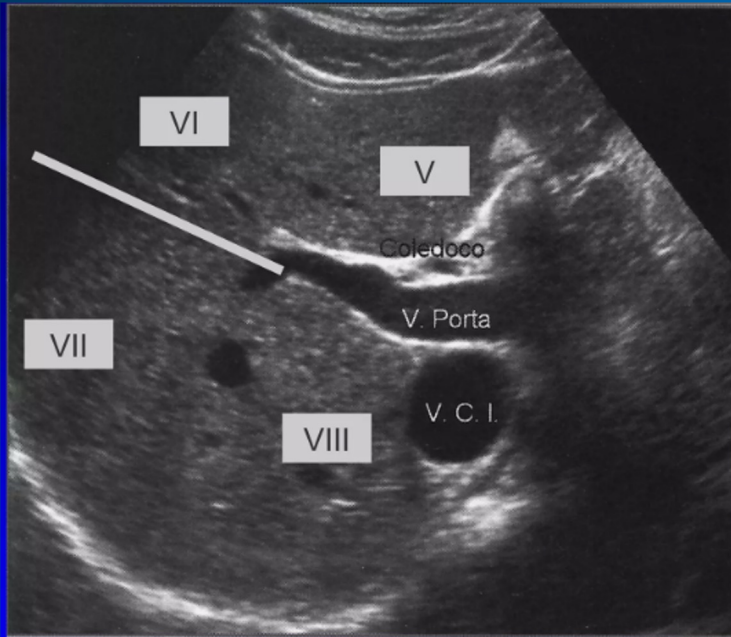
RHV



Rt Lobe Liver Long

6

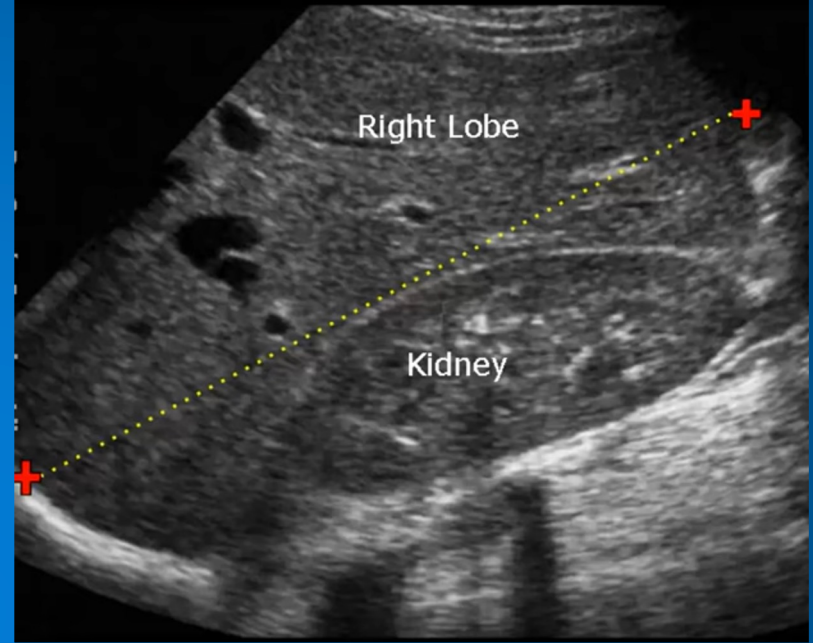




FEGATO: DIMENSIONI



Longitudinal View



Size

<15 cm

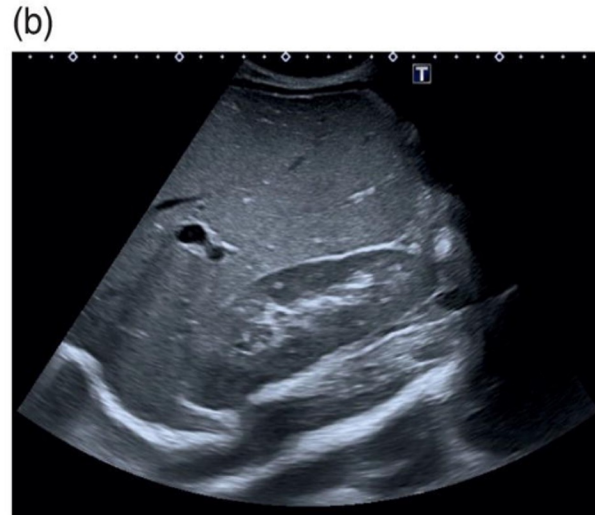
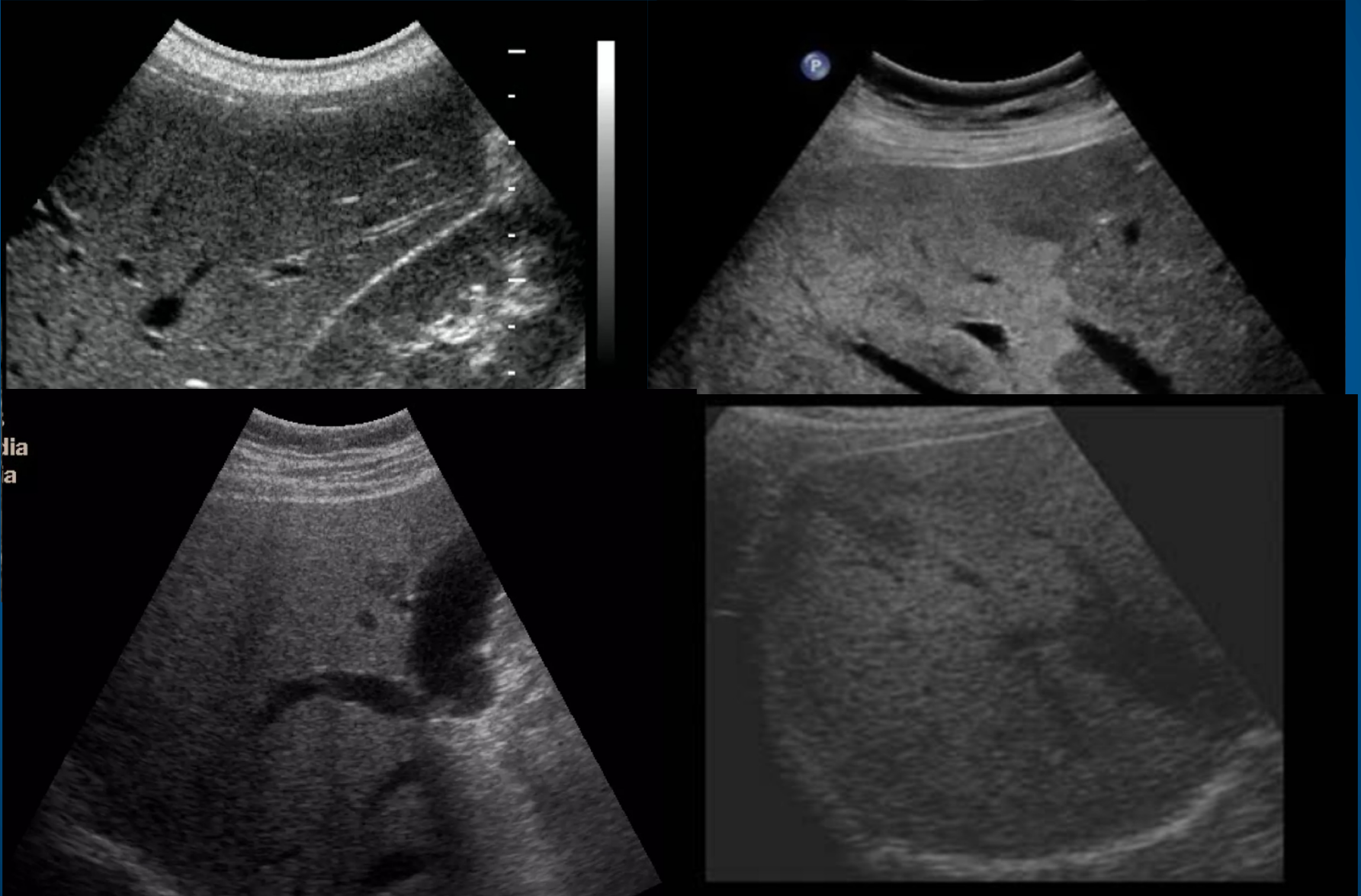


Figure 3.3 Examples of liver size compared to the right kidney. (a) Normal size of the right lobe compared to the right kidney. (b) Enlarged right liver lobe with subtle increase in echogenicity compared to the cortex of the right kidney. (c) The right liver lobe is smaller and has rounded margins and an irregular outline, in keeping with fibrotic retraction.

Epatopatie diffuse: steatosi, epatite cronica, cirrosi, ipertensione portale.

STEATOSI



La Steatosi

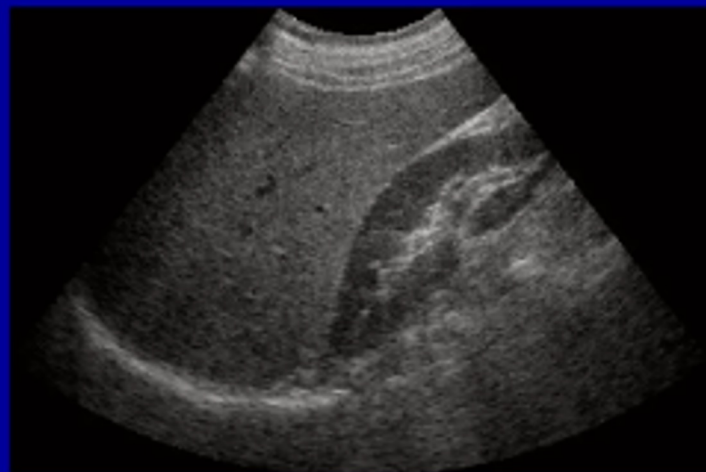
- **steatosi lieve:** presenza di solo incremento dell'ecogenicità parenchimale epatica quando confrontata all'ecogenicità del parenchima renale, ma senza significativa attenuazione del fascio ultrasonoro (il parenchima permane ben esplorabile anche in profondità)
- **steatosi moderata:** incremento dell'ecogenicità parenchimale epatica associata ad attenuazione del fascio ultrasonoro in profondità, ma con diaframma ancora visibile lungo il contorno profondo del fegato;
- **steatosi severa:** aumento marcato dell'ecogenicità parenchimale con attenuazione marcata del fascio ultrasonoro in profondità tale da rendere non più evidente il dettaglio vascolare e la biforcazione portale all'ilo.

La steatosi, gradazione

0



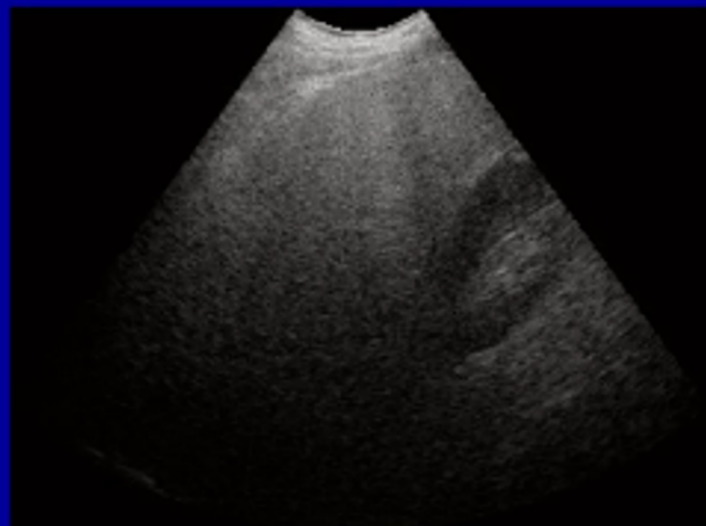
1



2



3

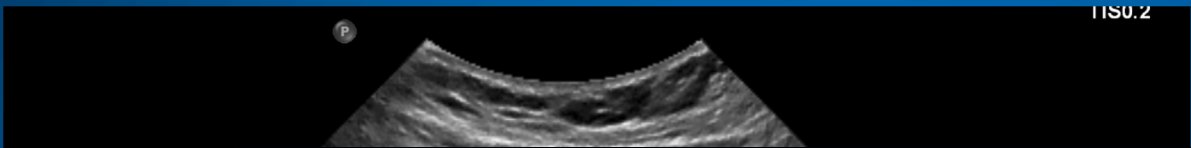


DA EPATOPATIA CRONICA → A FIBROSI → A CIRROSI

- Margini irregolari
- Aumento dimensioni lobo caudato
- Aumento dimensioni lobo sinistro / atrofia lobo destro
- Ecostruttura granulosa e disomogenea (coarse pattern)
- Aumento attenuazione ultrasuoni
- Restringimento e irregolarità vene sovraepatiche

Inoltre

eventuali segni di ipertensione portale



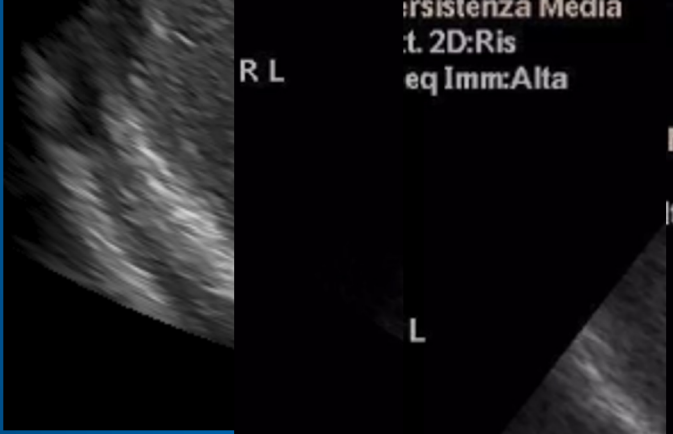
Map3
150 dB/C 5
Persistenza M
Ott. 2D:Ris
Freq Imm:Alta

23
32
38
43_n



R L
Map3
10 dB/C 5
Persistenza Media
Ott. 2D:Ris
eq Imm:Alta

24
36
45_0
51



L

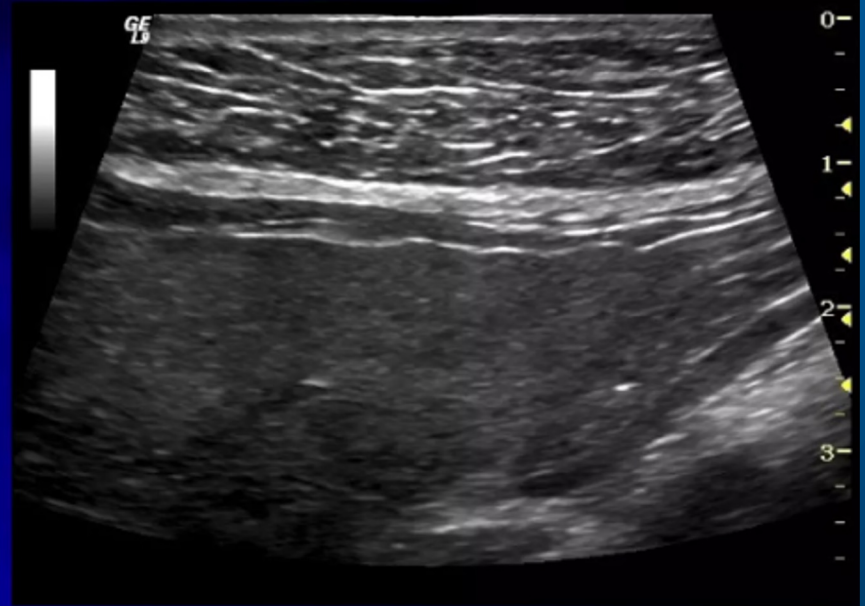
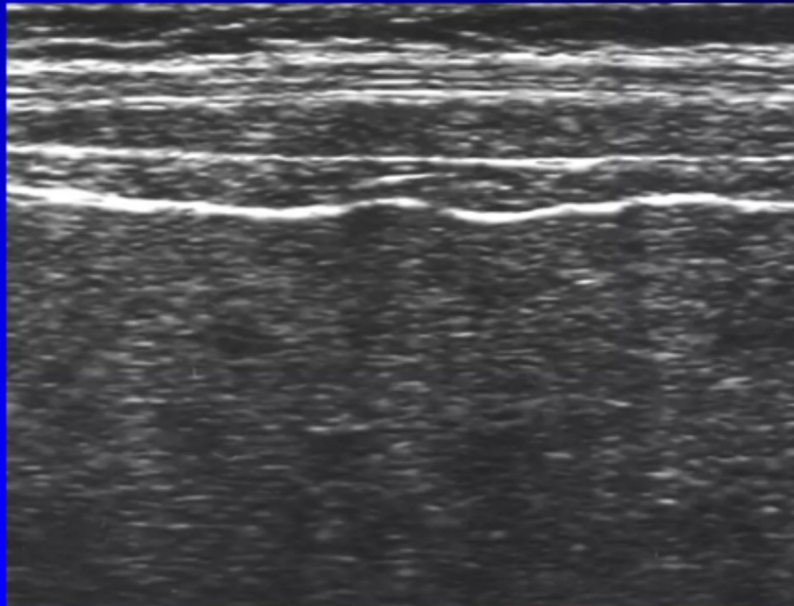
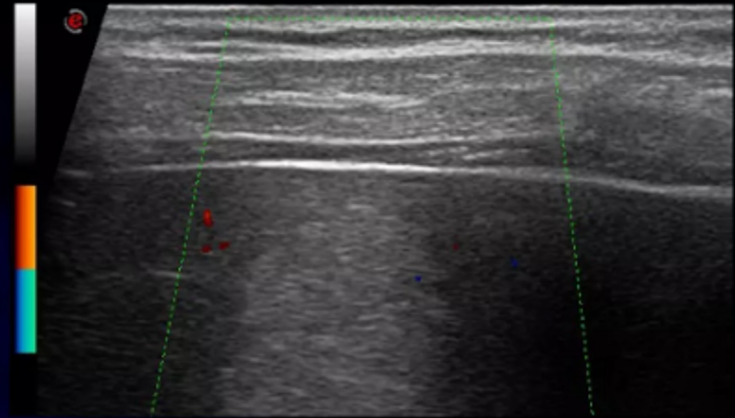
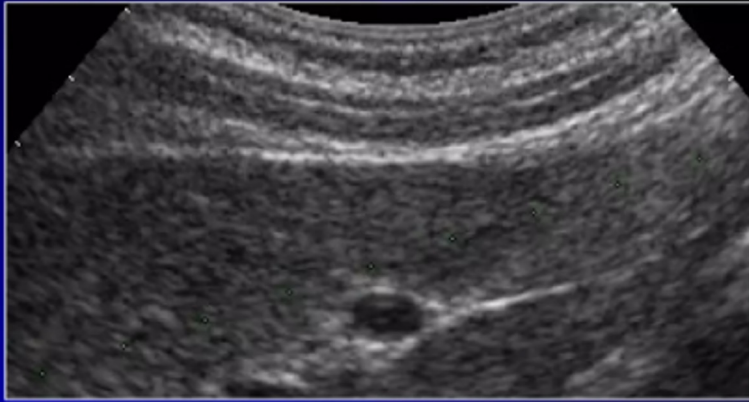
Media
Alta



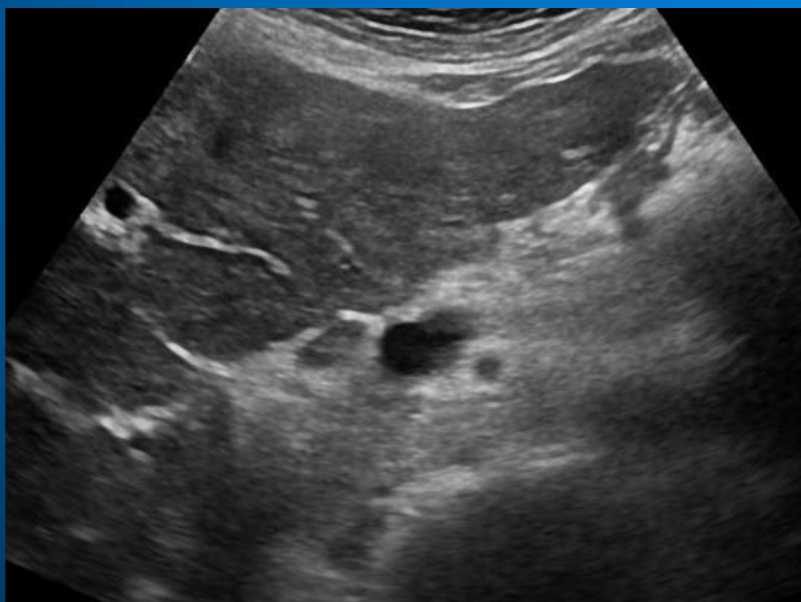
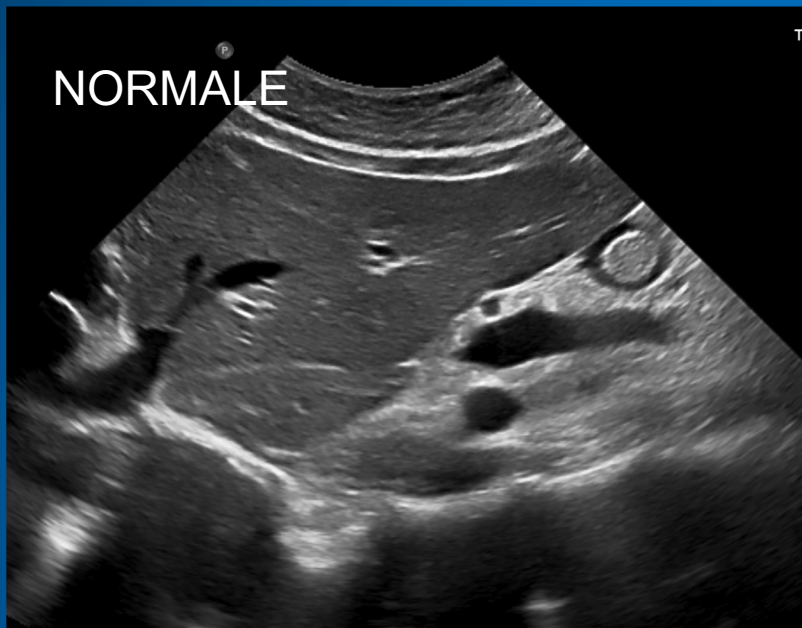
29
39
47
53_0
58
63
64
65

-5
-10

PROFILI EPATICI



EPATITE CRONICA VS CIRROSI AVANZATA



Ipertensione portale

valutazione mediante eco-Doppler

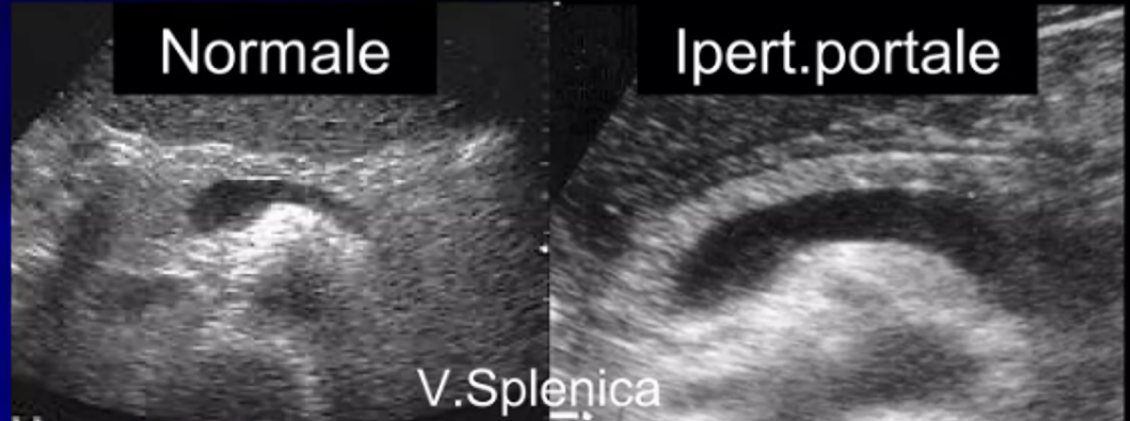
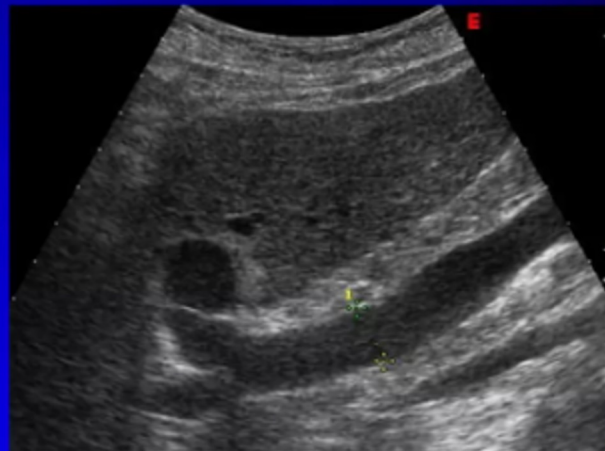
- dilatazione delle vene porta, mesenterica superiore e splenica
- Presenza di flusso invertito (epatofugo)
- Assenza di flusso (trombosi)
- Presenza di circoli collaterali
- Splenomegalia
- Ascite

**Parametri
qualitativi:**

Ectasia dei vasi del sistema portale

- Tronco portale > 13 mm: sens. 40-48%, spec. 95%
- V. splenica e/o mes. sup. > 10 mm: sensibilità 50%

