

Mixed adenocarcinoma and neuro-endocrine tumor of the duodenal papilla

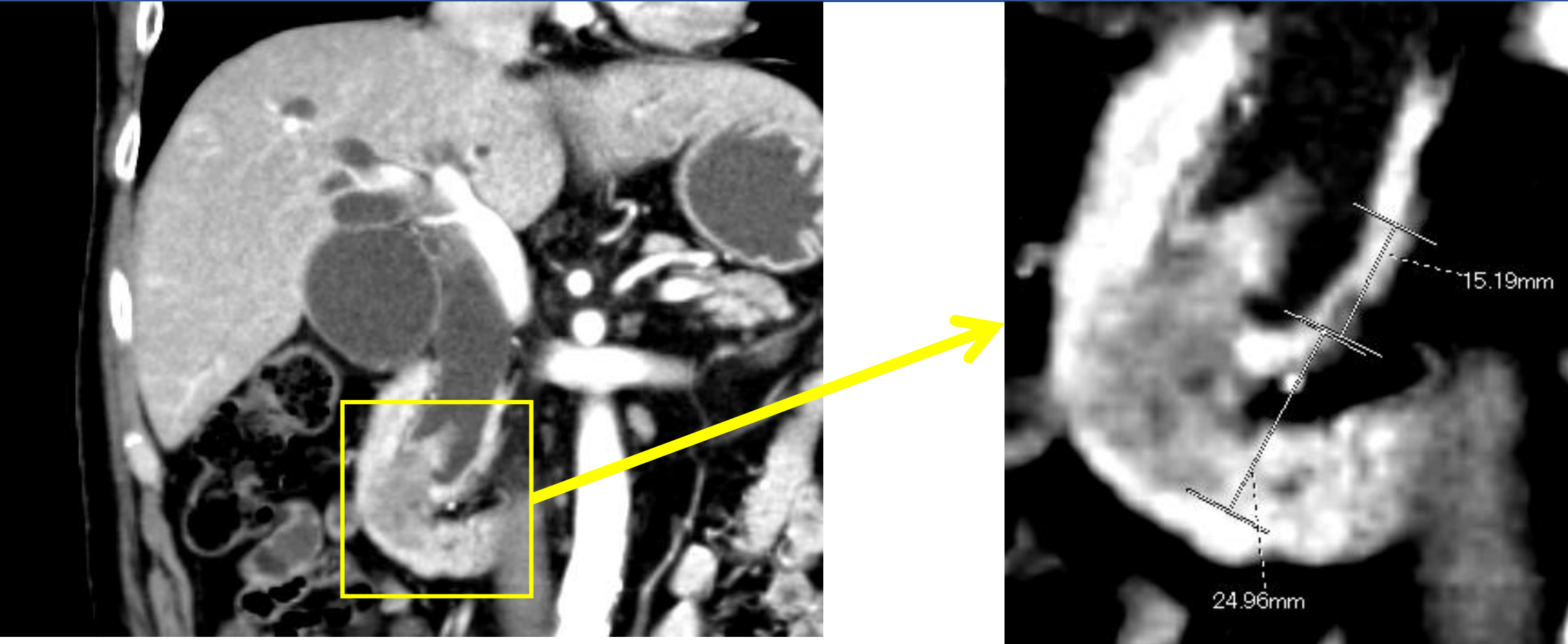
Mixed adenoneuroendocrine carcinoma (MANEC) consists of dual components with adenocarcinomatous and neuroendocrine differentiations, each component representing at least 30% of the tumor. MANEC infrequently occurs in the gastrointestinal tract.

A Japanese man aged 60's complained of obstructive jaundice. Carcinoma in the duodenal ampulla of Vater, 20 x 20 mm was identified. Stomach-preserving pancreaticoduodenectomy was performed. The mass consisted of two components: hypovascular 2.5 cm-sized adenocarcinoma in the ampulla of Vater and exophytic hypervascular 1.5cm-sized neuroendocrine tumor (NET) (G2) in lower common bile duct. Both adenocarcinoma and NET (G2) expressed CDX-2 and SSTR2 (somatostatin receptor-2), suggesting that NET may arose from intestinal type adenocarcinoma. The patient is free of recurrence 16 months after surgery.

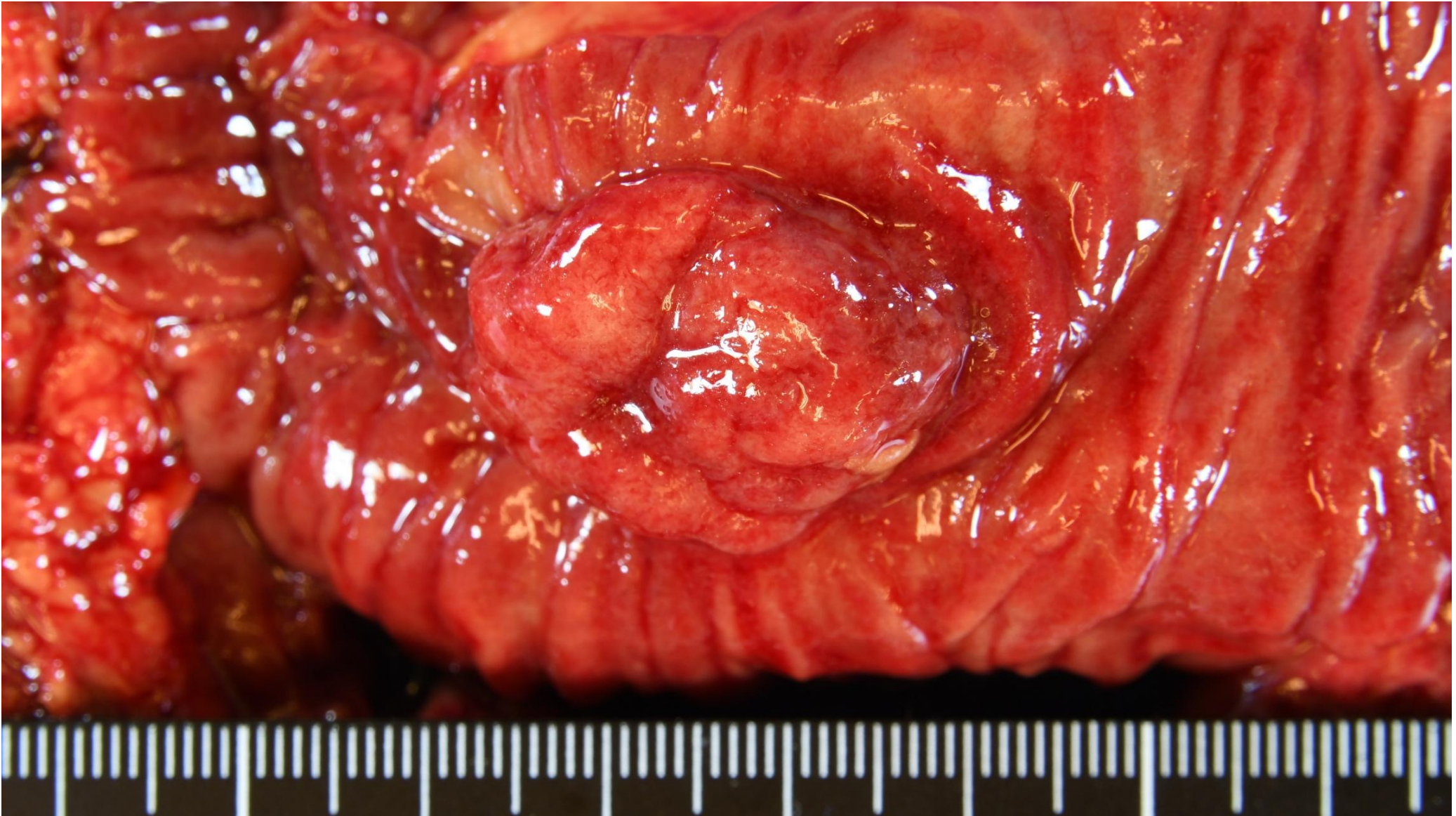
Ref.-1: Tachibana M, et al. A rare collision tumor: adenocarcinoma in the ampulla of Vater and neuroendocrine tumor in the lower part of the common bile duct. Cureus 2021; 13(6): e15882. doi: 10.7759/cureus.15882

Ref.-2: Kochar T, et al. When adenocarcinoma went hand in hand with neuroendocrine tumor: a rare case of adenocarcinoma synchronous with neuroendocrine tumor in ampulla of Vater. Cureus 2019; 11: e5168. doi: 10.7759/cureus.5168

