

## **AUTOIMMUNE PANCREATITIS AND IgG4 IN PRACTICE AND OVERLAP WITH CANCER**

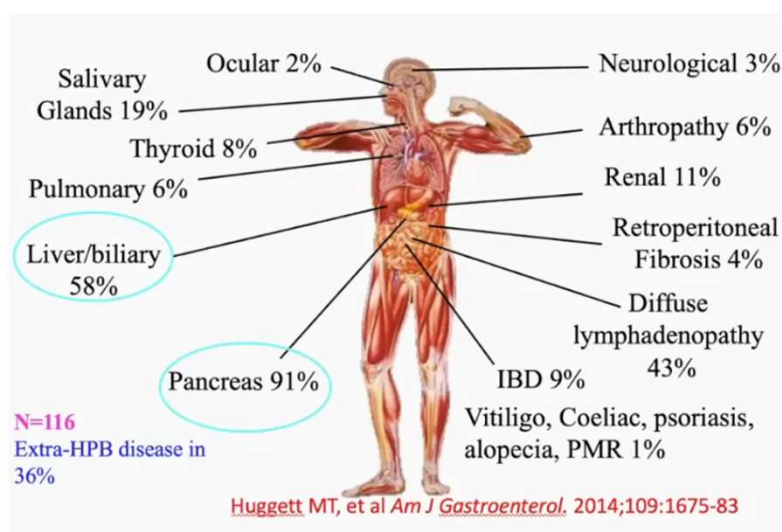
Marvin Daglish

- ▶ Dr Falk - GI & HPB webinars and guidelines [drfalk.co.uk](http://drfalk.co.uk)
- ▶ Autoimmune pancreatitis (AIP) and IgG4 definition & overview
- ▶ Current practice
- ▶ Imaging features
- ▶ Case

## Autoimmune Pancreatitis (AIP)

- ▶ Specific form of pancreatitis
- ▶ Rare! Other types of pancreatitis much more common
- ▶ Widely recognised in last 20-30 years
- ▶ IgG4 related disease (IgG4-RD) recognised in last 20 years
  - Manifestation in pancreas defined as **AIP type1**
- ▶ AIP type 2 (idiopathic) - different clinical & histological profiles

## IgG4-related disease (IgG4-RD)



## Autoimmune Pancreatitis (AIP)

- ▶ abdo pain, jaundice, weight loss, diarrhoea, diabetes
- ▶ “fibroinflammatory”
  - Mass-like
  - Stricture
  - Generalised lymphadenopathy
- ▶ AIP imaging overlap with different types and diseases (cancer)
  - Range of investigations required for diagnosis
  - Histology most important
- ▶ Good response to steroids (immunosuppression, biologics)
- ▶ High relapse rate - 30% at 3 yrs

## AIP types

	AIP type 1 (IgG4)	AIP type 2
Prevalence	Asia	USA/Europ
%	>90	>10
Gender	M>F (3:1)	M=F
Age	>50	30-50
Raised serum IgG4 %	>70	<10
Other organs	Biliary, retroperitoneum, renal, salivary, lung (20%)	No
Association IBD %	>10	>40
Recurrence	common	rare

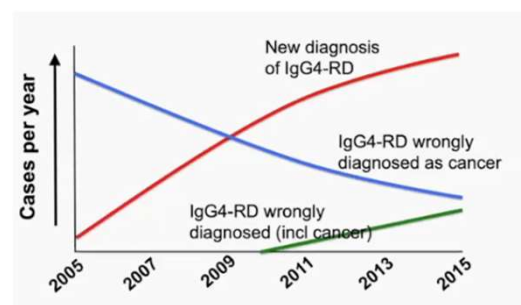
*Autoimmune pancreatitis - recent advances. CEJGH, June 2017*

## IgG4-related disease (RD)

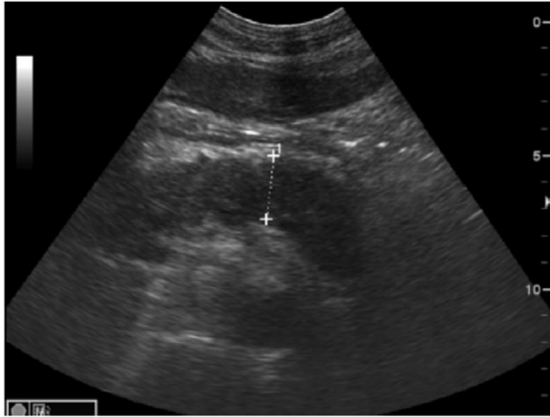
- ▶ Serum IgG4 widely available
- ▶ Normal in 25% of IgG4-RD!
- ▶ Alone can't differentiate with other diseases
- ▶ >4x normal is highly sensitive for IgG4 vs cancer or cholangitis
- ▶ Similarly Ca19-9 alone can't differentiate cancer vs. cholangitis & biliary obstruction
- ▶ IgG4 & Ca19-9 in combination helps
- ▶ Cancers develop in distant organs! Paraneoplastic?