Bolondi L, 1982; Vilgrain V, 1990; Ditchfield MR, 1992



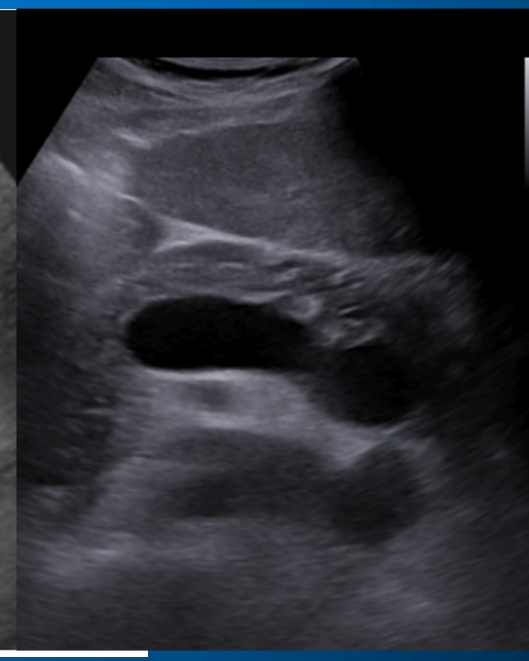
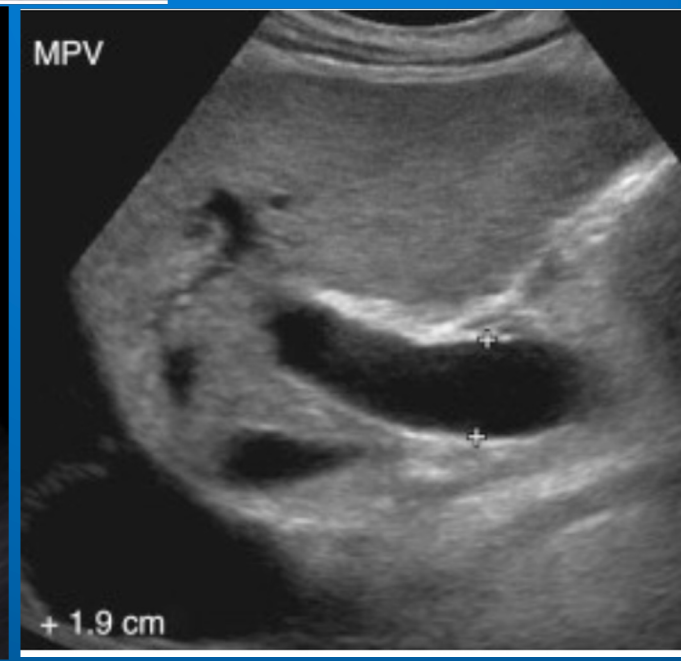
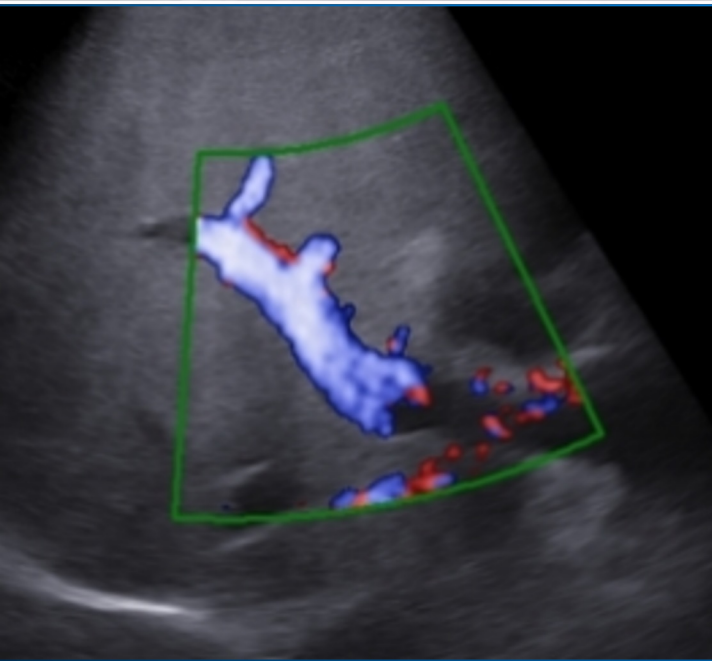
IPERTENSIONE PORTALE



Sonda in posizione laterale
rispetto all'ilo epatico

NORMALE: calibro normale,
flusso epatopeto

PATOLOGICA: calibro
aumentato, flusso epatofugo



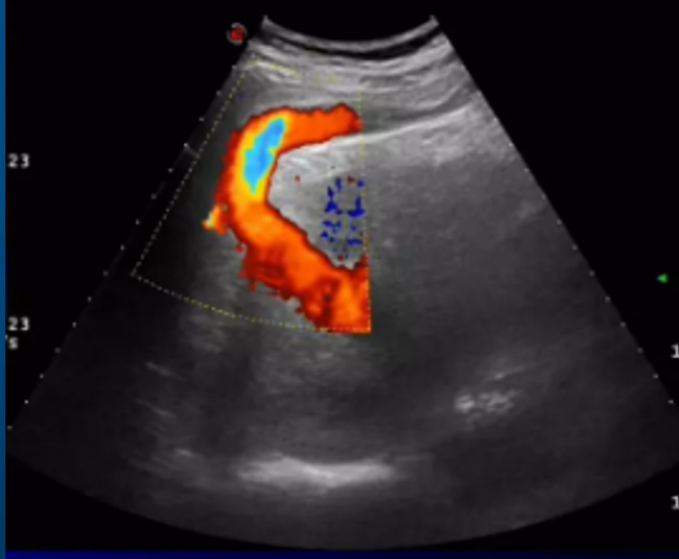
IPERTENSIONE PORTALE: COROLLARIO ECOGRAFICO



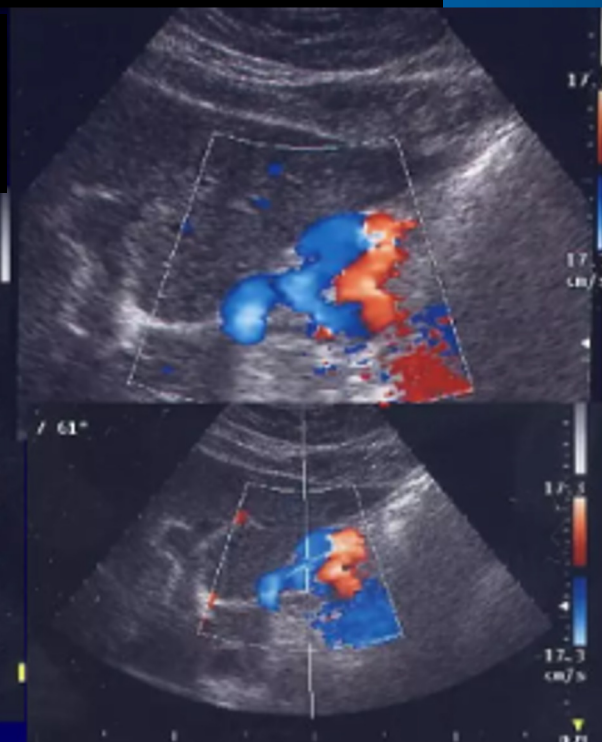
Riabitazione v. ombelicale



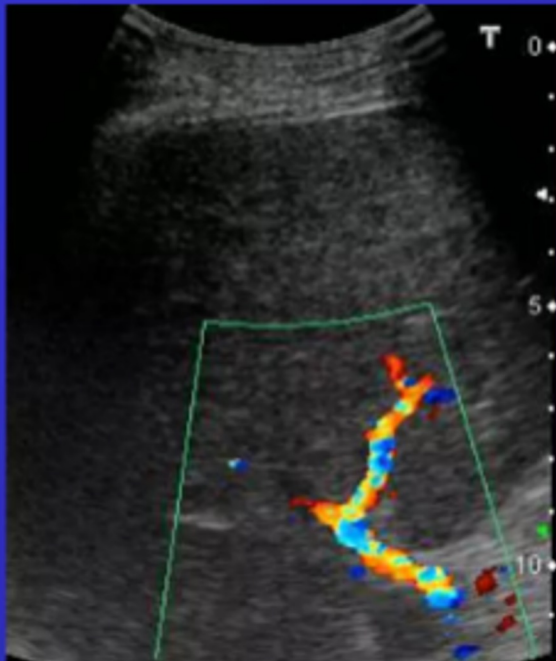
Splenomegalia > 12 cm



Varici ilari epatiche e gastro-esofagee



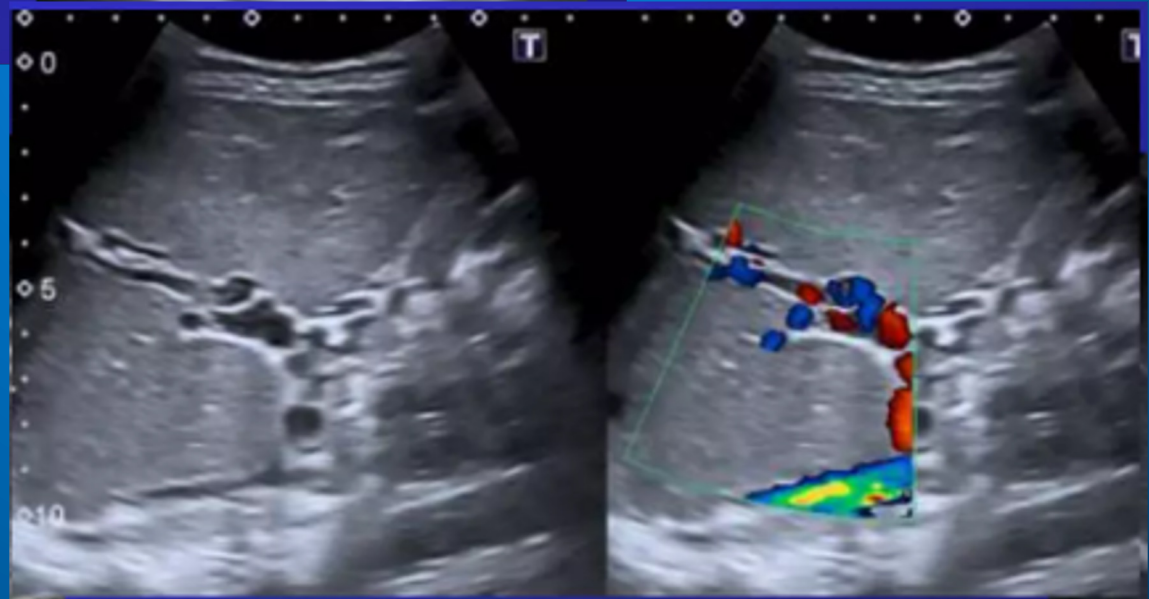
IPERTENSIONE PORTALE



Trombosi

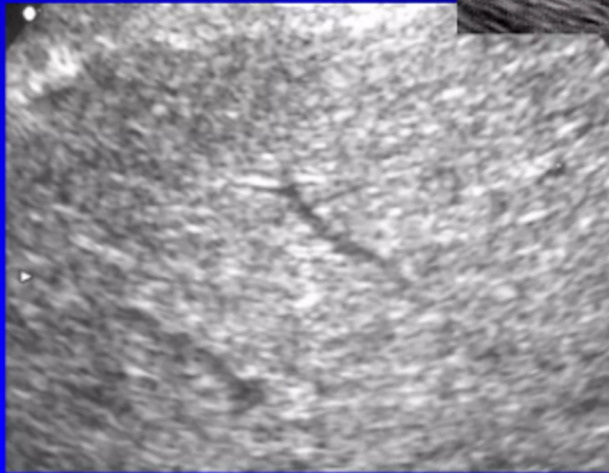
- parziale
- completa

Cavernoma



Alterazioni delle vene sovraepatiche

Comprese dal parenchima fibrotico, presentano decorso irregolare e riduzione progressiva del calibro



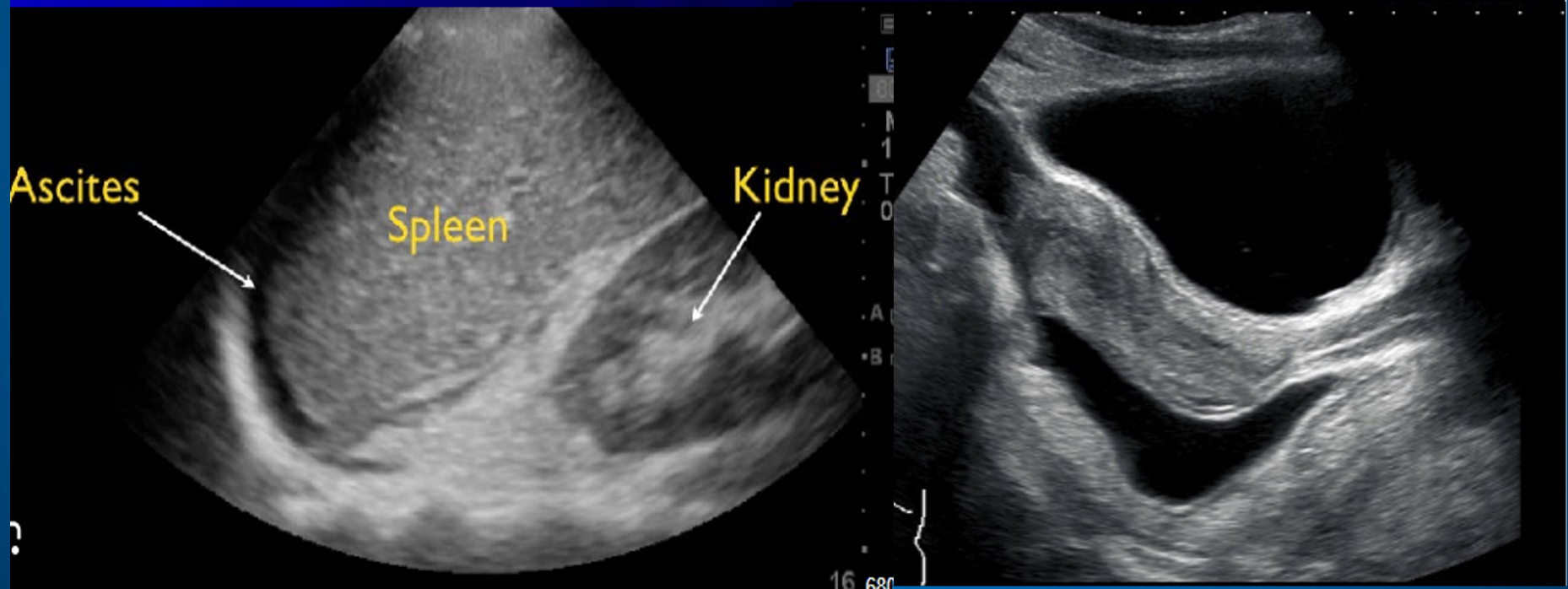
DILATAZIONE VENE SOVRAEPATICHE E V. CAVA INFERIORE

FEGATO DA STASI
SOVRACCARICO
PATOLOGIE CARDIACHE



Ascite

L'ecografia è utile nella diagnosi dello scompenso ascitico iniziale non ancora clinicamente evidente



Epatiti acute

- Il quadro ecografico può risultare del tutto normale



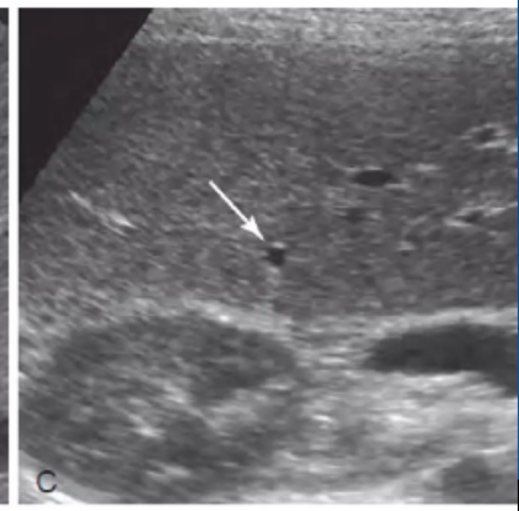
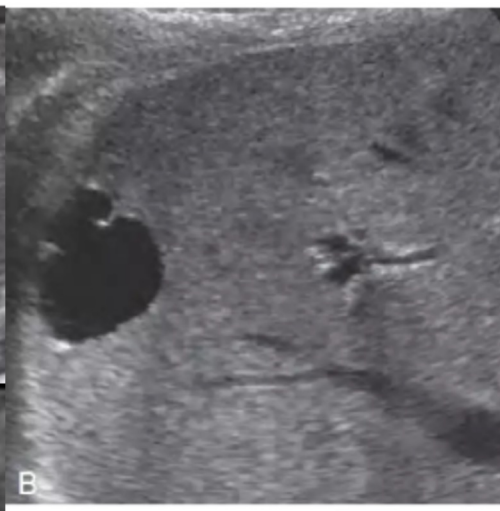
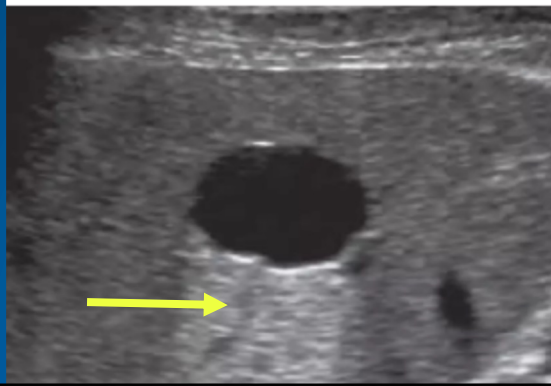
- Iperecogenicità con ispessimento degli spazi periportal
- Edema delle pareti della colecisti



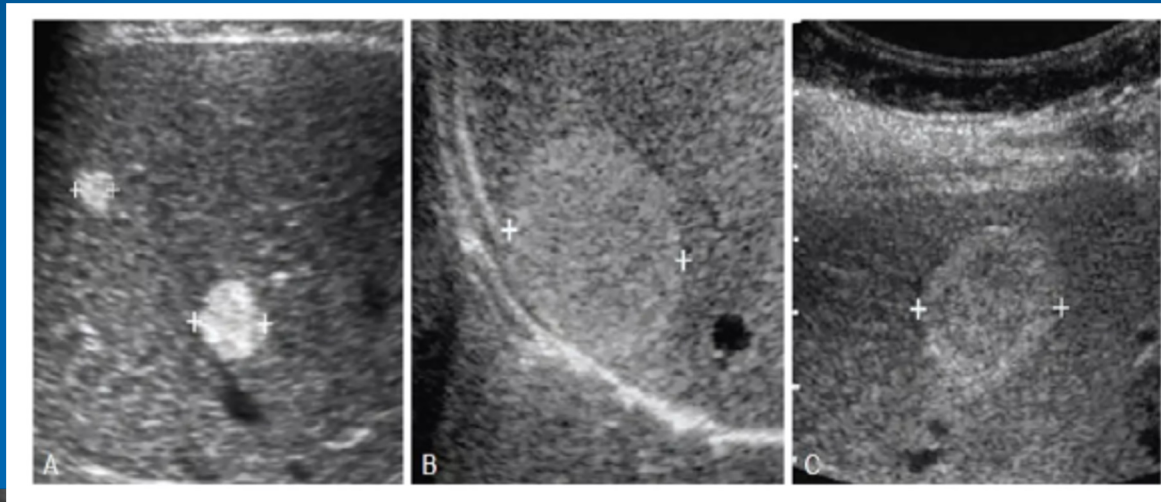
LESIONI FOCALI EPATICHE: CENNI

- **BENIGNE**
 - **CISTI SEMPLICI**: margini netti, anecogene (fluido) omogenee, rinforzo di parete posteriore, assenza di segnale Color-Doppler
 - **ANGIOMI**: margini netti, iperecogeni, omogenei, no comorbidità
- **SOSPETTE**
 - Tutte le formazioni ipoecogene
 - Lesioni su fegato alterato (steatosi, cirrosi)
 - In caso di comorbidità (epatopatie, pz oncologici)
 - Ecogenicità mista, disomogenee, margini mal definiti
 - Solo parzialmente fluide (tessuto solido con aree fluide interne)

CISTI BILIARI SEMPLICI



ANGIOMI TIPICI

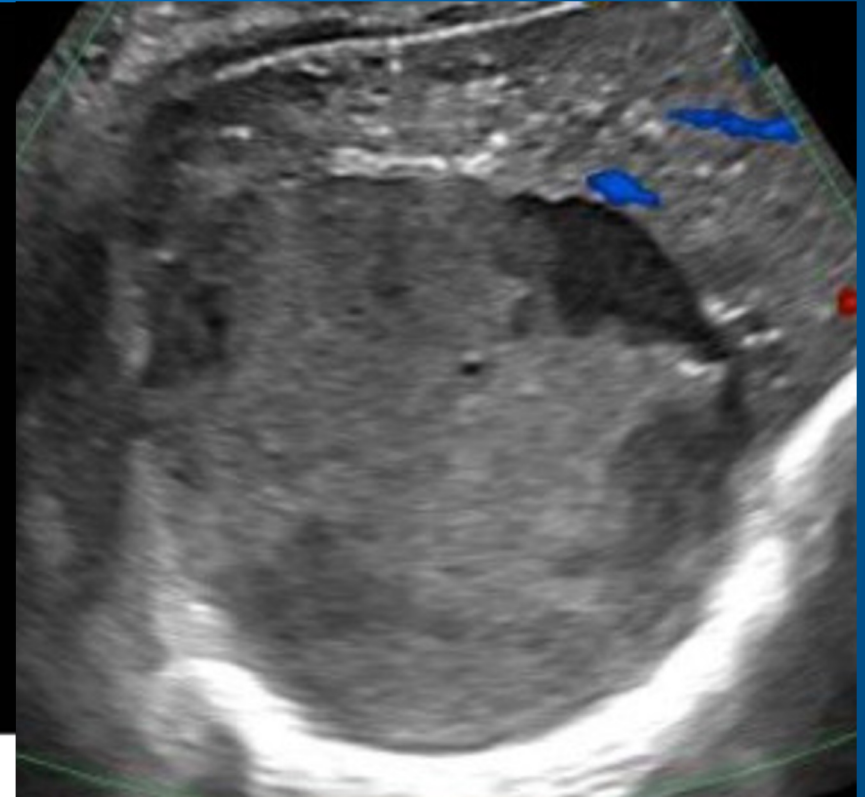


Angioma su fegato
steatosico ... ?

