

- **Answer:**

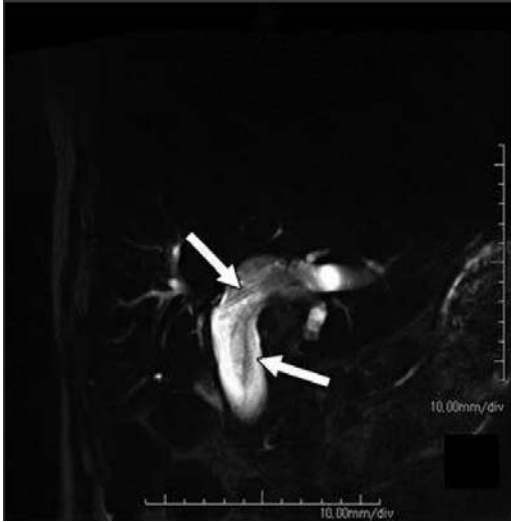
- a) Intraductal papillary neoplasm of the bile duct (IPNB)

- **Findings:**

- MRCP , T2W and T1+GAD images show hypointense intraductal cauliflower-like papillary mass in the left intrahepatic bile ducts with mild enhancement associated with severe up and downstream biliary dilatation and left liver lobe atrophy.

- **Discussion:**

- Intraductal papillary neoplasm of the bile duct (IPNB) is a preinvasive biliary tree neoplasm considered to be a precursor of cholangiocarcinoma. It is analogous to the intraductal papillary mucinous neoplasm of the pancreas (IPMN), with both showing intraluminal growth, same histological subtypes, and the association with mucin hypersecretion.
 - Although they potentially affect any segment of the biliary tree, IPNBs are more frequently found involving the intrahepatic ducts or at the hepatic hilum in Asia and, in Western countries, within the extrahepatic ducts, due to different risk factors in those populations. For unclear reasons, when intrahepatic involvement, it most commonly affects the left-sided ducts . The spread of IPNBs occurs superficially along the walls of the biliary tract .
 - Intraductal papillary neoplasm of the bile duct typically manifests as biliary tree dilatation, focal or diffuse, depending whereas the tumor is located. Excessive mucin production may lead to a cystic or aneurysmal dilatation of a bile duct.
 - An intraductal cauliflower-like papillary tumor associated with up and downstream biliary dilatation is referred to as the classic appearance of an IPNB. Proximal ductal dilatation is usually present and focal liver atrophy may be seen.
 - Reported signal characteristics of the solid lesions include:T1: low or iso signal,T2: slightly hyperintense,MRCP: may allow direct visualization of the papillary lesions or an irregular lumen.mucin is difficult to demonstrate due to its similar signal intensity to the bile but may be seen as string-like filling defects (also referred to as the “thread sign”),DWI/ADC: diffusion restriction may be seen within the papillary components.T1 C+ (Gd): do not significantly enhance and remain hypointense relative to the adjacent liver parenchyma.hyperintensity during the late arterial phase may be present, but does not sustain in the portal venous and delayed phases (cf. cholangiocarcinoma)



MRCP image shows diffuse dilatation of intra- and extrahepatic bile ducts. Several hypointense linear and curvilinear stripes (arrows)—that is, “mucus thread” sign—are seen within ducts.

Hyo Jung Park et al. Intraductal Papillary Neoplasm of the Bile Duct: Clinical, Imaging, and Pathologic Features. *American Journal of Roentgenology* 2018 211:1, 67-75.

■ **References:**

- Hyo Jung Park, So Yeon Kim, Hyoung Jung Kim, Seung Soo Lee, Gil Sun Hong, Jae Ho Byun, Seung-Mo Hong, and Moon-Gyu Lee. Intraductal Papillary Neoplasm of the Bile Duct: Clinical, Imaging, and Pathologic Features. *American Journal of Roentgenology* 2018 211:1, 67-75.
- Fuente I, Gonzalez M, de Santibañes M, Pekolj J, Mazza O, de Santibañes E, et al. Intraductal Papillary Neoplasm of the Bile Duct (IPNB): Case Report and Literature Review of a Challenging Disease to Diagnose. *J Gastrointest Cancer*. 2019;50(3):578-582.
- Kohli DR, Shah TU. Board Review Vignette: Intraductal Papillary Neoplasm of the Bile Duct. *Am J Gastroenterol*. 2018;113(5):639-41.

“Case courtesy of Amirreza Radmard, MD, Associate Professor of Radiology, Shariati Hospital, Tehran University of Medical Sciences.”