

AMSER Rad Path

Incidental detection of dilated Pancreatic Duct

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Patient Presentation

Clinical history:

- 67-year-old male presented for CT urogram to evaluate microscopic hematuria detected by Urinalysis. Experienced about **20 lbs unintentional weight-loss** during the course of their workup.
- CT Urogram noted incidental finding of a **dilated pancreatic duct (PD) at 12mm**.
- MRI, at an outside hospital, for further characterization reported 9mm cystic mass in hepatic lobe and **4cm cystic mass in pancreatic head**, communicating with PD.
- EUS, at our home institution, for FNA noted **bulging ampulla** (“fish mouth appearance”)
- No medical histories of Diabetes mellitus or pancreatitis.

Pertinent social history:

- No history of smoking, remote history of alcohol use.

Pertinent physical exam and laboratory findings:

- Normal physical exam.
- No abdominal masses, pain with palpation, jaundice
- No pertinent laboratory findings.

What images should be ordered for evaluation of a dilated pancreatic duct?

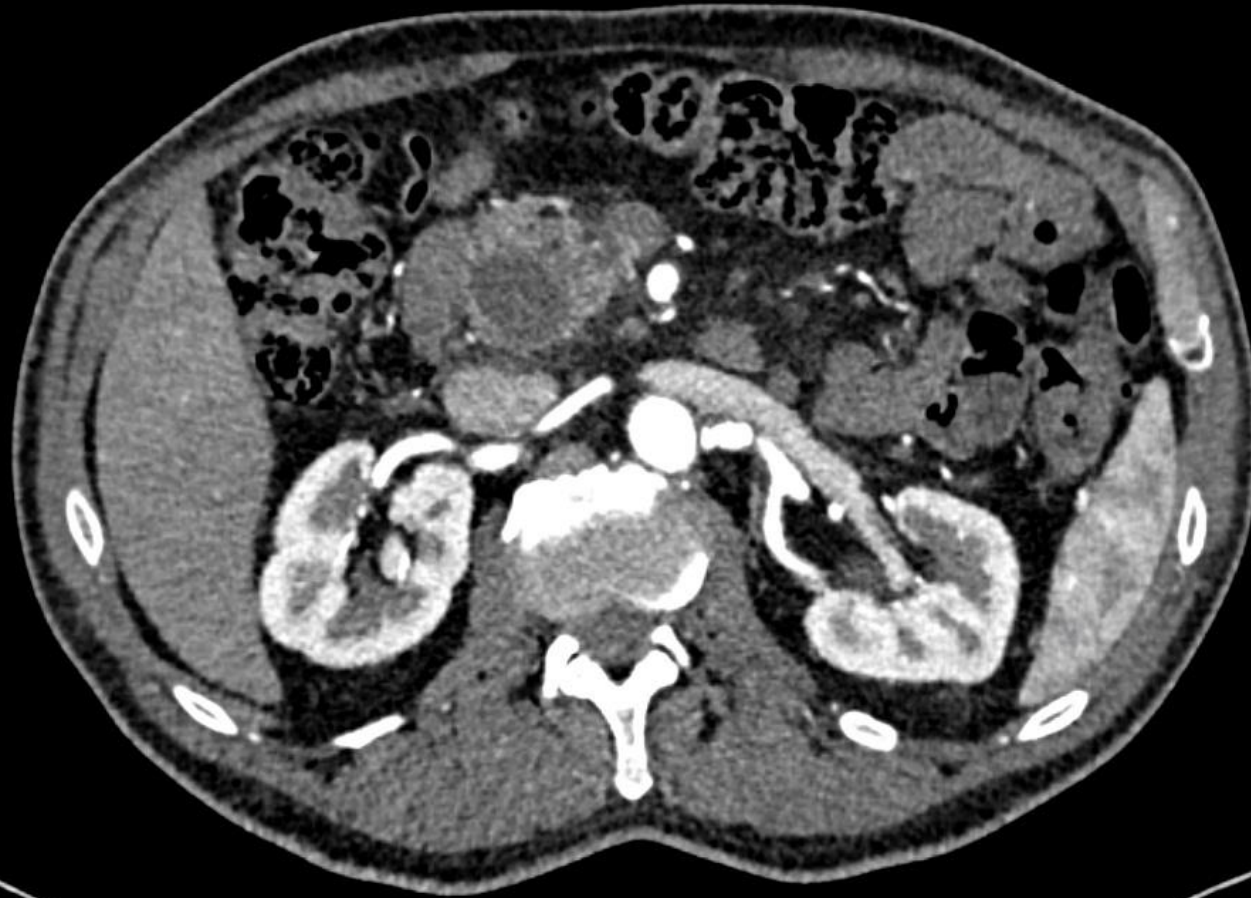
ACR Appropriateness Criteria

Scenario	Scenario ID	Procedure	Adult RRL	Peds RRL	Appropriateness Category
Pancreas duct dilation, >7mm, IPMN suspected, initial evaluation	3164905	● US abdomen endoscopic	0 mSv ○	0 mSv [ped] ○	Usually appropriate
		● MRI abdomen without and with IV contrast with MRCP	0 mSv ○	0 mSv [ped] ○	Usually appropriate
		● MRI abdomen without IV contrast with MRCP	0 mSv ○	0 mSv [ped] ○	Usually appropriate
		● CT abdomen with IV contrast multiphase	10-30 mSv ⊗⊗⊗⊗		May be appropriate
		● CT abdomen without IV contrast	1-10 mSv ⊗⊗⊗	3-10 mSv [ped] ⊗⊗⊗⊗	Usually not appropriate
		● CT abdomen without and with IV contrast	10-30 mSv ⊗⊗⊗⊗	10-30 mSv [ped] ⊗⊗⊗⊗⊗	Usually not appropriate

- MRI abdomen without IV contrast, with MRCP. Performed at outside hospital.

Follow-up Radiology Images

Contrasted CT, Axial (arterial phase)



Contrasted CT, Axial (arterial phase), labeled

4cm Cystic Mass in
Pancreatic Head



Contrasted CT, Axial (portal-venous phase)

