

Barcelona 2009 ESMO
Session II : Cancer of the pancreas and bile ducts:

Diagnostic pitfalls in pancreatic cancer: imaging and tissue ?

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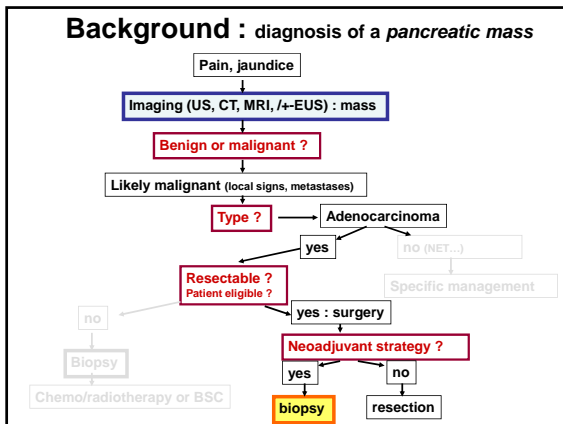
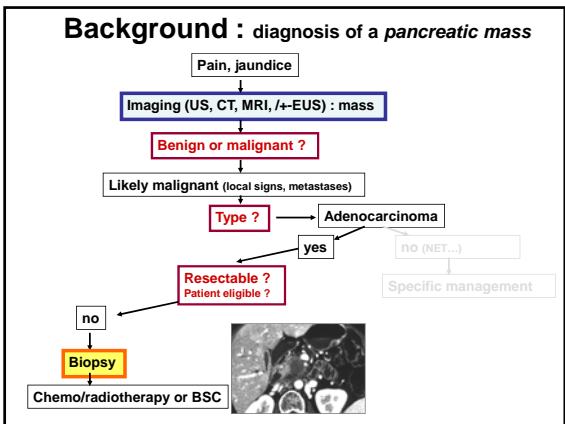
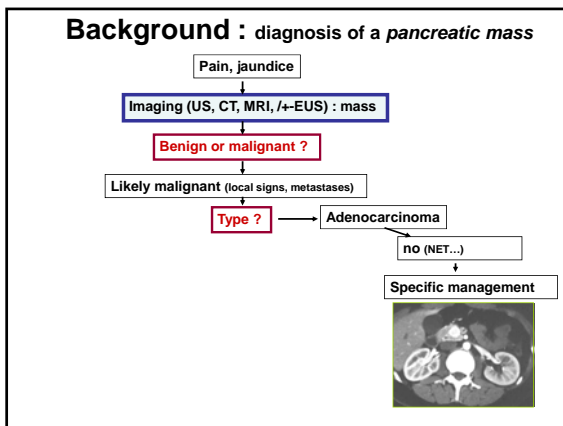
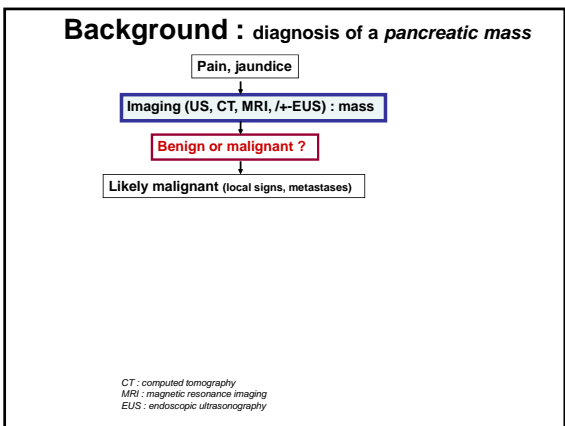


Disclosure form

No conflict of interest for that lecture

Consultant : Pfizer, Roche, Merck Serono

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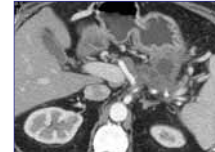
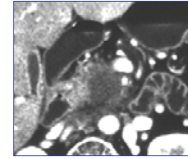


I- Pitfalls in Imaging

Typical cancer of the pancreas

Hypodense infiltrative mass

- Short stenosis of MPD
- Upstream
 - Enlargement of MPD
 - Parenchymal atrophica



MPD : main pancreatic duct

Pancreatic mass on imaging : pancreatitis or cancer ?

- Take the history of patient into account !

