Cystic liver lesions

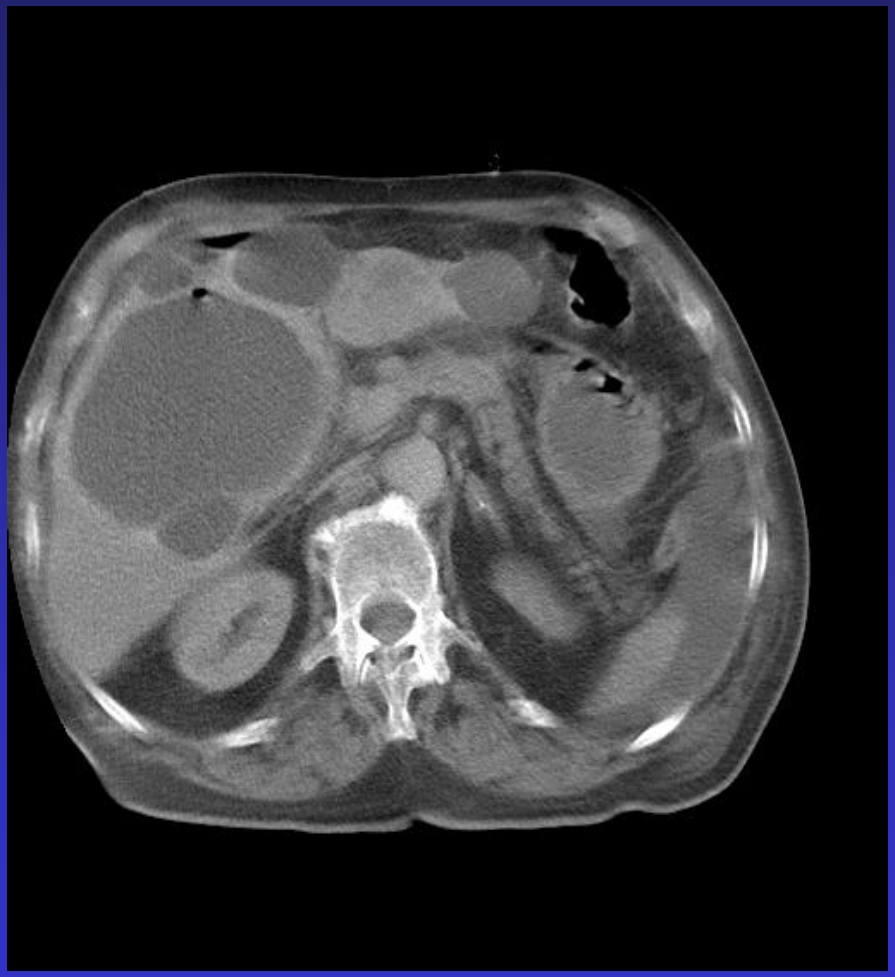
CHC Dejong
HPB Unit
Department of Surgery
Maastricht University Medical Center, the Netherlands
and
RWTH Aachen, Germany

Disclosures

- BJS
- Medtronic

Liver cysts

Liver cysts



Liver cysts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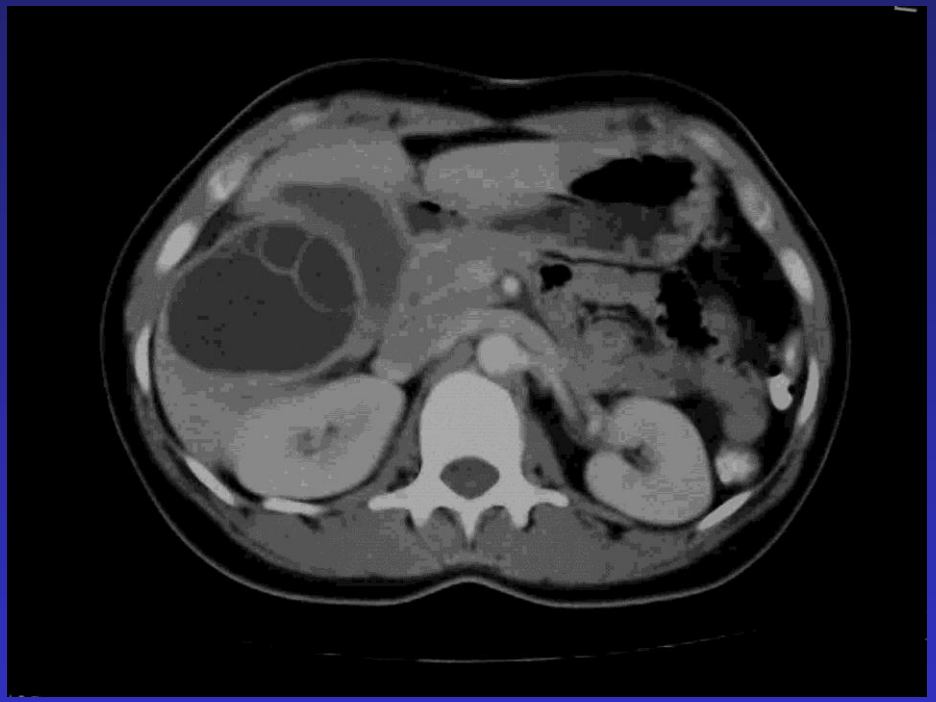


Hepatic cysts - common

- Simple cysts
- Policystic liver disease
- Cystadenomas
  - mucinous
  - serous
- Echinococcosis
- Abscesses

Table 1 Differential diagnosis of cystic lesions in the liver

Monocytic disease
Simple cyst
Echinococcosis
Cystic echinococcosis
Alveolar echinococcosis
Cystadenoma
Cystadenocarcinoma
Polycystic disease
Autosomal dominant polycystic kidney disease
Autosomal dominant polycystic liver disease

Hepatic cystic - rare

- IPMN
- Choledochal cysts
- Mucinous cystadenomas/carcinomas
- Caroli’s disease

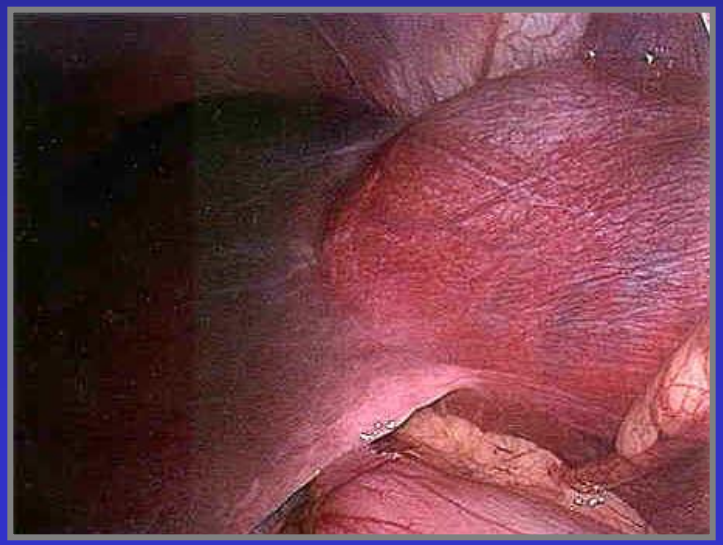
Epidemiology

	Prevalence
Simple cysts	2-4%
Polycystic liver disease	0.05-0.13%
Cystadenomas	0.05-0.15%
Echinococcosis	Mediterranian Area
Pyogenic abscesses	0.02%
Amoebic abscesses	Tropen

- *Van Lanschot et al. Gastro-intestinale chirurgie en gastro-enterologie in onderling verband.*

Simple cysts

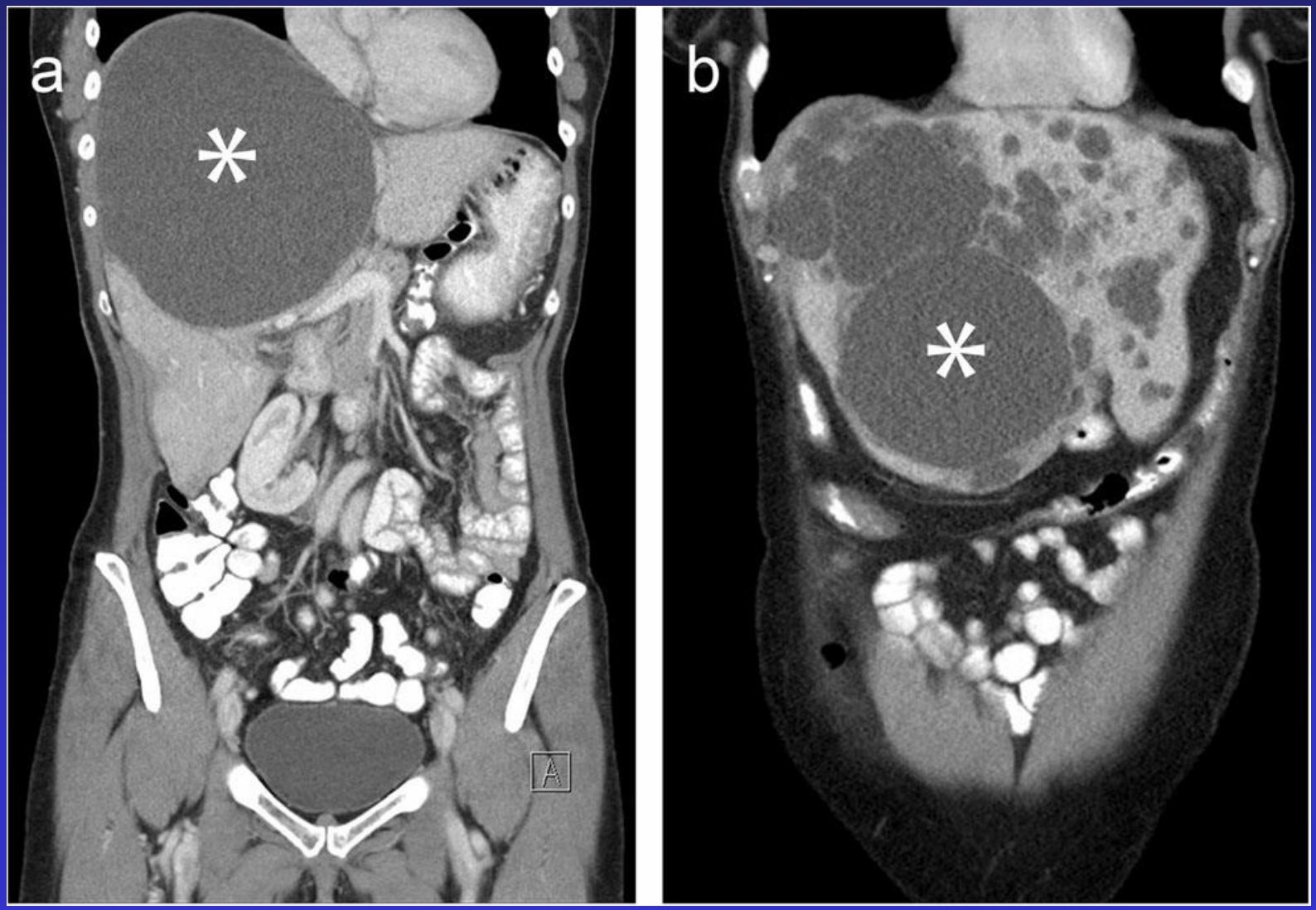
- Unilocular cyst with sereous fluid
- cilindrical/cubic epithelium
- Max 2-3
- Incidental bleed, rupture, secundary infection, obstruction



•*Lucey et al. Am. J. Roentgenol. 2006;186:562-573.*

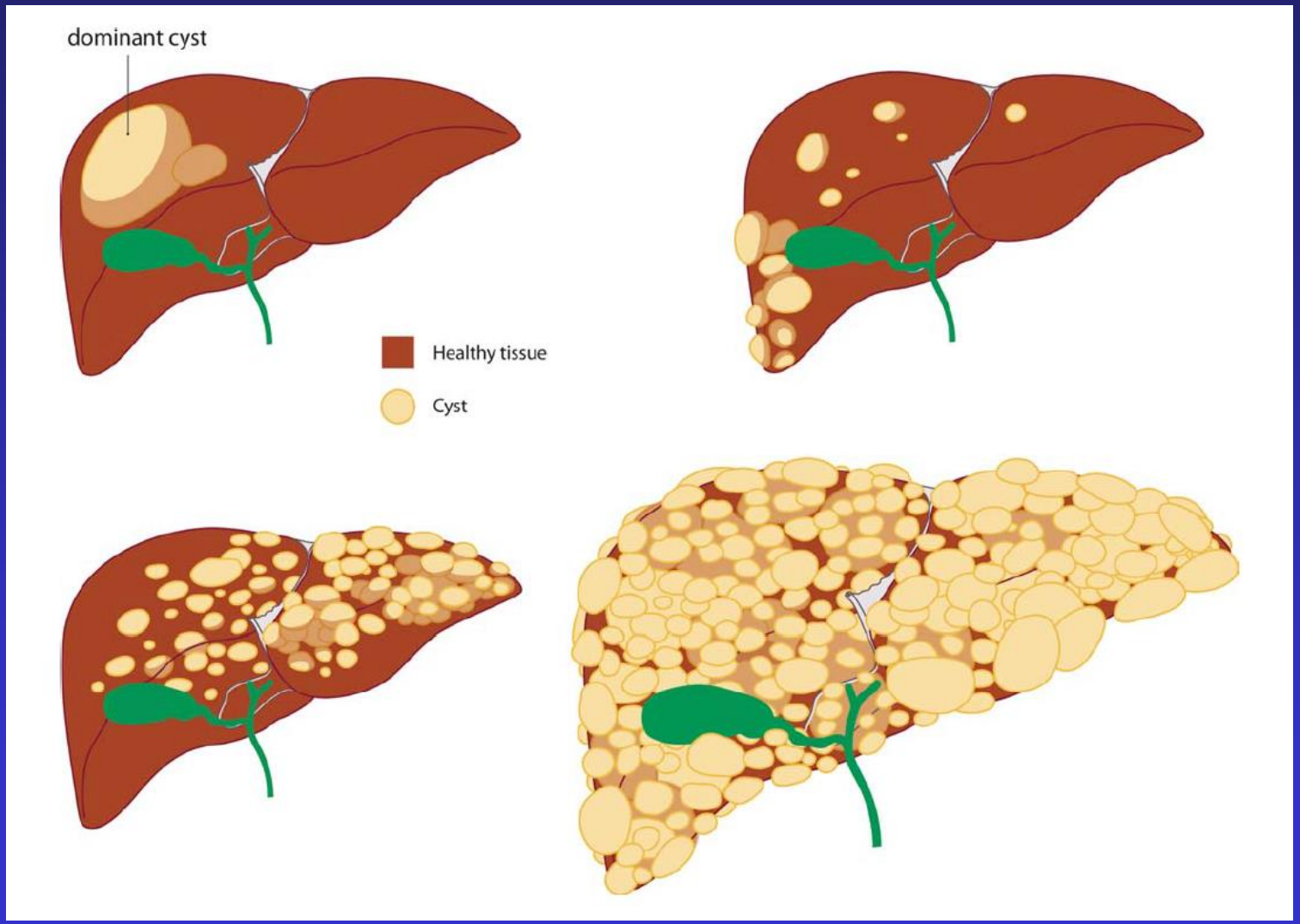
Liver cysts

Solitary vs Polycystic Dominant



Polycystic liver disease

PCLD or ADPKD



@Drenth, Hepatology 2010

Polycystic liver

- PCLD
  - PRKCSH or SEC63 mutation
  - Cholangiopathy
- ADPKD
  - PKD1 or 2
  - Renal failure/
  - Vascular manifestations (intracranial aneursyms)
  - Estrogen use affects liver size
  - Ciliopathy
- >20 cysts
  - Growth 1-3% per year
  - High CA19-9

Intra-familial heterogeneity

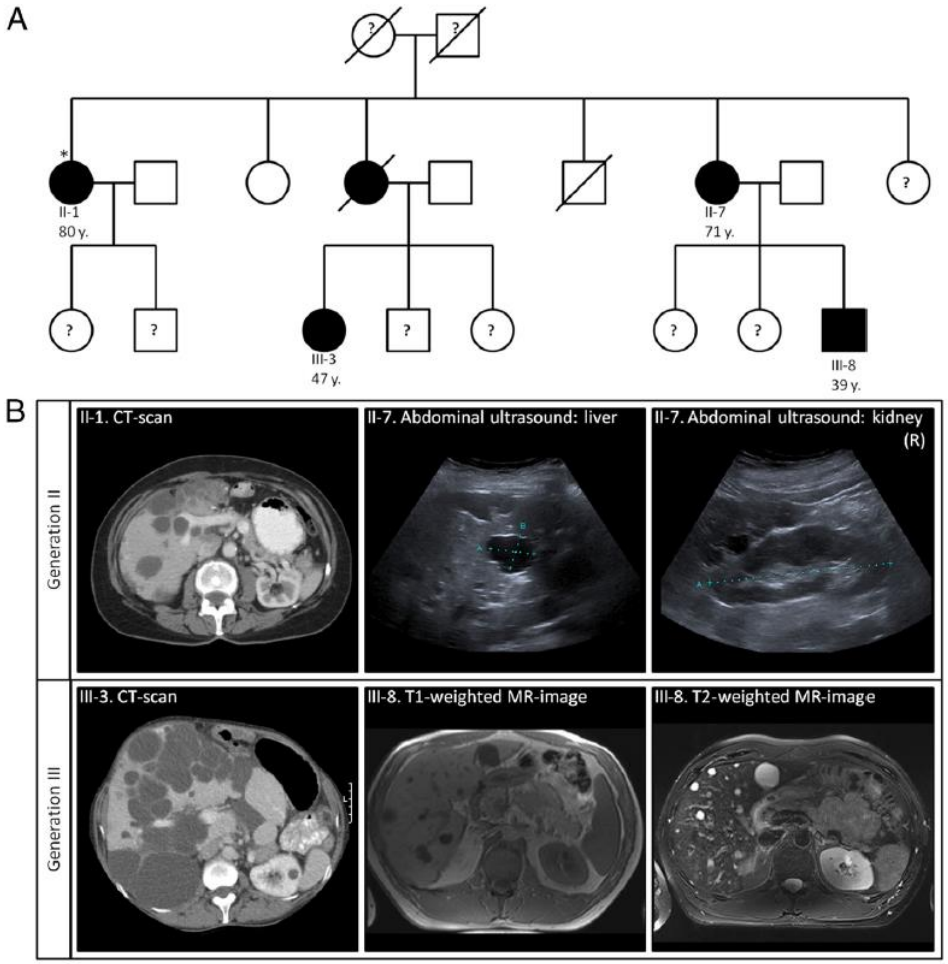


Figure 3 Intra-familial clinical heterogeneity in PCLD. Description of the data: **(A)** Pedigree of a PCLD family with *PRKCSH* gene mutation

