Topics for today

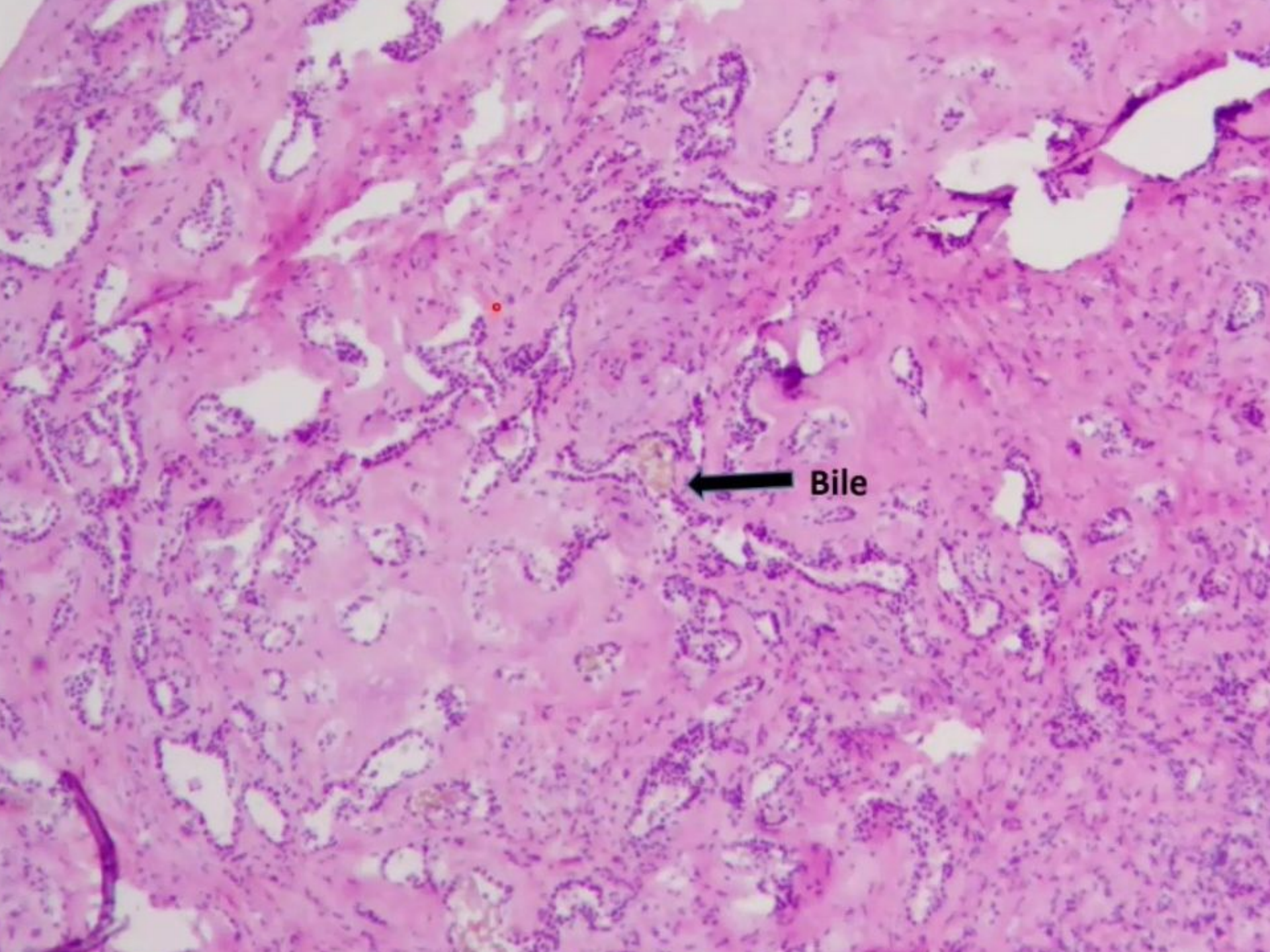
- Von Meyenburg Complex/ Biliary Hamartoma
- Bile Duct Adenoma
- Cholangiocarcinoma
  - Large duct type (type 1)
  - Small duct type (type 2)
- Biliary Intraepithelial Neoplasia (BilIN)
- Differential Diagnosis
  - Metastatic Adenocarcinoma

Biliary Hamartoma

- Benign lesion, developmental
- Remnant of ductal plate, due to incomplete modeling
  - Focal, in one or few portal tracts
  - Numerous in fibro-polycystic diseases (autosomal dominant/ recessive polycystic disease, congenital hepatic fibrosis)
- Incidental finding in biopsies or resections
- Frequently biopsied during abdominal surgery for cancer for frozen section/ Intraoperative diagnosis

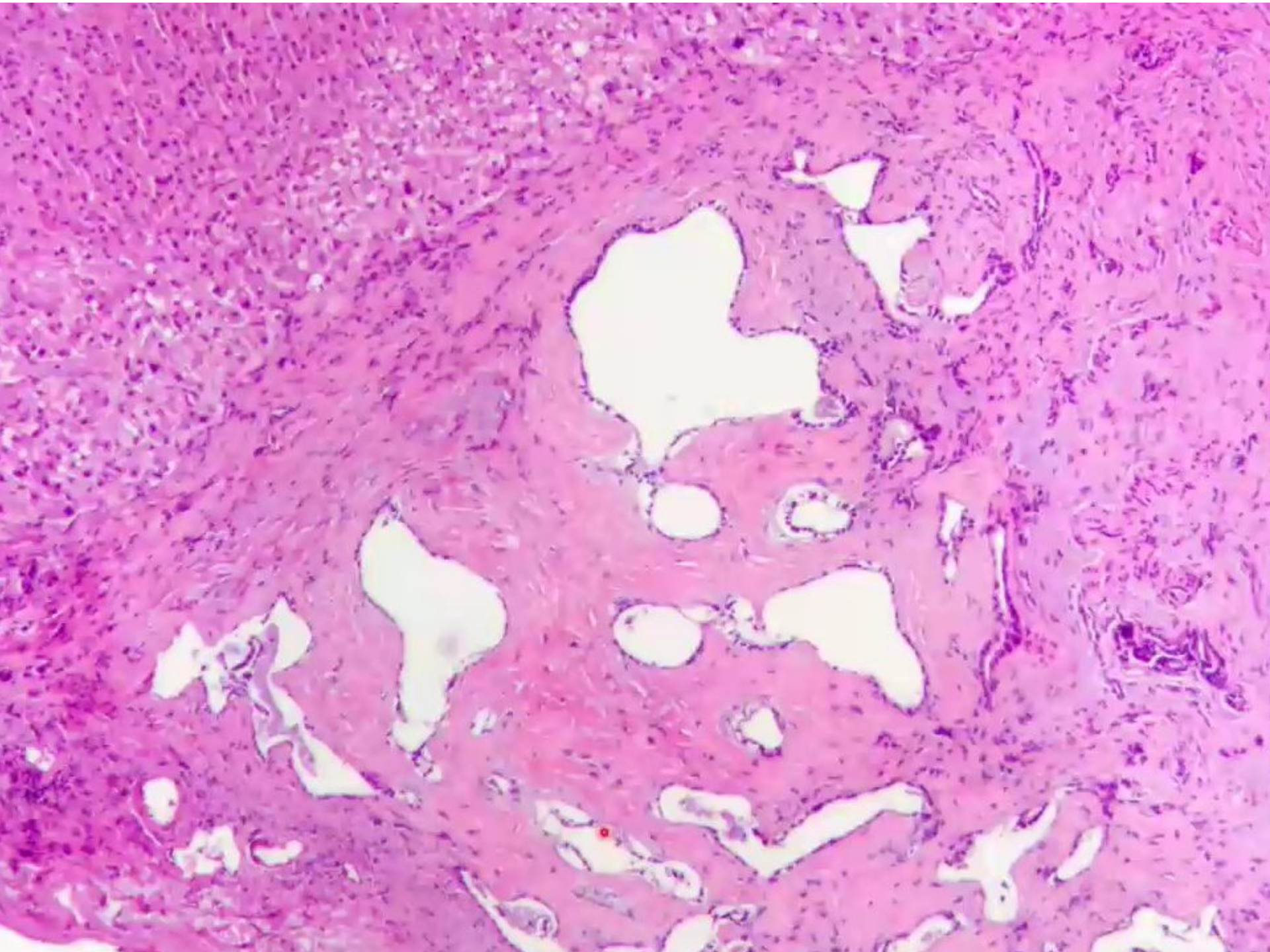
Case 1

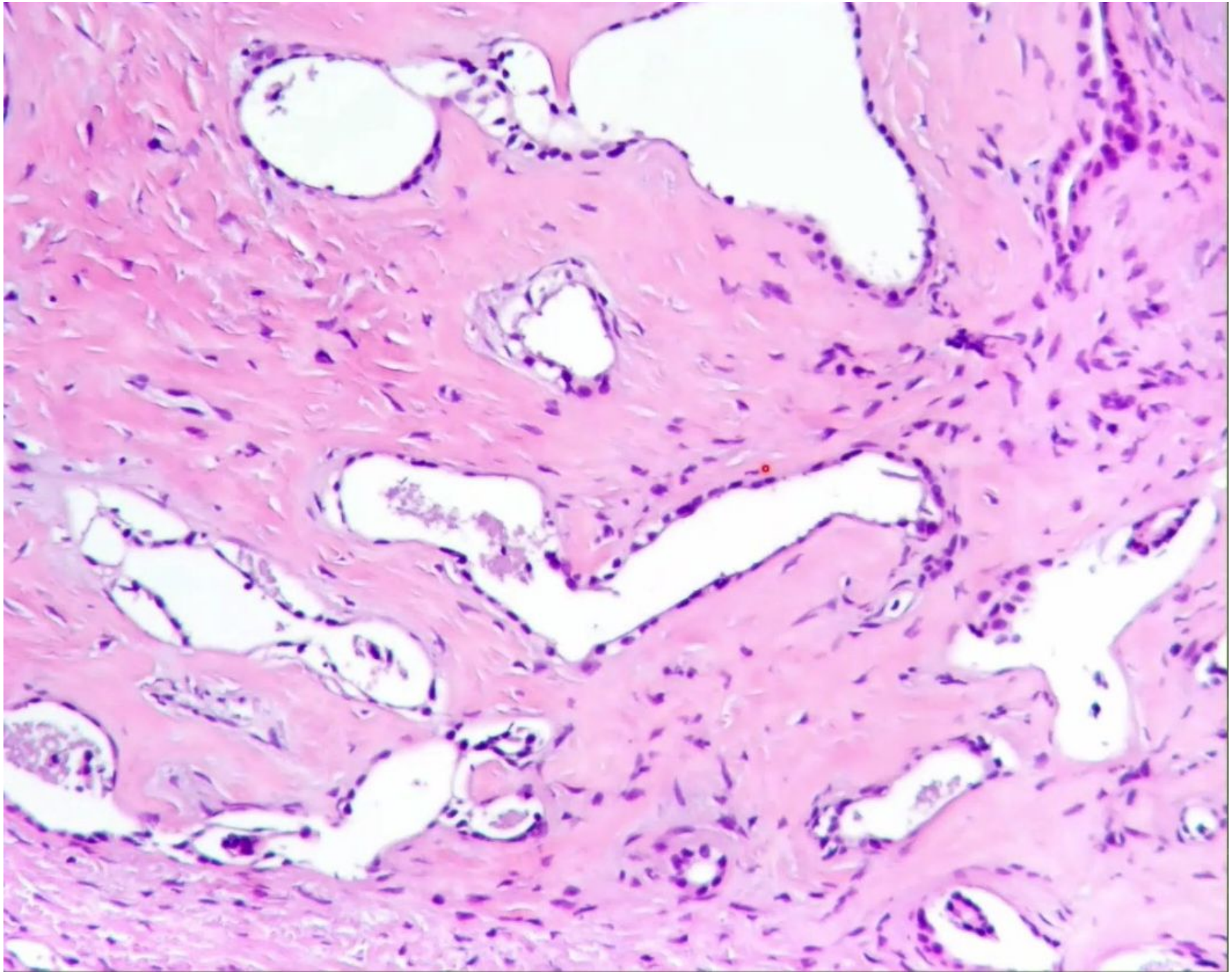
- 75 year old female undergoing surgery for pancreatic cancer
- Surgeon noticed small white lesions on the liver capsule
- He sent one for frozen section/ intraoperative diagnosis