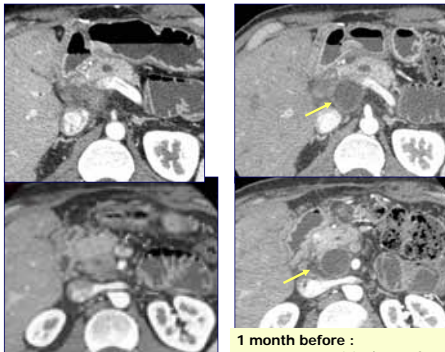
- . Alcohol, young age, few symptoms, CA 19.9 normal
- . time for investigations and observation is needed

Cancer ? history of patient



Abdominal pain
Suspicion of cancer

Pseudotumour: history of patient



1 month before :
acute pancreatitis / pseudocyst

Pseudotumour: history of patient

44-year old woman, pancreatic pain
Good condition, history of Hashimoto's disease, CA 19.9 : 10 U/mL



Pancreatic mass on imaging : pancreatitis or cancer ?

- Take the history of patient into account !

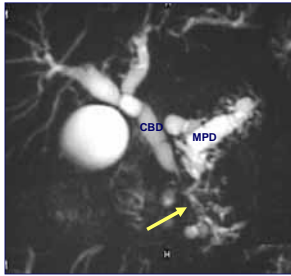
- . alcohol, young age, few symptoms, normal CA 19.9
- . time for investigations and observation

- Careful analyse of imaging data :

- . diffuse abnormalities, calcifications, pseudocyst ?
→ CP
- . enlargement of MPD diffuse or *downstream* the mass ?
→ CP or IPMT
- . signs compatible with autoimmune pancreatitis ?

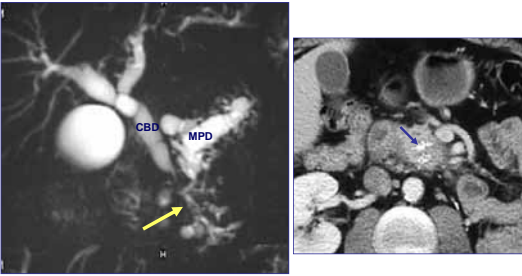
CP : chronic pancreatitis
MPD : main pancreatic duct
IPMT : intraductal papillary mucinous tumour

Pseudotumour : focal pancreatitis



Stenosis of MPD but branch ducts remain visible

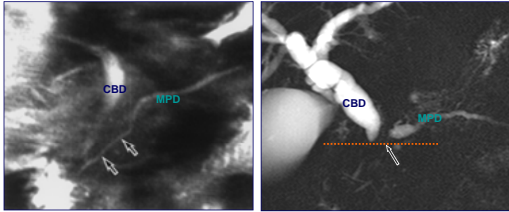
Pseudotumour : focal pancreatitis



Stenosis of MPD but branch ducts remaining

Calcifications

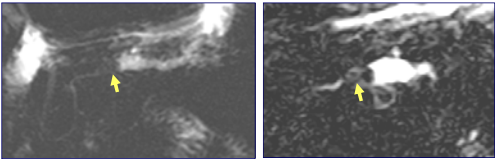
Pseudotumour : length of stenoses



Focal pancreatitis	Cancer
- Long/incomplete stenosis	- Short /complete
- Different level CBD	- Same level as CBD

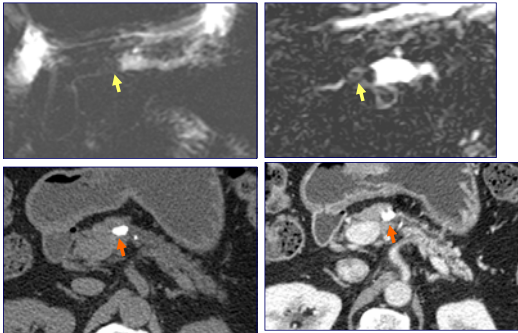
CBD : common bile duct

Suspicion of cancer on MRI : pitfall



Doubtful « stop » and upstream enlargement of MPD

Suspicion of cancer on MRI : pitfall




For calcifications in chronic pancreatitis : CT scan > MRI

Pancreatic mass on imaging : pancreatitis or cancer ?

Chronic pancreatitis often present beside a cancer...