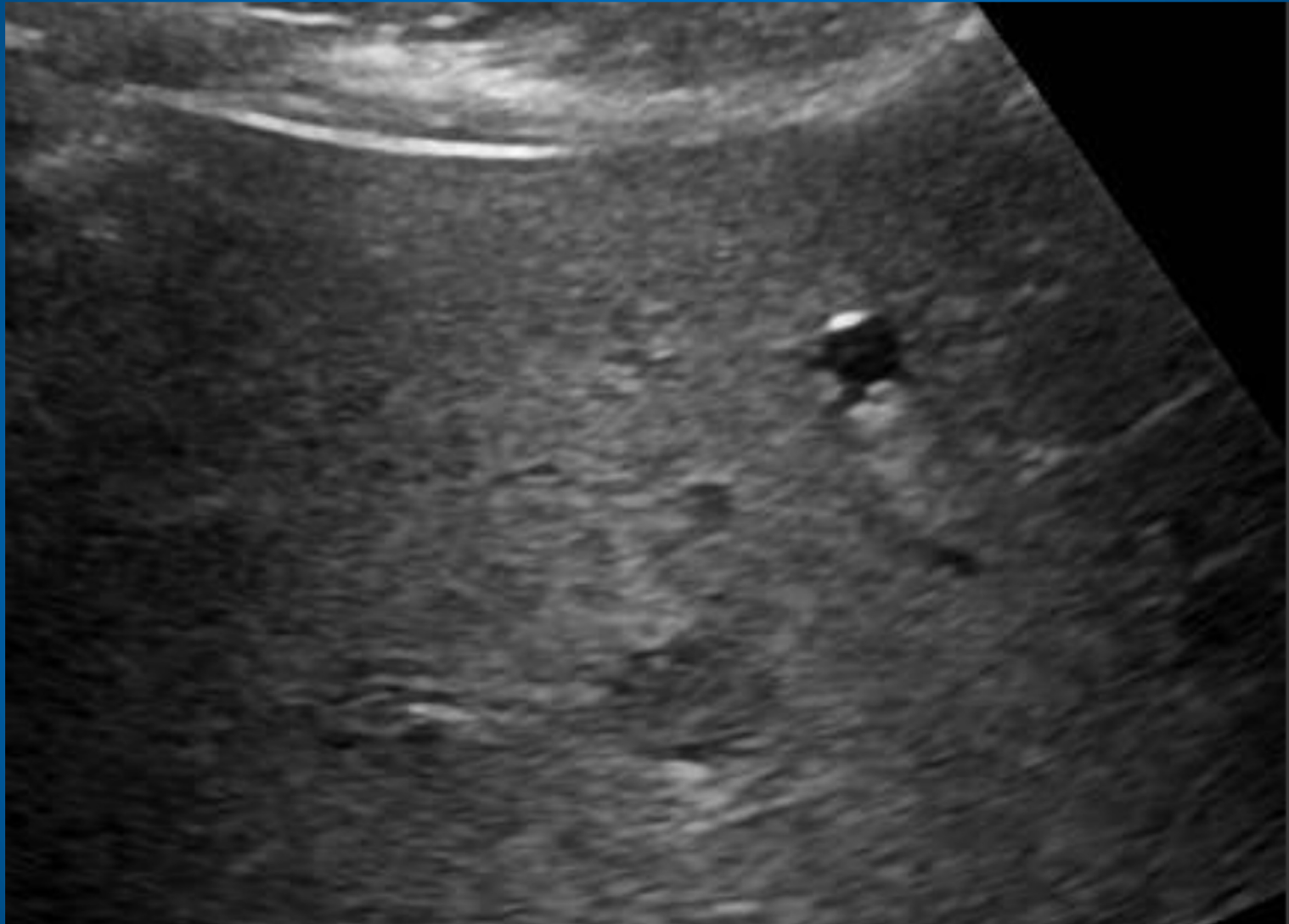
CISTI A CONTENUTO DENSO\EMATICO



Liver cyst with intracystic hemorrhage

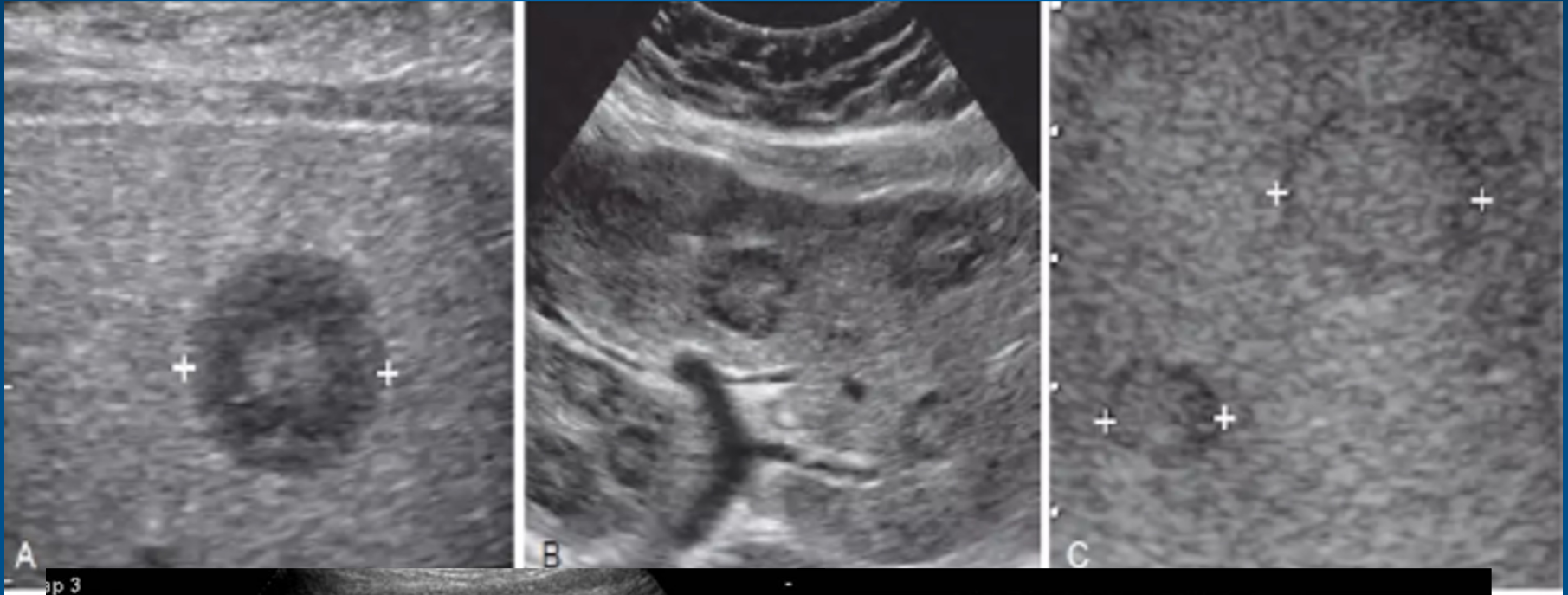


LESIONI FOCALI IPOECOGENE

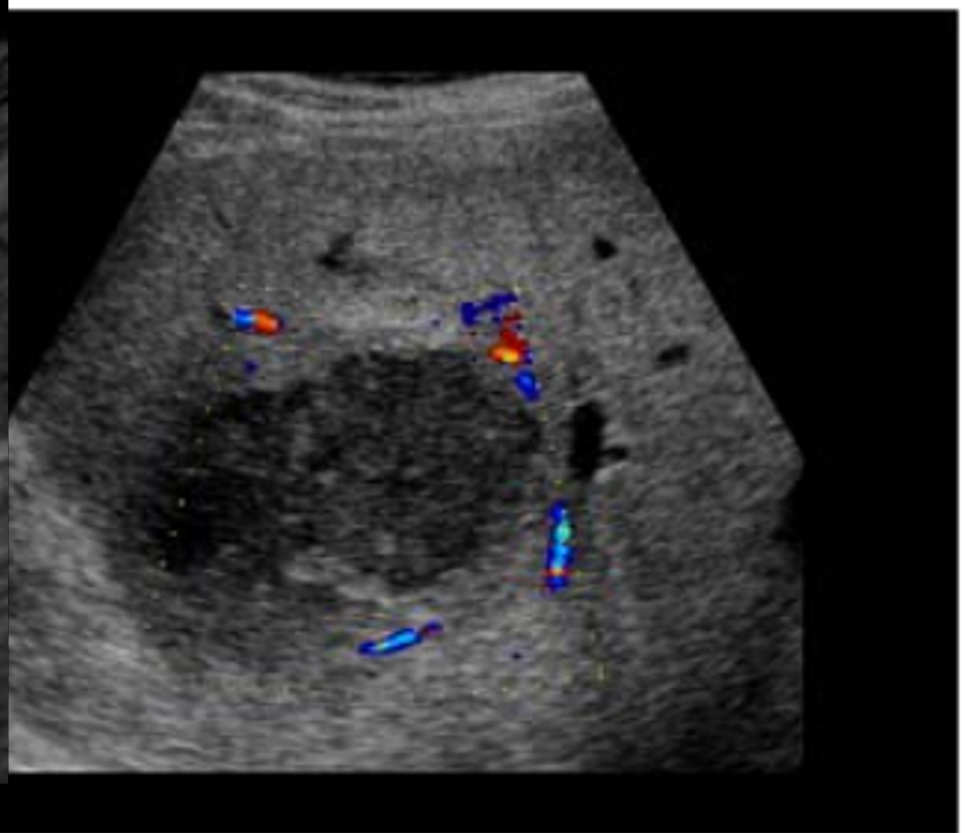
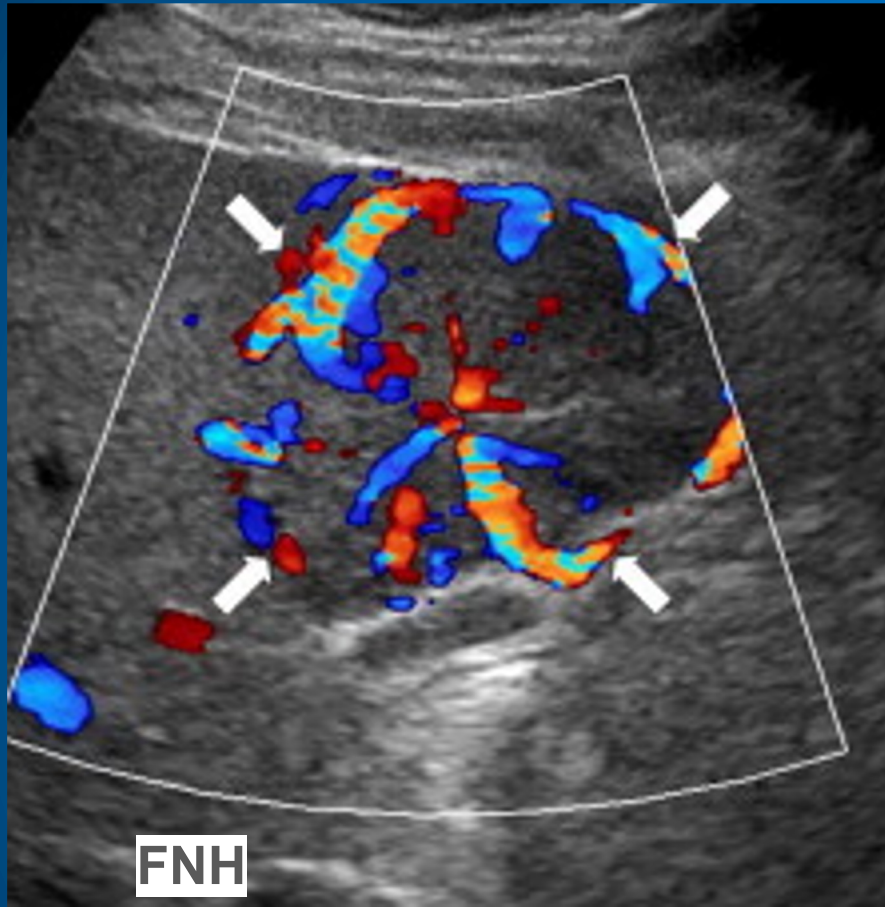


NODULO DI HCC SU EPATITE CRONICA

LESIONI FOCALI IPOECOGENE



BENIGNE? DON'T TRY THIS AT HOME!

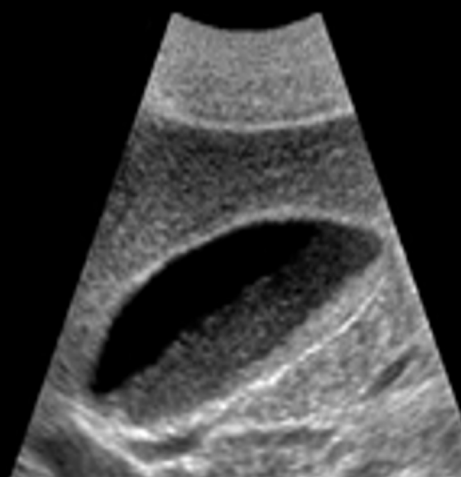


Amebic abscess

COLECISTI E VIE BILIARI

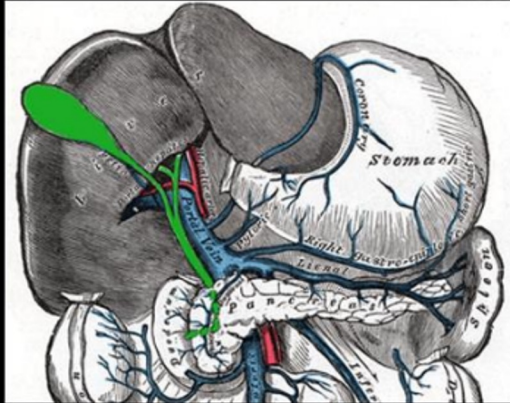
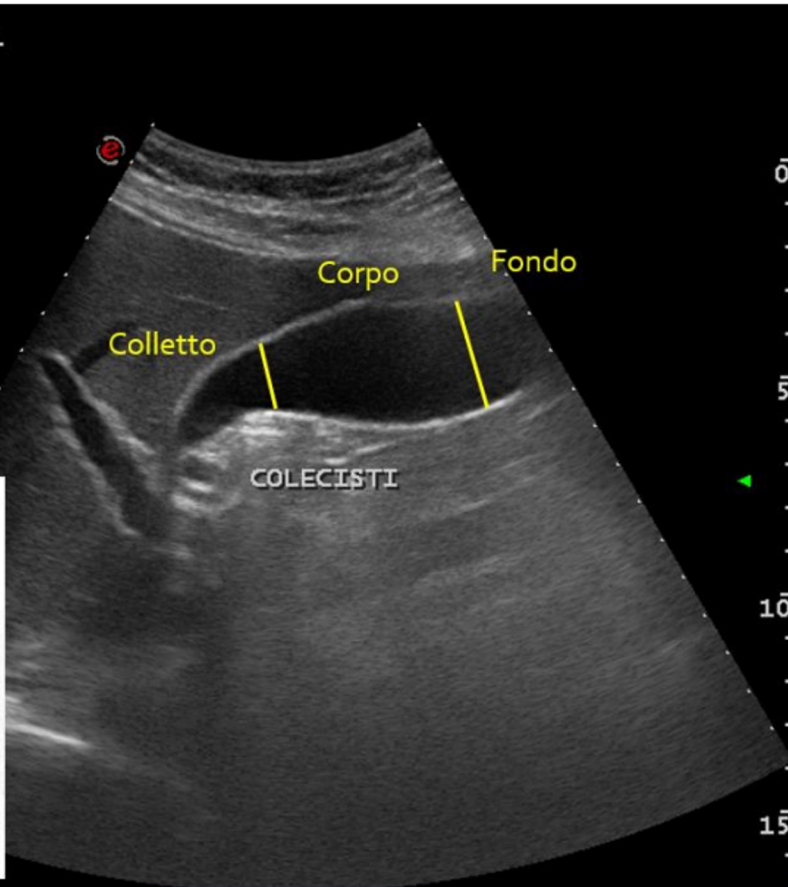
- CALCOLOSI DELLA COLECISTI
- COLECISTITE
- CALCOLOSI DELLE VIE BILIARI / ITTERO COLESTATICO
- ALTRI REPERTI COMUNI DELLA COLECISTI E DELLE VIE BILIARI
- DD CON NEOPLASIE

COLECISTI

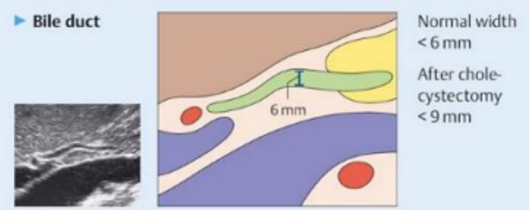
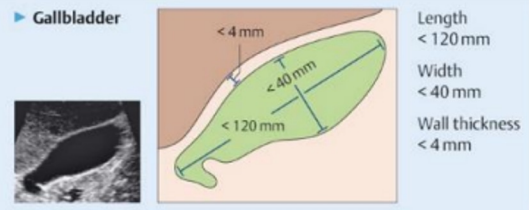


Spessore parete colecisti	≤ 3 mm	3 strati: <ul style="list-style-type: none">- mucoso- muscolare- sieroso
Dimensioni della colecisti	Diametro antero-posteriore 3 - 4 cm	Lunghezza < 10 cm; nei longilinei fino a 14 cm
Calibro coledoco	3 mm – 7 mm (fino a 10 mm nei colecistectomizzati)	

B GEN-M G 50%
 TEI P 169mm XV C1
 PRC 12/2/2 PRS 8
 PST 0 C 1
 L 8
 GENERALE CA631



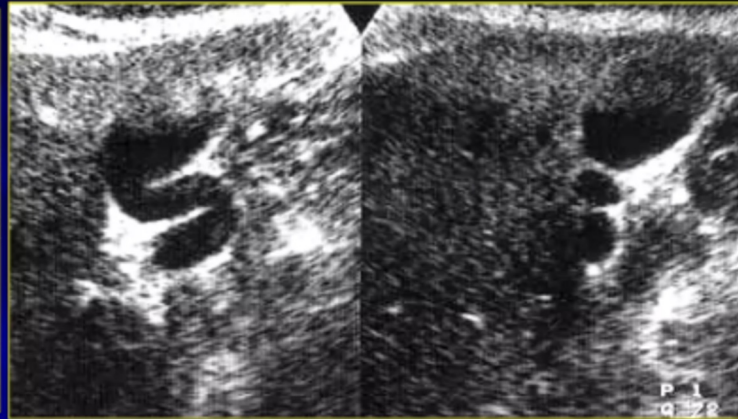
LE DIMENSIONI MASSIME DI UNA
 COLECISTI SONO:
 DIAMETRO TRASVERSO <4 CM
 DIAMETRO LONGITUDINALE <10 CM
 SPESSORE PARETE < 3 MM.
 COLEDOCO <6 MM.



**Color Atlas of
 Ultrasound Anatomy**
 Berthold Block
 2nd edition

Pattern US normale: varianti morfologiche

- Forma (setti, ripiegature) e posizione (intraepatica, ectopica) possono variare frequentemente



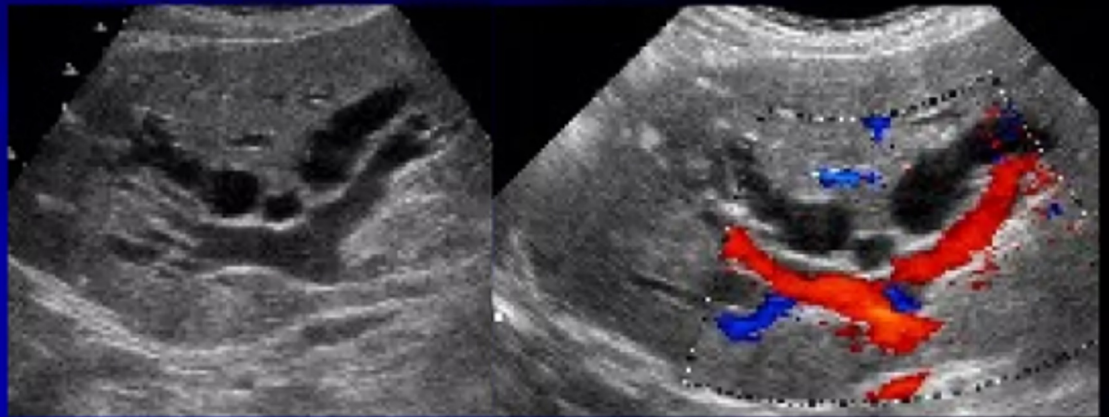
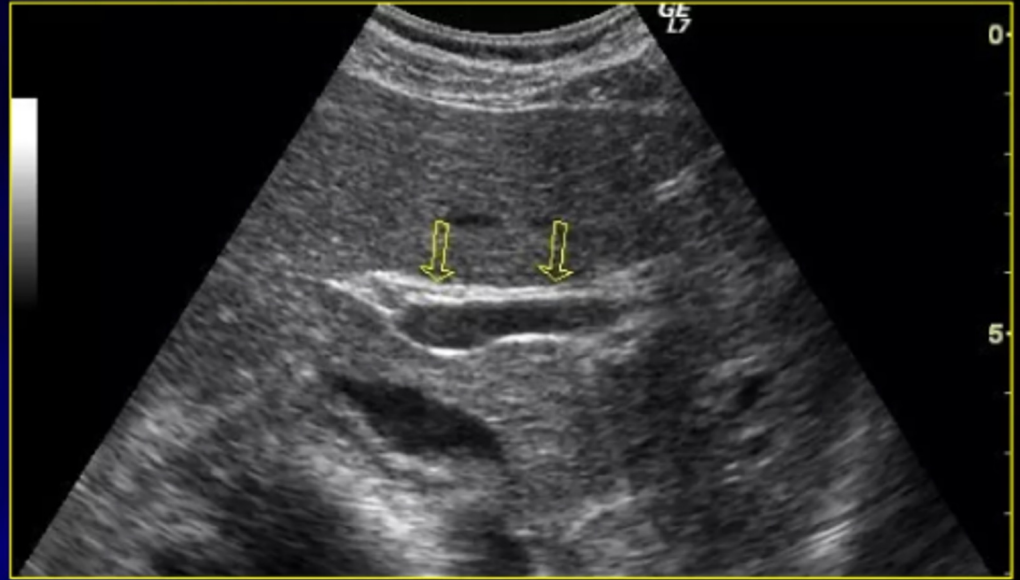
Cause di non visualizzazione della colecisti

- ❖ No digiuno
- ❖ Colectomia precedente non nota
- ❖ Fango endoluminale
- ❖ Colectite scleroatrofica litiasica
- ❖ Agenesia



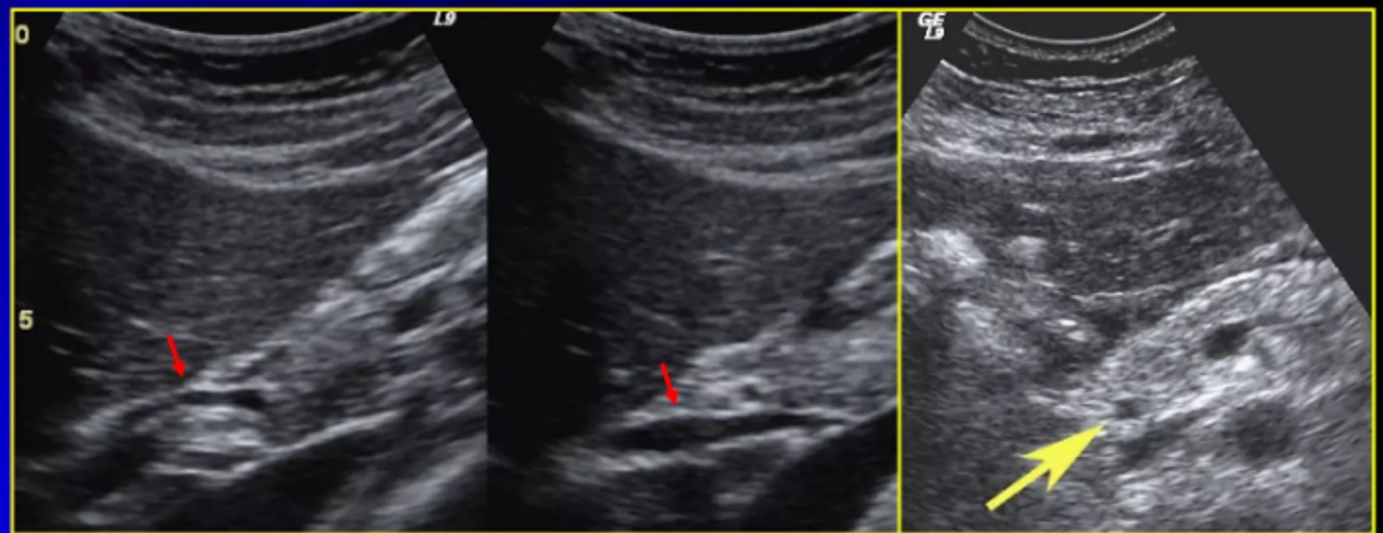
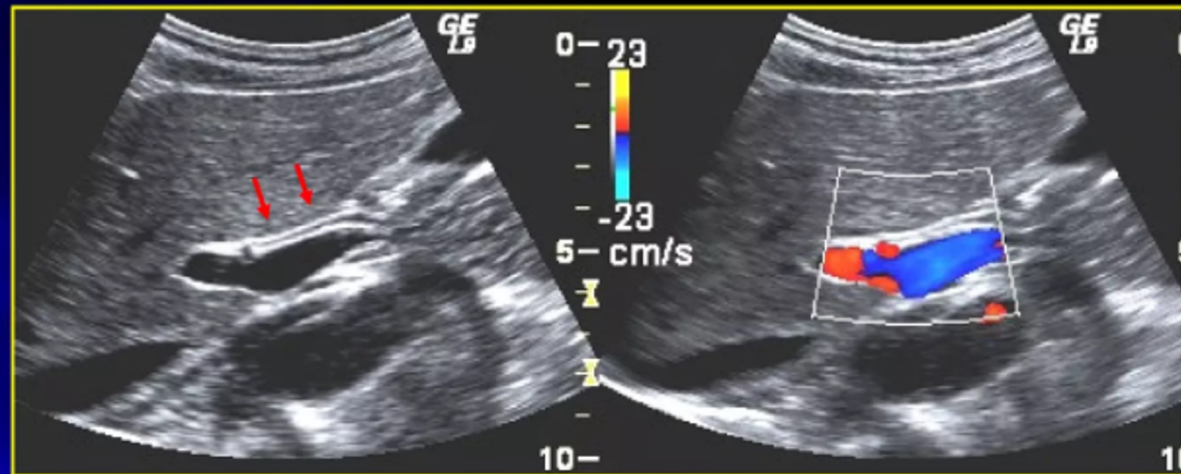
Dotti epatici destro e sinistro

- Visibili anteriormente alla biforcazione portale
- Quando dilatati, il color Doppler può essere necessario per distinguerli dalla biforcazione portale

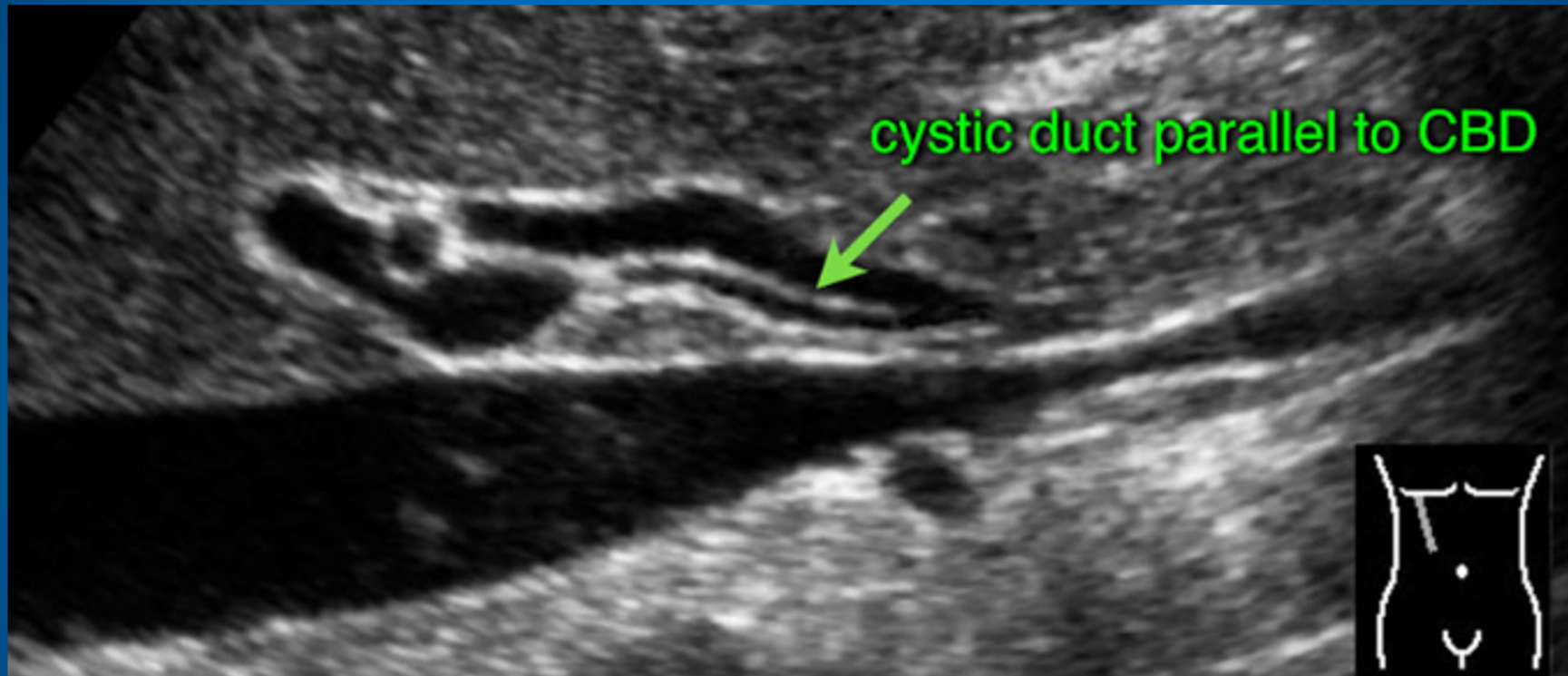


Epatocolodoco

L'epatocolodoco
o via biliare
principale
decorre
anteriormente
alla vena porta;
la porzione
intermedia è
visibile
posteriormente
al bulbo
duodenale
mentre la
porzione distale
decorre
posteriormente
alla testa
pancreatica



cystic duct parallel to CBD



Calcolosi della colecisti

Elementi semeiologici

- ❖ Formazione iperecogena endoluminale.
- ❖ Mobilità con le variazioni di decubito del paziente.
- ❖ Presenza di cono d'ombra distale.

