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GI IMAGE

Granular Cell Tumor of the Bile Duct

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A 41-year-old Japanese woman was admitted to our hospital due to impaired liver function. Abdominal ultrasonography revealed a well-demarcated, uniform isoechoic 15-mm diameter mass at the lower bile duct. Contrast-enhanced abdominal computed tomography showed a slightly enhanced mass (Fig. 1a), and magnetic resonance imaging/magnetic resonance cholangiopancreatography revealed an obstructing nodular lesion at the lower bile duct with marked dilatation of the upper portion of the bile duct (Fig. 1b). ^{18}F-Fluorodeoxyglucose positron emission tomography/computed tomography imaging showed abnormal accumulation in the tumor (Fig. 1c). Endoscopic ultrasonography (EUS) showed a hypoechoic mass in the submucosal area with normal mucosa (Fig. 1d). Endoscopic retrograde cholangiopancreatography revealed a filling defect in the lower bile duct, and endoscopic transpapillary biopsy of the mass was performed. Histopathologic diagnosis of the biopsy specimen indicated a granular cell tumor (GCT). Because the biliary obstruction was obvious and a malignant tumor could not be completely excluded in this patient, pancreaticoduodenectomy was performed. Microscopic examination revealed that the tumor was located in the fibromuscular layer with grossly intact mucosa of the bile duct (Fig. 2a). Tumor cells had abundant granular eosinophilic cytoplasm and small uniform hyperchromatic nuclei (Fig. 2b). The cells were positive for periodic acid–Schiff stain (Fig. 2c) and immunohistochemically positive for S-100 (Fig. 2d). These findings were consistent with those of the preoperative biopsy sample obtained from the lower bile duct tumor. The lesion was completely resected, and the patient was alive without relapse 1 year after surgery.

Although GCT of the bile duct is generally benign,[1] this condition causes biliary obstruction and requires treatment. Preoperatively distinguishing GCTs from malignancies such as cholangiocarcinoma, however, is difficult.[2] Indeed, a literature review indicates that many bile duct GCTs are clinically and radiologically suspected to be a cholangiocarcinoma preoperatively, leading to extensive procedures such as Whipple's operation. As observed in our patient, the GCT of the bile duct is characterized as a tumor originating from the fibromuscular layer of the bile duct with normal mucosa. Based on these characteristic features, endoscopists should attempt to make an accurate diagnosis of GCT preoperatively by utilizing EUS, transpapillary biopsy, and, if necessary and feasible, EUS fine-needle aspiration/biopsy, which might facilitate an accurate diagnosis of GCT as well as the selection of minimally invasive procedures to avoid overtreatment.

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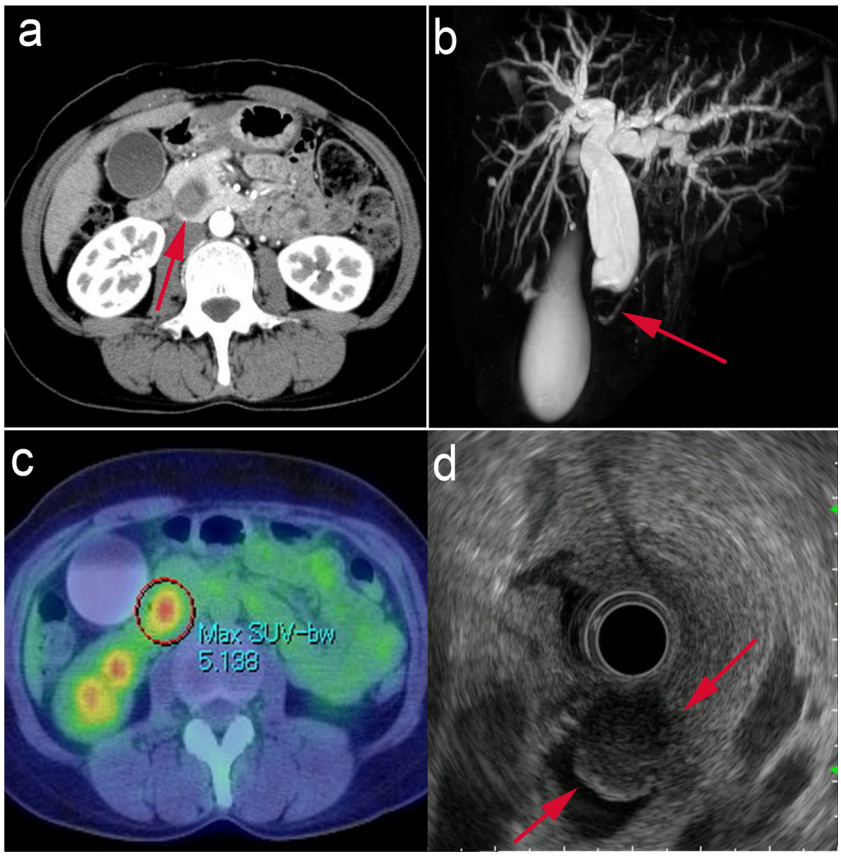