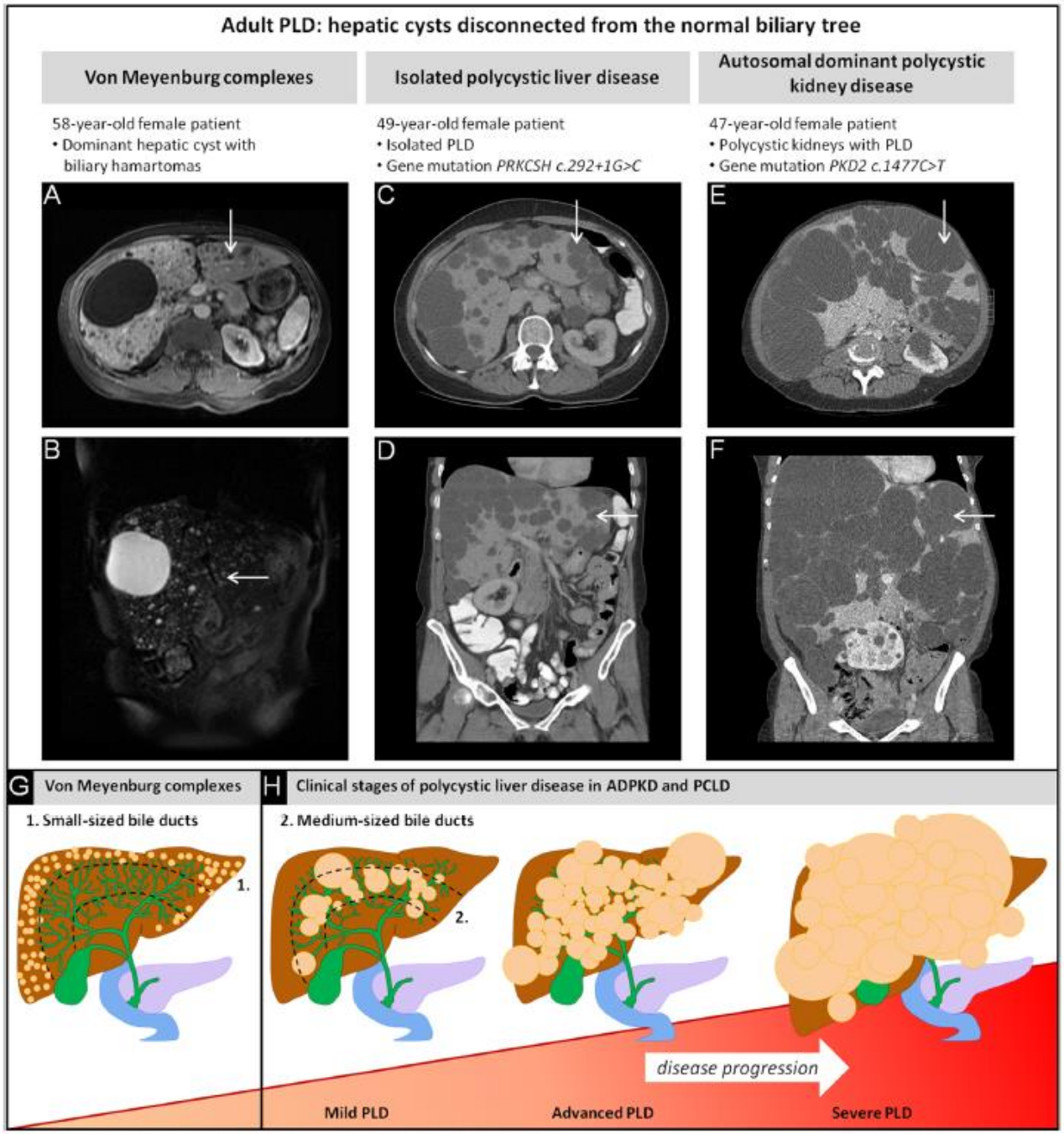
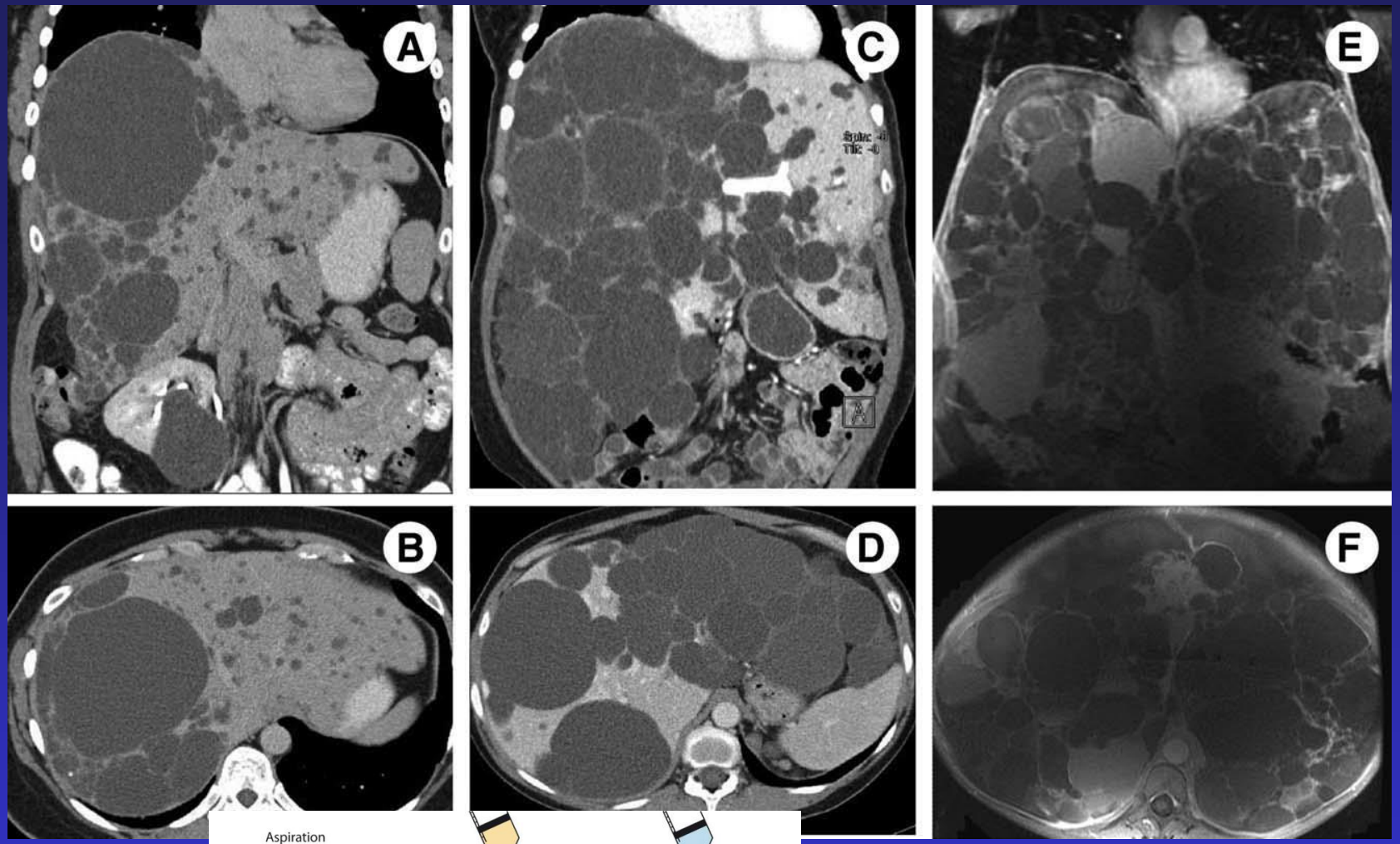
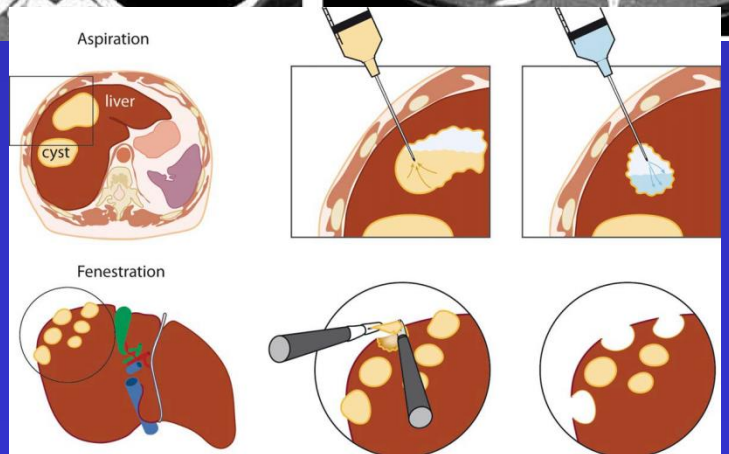


Figure 1 Abdominal MRI and CT in patients with PLD. (A) Axial T1-weighted and **(B)** coronal T2-weighted MRI present 1 large cyst and numerous cystic





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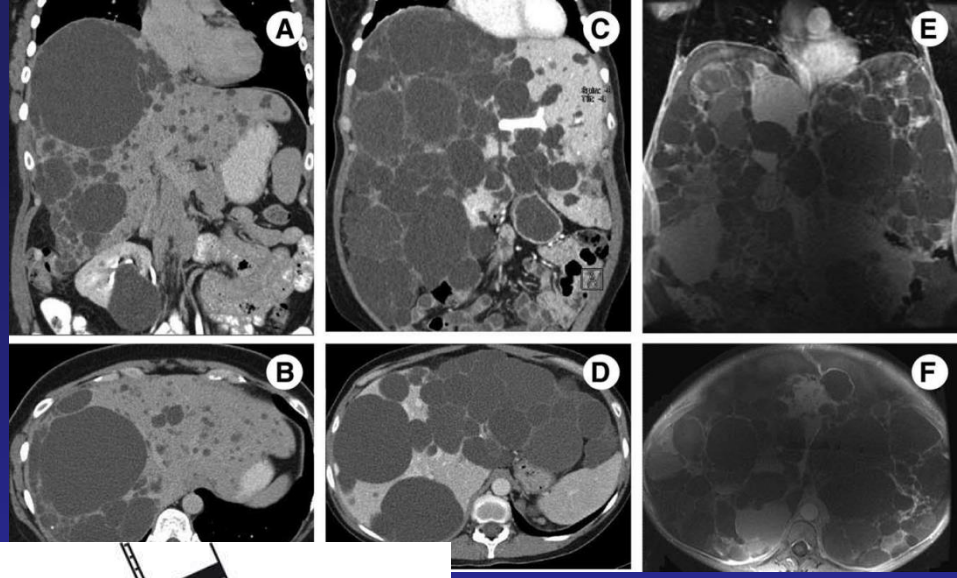
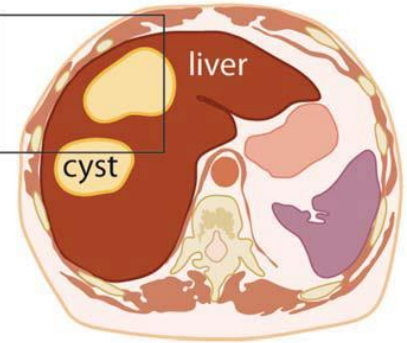
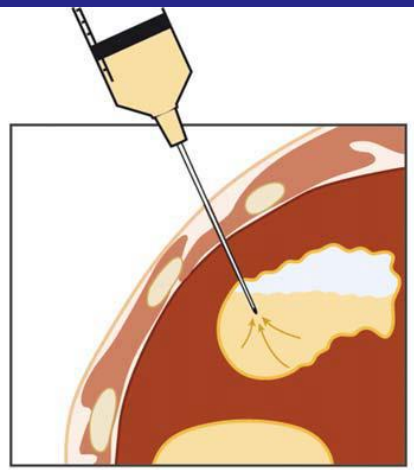
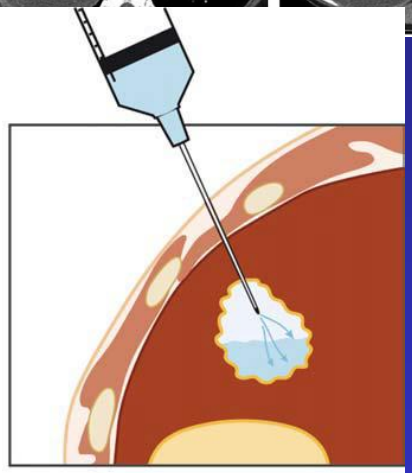


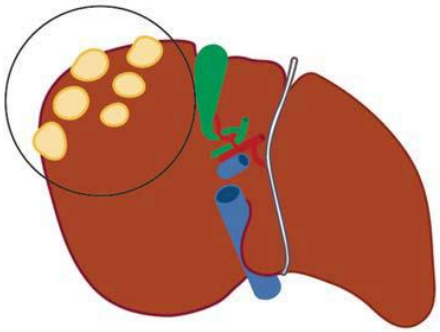
Aspiration

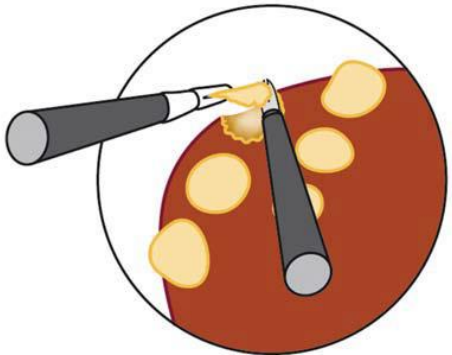


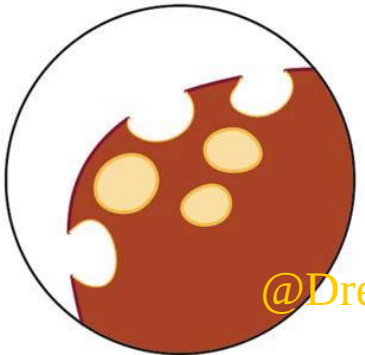




Fenestration







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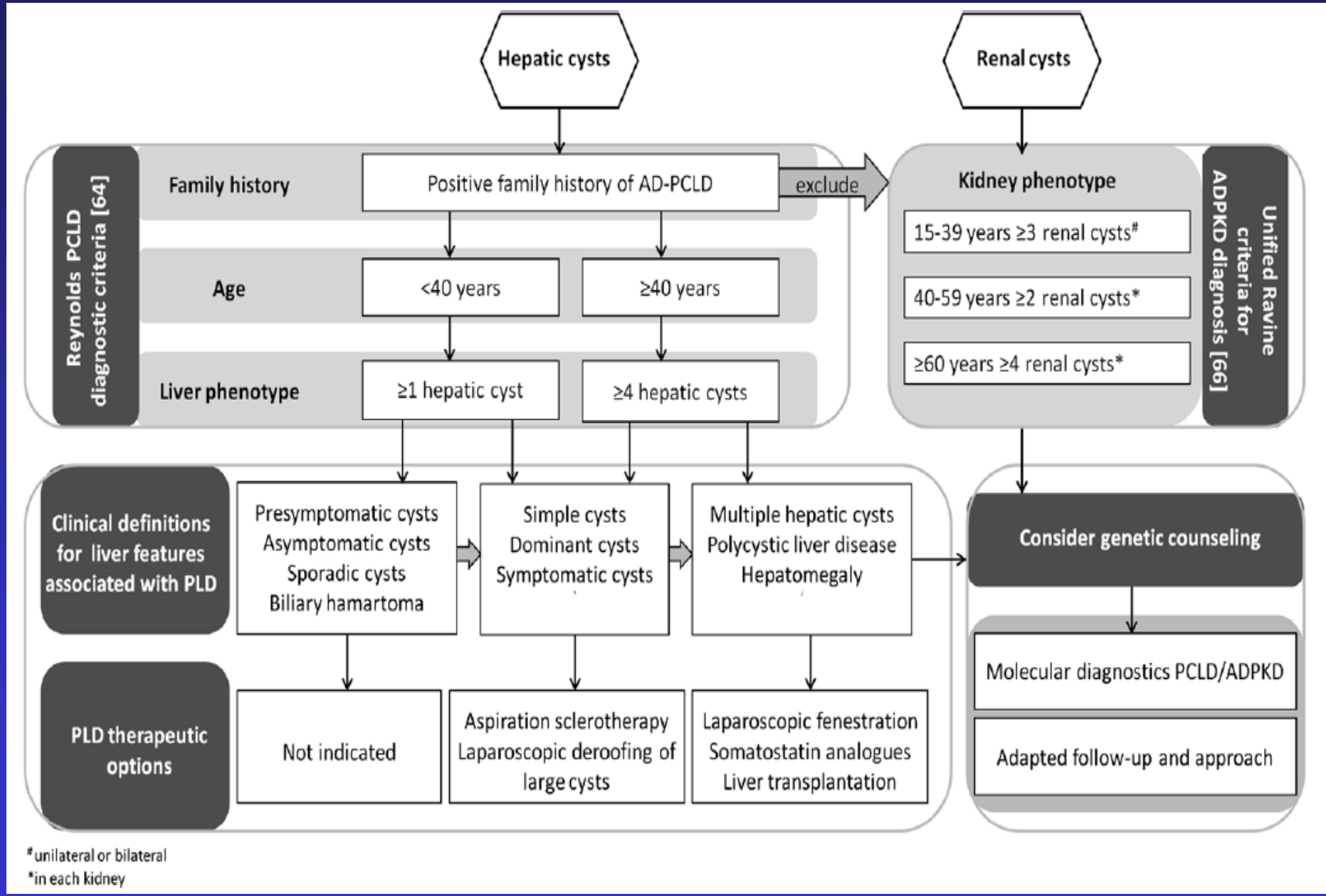
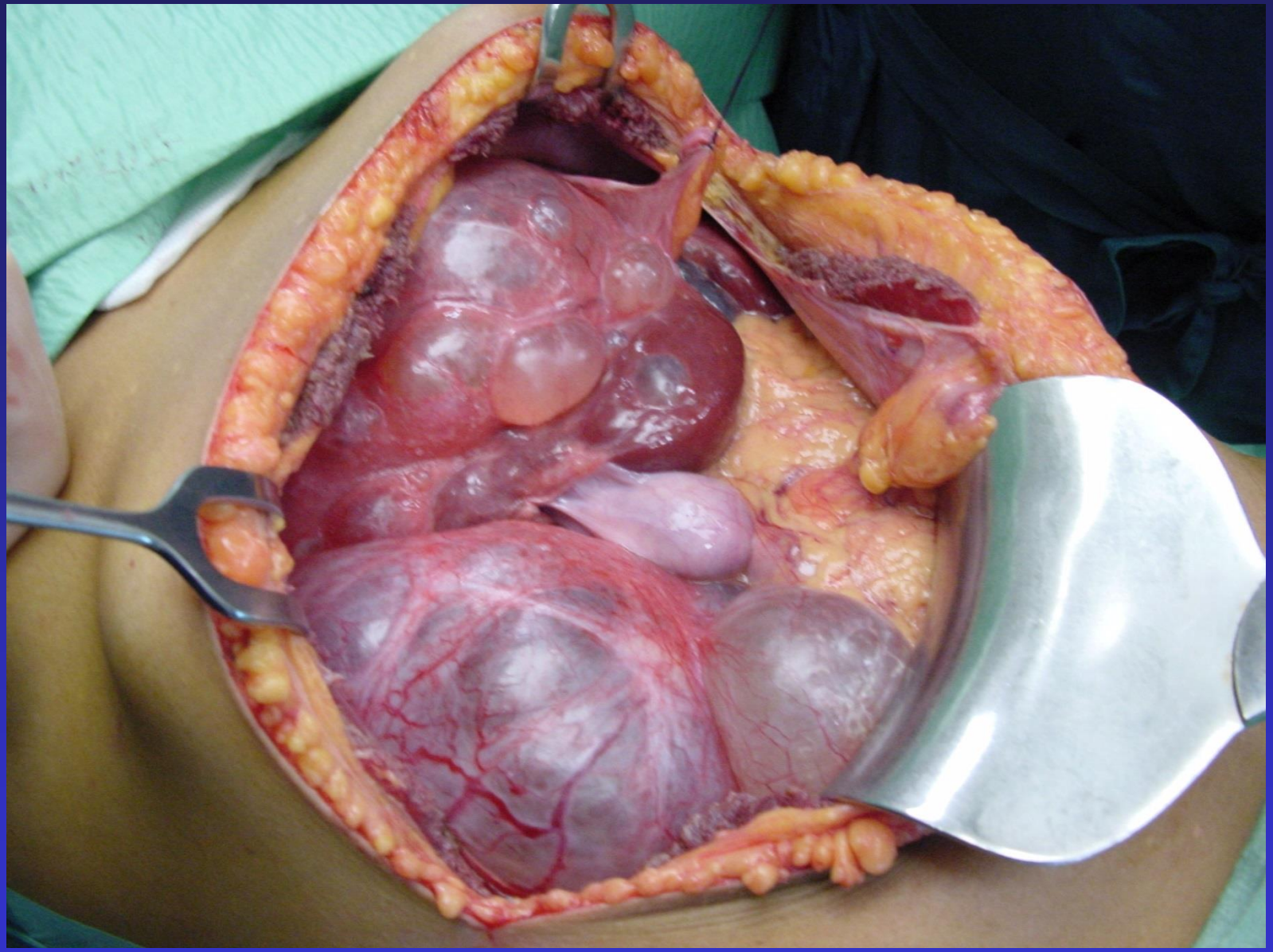
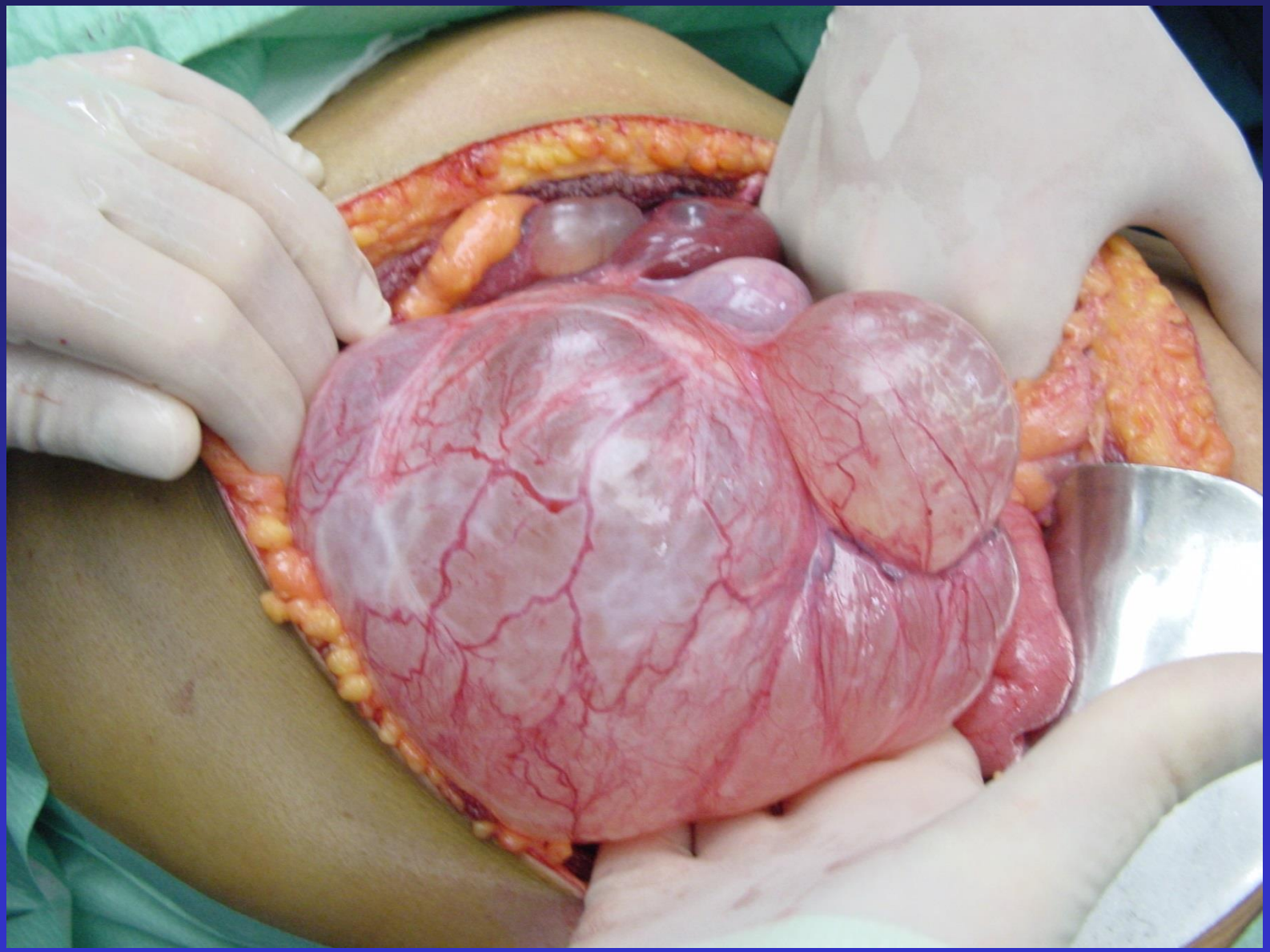
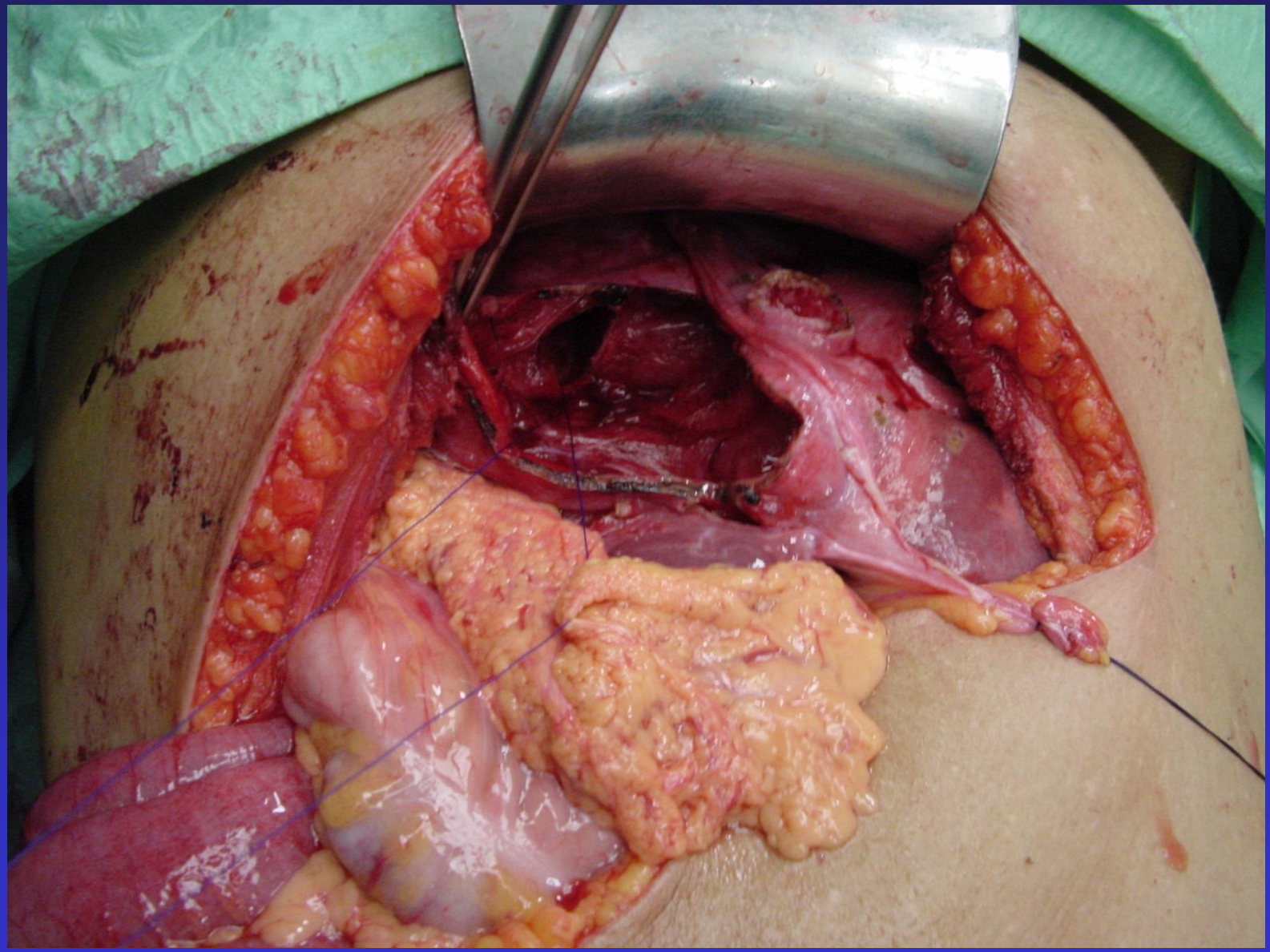
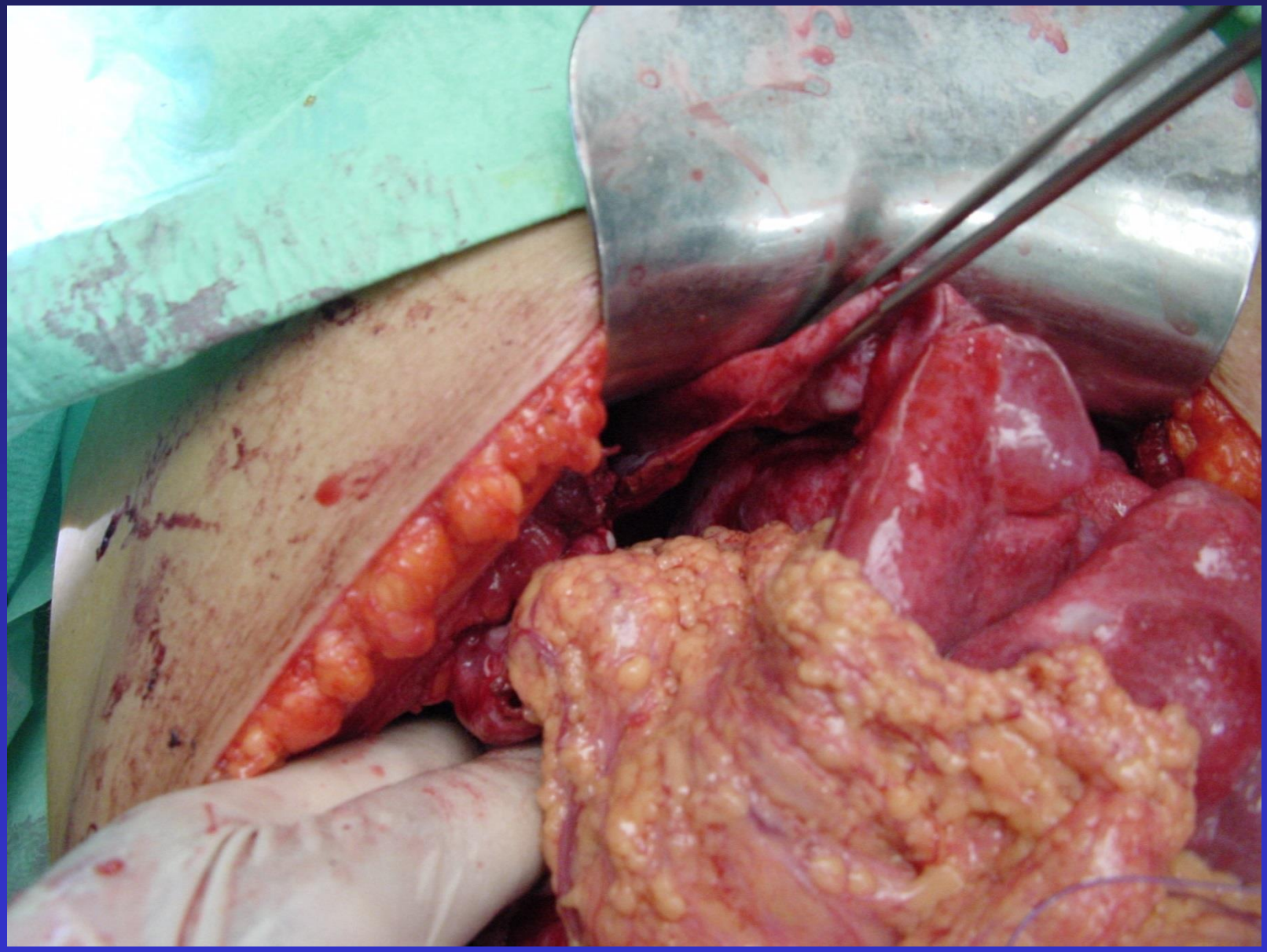