## IgG4 MDT

- ▶ UCLH regional
- ▶ UK joint MDT (Oxford + UCLH) since 2016



### AIP imaging - parenchyma



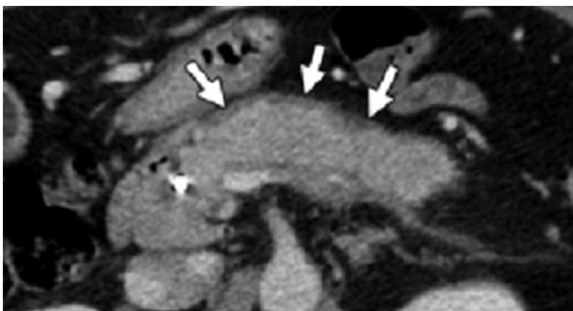
US hypoechoic pancreas

- ▶ Diffuse commonly or focal
- ▶ Smooth, sausage enlargement
- ▶ Tail retraction
- ▶ Reduced early enhancement
- ▶ Delayed homogenous enhancement
- ▶ Low density halo/capsule - delayed enhancement

Absence of:

- ▶ Widespread peripancreatic inflammation
- ▶ pseudocysts

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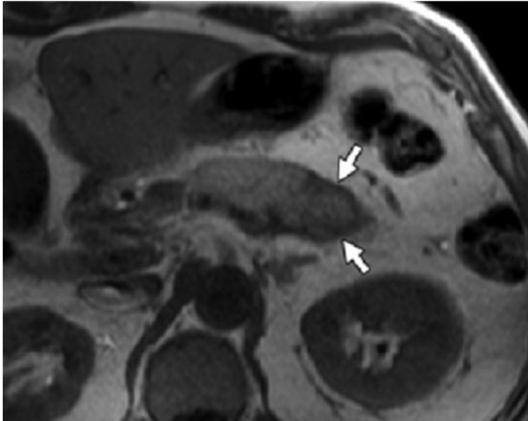
Absence of:

- ▶ Widespread peripancreatic inflammation
- ▶ pseudocysts

*IgG4-related disease from head to Toe.*  
A. Martinez-de-Alegria et al. Radiographics 2007

## AIP imaging - MRI

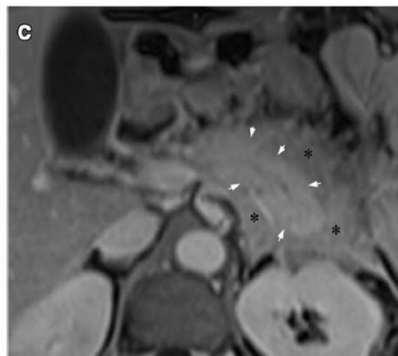
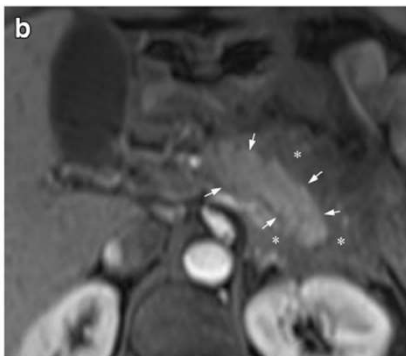
- ▶ Hypo T1 / hyper T2 parenchyma
- ▶ Hypo T1 & T2 capsule
- ▶ High DWI, low ADC lower than cancer