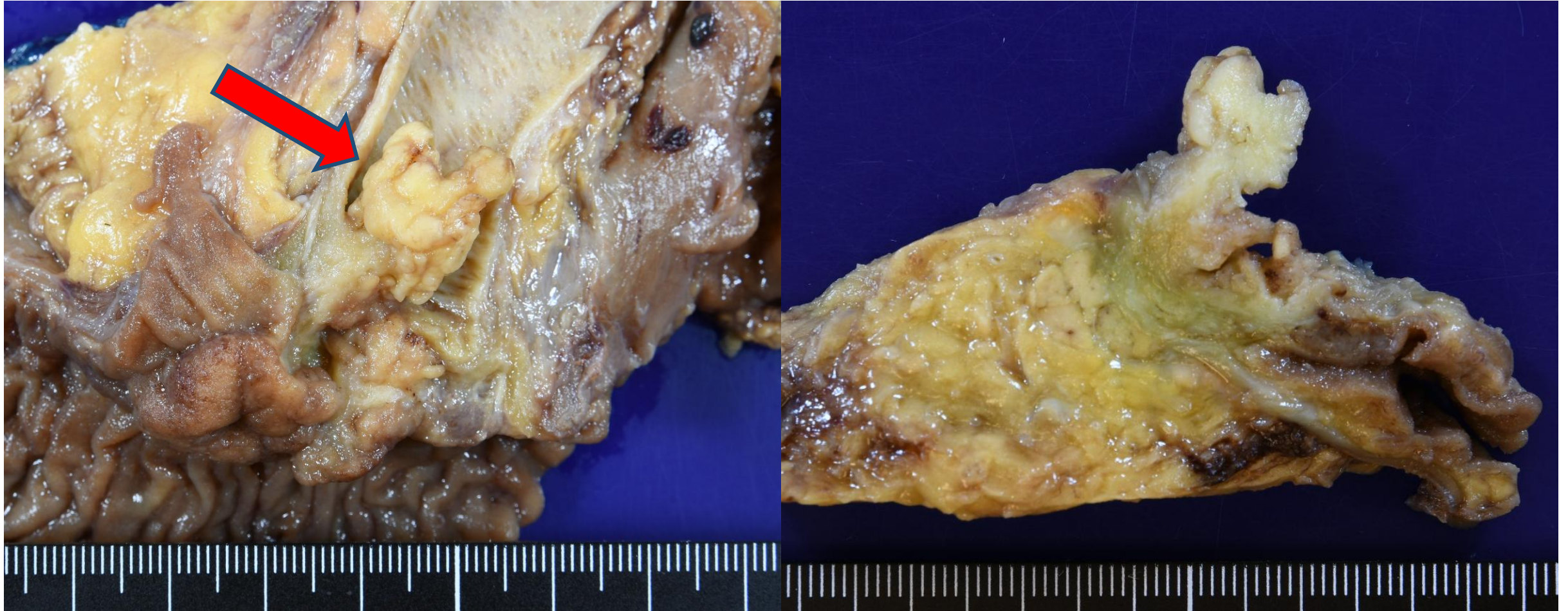
CT findings



An exophytic mass in lower common bile duct through the ampulla of Vater is seen on the CT image. In an artery dominant phase of the dynamic study, the mass consisted of two components: hypovascular, 2.5 cm-sized tumor in the ampulla of Vater and exophytic hypervascular, 1.5 cm-sized tumor in the lower common bile duct.

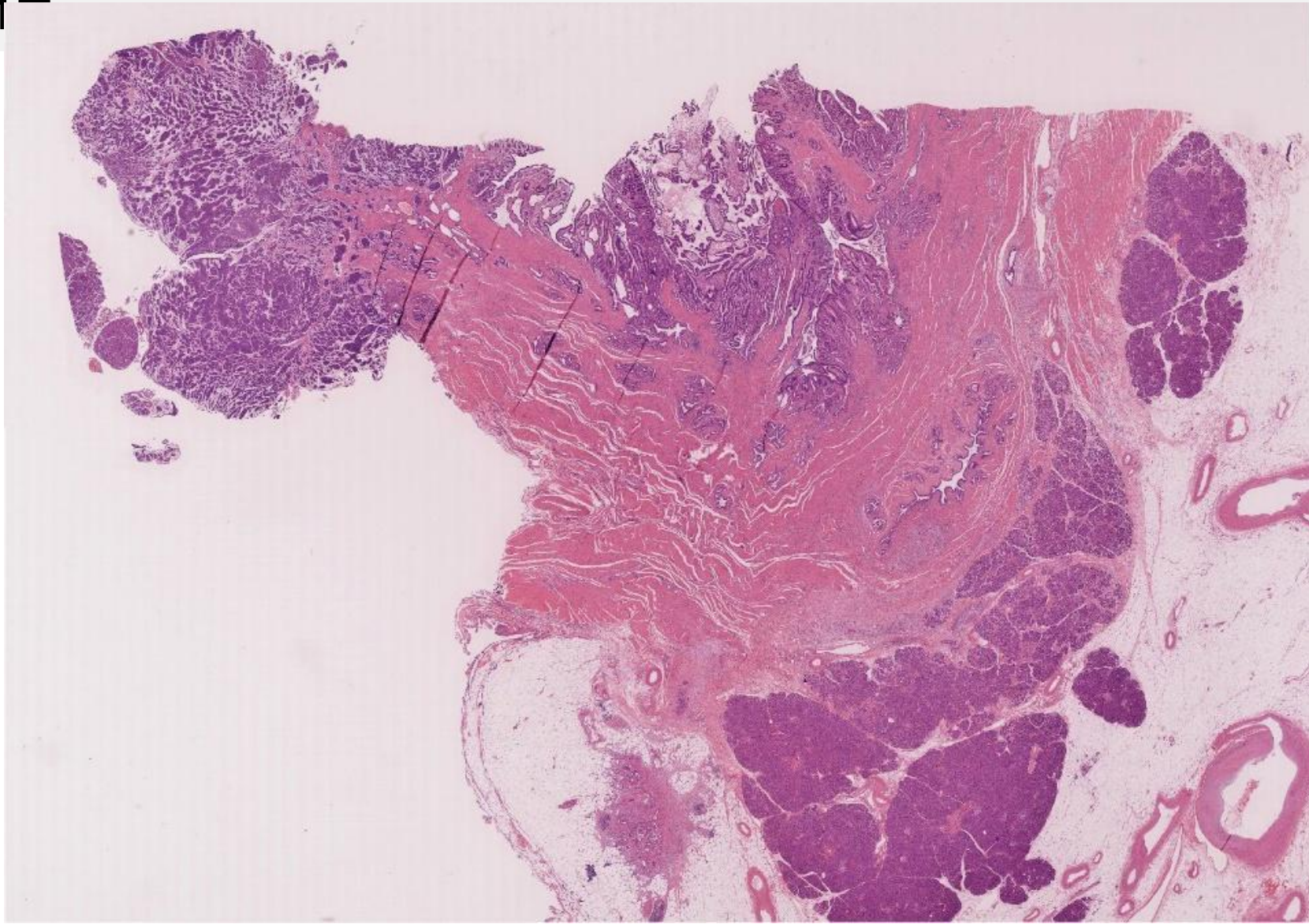


The surgical specimen reveals a polypoid mass measuring 26 x 22 mm at the ampulla of Vater