Hepatic cysts
Renal cysts
Reynolds PCLD diagnostic criteria [64]
Family history
Positive family history of AD-PCLD
exclude
Age
<40 years
≥40 years
Liver phenotype
≥1 hepatic cyst
≥4 hepatic cysts
Kidney phenotype
15-39 years ≥3 renal cysts#
40-59 years ≥2 renal cysts*
≥60 years ≥4 renal cysts*
Unified Ravine criteria for ADPKD diagnosis [66]
Clinical definitions for liver features associated with PLD
Presymptomatic cysts
Asymptomatic cysts
Sporadic cysts
Biliary hamartoma
Simple cysts
Dominant cysts
Symptomatic cysts
Multiple hepatic cysts
Polycystic liver disease
Hepatomegaly
Consider genetic counseling
PLD therapeutic options
Not indicated
Aspiration sclerotherapy
Laparoscopic deroofing of large cysts
Laparoscopic fenestration
Somatostatin analogues
Liver transplantation
Molecular diagnostics PCLD/ADPKD
Adapted follow-up and approach
#unilateral or bilateral
*in each kidney

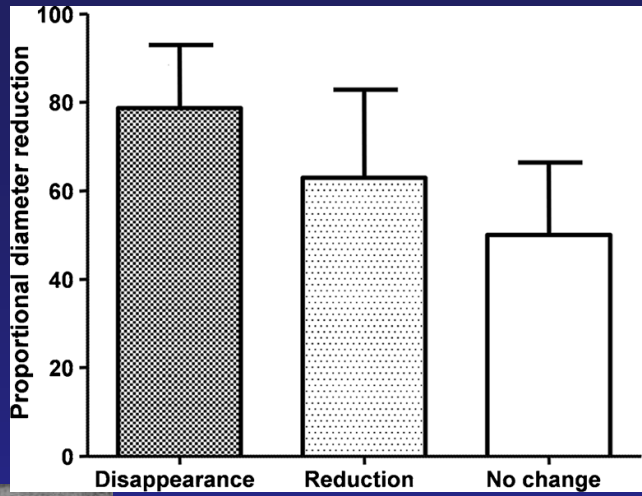


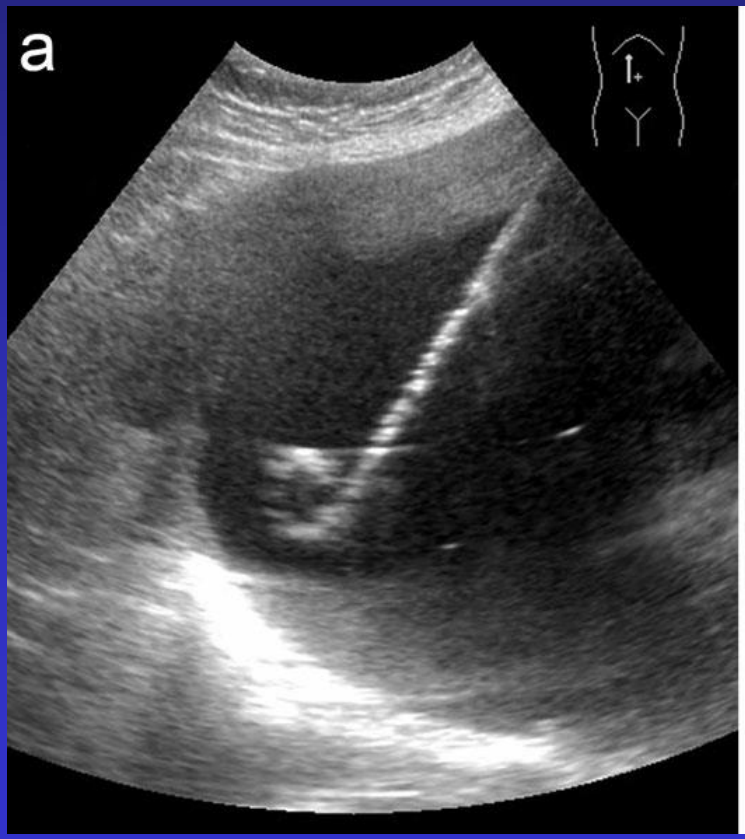






Aspiration?





@Drenth, Eur J Radiol 2016

HEPATOLOGY, December 2010

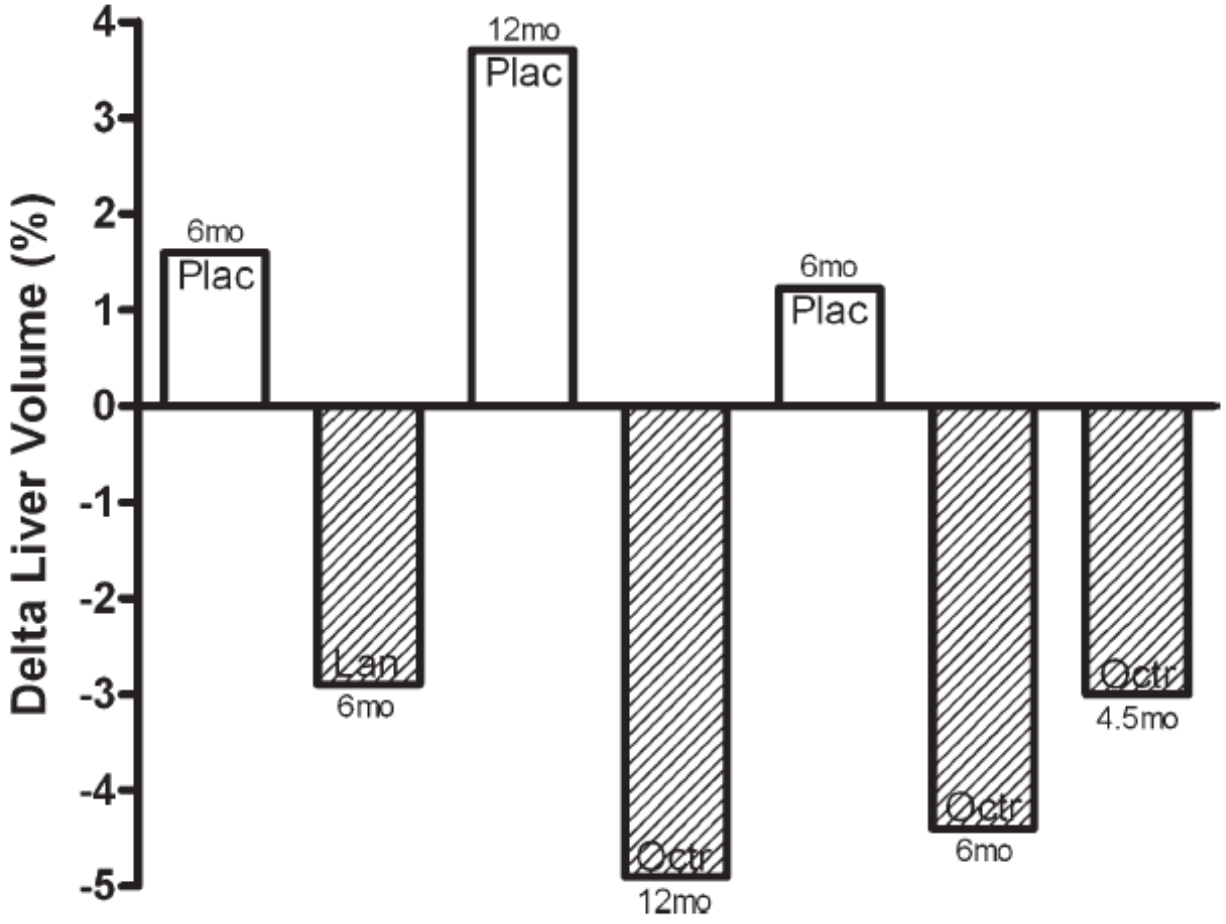
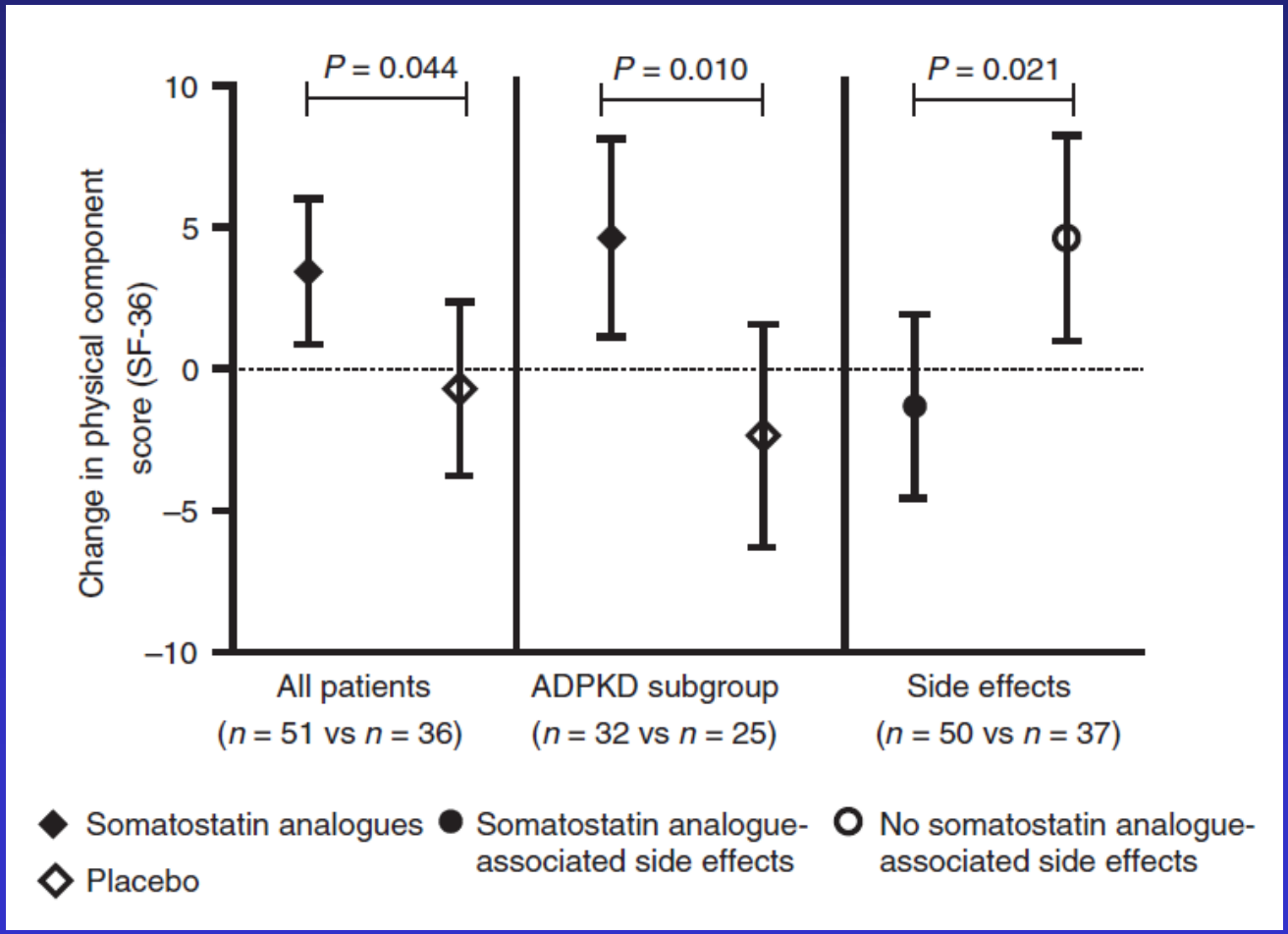


Fig. 5. Percent change of liver volume during treatment with somatostatin analogs or placebo. This figure shows the results of four

