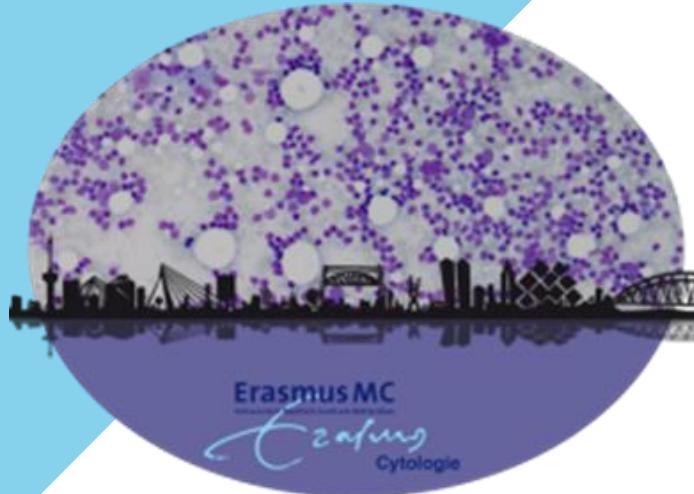


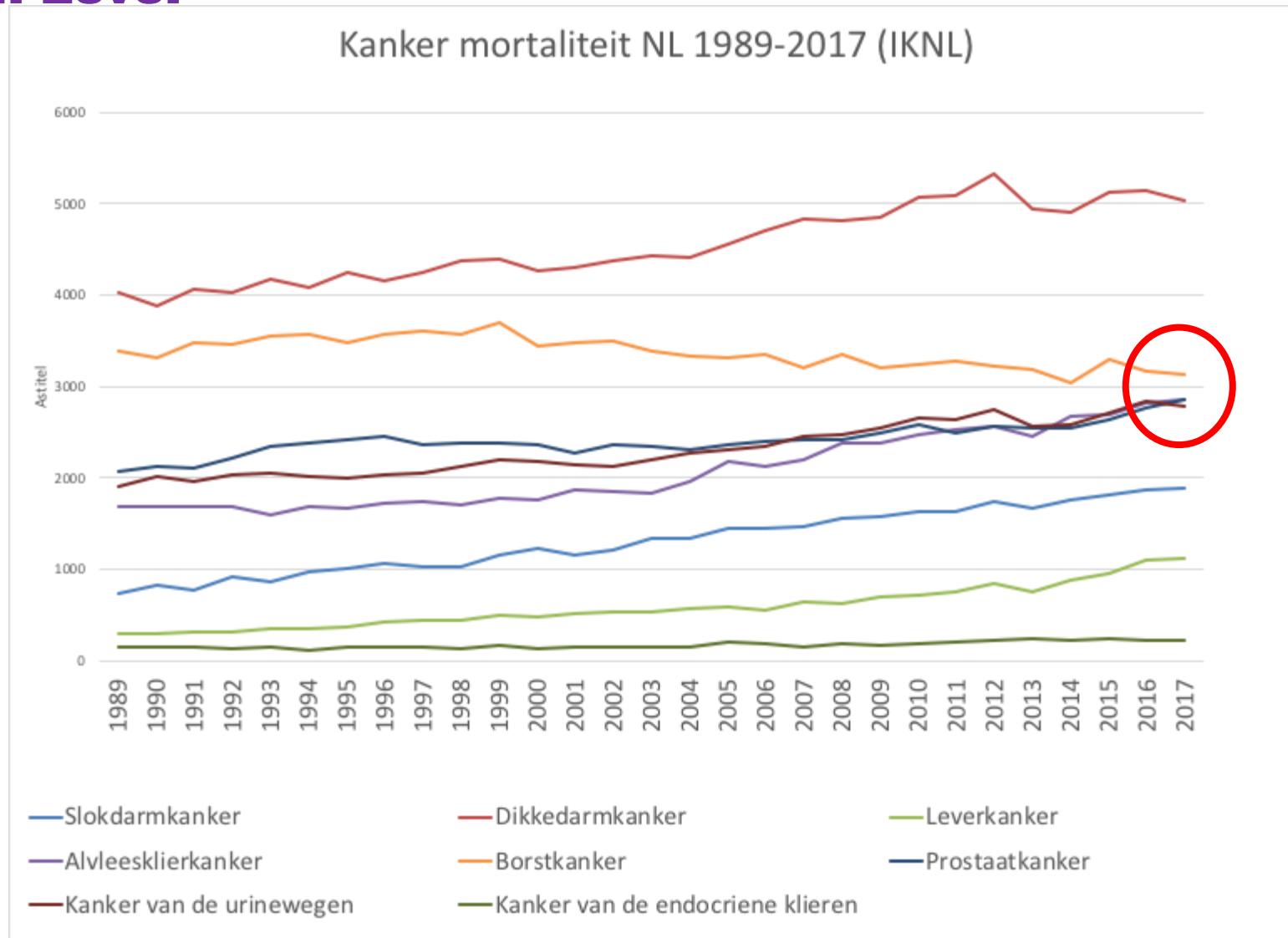
# PANCREAS FNA AND FNB

Brussel 14 mei 2022  
Loes van Velthuysen



# Mortaliteit Mamma, Prostaat, Blaas en Pancreas rond 3000/jaar

## Stijging mortaliteit met name Pancreas, Blaas, slokdarm en Lever



# More deaths from pancreatic cancer than breast cancer in the EU by 2017

J. Ferlay, C. Partensky & F. Bray

**Table 2.** Recorded (2010) and projected number of cancer deaths in the 28 EU countries (both males and females).

Country	2010		2025		Year when pancreas > breast
	Pancreas	Breast	Pancreas	Breast	
Austria	1490	1510	2110	1370	2012
Belgium	1600	2370	2100	2480	–
Bulgaria	1000	1130	1300	810	2014
Croatia	670	1000	1060	1430	–
Cyprus	60	100	130	150	–
Czech Republic	1880	1680	2250	930	<2010
Denmark	890	1220	1430	1060	2017
Estonia	220	230	360	200	2014
Finland	1000	890	1430	950	<2010
France	9250	11 980	14 230	12 310	2020
Germany	15 490	17 570	22 400	17 240	2014
Greece	1460	2070	2260	2620	–
Hungary	1850	2040	2580	1550	2013
Ireland	480	640	950	630	2017
Italy	10 510	12 240	13 910	12 970	2021
Latvia	380	430	480	420	2019
Lithuania	450	580	590	830	–
Luxembourg	60	90	100	120	–
Malta	70	80	110	120	–
The Netherlands	2480	3250	4220	2750	2016
Poland	4530	5290	6370	5260	2017
Portugal	1250	1680	2490	1890	2022
Romania	2640	3210	3860	3460	2020
Slovakia	740	800	1310	1000	2014
Slovenia	360	420	830	500	2015
Spain	5720	6370	9120	6760	2015
Sweden	1550	1400	1940	1070	<2010
United Kingdom	7920	11 650	11 520	8960	2020
EU	76 000	91 920	111 440	89 840	2017

# **PDAC VAAK NEOADJUVANT BEHANDELD**

- Diagnose voorafgaand aan start behandeling is hierdoor essentieel geworden

# OUTLINE

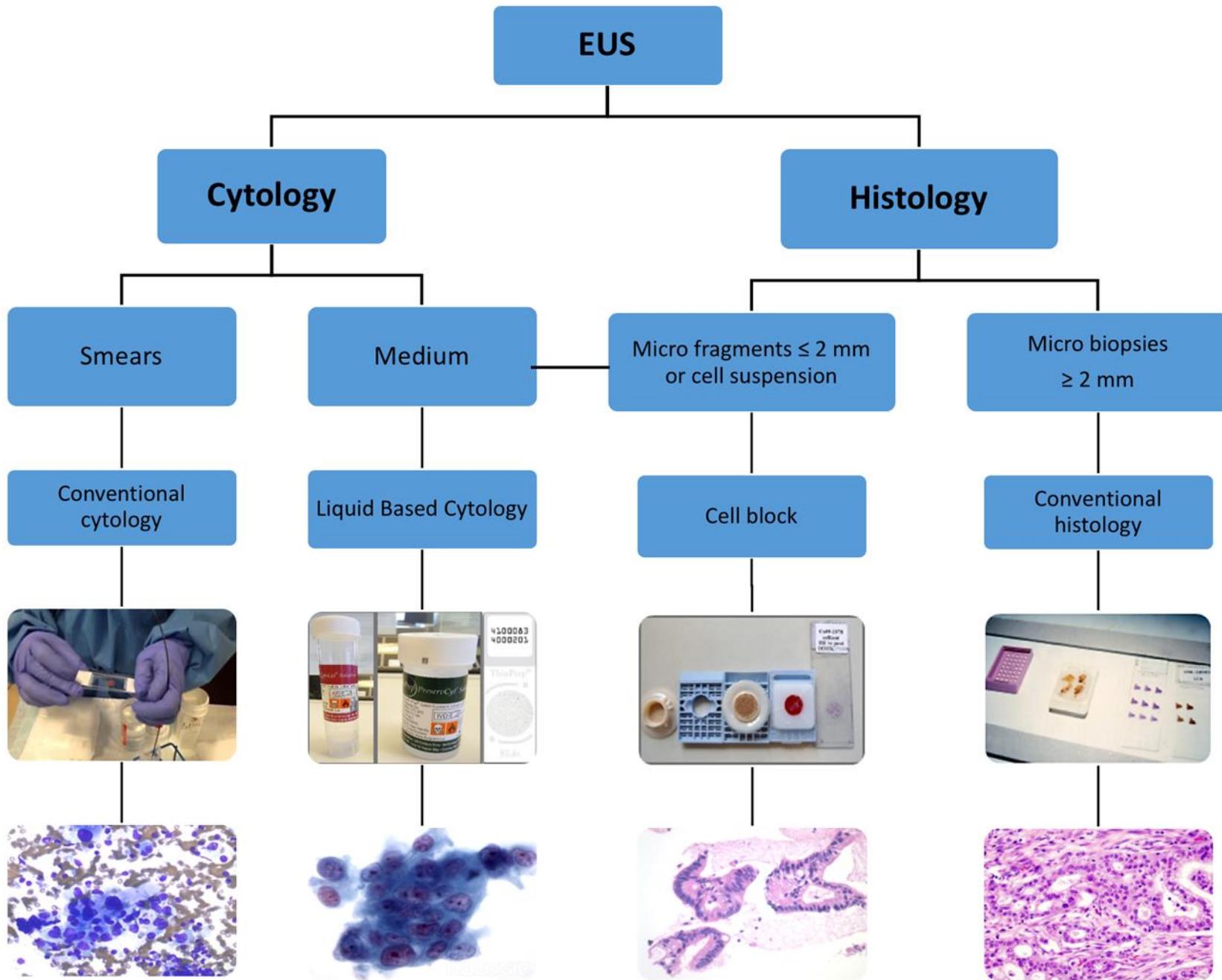
- Material procurement
- Material processing
- Material interpretation