Colelitiasi

Aspetti ecografici

- Tipo I: formazione o formazioni iperecogene endoluminali con cono d'ombra posteriore, mobili ai cambiamenti di decubito
- Sensibilità diagnostica: 100 %



Calcolosi della colecisti

Tipo I



Colelitiasi

Aspetti ecografici

- Tipo II: area iperecogena con cono d'ombra posteriore a livello del letto colecistico. le pareti colecistiche sono di solito coartate attorno al contenuto litiasico
- Sensibilità diagnostica: 88-98%



Colelitiasi

Aspetti ecografici

- Tipo III: piccoli foci iperecogeni a contatto con la parete posteriore colecistica non generanti cono d'ombra posteriore ma mobili ai cambiamenti di decubito
- Sens. diagnostica 80%



Colelitiasi

Aspetti ecografici

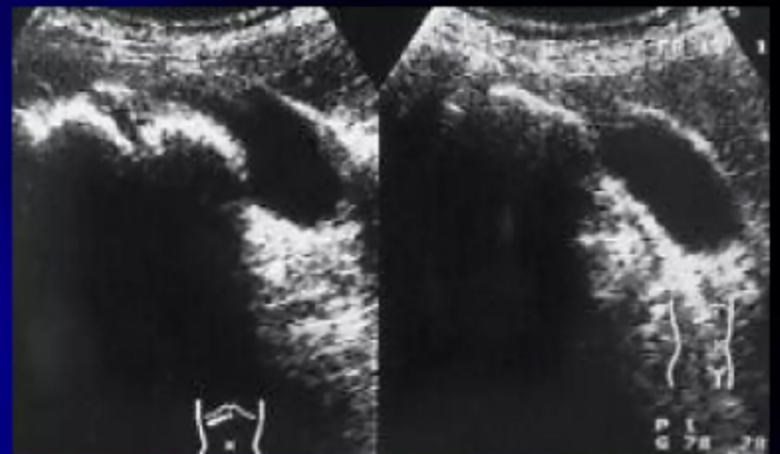
Falsi negativi

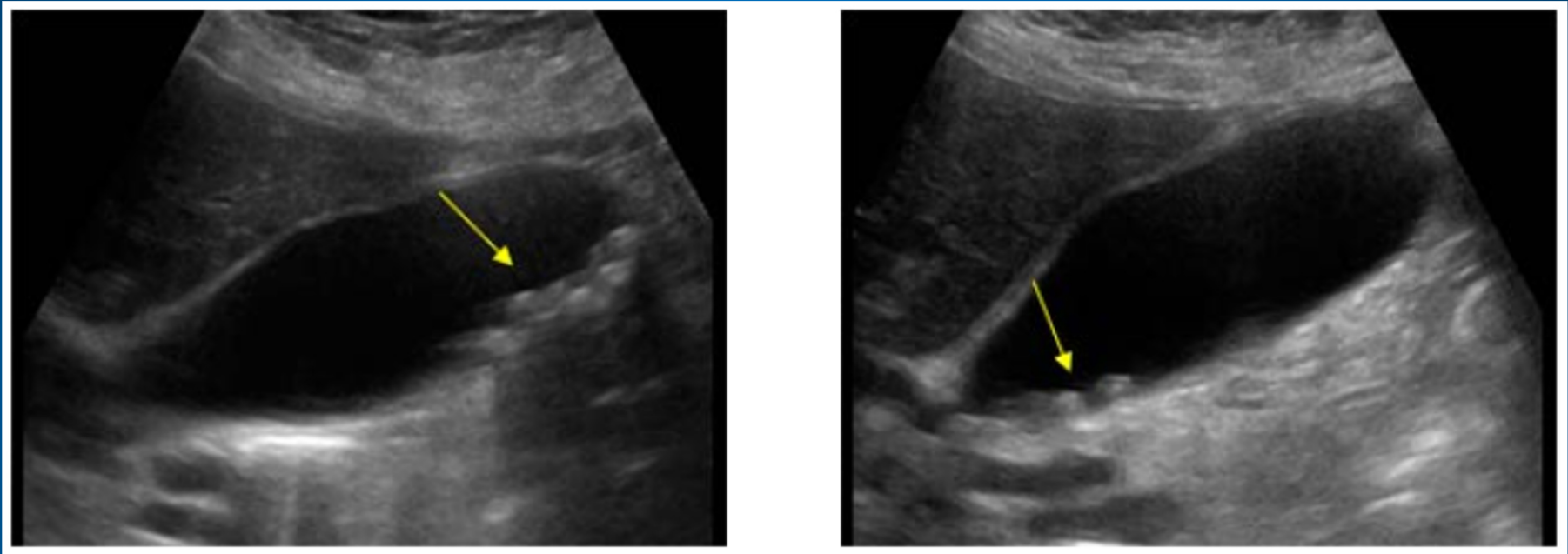
- piccoli calcoli mobili in colecisti iperdistese
- piccoli calcoli incuneati nel colletto, nel dotto cistico o in diverticoli del fondo



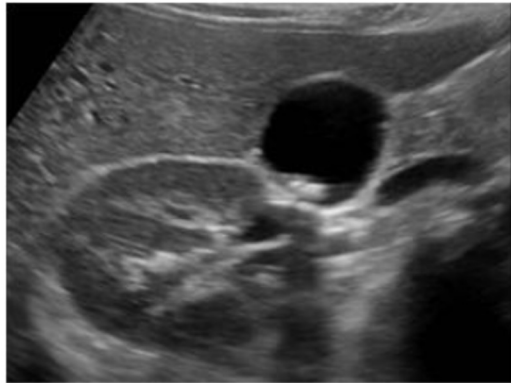
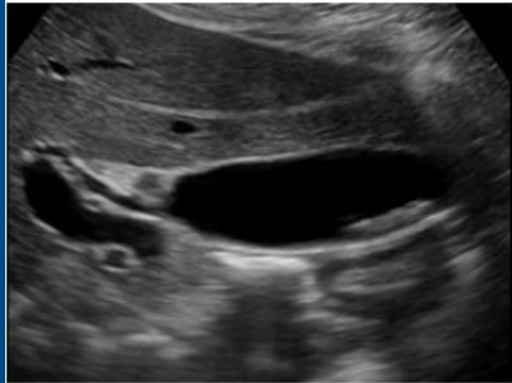
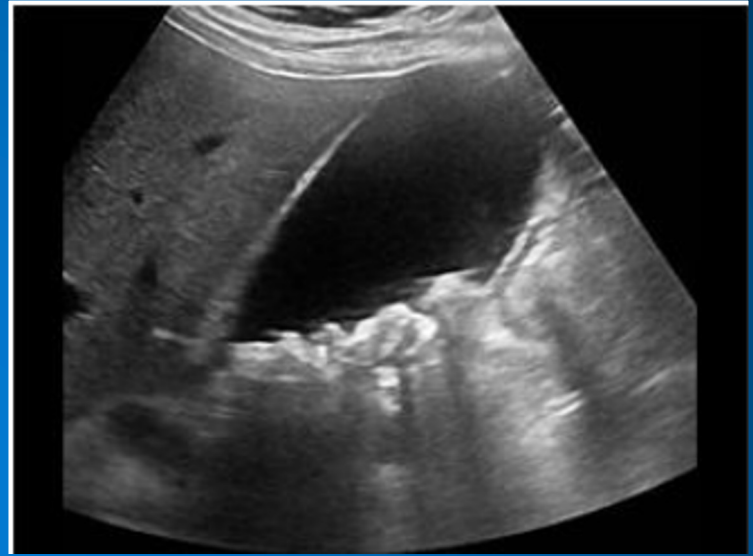
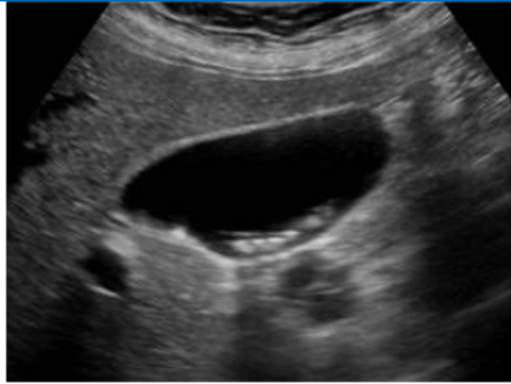
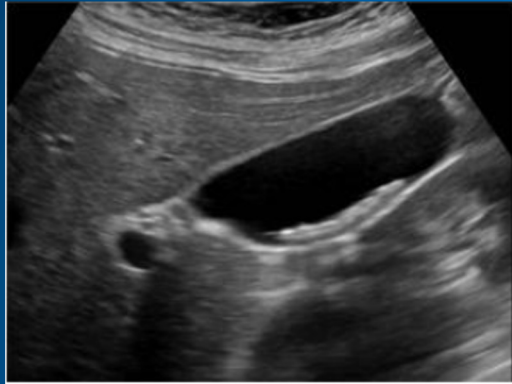
Falsi positivi

- pliche endoluminali
- anse intestinali addossate alla parete colecistica



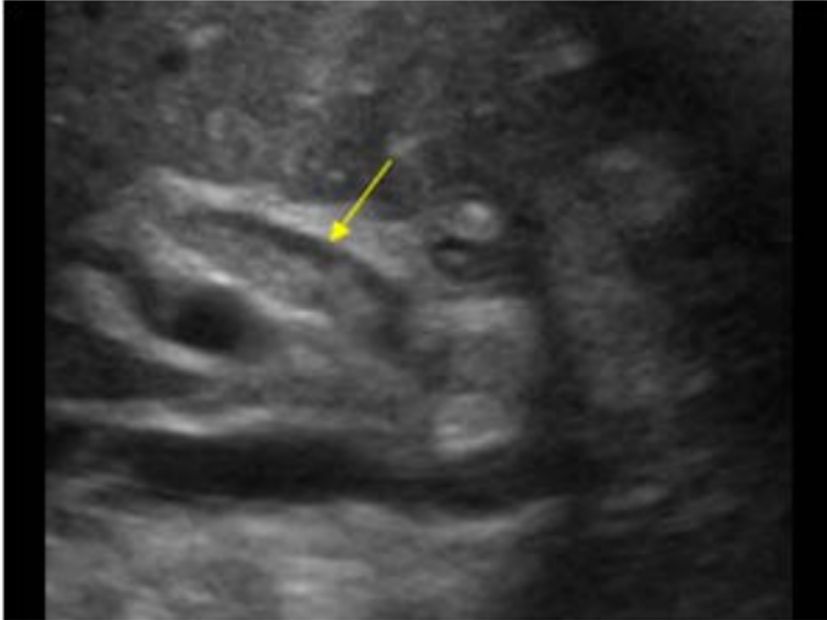


CALCOLI MOBILIZZABILI CON LE VARIAZIONI DEL DECUBITO (DD CON I POLIPI)

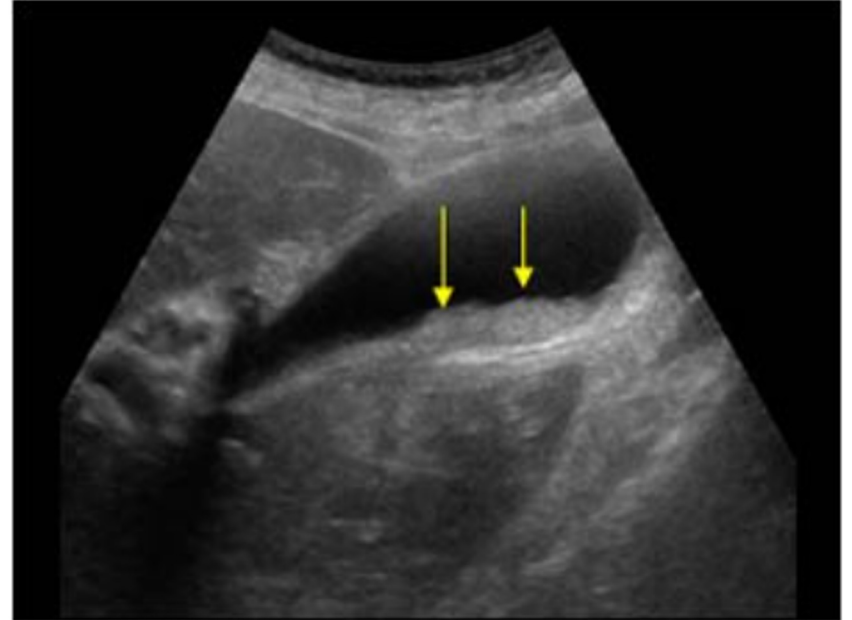


FANGO

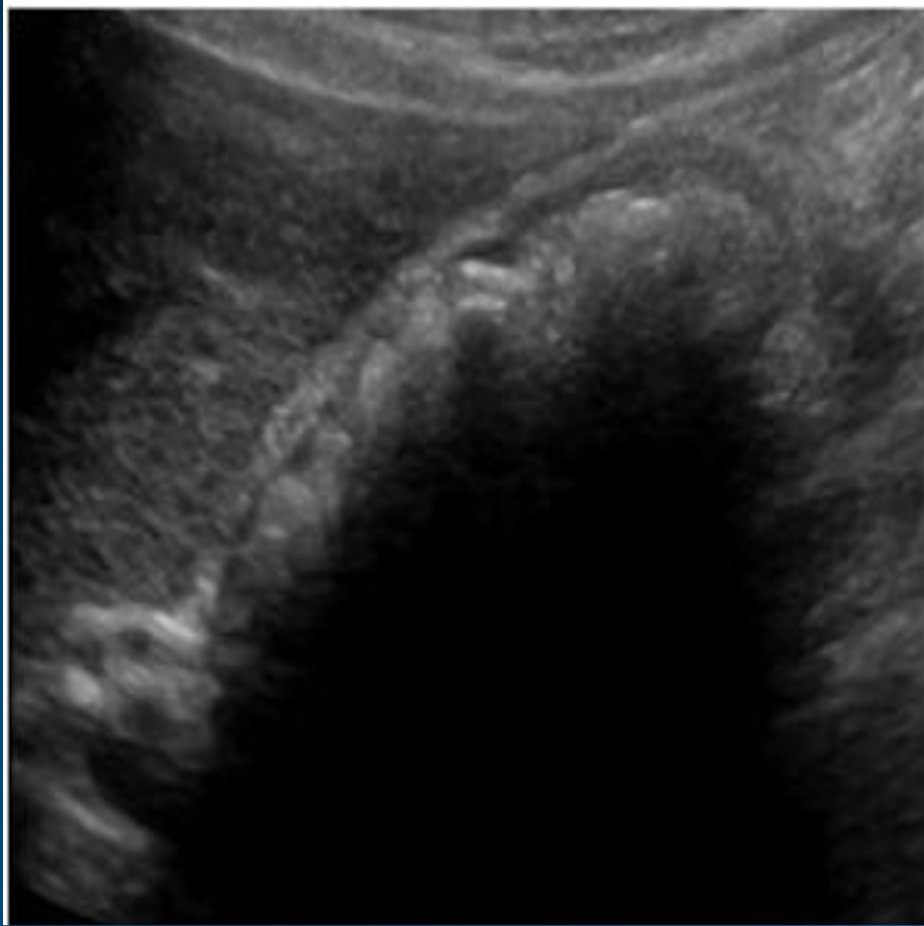
Sludge in the gallbladder and bile ducts



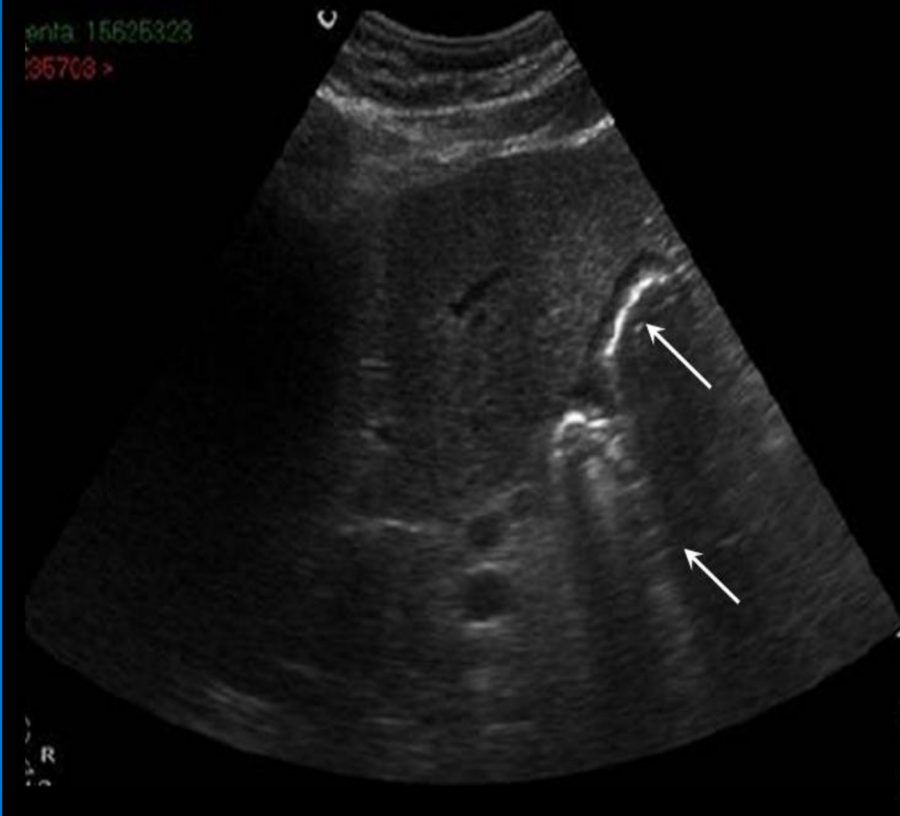
Sludge in the bile duct



Sludge in the gallbladder



Ring-Down: Gas in duodenal frame



PITFALL: COLECISTI RIPIENA DI CALCOLI VS GAS IN DUODENO?

Colecistite acuta

Elementi semeiologici

- ❖ Idrope
- ❖ Segno di Murphy ecografico
- ❖ Versamenti pericolecistici
- ❖ Ispessimento della parete
- ❖ Visibilità degli strati della parete
- ❖ Lacune anecogene nella parete
- ❖ Ipervascularizzazione della parete
- ❖ Litiasi nel 90% circa dei casi

US signs of Cholecystitis

Signs of hydrops Impacted stone *****
Hydros sign *****
Large gallbladder *
US Murphy sign ***

Additional signs of cholecystitis

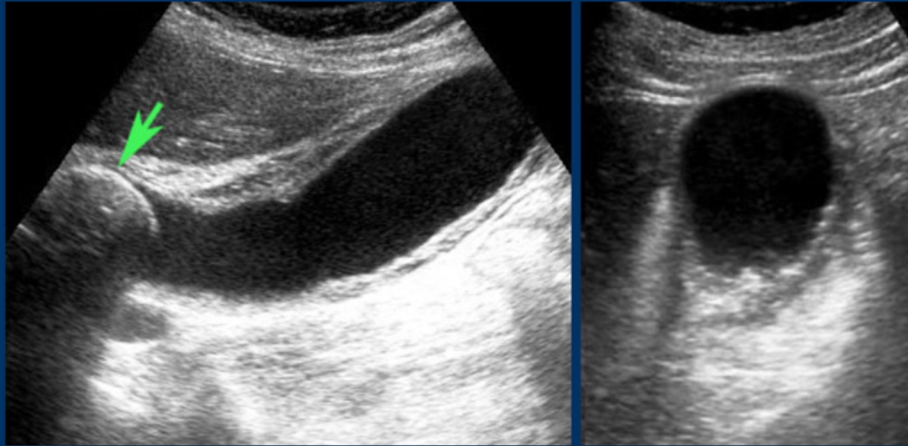
Layered gallbladder wallthickening ***
Sludge **
Hyperemia of wall and surrounding tissue *
Inflamed fat around the gallbladder fundus *****
Intramural or pericholecystic abscess *****
Clinical findings - fever, increasing pain **
CRP ↑↑↑ *****

In this table the US signs of acute cholecystitis superimposed on the signs of acute hydrops.

The *additional* US signs of cholecystitis are:

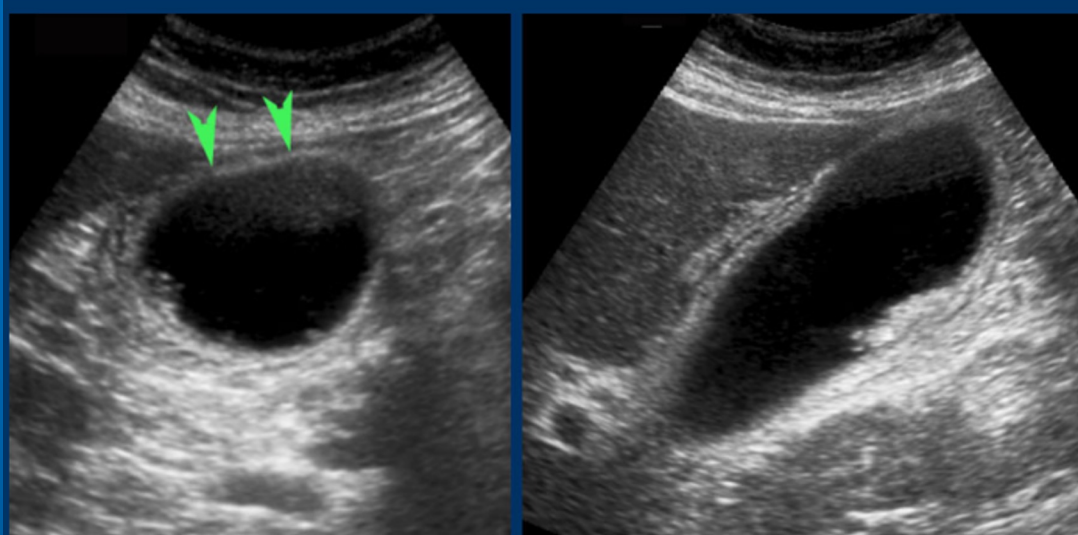
- gallbladder wall thickening, which is often layered
- occurrence of sludge as a sign of prolonged stasis
- hypervascularity of the gallbladder wall
- eventually inflamed fat around the gallbladder fundus which represents the omentum migrating towards the site of imminent perforation



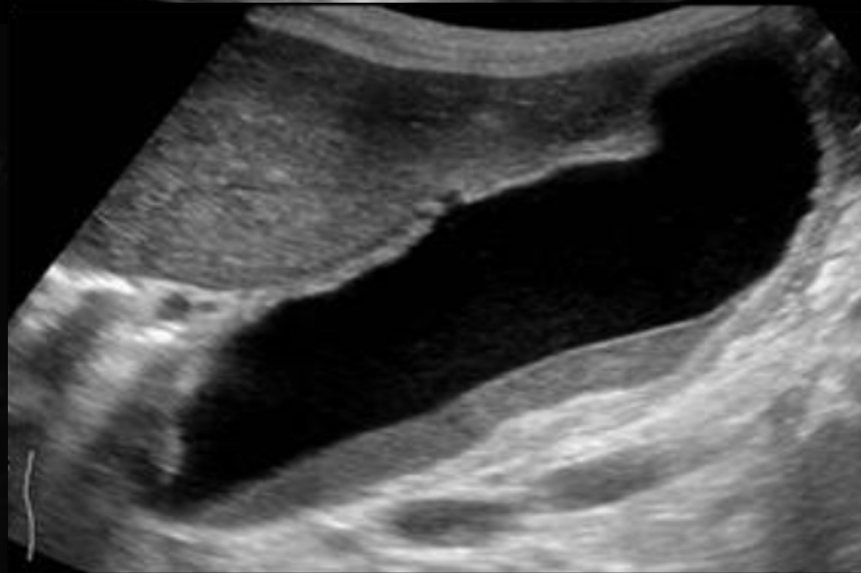
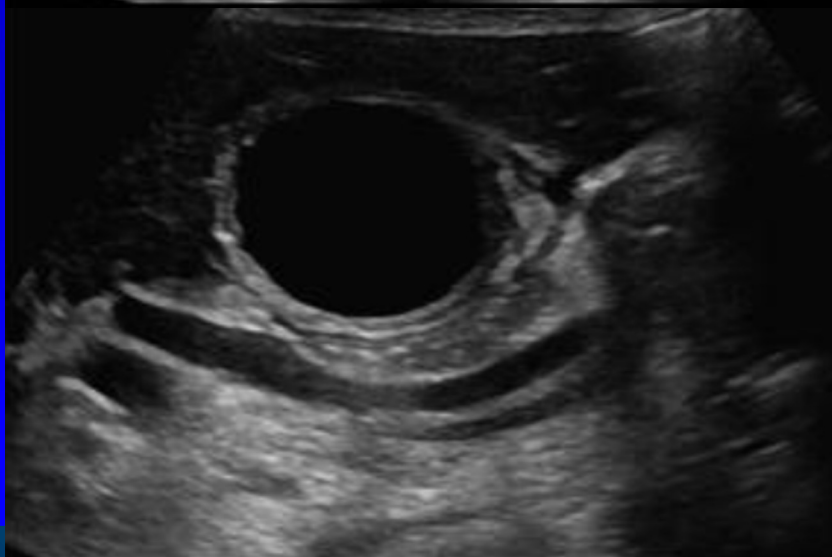
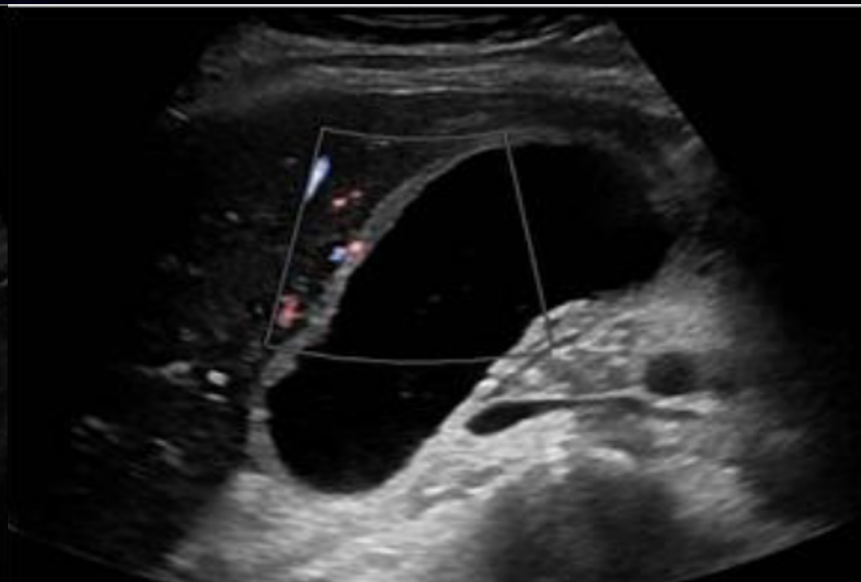
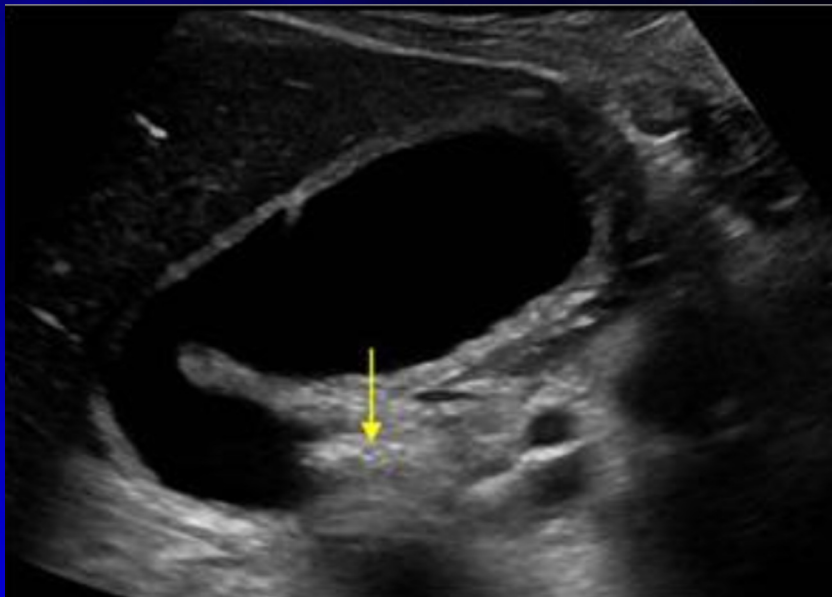


Here images of a patient with early acute cholecystitis. Note the obstructing stone (arrow), gallbladder wall thickening and bulging of the gallbladder into the abdominal wall during compression, indicating high intraluminal pressure.

CRP was 110, confirming the diagnosis of acute cholecystitis.



Colecistite acuta



ALTRE CAUSE DI ISPESSIMENTO PARIETALE DELLA C

Gallbladder wall thickening

Cholecystitis

- acute
- chronic
- acalculous
- xanthogranulomatous

Gallbladder carcinoma

Adenomyomatosis

Liver cirrhosis

Hepatitis

Congestive right heart failure

Renal failure

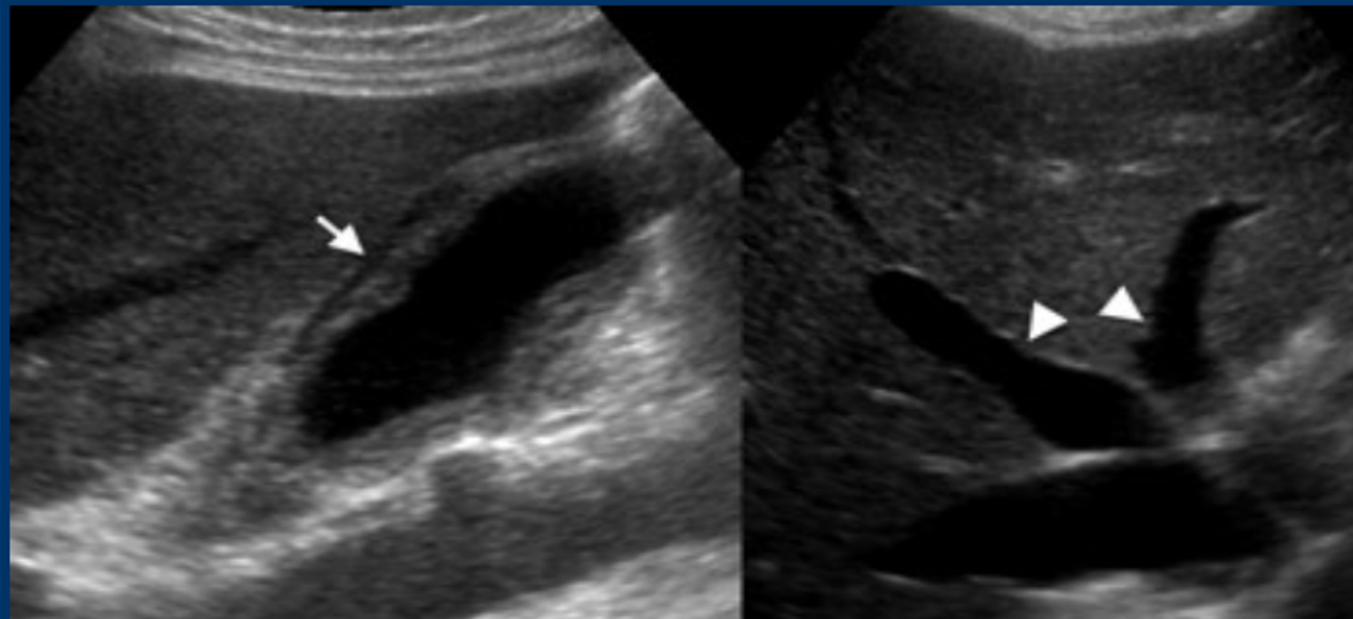
Pancreatitis

Differential diagnosis of gallbladder wall thickening

The differential diagnosis of gallbladder wall thickening is listed on the left. Diffuse gallbladder wall thickening may produce a diagnostic problem, as it occurs in symptomatic and asymptomatic patients, and in patients with and without an indication for a cholecystectomy.

