



## Images in Surgery

## Pancreaticoduodenectomy in the presence of Riedel lobe with accessory extrahepatic bile duct



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## ARTICLE INFO

## Article history:

Accepted 29 December 2021

Available online 31 January 2022

A 32-year-old female trisomy 21 patient presented with upper abdominal pain due to chronic pancreatitis. Gallstone pancreatitis was unlikely after laparoscopic cholecystectomy. Instead, a 3-cm cystic lesion was discovered in the pancreatic head with endosonographic morphology suspicious for intraductal papillary mucinous neoplasm. Due to the presence of worrisome features, especially pancreatitis and the associated abdominal pain, pancreaticoduodenectomy was indicated. In the preoperative computed tomography (CT), a tongue-like caudal projection from the right liver lobe was discovered (Figure 1).



**Figure 1.** A preoperative abdominal computed tomography illustrating the cystic lesion in the pancreatic head (star) and the tongue-like caudal projection from the right liver lobe (R).

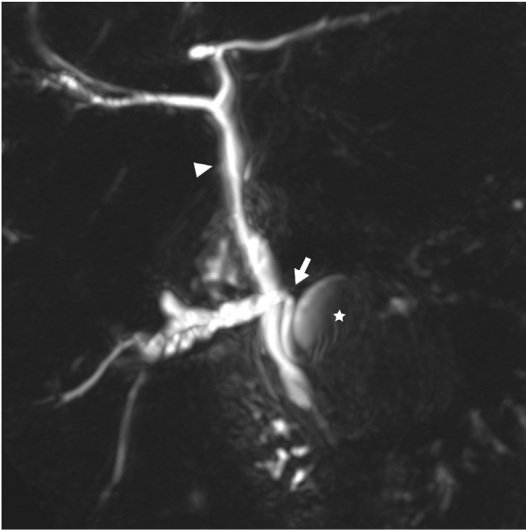
What would be the appropriate next step in the management?

- Perform the surgery as planned without any further examination
- Perform an MRI of the liver because a pedunculated tumor is suspected
- Perform a magnetic resonance cholangiopancreatography to determine if there are any anomalies of the biliary system (correct choice)
- Perform an ERCP to determine if there are any anomalies of the biliary system

The described caudal projection from the right liver lobe is known as Riedel lobe. Due to its potential association with anomalies of the biliary system, an magnetic resonance cholangiopancreatography was performed. The Riedel lobe was drained by an accessory extrahepatic bile duct that fuses with the common bile duct intrapancreatically proximal to the papilla (Figure 2). The bile duct duplication complicated the hepaticojejunostomy and necessitated the unification of both lumina by transecting the septum in between. Postoperatively, no biliary complications were observed, and the patient no longer felt pain. The pathology revealed a benign cystadenoma.

## Discussion

Riedel lobe is a rare anatomical variation characterized by a tongue-like projection of the anterior border of the right liver lobe. Its incidence has been estimated as 3.3% to 14.5%.<sup>1</sup> A congenital etiology of Riedel lobe is supported by a dysembrioplastic anomaly in the development of the hepatic bud.<sup>2</sup> We speculate that trisomy 21 was associated with the development of Riedel lobe in our patient. Although the Riedel lobe was believed to contain only Glissonian pedicles belonging to segments V/VI,<sup>1</sup> this case demonstrates



**Figure 2.** A preoperative magnetic resonance cholangiopancreatography illustrating the accessory extrahepatic bile duct (arrow) with intrahepatic extensions draining the Riedel lobe. It runs parallel to the common bile duct (arrowhead). The 2 ducts unite proximal to the papilla. The cystic duct cannot be detected after cholecystectomy. The pancreatic cyst is also illustrated (star).

that it can be drained by an accessory extrahepatic bile duct. It needs to be emphasized that the cystic duct has not been misidentified as the accessory extrahepatic bile duct. The latter clearly has intrahepatic extensions draining the Riedel lobe, whereas the cystic duct is not detectable after cholecystectomy (Figure 2). This configuration of double extrahepatic bile ducts can be classified as type Va

according to Choi et al,<sup>3</sup> of which only 3 cases exist. This was relevant to the preoperative planning since the complicated hepaticojejunostomy in the pancreaticoduodenectomy could potentiate biliary stricture.

Riedel lobe, which is a pedunculated lobe extension, can undergo torsion and contain sessile hepatocellular tumors.<sup>1</sup> The upper abdominal pain reported by the patient could have arisen from transient torsion of the Riedel lobe. However, although lipase and amylase were elevated during the pain episodes, the liver enzymes were not, rendering a Riedel lobe torsion unlikely. This case demonstrated another clinical implication: patients with a Riedel lobe undergoing hepatobiliary surgery should receive an magnetic resonance cholangiopancreatography, since variations in the biliary system might affect the liver transection plane and the biliary reconstruction.

#### Funding/Support

None declared.

#### Conflict of interest/Disclosure

None declared.

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