Bile

Von Meyenburg Complex – Frozen section

- Benign ductal structures with irregular shapes
- Single or double layer of flat or low cuboidal epithelium
- Open, cystically dilated lumina
- Often contain bile

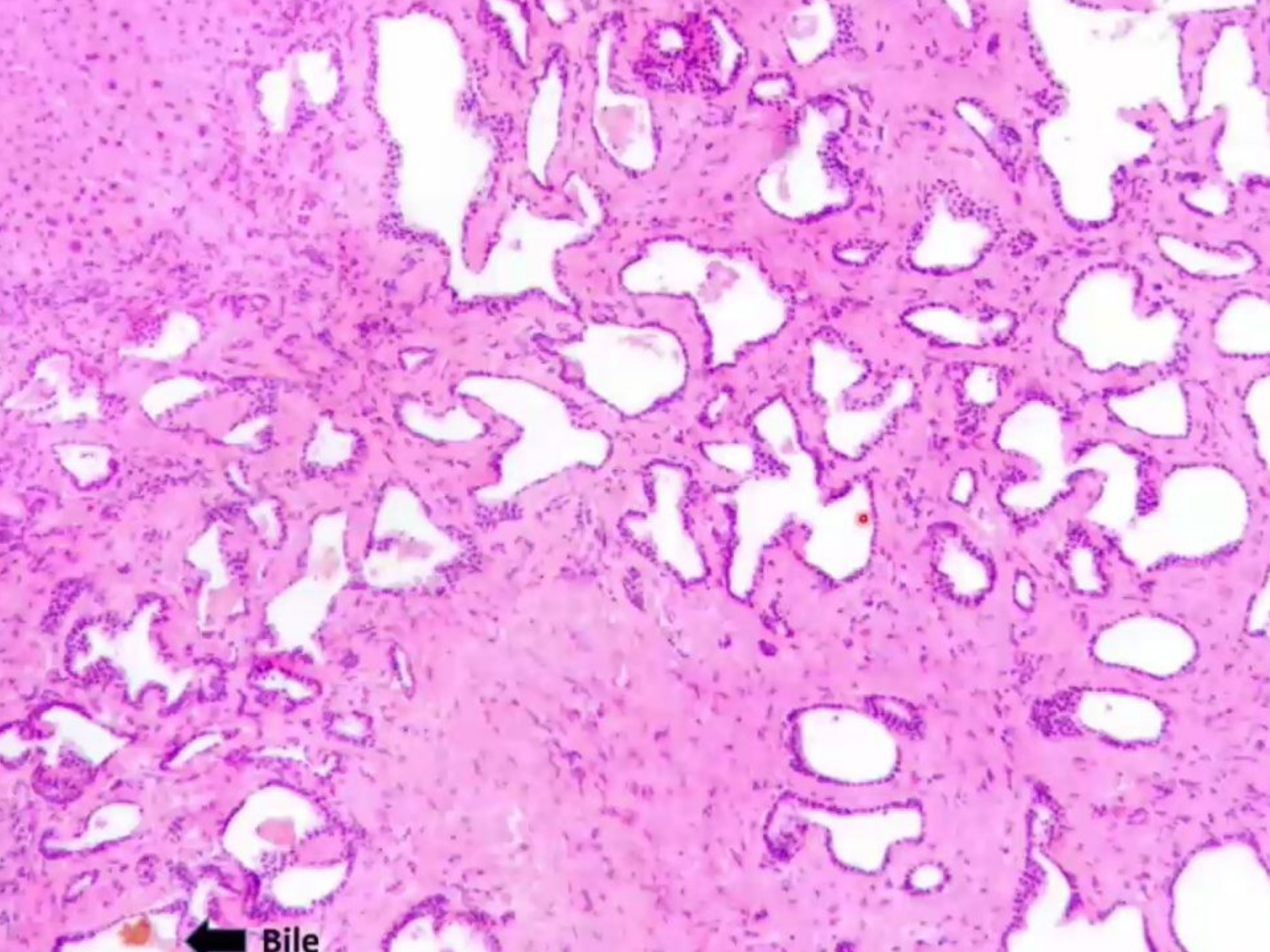




Von Meyenburg Complex – Permanent (formalin fixed, paraffin embedded) section

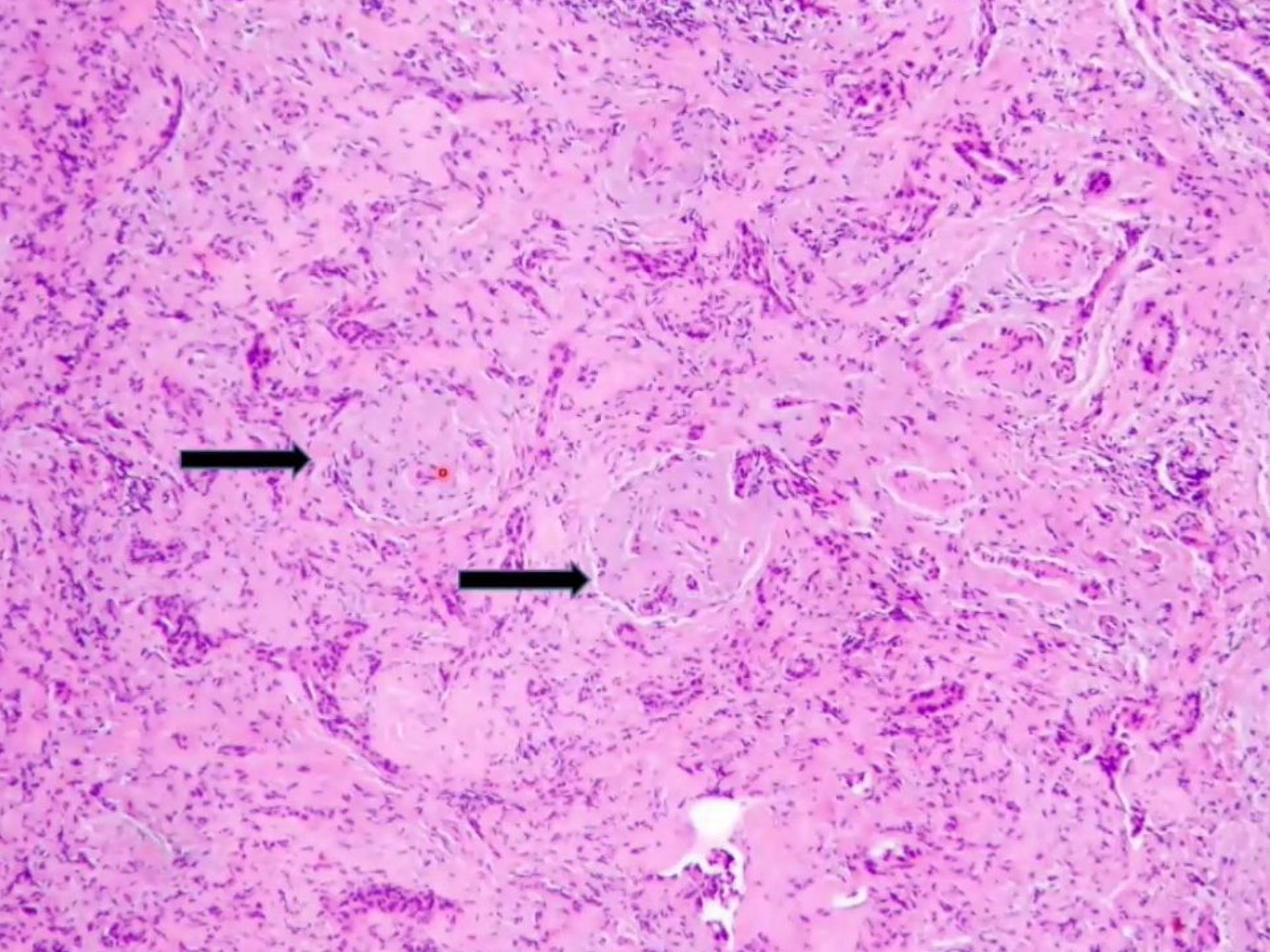
Von Meyenburg Complex – Permanent (formalin fixed, paraffin embedded) section

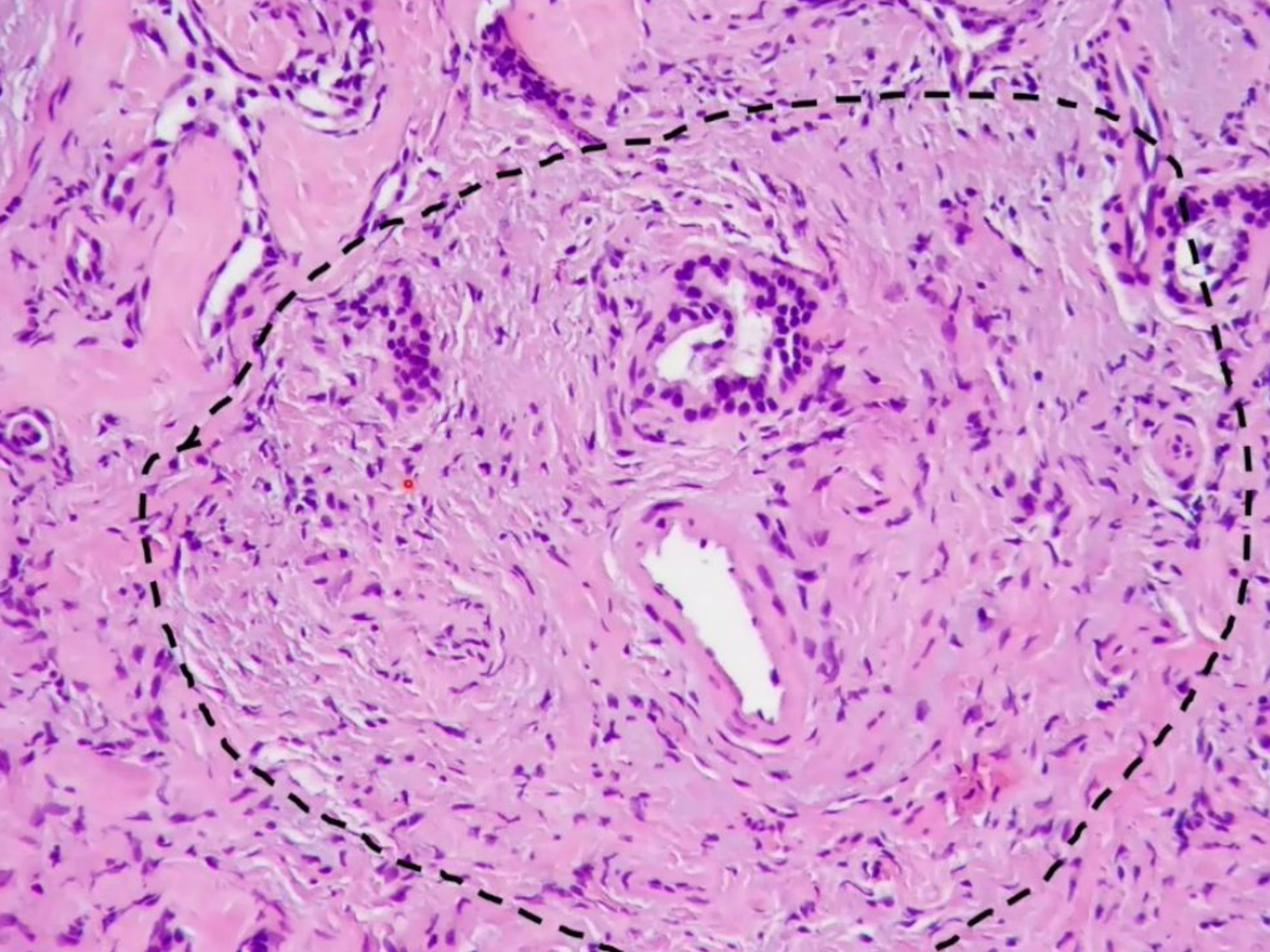
- Irregular ductal structures with cystically dilated lumina
- Single layer of flat epithelial cells


