Intrahepatic Bile Duct Foreign Body With Cholangitis After Pylorus-preserving Pancreatoduodenectomy: Is It a Fish Bone?

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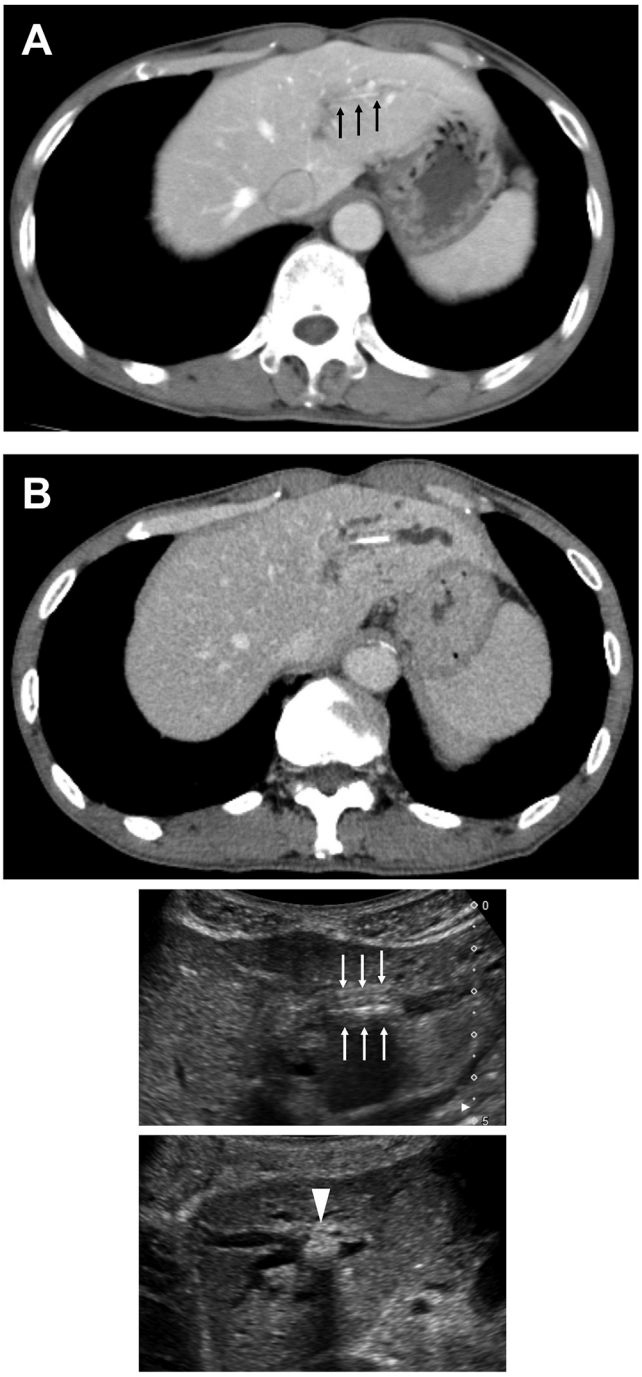

Question: A 66-year-old man had undergone pylorus-preserving pancreatoduodenectomy for duodenal papilla cancer 9 years ago. A computed tomography (CT) scan for follow-up at 4 years postoperatively showed a 3-cm, needle-like, high-density object in the intrahepatic bile duct in the left lobe of the liver (Figure *A*, *black arrows*). This object was assumed to be a fish bone and was observed with no symptoms.

Nine years postoperatively, the patient developed fever and epigastric pain. Laboratory examination on admission revealed slightly elevated biliary enzymes: γ-glutamyl transpeptidase, 64 U/L (reference range, 10−47 U/L). A CT scan and ultrasound examination showed an enlarged intrahepatic stone surrounding an object and exacerbation of intrahepatic bile duct dilation (Figure *B*, *white arrows and arrowheads*), with cholangitis.

What is the object and how should this patient be treated?

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Conflicts of interest
The authors disclose no conflicts.