In a segment of pancreas, focal enlargement of main pancreatic duct upstream a mass



... Chronic pancreatitis : risk factor for cancer (x 10-15)

Chronic pancreatitis known for long time becomes symptomatic again

Calcifications are pushed around the mass

Extrapancreatic spreading of the tumour

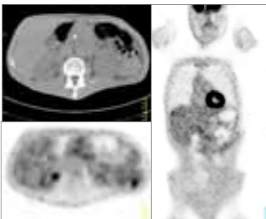
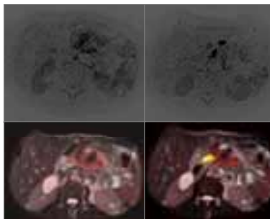
Adenocarcinoma and PET-scan

- 112 patients, with suspicion of cancer → CT and PET
- Final : malignant : n = 78, benign : n = 34
- Diagnosis of malignancy :
 - . Sensitivity : CT > PET (89% vs 73%)
 - . Specificity : CT = PET (65% vs 60%)
- Doubtful CT : n=30, PET true +ve : 40%

May help (normal glycemia), **but false positive** (inflammation, autoimmune pancreatitis ++)

Lytras et al. Dig Surg 2005

Atypical cancer : MRI diffusion in the future ?

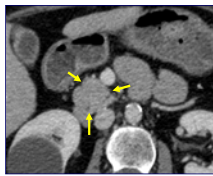
PET/CT	MRI diffusion
	

Search for cancer in pancreatitis
Cancer : 7/33
→ Sensitivity 92% with both methods

Matos C, H Erasme, ULR, Bruxelles

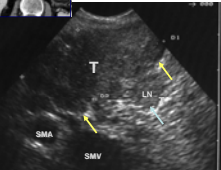
Cancer can be isodense on CT

CT scan



Cancer isodense on CT : role of EUS

- 10%-15% of cases
- EUS
- better for lesions < 2 cm
- Causes of false negative CT:
 - chronic pancreatitis
 - diffuse, infiltrative lesion
 - recent acute pancreatitis



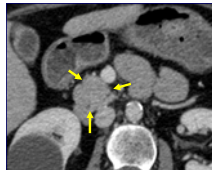
Excellent negative predictive value of EUS (~ 100 %)

EUS : endoscopie ultrasonography

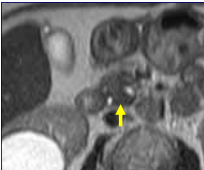
Bhutani, Endoscopy 2004
Klapman, Am J Gastroenterol 2005

Cancer isodense on CT : role of MRI

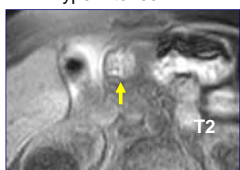
CT scan



MRI : Hypointense T1



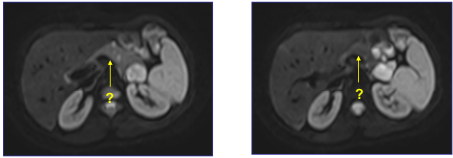
Hyperintense T2



T2

MRI diffusion in atypical cancer : promising ?

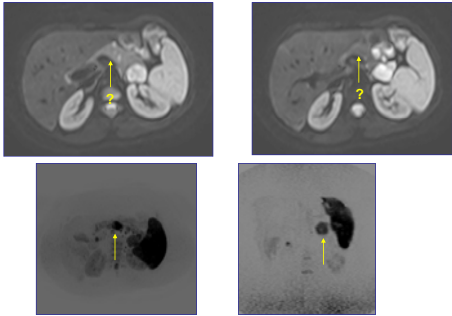
Isodense mass on CT scan
Sensitive...



Matos C, H Erasme, ULB, Bruxelles

MRI diffusion in atypical cancer : promising ?

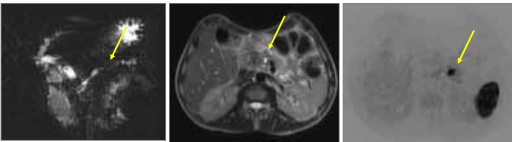
Isodense mass on CT scan : sensitive method...



Matos C, H Erasme, ULB, Bruxelles

MRI diffusion in atypical cancer : promising ?

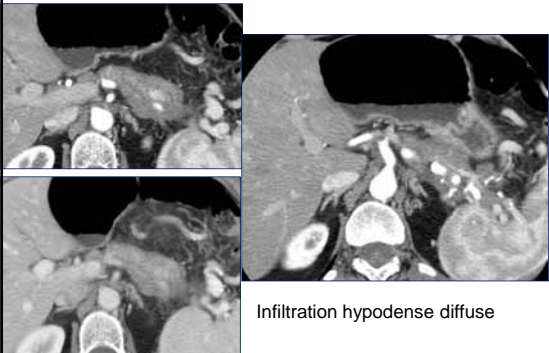
Suspicion of tumour → resection → not confirmed (CP)



...but specificity ?