Bile

Case 2

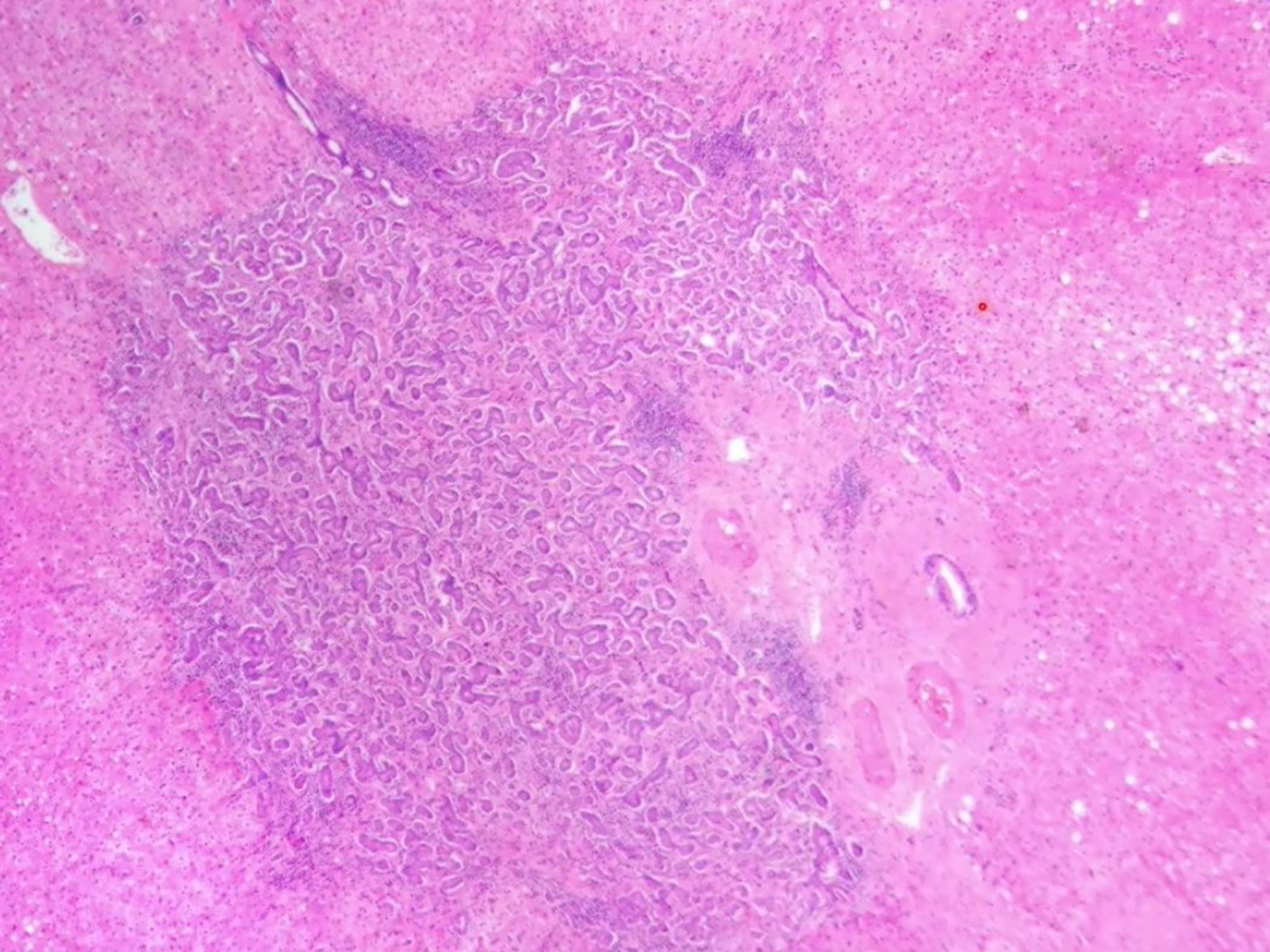
- 70 year old patient undergoing surgery for gastric cancer
- Surgeon noticed small whitish lesions on surface of liver
- He sent one for frozen section diagnosis

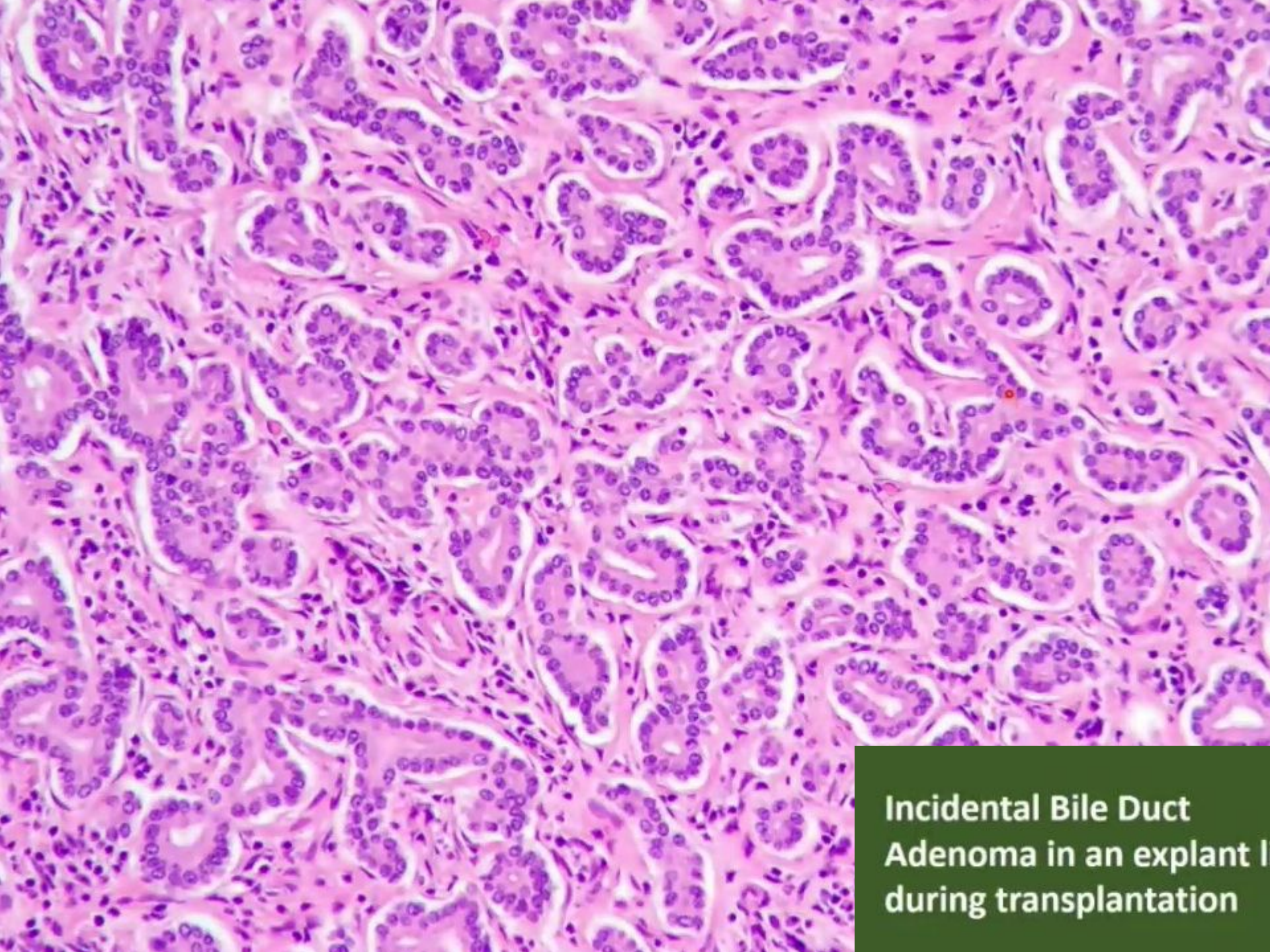




Bile Duct Adenoma
Permanent (formalin fixed, paraffin embedded) section

Small ducts with open lumina in fibrous stroma
Entrapped portal tract




Incidental Bile Duct
Adenoma in an explant l
during transplantation

Bile Duct Adenoma	Biliary Hamartoma
Benign tumor	Developmental lesion, not a tumor
Proliferation of bile ducts	Remnants of embryonic ductal plate
Small ducts in dense fibrous stroma	Irregular shaped, cystically dilated ductal structures
Entrapped portal tracts common	Occurs within portal tract
May contain bile	May contain bile
Distinguishing between these 2 lesions is not clinically important; both are benign and no further action is required. Do not cause symptoms	

Cholangiocarcinoma

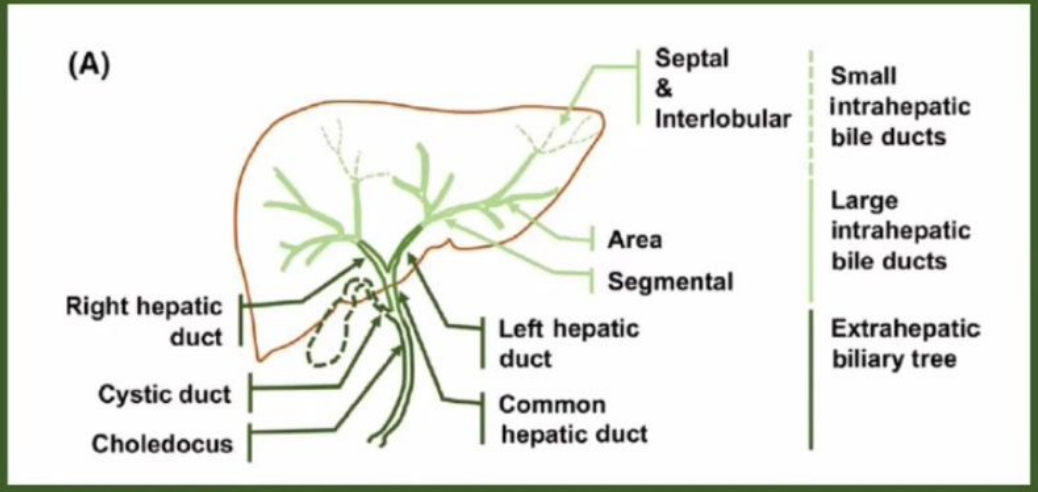
A tumor arising from bile ducts and derived from cholangiocytes

