

Pancreatic Cytopathology

Cystic Lesions

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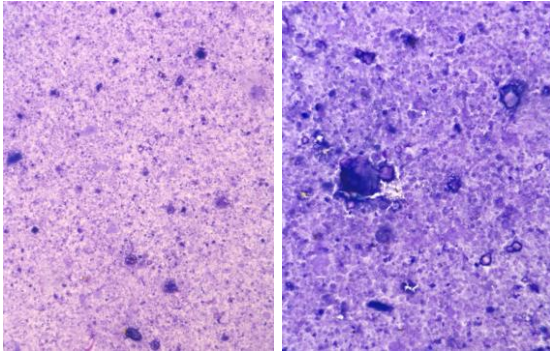
Cystic Lesions Of The Pancreas

[Practical Issues]

- Morphologic Interpretation
- Radiologic Imaging Findings
- Cyst Fluid analysis
 - CEA, Amylase, CA 19-9, kras
- Terminology

Cystic Lesions of the Pancreas

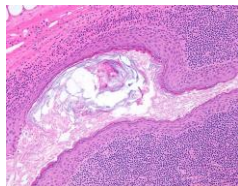
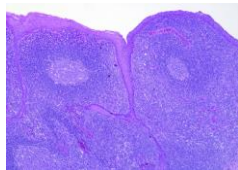
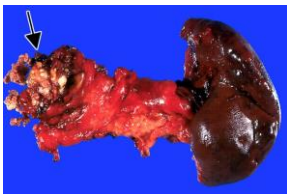
- Non-neoplastic
 - Pseudocyst
 - Lymphoepithelial Cyst
- Neoplastic
 - Serous Cystic Neoplasm
 - Mucinous Cystic Neoplasm (MCN)
 - Intraductal Papillary Mucinous Neoplasm (IPMN)
 - Solid-pseudopapillary Neoplasm

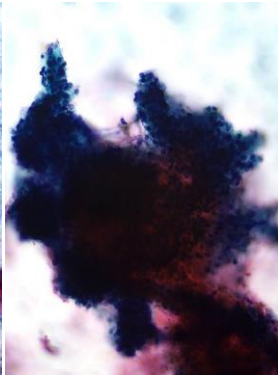
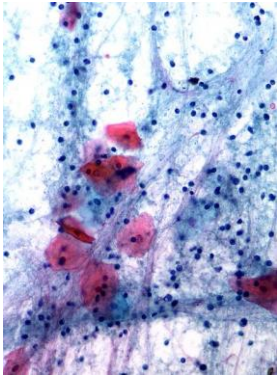


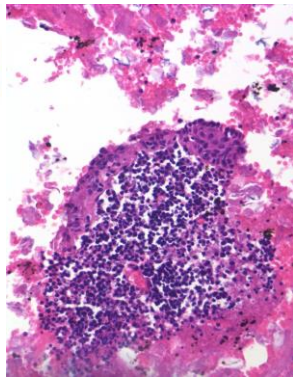
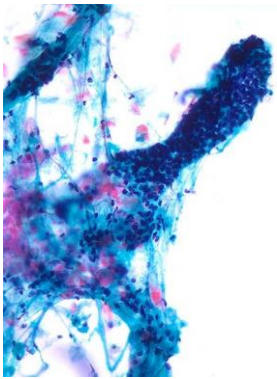
Lymphoepithelial Cyst

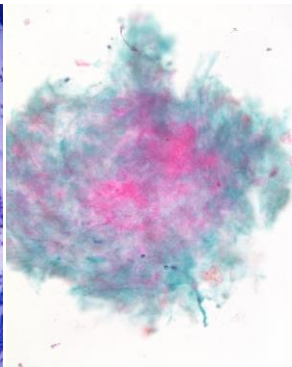
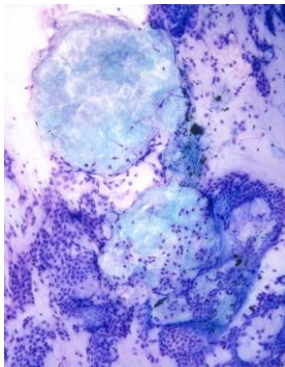
- Extremely rare (0.5% of all pancreatic cysts)
- Non-neoplastic “true” cyst
- Mean size 5cm (1-17cm)
- No association with HIV status of the patient (like the cervical LE cysts)
- Anywhere in the pancreas
- Mean age 56y (35-82), Male-80%
- ~50% are asymptomatic
- Histologically resemble neck Branchial Cleft Cyst
- High CA19-9 and often an elevated CEA
- DD – Cystic Neoplasms, Dermoid & Epidermoid cyst
- Treatment – Limited resection