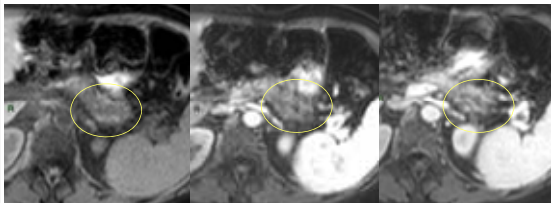
Matos C, H Erasme, ULB, Bruxelles

Cancer or autoimmune pancreatitis?



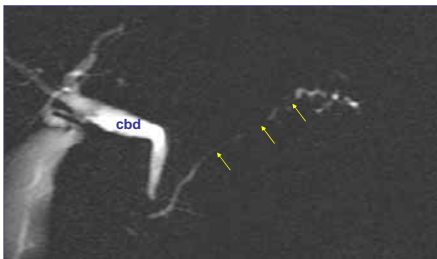
Infiltration hypodense diffuse

Cancer or autoimmune pancreatitis?



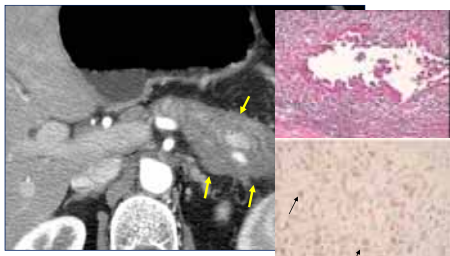
Delayed enhancement

Cancer or autoimmune pancreatitis?



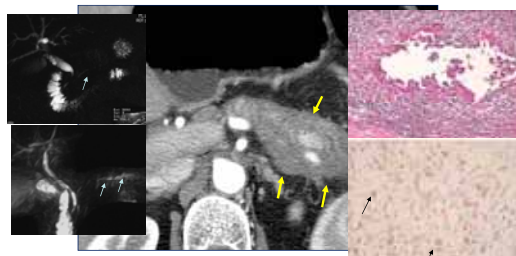
MPD : ≥ 2 stenoses

Pseudotumour: biopsy



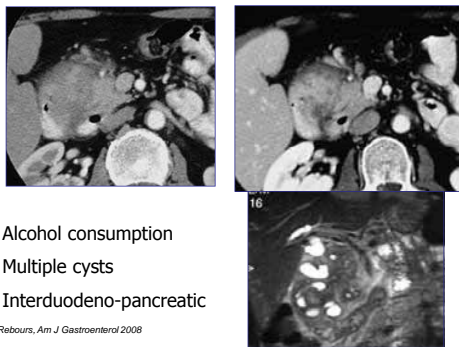
Measurement of serum / tissue expression (biopsy) of IgG4

Pseudotumour: therapeutic test



Measurement of serum / tissue expression (biopsy) of IgG4
Therapeutic test with steroids → resolution (symptoms, imaging)

Cystic dystrophy of duodenal wall



- Alcohol consumption
- Multiple cysts
- Interduodeno-pancreatic

Rebours, Am J Gastroenterol 2008

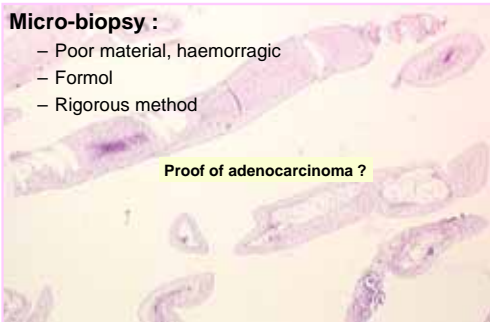
II- Pitfalls in Pathology

The specimen received by the pathologist is a critical point...