# MATERIAL PROCUREMENT

- Endoscopy
  - Complicated working procedure
  - Burdensome for patient
- Approach dependent of tumor location
  - head (corpus): via duodenum
  - tail/ corpus: via stomach
    - consequences for composition and contaminating component
- Needle type(FNA en FNB or Brush)
  - consequences for processing

# MATERIAL PROCESSING

- Smear
- ROSE
- Thin layer
- Cel blok
- Conventional parafine block



# MATERIAL PROCESSING

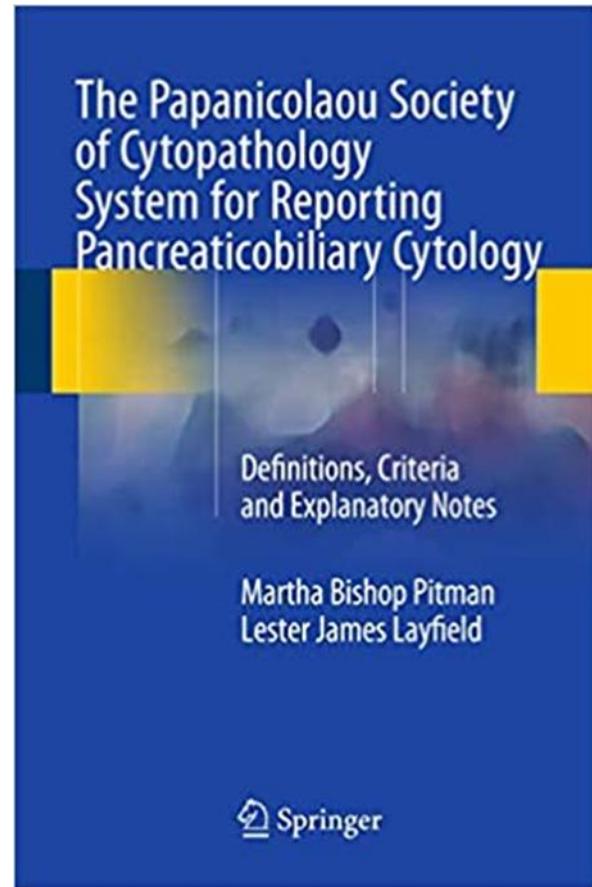
- Thicker needle more often microbiopsies
- Microbiopsies are inadequate for smears
- ROSE only possible on smears

# PROCESSING CYSTIC FLUID

- Cystevloeistof
  - NOT in medium
  - NO smear
- Celmateriaal
  - Cytologie
  - Moleculaire diagnostiek (eventueel)
- Supernatant (vloeistof na afdraaien cellen)
  - Klinische chemie
  - Eventueel Moleculaire diagnostiek

# INTERPRETATION

# WHICH DIAGNOSIS?

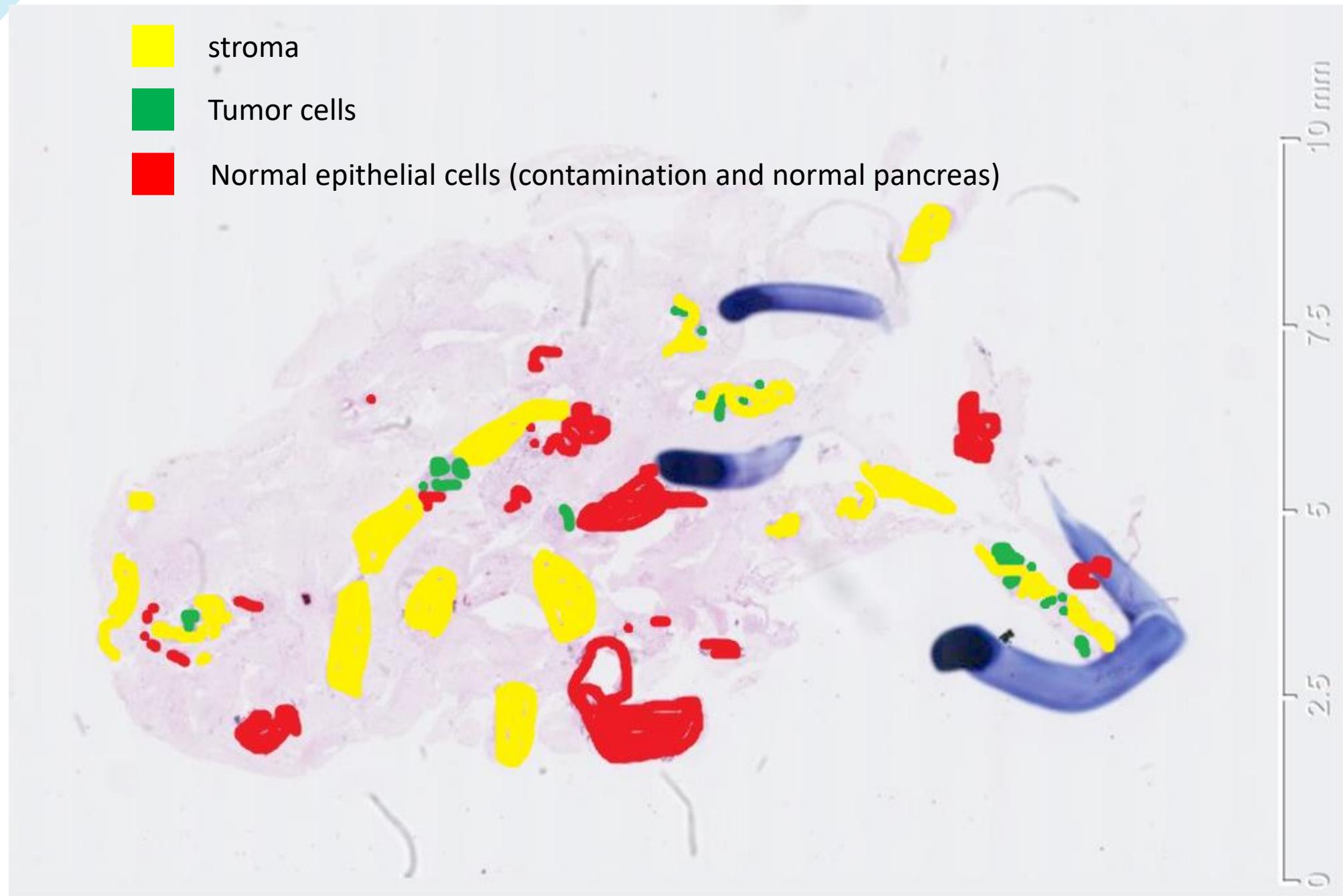


- I Non-diagnostic
- II Negative (for malignancy)
- III Atypical
- IV Neoplastic: Benign
- V Suspicious (for malignancy)
- VI Positive/malignant