Diffuse thickening of the gallbladder wall may occur in patients who do not have a primary gallbladder disease, but in whom the gallbladder is secondarily involved in an extrinsic pathological condition.

In these patients a cholecystectomy is unwarranted, and gallbladder abnormalities will usually return to normal after correction of its extrinsic cause.



Diffuse gallbladder wall thickening in congestive right heart failure

COLECISTITE CRONICA



Chronic cholecystitis. Longitudinal sonogram of the gallbladder shows slight wall thickening (arrow) and an intraluminal non-obstructing stone

Chronic cholecystitis

Chronic cholecystitis is a term used clinically to refer to symptomatic gallbladder stones that cause transient obstruction, leading to a low-grade inflammation with fibrosis [1].

Correlation of the imaging finding of a stone-containing slightly thick-walled gallbladder with the clinical history is critical.

On the left images of a 49-year-old woman with chronic cholecystitis.

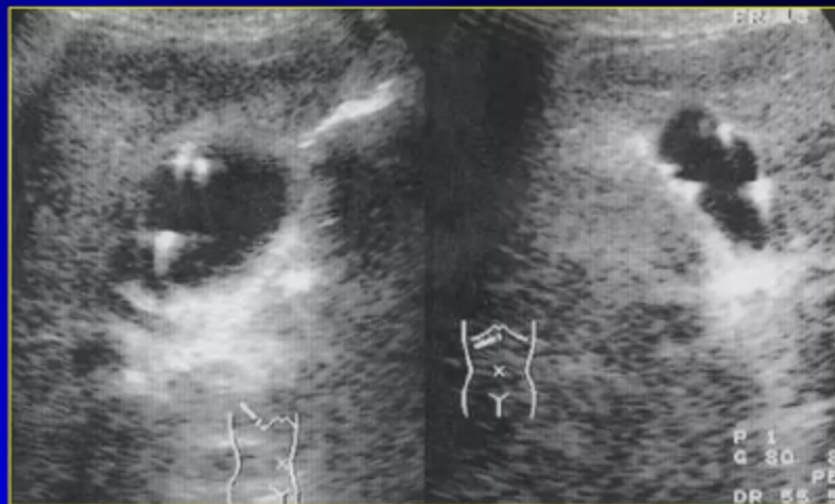
This patient had fasted overnight, so the wall-thickening does not represent physiologic contraction.

Correlation of these findings with her clinical history of recurrent colic-like right upper quadrant pain, due to transient gallbladder obstruction, is essential for the diagnosis.

Neoplasie benigne della colecisti

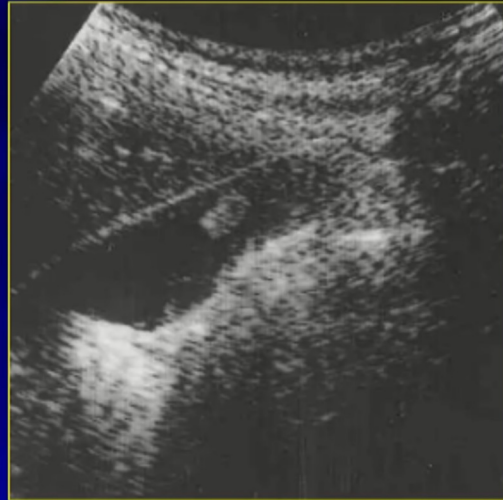
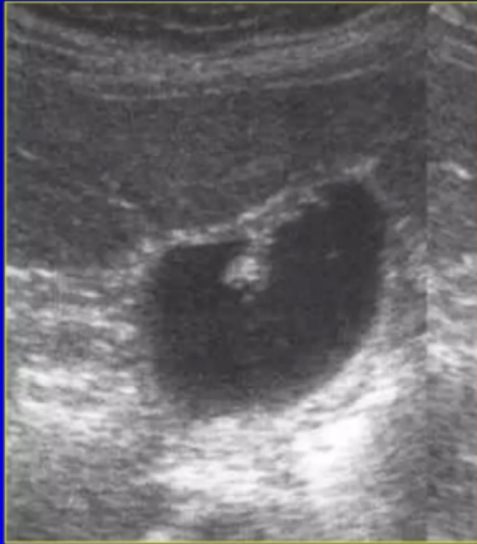
- ❖ Fibromi, lipomi, papillomi, polipi iperplastici, polipi adenomatosi.
- ❖ Formazioni uniche o multiple adese alla parete, isoecogene o debolmente iperecogene rispetto alla stessa, senza cono d'ombra.
- ❖ Parete sottostante integra.

Colesterolosi della colecisti



POLIFI

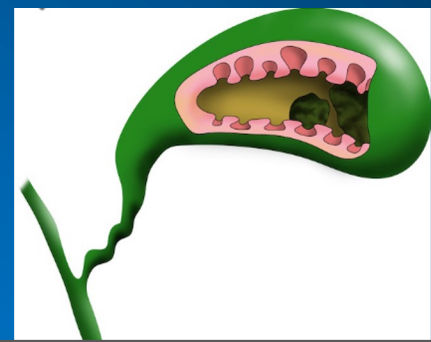
(NON MOBILI CON LE VARIAZIONI DEL DECUBITO!)



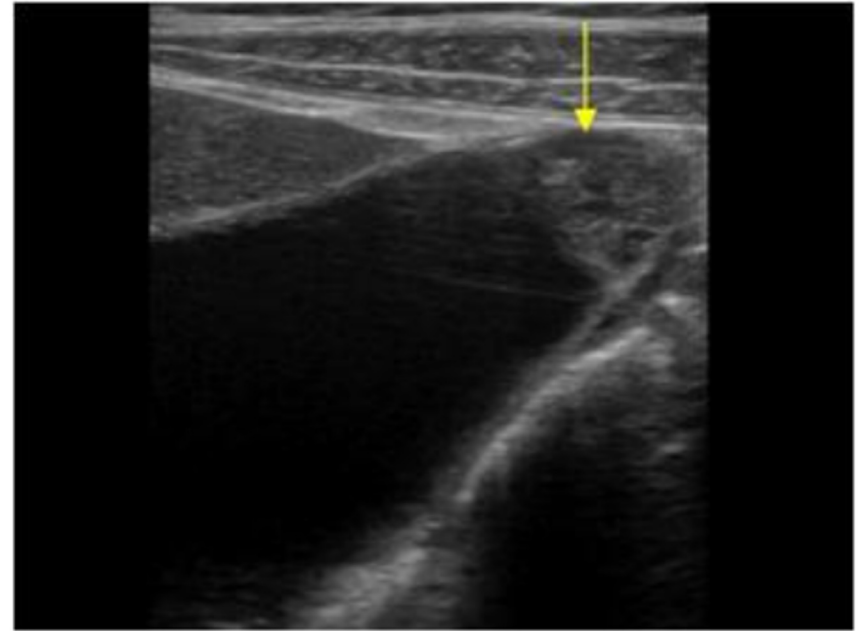
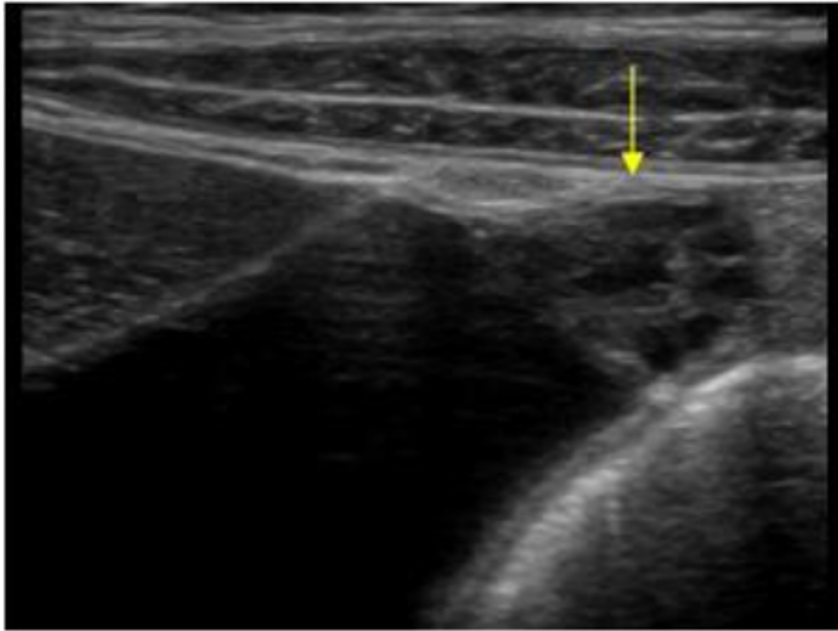
Neoplasie benigne della colecisti

- ❖ Se il diametro e' < 10 mm, controllo ecografico a 6 e a 12 mesi. Sospensione della sorveglianza se non ci sono modificazioni.
- ❖ Se il diametro e' $> 10-15$ mm, se aumentano le dimensioni nel tempo e se la parete sottostante e' ispessita, indicazione alla colecistectomia.

ADENOMIOMATOSI



Adenomyomatosis with a thickened gallbladder fundus with intramural diverticuli



Ecografia ed ittero ostruttivo

- ❖ L'ecografia consente di discriminare l'ittero ostruttivo da quello epatocellulare in oltre il 95% dei casi.
- ❖ La dilatazione delle vie biliari e' visibile gia' con una bilirubinemia totale di 3 mg/dl.
- ❖ Dal verificarsi dell'ostruzione occorrono circa 24 ore affinche' la dilatazione delle vie biliari divenga evidente all'ecografia.

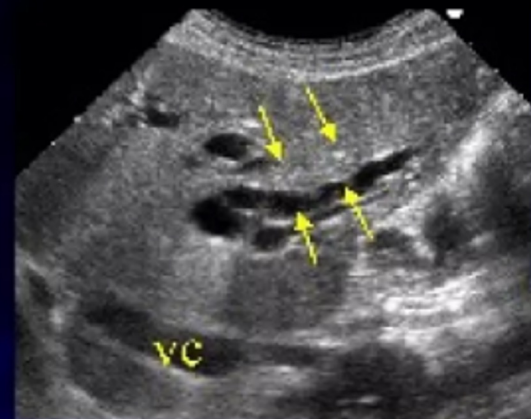
Ostruzioni biliari

- L'ecografia ha un'accuratezza diagnostica molto elevata (98-100%)
- Segni ecografici:
 - ectasia della via biliare principale (calibro > 4-6 mm nei non colecistectomizzati, > 10 mm nei colecistectomizzati)
 - ectasia dei dotti epatici (calibro > 1-2 mm)
 - visibilità dei dotti segmentali e delle diramazioni più distali
 - idrope della colecisti (diametri antero-posteriore e/o trasverso > 4 cm)

Definizione del livello dell'ostruzione (acc. diagn. 85-95%)

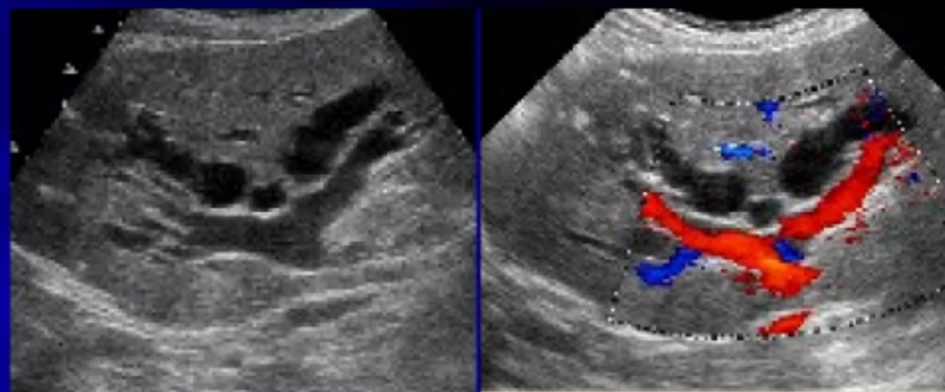
- LIVELLO INTRAEPATICO

- Dilatazione delle vie biliari segmentali o lobari
- Colecisti e via biliare principale normali



- LIVELLO ILARE

- Dilatazione dell'intero albero biliare intraepatico
- Colecisti e via biliare principale normali



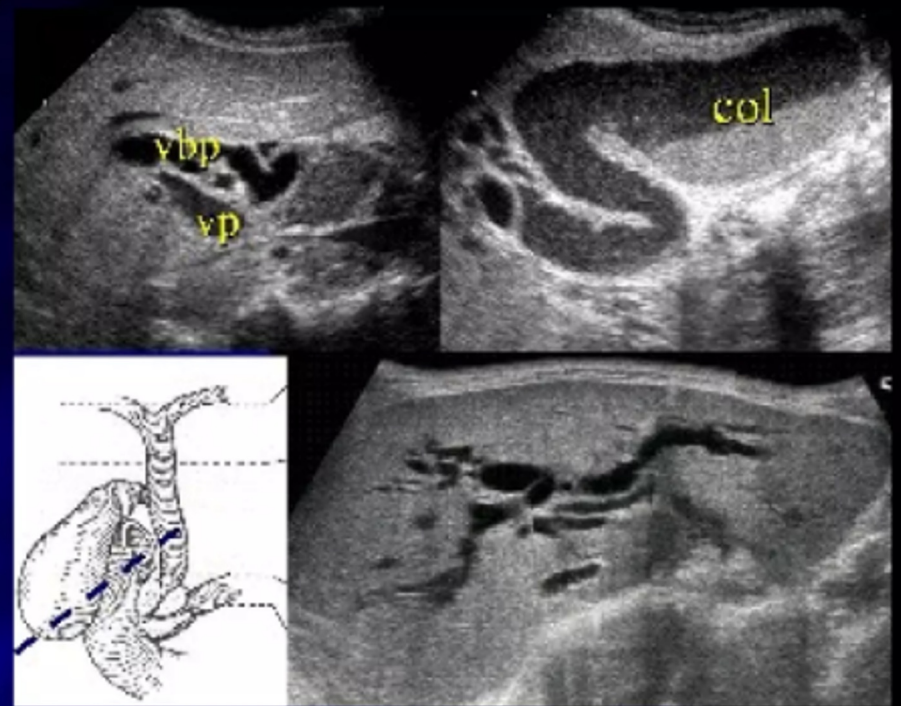
Definizione del livello dell'ostruzione (acc. diagn. 85-95%)

- LIVELLO COLEDOCICICO

- Dilatazione dell'intero albero biliare intraepatico, della colecisti e della via biliare principale fino a livello dell'ostacolo

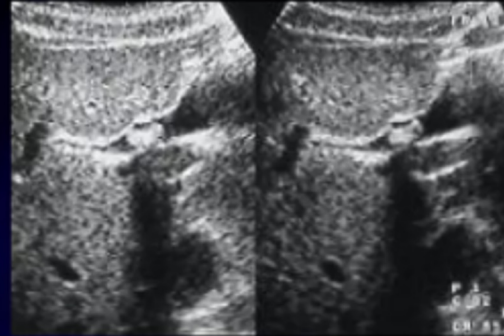
- LIVELLO PAPILLARE

- Come sopra più dilatazione del dotto di Wirsung

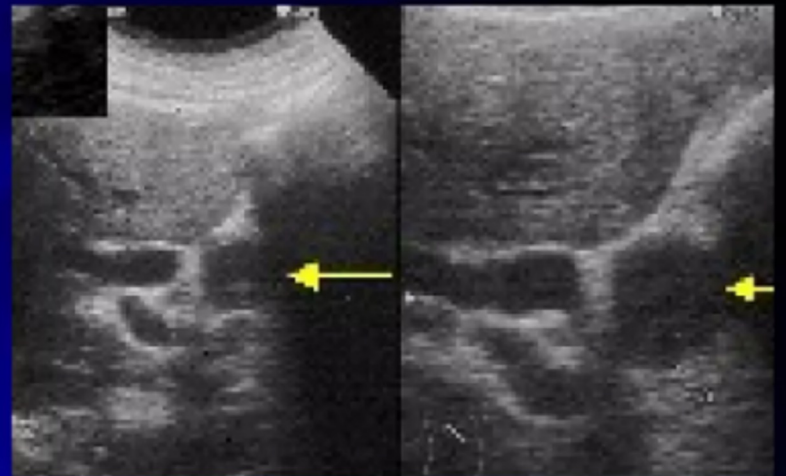


Definizione di natura dell'ostruzione

- Cause intrinseche
 - Calcoli
 - Neoplasie biliari
 - Stenosi benigne (es. Colangite sclerosante)
 - Parassitosi

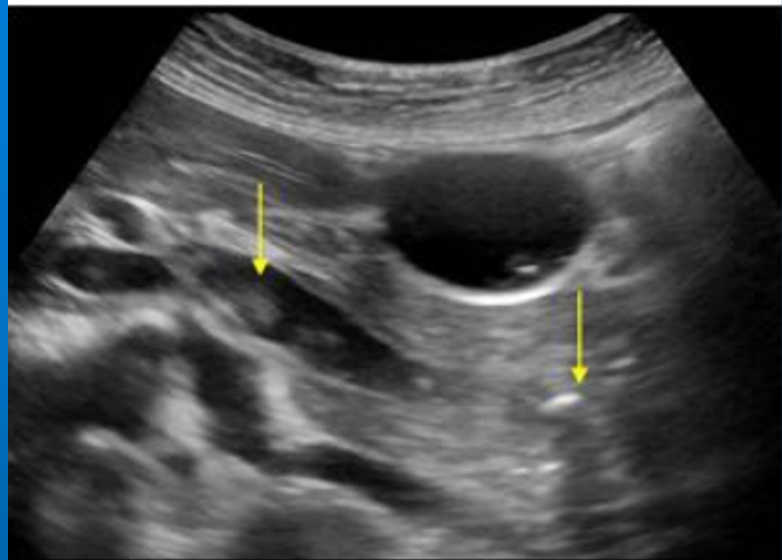


- Cause estrinseche
 - Neoplasie pancreatiche e duodenali
 - Linfadenomegalie dell'ilo epatico
 - Cavernoma portale

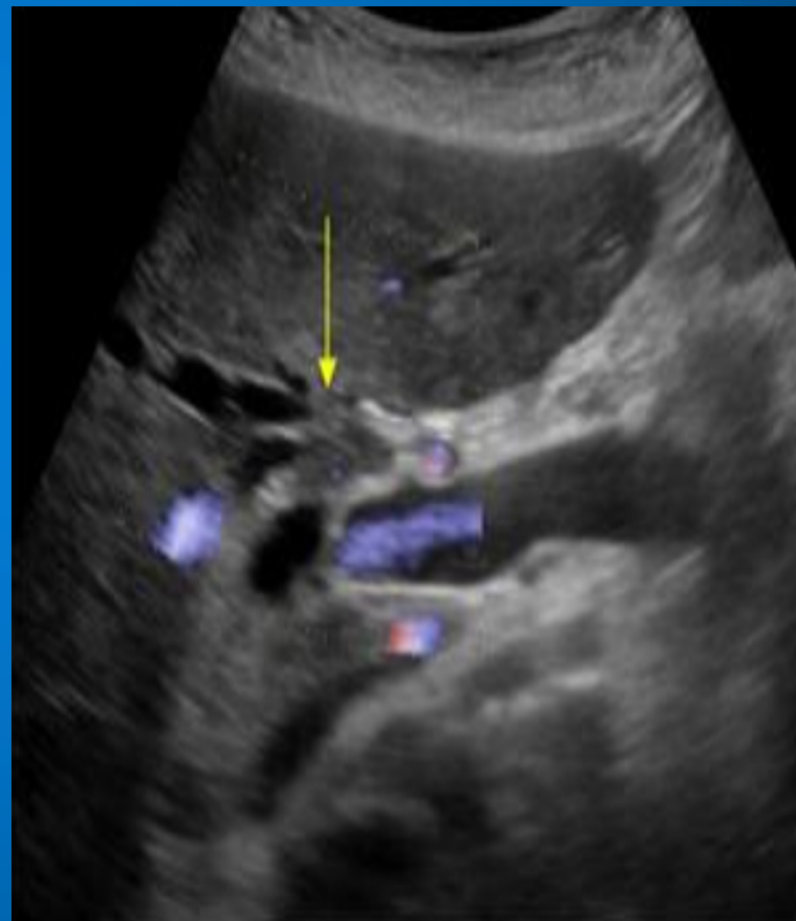
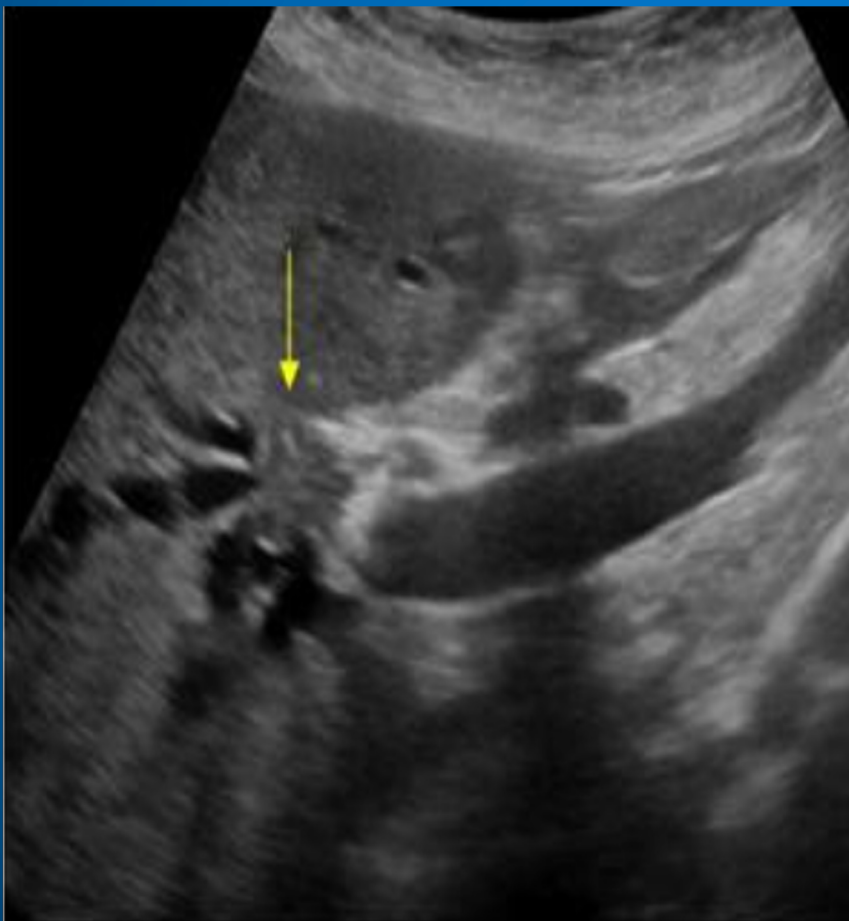




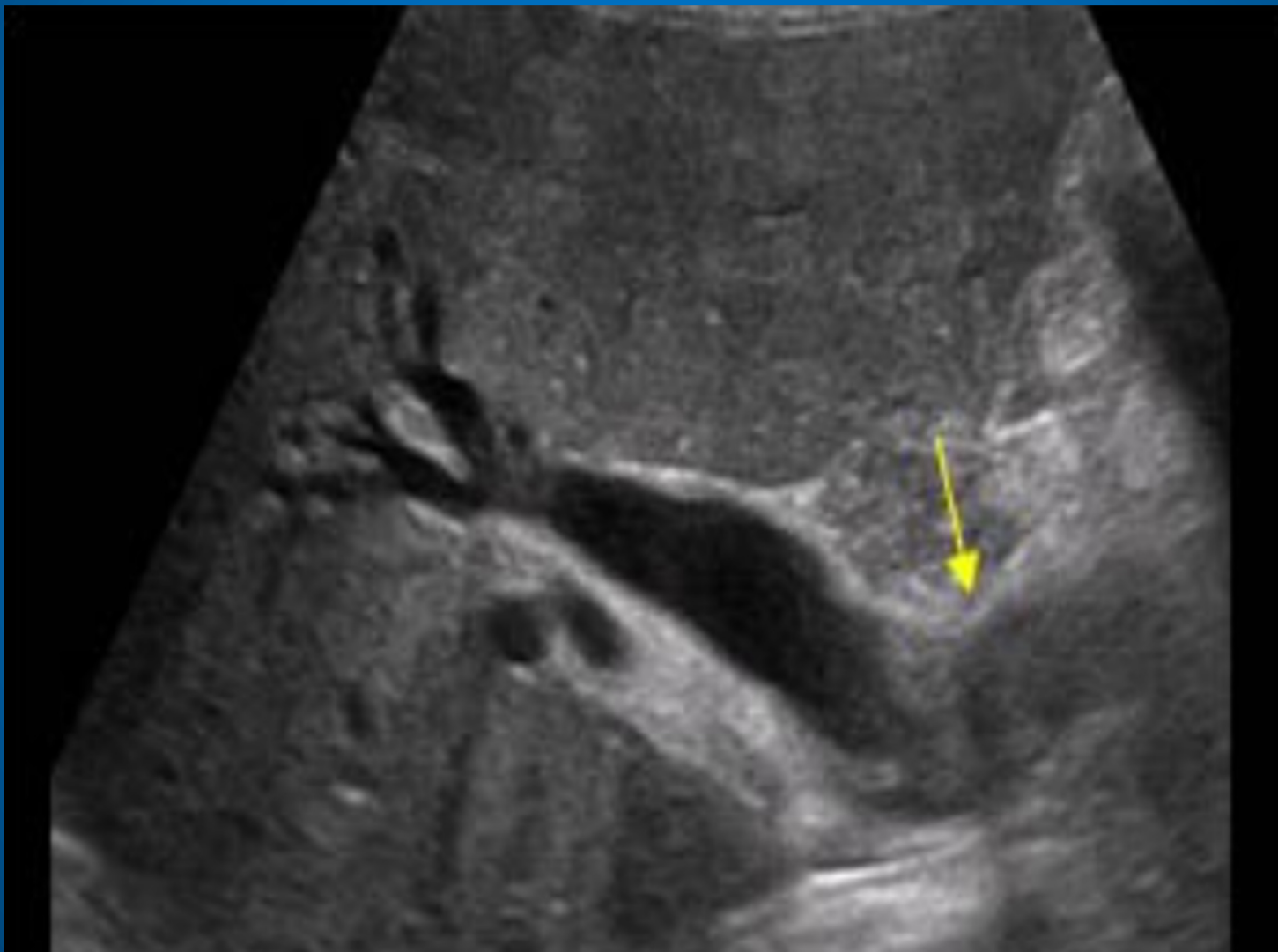
Small stone in the common bile duct longitudinal