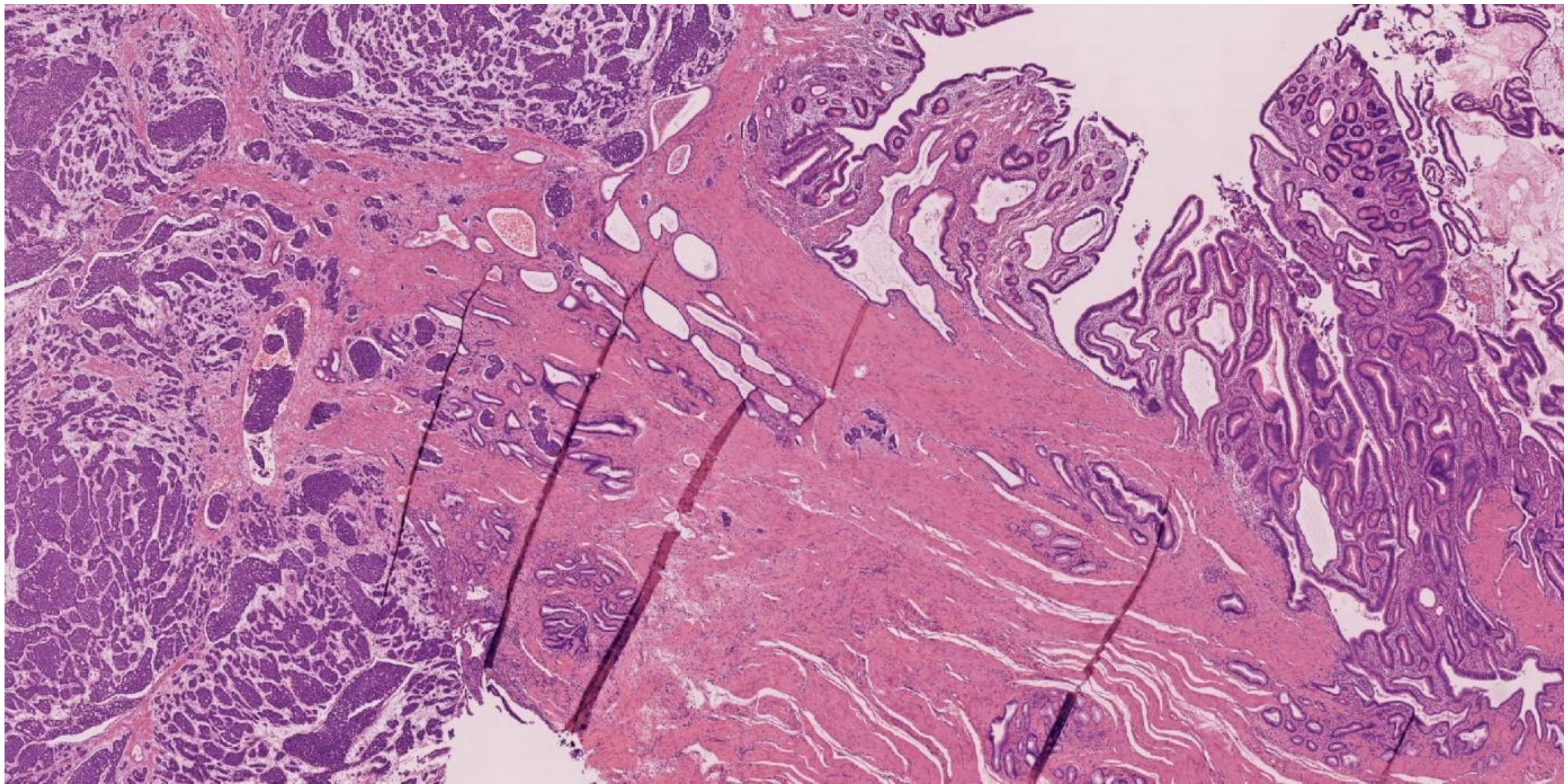


An exophytic polypoid tumor of the lower common bile duct (15 x 12 mm; in size) is indicated by an arrow. The CBD tumor is located just adjacent to the ampullary mass.

Loupe, H^E

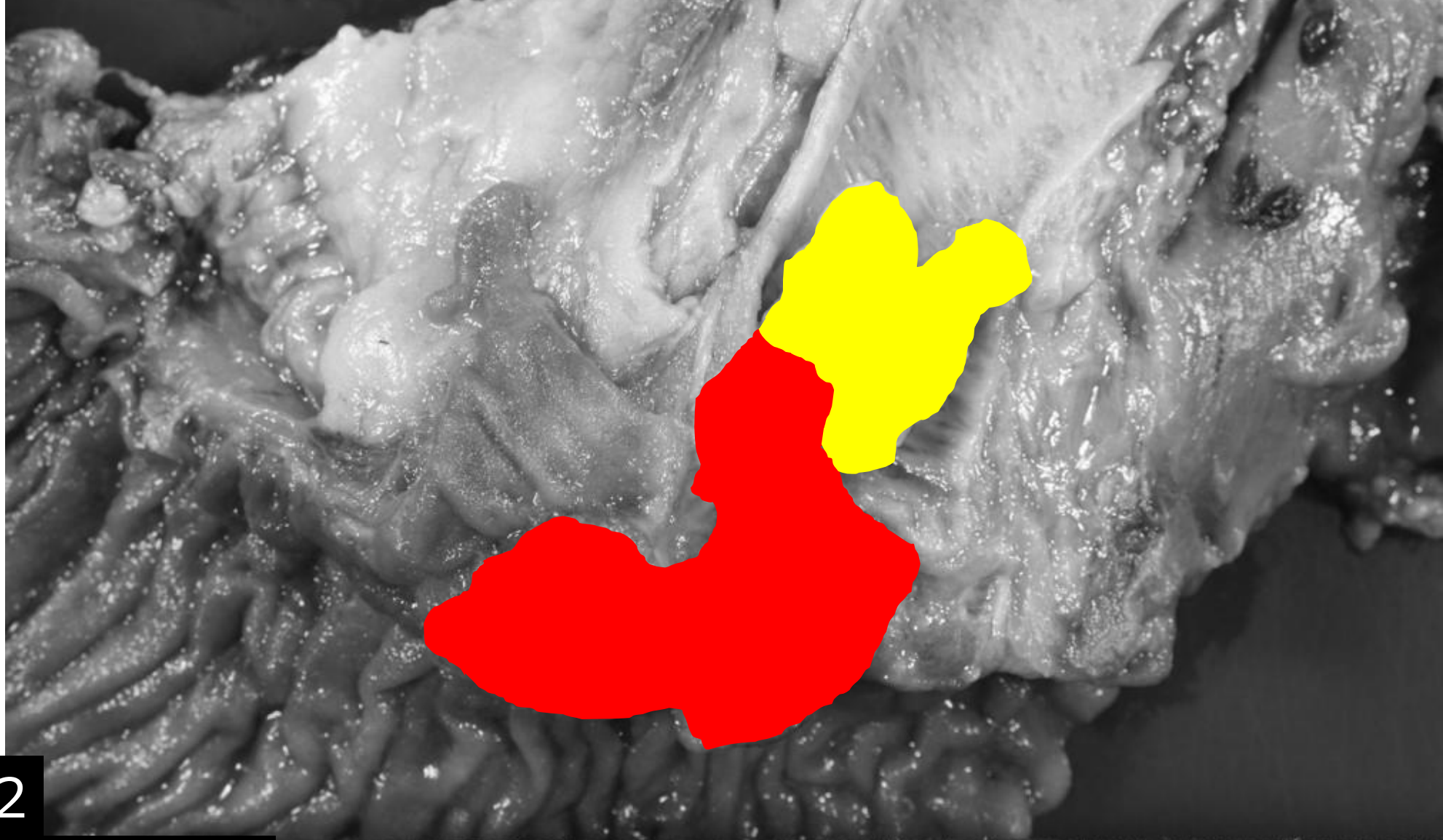


A low-powered view of the ampullary adenocarcinoma and NET of the CBD. Both are closely located as collision tumors. The pancreas head tissue is seen in the right. H&E-1



Transition between ampullary adenocarcinoma (right half) and NET of the CBD (left half). Both components are collided. H&E-2