@Drenth, Hepatology 2010

Somatostatin analogues



@Drenth, Aliment Pharmacol Ther 2015; 42: 591–598

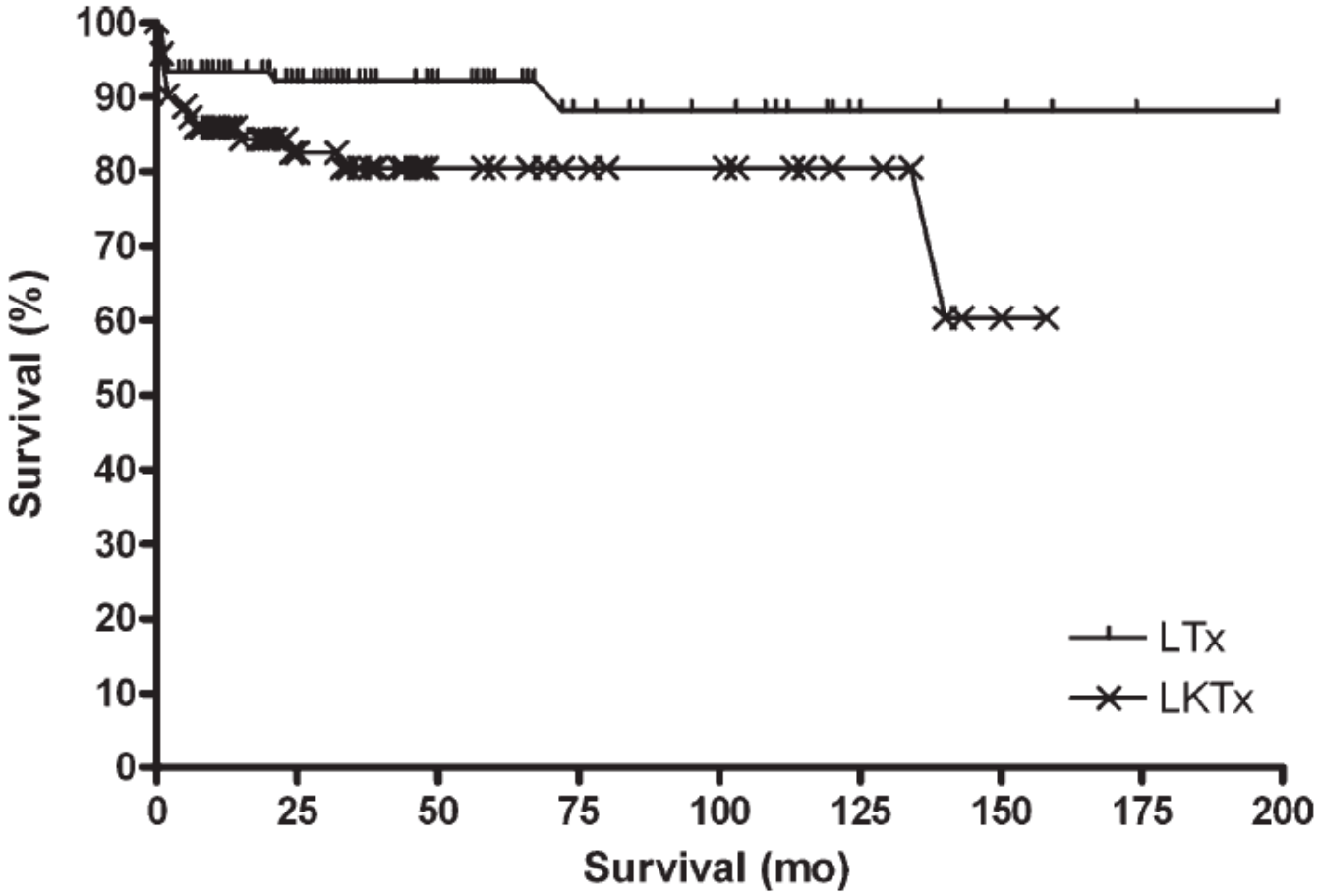


Fig. 4. Survival after liver transplantation.

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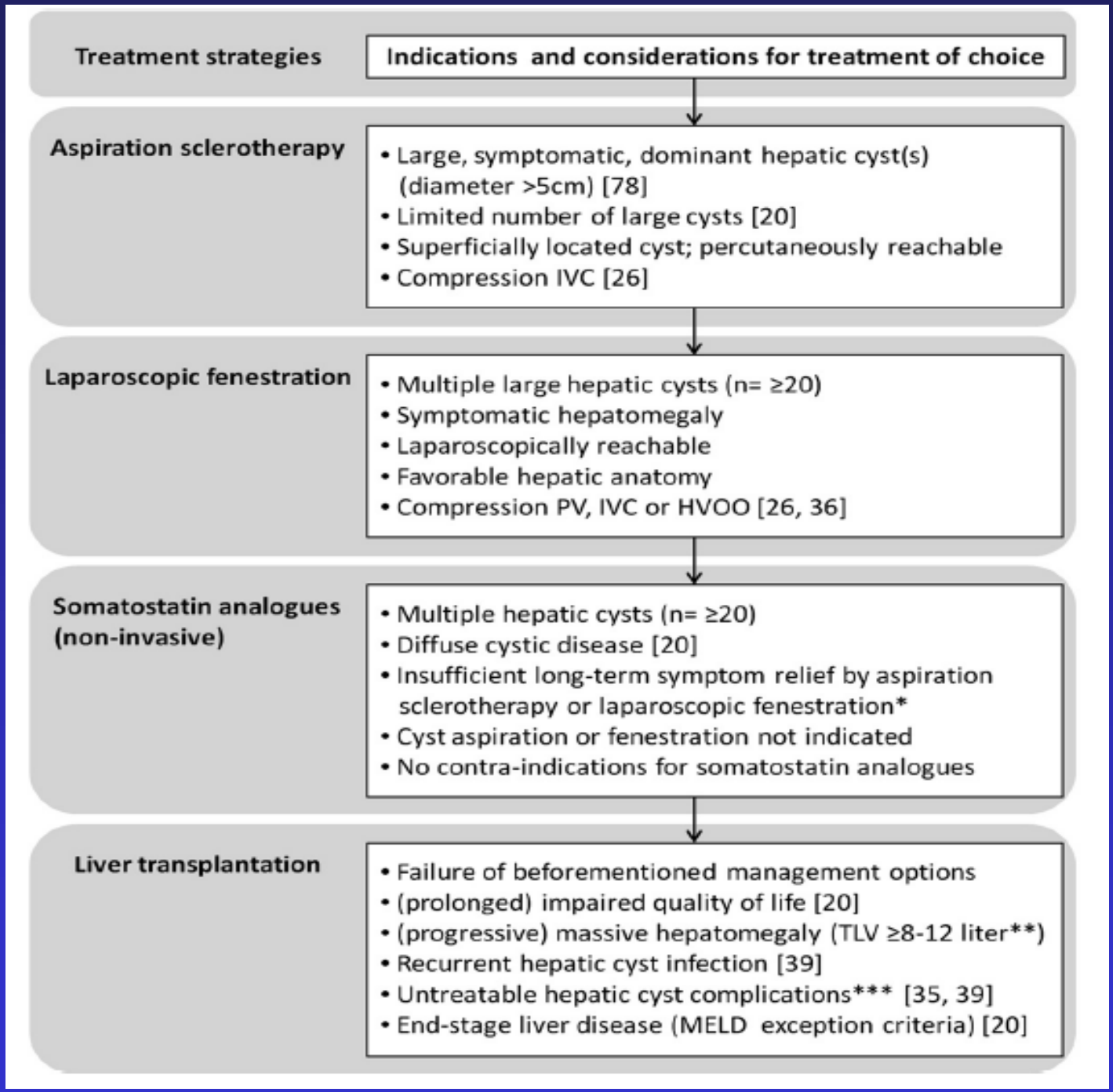

Treatment strategies
Indications and considerations for treatment of choice
Aspiration sclerotherapy
• Large, symptomatic, dominant hepatic cyst(s) (diameter >5cm) [78]
• Limited number of large cysts [20]
• Superficially located cyst; percutaneously reachable
• Compression IVC [26]
Laparoscopic fenestration
• Multiple large hepatic cysts (n= ≥20)
• Symptomatic hepatomegaly
• Laparoscopically reachable
• Favorable hepatic anatomy
• Compression PV, IVC or HVOO [26, 36]
Somatostatin analogues (non-invasive)
• Multiple hepatic cysts (n= ≥20)
• Diffuse cystic disease [20]
• Insufficient long-term symptom relief by aspiration sclerotherapy or laparoscopic fenestration*
• Cyst aspiration or fenestration not indicated
• No contra-indications for somatostatin analogues
Liver transplantation
• Failure of beforementioned management options
• (prolonged) impaired quality of life [20]
• (progressive) massive hepatomegaly (TLV ≥8-12 liter**)
• Recurrent hepatic cyst infection [39]
• Untreatable hepatic cyst complications*** [35, 39]
• End-stage liver disease (MELD exception criteria) [20]

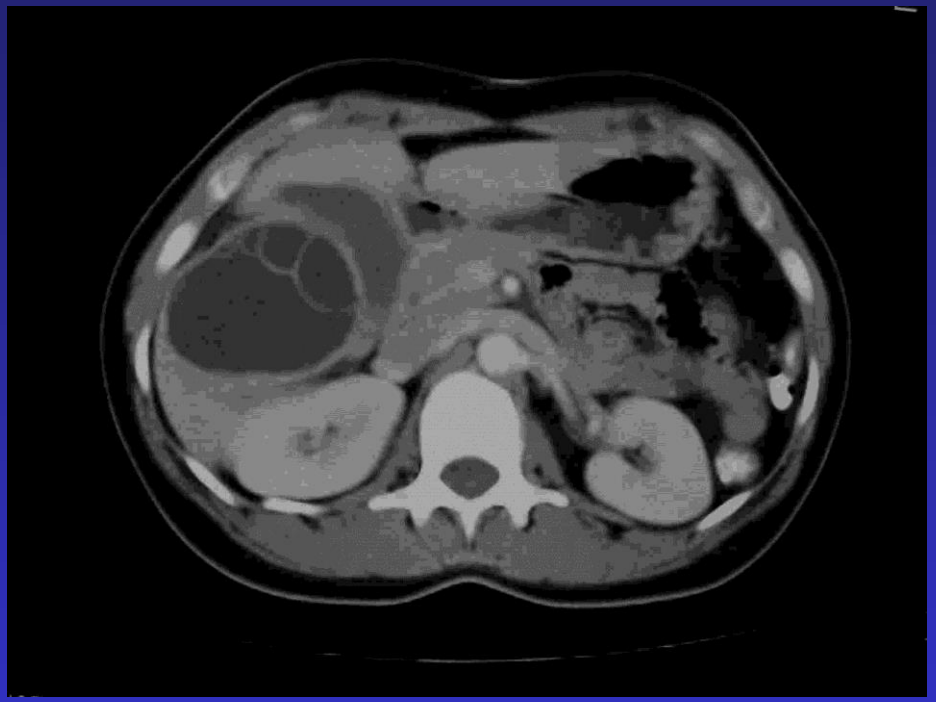
Complex cysts

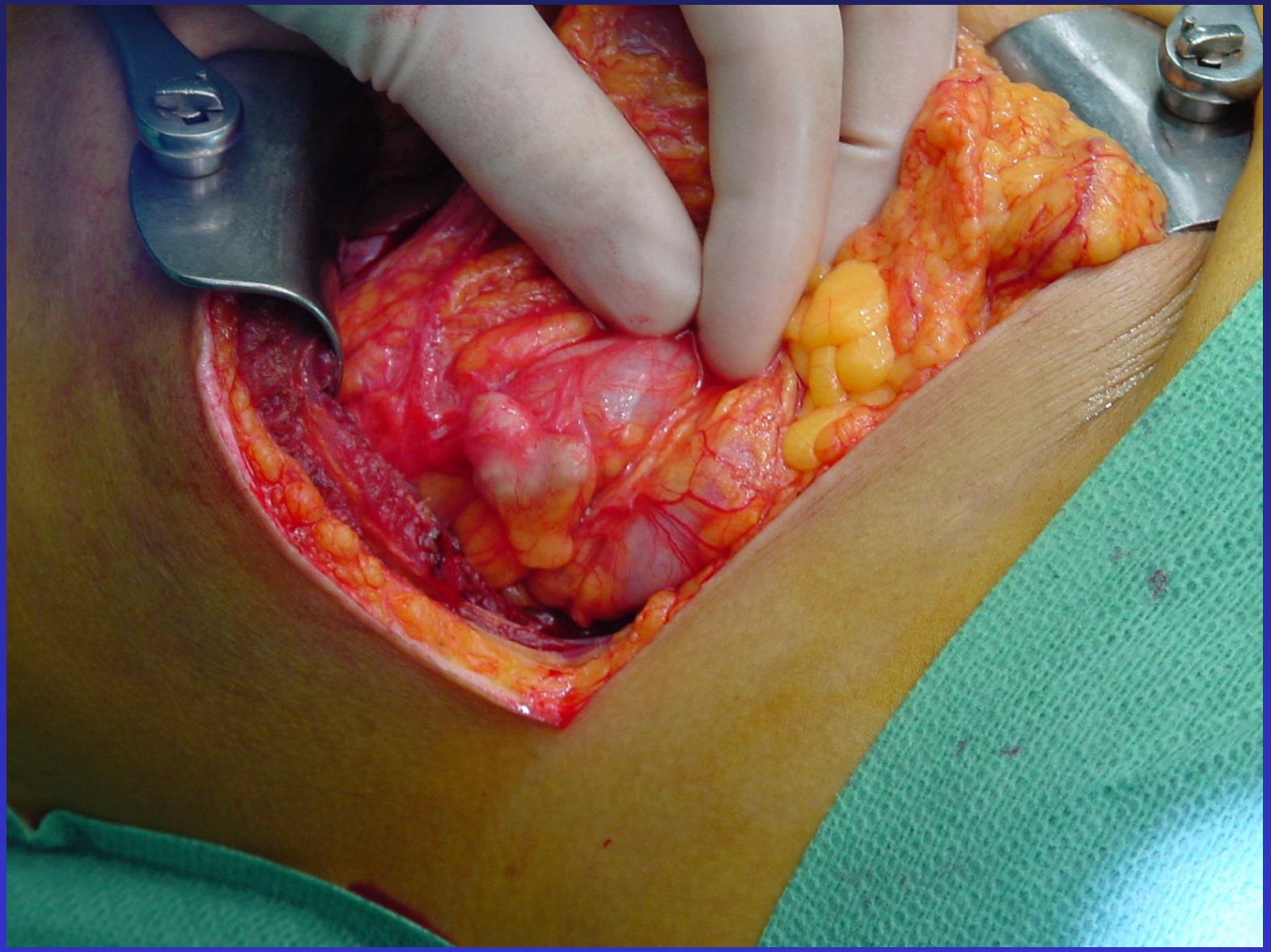
<5% cystic neoplasms

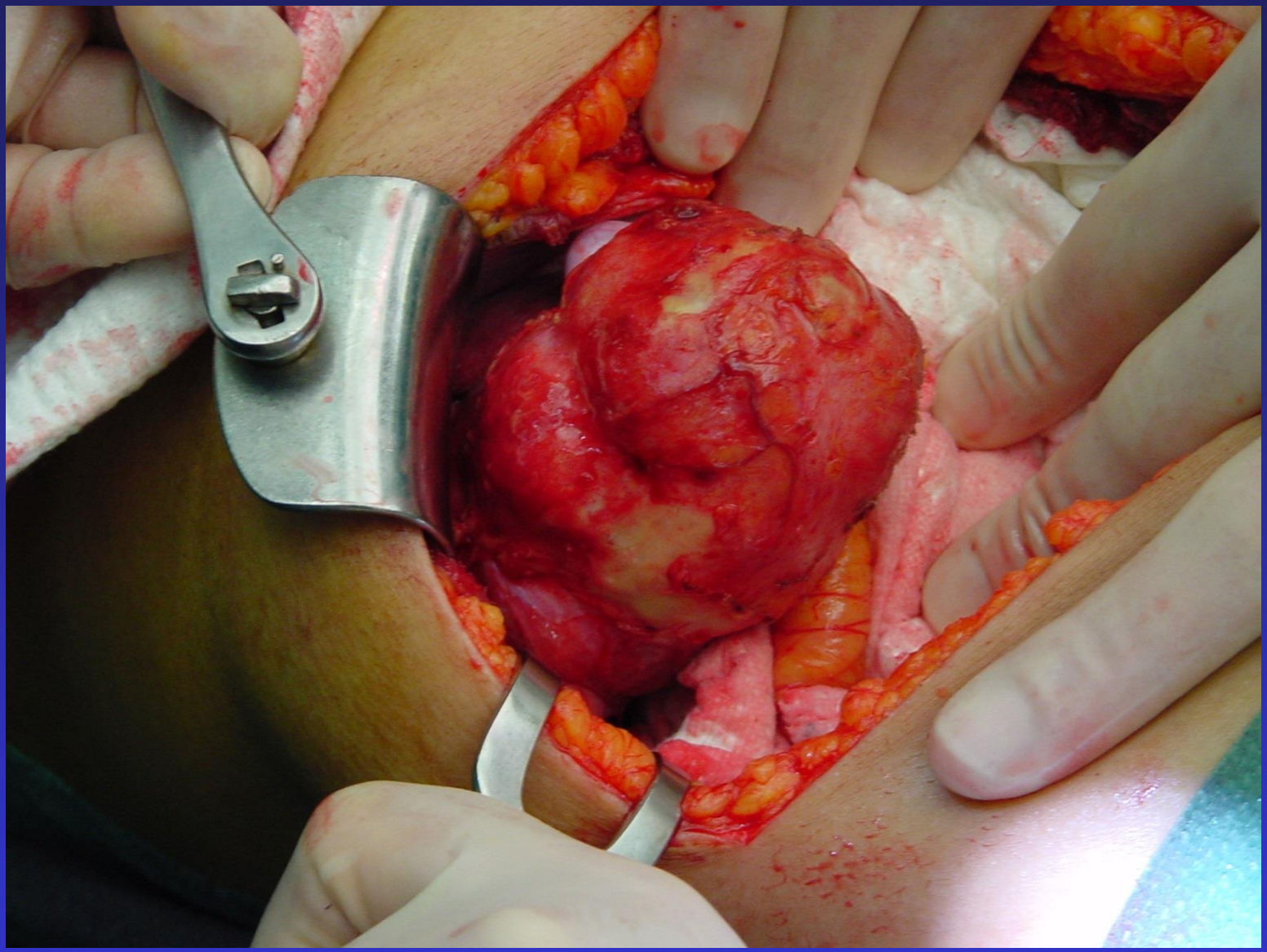
		Diagnosis
Echinococcal cyst	Multilocular cyst larves of Canine tapeworm	serology, (CT: calcifications, septa)
Cystadenoma	Multilocular cyst filled with mucinous fluid	CA 19-9 (CT: biliary dilatation)
Cystadenocarcinoma	Rarely metastasizes after radical resection	CA 19-9 (CT: solid elements)

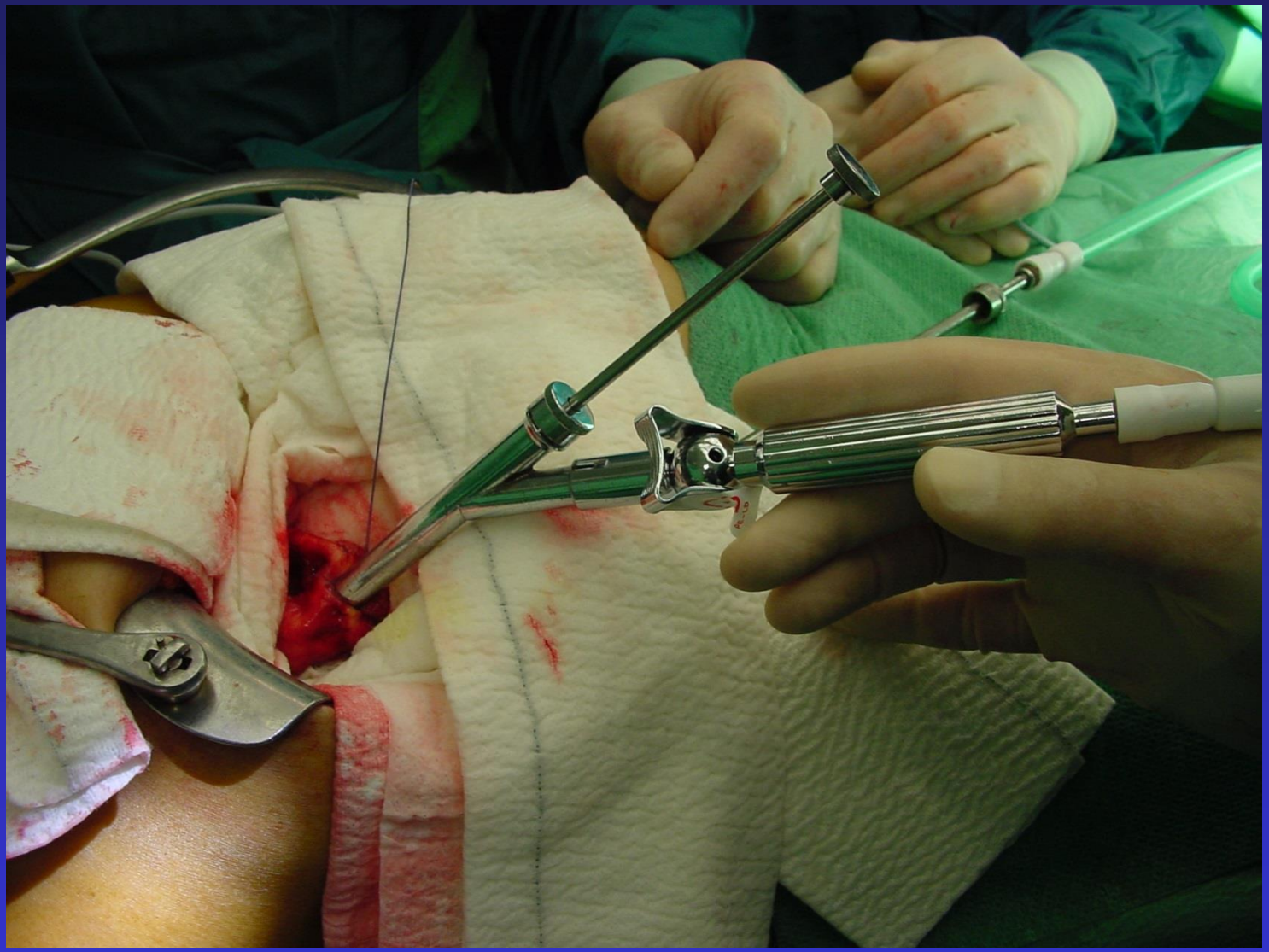
•*Kim et al AJR 2010 Nov; 195(5):1142-8.*

