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## FDG PET/CT Findings in Biliary Papillomatosis

Zhuolong Tu, MD,\* Yingnan Yang, MD,\* Jing Ruan, MD,† and Jinfu Tu, MD\*

**Abstract:** Biliary papillomatosis is a rare disease with high malignant potential. A 64-year-old woman underwent FDG PET/CT, which showed an intense FDG uptake in the location of an aggregated biliary papillomatosis with high-grade intraepithelial neoplasia/carcinoma in situ but did not show FDG uptake in the sporadic, small biliary papilloma. FDG PET/CT may be an effective method to identify the components of the malignant transformation of biliary papillomatosis.

**Key Words:** biliary, papillomatosis, FDG PET/CT

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From the Departments of \*Hepatobiliary Surgery, and †Pathology, First Affiliated Hospital of Wenzhou Medical University, Wenzhou, Zhejiang, China. Z.T. and Y.Y. have contributed equally to this work and should be considered as cofirst authors.

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Correspondence to: Jinfu Tu, MD, Department of Hepatobiliary Surgery, First Affiliated Hospital of Wenzhou Medical University, Shangcai Village, Nanbaixiang Town, Ouhai District, Wenzhou, 325000, China. E-mail: tujinfu@sina.com.

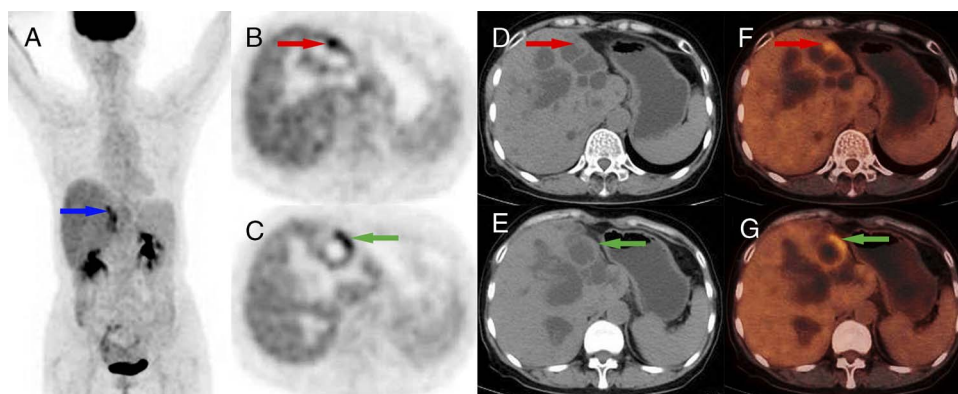
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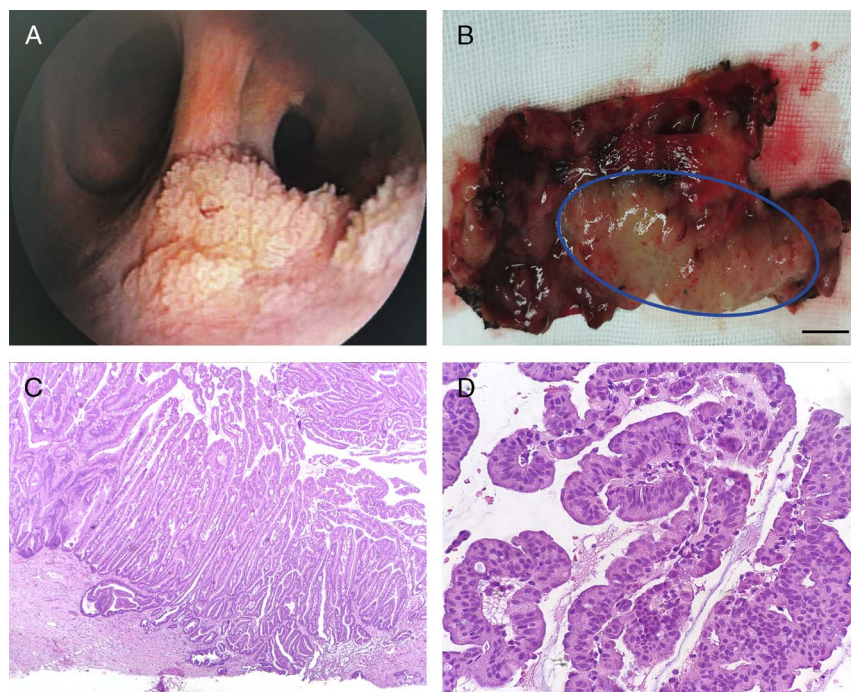
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**FIGURE 1.** A 64-year-old woman was admitted to our hospital because of recurrent cholangitis and obstructive jaundice for 2 months. Her previous major medical history included cholecystectomy because of a gallstone 7 years ago and left lateral lobectomy because of hepatolithiasis 4 years ago. Magnetic resonance cholangiopancreatography and enhanced MRI revealed dilatation of the biliary tract system and many stones in the intrahepatic bile duct. Multiple localized mural thickening in the intrahepatic and extrahepatic bile ducts suggested inflammatory changes; however, bile duct tumors remained to be excluded from the MRI. FDG PET/CT was recommended for further exploration. FDG PET/CT showed intense FDG uptake ( $SUV_{max}$  4.4) in multiple lesions on the wall of the left intrahepatic bile duct (red arrows) and common hepatic duct (green arrows), which connected and formed a strip shape on the MIP (blue arrow). This finding suggested biliary papillomatosis (A, MIP; B and C, axial PET; D and E, axial CT; and F and G, axial fusion).