Illustrated distribution of the collision tumors



NET, G2

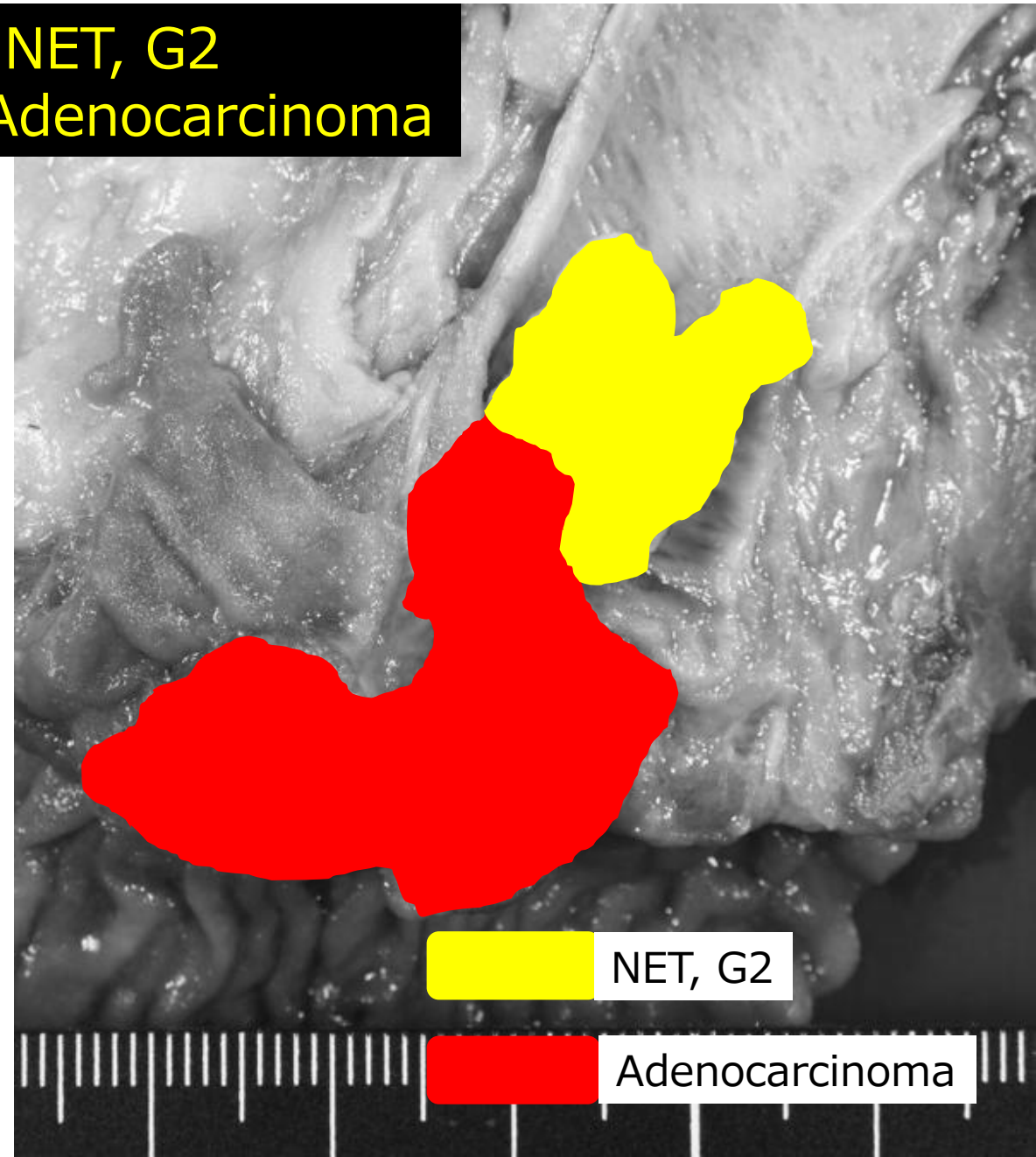
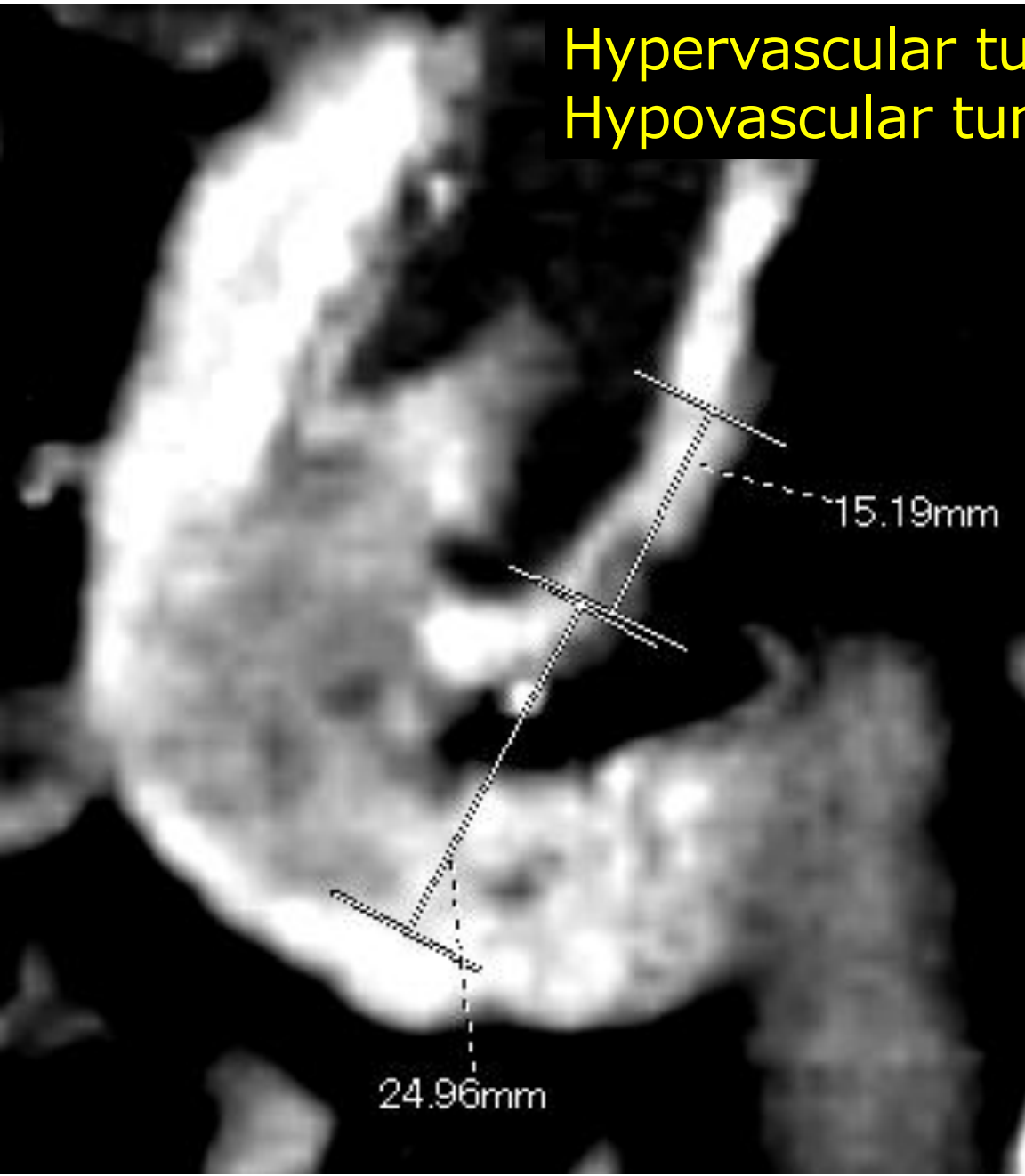
Adenocarcinoma