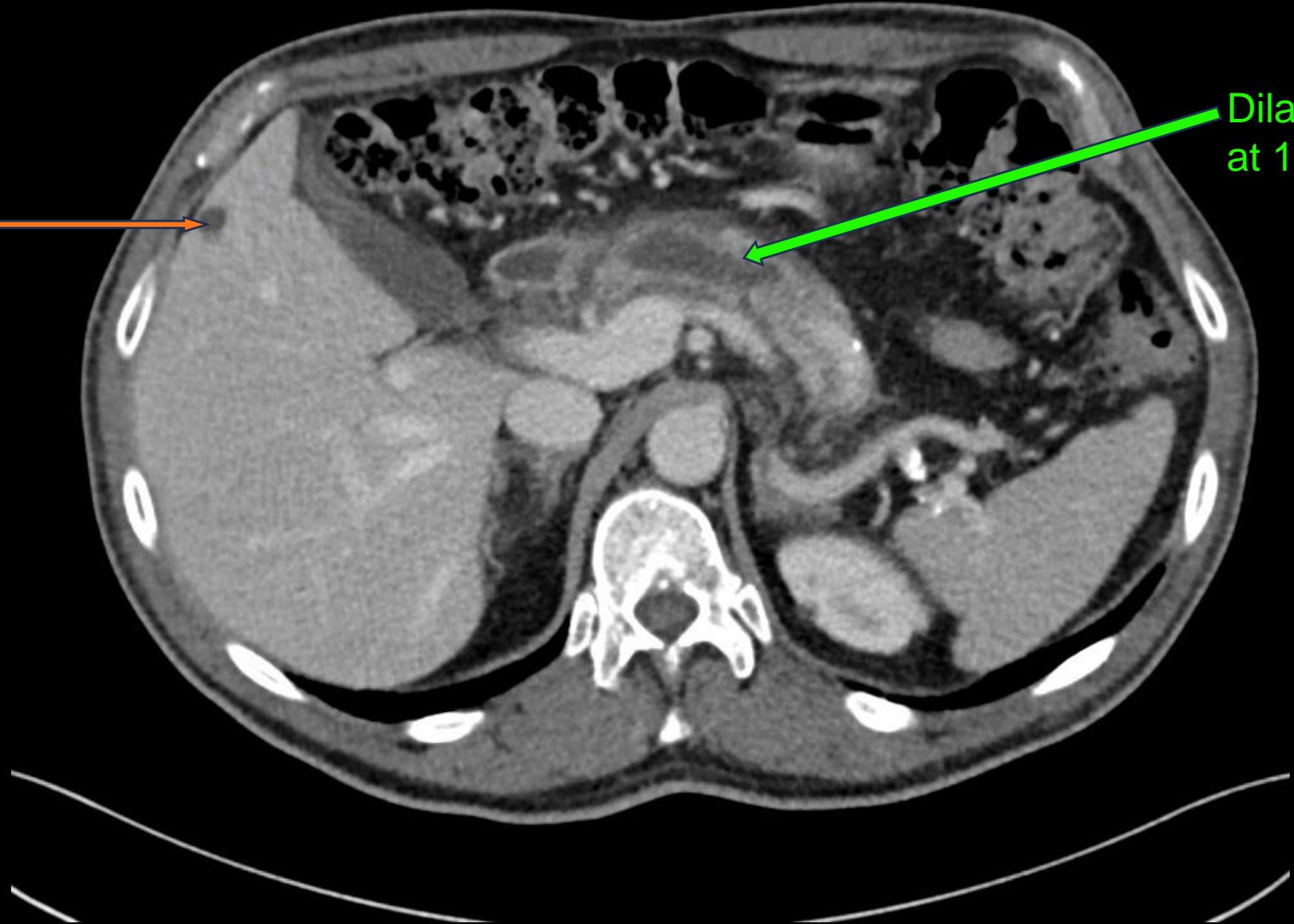


Contrasted CT, Axial (portal-venous phase), labeled

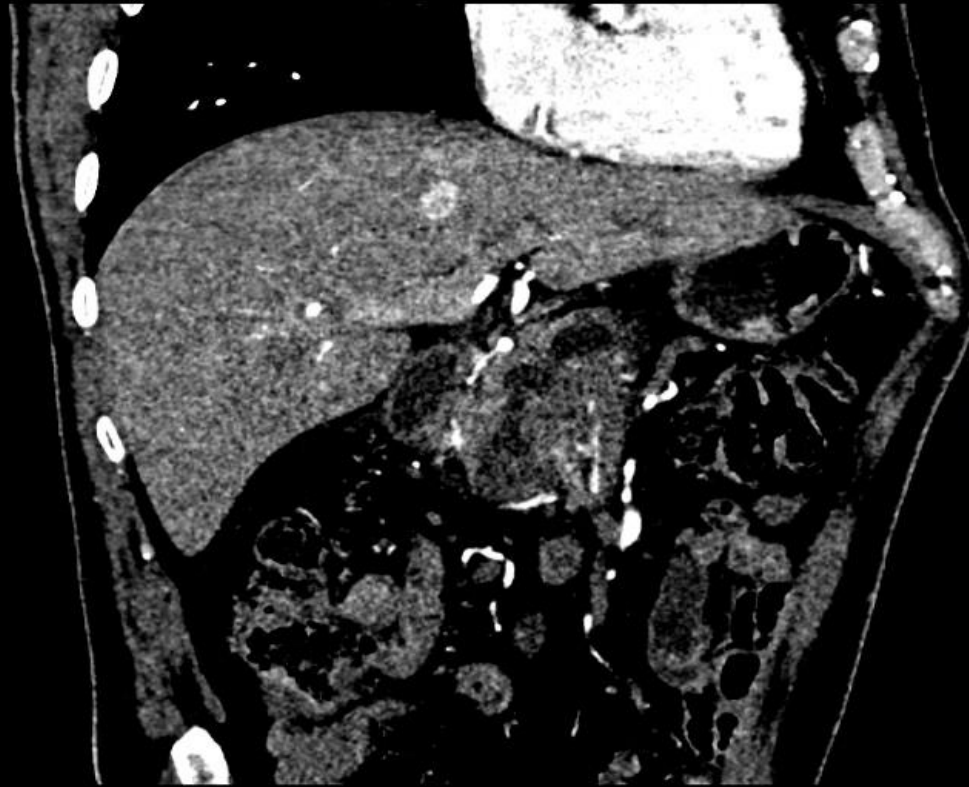
9mm cystic hepatic lesion



Dilated Pancreatic Duct at 12mm



Reformatted Image, Coronal



Reformatted Image, Coronal, labeled