# WELKE KLINISCHE CONTEXT?

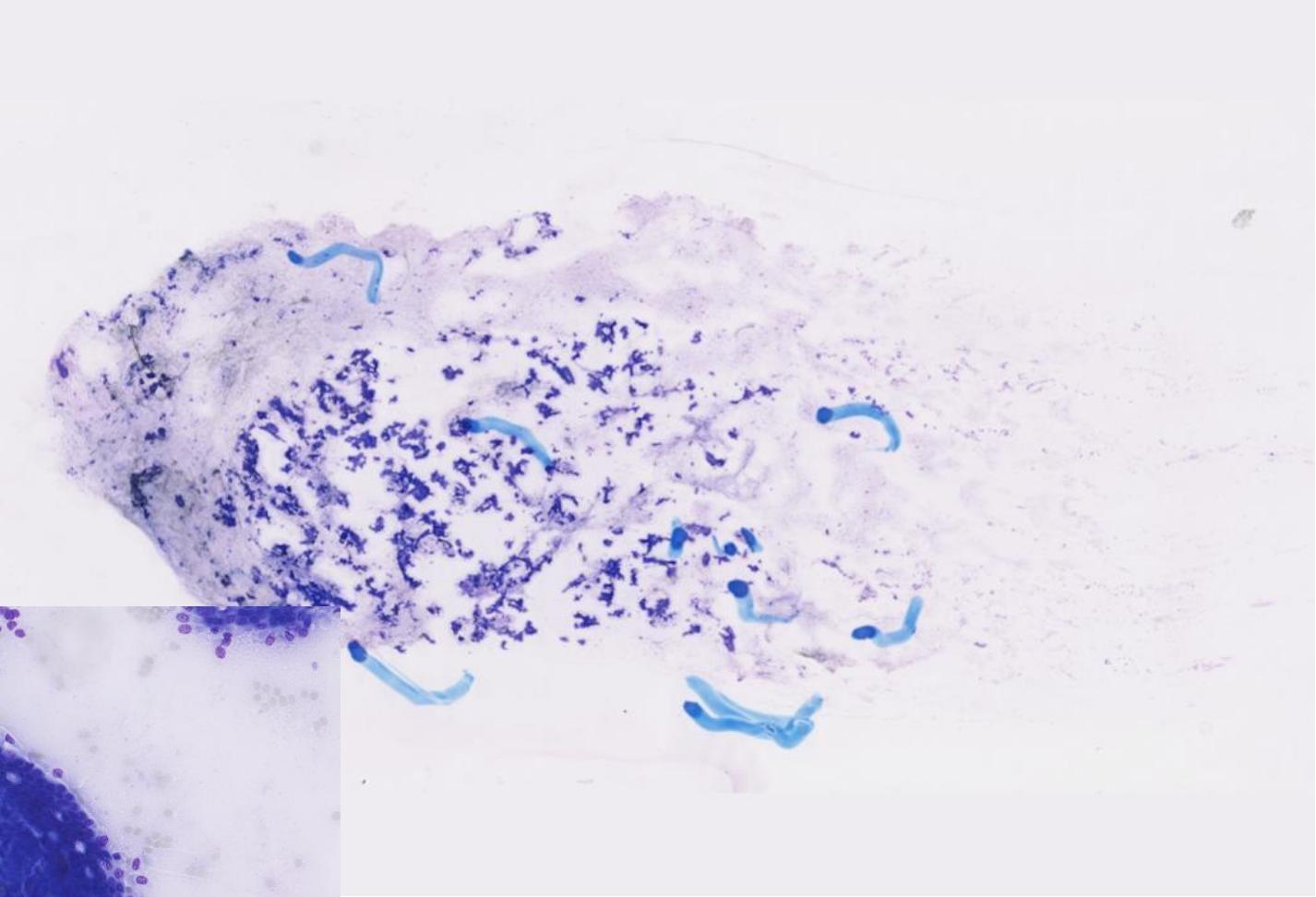
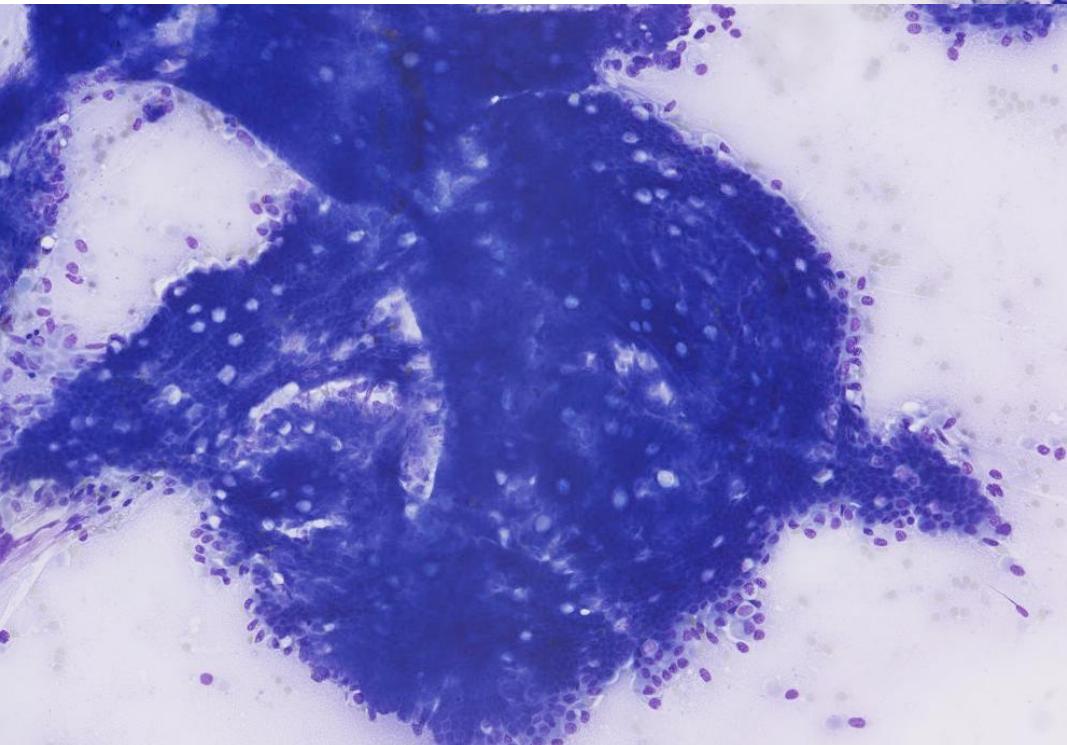
- Cysteus vs solide
- Waar gelocaliseerd in pancreas
- Leeftijd, geslacht
- Stent aanwezig?
- Mate van klinische verdenking op maligniteit

# INTERPRETATION



# CASE 1

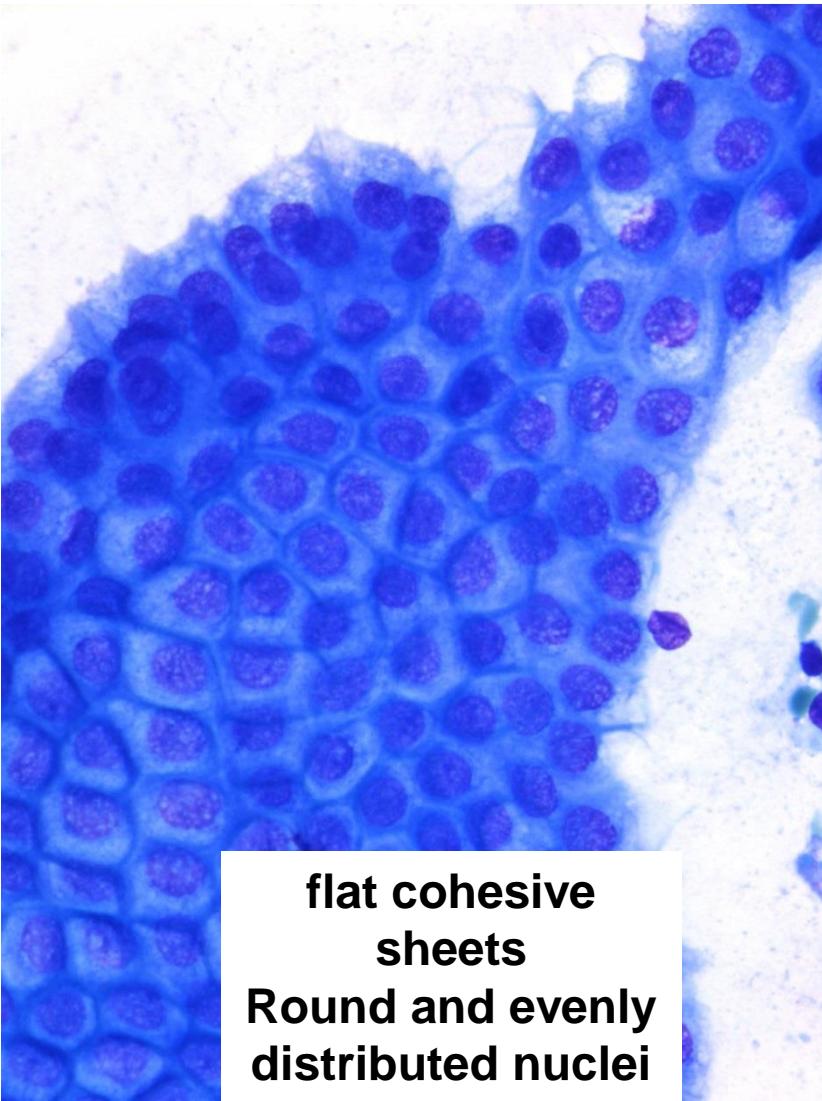
- Male 67 years
- Solid mass pancreas head diameter 1cm
- FNA