Fig. 1 **a** Contrast-enhanced abdominal computed tomography showed a slightly enhanced mass. **b** Magnetic resonance imaging/magnetic resonance cholangiopancreatography revealed an obstructing nodular lesion at the lower bile duct with marked dilatation of the upper portion of the bile duct. **c** ^{18}F-Fluorodeoxyglucose positron emission tomography/computed tomography imaging showed abnormal accumulation in the tumor. **d** Endoscopic ultrasonography showed a hypoechoic mass in the submucosal area with normal mucosa

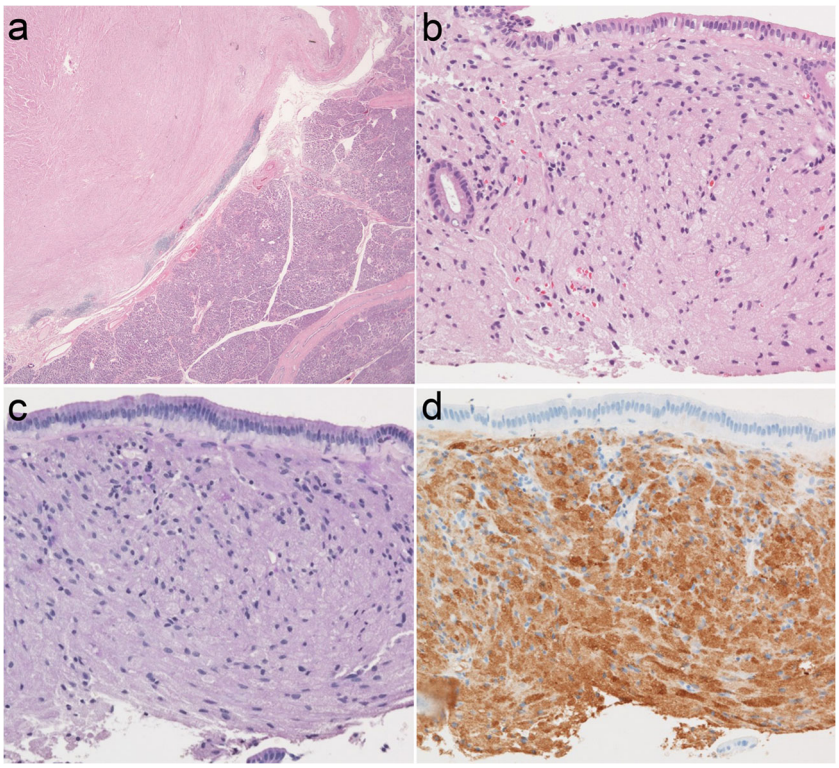

Fig. 2 **a** Microscopic examination revealed that the tumor was located in the fibromuscular layer with grossly intact mucosa of the bile duct. **b** Tumor cells had abundant granular eosinophilic cytoplasm and small uniform hyperchromatic nuclei. **c** The cells were positive for periodic acid–Schiff stain. **d** The cells were immunohistochemically positive for S-100

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no competing interests.

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