- CEA – can be high
- Amylase – low









Cystic Neoplasms Of The Pancreas

- Serous Cystadenoma
- Mucinous Cystic Neoplasm
- Intraductal Papillary Mucinous Neoplasm (IPMN)
- Solid-pseudopapillary Neoplasm

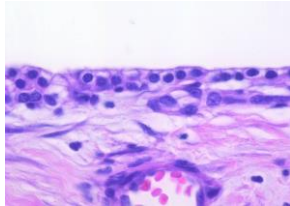
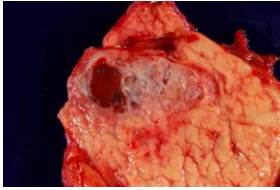
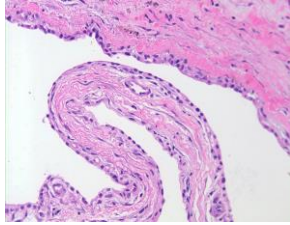
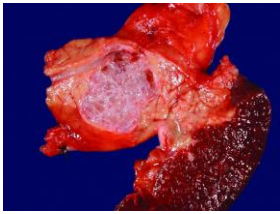


	Mucinous Cystic Neoplasm	Intraductal papillary Mucinous Neoplasm	Solid-pseudopapillary Neoplasm	Serous Cyst-adenoma
Gender (F:M)	20:1	1:1.5	10:1	7:3
Head/Tail	Tail	Head	Tail=Head	Tail=Head
Relation to Duct	None	Always	None	None
Central Scar	None	None	None	Often
Cyst Contents	Mucinous	Mucinous	Necrotic/Hemorrhagic	Serous

Serous Cystadenoma

- aka – Microcystic adenoma, Glycogen-rich cystadenoma
- 70% in females, Mean age 66
- Associated with VHL syndrome
- Typically large (mean 11 cm), Multiloculated
- Often central stellate scar, Spongy appearance
- Usually body or tail, rarely multicentric
- DD – Other cysts
- Treatment – Excision is curative

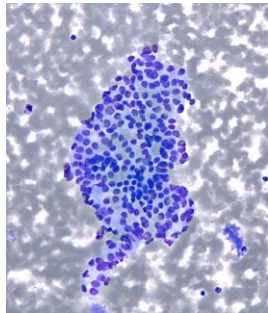
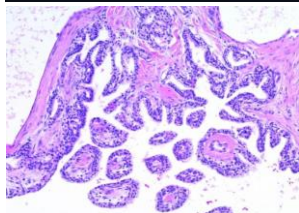
- CEA – very low
- Amylase – very low
- No KRAS or GNAS, VHL+

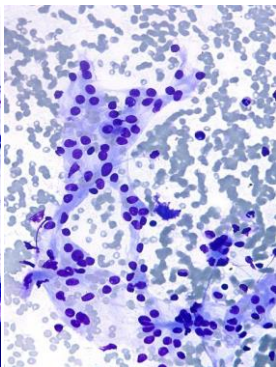
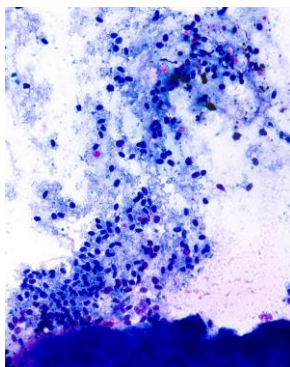