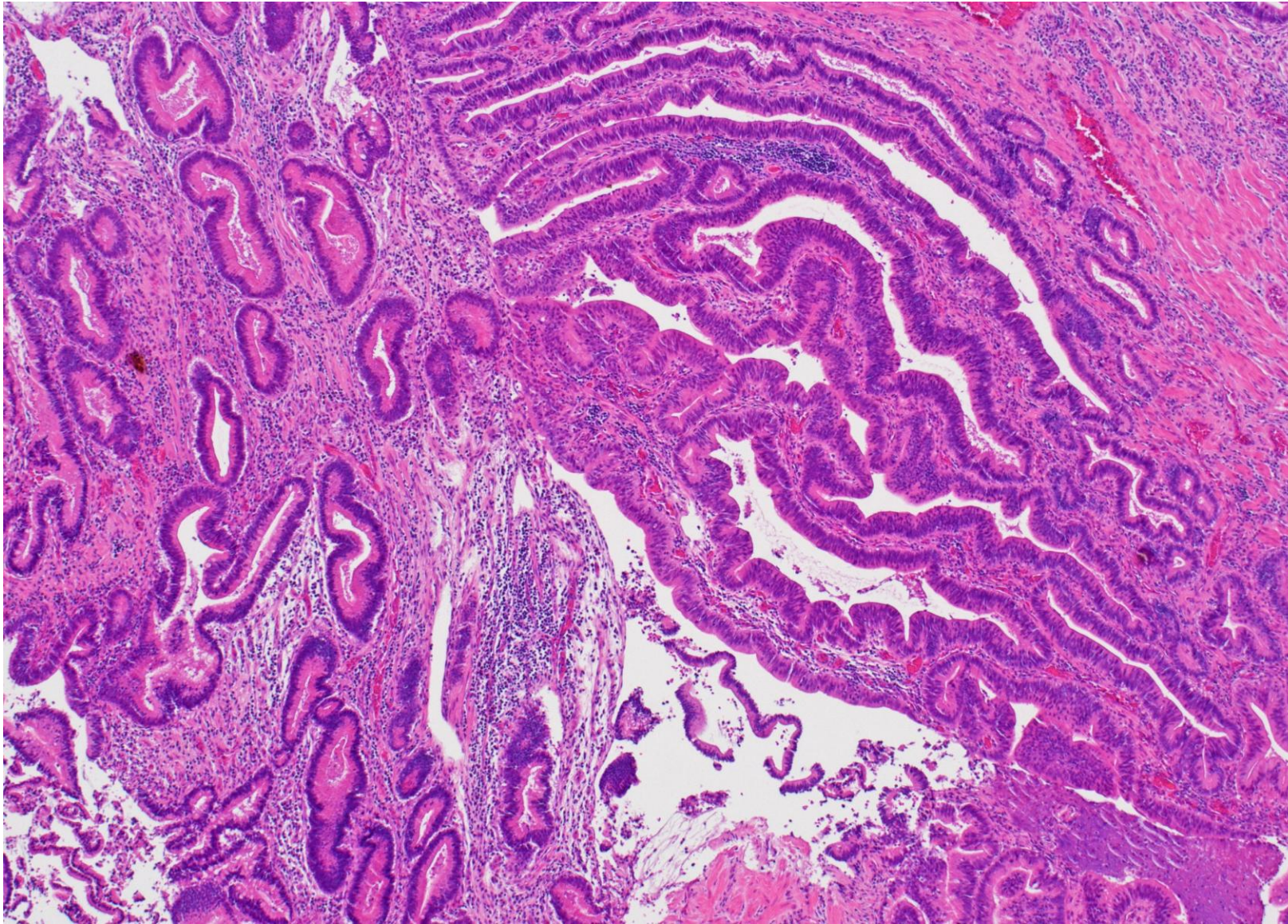


Radiological and pathological correlation

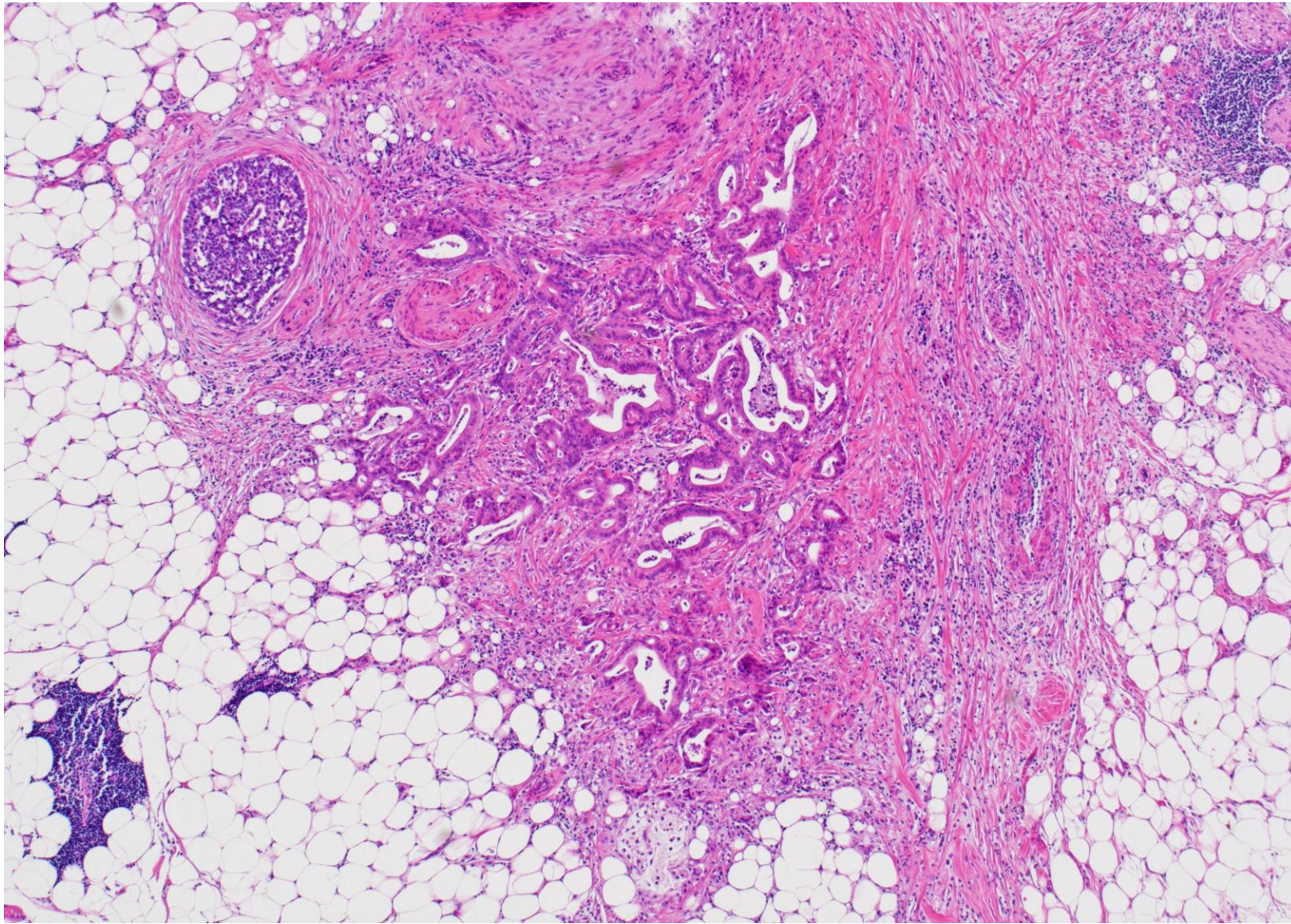
Hypervascular tumor = NET, G2

Hypovascular tumor = Adenocarcinoma

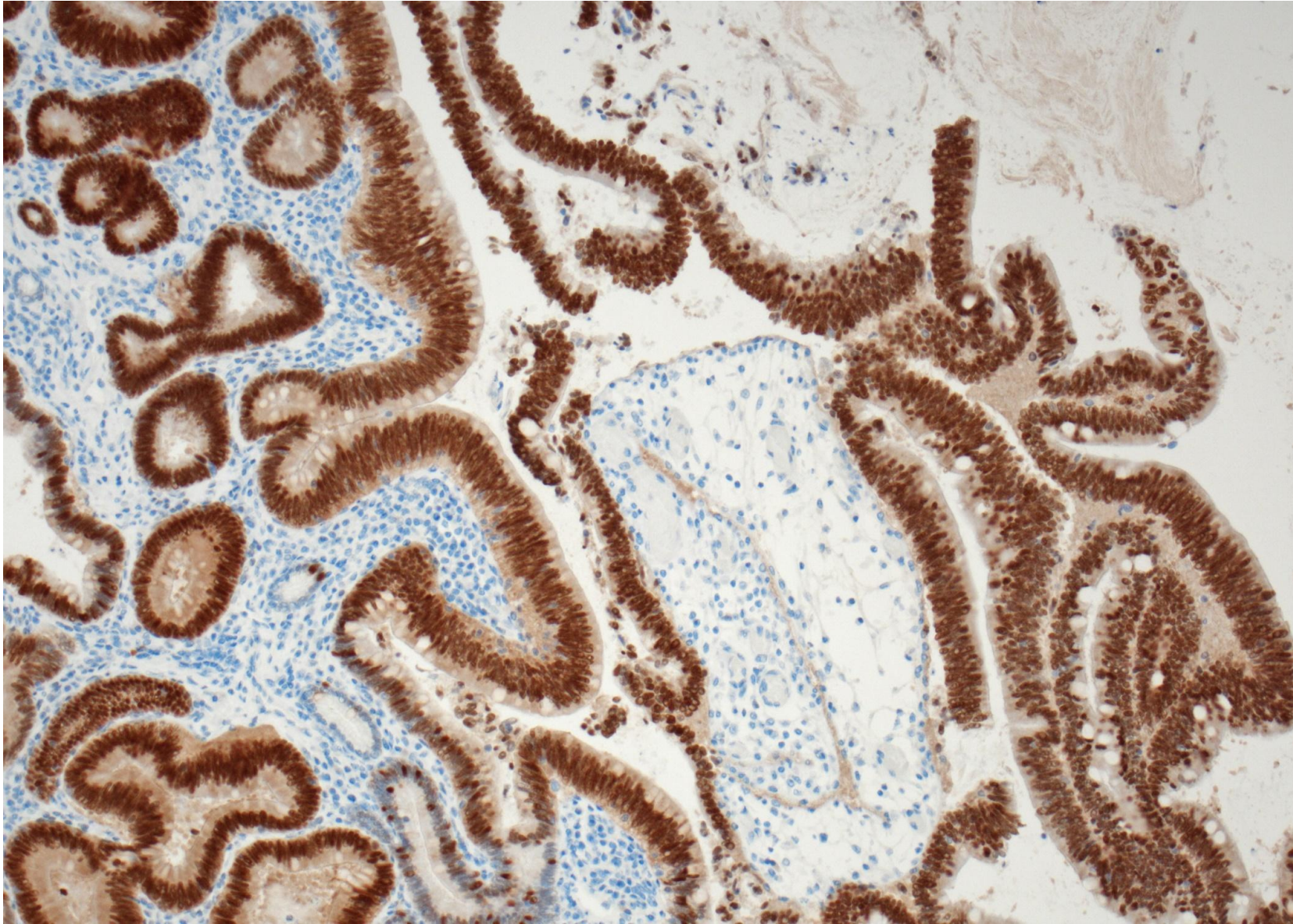