Colangiocarcinoma ilare



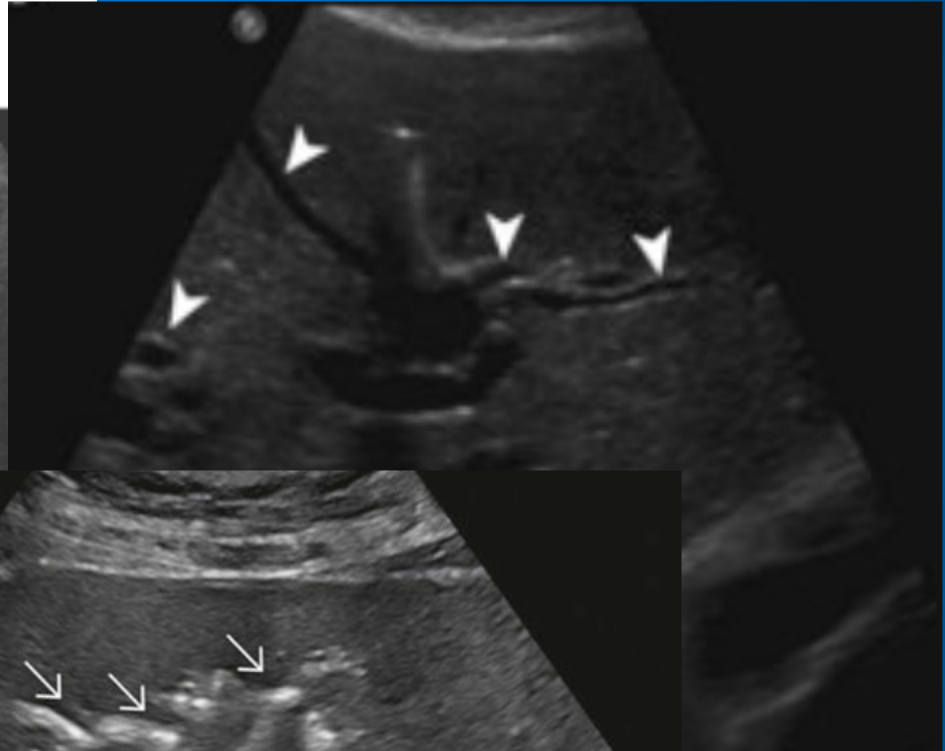
Colangiocarcinoma duttale



NB: LIEVE DILATAZIONE DELLE VIE BILIARI, ED EVENTUALE PNEUMOBILIA: NORMALE IN ESITI DI COLECISTECTOMIA E SFINTEROTOMIA (VS RECIDIVA LITIASICA → CLINICA)

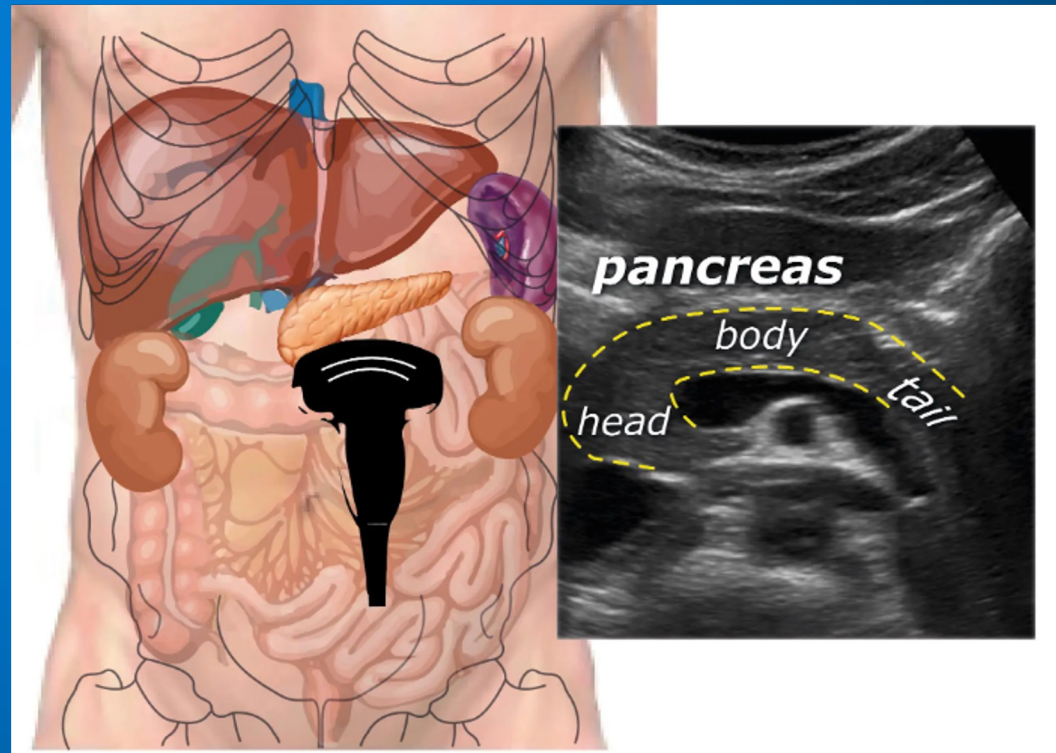
Dilated bile duct paralleling portal vein.
Note similar size of these two structures

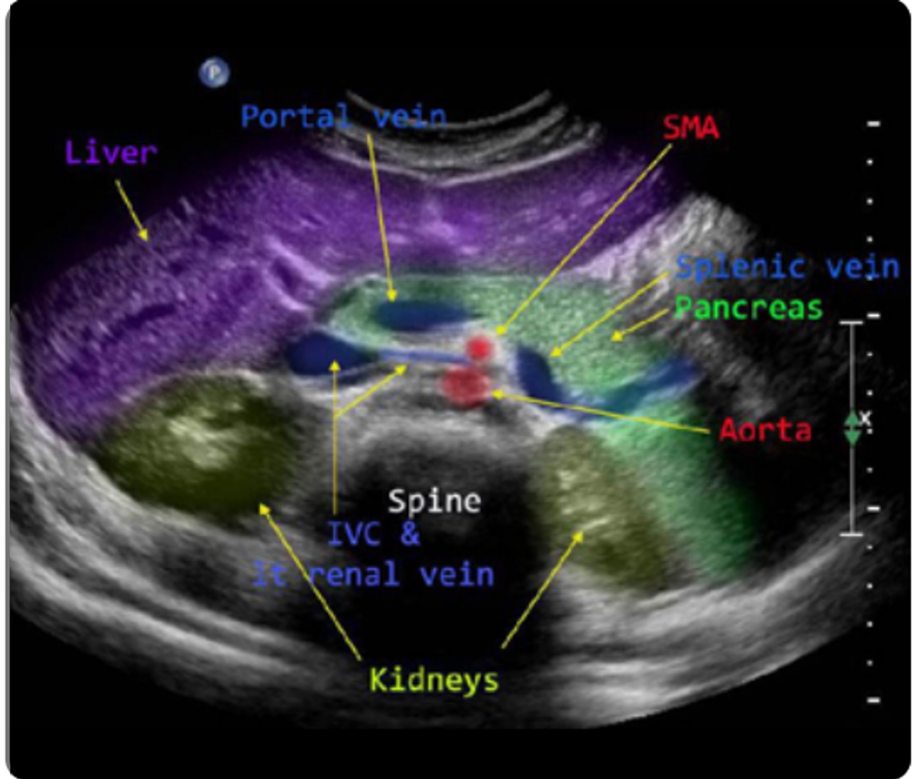
LIVER TRANS



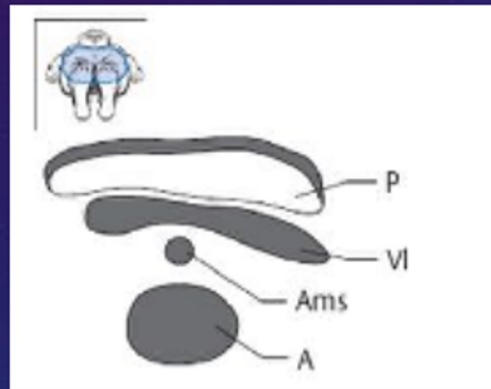
PANCREAS

- ANATOMIA E SISTEMA DUTTALE
- PANCREATITE
 - ACUTA
 - CRONICA
 - PSEUDOCISTI
- LESIONI SOLIDE
- LESIONI CISTICHE



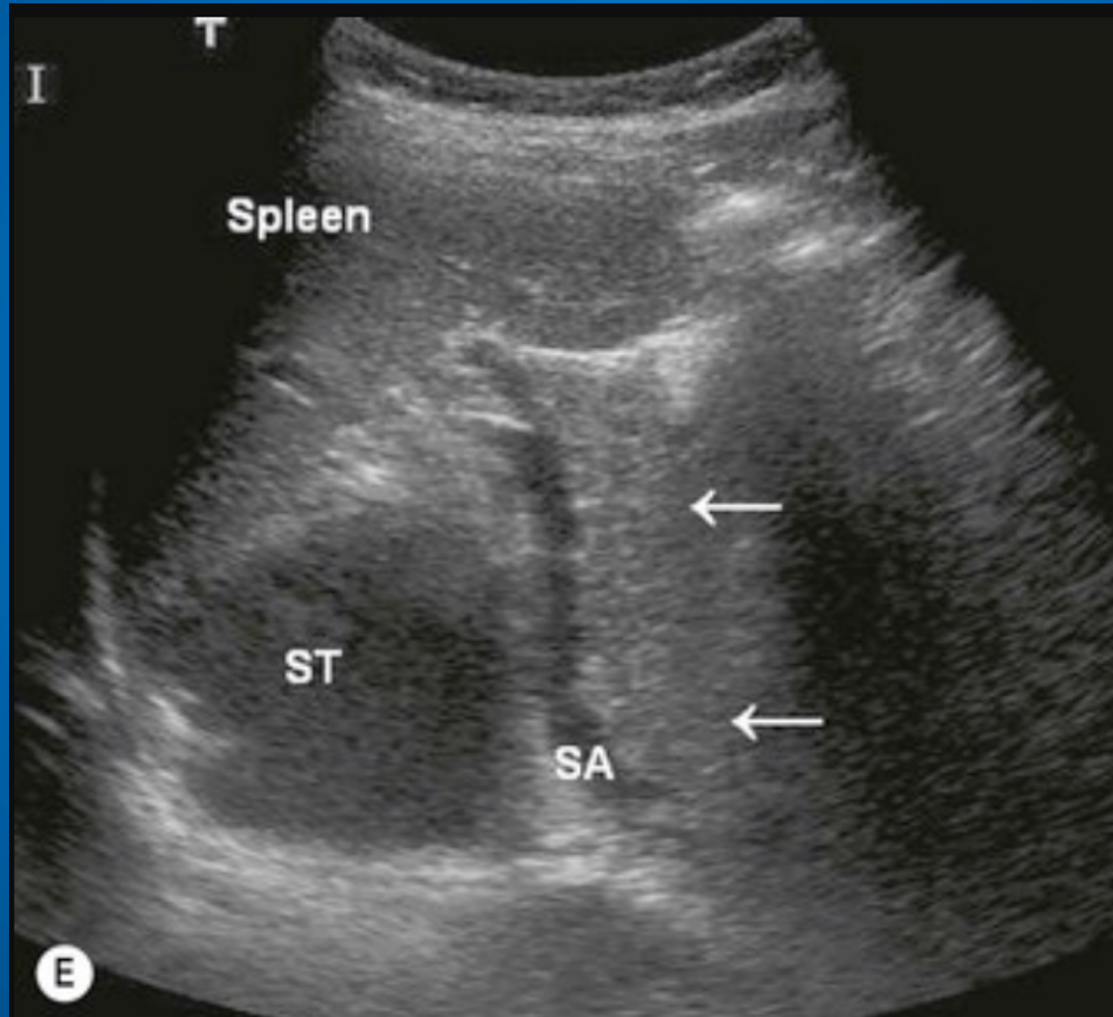


ANATOMIA

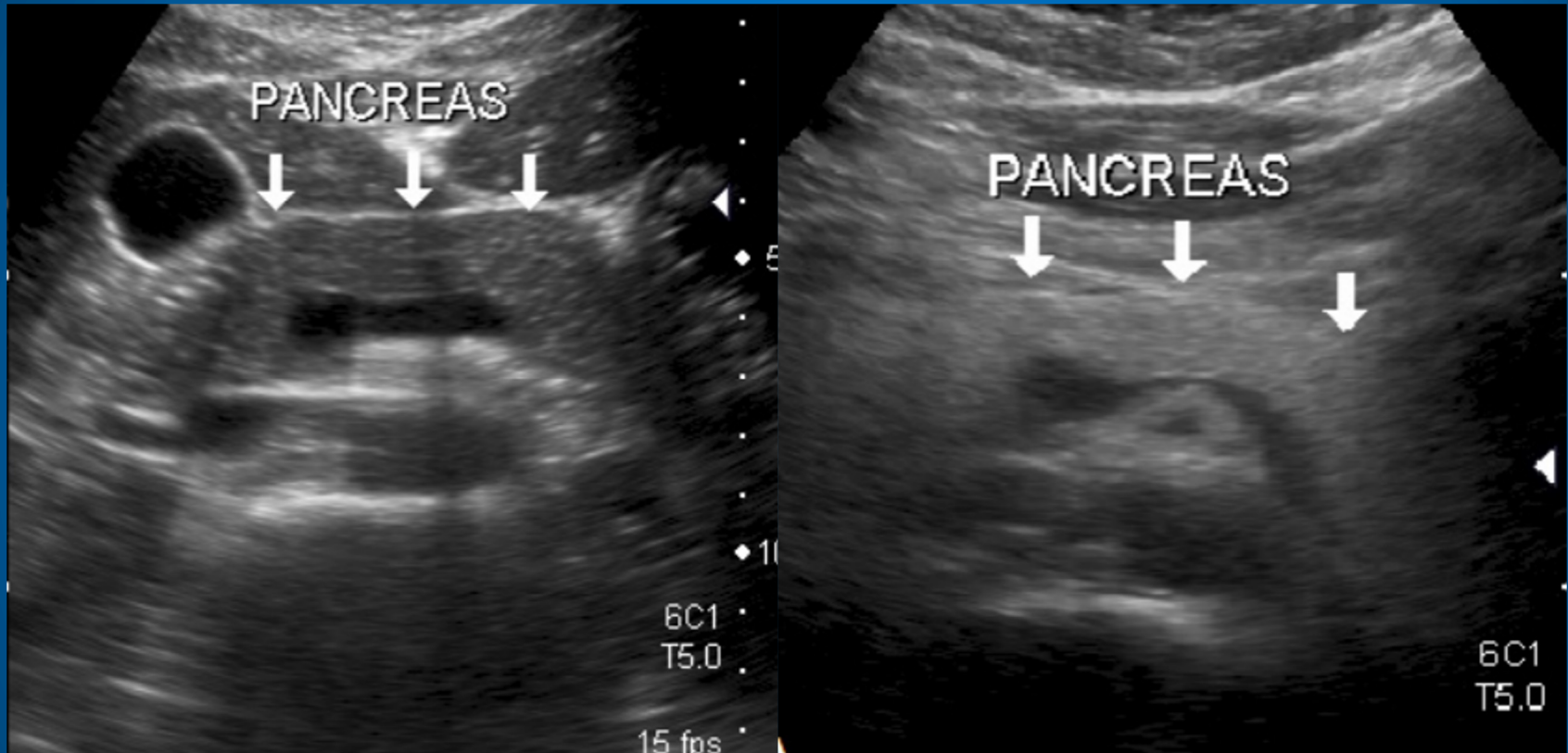


Testa 15 – 30 mm	Corpo 14 – 30 mm	Coda 10 – 32 mm
Wirsung	≤ 2 mm	

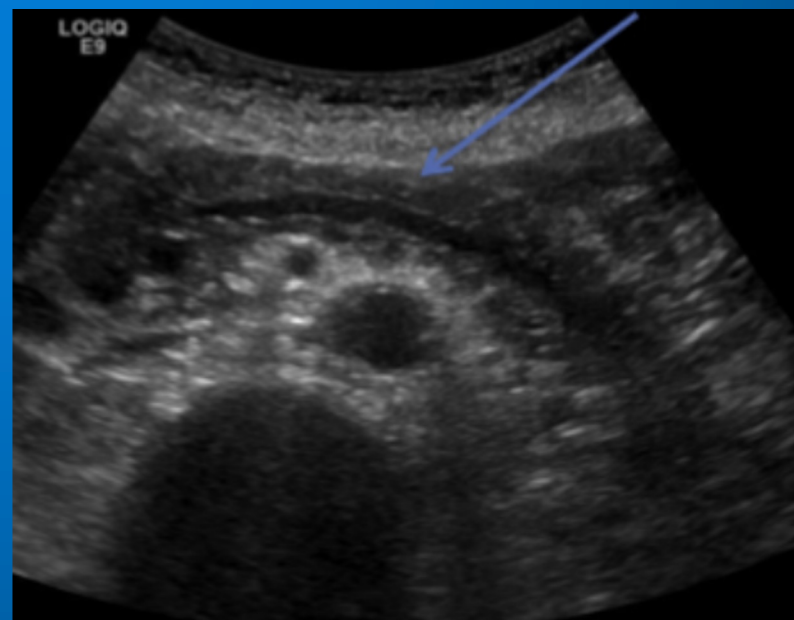
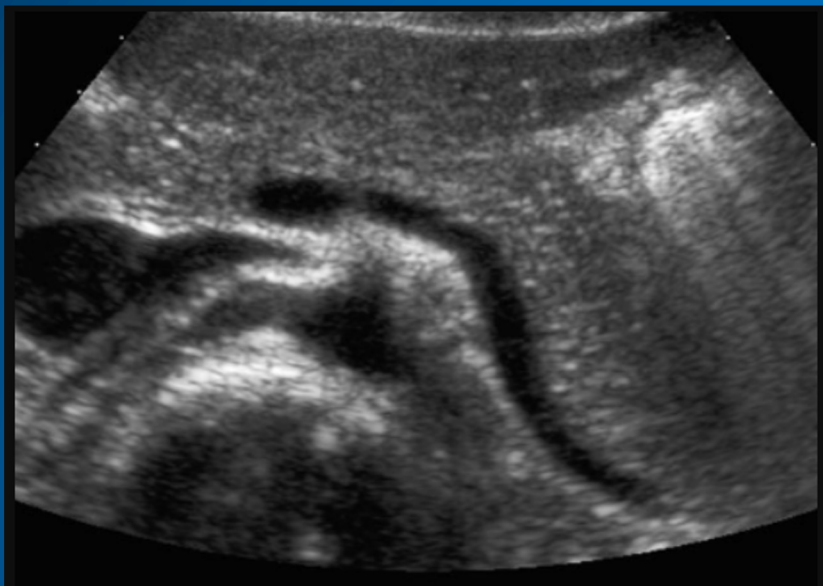
FINESTRA SPLENICA PER LA VISUALIZZAZIONE DELLA CODA PANCREATICA



ECOGENICITA' NORMALE vs DEGENERAZIONE ADIPOSA



DOTTO PANCREATICO PRINCIPALE (NON SEMPRE WIRSUNG!)



VARIANTI SISTEMA DUTTALE



Descending
Pancreatic Duct



Vertical
Pancreatic Duct



Sigmoid
Pancreatic Duct



Looped
Pancreatic Duct



Anomalous Union of
Pancreatic Duct and Bile Duct



Persistent Duct of Santorini
duct of Wirsung as major
drainage route 91%



Persistent Duct of Santorini
duct of Wirsung as major
drainage route 9%



Pancreas Divisum

PANCREATITE ACUTA

- **OSTRUTTIVA**
 - **LITIASICA**
 - **NON LITIASICA (K?)**
- **NON OSTRUTTIVA**

Le **cause** di pancreatite acuta sono varie e indipendenti dalla severità di malattia. Le principali sono:

- **Calcolosi delle vie biliari/colecisti** o altre patologie più rare dei dotti biliari e pancreatici (pancreatite acuta biliare),
- **Abuso alcolico** (pancreatite acuta alcolica).

Tali cause sono responsabili di più dell' 80% degli episodi di pancreatite acuta nel mondo occidentale. Fattori responsabili dei restanti episodi sono:

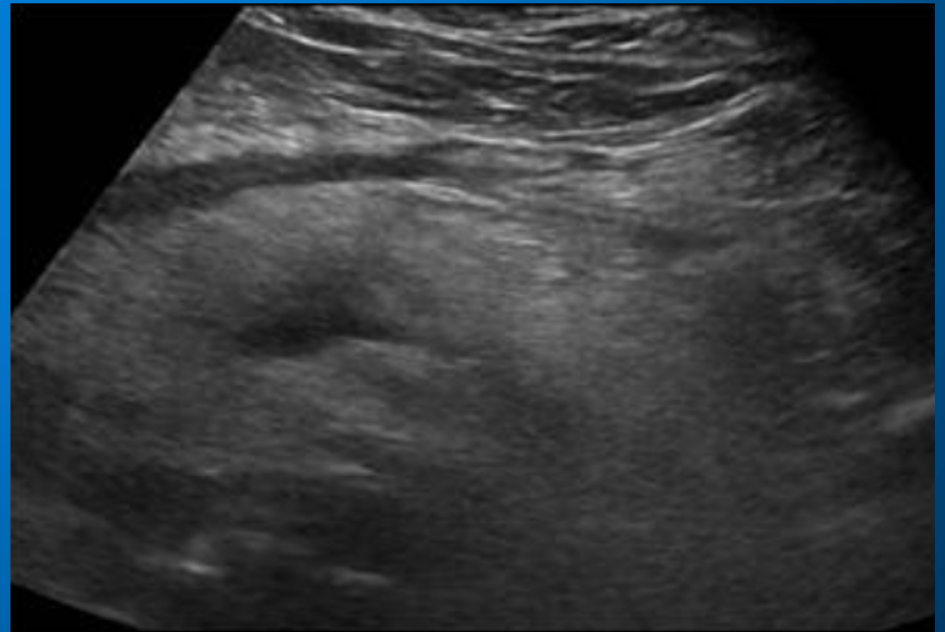
- Iperlipemia grave, iperparatitoidismo o ipercalcemia,
- Ostruzione meccanica del dotto pancreatico principale (anche da parte di neoplasie) o stenosi duoedenale,
- Traumi del pancreas e cause iatrogene (pancreatiti postoperatorie, pancreatiti post-sfinterotomia endoscopica),
- Farmaci o droghe,
- Cause sconosciute (pancreatiti acute idiopatiche)

PANCREATITE ACUTA

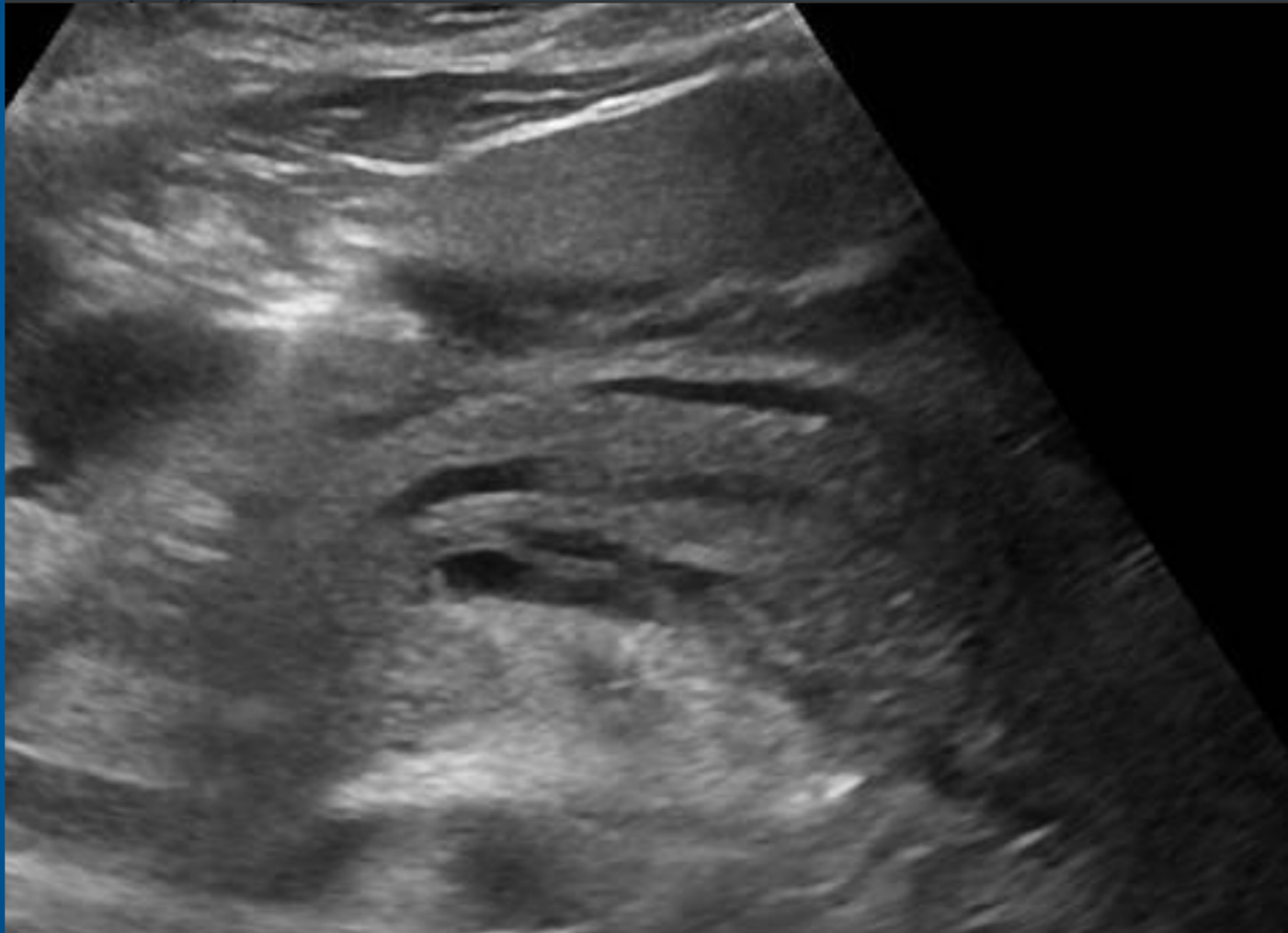
ISPESSIMENTO EDEMATOSO DELLA GHIANDOLA
TESSUTO PANCREATICO DISOMOGENEO
+/- FALDE FLUIDE PERIPANCREATICHE
+/- DILATAZIONE DUTTALE