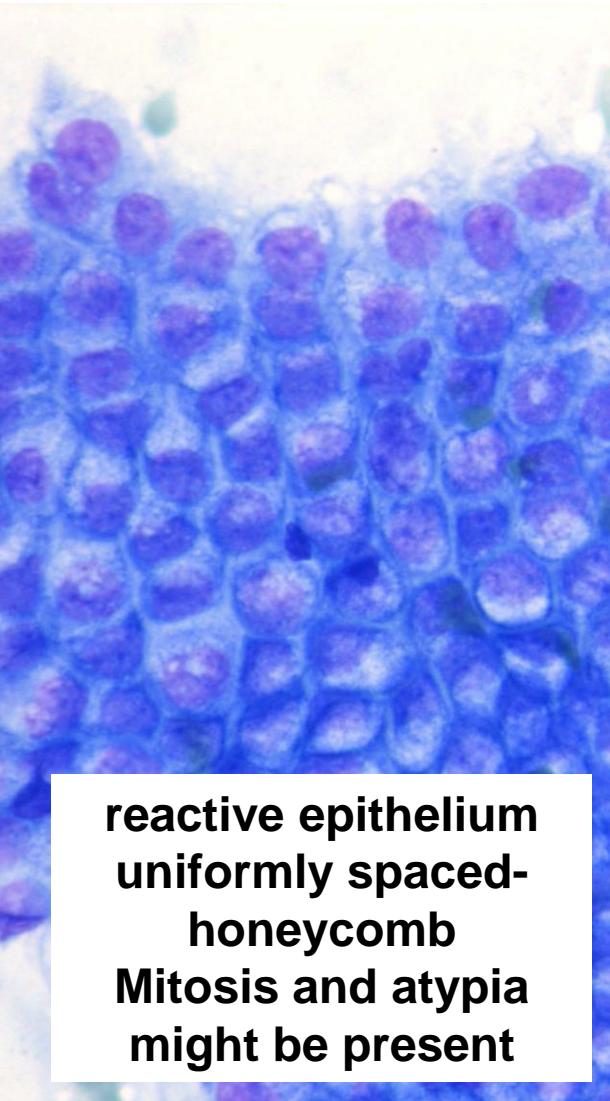
# DIAGNOSIS?

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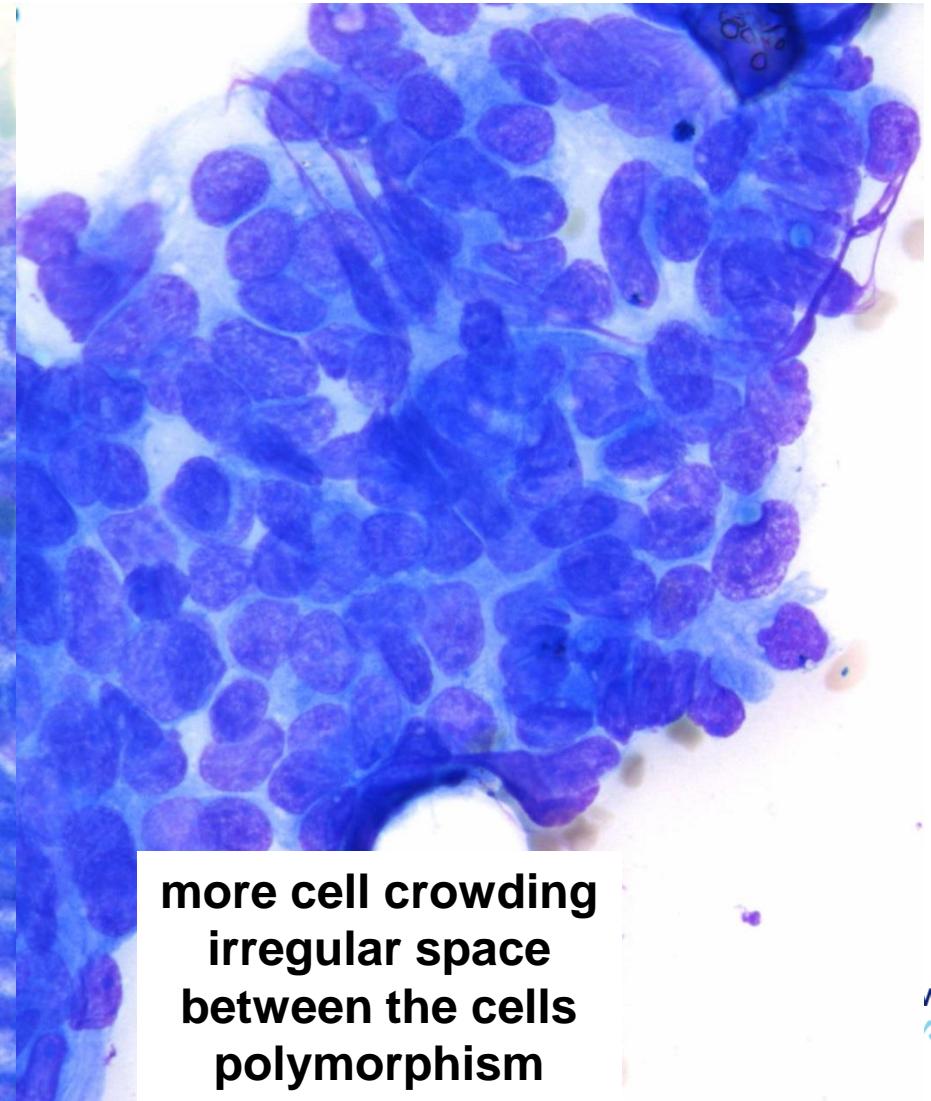
# Normal???Adenocarcinoma????