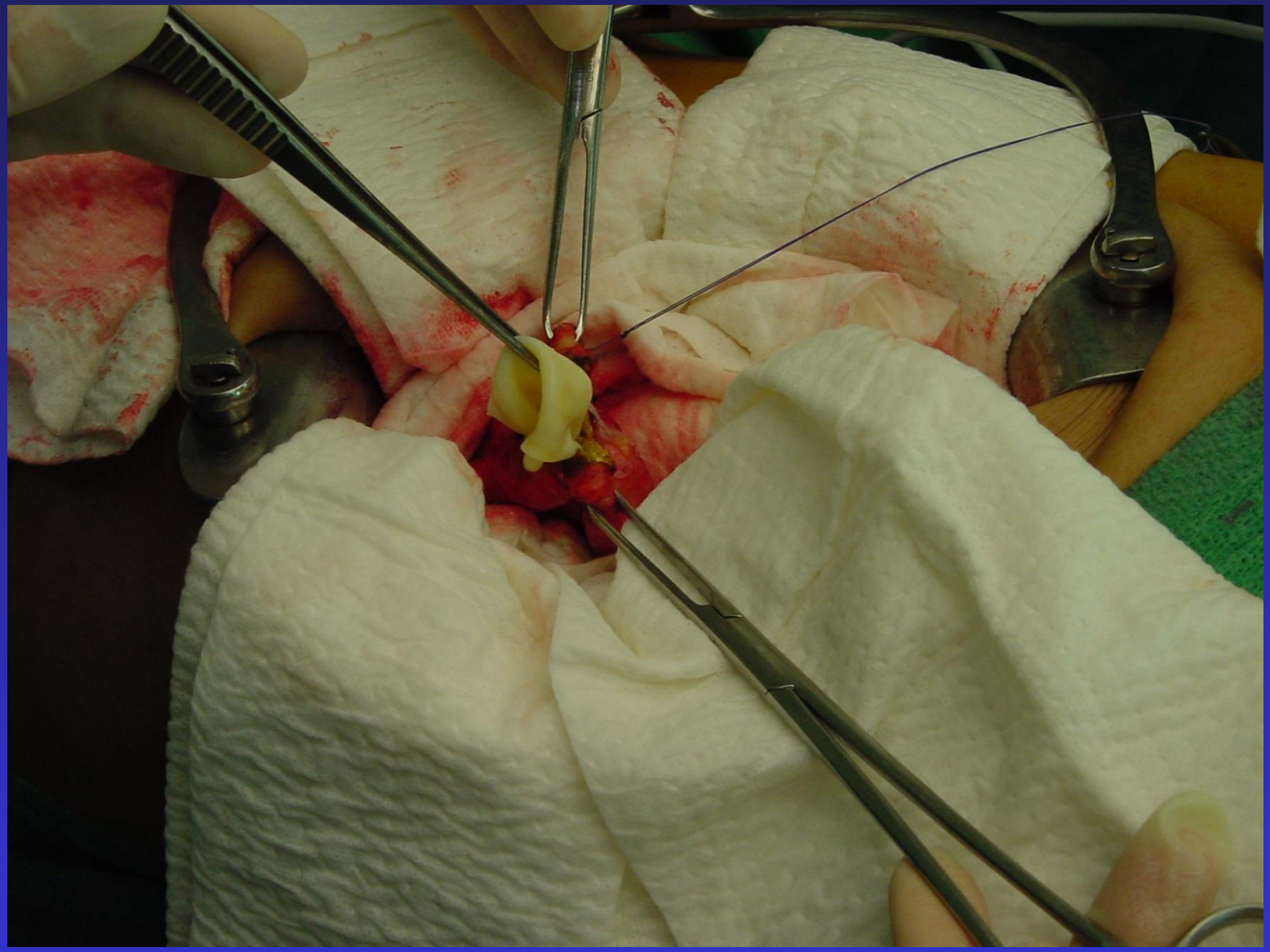
Echinococcosis

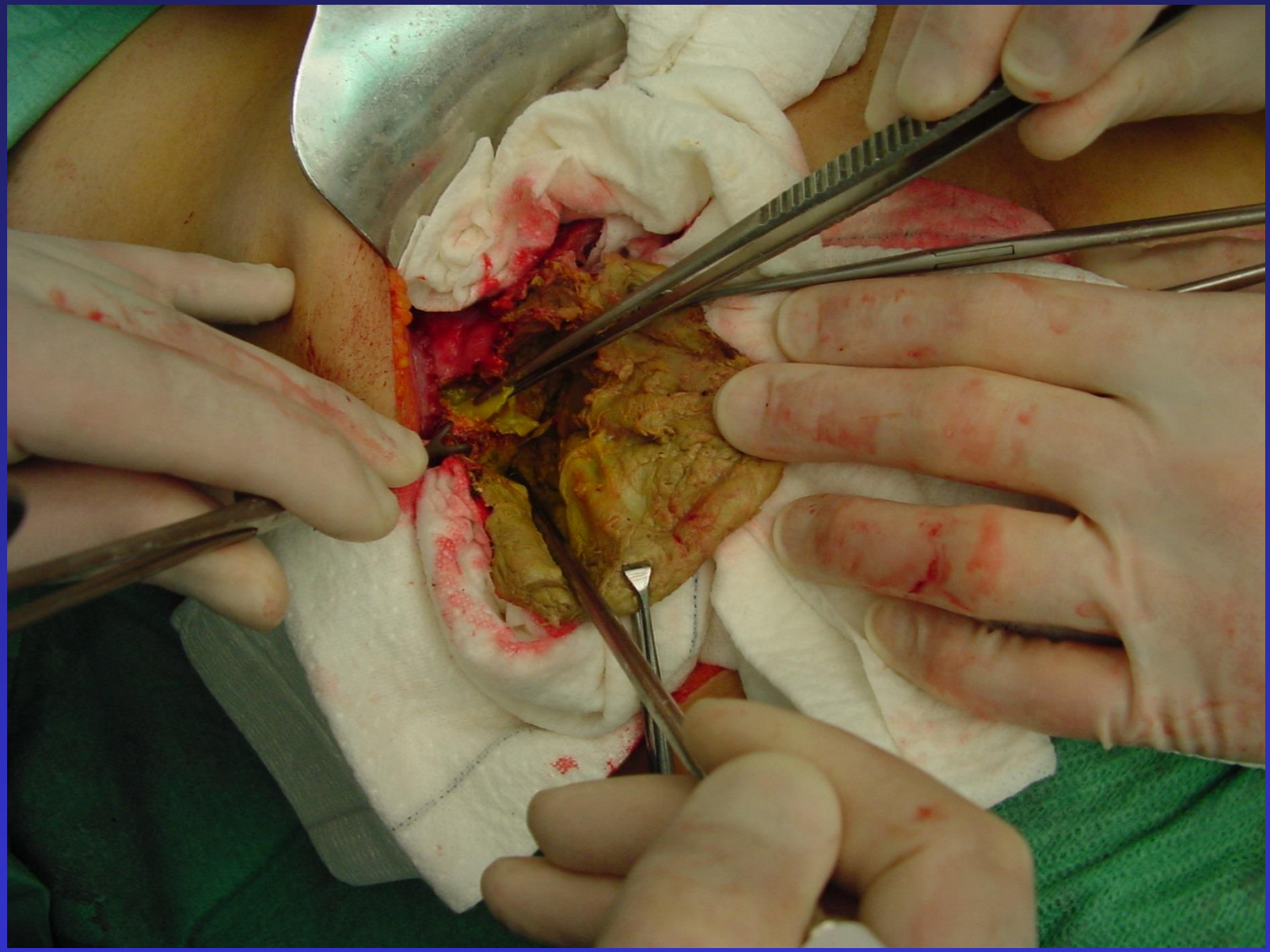




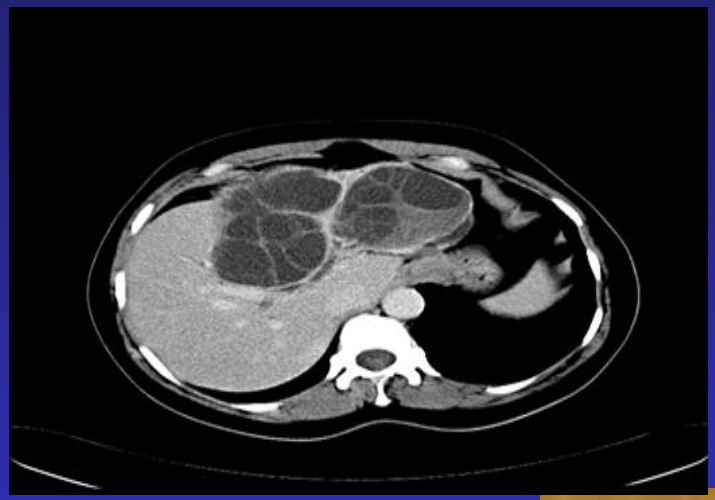




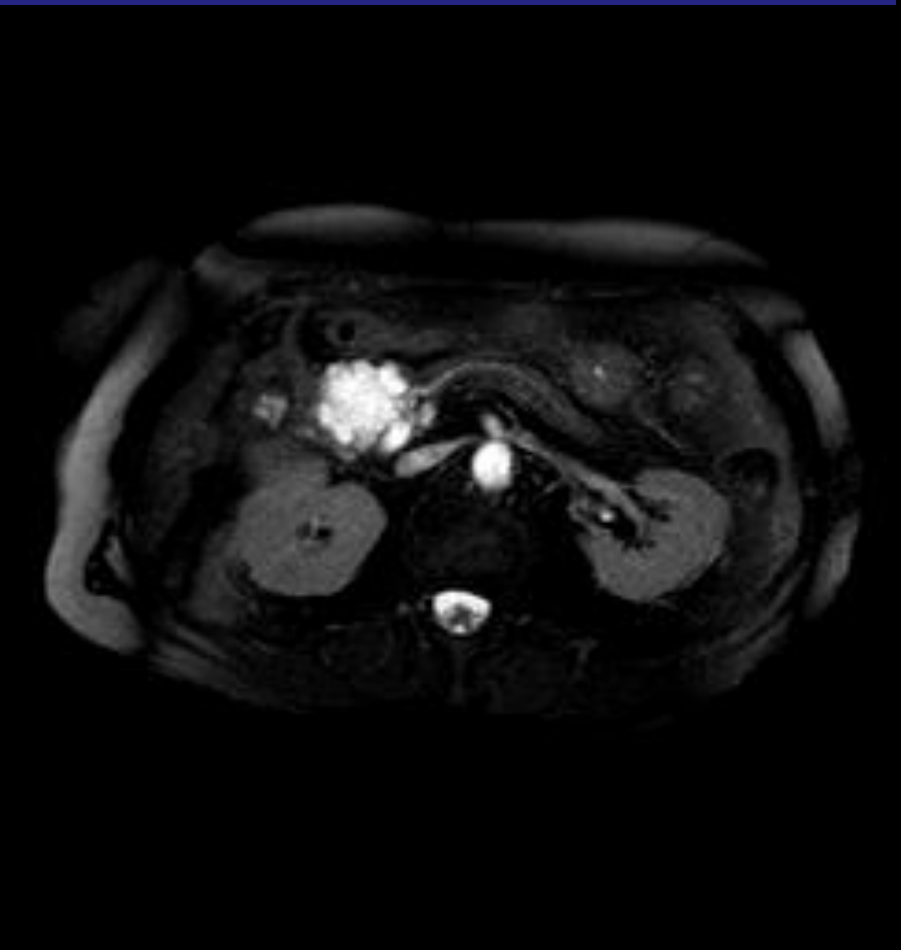


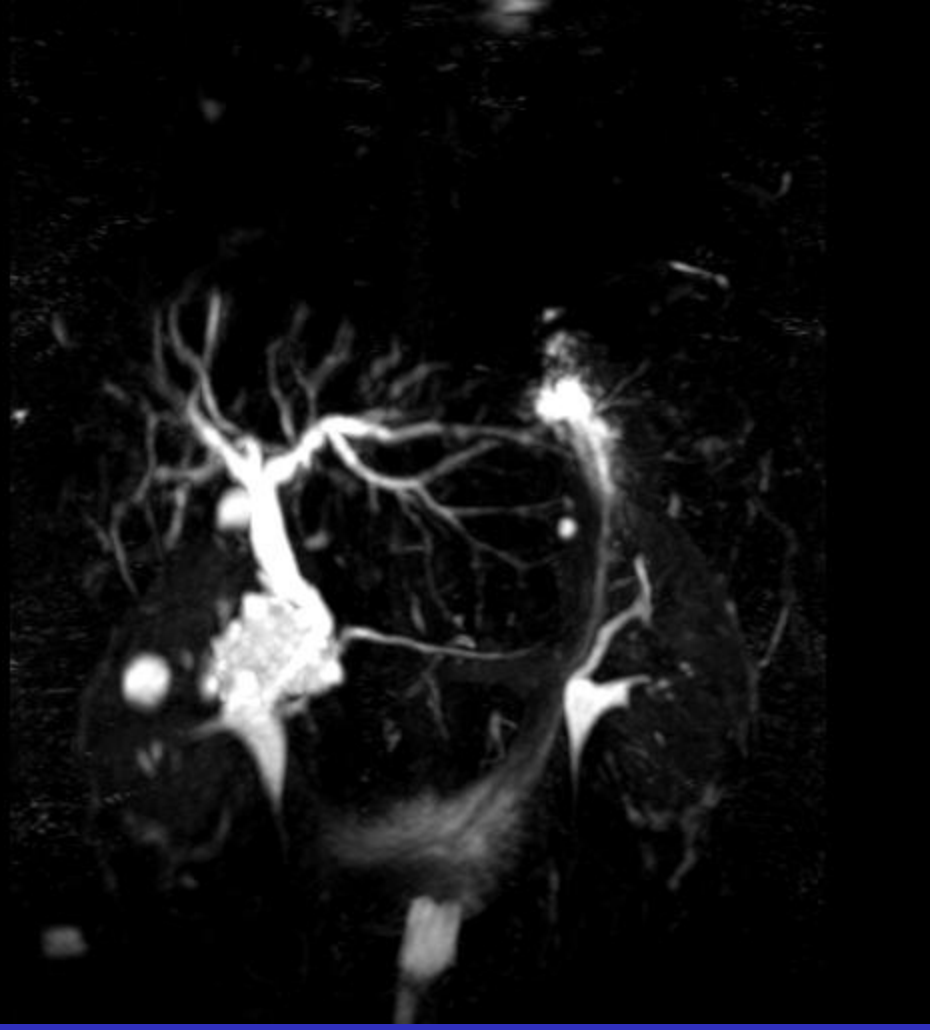


Echinoccosis

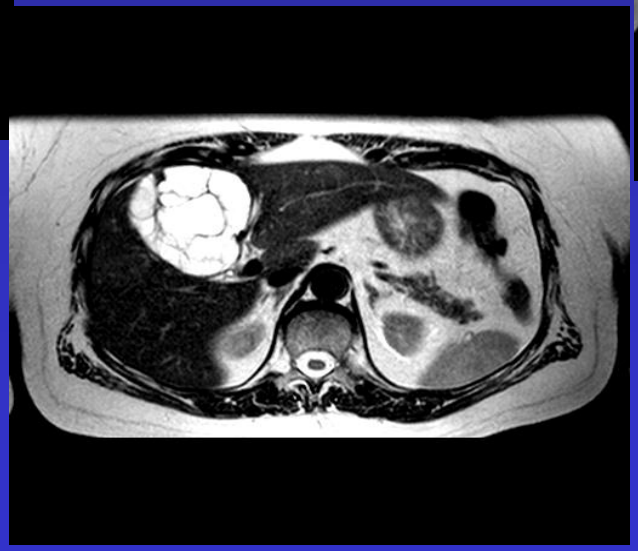


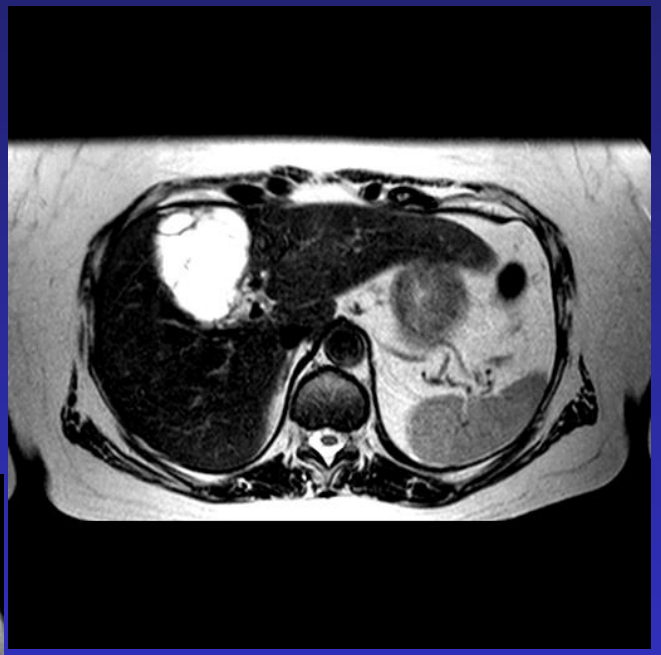
Serous cystadenoma





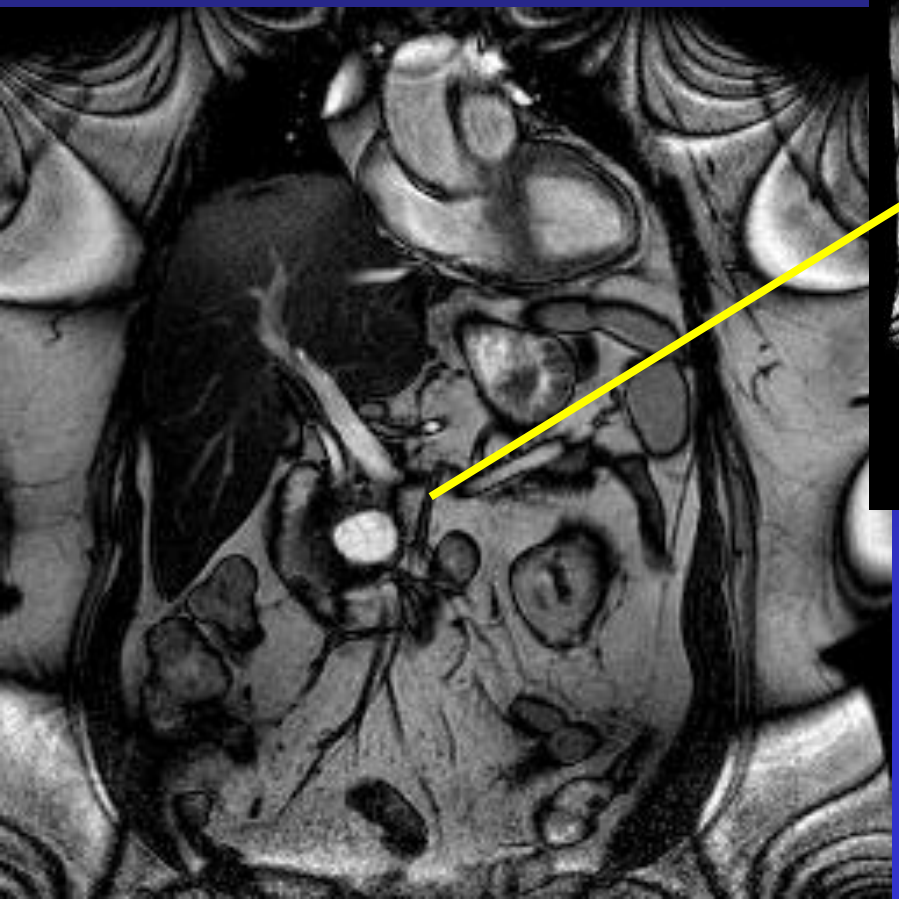
Hepatic cystadenomas

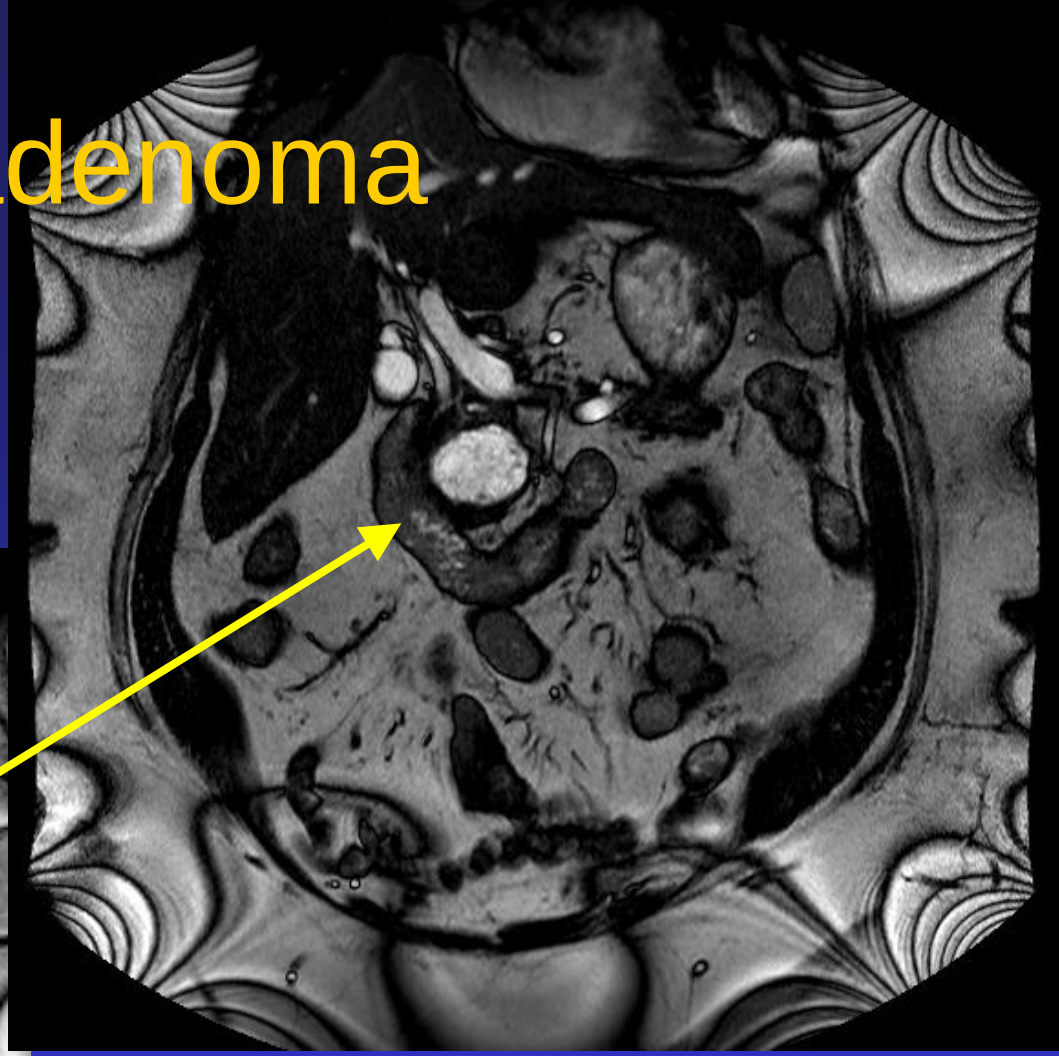




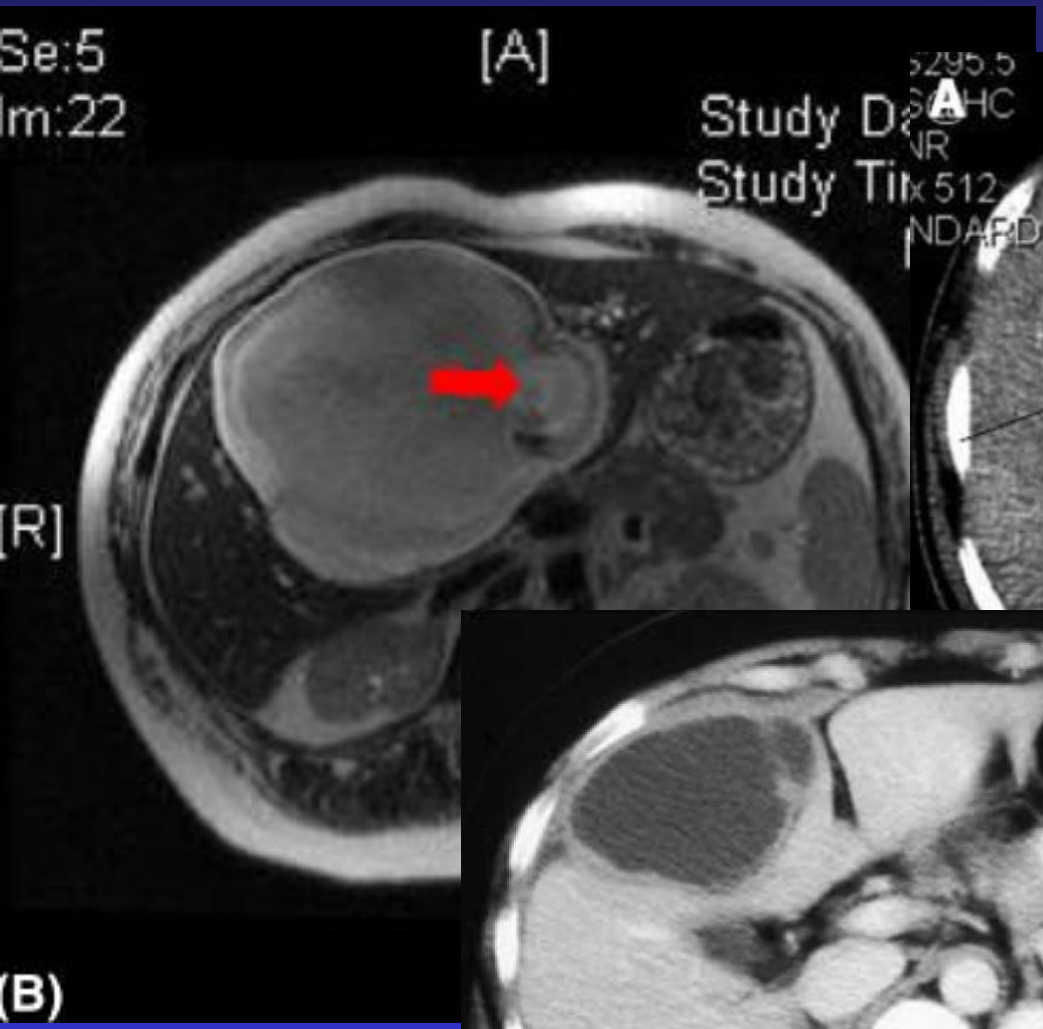
Serous cystadenoma

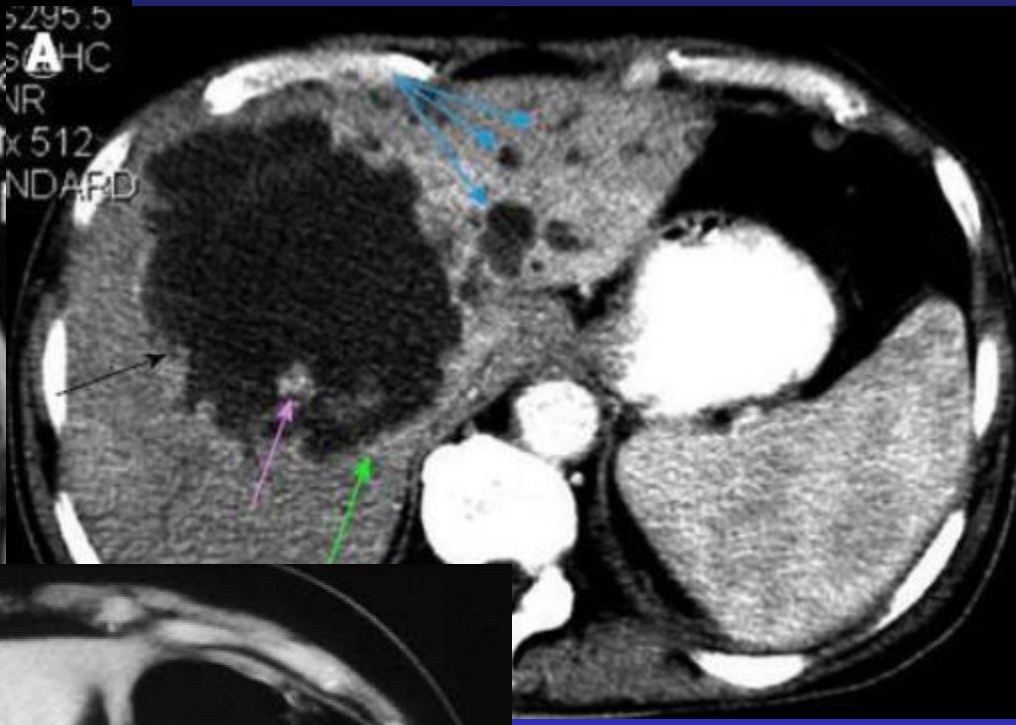
Mucinous cystadenoma





Mucinous cystadenoma





Hepatic IPMN

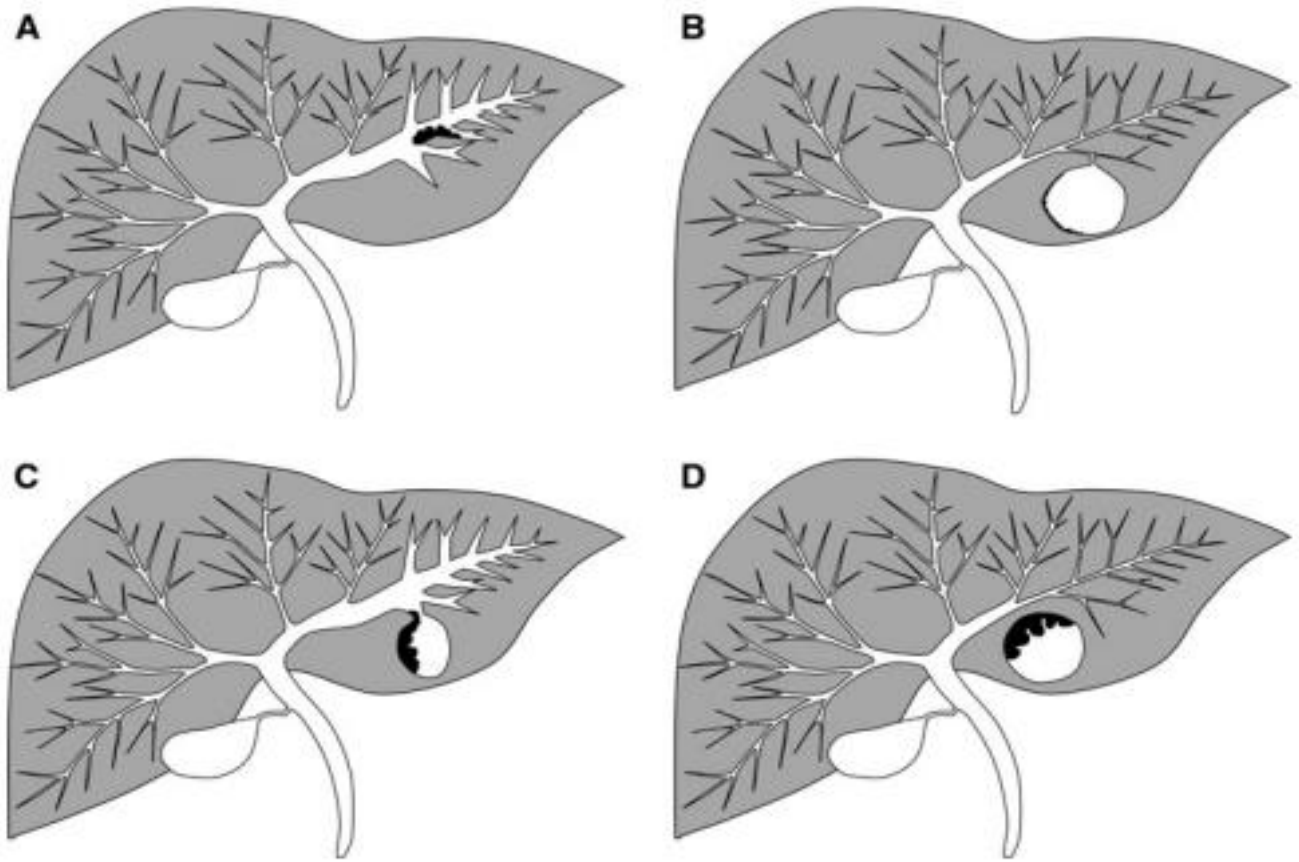
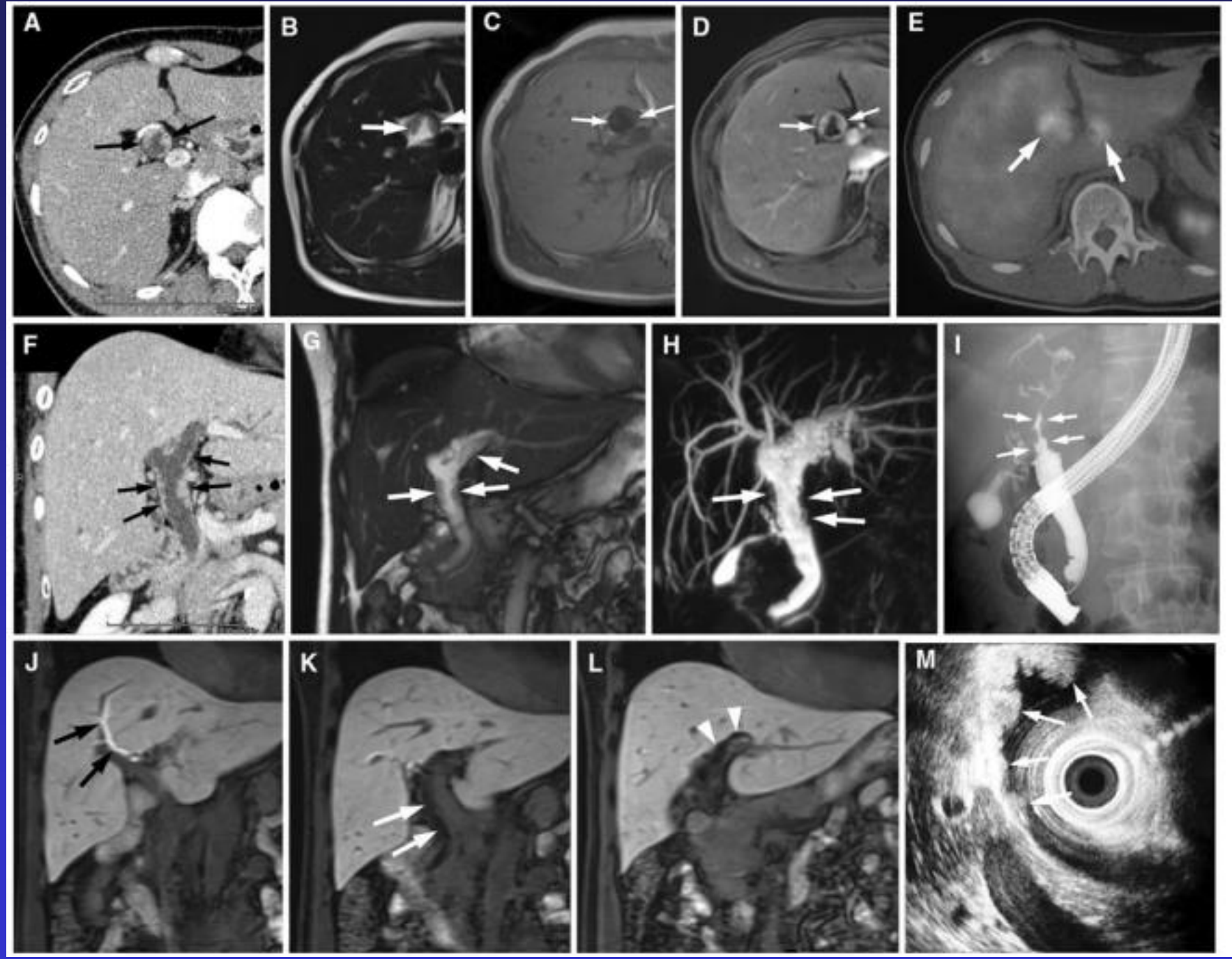