- Tumour biopsy under CT guidance (pancreas or liver metastasis)
- Duodenum involvement : perendoscopy biopsy
- ERCP: cytology
- EUS fine-needle aspiration +++

ERCP : endoscopic retrograde cholangio-pancreatography
EUS : endoscopic ultrasonography

Quality of specimen and pathology



Micro-biopsy :

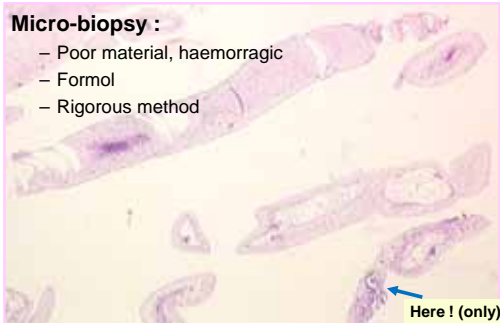
- Poor material, haemorrhagic
- Formol
- Rigorous method

Proof of adenocarcinoma ?

Quality of specimen and pathology

Micro-biopsy :

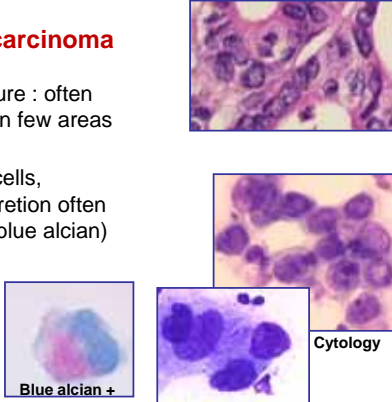
- Poor material, haemorrhagic
- Formol
- Rigorous method



Here ! (only)

Adenocarcinoma

- Architecture : often present, in few areas
- Atypical cells, mucosecretion often present (blue alcian)




Blue alcian +

Cytology

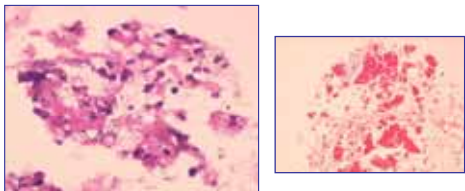
Adenocarcinoma : pathology

- Immunophenotype: Muc1, Muc2, p53, Mib-1
- Cytokeratines, specific markers



Muc1

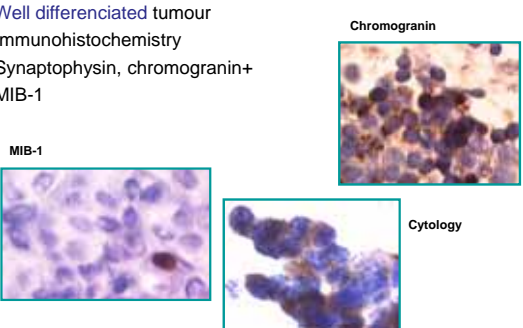
Pitfall : acute pancreatitis



Differential diagnosis
 Tumour necrosis, acute pancreatitis
 in the vicinity of the cancer

Pitfall: endocrine tumour

Well differentiated tumour
 Immunohistochemistry
 Synaptophysin, chromogranin+
 MIB-1

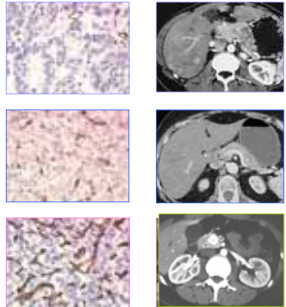


Chromogranin

MIB-1

Cytology

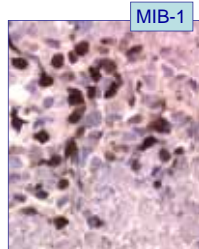
Pitfall: endocrine tumour



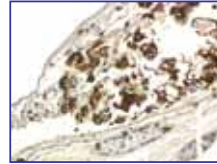
Rodaltec, Pancreatology 2006

Pitfall: endocrine tumour

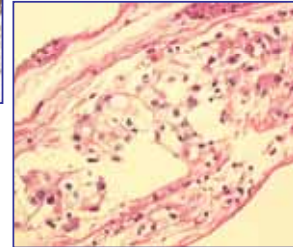
Poorly differentiated tumour
Diagnosis is more difficult
Sheets of irregular cells, necrosis
Synaptophysin+, chromogranin+
MIB-1++



Pitfall: metastasis



Metastasis of renal cancer, vimentin +



Take home message

- 1- Several imaging methods for assessment !
- 2- To avoid pitfalls in case of atypical tumour
 - . Take into account the patient history
 - . Do not hesitate to biopsy
- 3- Provide enough informations and good tissue material to pathologist !

Thanks

All my group at Beaujon hospital

Particularly :

- MP Vullierme (radiologist)
- A Couvelard (pathologist)