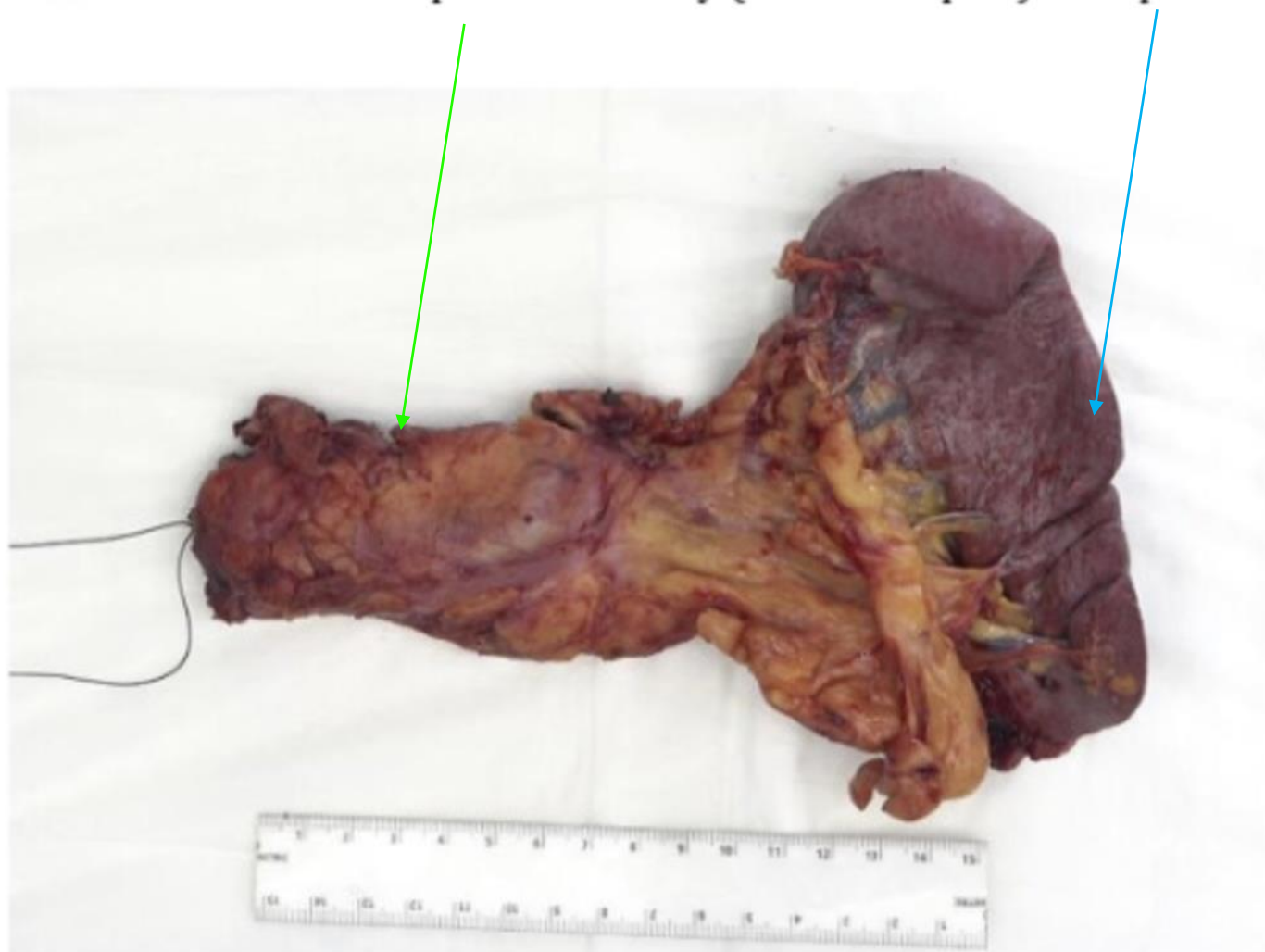


DDX (based on imaging)

- DDX for cystic Pancreatic lesions:
 - Pseudocyst
 - Serous Cystadenoma
 - Mucinous Cystadenoma
 - Serous Cystadenocarcinoma
 - Mucinous Cystadenocarcinoma
 - Intraductal Papillary Mucinous Neoplasm