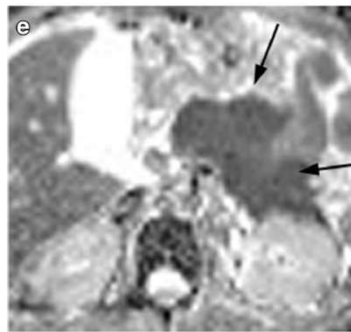
T1w hypointense halo



arterial T1w halo enhancement



Delayed capsule enhancement



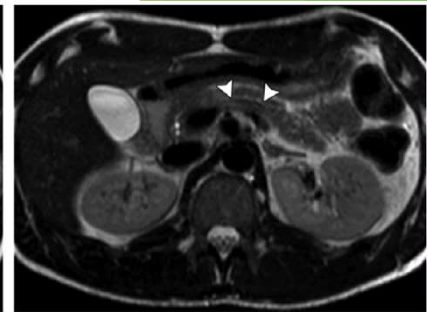
Pancreas and peripancreatic tissue restricted diffusion with low ADC

### AIP - pancreatic ducts

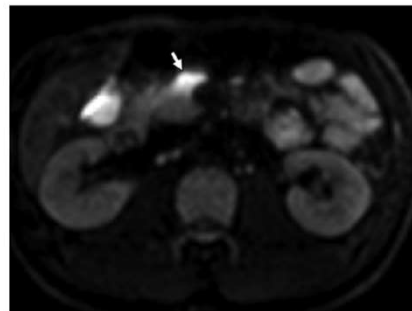
- ▶ Focal/diffuse
- ▶ Duct narrowing without or mild upstream dilatation
- ▶ Often longer segment
- ▶ Duct enhancement



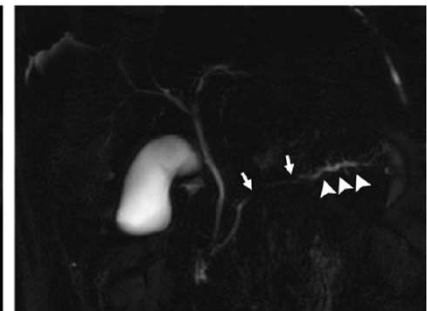
a.



b.



c.



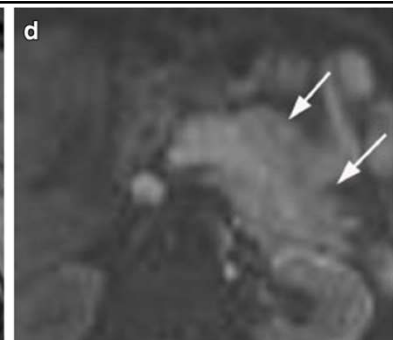
d.

### AIP imaging - FDG PET

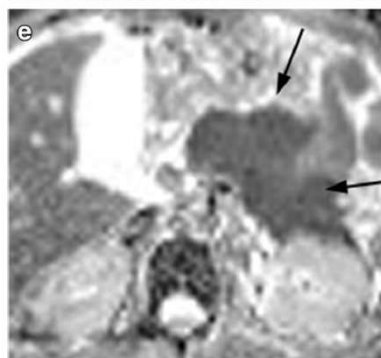
- ▶ Diffuse, heterogenous +
- ▶ Lower SUV vs cancer
- ▶ Extrapancreatic sites
- ▶ Not in other chronic pancreatitis



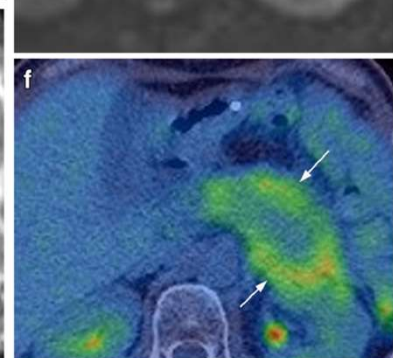
c.



d.



e.



f.



	AIP	Pancreatic cancer
CT	Peripancreatic hypoattenuating capsule ("halo") present No upstream duct dilatation Pancreatic duct wall enhancement sometimes present Persistent enhancement in delayed phases Homogenous enhancement pattern	Peripancreatic halo not present Abrupt upstream duct dilatation often seen $\pm$ distal pancreatic atrophy No pancreatic duct wall enhancement No delayed phase enhancement Ring-like enhancement pattern
MRI	Low T1/T2 signal peripancreatic capsule Duct narrowing occurs over a relatively long segment "Duct-penetrating sign" may be present Restricted diffusion with low ADC values	No peripancreatic capsule Duct narrowing occurs over a shorter segment "Duct-penetrating sign" does not occur Restricted diffusion, but ADC values are not as low as AIP
PET/CT	Heterogeneous and diffuse FDG uptake Increased FDG uptake at extrapancreatic sites of disease	Focal nodular FDG uptake No extrapancreatic FDG uptake (unless metastatic to nodes or distant organs)