CORRELAZIONE CON LITIASI BILIARE VS CAUSE NON OSTRUTTIVE

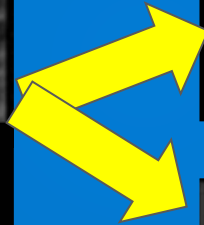
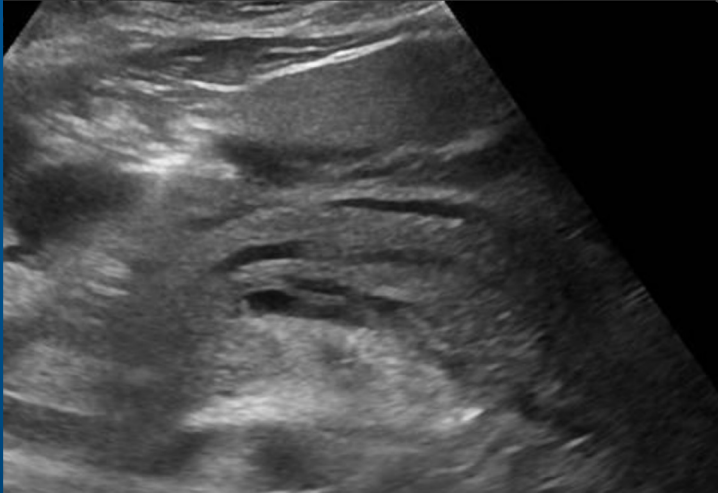
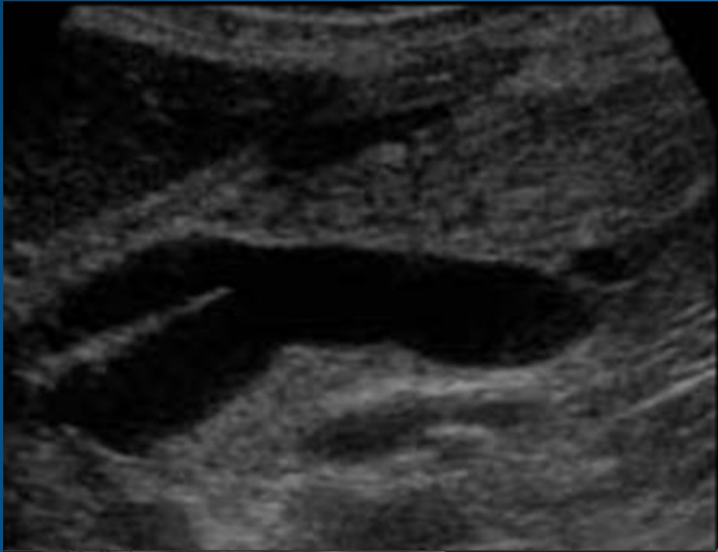
- + CLINICA
- + LAB



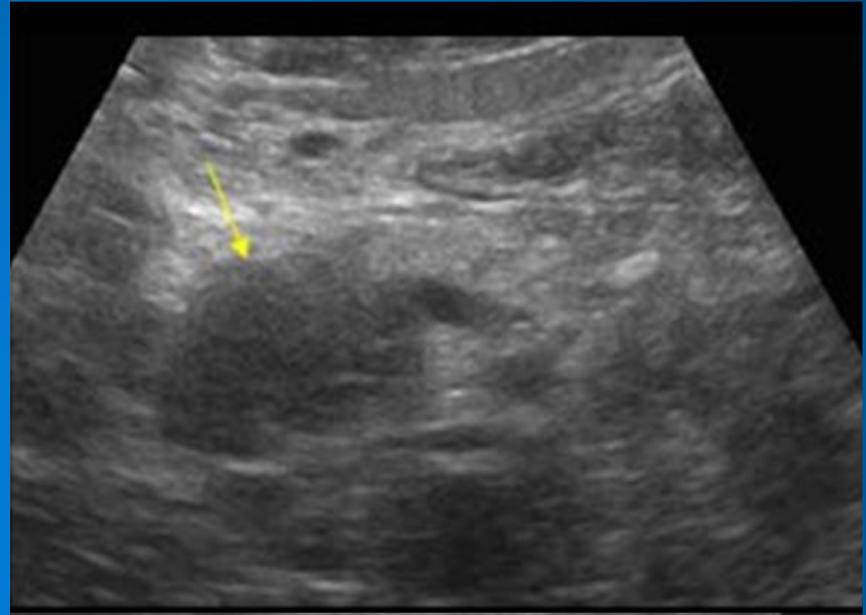
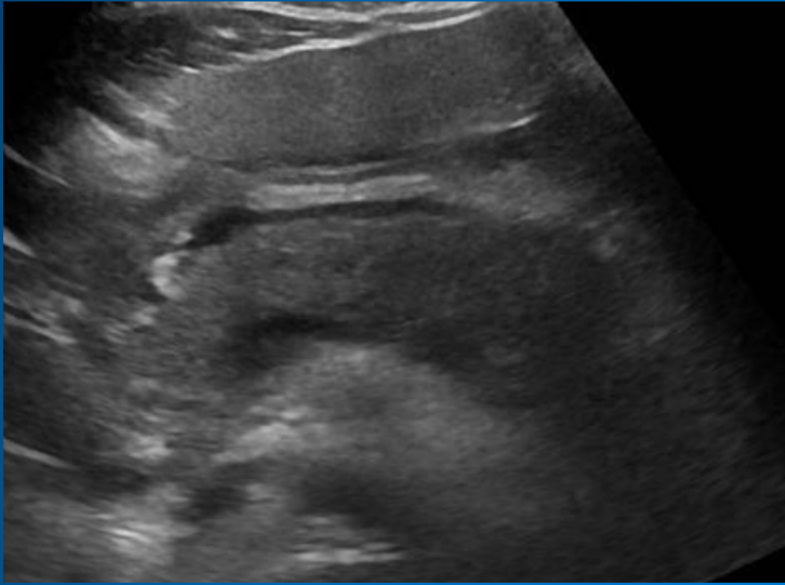
PANCREATITE: OSTRUZIONE SISTEMA DUTTALE



PANCREATITE: OSTRUZIONE SISTEMA DUTTALE LITIASICA VS NEOPLASTICA



PANCREATITE: DIFFUSA VS FOCALE



FOCALE:
DD CON LESIONI SOLIDE

- CLINICA
- LAB

PANCREATITE CRONICA

Con il termine di pancreatite cronica si indicano tutte le **affezioni del pancreas a carattere cronico e fibrosante che producono danno permanente e disfunzione d'organo.**

La principale **causa** di pancreatite cronica nel mondo occidentale è l'**abuso di alcolici** o un'alterata tolleranza all'alcol stesso. Tuttavia soltanto il 5-15% dei forti bevitori sviluppa pancreatite cronica, suggerendo un ruolo patogenetico di cofattori, tra cui un eccesso di grassi nella dieta, la carenza di antiossidanti e il fumo di sigaretta. Quest'ultimo, in particolare, sembra avere un ruolo rilevante, specie nella formazione delle calcificazioni pancreatiche. Esisterebbe anche una potenziale correlazione con il carcinoma del pancreas, che non è tuttavia dimostrata con certezza.

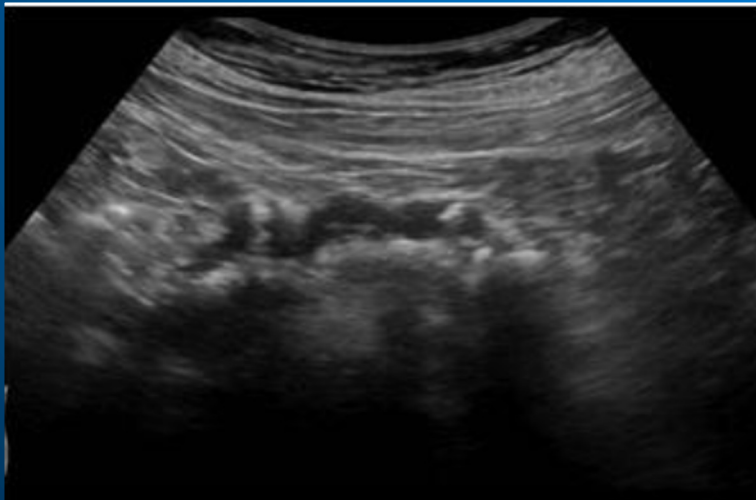
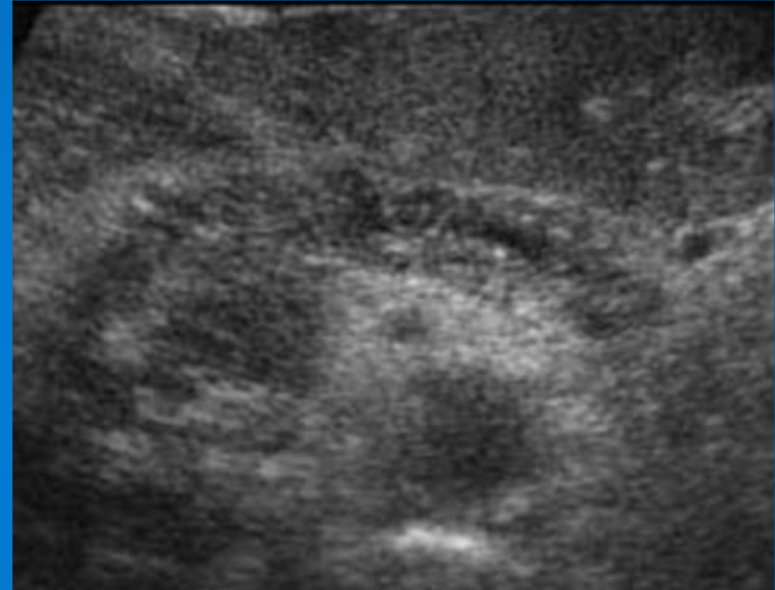
Altre cause di pancreatite cronica includono:

- Ostruzione del dotto pancreatico principale da calcoli/neoplasie (spesso benigne/borderline e a lenta crescita)
- Malattie genetiche (e.g. fibrosi cistica)
- Malformazioni pancreatiche (e.g. pancreas divisum)
- Distrofia cistica del duodeno (*groove pancreatitis*)
- Autoimmunità (pancreatite autoimmune)
- Farmaci
- Cause sconosciute (pancreatiti croniche idiopatiche)

PANCREATITE CRONICA

STORIA CLINICA

GHIANDOLA IPOTROFICA CON PROFILI IRREGOLARI
CALCIFICAZIONI (PARENCHIMALI E/O INTRADUTTALI)



CRONICA OSTRUTTIVA
DILATAZIONE DUTTALE
DD CON IPMN

NEOPLASIE PANCREATICHE

FAMIGLIE DI NEOPLASIE PANCREATICHE

ADENOCARCINOMA DUTTALE

ADENOCARCINOMA DELLA VIA BILIARE

ADENOCARCINOMA E GIST DUODENALI

NEOPLASIE AMPOLLARI/PERIAMPOLLARI

NEOPLASIE CISTICHE

NEOPLASIE NEUROENDOCRINE

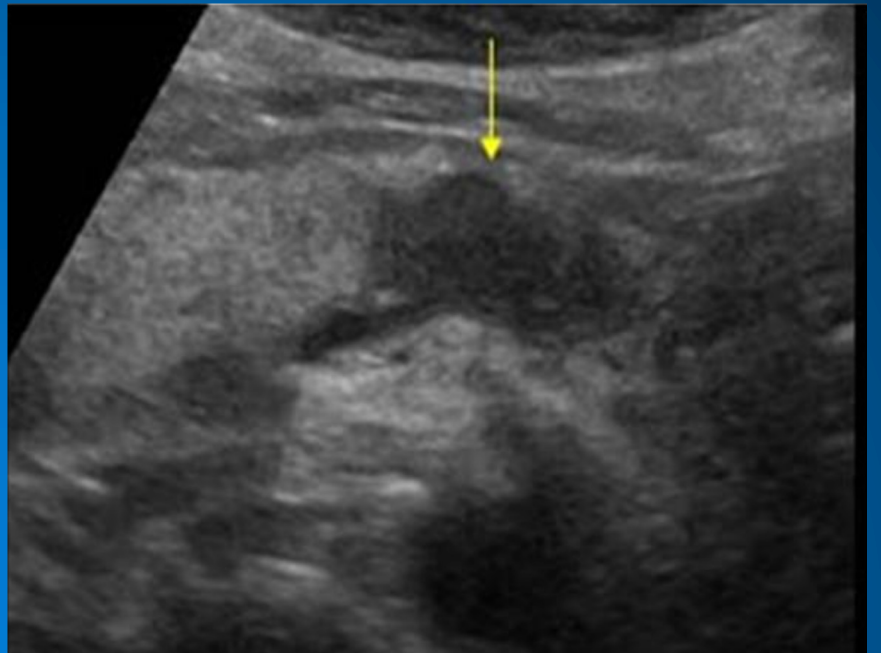
ALTRE NEOPLASIE RARE

Adenocarcinoma duttale

Ecografia addominale

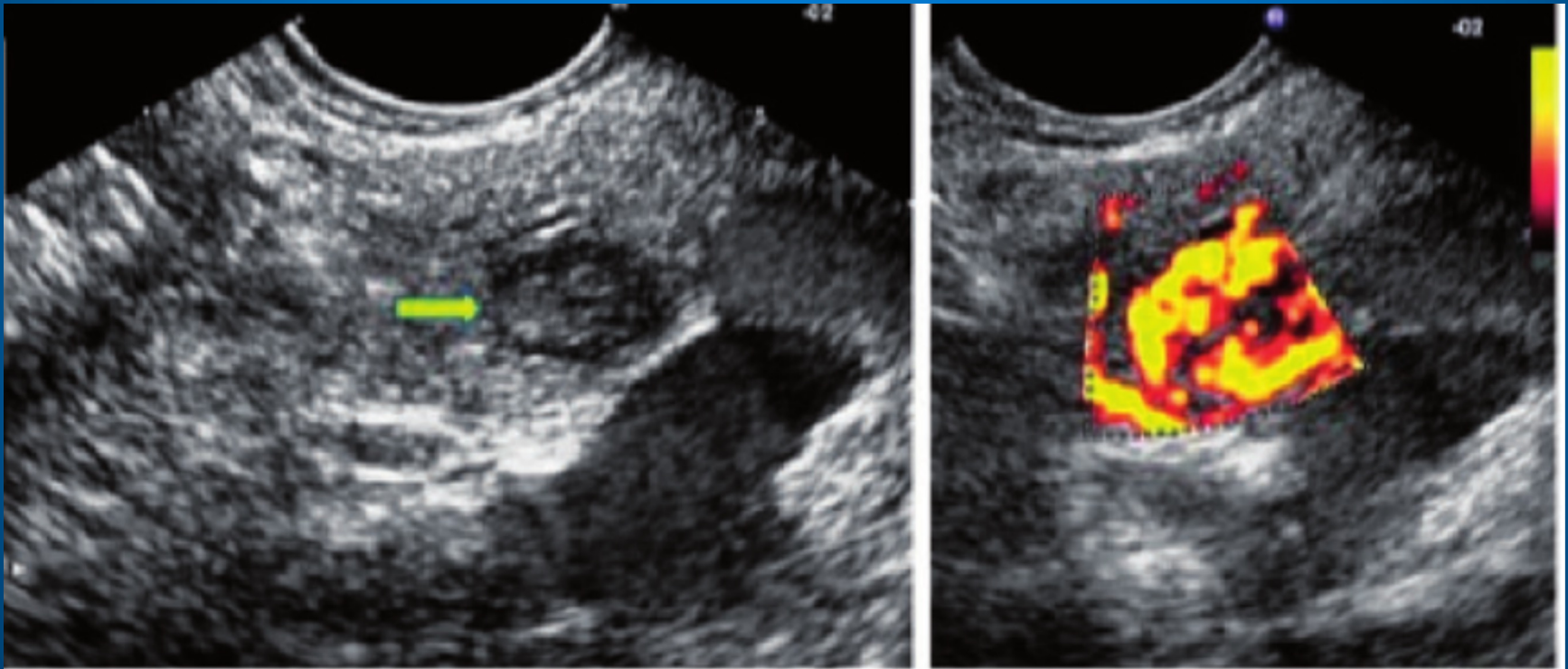


Adenocarcinoma della testa del pancreas ipoecogeno e totalmente avascolare come evidenziato al Color e al Power-Doppler

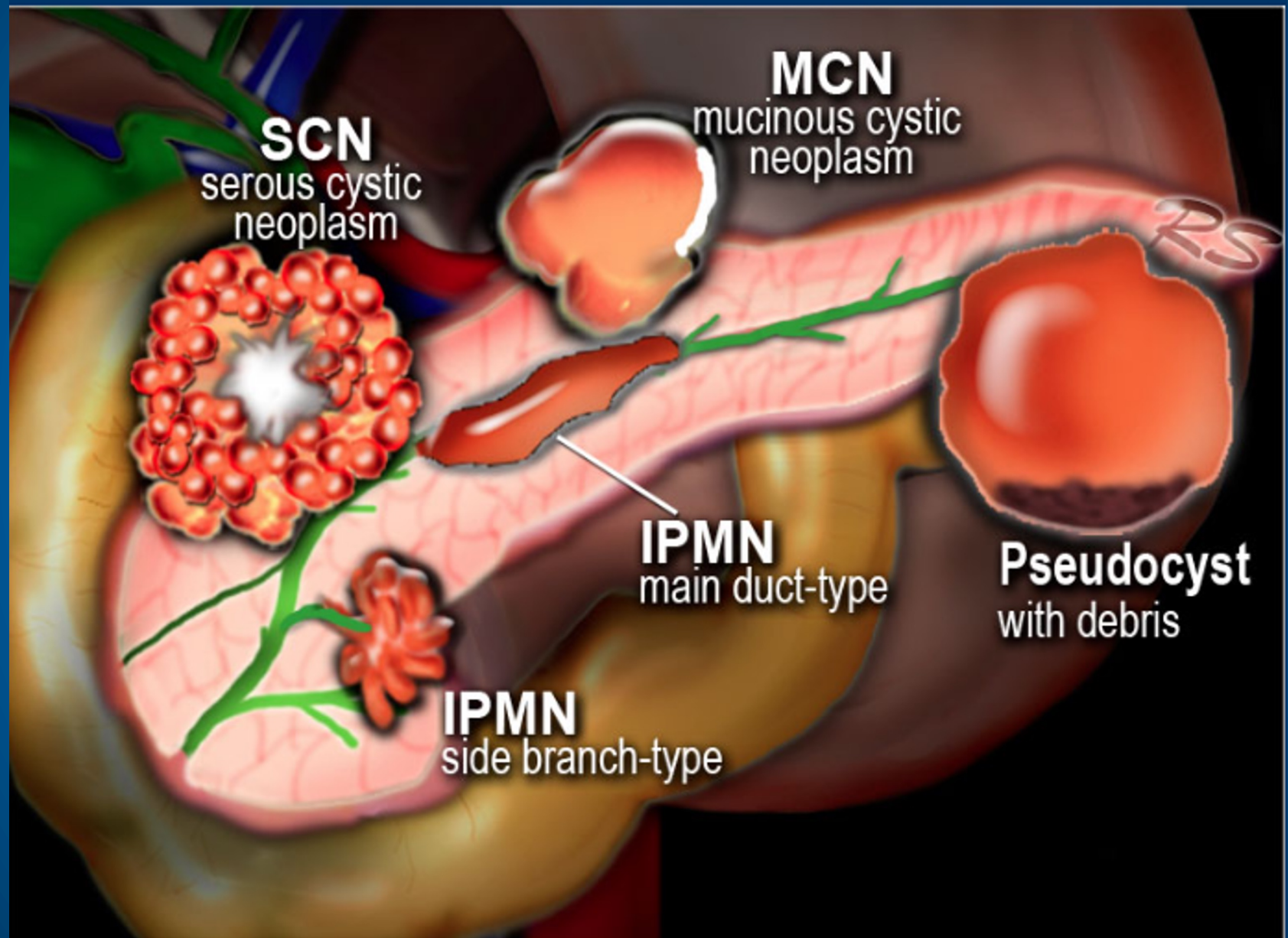


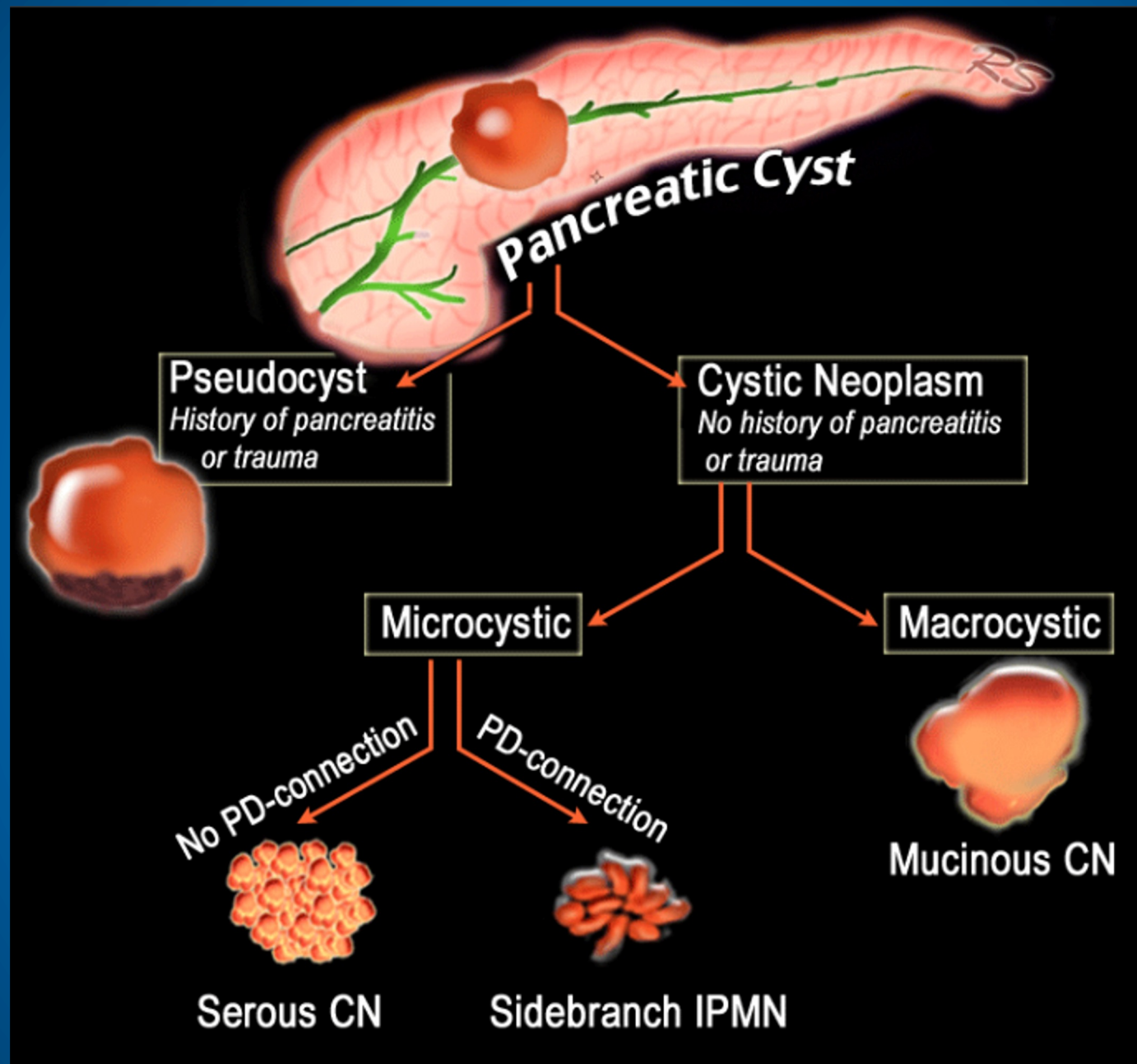
NEUROENDOCRINO


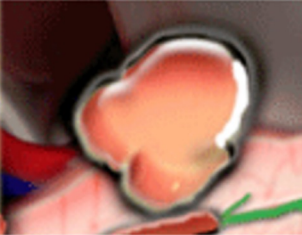
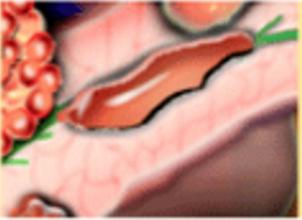

Masserella a margini ben definiti molto vascolarizzata



NEOPLASIE CISTICHE

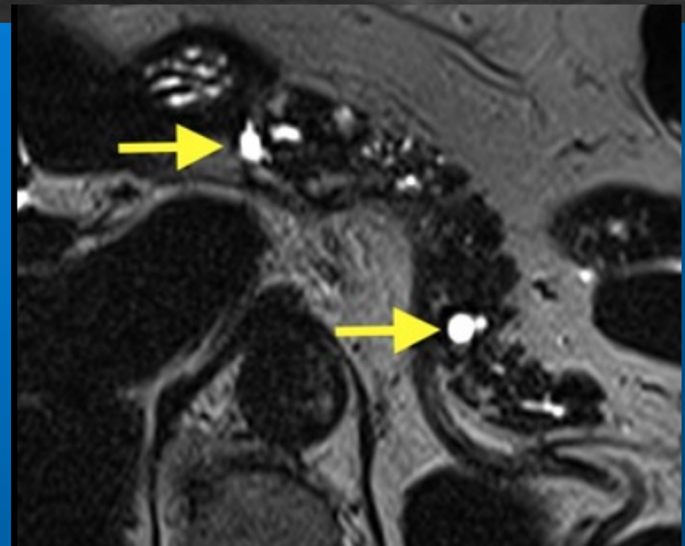
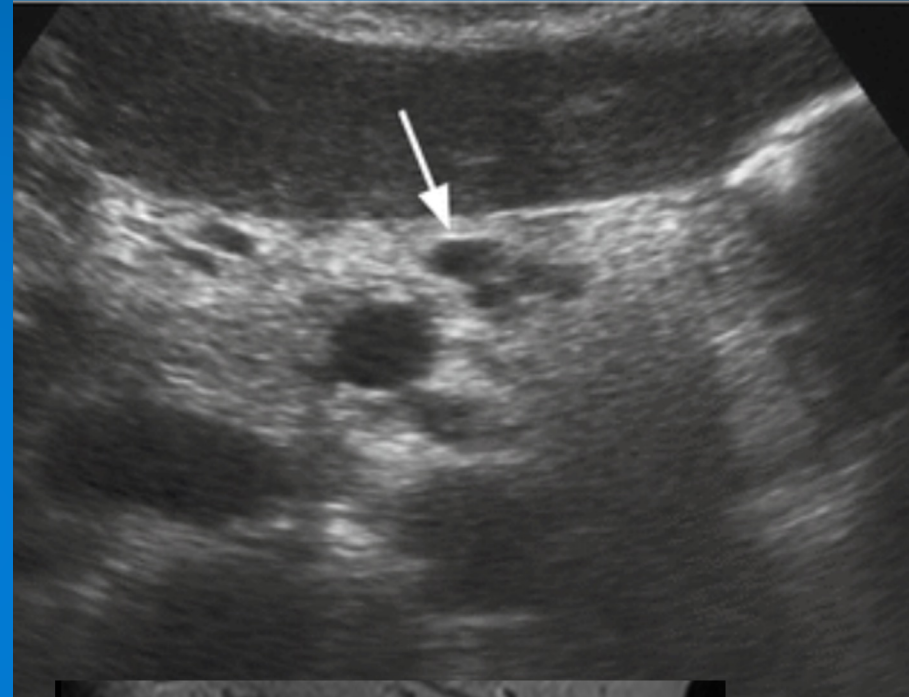
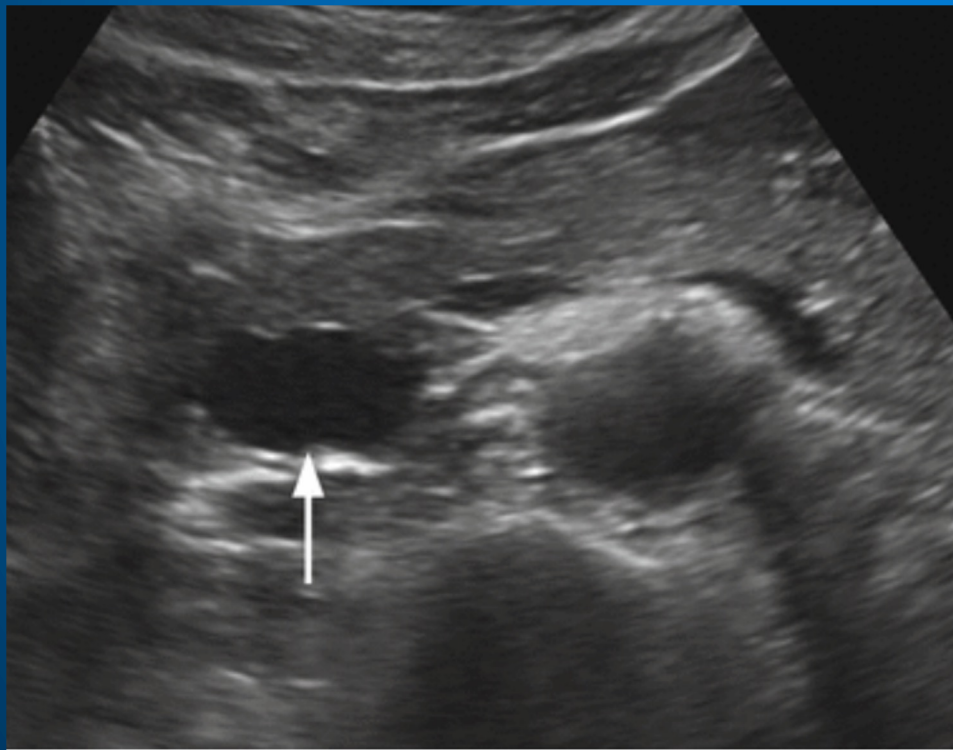