Gross Path (labeled)

AGS24-00097 Distal pancreatectomy (anterior aspect) and spleen



Gross Path (labeled)

Probes inserted through the pancreatic ducts to guide dissection.



Gross Path (labeled)

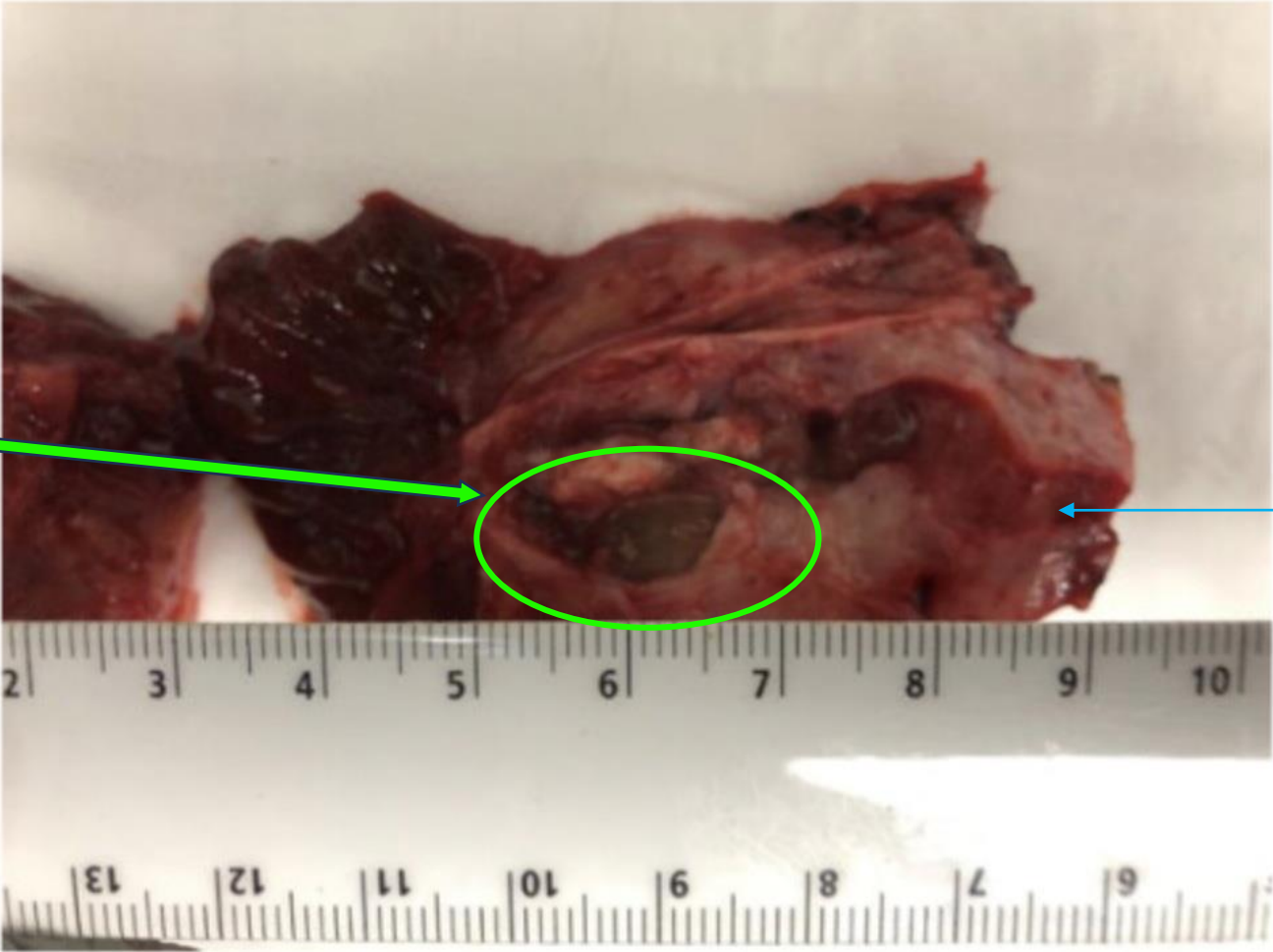
AGS24-00097 Whipple specimen (opened)