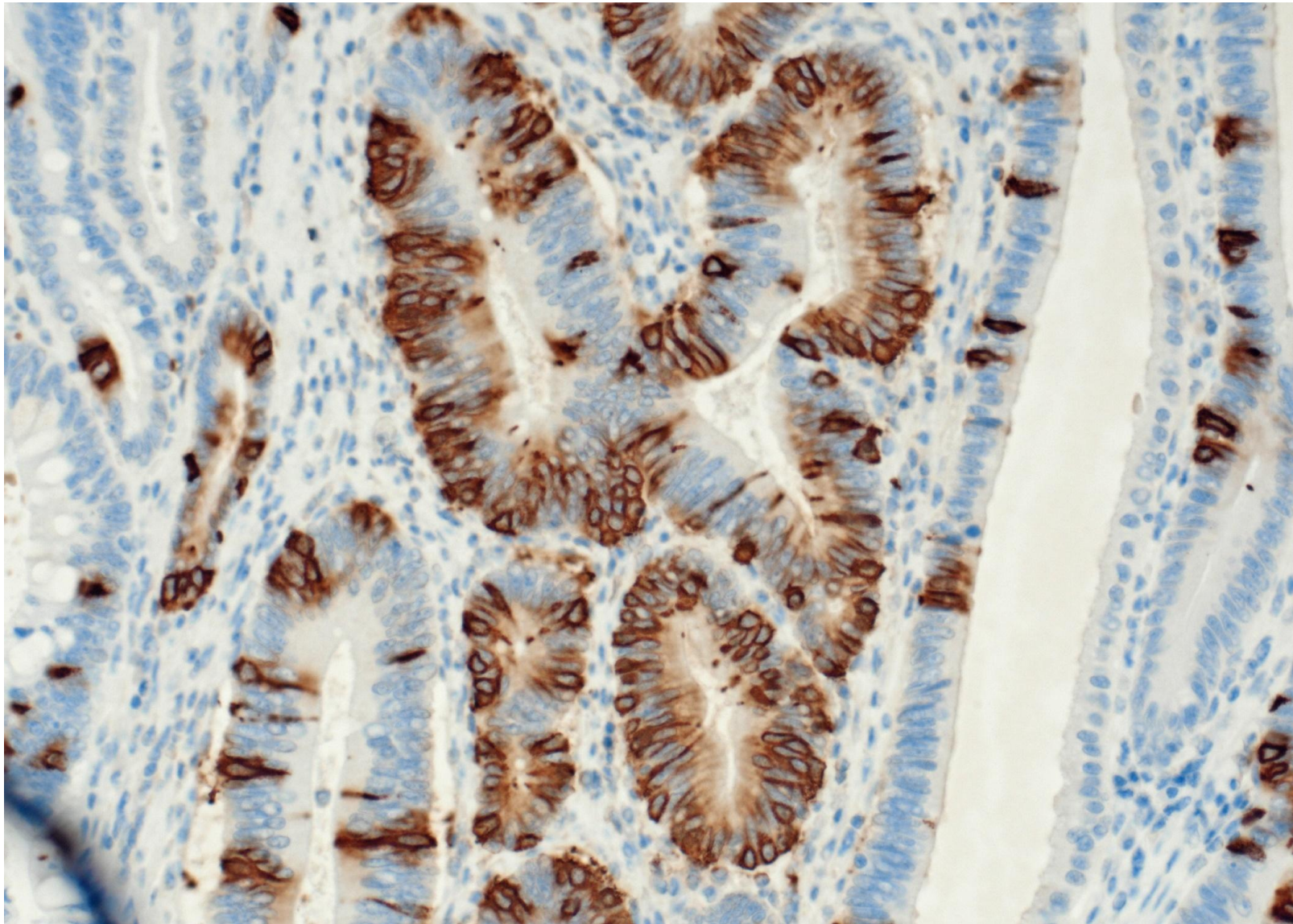
Well-differentiated adenocarcinoma of the ampulla of Vater (H&E)



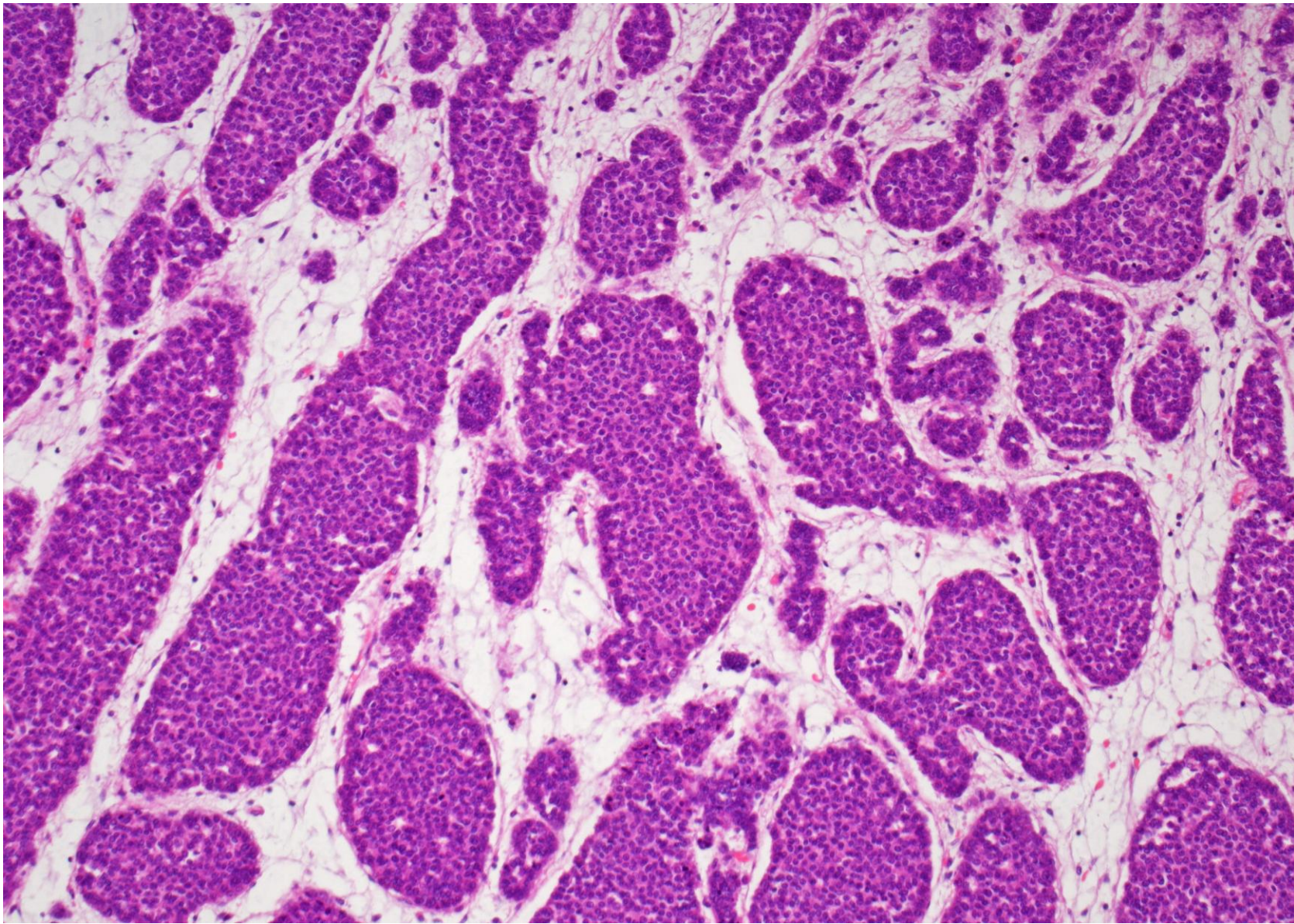
Well-differentiated adenocarcinoma of the ampulla of Vater:
invasion to the pancreas head. Venous invasion is positive. (H&E)