**flat cohesive  
sheets**  
**Round and evenly  
distributed nuclei**



**reactive epithelium  
uniformly spaced-  
honeycomb**  
**Mitosis and atypia  
might be present**



**more cell crowding  
irregular space  
between the cells  
polymorphism**

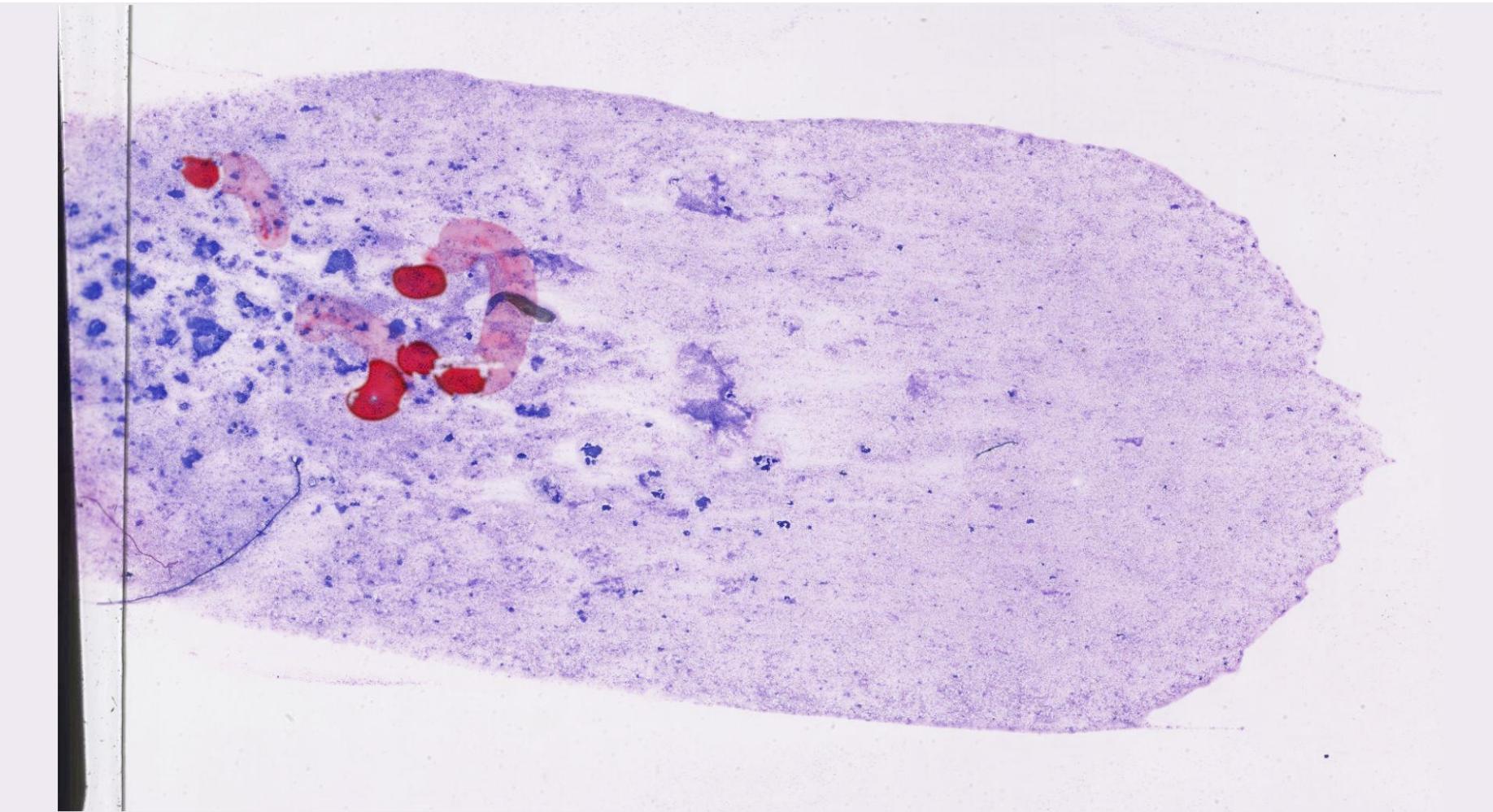
# CASE 2

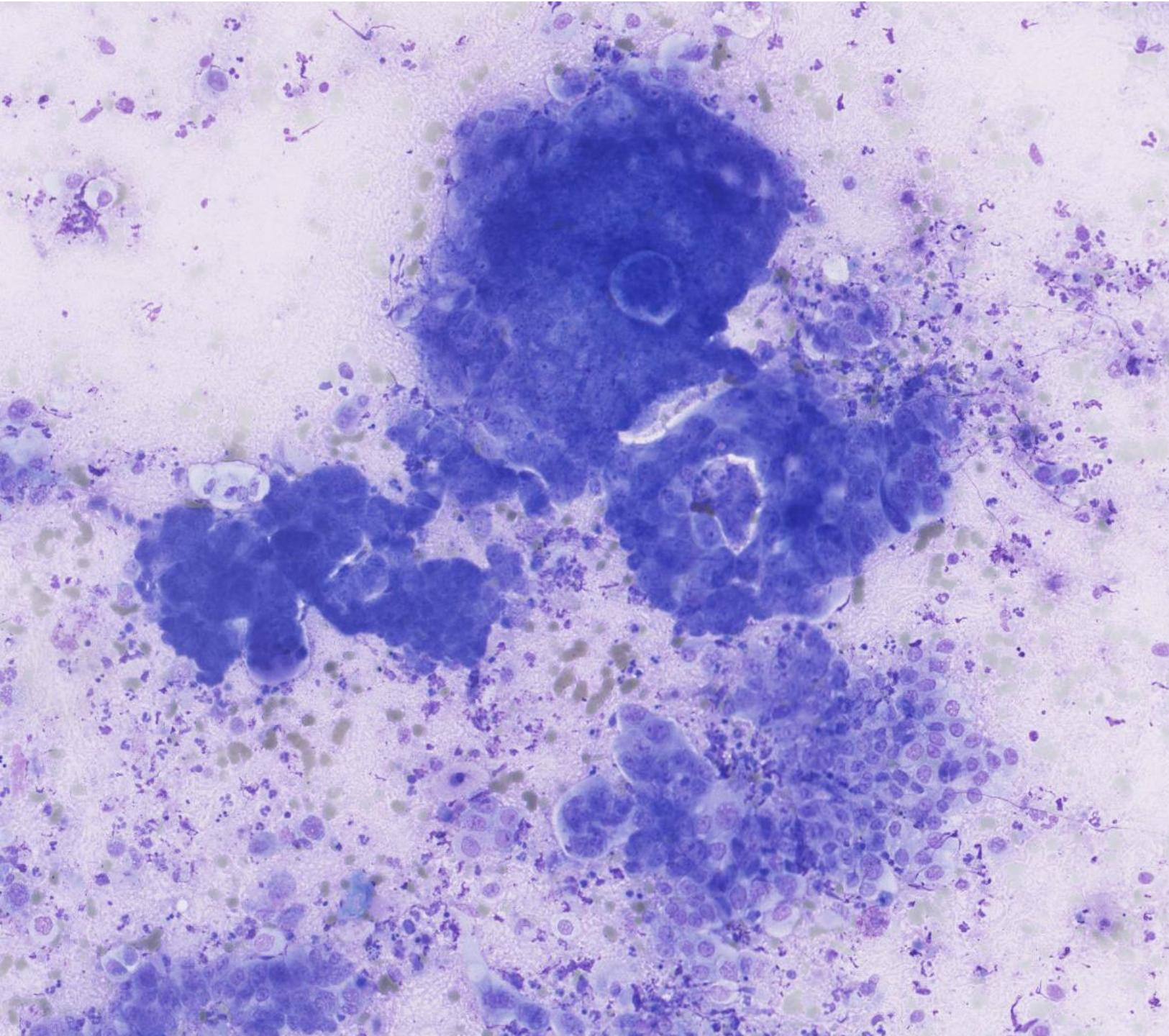
Female 56 years

Conclusie EUS:

Geobstreeerde CBD met stent in situ,  
geen duidelijk massa gezien bij EUS,  
FNA van gebied rondom stent

# CASE 2





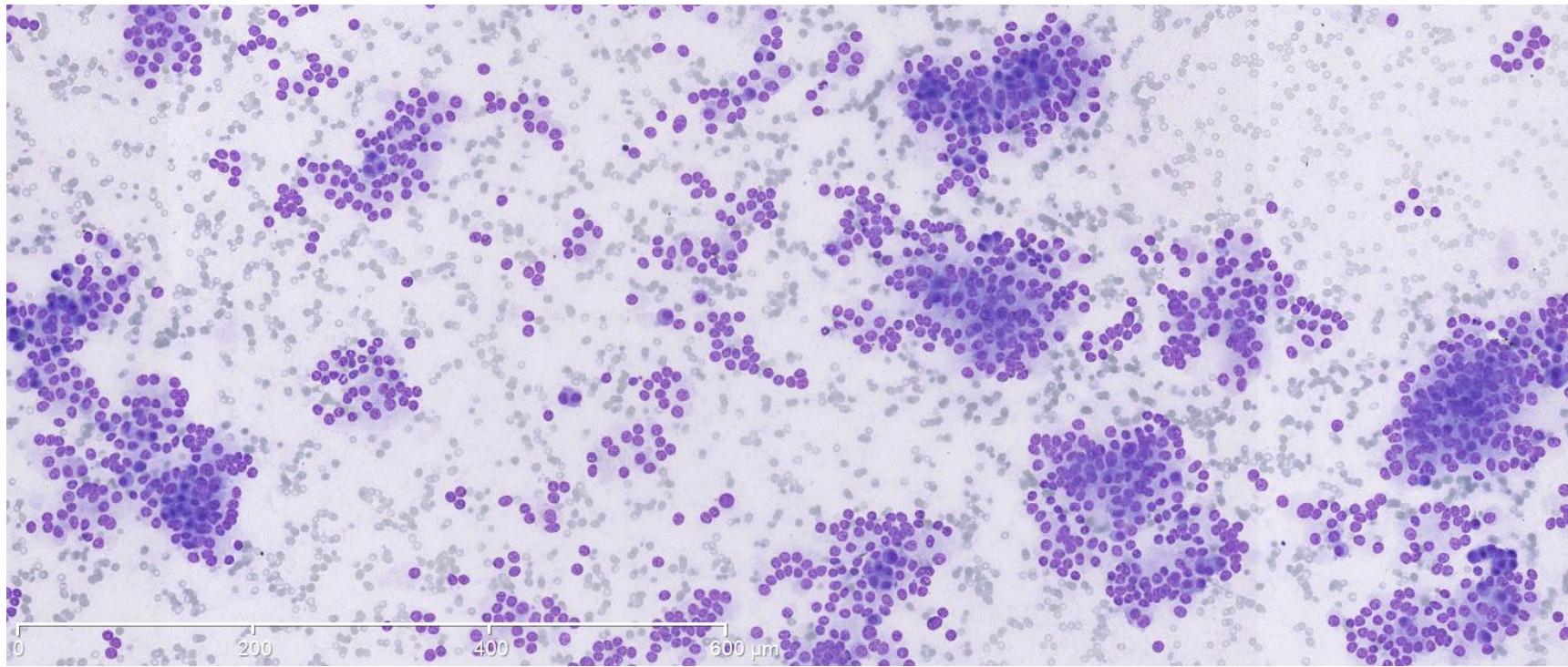
# DIAGNOSIS?

- I Non-diagnostic
- II Negative (for malignancy)
- III Atypical
- IV Neoplastic: Benign
- V Suspicious (for malignancy)
- VI Positive/malignant

# CASUS 3

- Vrouw geboren 1937
- Cysteuze laesie corpus pancreas met solide component
- (Pre) maligne afwijkingen? Mucineuze tumor?

# CASUS 3



# DIAGNOSIS?

- I Non-diagnostic
- II Negative (for malignancy)
- III Atypical
- IV Neoplastic: Benign
- V Suspicious (for malignancy)
- VI Positive/malignant