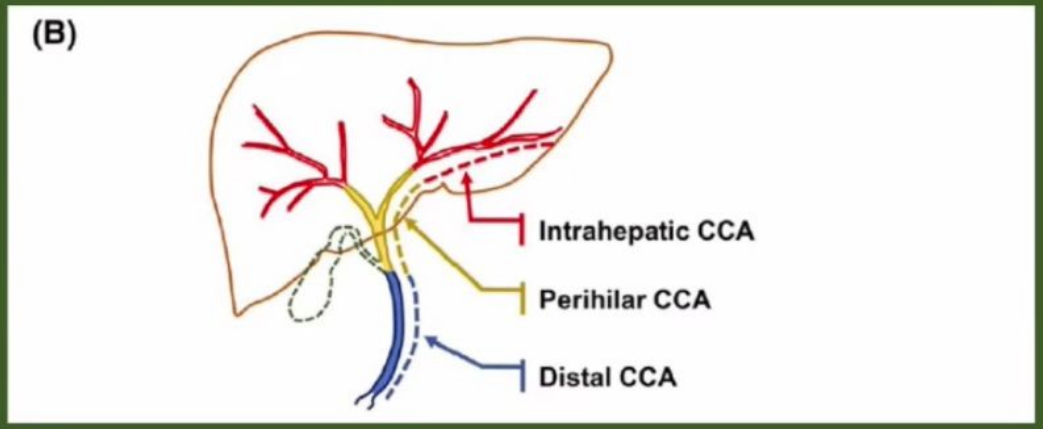
Classification

- Anatomic Location
- Macroscopic Growth Pattern
- Microscopic

Anatomic Classification

- Intrahepatic
- Perihilar
- Distal

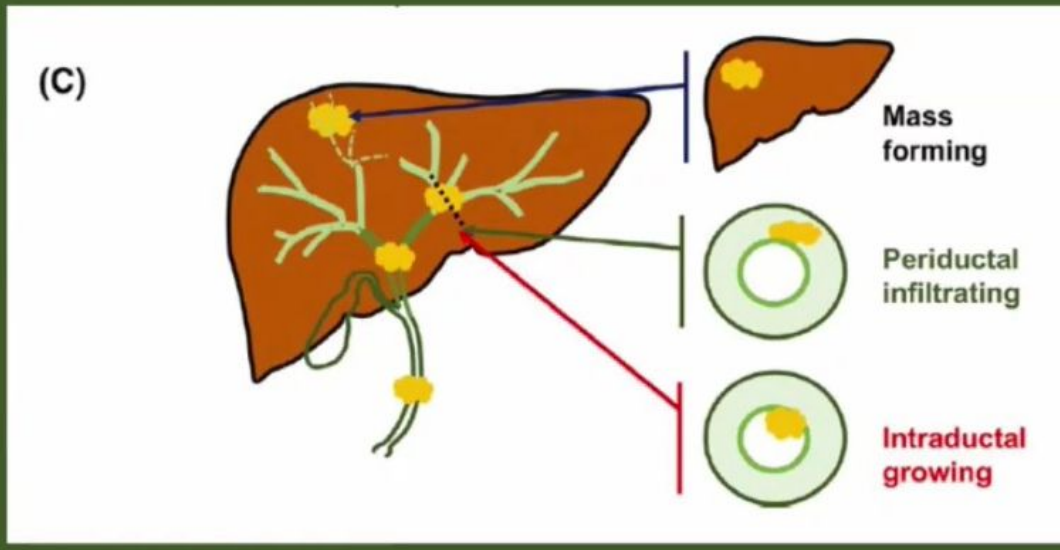




Kendall et al. Liver Int 2019; 39 (S1): 7-18

Macroscopic Growth Pattern

- Mass Forming
- Periductal
- Intracystic
- Mixed



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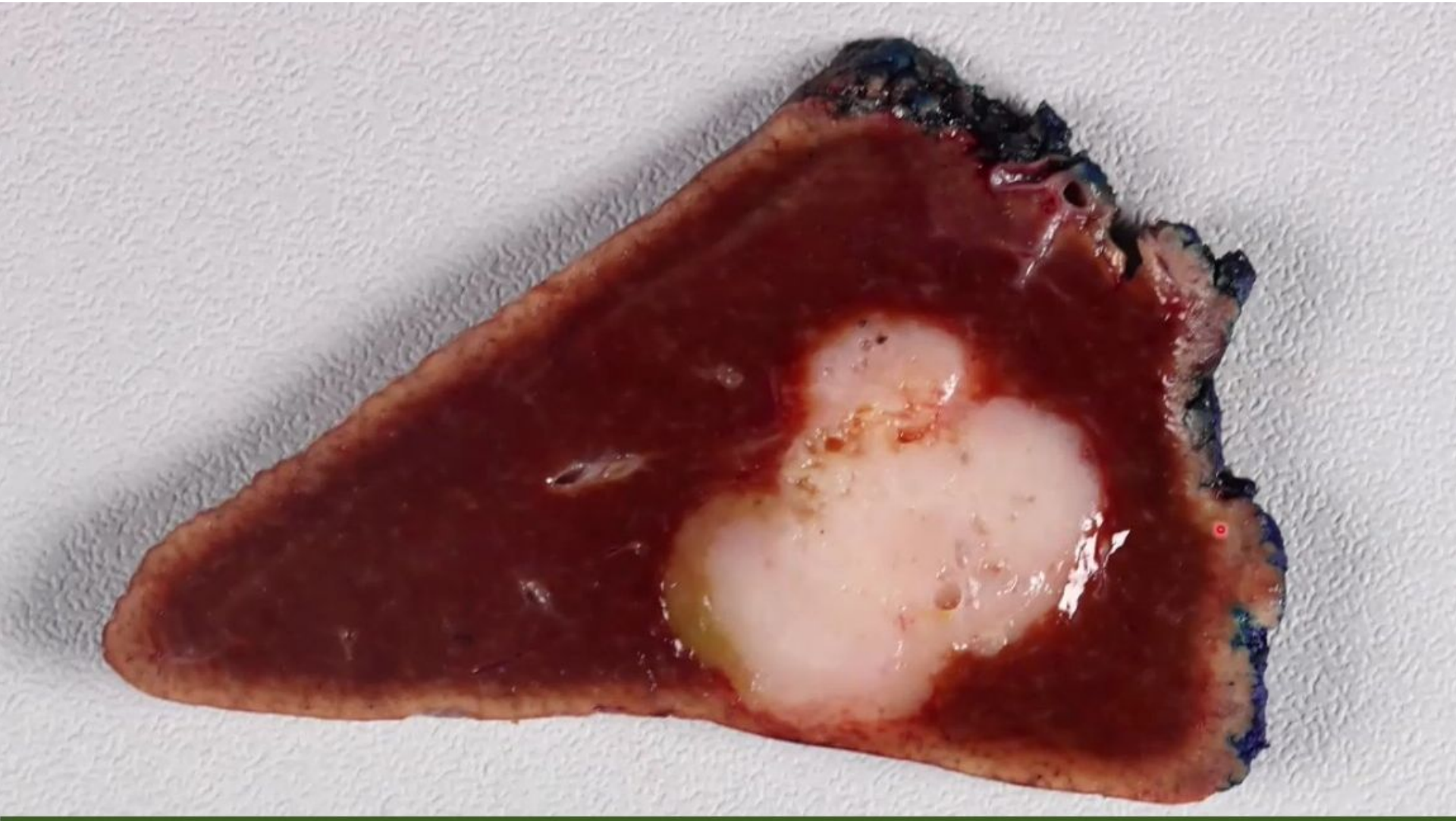
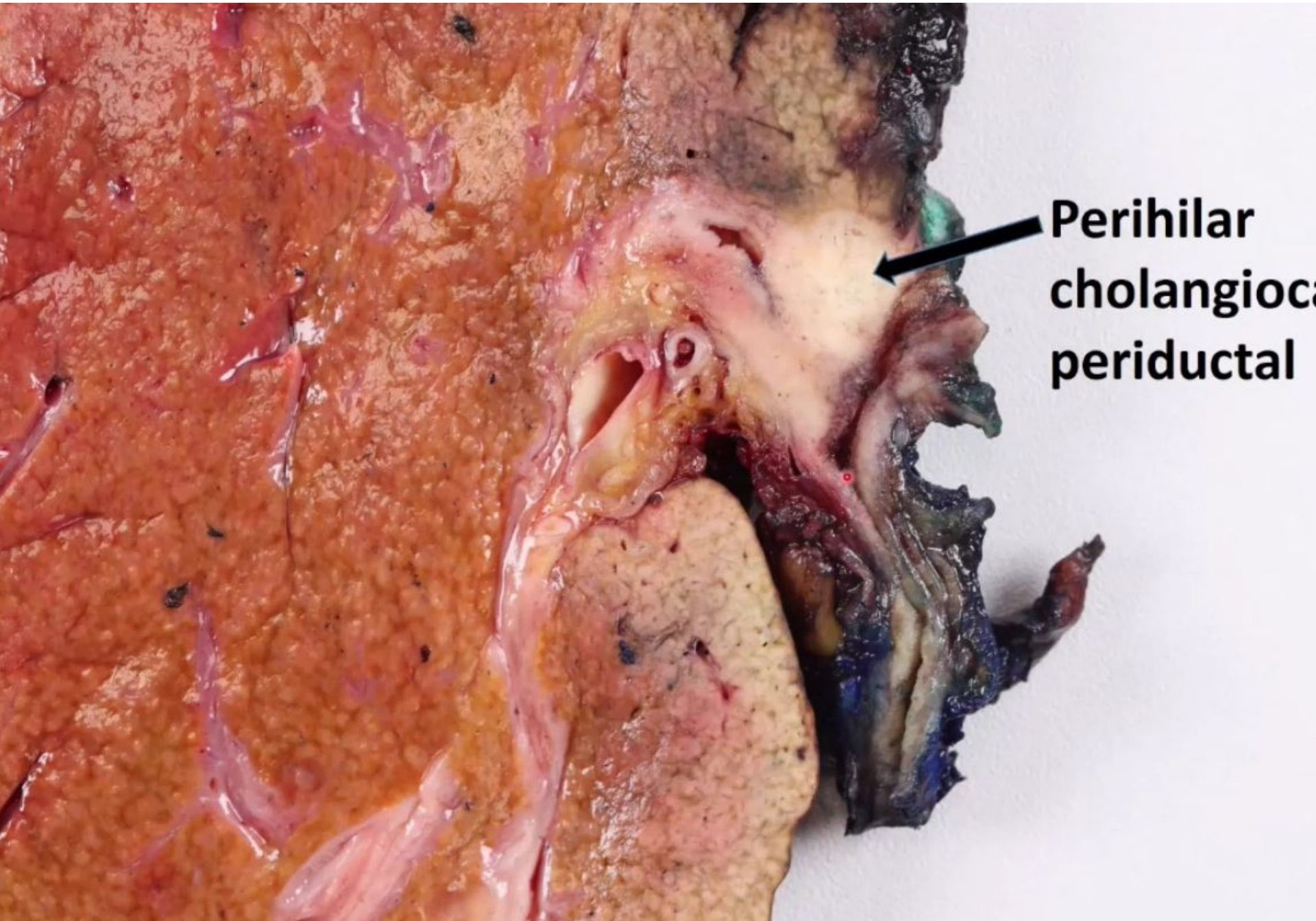
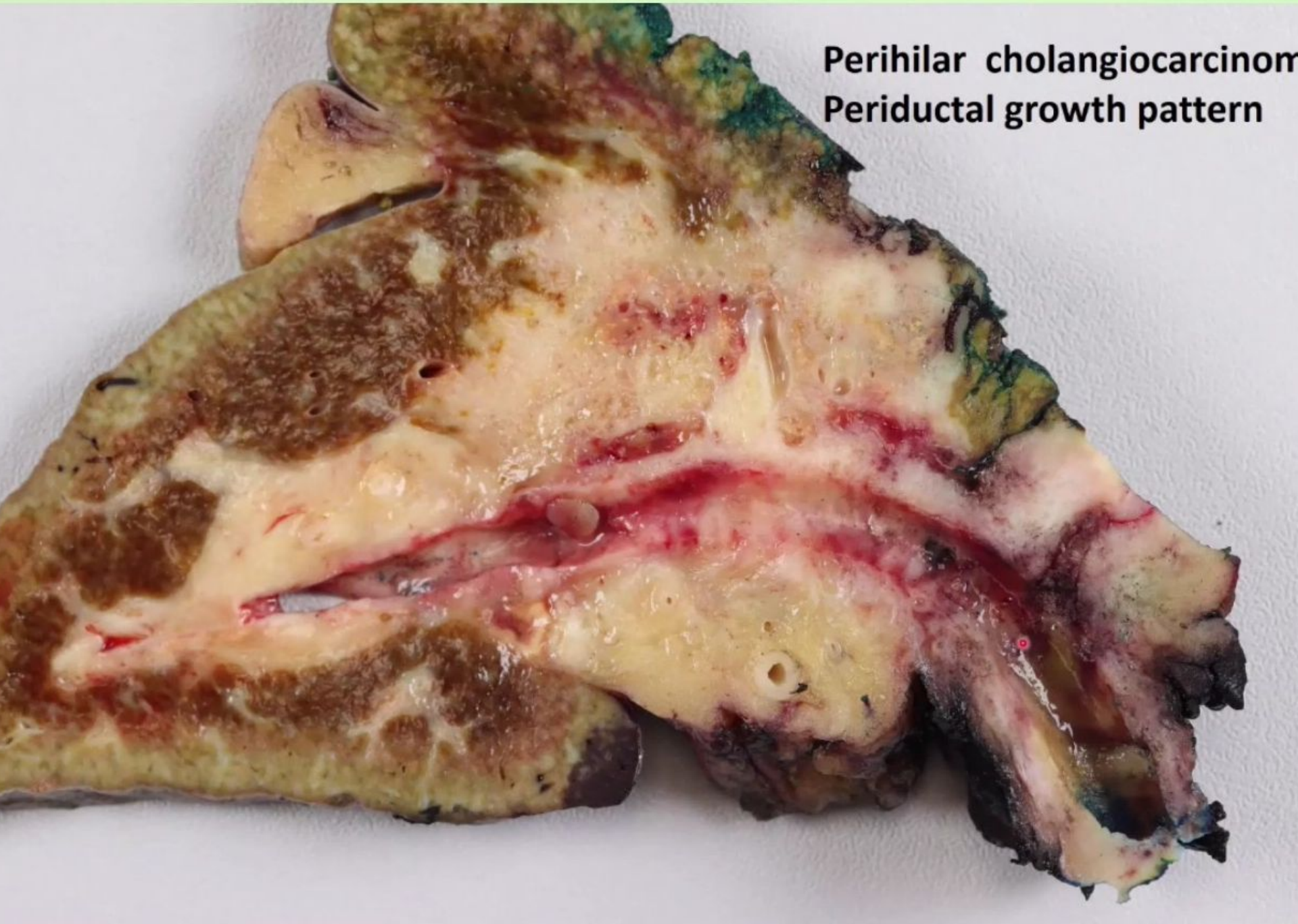


