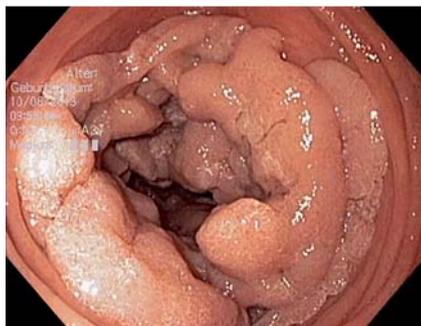
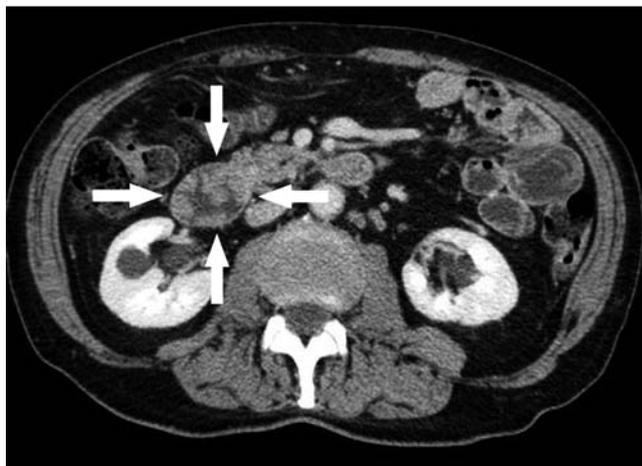


## Giant villous duodenal adenoma with malignant change: an unusual cause of obstructive jaundice



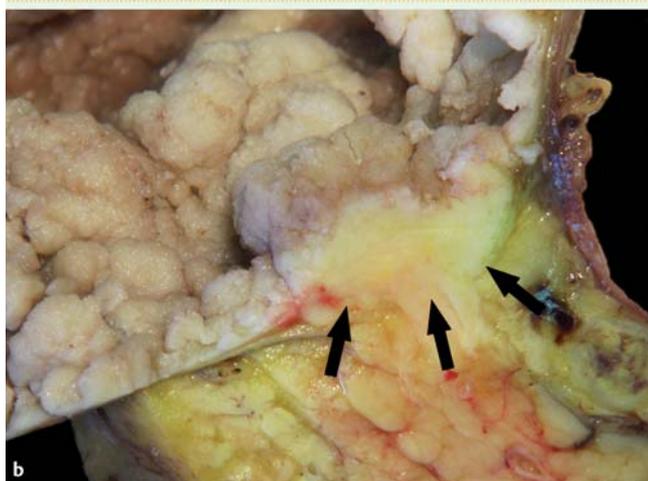
**Fig. 1** Endoscopic view showing a circumferential villous adenoma carpeting almost the entire duodenal wall.



**Fig. 2** Abdominal computed tomography (CT) scan showing an irregular polypoid tumor mass protruding into the duodenal lumen (arrows).



**Fig. 3** Macroscopic appearance of the resection specimen showing: **a** a huge intraduodenal villous adenoma, measuring 12.5 cm in its largest diameter; **b** the cut surface of the ampulla, which was yellow-white, firm, and suspicious of malignancy (arrows).



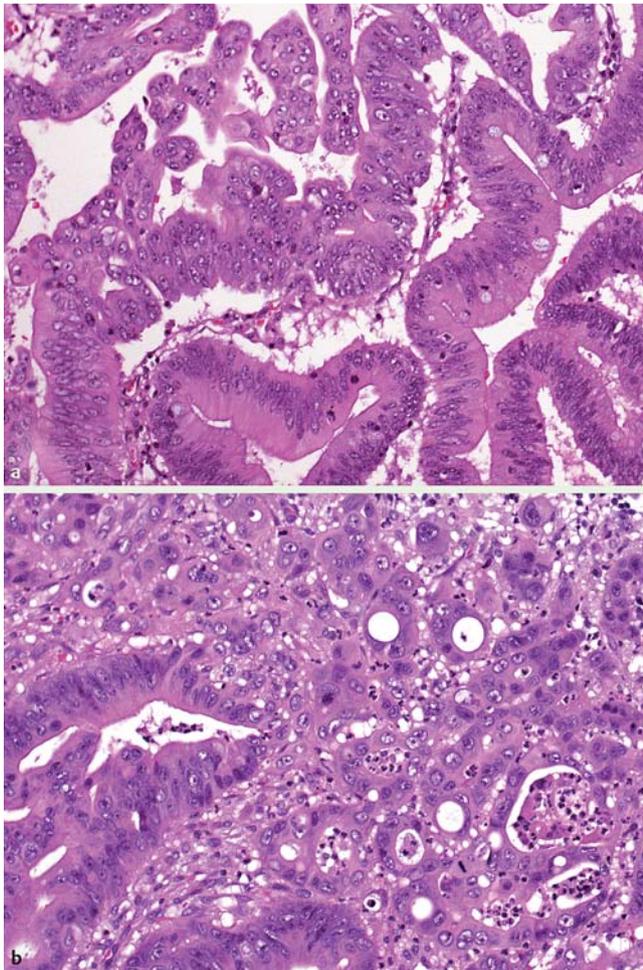
Obstructive jaundice can have various causes, and both neoplastic and non-neoplastic lesions have to be considered. In cases of malignant disease, the tumors are usually located in the extrahepatic

bile ducts, the pancreatic head, or the ampulla of Vater [1]. In rare cases, the causative lesion originates from the duodenum [2,3].

A 67-year-old man presented with non-specific right upper quadrant pain and icterus. Laboratory analysis revealed marked cholestasis: alkaline phosphatase 607 U/L (normal 35–129 U/L), gamma glutamyltransferase 1595 U/L (normal 0–66 U/L), and total bilirubin 27.2 mg/dL (normal 0–1 mg/dL). At endoscopy, a huge villous duodenal adenoma was detected, which covered almost the entire duodenal wall (● Fig. 1). Intubation of the ampulla of Vater was impossible. A computed tomography (CT) scan showed an irregular, polypoid tumor that was protruding into the duodenal lumen, but was confined to the bowel wall (● Fig. 2).

The pancreaticoduodenectomy specimen subsequently showed an intraduodenal villous tumor measuring 12.5 cm in its largest diameter. The cut surface of the ampulla was firm, yellow-white, and suspicious of malignancy (● Fig. 3). This area measured 1.5 cm in its largest diameter. Histology revealed a villous adenoma (with low and high grade dysplasia) with progression to poorly differentiated ampullary adenocarcinoma that was invading both the pancreas and the peripancreatic soft tissue (● Fig. 4). Seven regional lymph node metastases were identified. The patient's postoperative course was uneventful and he was discharged in good condition 10 days after surgery.

Villous adenomas of the duodenum have a predilection for the ampullary region, tend to present with obstructive jaundice, especially if malignancy is present, and



**Fig. 4** Microscopic appearance of the resection specimen showing: **a** a villous adenoma with low and high grade dysplasia (hematoxylin and eosin [H&E] stain; original magnification  $\times 100$ ); **b** areas of progression to poorly differentiated adenocarcinoma (H&E stain; original magnification  $\times 100$ ).

frequently show cancerous change [2]. It has been reported by Pezet et al. [3] that jaundice, but not tumor size, is predictive of malignancy. Even when biopsies are available, the diagnosis of cancer is frequently missed and it may be impossible to assess the presence of invasive adenocarcinoma without complete excision of the lesion [2].

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**Competing interests:** None

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