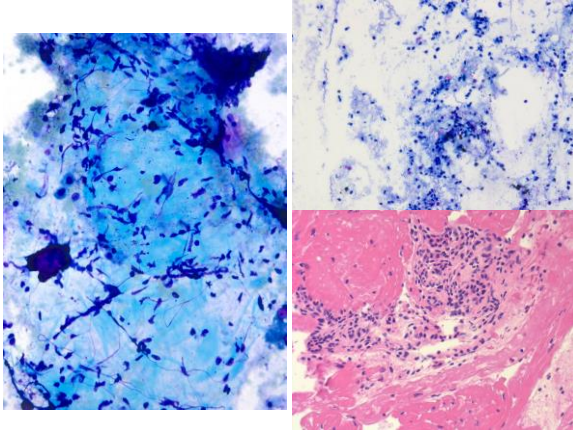


Serous Cystadenoma

? Nondiagnostic FNA

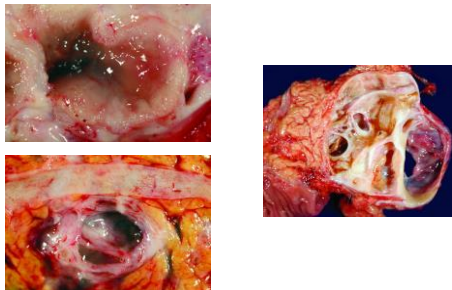






Neoplastic Mucinous Cysts

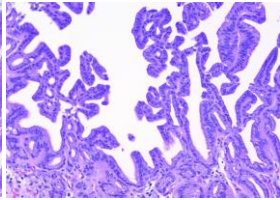
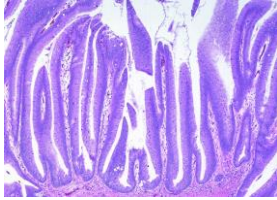
- Intraductal Papillary Mucinous Neoplasm (IPMN)
- Mucinous Cystic Neoplasm (MCN)



IPMN

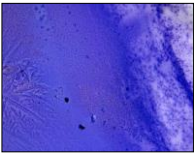
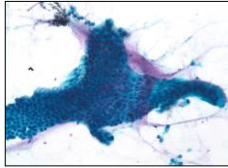
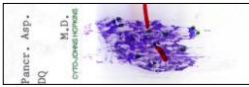
- Mucinous epithelial neoplasm, a precursor lesion to PDAC
- Arises from the main duct (head-2/3rd), branch duct (head or uncinata, multiple-1/3rd), Grossly visible (>1cm)
- Various cell and architectural types
 - Gastric foveolar (branch duct)
 - Intestinal (main duct)
 - Pancreaticobiliary
 - (IOPN is now classified separately)
- Classified
 - Low-grade
 - High-grade (CIS)
 - With invasive CA (1/3rd)
- >90% 5-yr survival

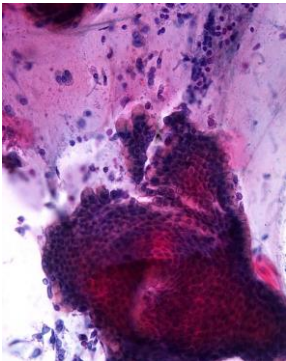
- CEA – high
- Amylase – Usually high
- KRAS and GNAS



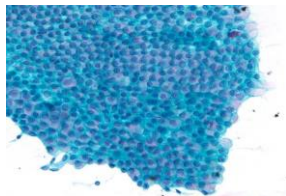


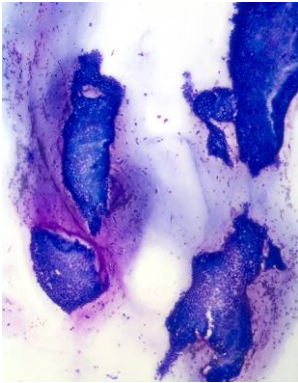
- Cyst Fluid CEA of >192ng/ml
- Ductal Communication