*Abdominal manifestations of IgG4-related disease: a pictorial review*  
 C. Siew Wai Tang et al. Insights Imaging (2018)

## IgG4-related cholangitis

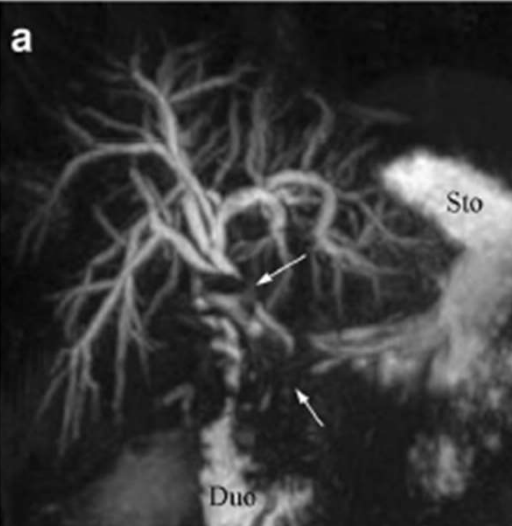
- ▶ Intra- and/or extra-hepatic
- ▶ Focal or diffuse & multifocal strictures + mild upstream dilatation
- ▶ Distal CBD most common - AIP
- ▶ Long + smooth like AIP
- ▶ Duct/periductal thickening - hepatic pseudotumours

### DDx:

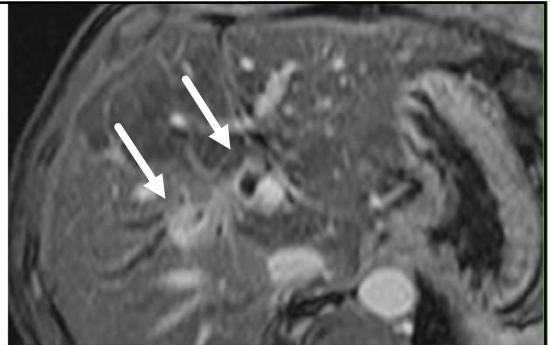
- ▶ PSC - younger, short strictures & beaded, no steroid response
- ▶ Cholangiocarcinoma difficult to differentiate



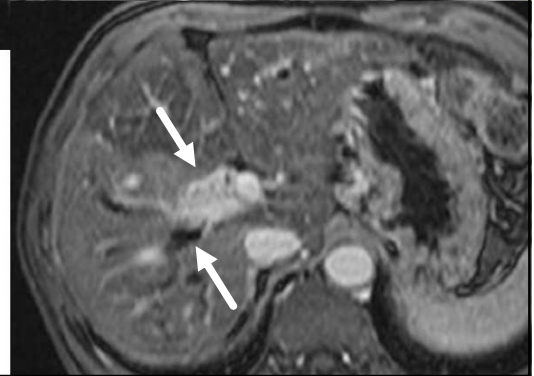
### IgG4-cholangitis



Left:  
Hilar and distal  
strictures



Right:  
Mass-like ductal thickening +  
upstream dilatation

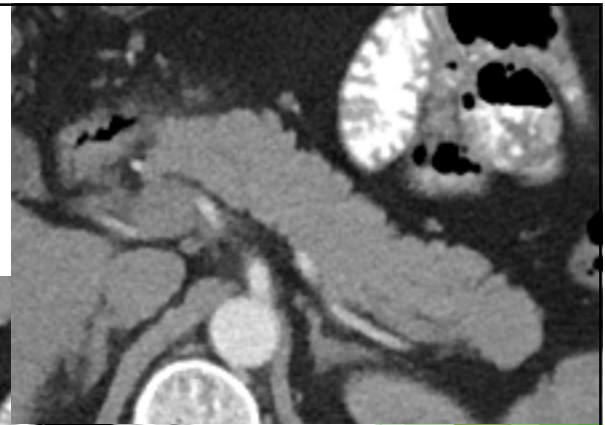
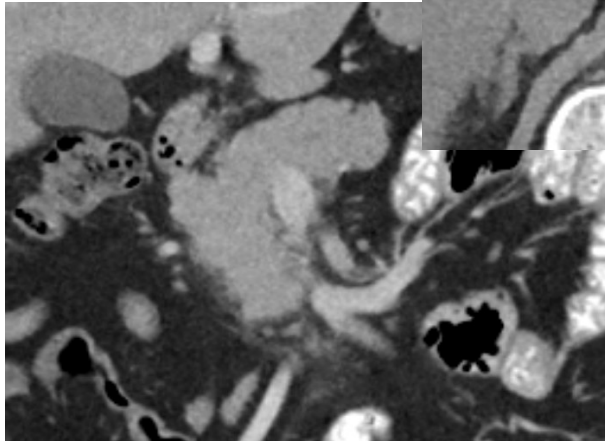