Intrahepatic cholangiocarcinoma, Mass forming

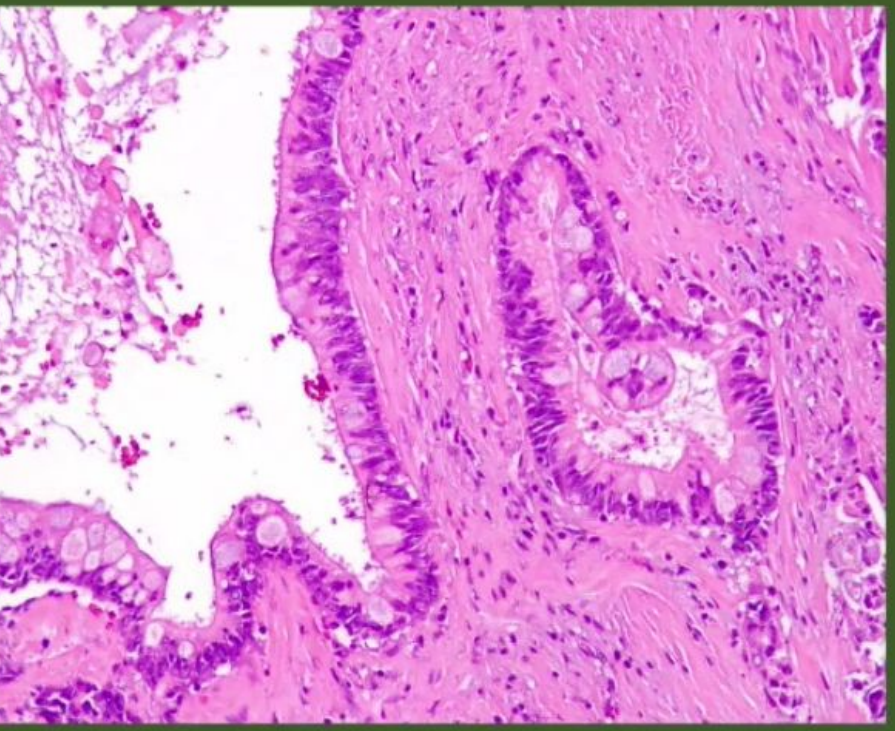

Perihilar,


Perihilar
cholangioca
periductal

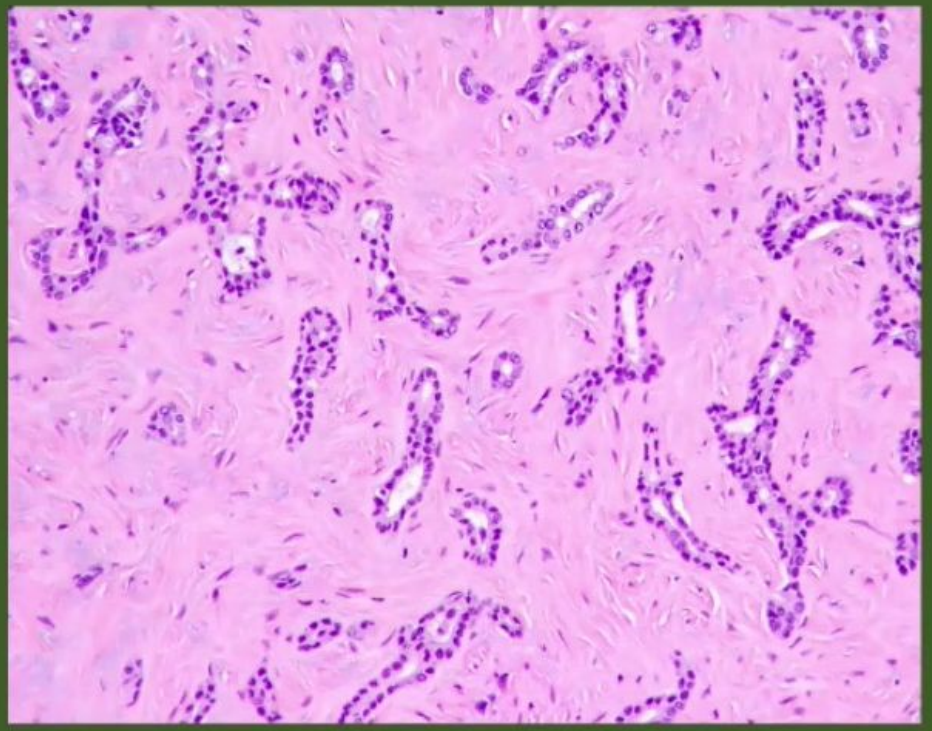

Perihilar cholangiocarcinom
Periductal growth pattern

Microscopic Classification

Large Duct (type 1)



Small Duct (type 2)



Large Duct Type (type 1)

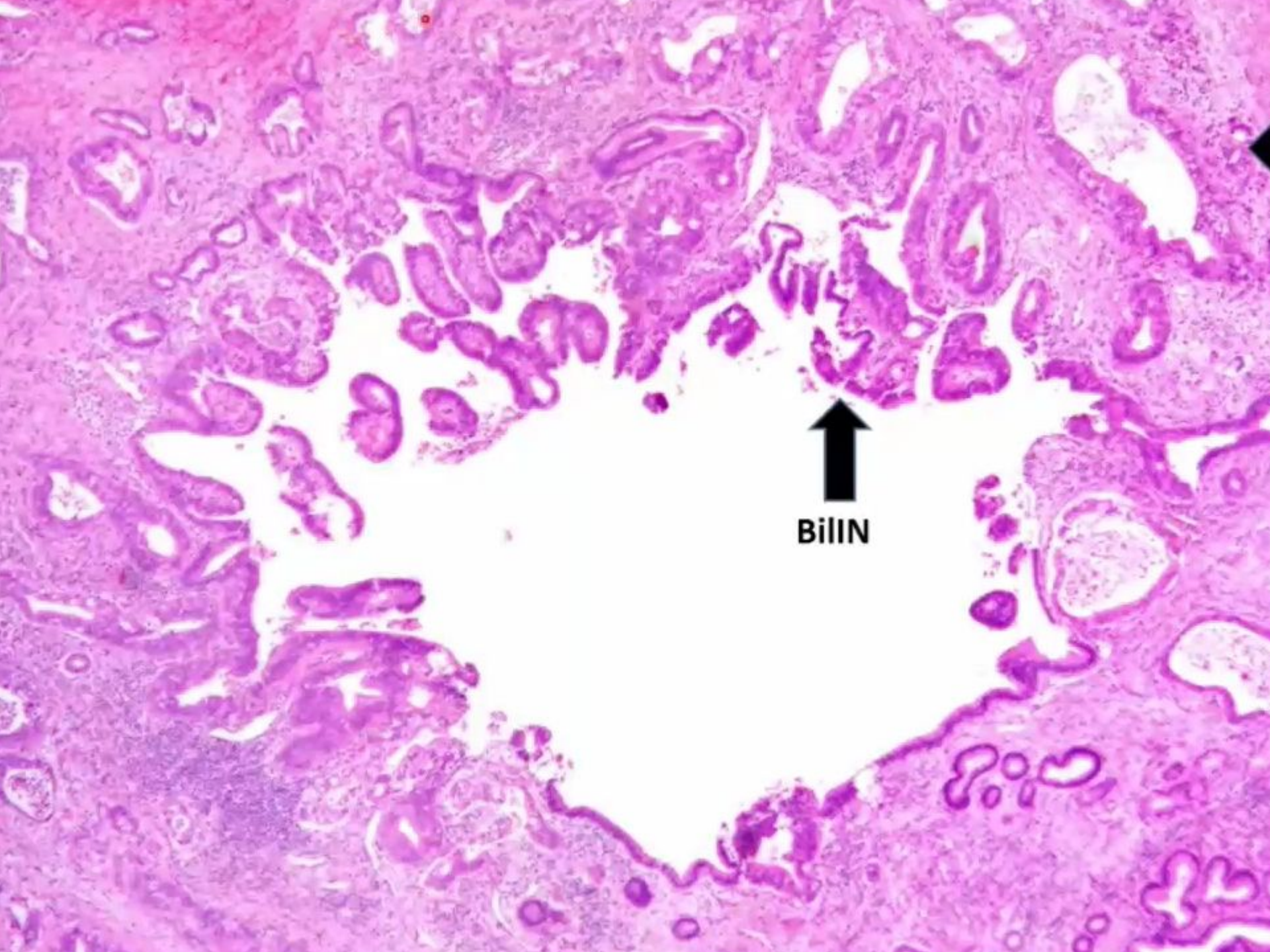
- Adenocarcinoma
  - Pancreatobiliary
  - Intestinal
  - Gastric Foveolar
- Biliary Intraepithelial Neoplasia (BilIN) may be seen
- Perineural, lymphovascular, lymph node metastasis common

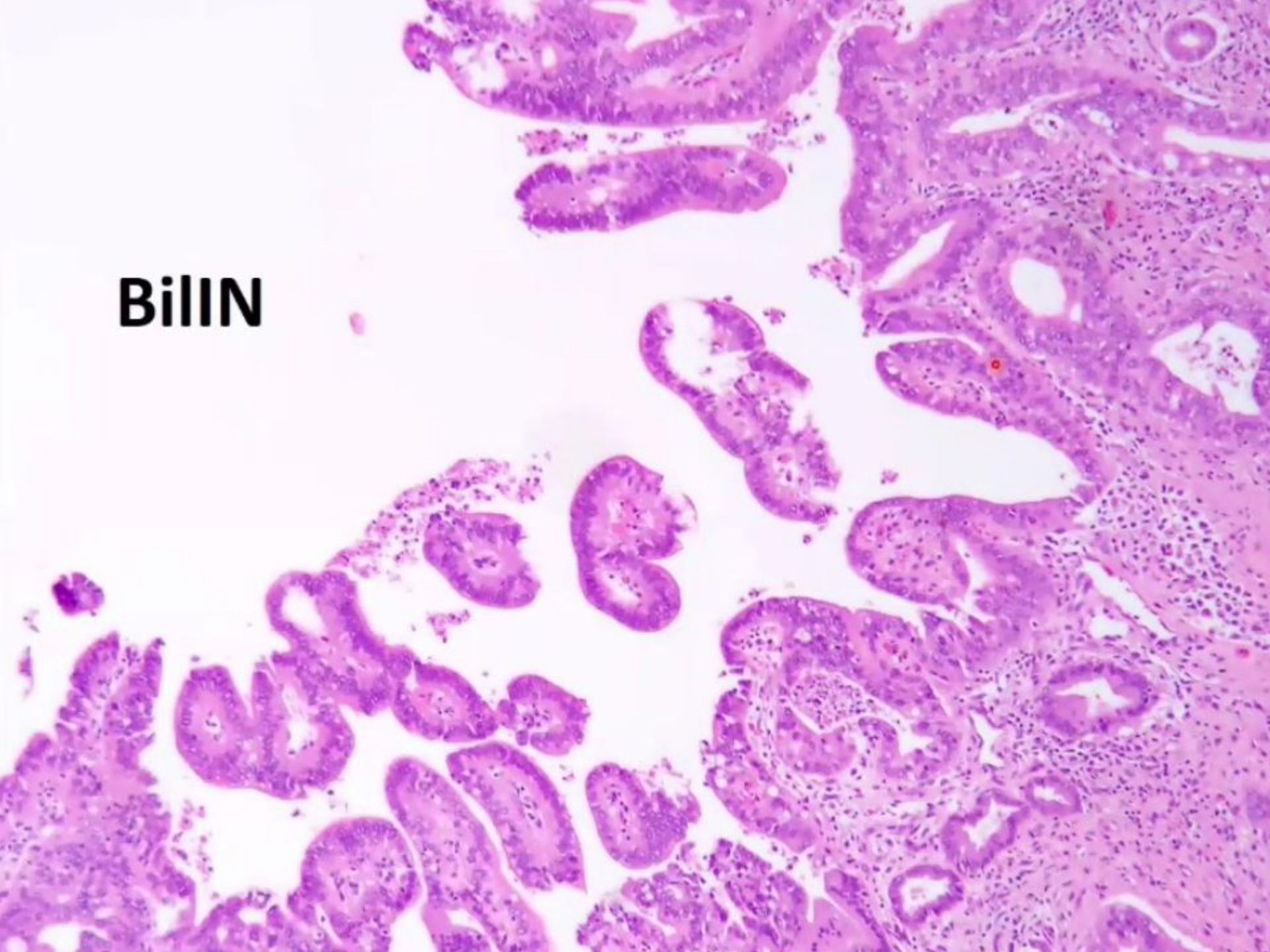
Biliary Intraepithelial Neoplasia (BilIN)