Fig. 1. Anatomic classification of biliary mucin producing neoplasms. The schematic illustrations show IPMN-B (**A**–**C**) and biliary mucinous cystic neoplasm (biliary MCN) (**D**). Irregular black nodules represent mural nodules. IPMN-B can be classified into three types: ductectatic type (**A**), cystic type (**B**), and intermediate type (**C**). Cystic-type IPMN-B (**B**) communicates with a relatively large bile duct. Meanwhile, biliary MCN (d) is confined in a closed cyst (partly reprinted from [8] with permission).


A
B
C
D
E
F
G
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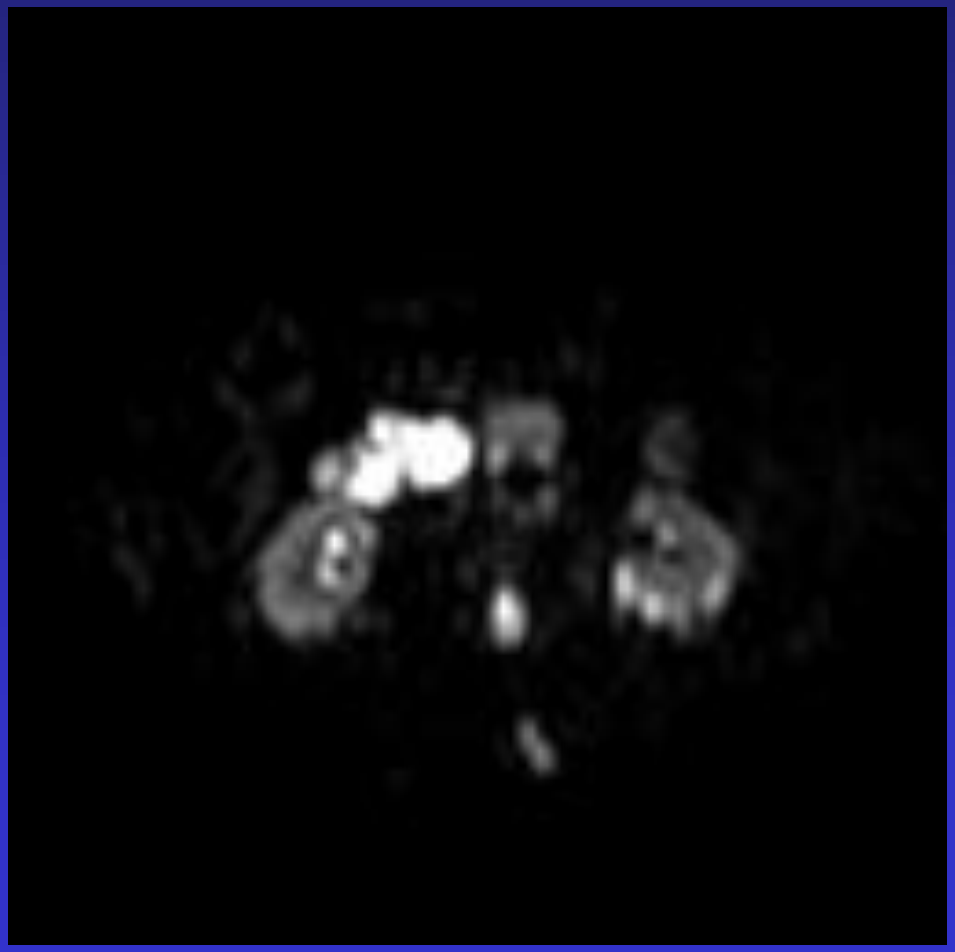
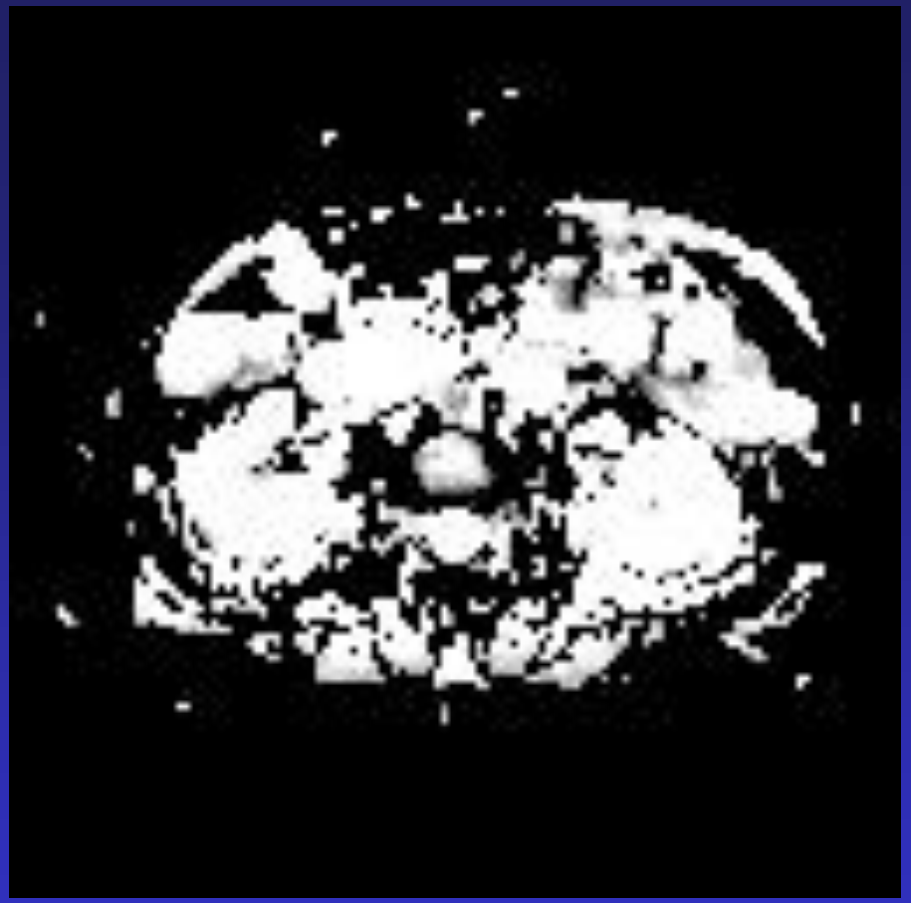
L
M