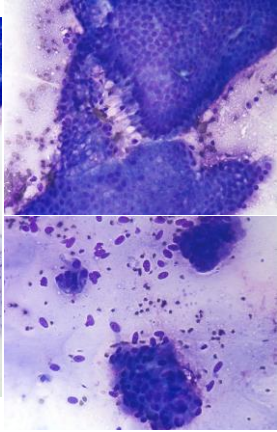


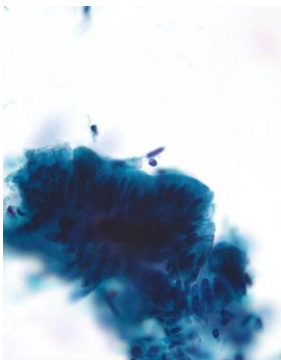
Low-grade



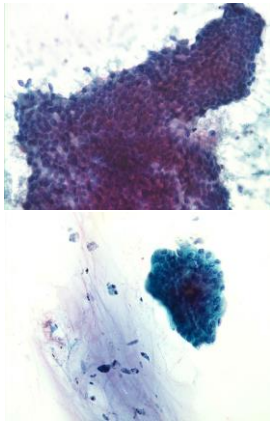


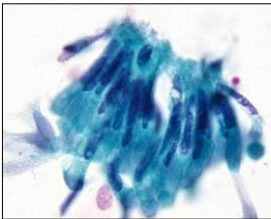
Moderate/intermediate



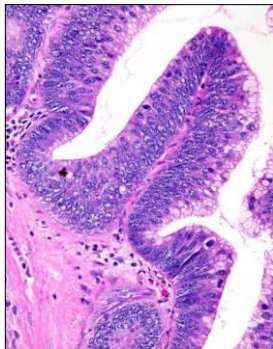


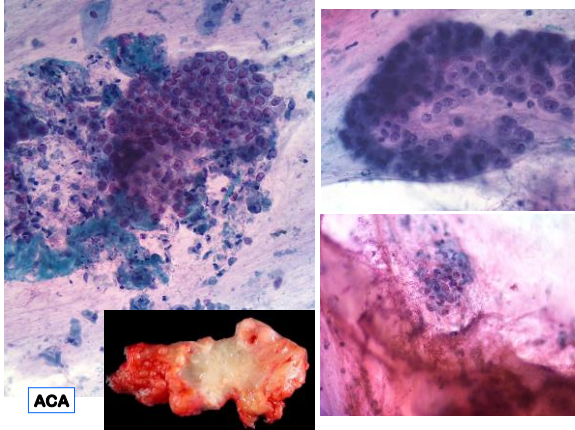
High-grade (CIS)



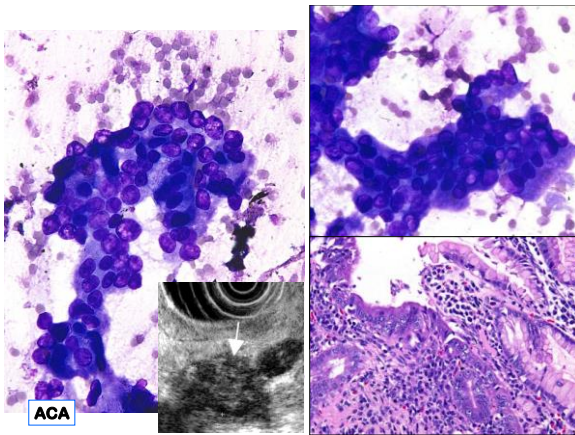


High-grade (CIS)

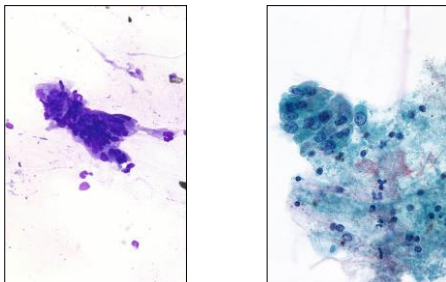




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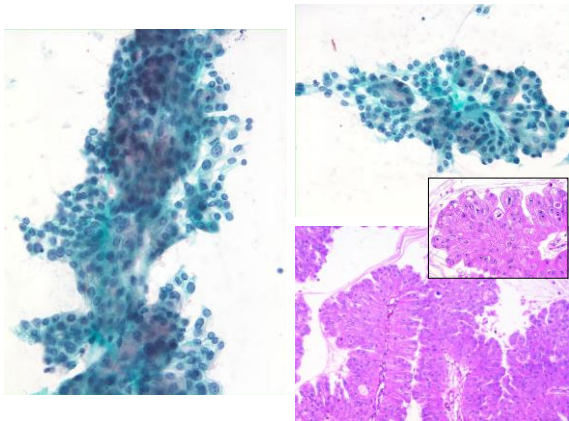


FNA Reporting Terminology

- "Neoplastic Mucinous Cyst" (consistent with IPMN, in the right)
- Negative (or positive) for high-grade atypia (dysplasia) or invasive carcinoma

IOPN

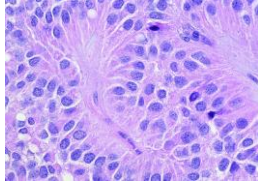
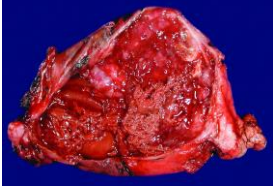
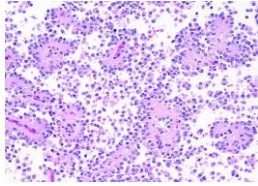
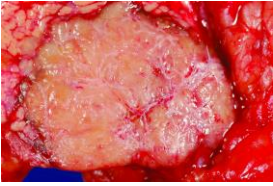
- Often classified as oncocytic variant of IPMN
- Mean age 62, No gender preference
- LMP but 20% have invasive component
- Treatment – Surgery is often curative
- Compared to IPMN
 - Less often invasive
 - No kras mutation