### Case

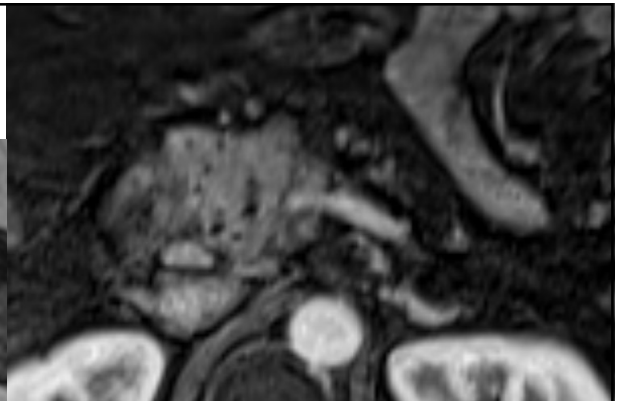
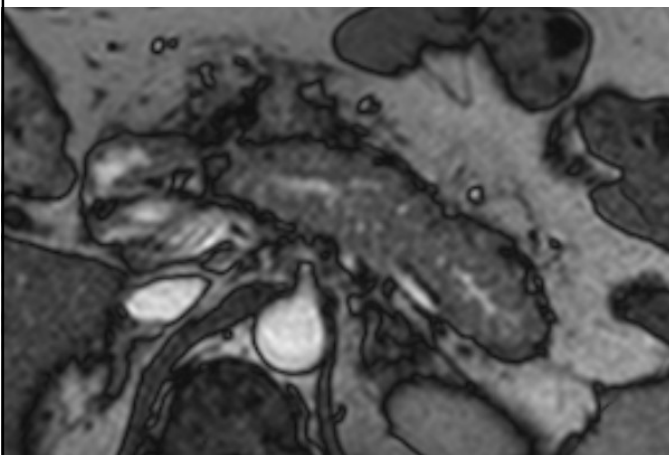
- ▶ 37 M Asian
- ▶ Abdo pain
- ▶ Raised lipase
- ▶ Pancreatitis?

## Case

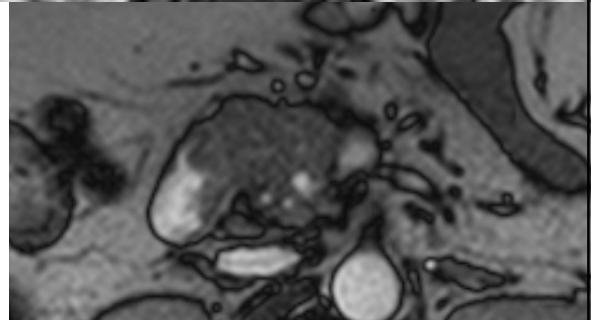
- ▶ 37 M
- ▶ Abdo pain
- ▶ Raised lipase
- ▶ Pancreatitis?