Dissected Whipple specimen along the pancreatic ducts.

Gross Path (labeled)

AGS24-00097 Whipple specimen (opened, lesion)



4cm Cystic mass, in pancreatic head

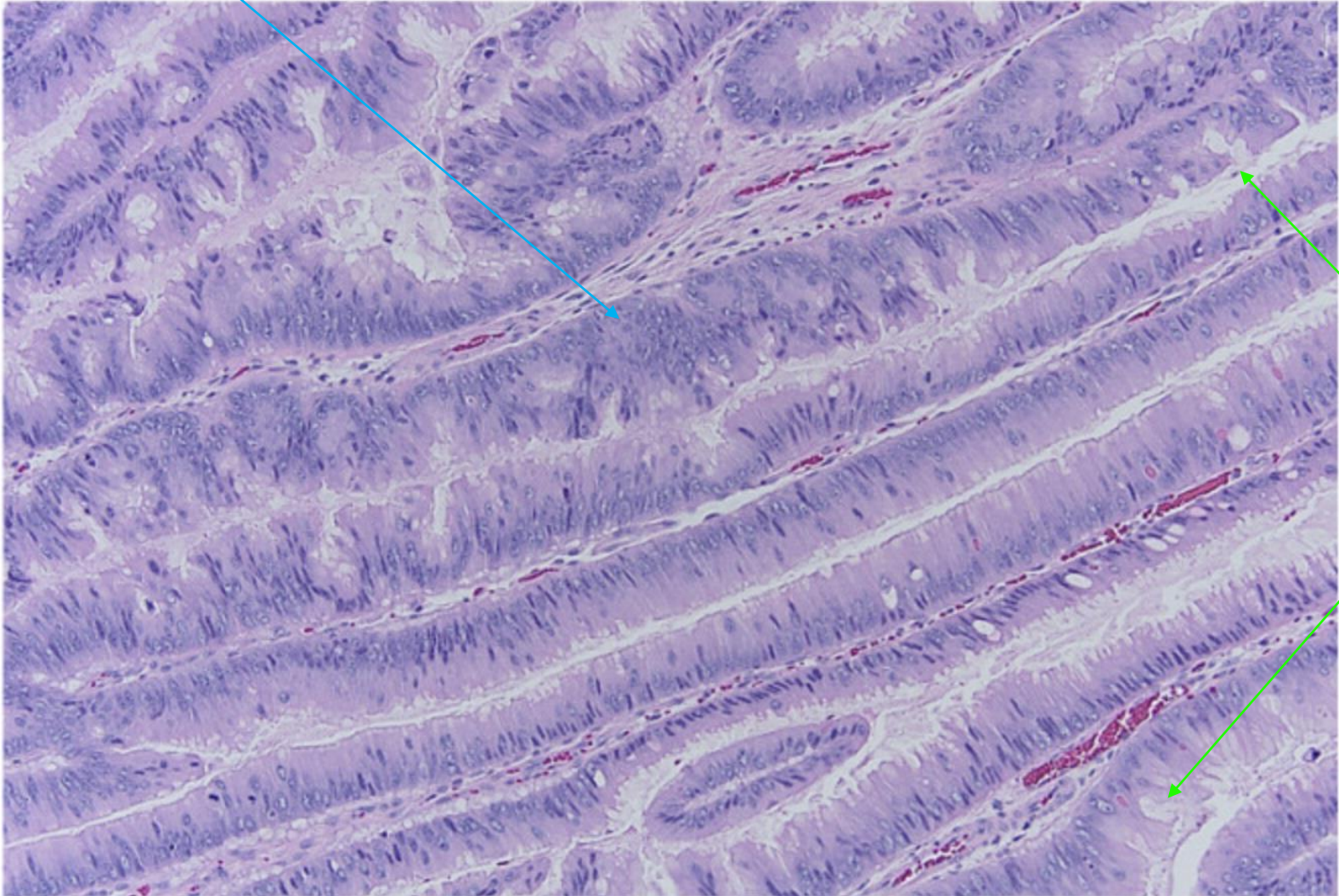
Dilated pancreatic duct

Micro Path (labeled)