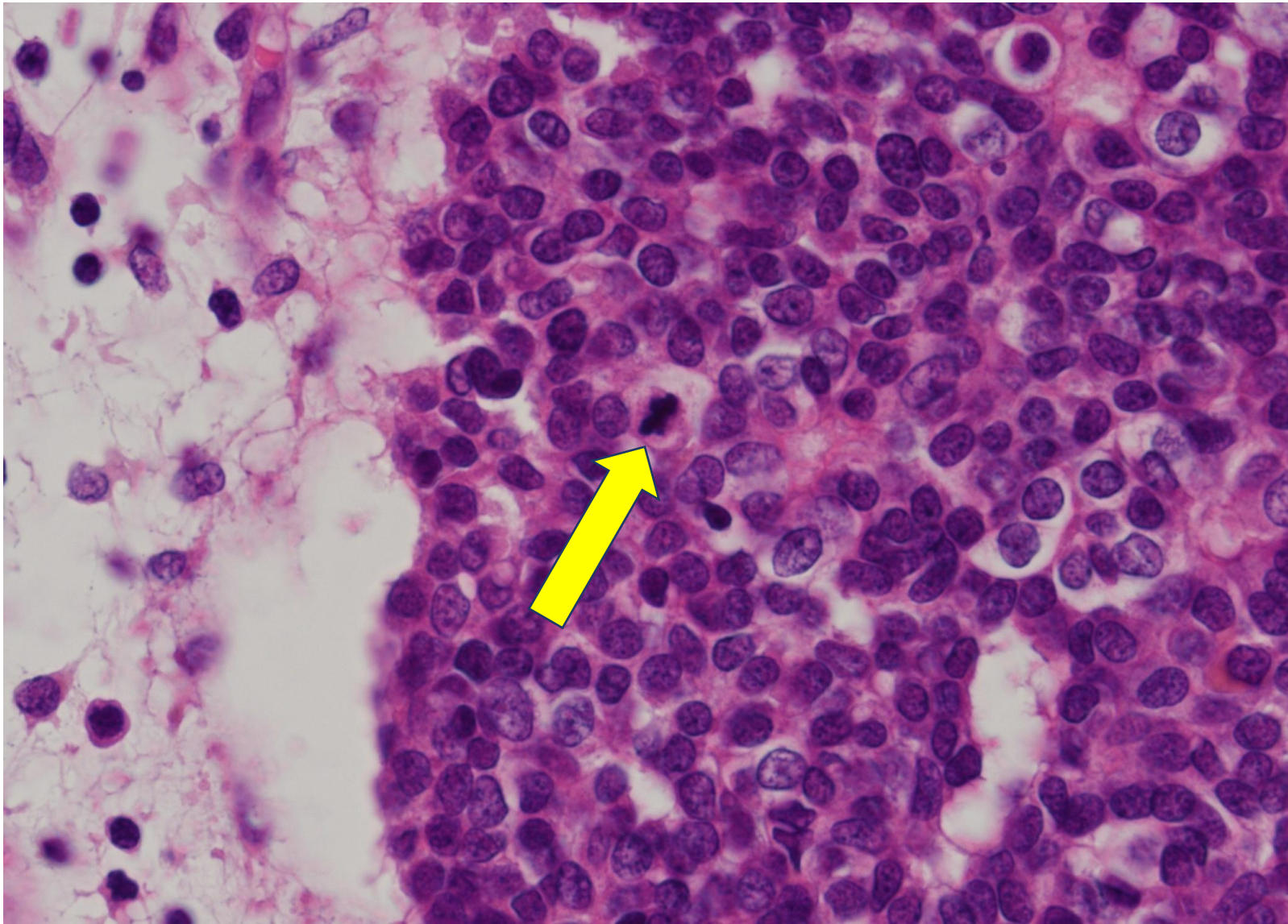
CDX2 expression in well-differentiated adenocarcinoma of the ampulla of Vater



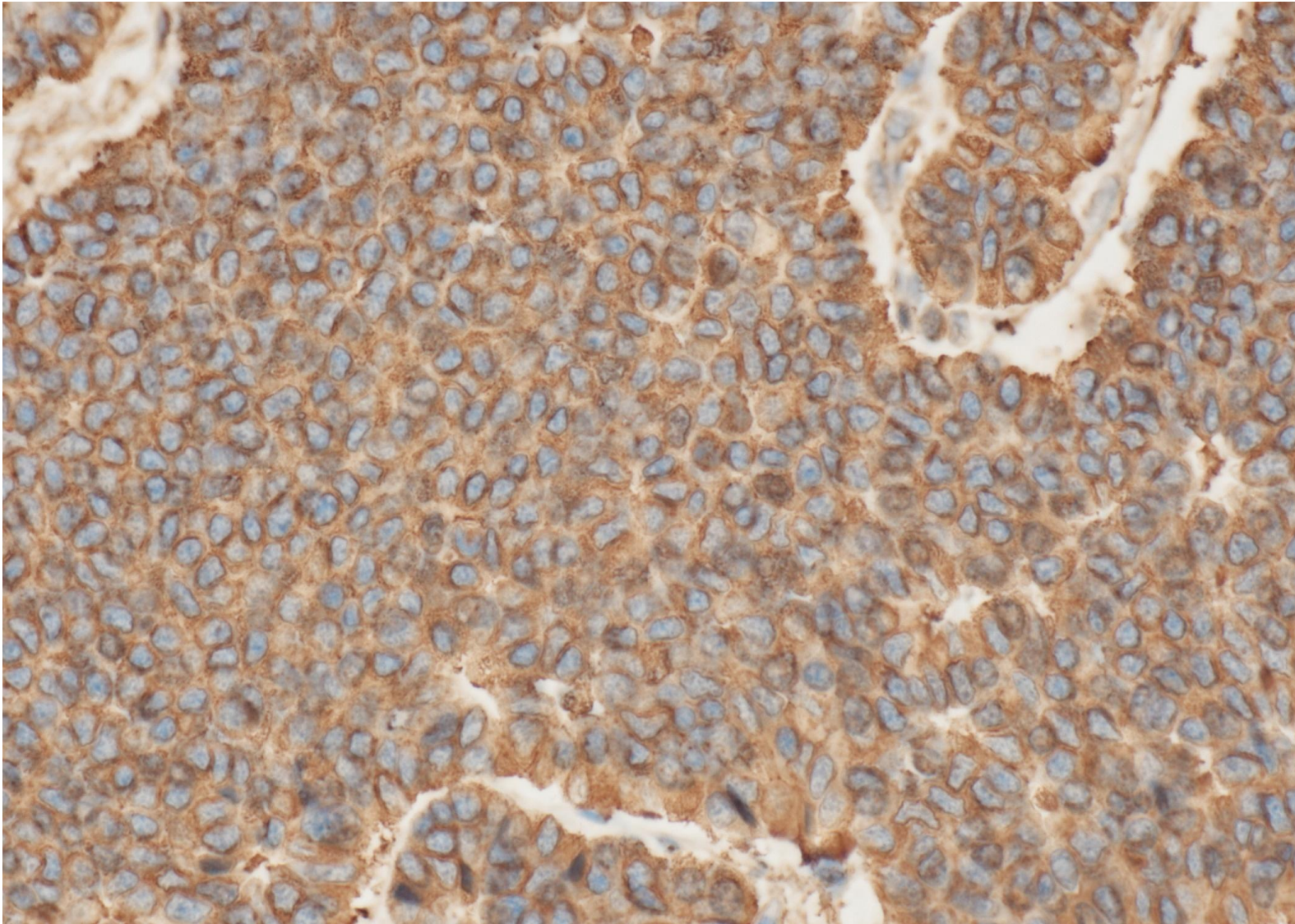
ChromograninA-positive neuroendocrine cells in well-differentiated adenocarcinoma of the ampulla of Vater