# DIAGNOSE CASUS 3

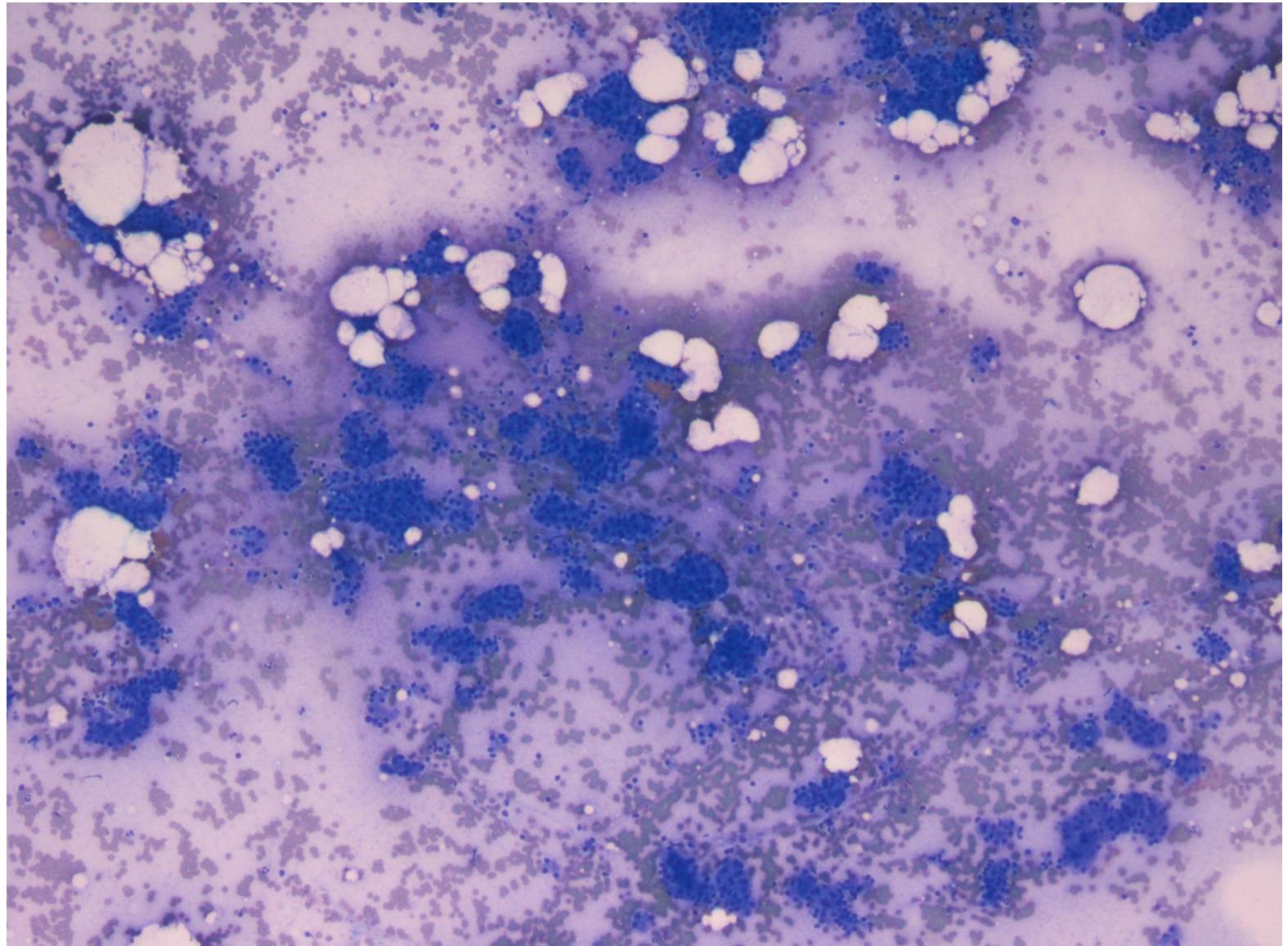
- C (cytologie):
  - zeer celrijk beeld, met sterke verdenking op NET. Kan dit kloppen met het klinisch beeld. Geen cystebeeld in dit materiaal.
- H (resectie):
  - goed gedifferentieerde NET (graad 1), max. diam. 3.5cm. Resectievakken tumorvrij.

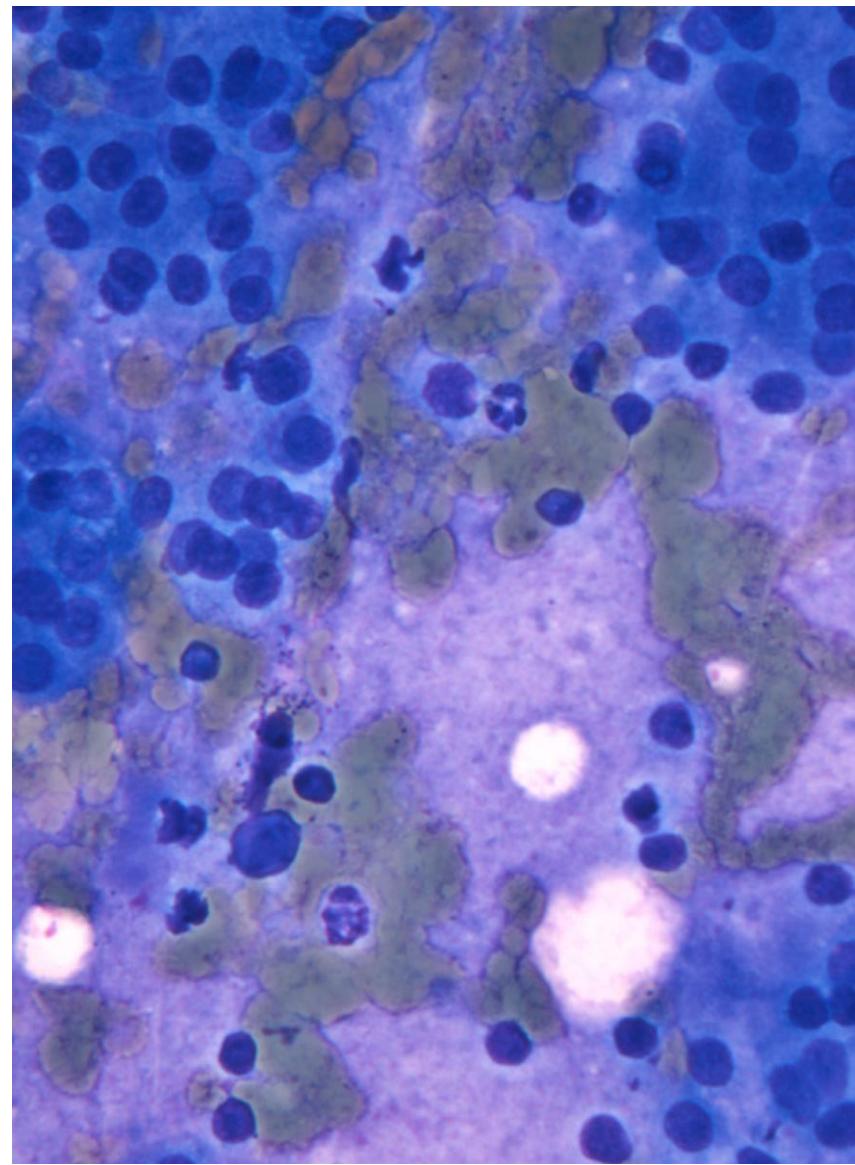
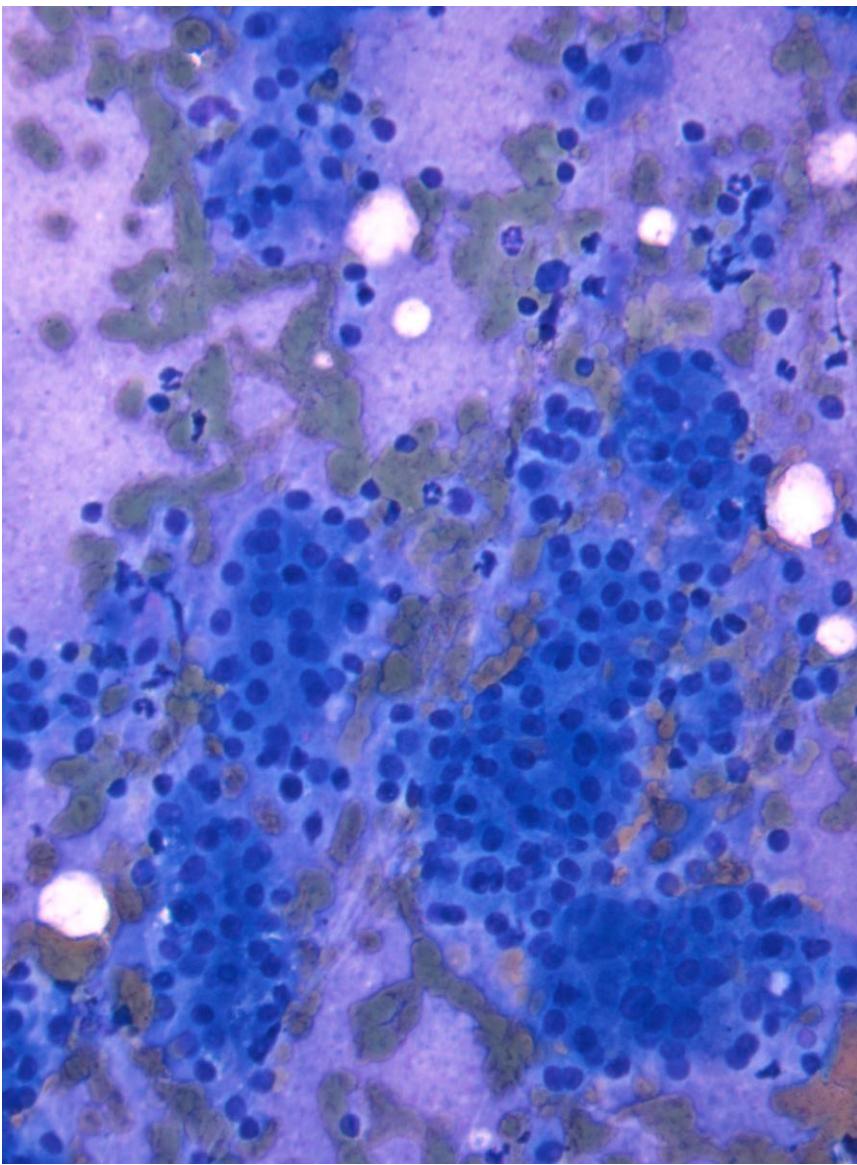
# **Cytology report cystic neoplasm**

- Interpretation may be very difficult
- 1) Serous or mucinous background?  
Pseudocyst?
- 2) Malignant/dysplastic cells present?
  - Beware atypia due to inflammation
- Clinical correlation!