Low grade dysplasia

10x, H&E Stain

High-power view showing villi with fibrovascular cores lined by columnar cells with interspersed mucinous cells. This area shows only low-grade dysplasia: the nuclei of the columnar cells are basally-oriented and are generally arranged in a single layer. Only rare mitoses are seen.

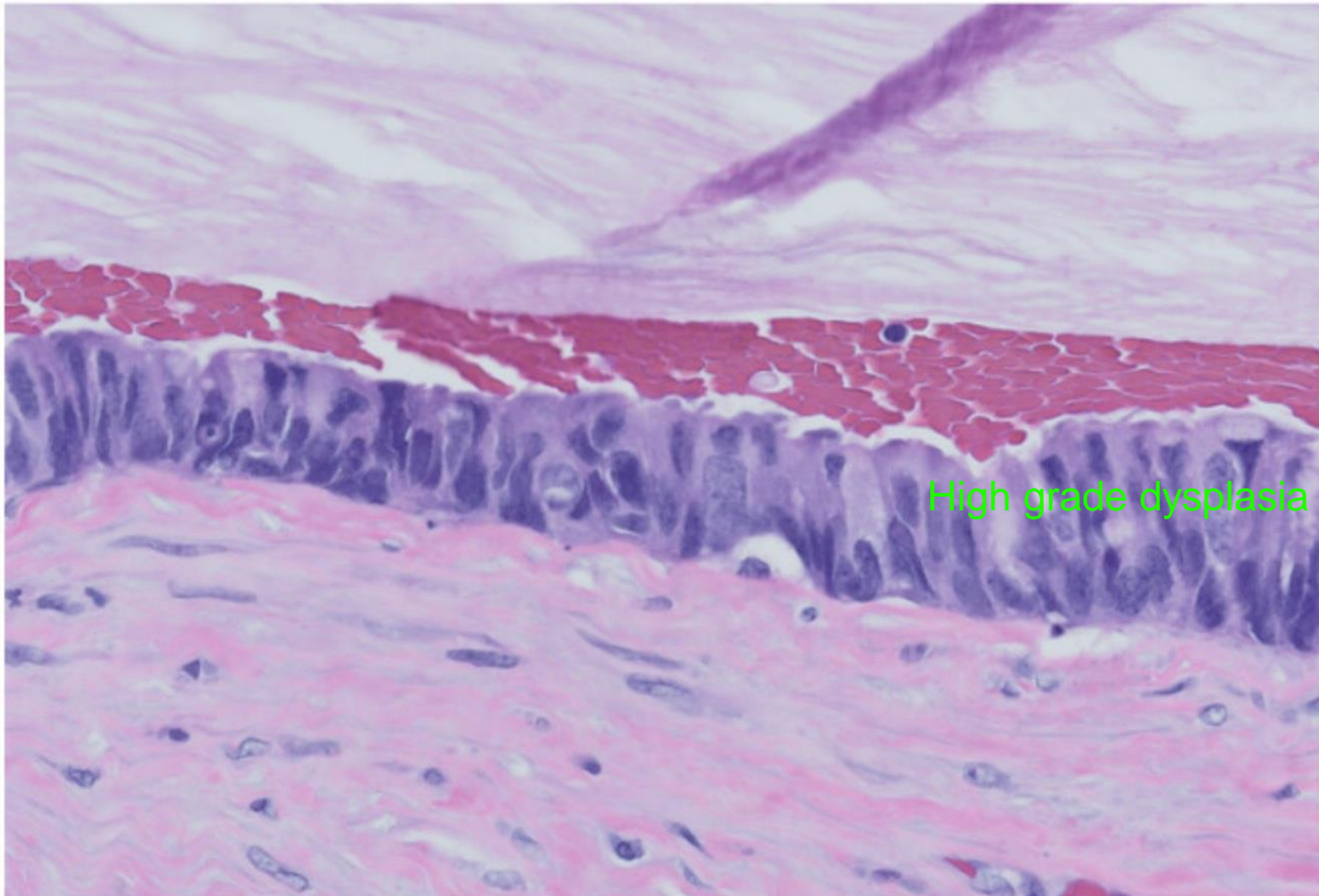


Mucinous Cells

Micro Path (labeled)