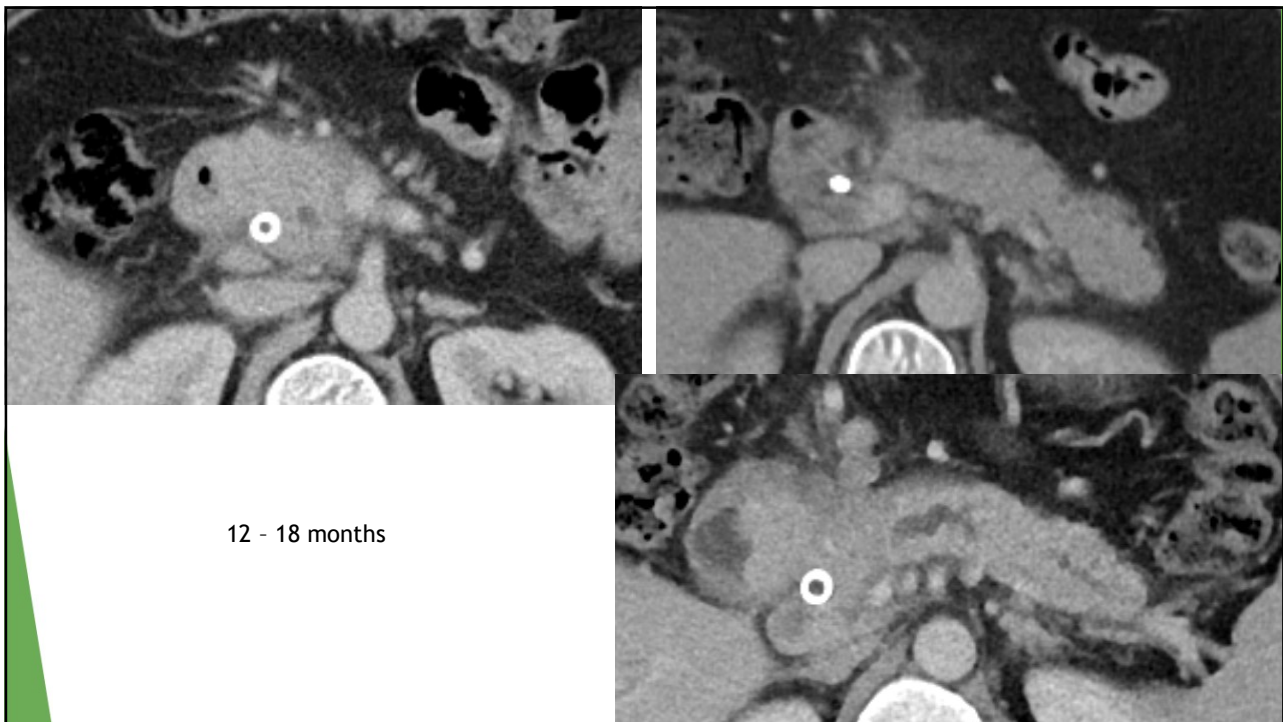


T1w FS late arterial



T2w

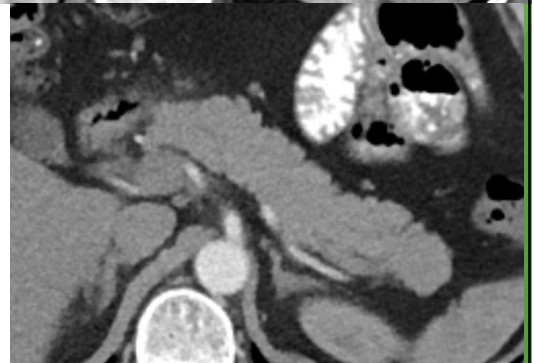
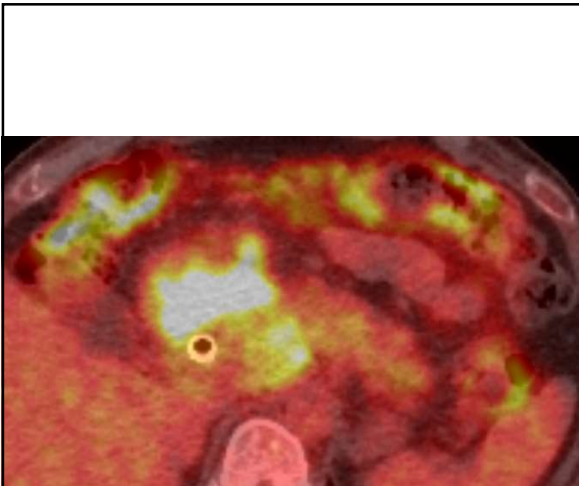




- Recurrent abdo pain 18-24 months
- Diffuse mild parenchymal inflammation
- More focal change in head
- PD normal initially
- Distal CBD stricture
- EUS + FNA inconclusive (no malignant cells or atypia)
- No response to steroids
- No other sites of disease
- ?



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- ?
  
- Normal serum IgG4 + Ca19-9
- Repeat EUS/ERCP with FNB
- FDG PET



## AIP vs cancer

- ▶ Cancer more likely
- ▶ AIP? Features & associations vs cancer
- ▶ Extra-pancreatic disease
- ▶ Raised IgG4 & Ca19-9 can be misleading
- ▶ Good histology needed
- ▶ Assess several investigations - demand on imaging