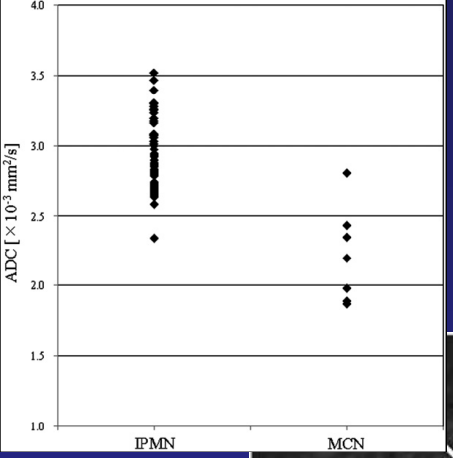
DWI

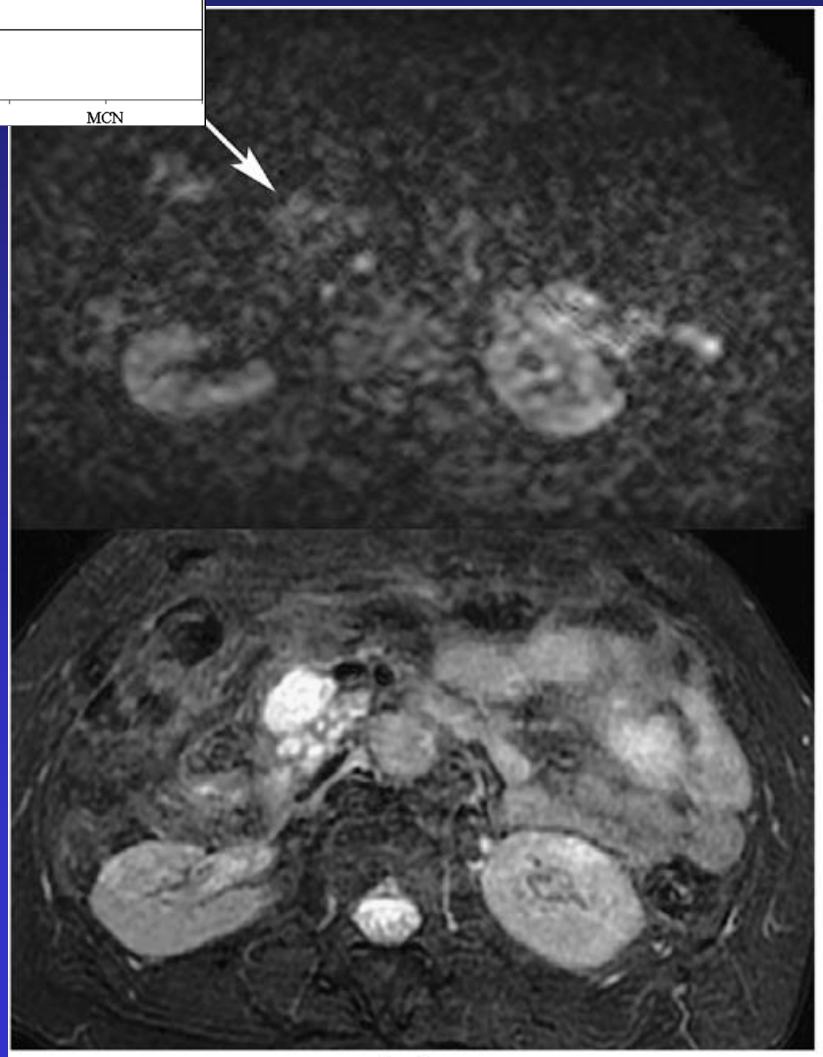




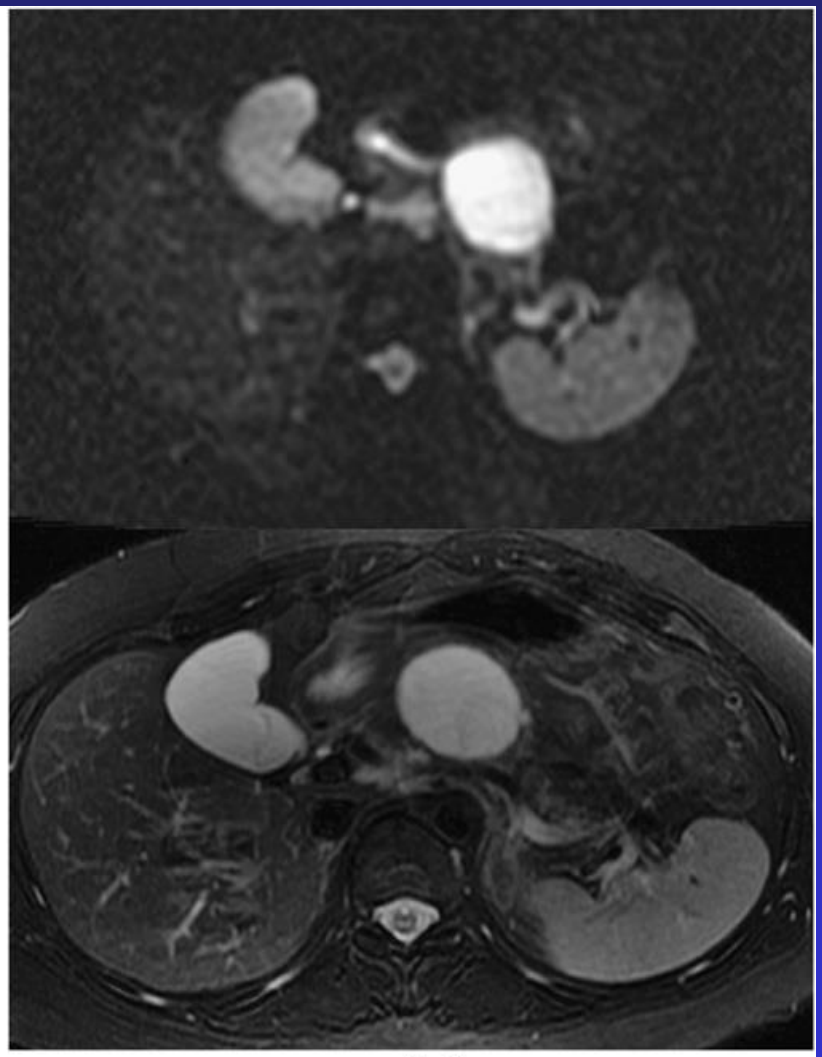
IPMN versus MCN

Z. Fatima et al, Clinical Radiology 66 (2011) 108-111





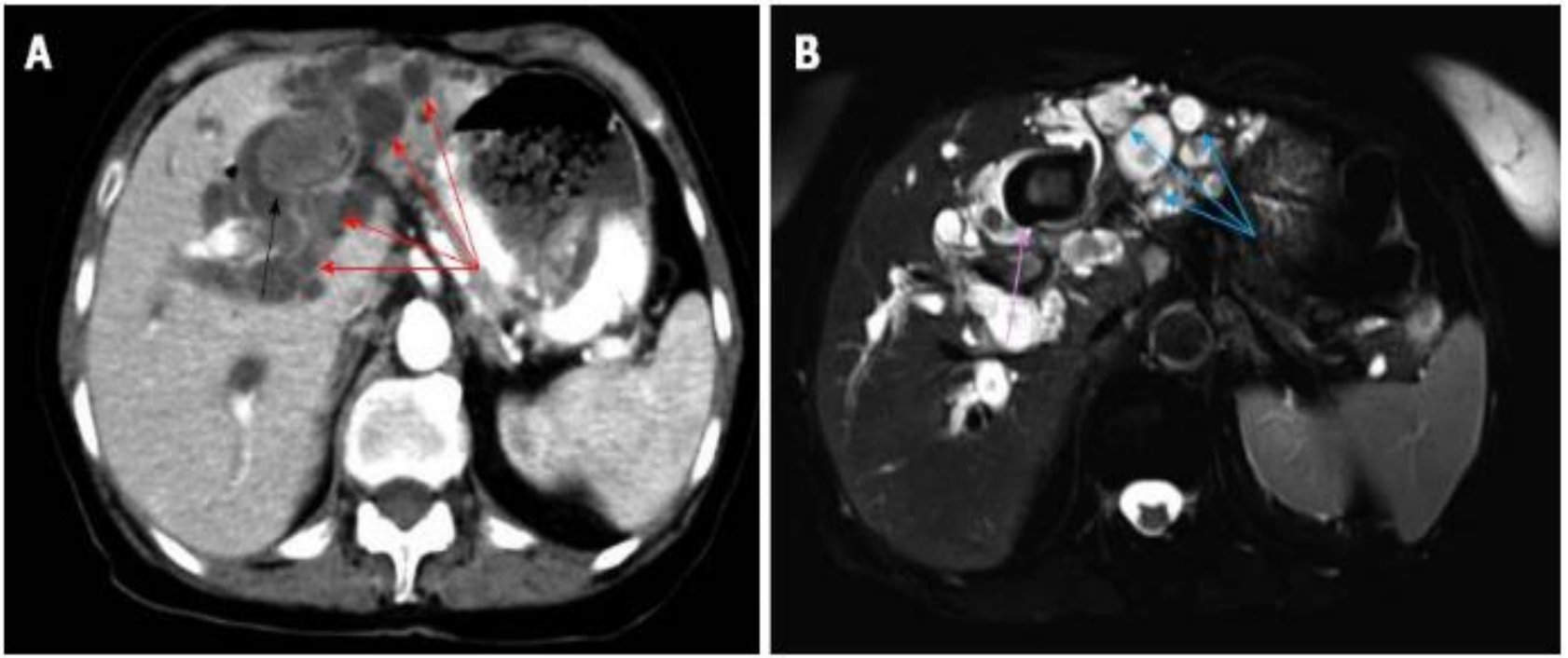
(a)



(b)

Caroli disease/syndrome

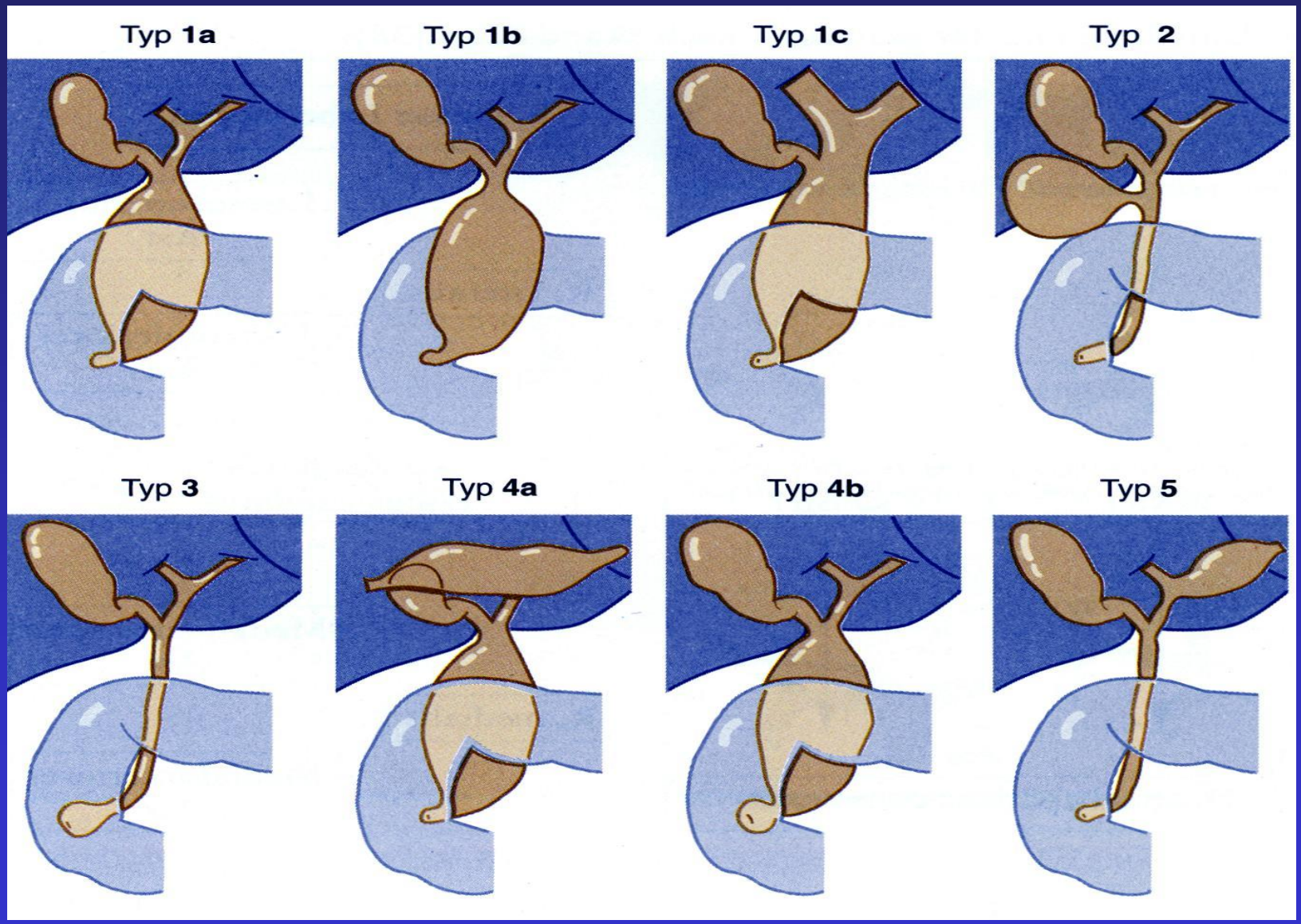
World J Gastroenterol. Nov 21, 2013; 19(43): 7603-7619
Published online Nov 21, 2013. doi: 10.3748/wjg.v19.i43.7603



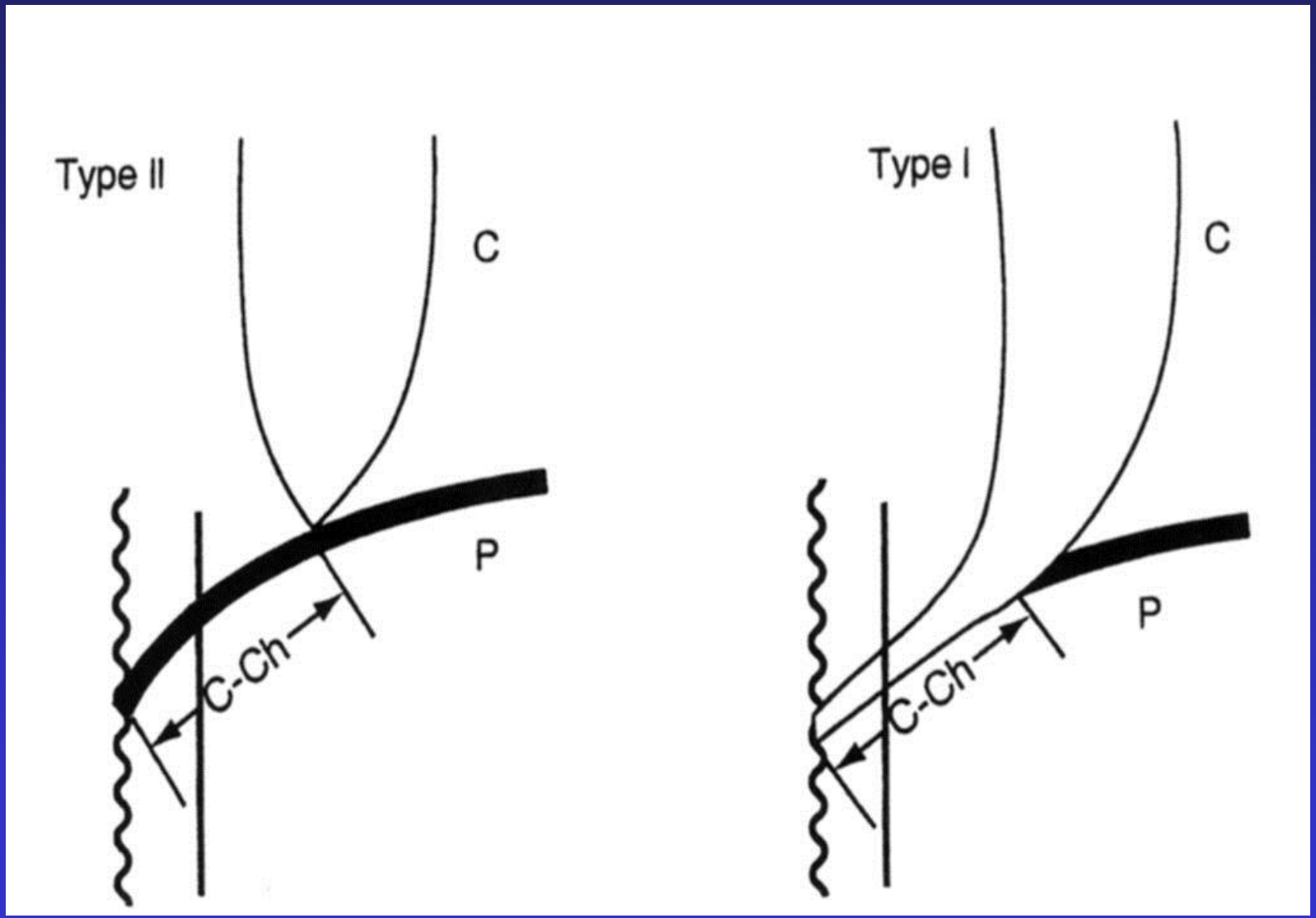
Choledochal cysts

- Cyst-like dilatation of biliary tree
- Female:male = 4:1
- Incidence 1:50,000 to 1:200,000
- West <<< Asia
- 80% detected in 1st decade