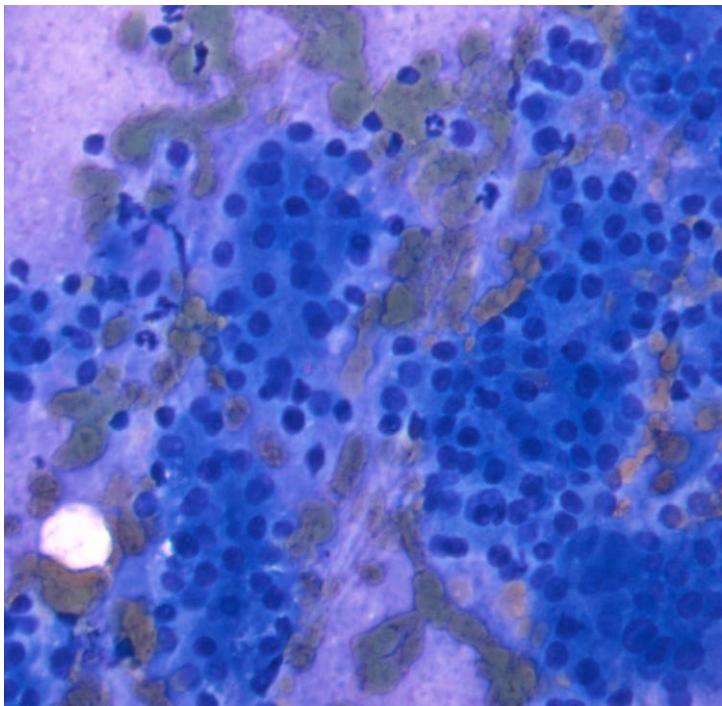
# CASUS 5

- Man 70 jaar;
- punctie grillige solide laesie pancreas kop

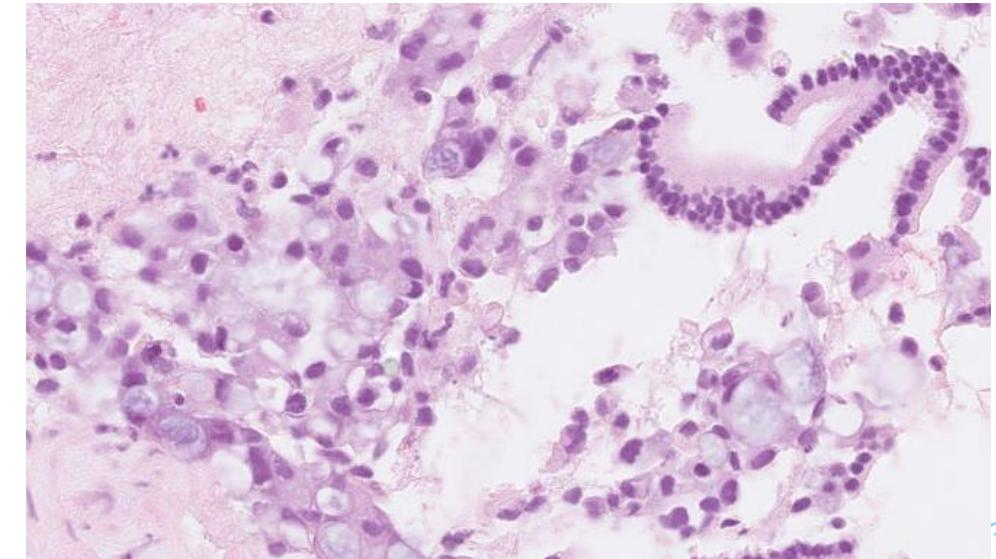




# UITEINDELIJKE DIAGNOSE

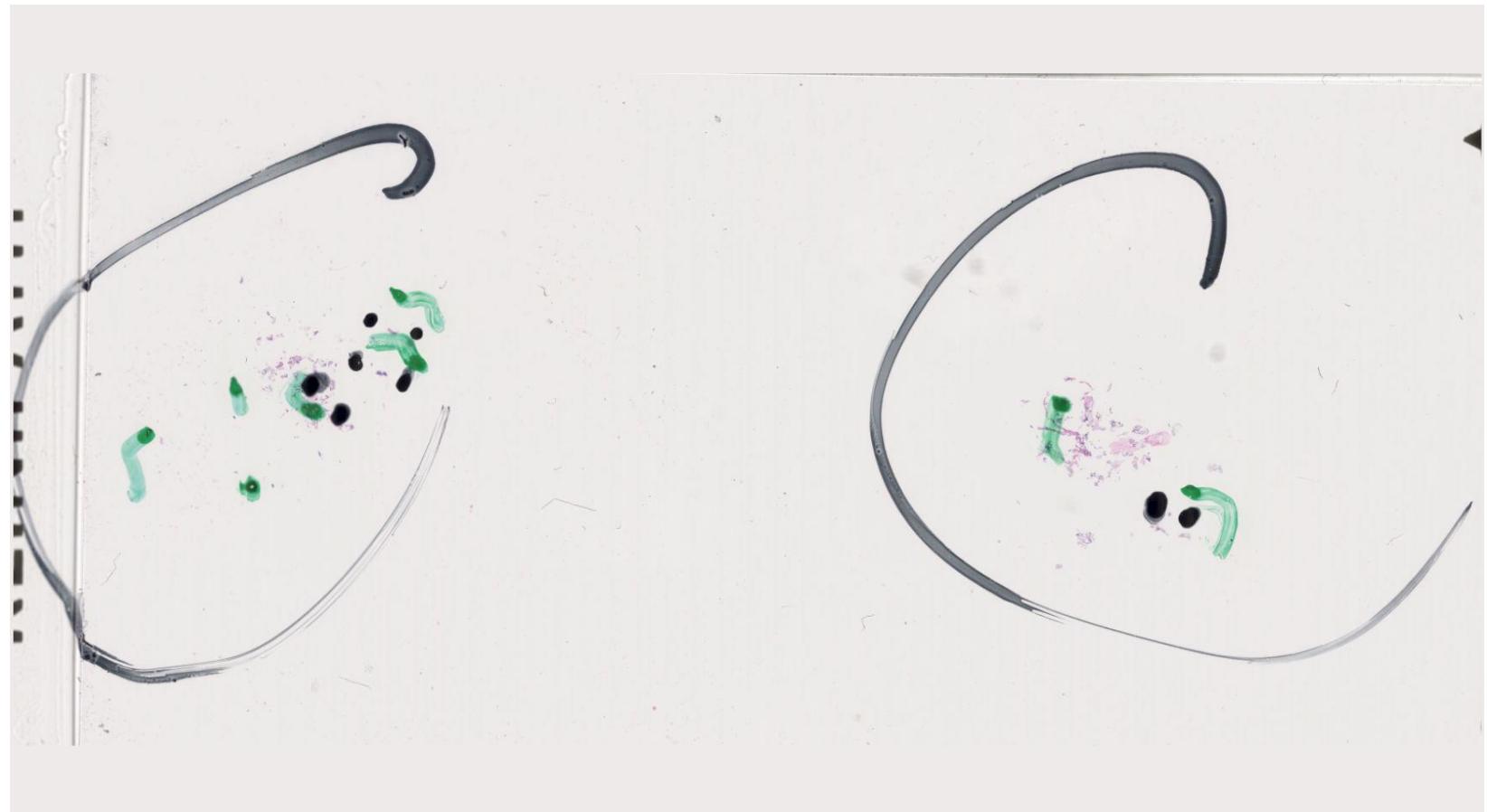


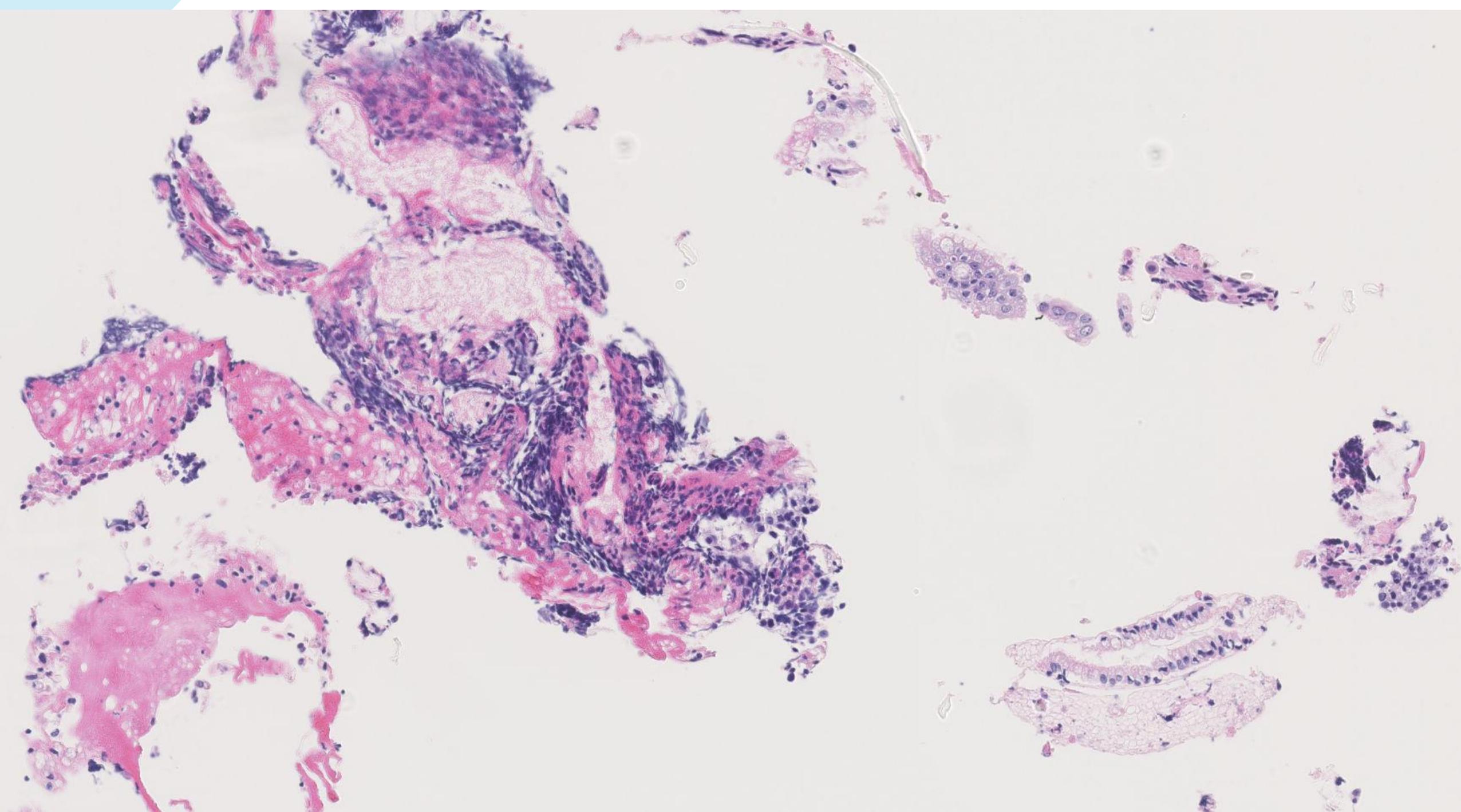
- Gemetastaseerd zegelringcel carcinoom
- Oorspronkelijke punctie niet representatief
- Normaal acinair pancreas



# CASUS 6

- Man 63 jaar. Stenose ductus choledochus,
- brush





# DIAGNOSIS?

- I Non-diagnostic
- II Negative (for malignancy)
- III Atypical
- IV Neoplastic: Benign
- V Suspicious (for malignancy)
- VI Positive/malignant

# ONZE DIAGNOSE

- Atypie, B3.
- NGS analyse aangevraagd

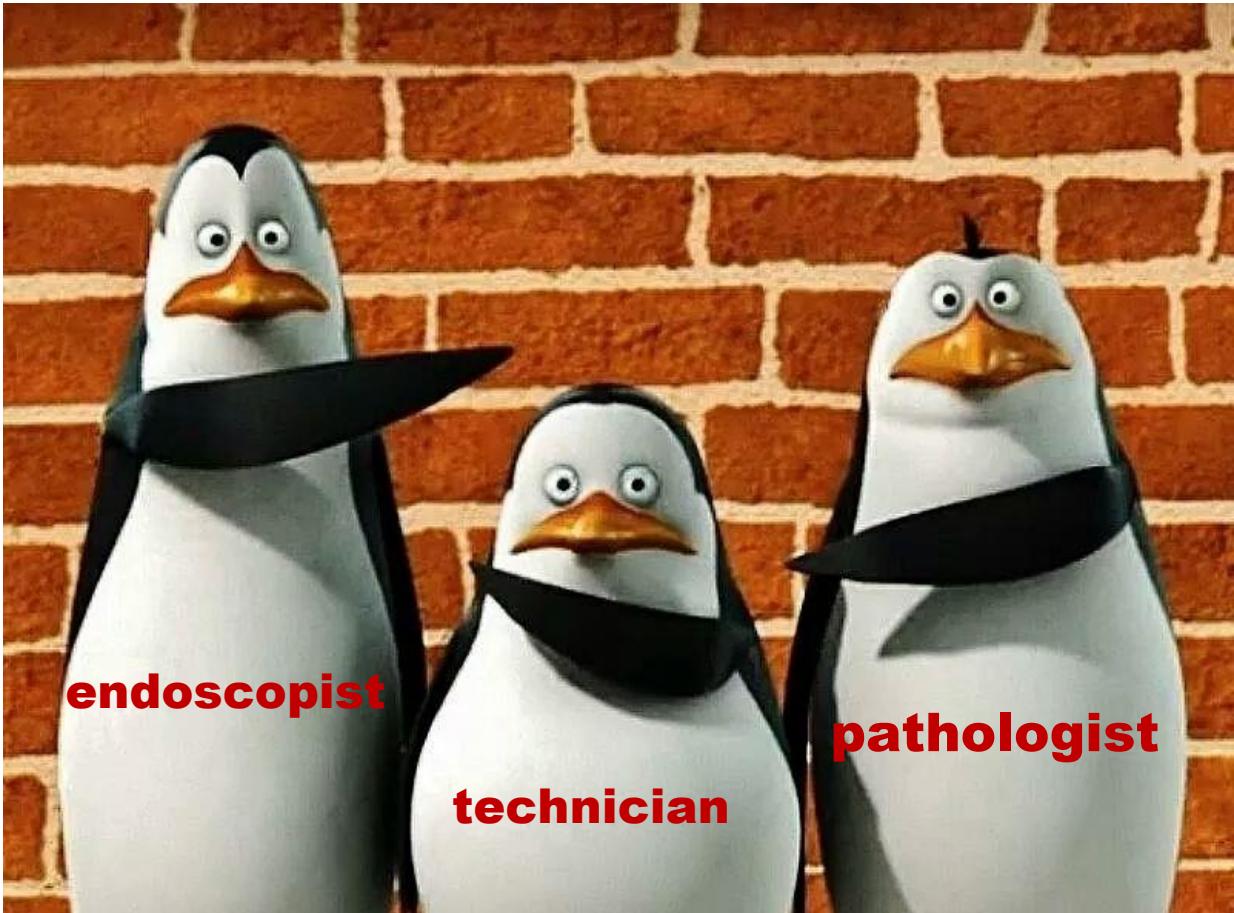
# RESULTAAT NGS ANALYSE

- Weefsel: galgang
- Uitgangsmateriaal: haematoxyline-gekleurde coupes van FFPE weefsel