40x, H&E Stain

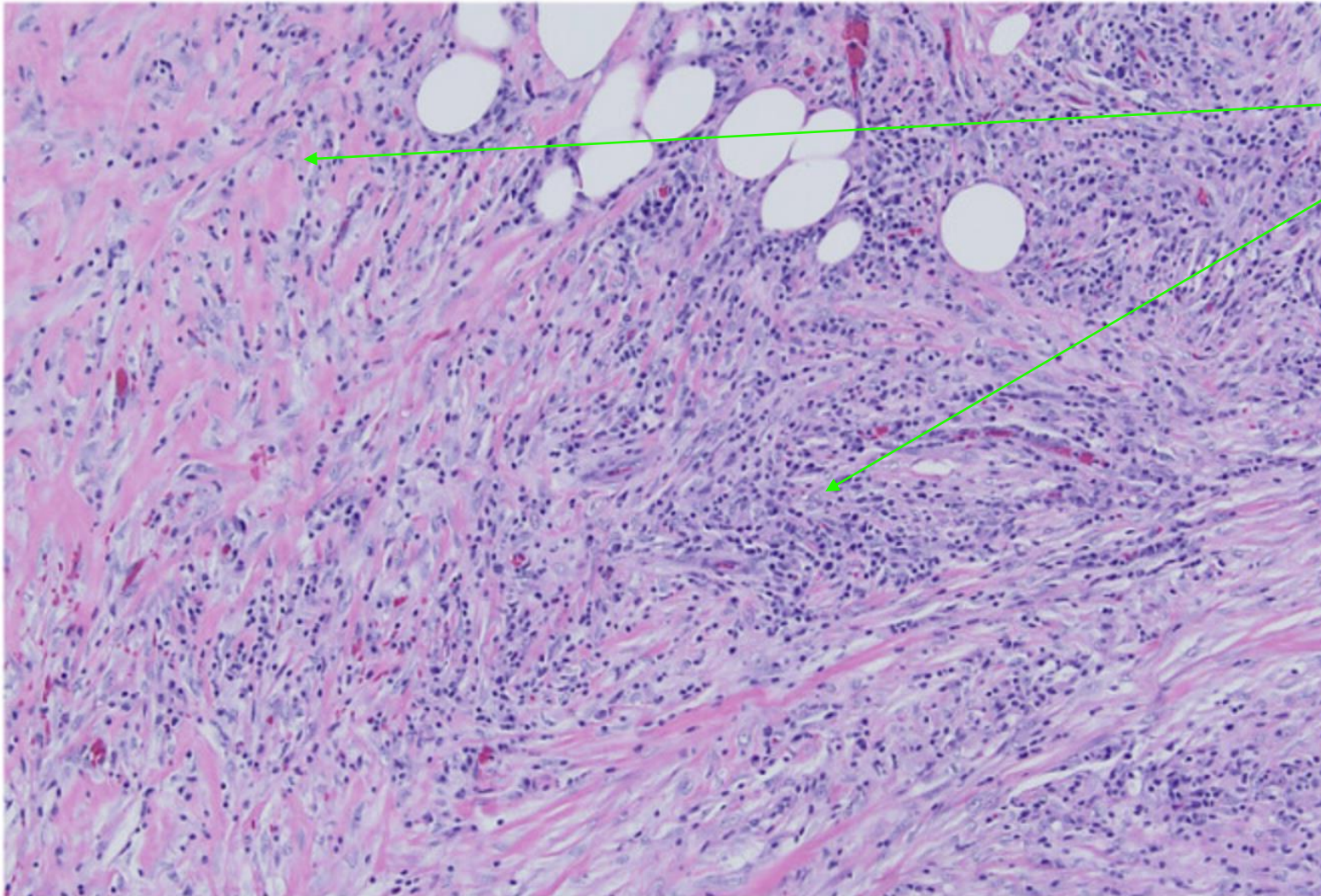
High-power view of focal high-grade dysplasia. The nuclei are hyperchromatic and pleomorphic, demonstrating polygonal and angular nuclear contours. A prominent nucleolus is visible. The cells are also beginning to demonstrate architectural complexity, with disorganized pseudostratification and loss of basal nuclear orientation.



Micro Path (labeled)

10x. H&E Stain

The background pancreas demonstrated chronic pancreatitis. The normal pancreatic acinar tissue was replaced by dense collagen fibrosis, with abundant chronic inflammation composed of lymphocytes and plasma cells.



Background fibrosis and lymphocytes, indicating chronic pancreatitis.