**FIGURE 2.** The patients underwent resection of grave hilar lesions and Roux-Y hepaticojejunostomy and biopsy of the right intrahepatic biliary papillary neoplasm. A large amount of gelatinous mucus and many hepatolithiasis were found in the dilated bile duct. There were numerous villous or papillary lesions on the biliary mucosa (A). The largest lesion that polymerized into several papillary neoplasms was approximately  $4.8 \times 1.7$  cm on the intima of the common hepatic duct and left intrahepatic bile duct (B, within the blue circle), where intense FDG uptake was only shown on the PET images. Pathology confirmed biliary papillomatosis and high-grade intraepithelial neoplasia/carcinoma in situ at some areas of the hilar lesion (A, direct vision of the choledochoscopy; B, surgical specimens, scale bar 1 cm; C, pathology using hematoxylin-eosin staining at the original magnification of  $\times 40$ ; and D, at a magnification of  $\times 400$ ). Biliary papillomatosis or intraductal papillary neoplasm of the bile duct (IPNB) is a rare disorder with high malignant potential.<sup>1–3</sup> In patients with biliary papillomatosis, magnetic resonance cholangiopancreatography often shows irregular filling defects within the dilated bile duct, whereas CT and MRI demonstrate multiple intraductal soft tissue masses.<sup>4,5</sup> However, it is still a challenge to distinguish benign from malignant (invasive and noninvasive) biliary papillomatoses by conventional imaging techniques.<sup>6–8</sup> FDG PET/CT has been used to detect a single malignant intraductal papillary mucinous neoplasm of the bile ducts, which showed intense FDG uptake in the tumor.<sup>9</sup> Ikeno et al<sup>10</sup> reported that the preoperative  $^{18}\text{F}$ -FDG PET  $\text{SUV}_{\text{max}}$  in patients with invasive IPNB and papillary cholangiocarcinoma was significantly higher than that in patients with noninvasive IPNB. In the current case, FDG PET/CT showed intense FDG uptake in the location of aggregated biliary papillomatosis with high-grade intraepithelial neoplasia/carcinoma in situ but did not show FDG uptake in the sporadic, small biliary papilloma. We assume that FDG PET/CT may be an effective method to identify the components of the malignant transformation of biliary papillomatosis.