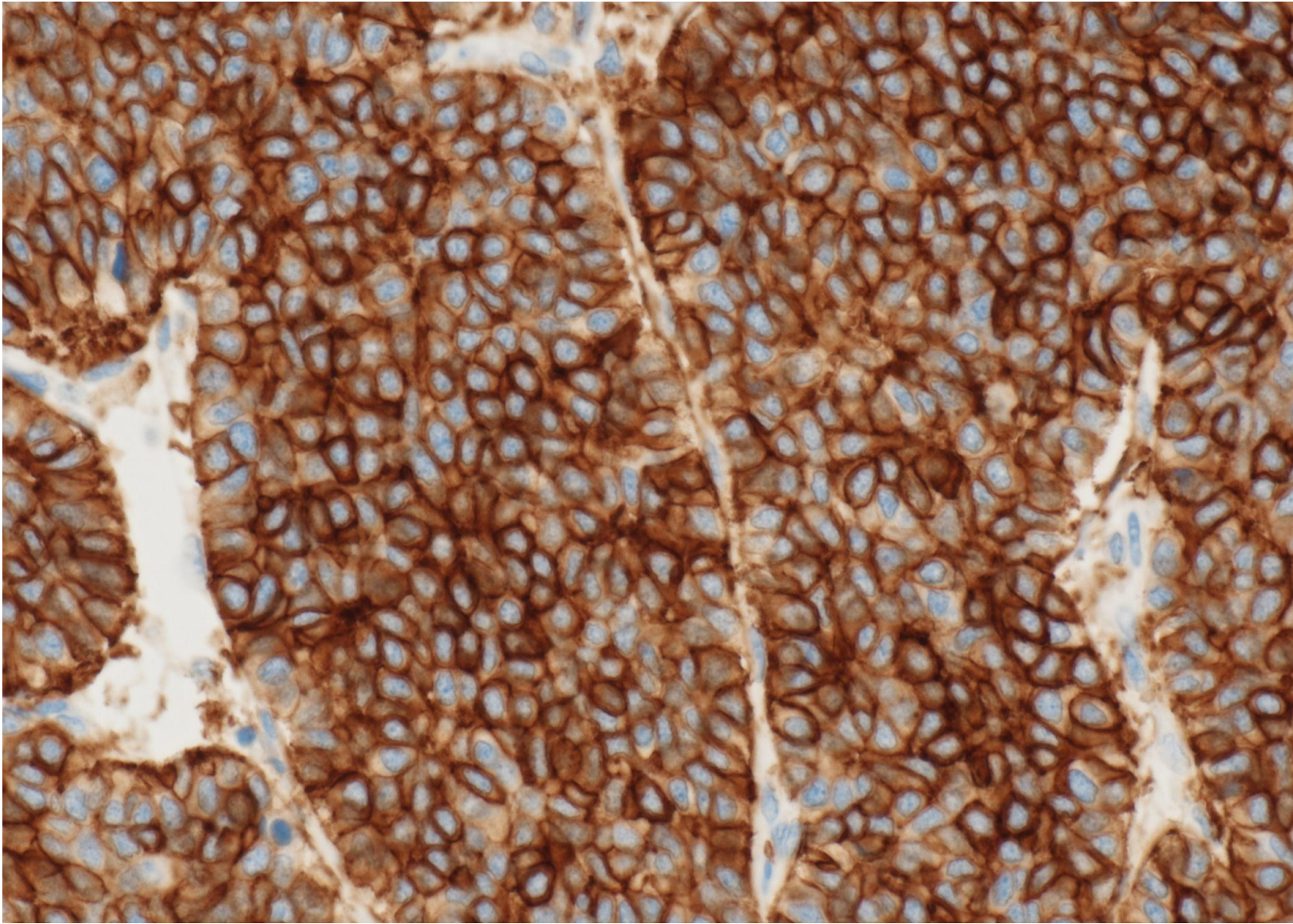
Neuroendocrine tumor (NET), G2, of the lower CBD (H&E)



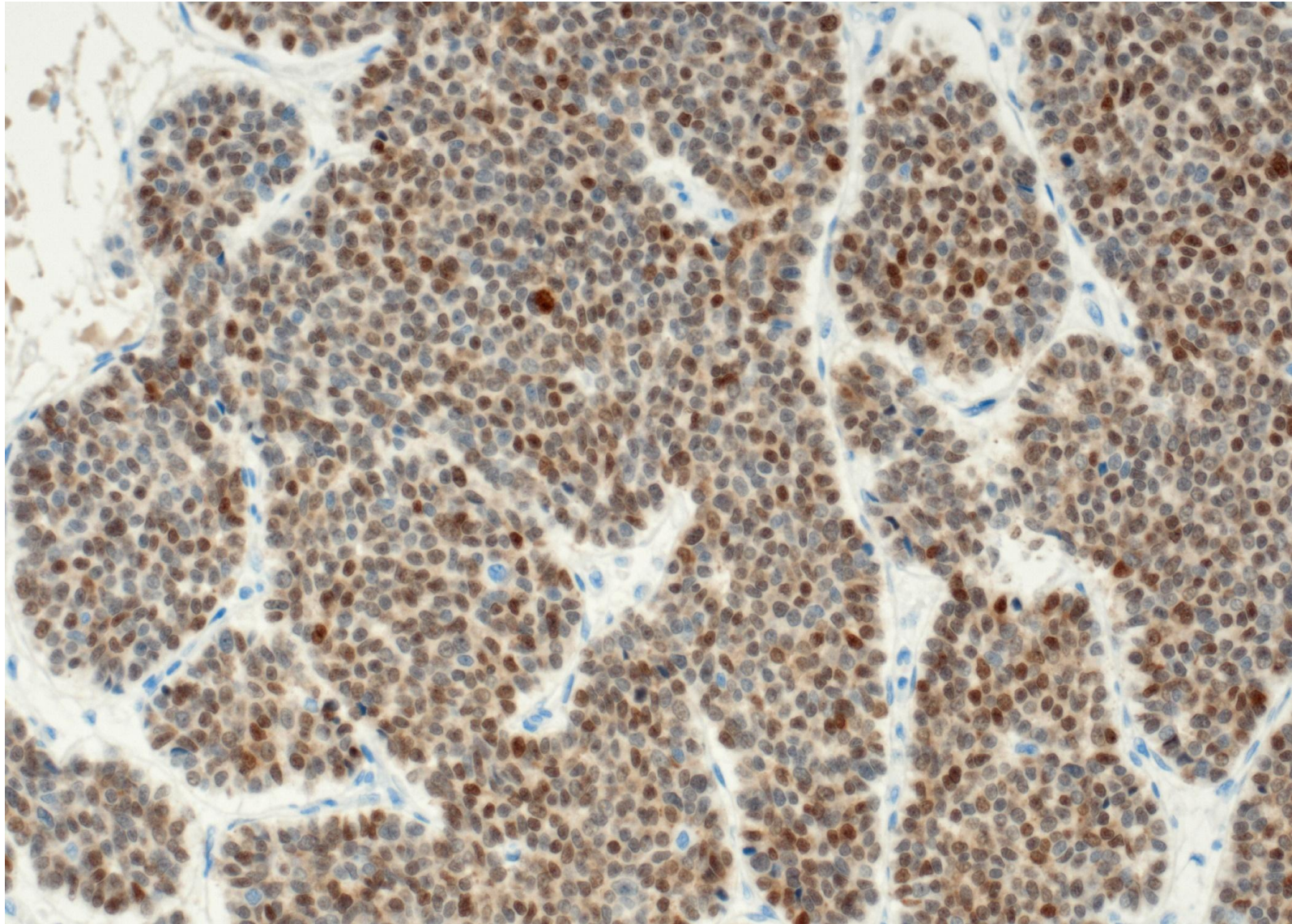
Neuroendocrine tumor (NET), G2, of the lower CBD. Arrow indicates a mitotic figure (H&E)



Chromogranin A expression in neuroendocrine tumor (NET), G2, of the lower CBD. NET diffusely expresses CGA.



SSTR2 (somatostatin receptor-2) expression in neuroendocrine tumor (NET), G2, of the lower CBD. NET diffusely expresses SSTR2.



CDX2 expression in neuroendocrine tumor (NET), G2, of the lower CBD. NET diffusely expresses CDX2, a marker intestinal differentiation.

Other immunohistochemical findings

Adenocarcinoma		NET
CK7	+	+
CK20	+	+
E-cadherin	+	+
CEA	+	—
p53	—	—
TTF-1	—	—