- Percentage neoplastische cellen, op aangeven patholoog/AIOS : <10%
- Varianten gedetecteerd:
- Mutatie in TP53 (NM\_000546) exon 8: c.818G>A; p.R273H, variant allel frequentie: 72%

# WHAT ARE THE PITFALLS?

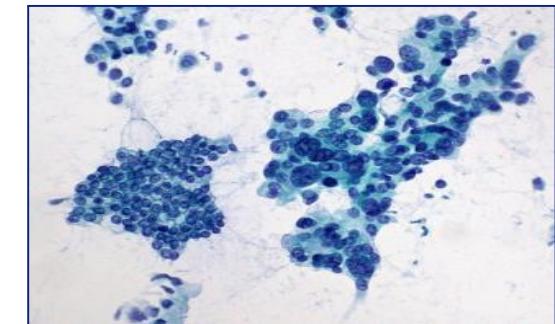
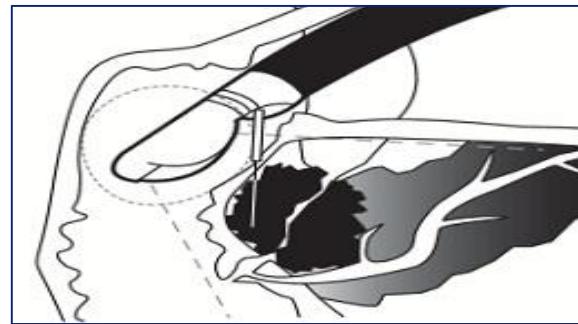
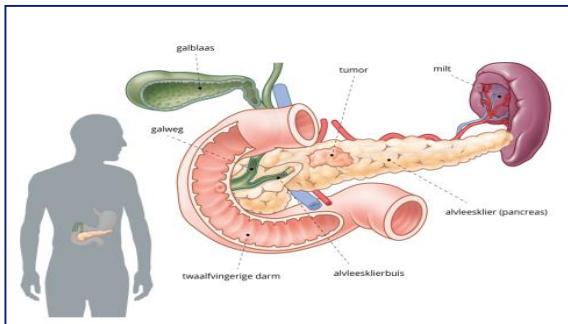
1. Contamination
2. Artefacts
3. Few tumor cells
4. Well differentiated tumors
5. Changes due to inflammation

# SUMMARY



- Material procurement
  - Location
  - Needle
- Material processing
  - Smear
  - Block
- Material interpretation
  - PAP classification
  - Pitfalls
  - Addition techniques
    - Immunohistochemistry
    - Molecular analysis

# THE CHAIN



(cyto)pathologen

endoscopieverpleegkundigen

MDL-artsen

cytologie-laboranten