- Flat, premalignant intraepithelial neoplasia of bile ducts
- Field change, multiple foci
- Precursor lesion of cholangiocarcinoma
- Risk factors: hepatolithiasis, PSC (primary sclerosing cholangitis), chronic liver fluke infection

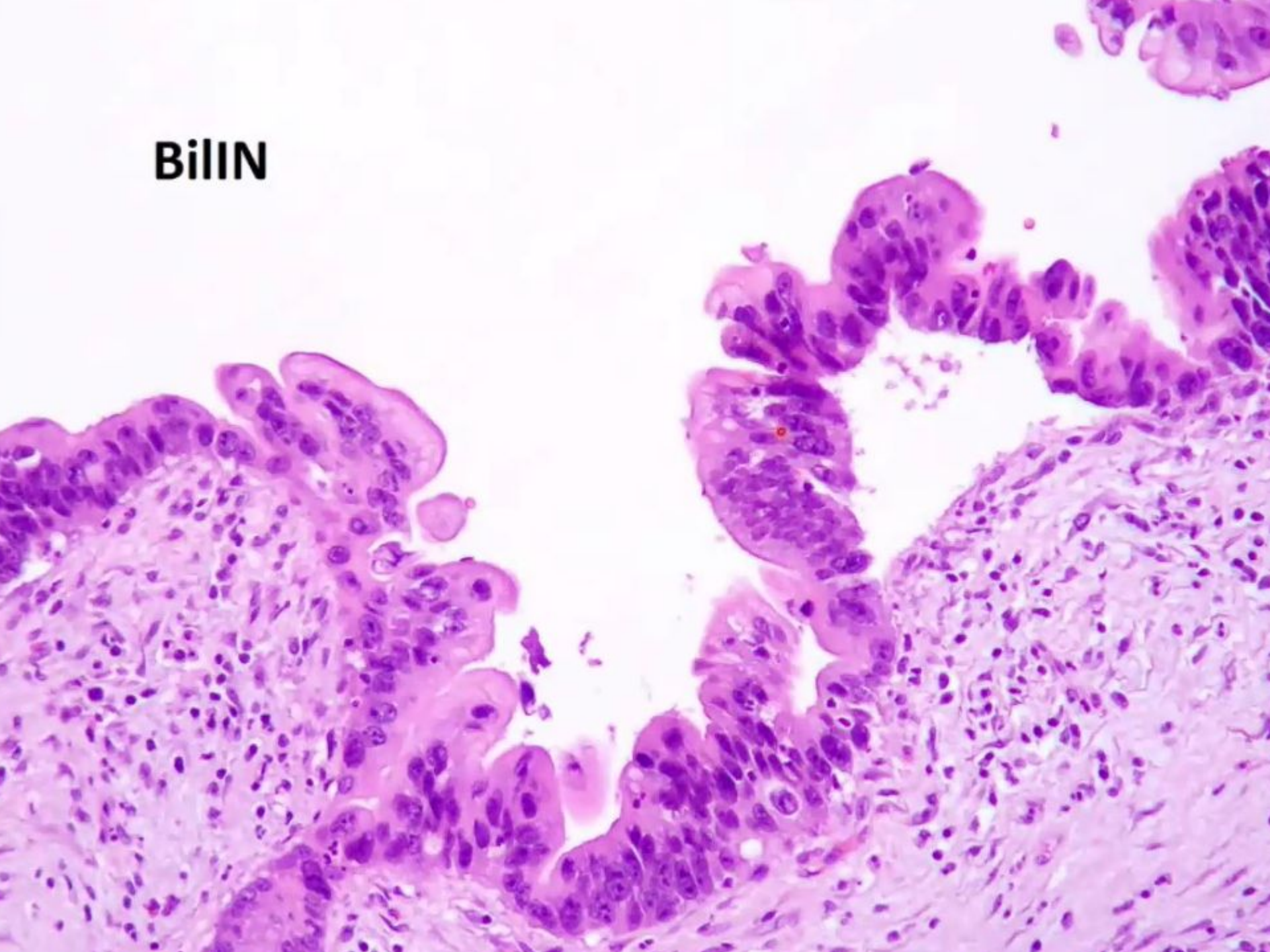
Microscopic Features (BilIN)

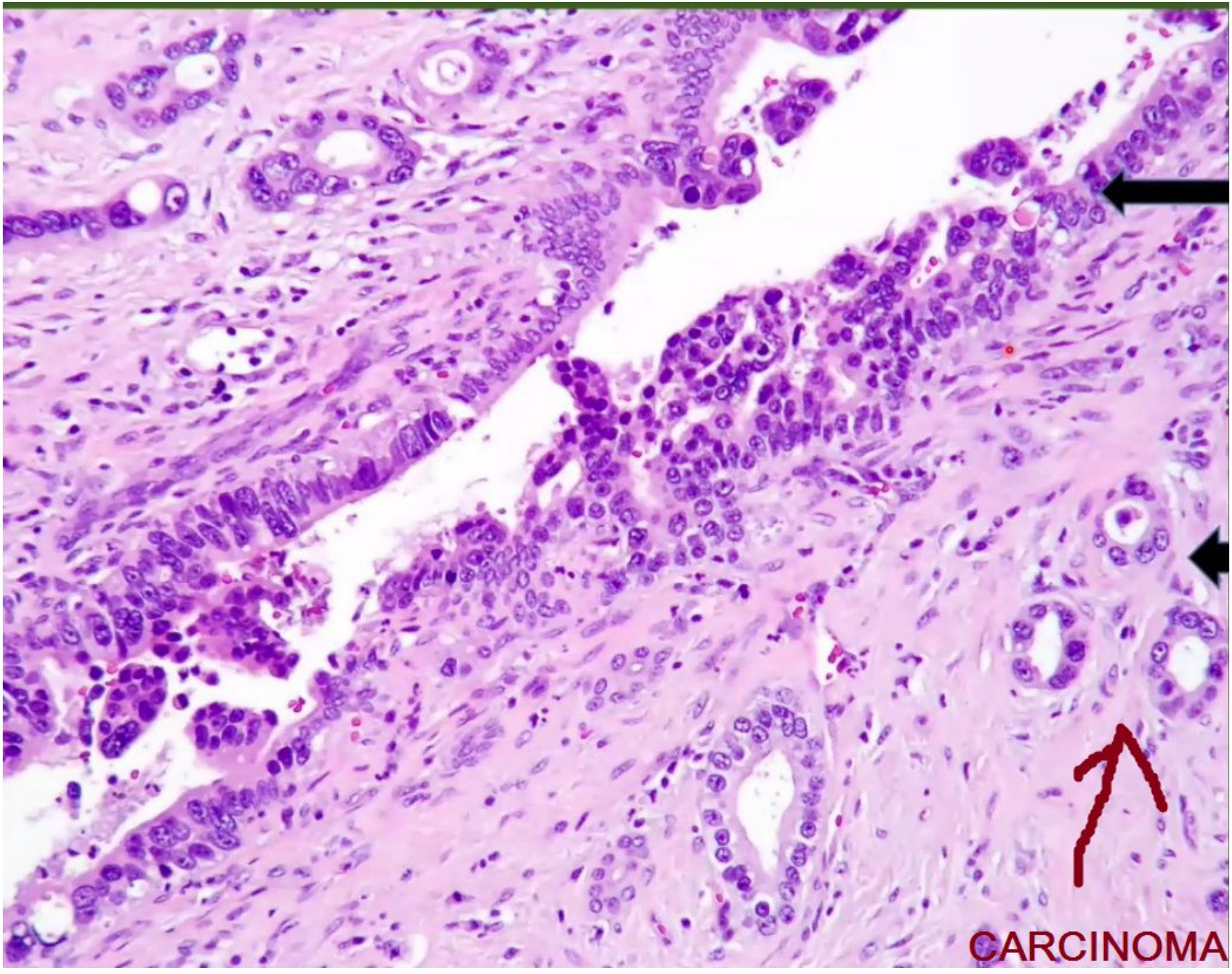
- Nuclear multilayering, pleomorphism, hyperchromasia, loss of polarity
- Flat or micropapillary projections into duct lumen
- Graded as 3 tier (low, intermediate or high grade, BilIN 1,2,3) or 2 tier (low or high grade)