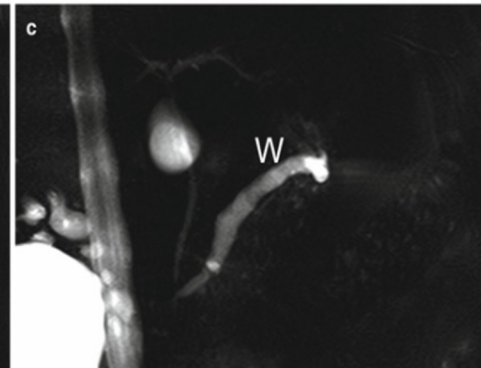
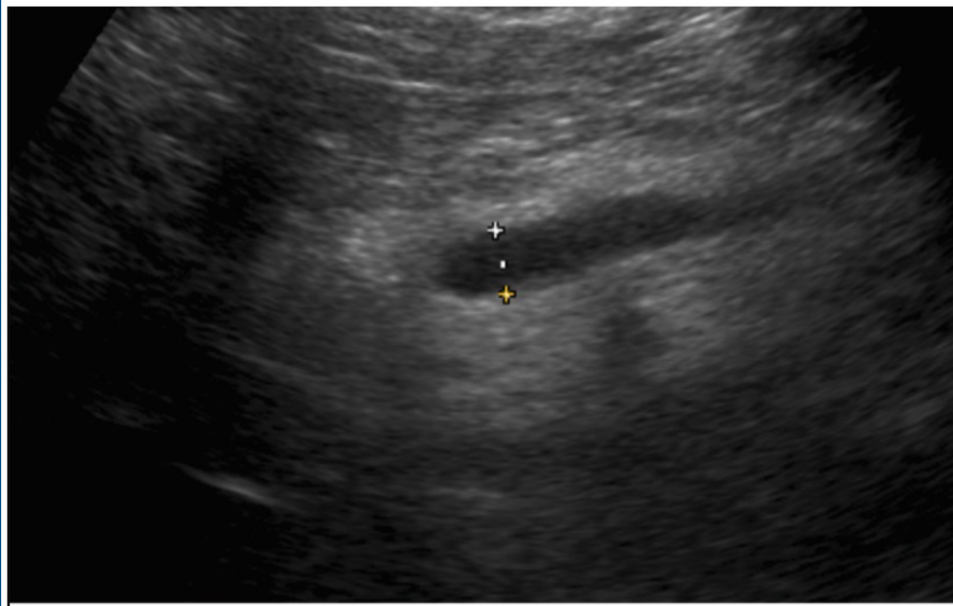
		Age - Gender	Imaging
	SCN Benign	75% women 60-70 y Grandma	Lobulated microcystic 18% central scar with Ca ⁺⁺
	MCN Malignant potential	99% women 40-50 y Mother	Macrocytic Usually 1 cyst 25% peripheral Ca ⁺⁺ 95% in tail and body
	Main-duct IPMN Malignant potential	M=W 60-80 y	Dilated Pancreatic duct Protruding papil of Vater
	Side-branch IPMN Malignant potential	M=W 60-80 y	Bunch of grapes connection to PD

SEGN DI DEGENERAZIONE ALL'IMAGING: ISPESSIMENTI SETTALI / GETTONI SOLI MURALI VASCOLARIZZATI.

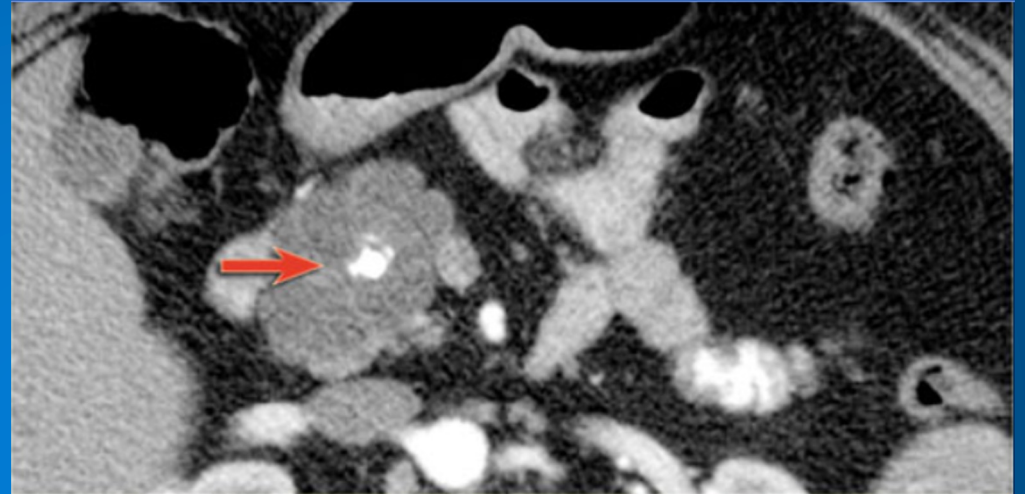
IPMN TIPO 2 - DOTTI SECONDARI



IPMN TIPO 1 - DOTTO PRINCIPALE



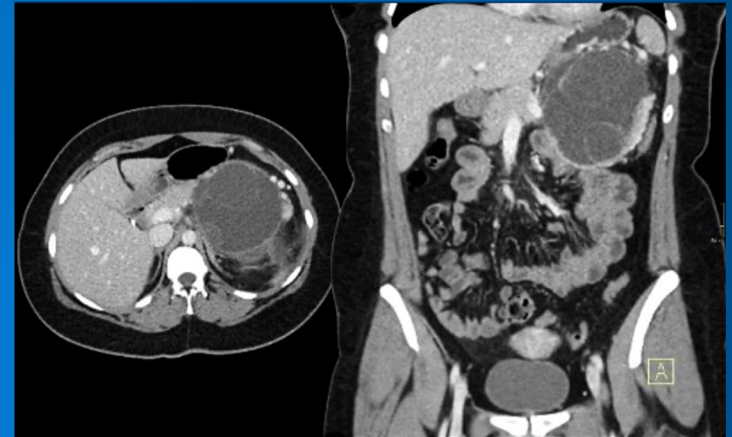
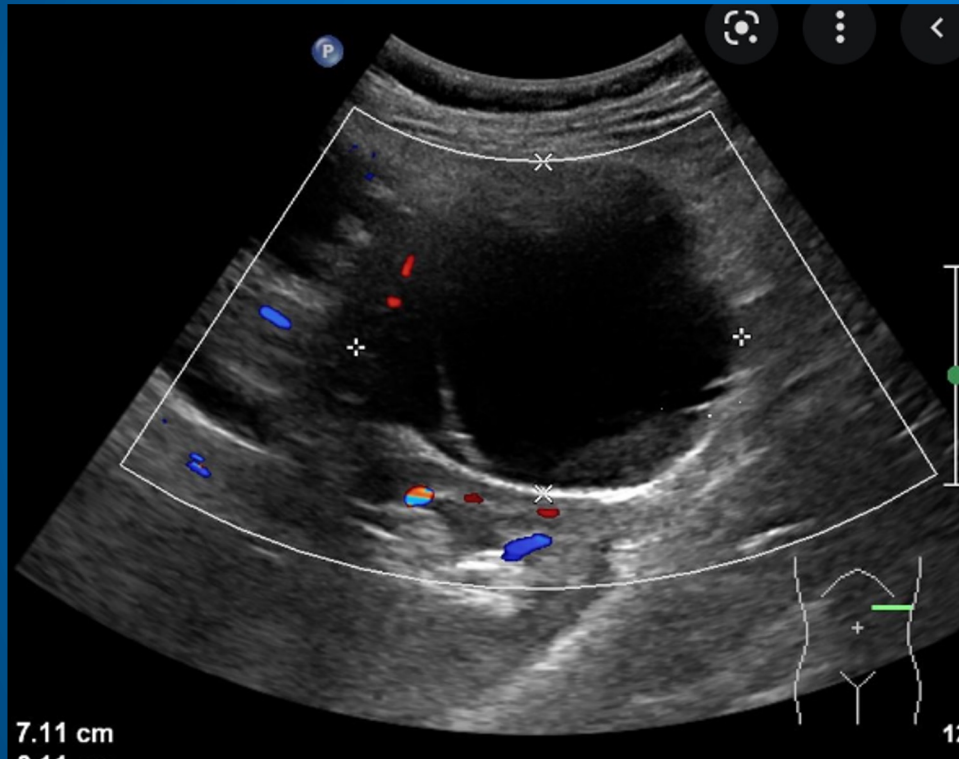
CISTOADENOMA SIEROSO



Serous Cystic Neoplasm



CISTOADENOMA MUCINOSO

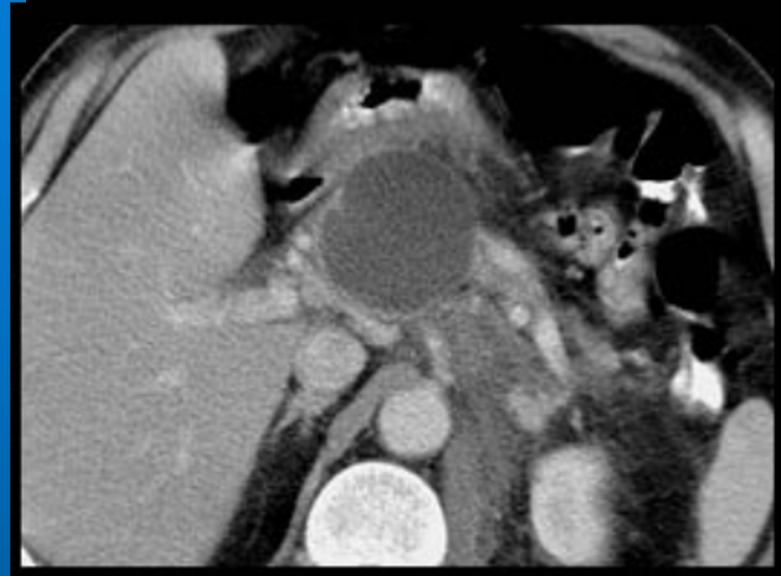
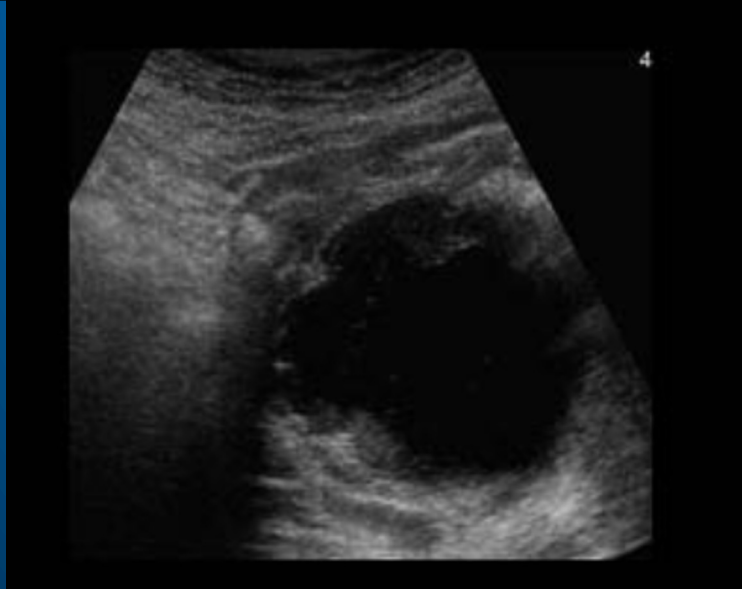
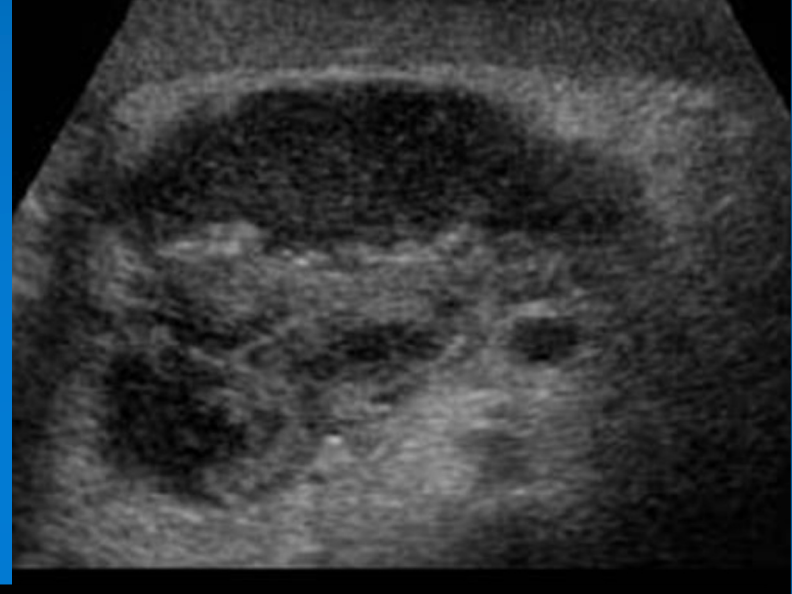
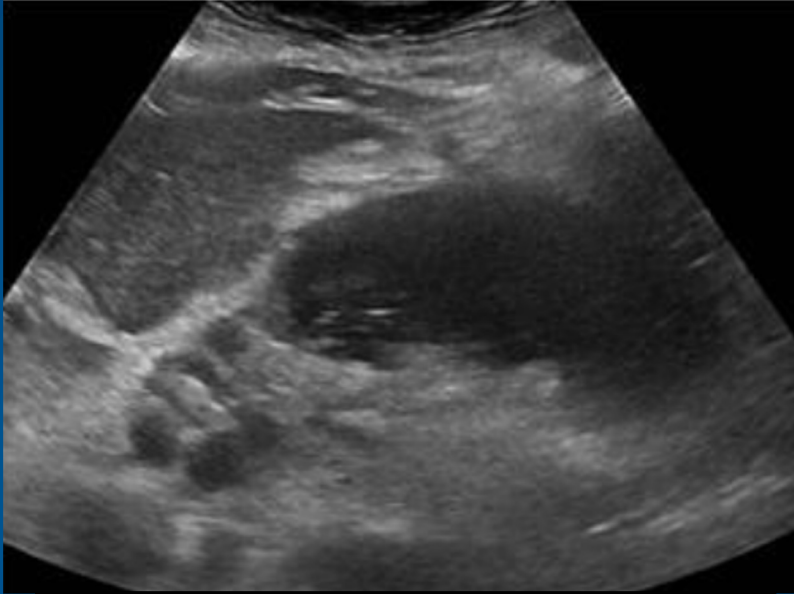


Mucinous cystadenoma.

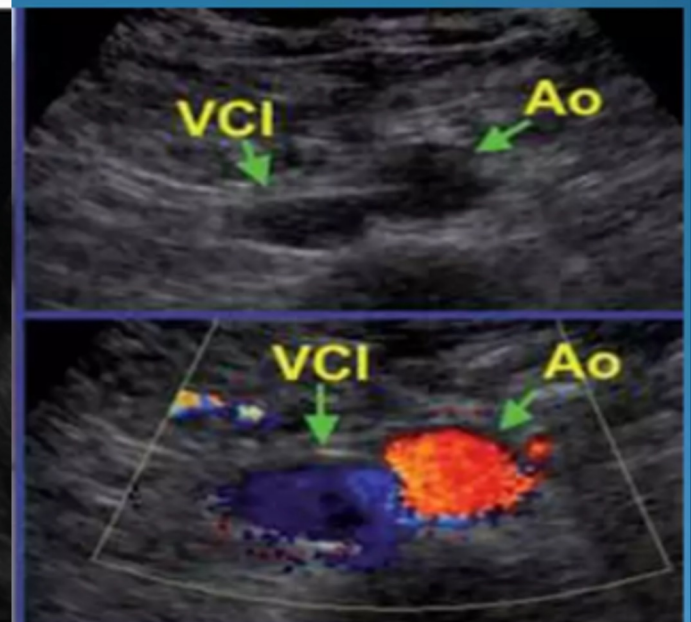
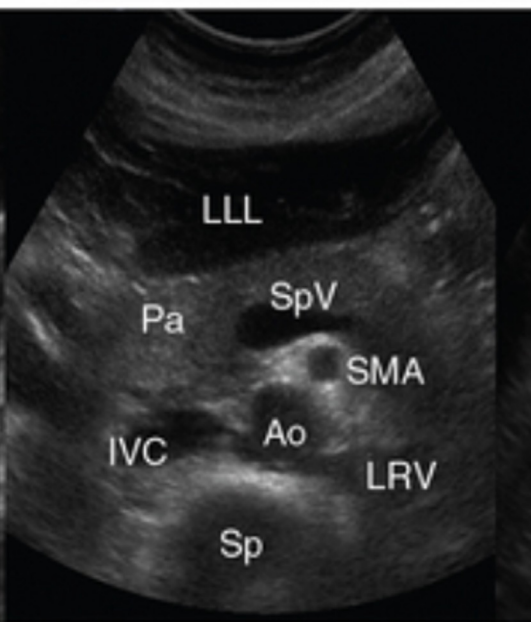
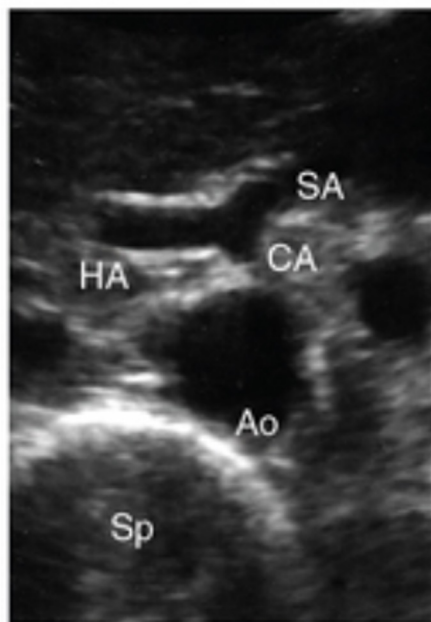
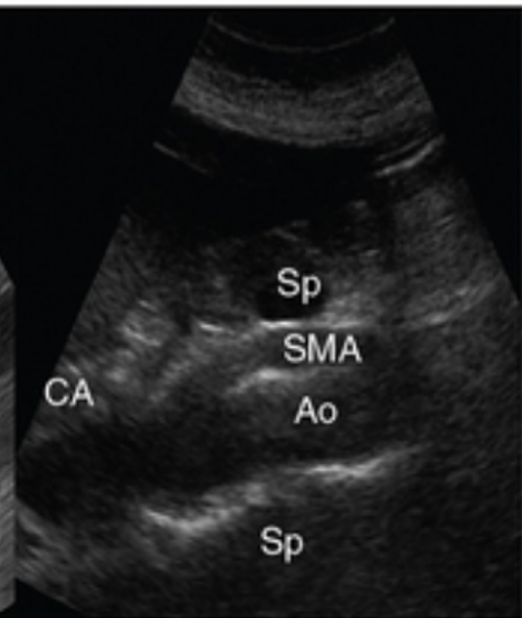
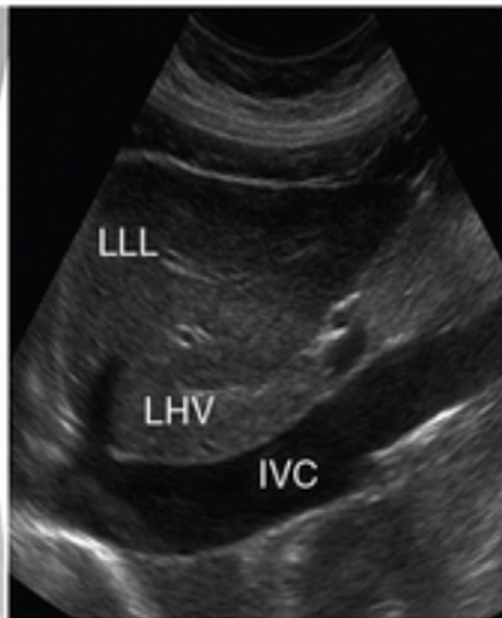
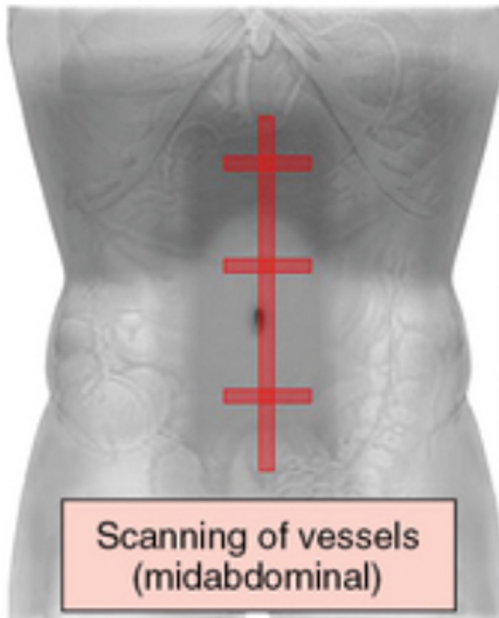


PSEUDOCISTI

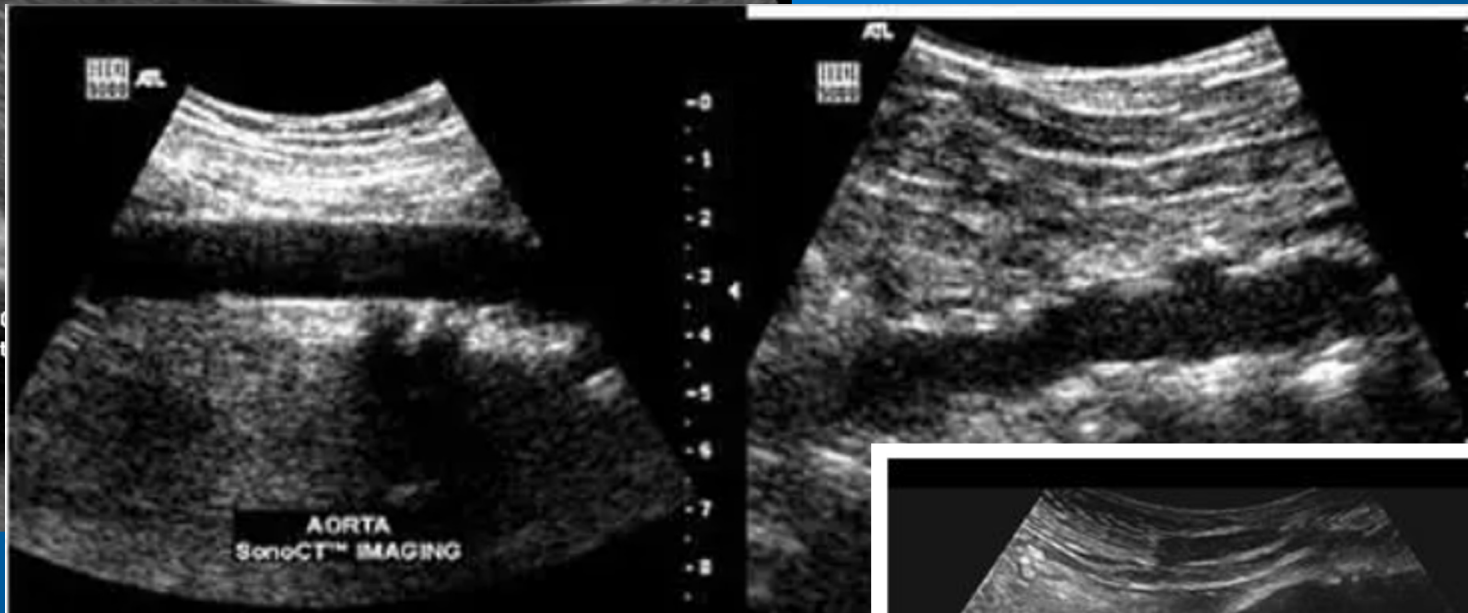
SEMPRE STORIA DI PANCREATITE (SEVERA)
RIFORMITA → CRESCITA DIMENSIONALE



STRUTTURE VASCOLARI EPIGASTRICHE

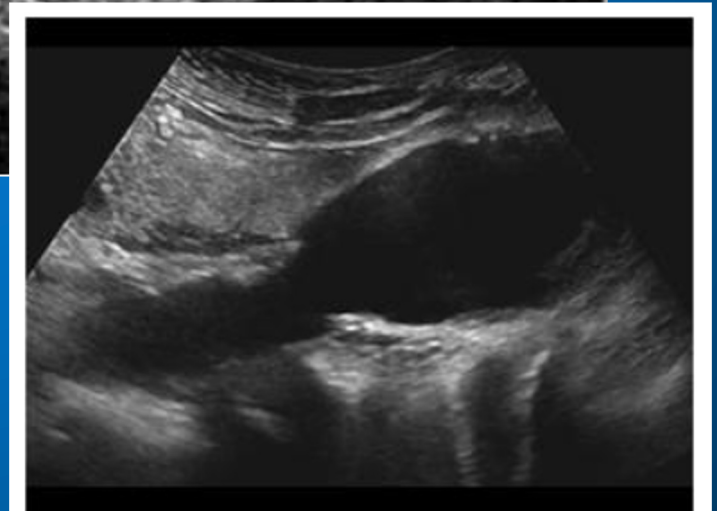


STRUTTURE VASCOLARI EPIGASTRICHE



CALIBRO AO: max 3 cm

- costituzione pz
- confronto con calibro a monte e a valle
- lieve irregolare ectasia con ateromasia parietale normale ne geronte



STRUTTURE VASCOLARI EPIGASTRICHE

Aneurismi aorto-bisiliaci ed endoprotesi