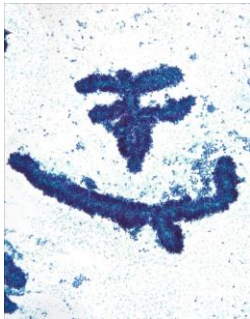
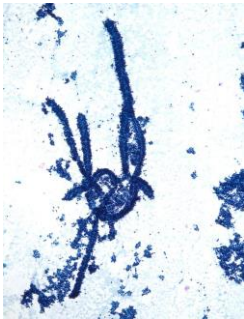


Solid-Pseudopapillary Neoplasm

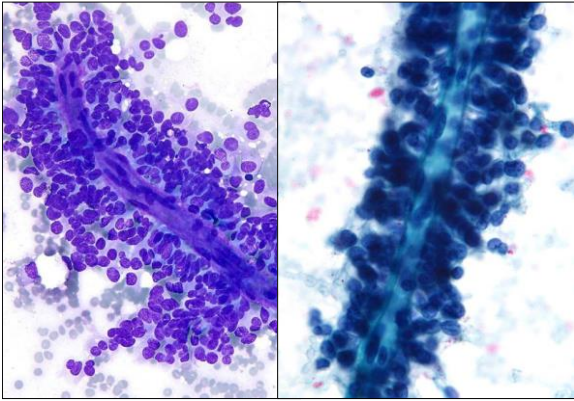
- aka- Hamoudi or Frantz (1959) tumor
- 1-2% of all pancreatic tumors
- LMP epithelial tumor of uncertain cellular differentiation
- Young females (mean age 35, M/F-10/1)
- Men-older age, more aggressive behavior
- 10-15% have metastases
- More common in body/tail
- Low cyst fluid CEA and amylase
- Treatment-Surgery is curative in 95% of cases

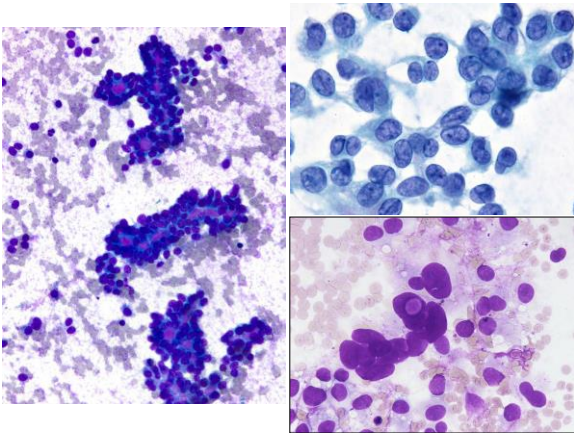
- CEA – low
- Amylase – low
- No KRAS or GNAS, CTNNB1+

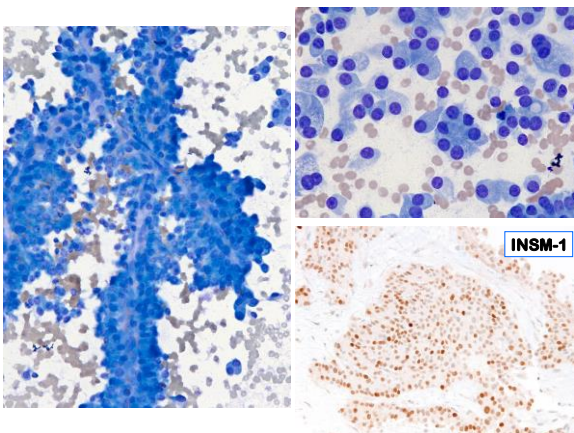


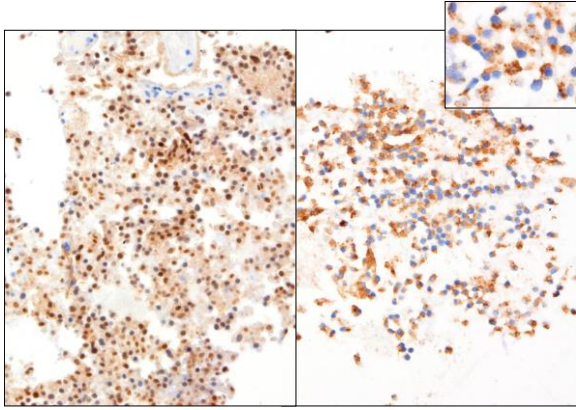












Beta-Catenin

CD99