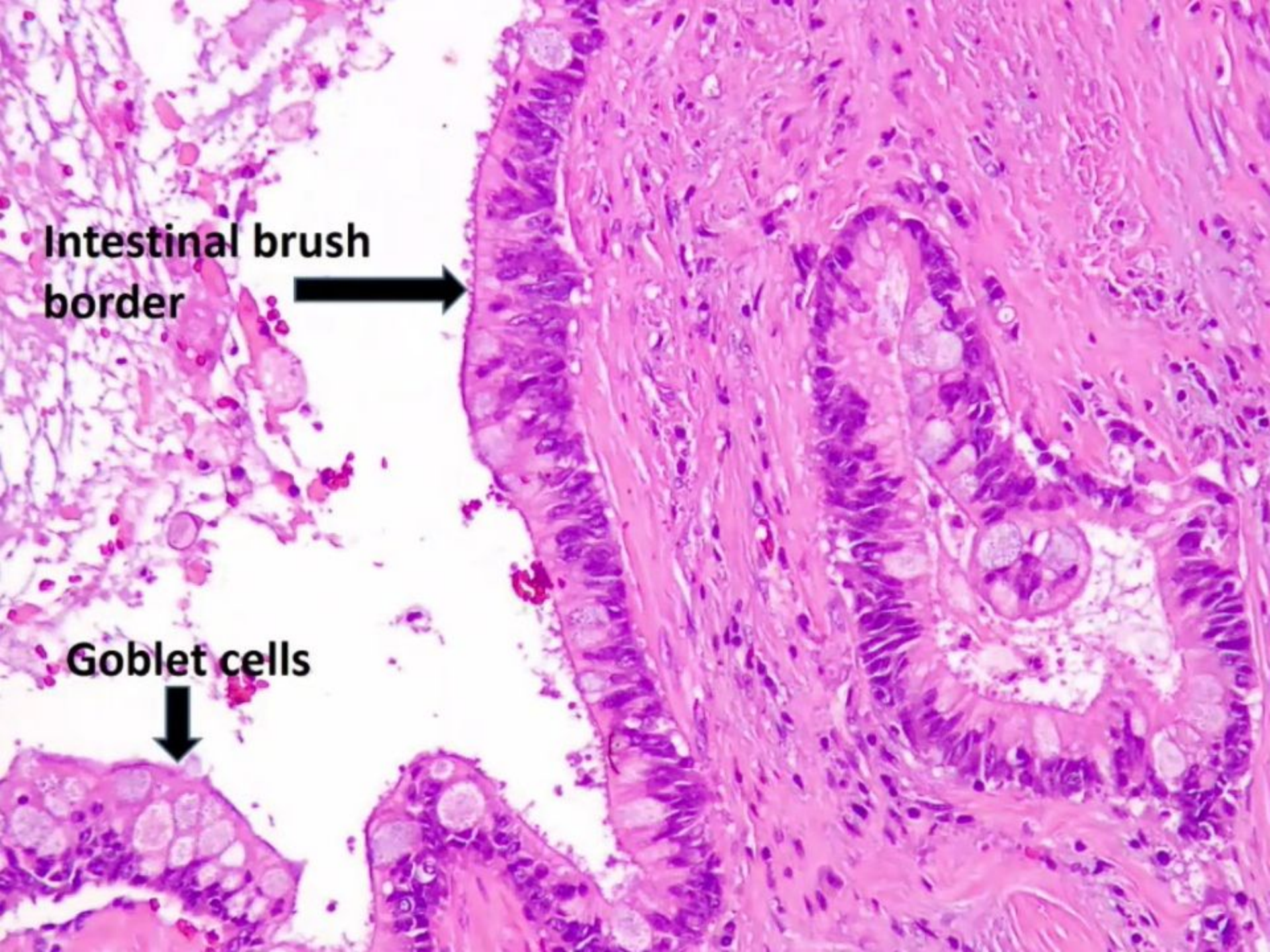

BilIN

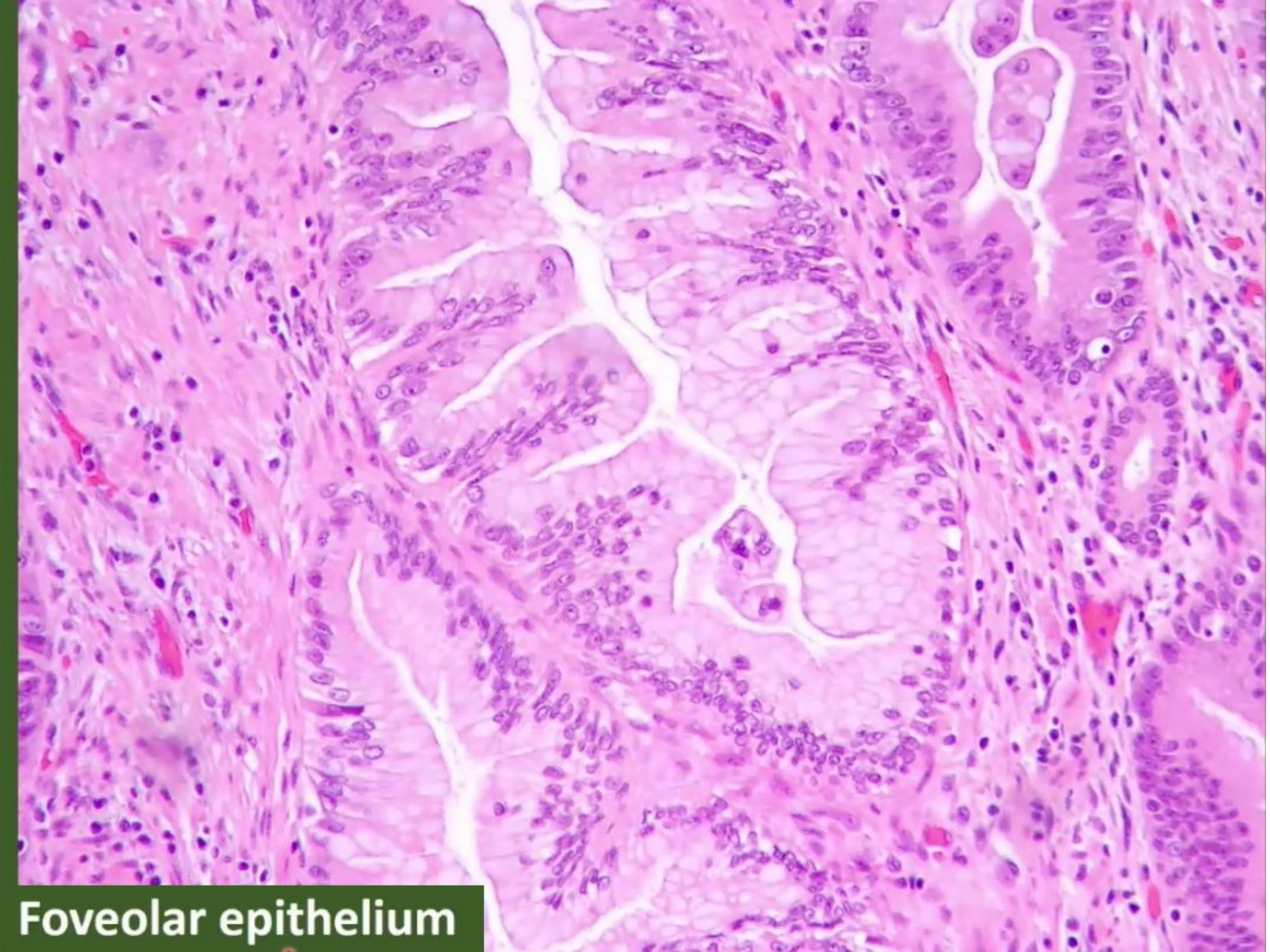

BilIN

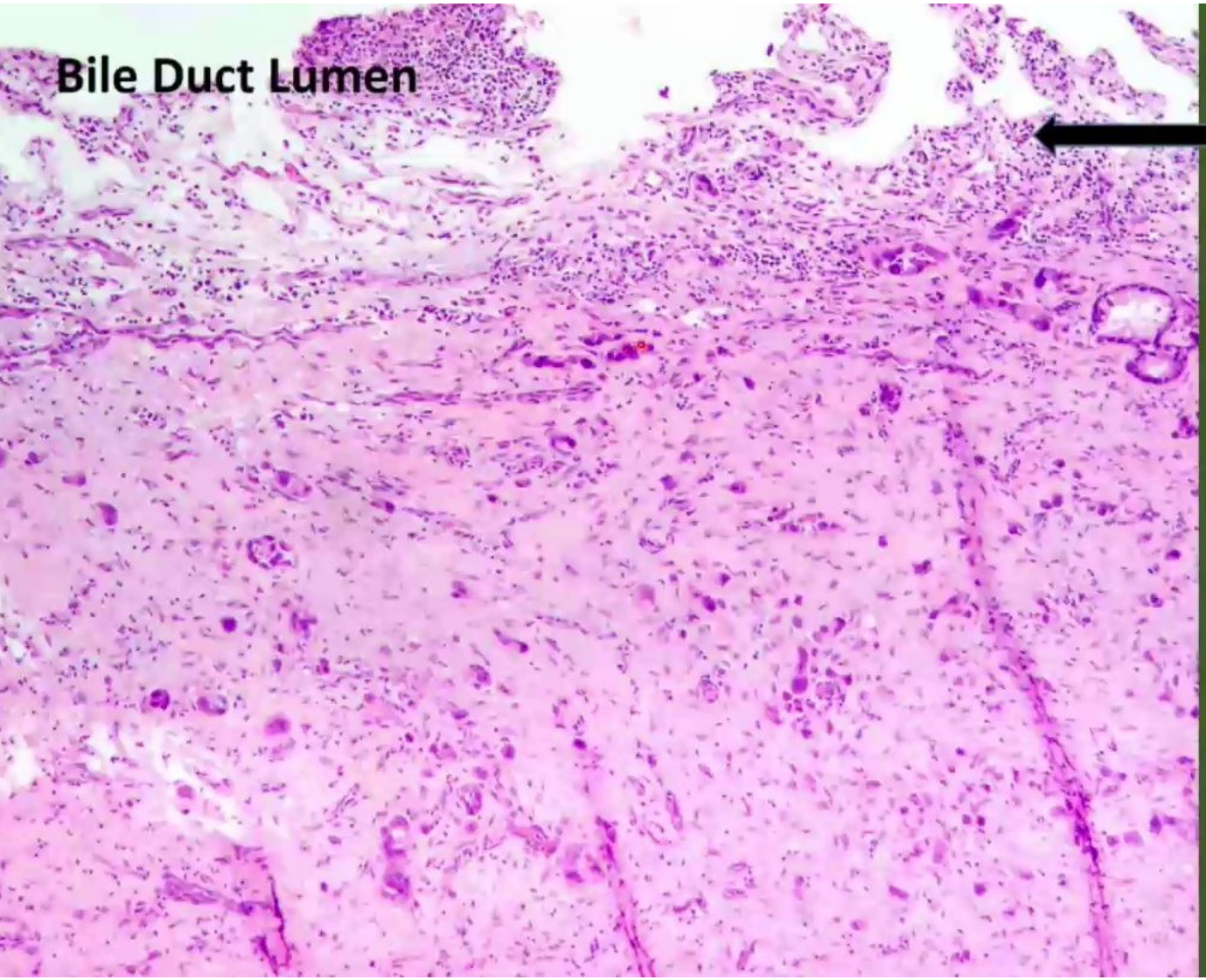
BilIN




CARCINOMA

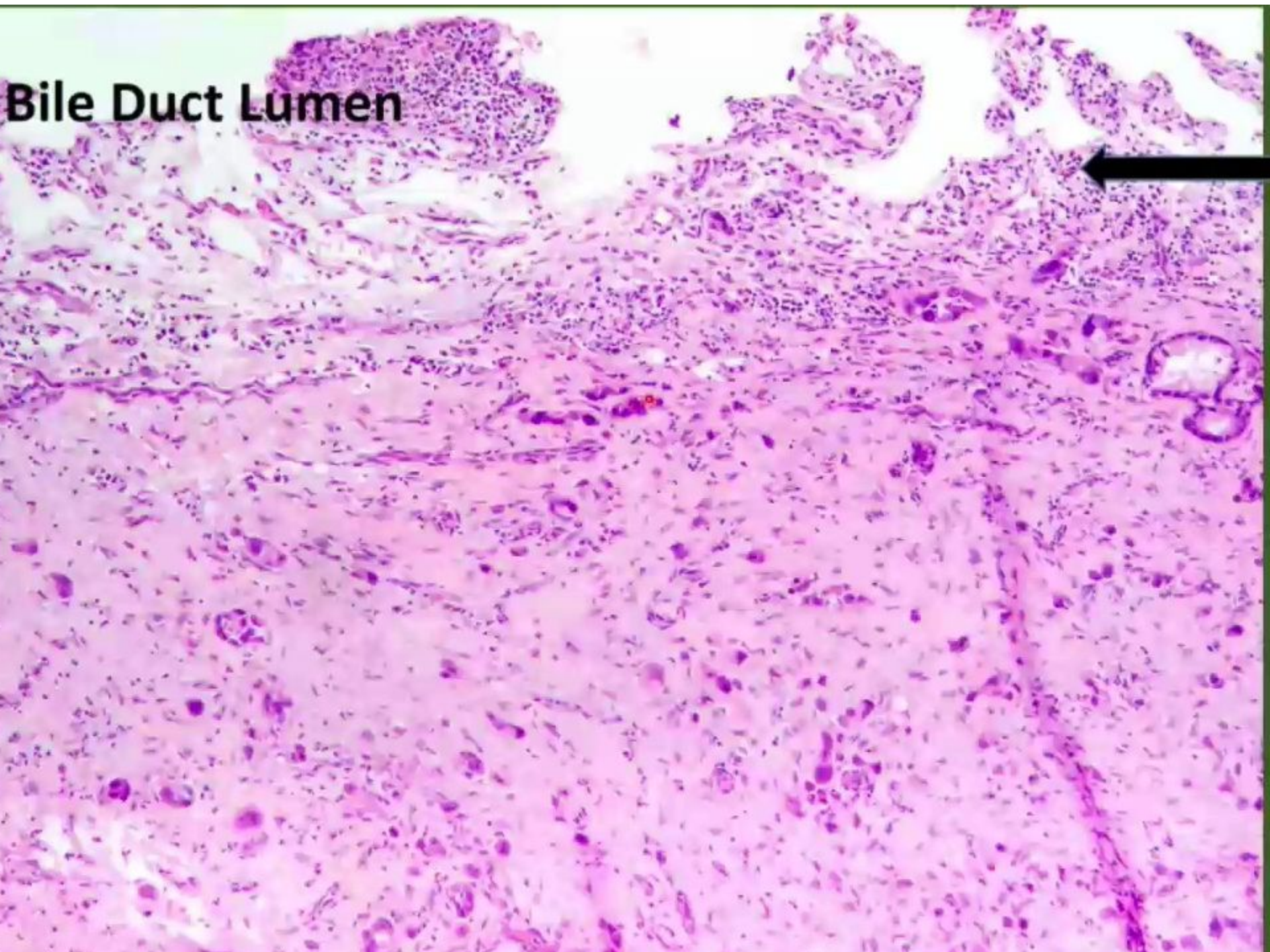

Intestinal brush border
Goblet cells

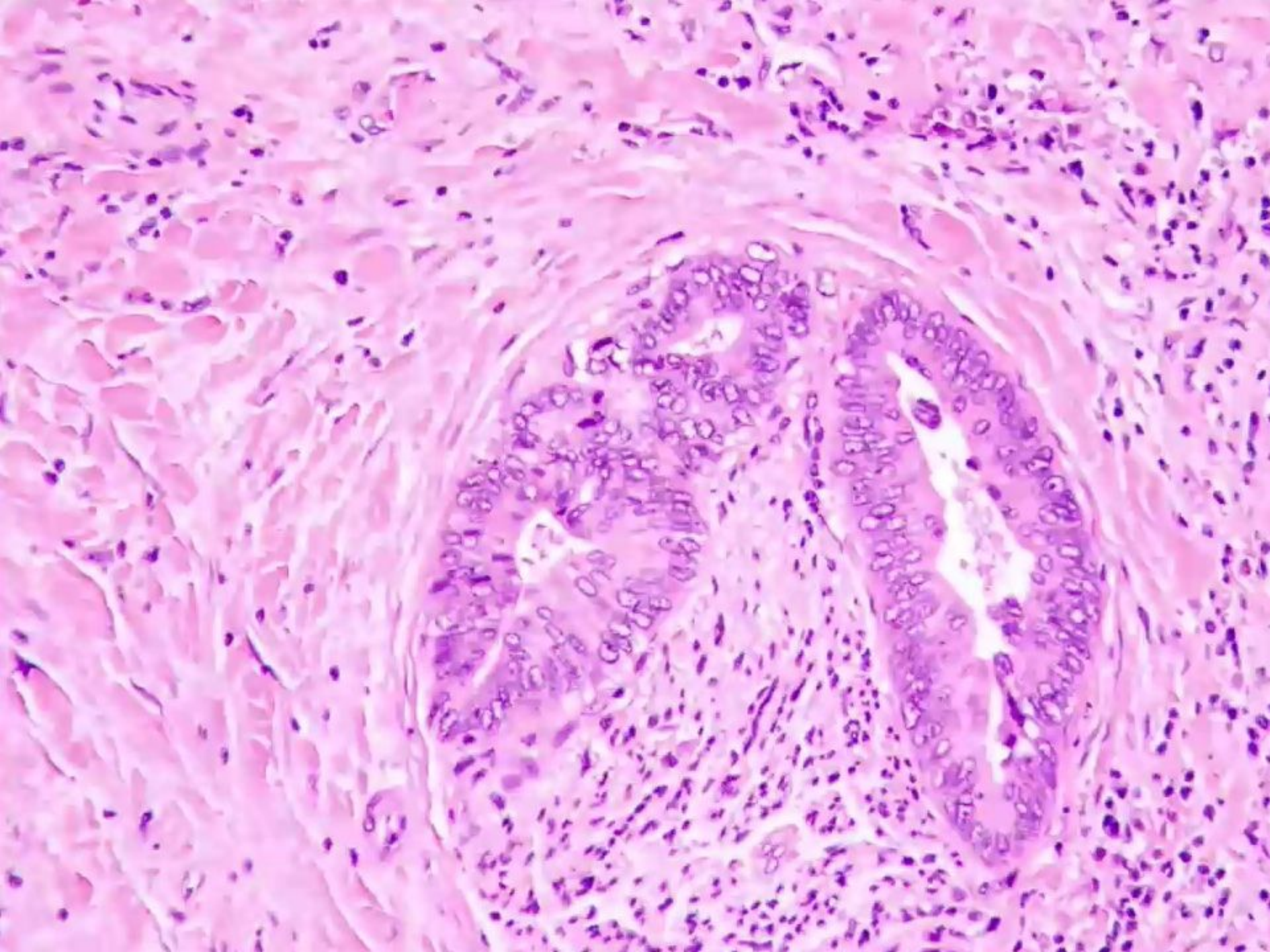

Foveolar epithelium



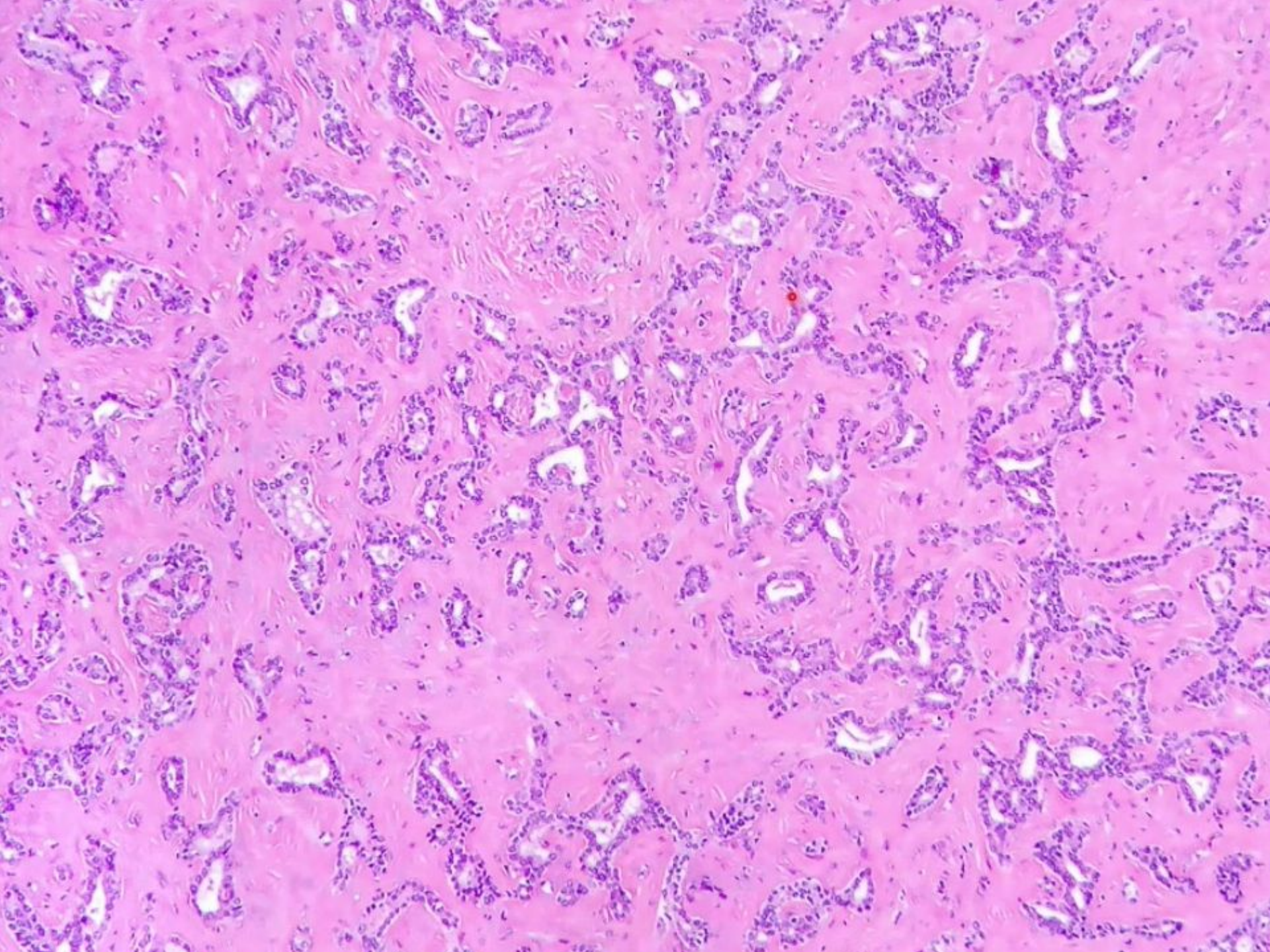
Denuded biliary epithelium

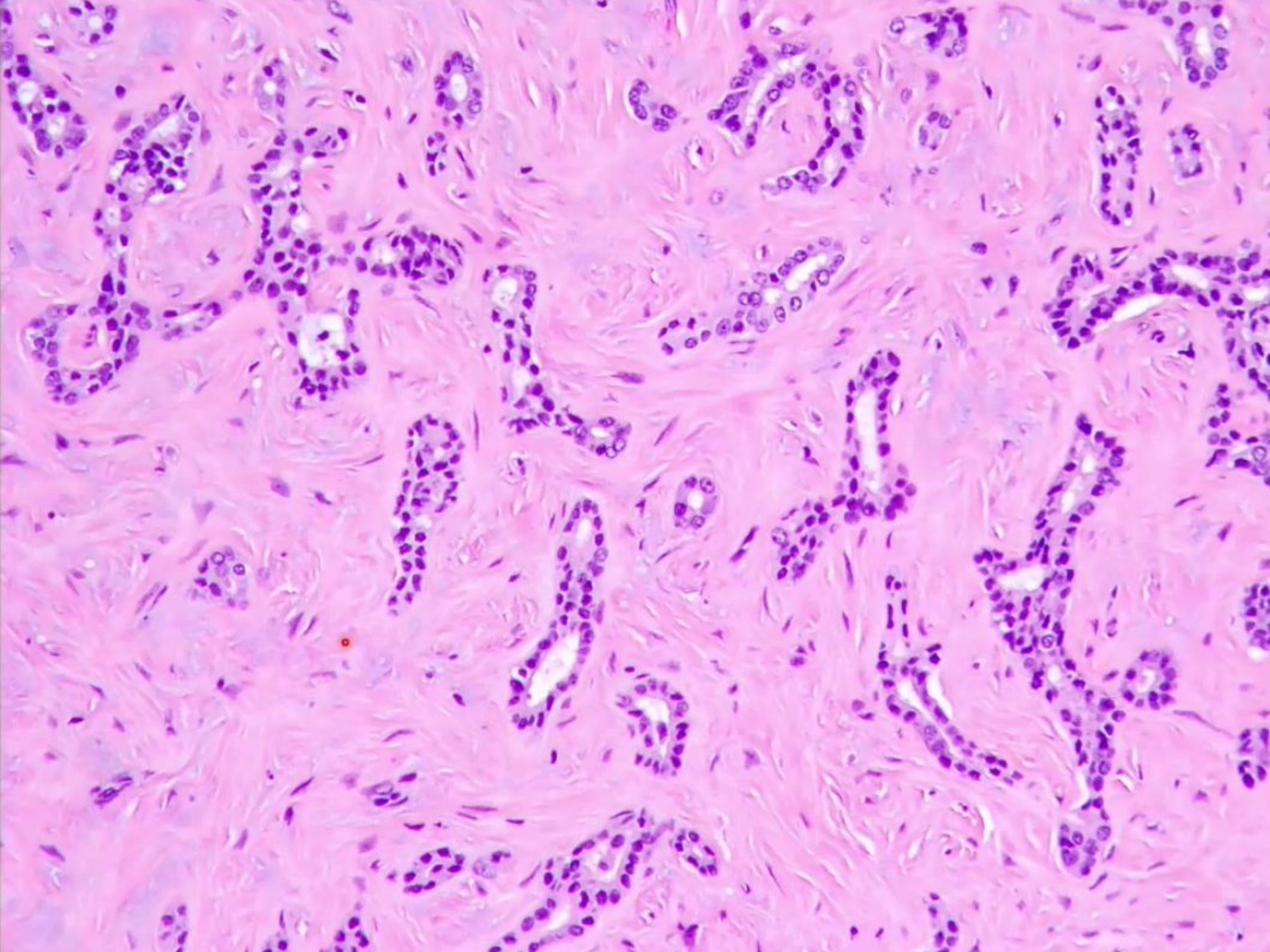
Poorly differentiated adenocarcinoma


Bile Duct Lumen



Small duct type (type 2)	Usual type (large duct, type 1)
Intrahepatic (peripheral)	Perihilar, distal, intrahepatic
Chronic liver disease with advanced fibrosis (stage 3, 4) – chronic viral hepatitis, steatohepatitis	Chronic biliary disease (PSC, hepatolithiasis, fluke infections)
No biliary intraepithelial neoplasia (BilIN)	BilIN usually present
Mass forming	Any/ all pattern(s)
Well differentiated tubules, anastomosing glands	Large glands with foveolar, pancreatobiliary, intestinal epithelium ± mucin production
No perineural invasion	Perineural invasion common
Lymphovascular, lymph node invasion very rare	Lymphovascular, lymph node invasion common
Pushing tumor borders	Infiltrative tumor borders
CD 56 (NCAM) +	S100, TFF3 + (TreFoil Factor)
KRAS mutations, FGFR2 translocations	IDH1/IDH2 mutations





БЛАГОДАРЮ СЕРДЕЧНО

САКСЕНА РОМИЛ