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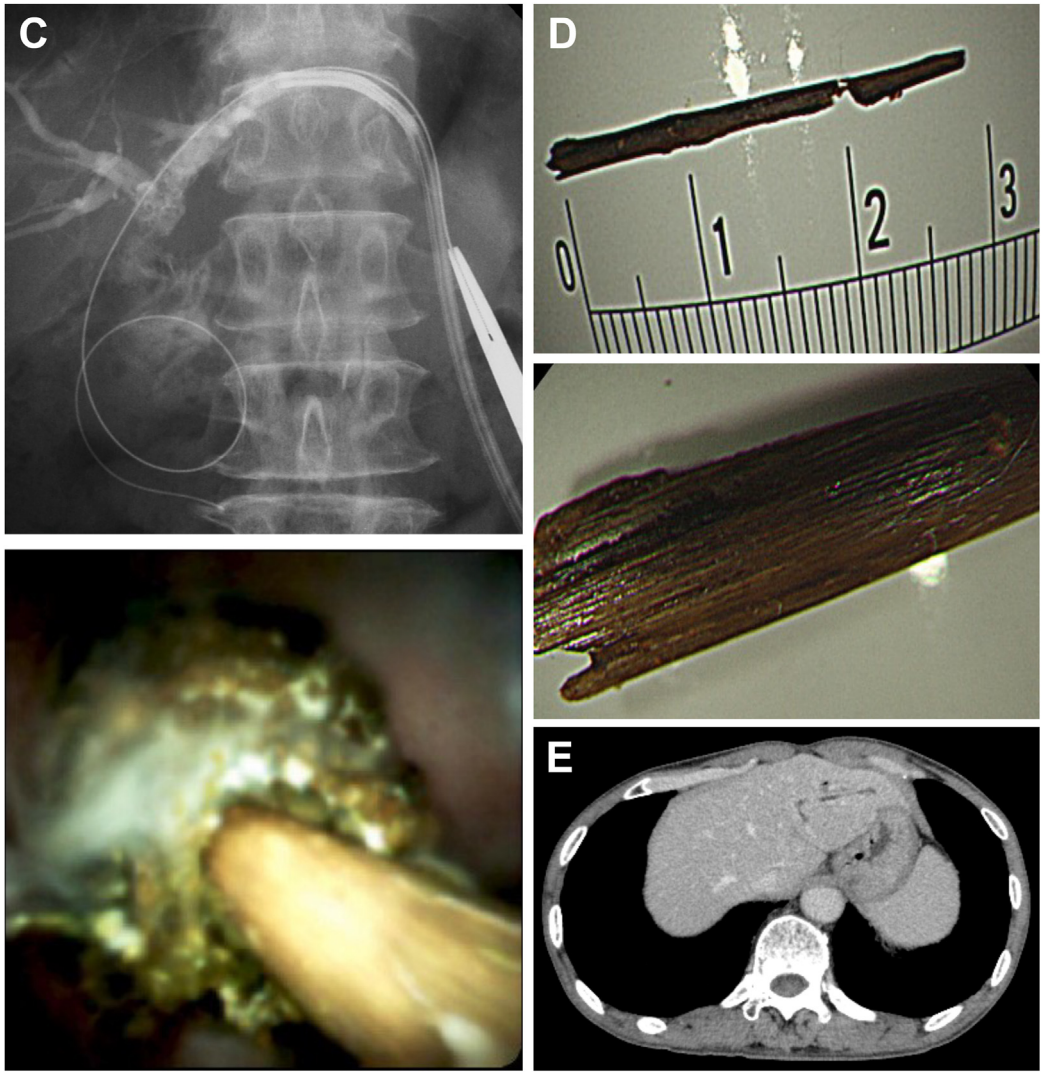
Answer to: Image 9: A Toothpick-like Piece of Wood



Because of the size of the object and the complications of intrahepatic stones, we performed percutaneous transhepatic cholangioscopy rather than peroral cholangioscopy with endoscopic retrograde cholangiopancreatography. We performed percutaneous transhepatic biliary drainage and dilated the fistula to 14F awaiting its completion. We inserted a SpyGlass through the fistula, performed electrohydraulic lithotripsy, crushed the stone, and detected a toothpick-like piece of wood (Figure *C*). Subsequently, the stones were detached from the object using electrohydraulic lithotripsy and dropped into the jejunum. The remaining wood piece was grasped using biopsy forceps (SpyBite) and removed from the body. During removal, it was split into 2 pieces and was approximately 3 cm long when restored (Figure *D*). There was no evidence of bile duct injury or obvious bile duct tumor. A postoperative CT scan confirmed that there were no residual objects (Figure *E*), and the percutaneous transhepatic biliary drainage tube was removed.

The patient was discharged 40 days after admission, and 2 months later, a CT scan showed improvement in intrahepatic bile duct dilatation. In this case, the foreign body was thought to have entered the gastrointestinal tract orally, traveled retrograde through the afferent loop from the pyloric ring, through the bile duct–jejunal anastomosis, and into the intrahepatic bile duct. This mechanism is unknown, but it has been suggested that duodenal resection decreases the plasma concentrations of motilin, inhibits coordinated motility of the stomach, duodenum, and proximal jejunum, and delays the emptying of gastric contents.[1] Similarly, fish bones have been reported to migrate to the bile or pancreatic ducts after pancreatoduodenectomy with a frequency of 0.95%. The median time from surgery to the detection of fish bones was 917 days.[2] It was reported that balloon-assisted endoscopic retrograde cholangiopancreatography was useful in treating a fish bone in the intrahepatic bile duct[3]; however, in this case, the foreign body was as large as 3 cm and complicated by intrahepatic stones. The SpyGlass is very useful because it has a water-delivery function, high resolution, and easy

operation. When a complicated intrahepatic foreign body is encountered after pancreatoduodenectomy, PTSC with SpyGlass may be a treatment option.

Keywords: Intrahepatic Bile Duct Foreign Body; Percutaneous Transhepatic Cholangioscopy; SpyGlass.

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