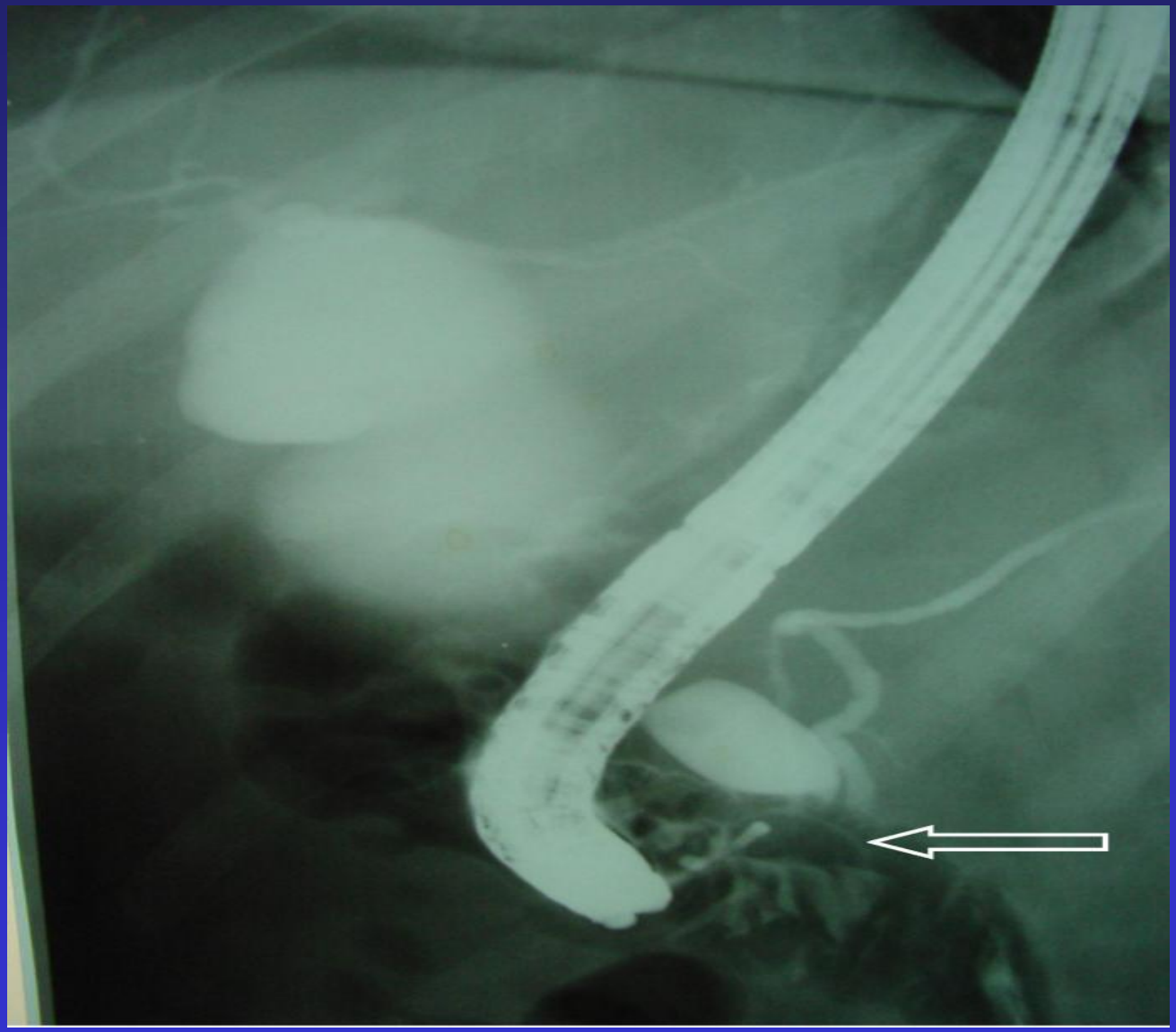
Todani classification



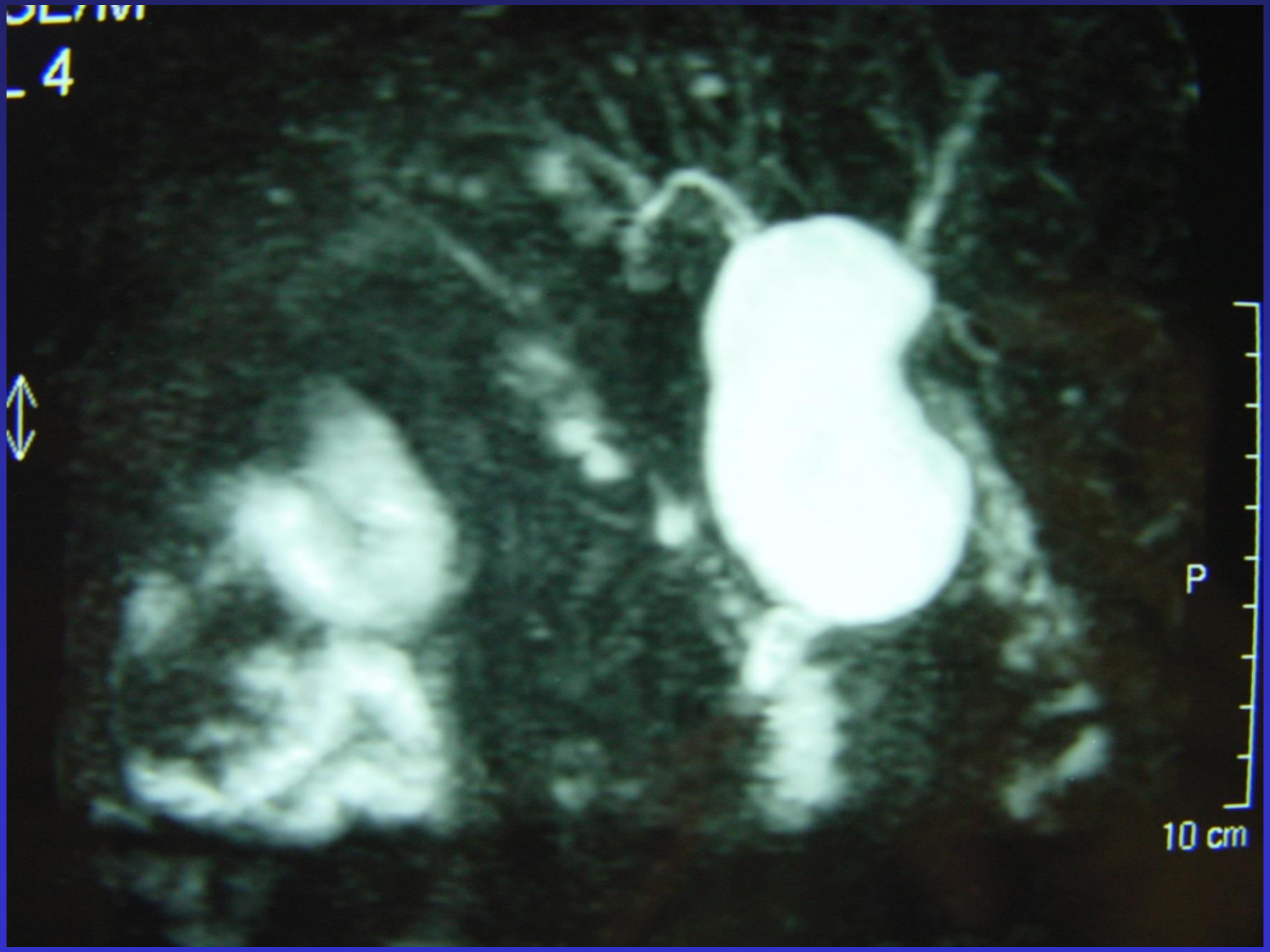
Classification APBJ



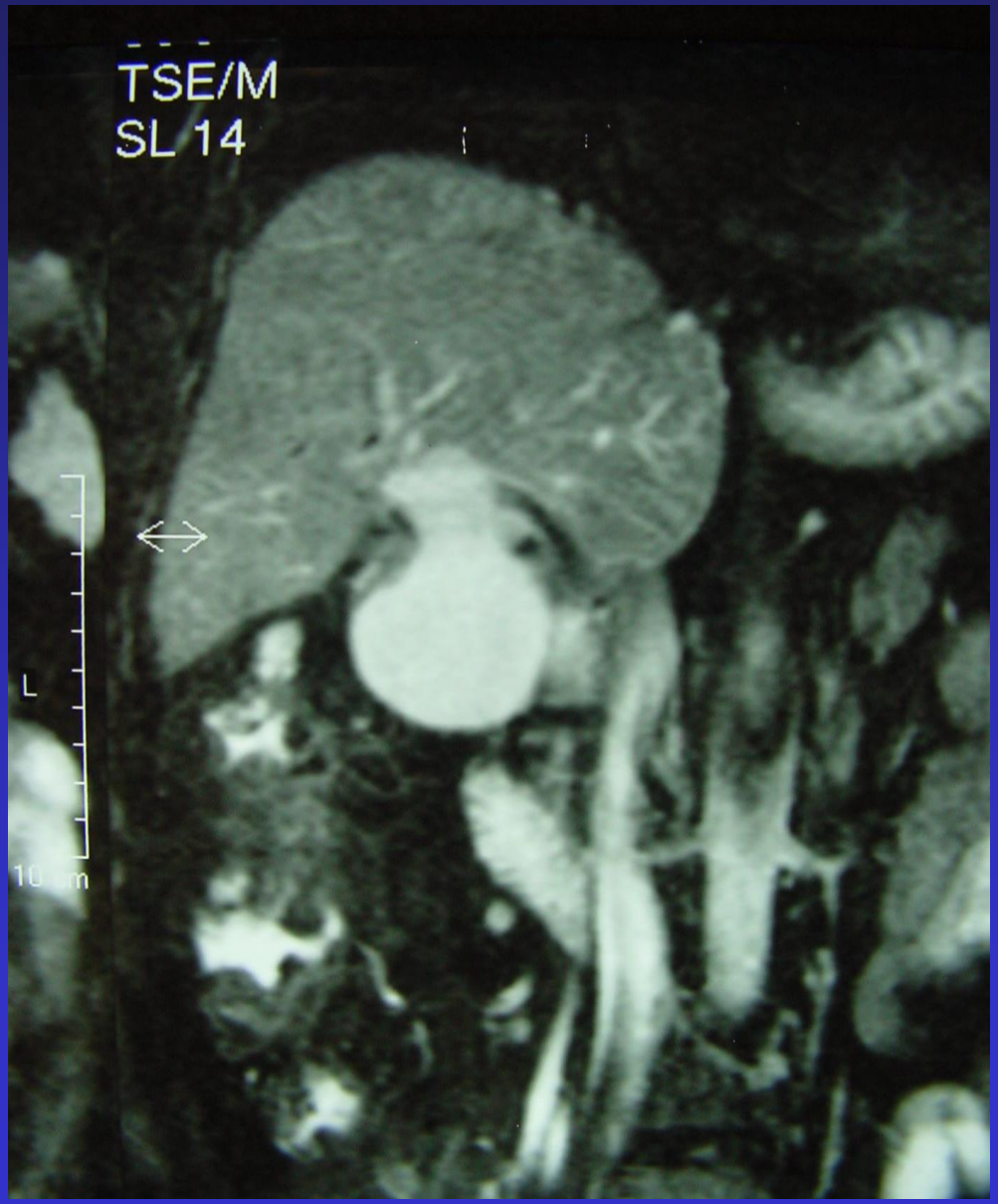
ERCP



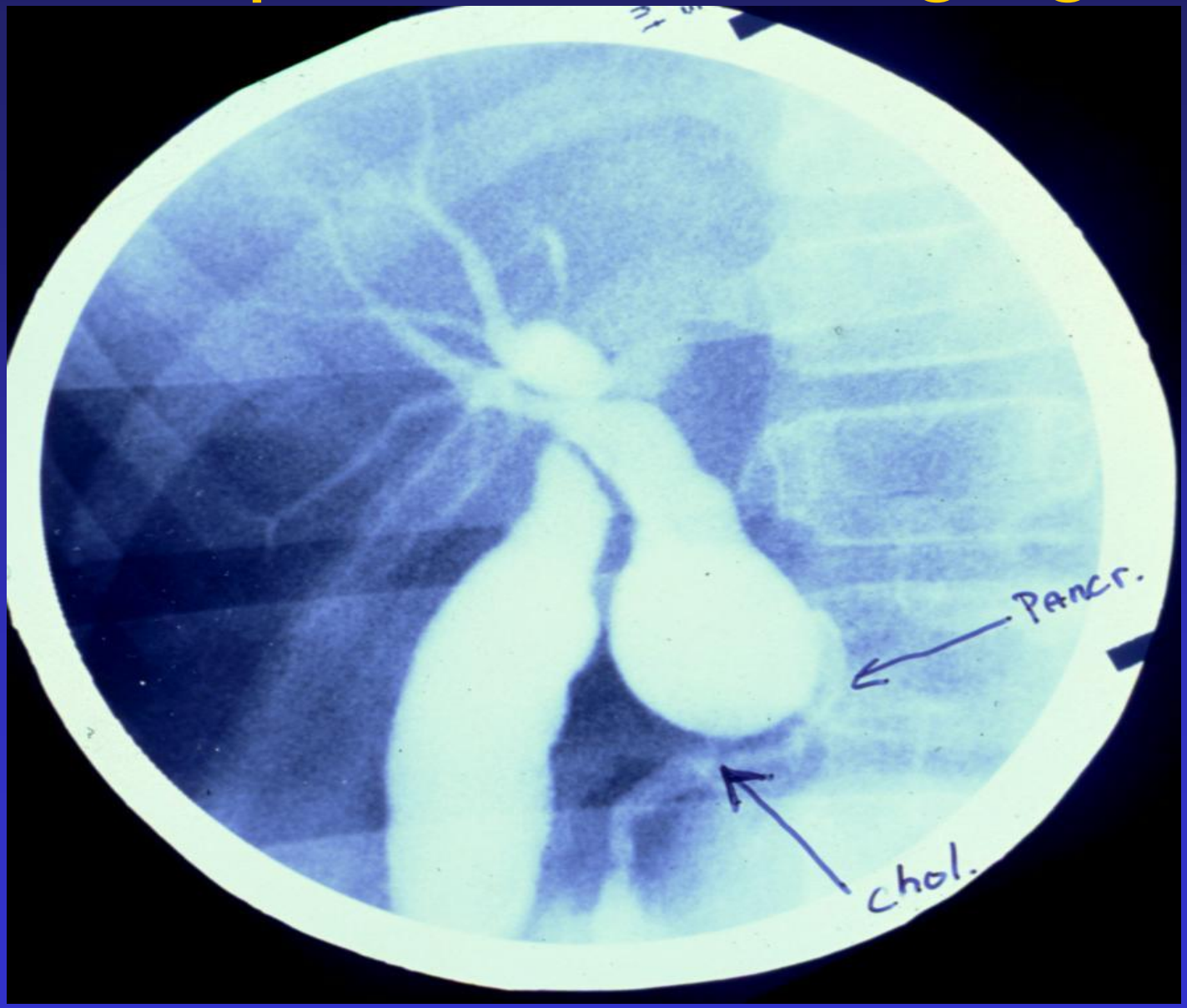
MRI



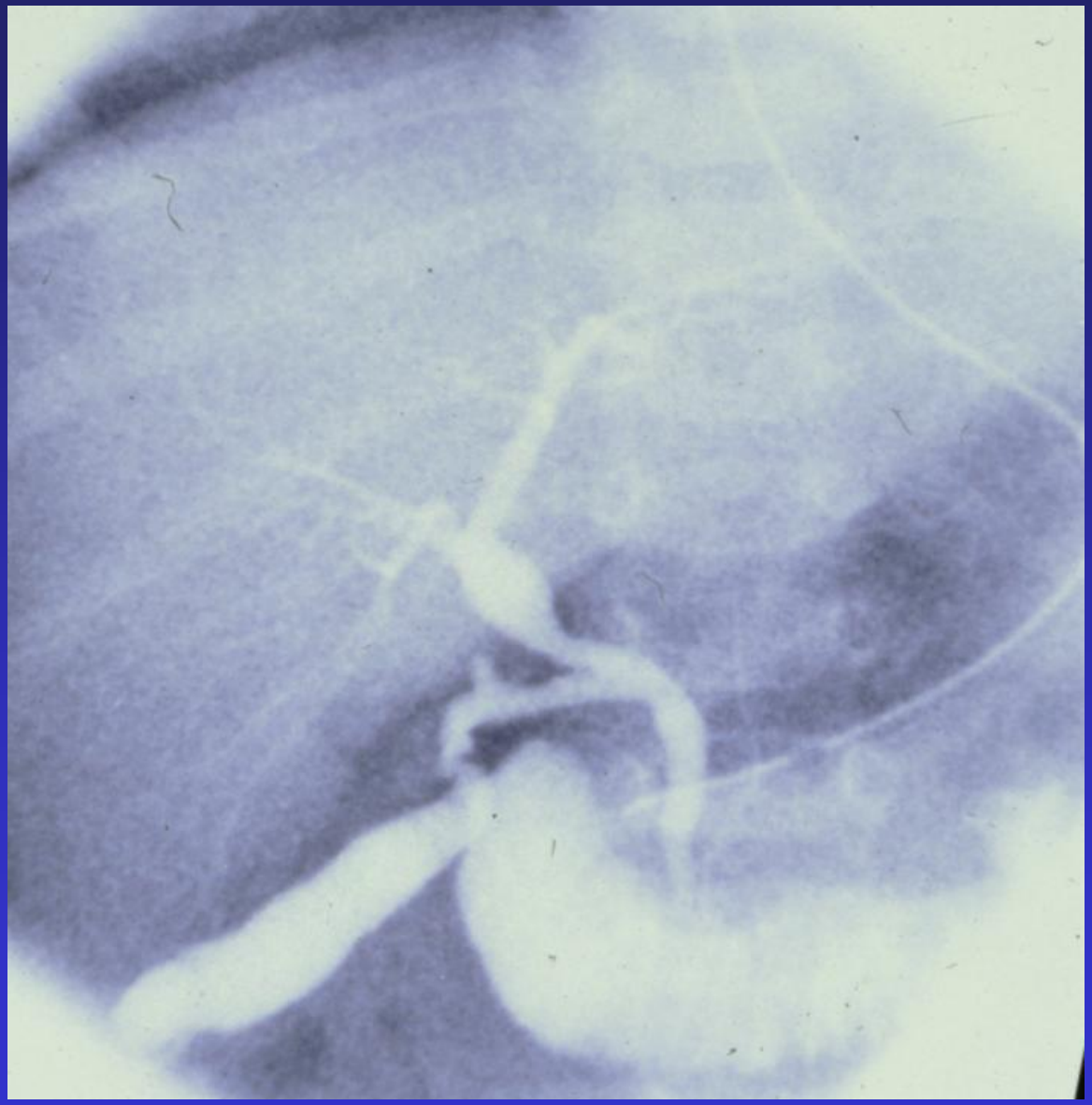
MRI



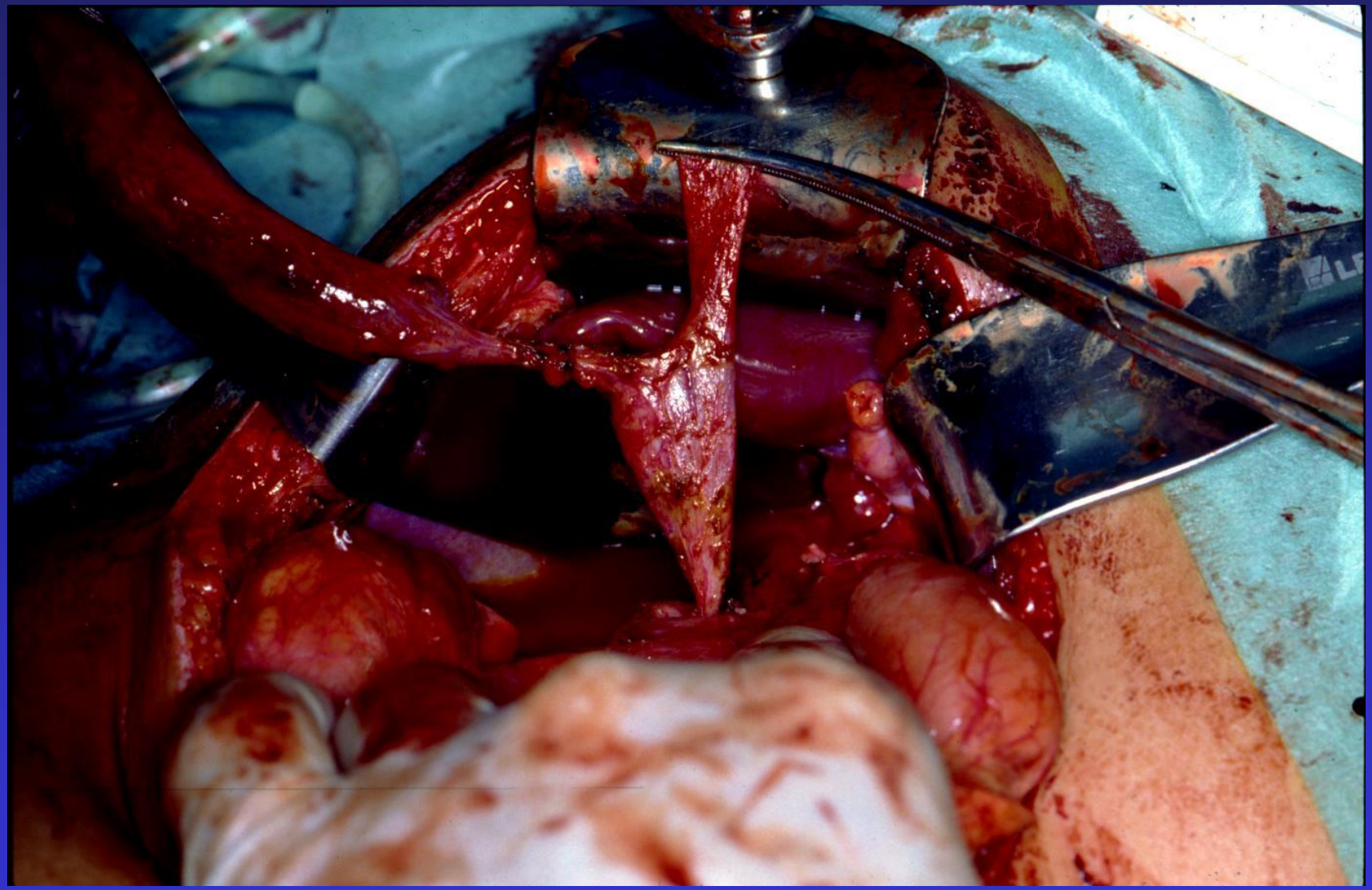
Intra-operative cholangiogram



Intra-operative cholangiogram



Intra-operative view



Specimen