Answer
Cystadenoma of the Cystic Duct

Laparoscopic exploration of the abdomen showed signs of chronic cholecystitis and the mass was visualized adjacent to the gallbladder. The lesion was carefully dissected. A 2-mm choledochotomy was made on the lateral aspect of the bile duct in proximity to the lesion and a cholangiogram was performed to delineate the anatomy. This confirmed a very short cystic duct emptying into an anomalous bile duct draining segment V of the liver. No additional lesions or anomalies were identified. The choledochotomy was closed laparoscopically with a polyglyconate 3-0 suture. The cholecystectomy was then completed and a 7-French Jackson-Pratt drain was placed in the gallbladder fossa. Macroscopic pathologic findings confirmed a mucoid cystic lesion on the cystic duct (Figure 2B). Final pathologic examination revealed a mucinous cystadenoma with ovarian stroma. Her postoperative course was complicated by an ileus treated conservatively. Her liver function enzyme level was transiently elevated without hyperbilirubinemia. She was discharged home on postoperative day 6.

Mucinous cystadenomas are more frequently found in the ovaries and the pancreas than the biliary tree. The majority of biliary cystadenomas are in the liver and only about 10% are extrahepatic.[1] First described by Rogers in 1943, extrahepatic biliary cystadenomas (EBCs) are rare, with fewer than 100 cases having been described in the literature and mainly located in the major hepatic ducts.[2-6] A few cases of cystadenomas of the gallbladder[7] have been described, but to our knowledge, only 1 report of a cystadenoma localized to the cystic duct has been published. In 1961, at the Mayo Clinic, a 61-year-old woman underwent a cholecystectomy and was free of recurrence with a follow-up of 33 years.[2] In this series, a case of EBC on the common bile duct also presented with a recurrence 4 months after excision, most likely because of incomplete resection.[2]

The etiology of EBCs is still unclear but they are believed to arise from the primitive mesenchyme of the embryonic gallbladder and bile ducts.[4] Two types of EBC have been identified. The mucinous "ovarian-like" type, with a densely cellular stroma with spindle cells, is most frequently (85%) encountered, while the second form is the intraductal papillary neoplasm of the bile duct. The mucinous "ovarian-like" type is found only in females and carries a more favorable prognosis than intraductal papillary neoplasm of the bile duct, which behaves similar to the pancreatic lesion of the same name.[8,9] Transformation to cystadenocarcinoma has been demonstrated and therefore these lesions warrant complete surgical resection.[1] In the largest series of hepatobiliary cystadenomas (n = 70), the majority being intrahepatic, malignancy was found in 25% of patients.[8]

Ninety-five percent of the patients presenting with an EBC are women. These lesions typically present in the fifth and sixth decades of life. Patients usually present with nausea, vomiting, and intermittent right upper quadrant pain; however, these lesions may cause biliary obstruction leading to jaundice or even cholangitis.[2,3,5]

Abdominal ultrasonography and/or computed tomography of the abdomen demonstrates a hypoechoic or hypodense lesion with thickened walls and internal septations, distinguishing it from a simple cyst.[10] On magnetic resonance cholangiopancreatography, the lesion does not enhance after the administration of gadolinium and has a low signal on T1-weighted images and a high signal on T2-weighted images.[4,10] No radiologic features have been identified that correspond to malignant features. It is important to rule out hydatid cyst, which can have a similar appearance on imaging.[7]

An intraoperative cholangiogram should be performed to characterize biliary anatomy, which can be distorted by the lesion, as well as to define the structural relationships of the tumor. For an isolated cystic duct cystadenoma, the treatment consists of a cholecystectomy. We believe we are the first to describe a laparoscopic approach for this rare lesion, although this has been described for a gallbladder cystadenoma.[7] Meticulous dissection is required to complete resection and conversion to laparotomy may be necessary to avoid inadvertent injury to the biliary tree.

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