Final Dx:

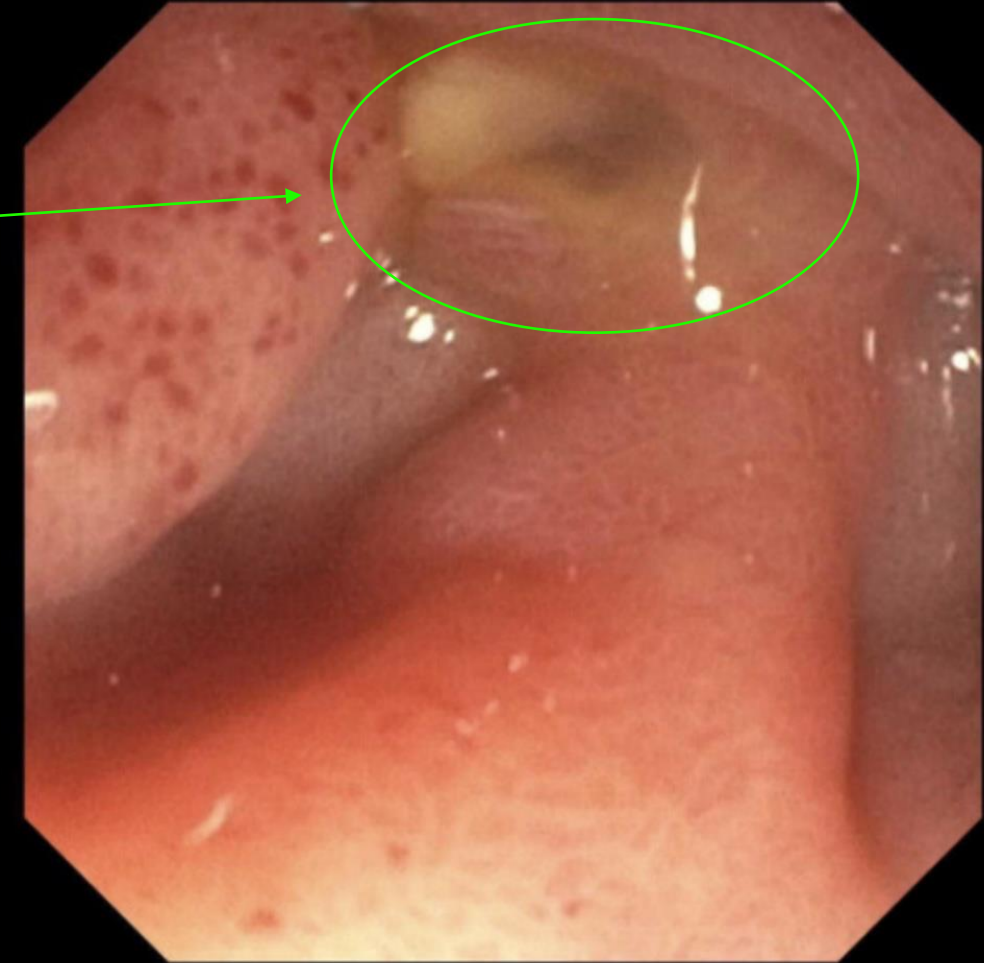
Intraductal Papillary Mucinous Neoplasm

Case Discussion

- Intraductal Papillary Mucinous Neoplasm (IPMN)
 - Malignancy of mucinous cells in the pancreatic duct system.
 - Types: Main Duct, Branch Duct, and Mixed Type
- Symptoms:
 - Usually asymptomatic
 - Jaundice and abdominal pain if disease is advanced.
- Demographics: Helps narrow the differential.
 - “Grandfather lesion”: ~65 years of age and male predilection.
- Risk Factors:
 - Age
 - Prior Pancreatic disease (Diabetes Mellitus found to have causative link)
 - Elevated BMI
 - Smoking and alcohol use

Case Discussion

- Diagnosis/Workup:
 - Imaging is often along side an EUS.
 - EUS can provide Ultrasound information and guide FNA.
 - GI specialists can note a “fish mouth” appearance of the ampulla, which describes mucin protruding from overproduction.
- Treatment/Management
 - Majority of IPMNs are managed with surveillance.
 - Surgical recommendations differ by organization.
 - Absolute indications for surgery: Main pancreatic duct dilation greater than 10mm.
- Survival:
 - 90% (non-invasive) and 40% (invasive) 5 year survival post-operatively.



References:

Karoumpalis, I., & Christodoulou, D. K. (2016). Cystic lesions of the pancreas. *Annals of gastroenterology*, 29(2), 155–161. <https://doi.org/10.20524/aog.2016.0007>

Levink, I., Bruno, M. J., & Cahen, D. L. (2018). Management of Intraductal Papillary Mucinous Neoplasms: Controversies in Guidelines and Future Perspectives. *Current treatment options in gastroenterology*, 16(3), 316–332. <https://doi.org/10.1007/s11938-018-0190-2>

“Pancreatic Cyst.” *ACR AC Portal*, American College of Radiology, [gravitas.acr.org/ACPortal/GetDataForOneScenario?senariold=5219](https://www.gravitas.acr.org/ACPortal/GetDataForOneScenario?senariold=5219). Accessed 16 Jan. 2024.

Yopp, A. C., & Allen, P. J. (2010). Prognosis of invasive intraductal papillary mucinous neoplasms of the pancreas. *World journal of gastrointestinal surgery*, 2(10), 359–362. <https://doi.org/10.4240/wjgs.v2.i10.359>