

CASE REPORT

## 악성 협착과 유사한 원위부 총담관의 선근종 증식 1예

최진호, 이상협, 김주성, 김 정, 신방섭, 장동기, 류지곤, 김용태

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### A Case of Adenomyomatous Hyperplasia of the Distal Common Bile Duct Mimicking Malignant Stricture

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Adenomyomatous hyperplasia is a reactive malformation or non-neoplastic tumor-like lesion frequently observed in the gallbladder, stomach, duodenum and jejunum, but rare in the extrahepatic bile duct. A 42-year-old man with epigastric discomfort had a stricture in the common bile duct on initial CT scans. Initially, it was regarded as a malignant lesion with some evidence, but histopathologic examinations of multiple biopsies obtained by multiple sessions of endoscopic retrograde cholangiopancreatography showed no evidence of malignancy. The patient had undergone the pylorus preserving pancreaticoduodenectomy because of the possibility of malignancy; however, the final diagnosis was adenomyomatous hyperplasia. It is important to distinguish a malignancy from benign biliary stricture with endoscopic biopsies. Surgery for suspected biliary malignancy often reveals benign lesions. Therefore, a correct diagnosis is important before deciding upon treatment of bile duct stricture. In conclusion, in younger patients with bile duct stricture where there is no evidence of histologic malignancy despite multiple biopsies, the possibility of benign disease such as adenomyomatous hyperplasia should be considered, to avoid unnecessary radical surgery. (*Korean J Gastroenterol* 2016;67:332-336)

**Key Words:** Adenomyoma; Extrahepatic bile ducts; Common bile duct neoplasms

#### INTRODUCTION

Adenomyomatous hyperplasia (adenomyoma or adenomyomatosis) is a reactive, hamartomatous malformation or non-neoplastic tumor-like lesion.<sup>1</sup> Adenomyomatous hyperplasia is mostly found in the gallbladder, stomach, duodenum and jejunum, and is rare in the extrahepatic bile duct.<sup>2</sup> Because of its location, adenomyomatous hyperplasia of the extrahepatic bile ducts or ampulla of Vater characteristically presents a clinical sign of obstructive jaundice, and,

more importantly, mimics a malignant neoplasm.<sup>3</sup> Therefore, it can result in unnecessarily extensive surgical resections, raising the risk of complications. In experienced hands, the pancreaticoduodenectomy including conventional Whipple procedure and pylorus preserving pancreaticoduodenectomy is associated with mortality rate of less than 4%. However, the rate of perioperative morbidity such as delayed gastric emptying time, bile leakage, pancreatic fistula, bowel leakage, wound dehiscence, infection, and multiorgan failure remains high, from 30% to 60%.<sup>4,5</sup>

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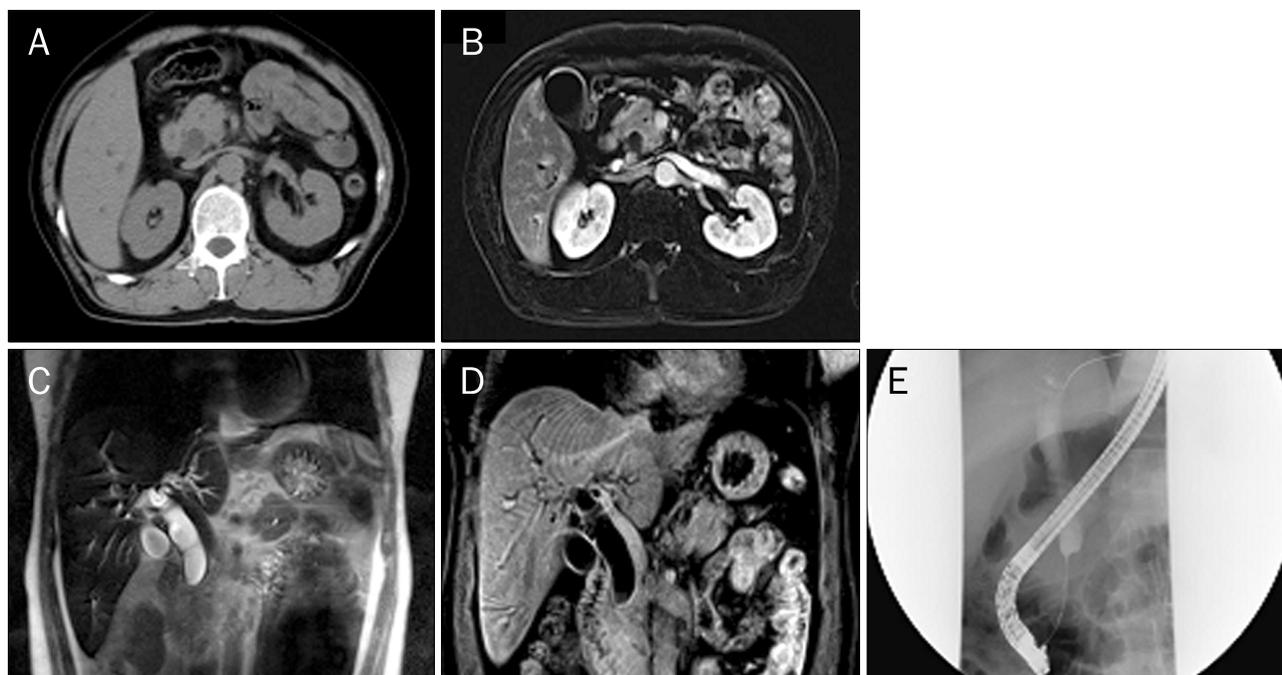
Here, we report a case of 42-year-old man who underwent surgical resection in spite of preoperative suspicion of benign stricture and was diagnosed with adenomyomatous hyperplasia of the common bile duct (CBD).

## CASE REPORT

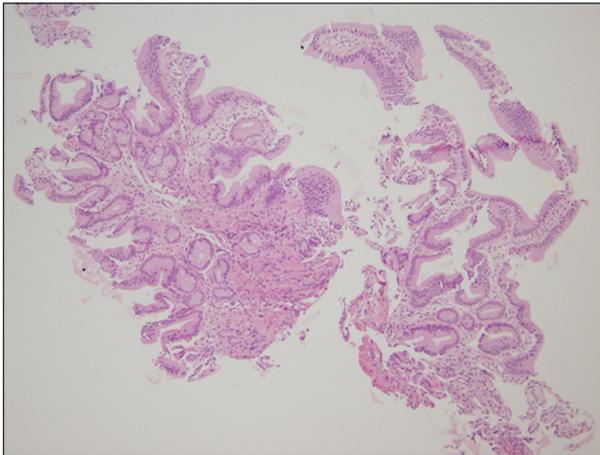
A 42-year-old man without a distinct medical history was admitted with epigastric discomfort that developed two days earlier. He also complained of nausea, vomiting and dark urine. He had no family history of malignancy. He was a 10-pack-year smoker and chronic alcoholic. He appeared acutely ill, and physical examinations revealed icteric sclera and abdominal tenderness on the right upper quadrant. Laboratory examinations revealed a serum white blood cell level of 10,180/ $\mu$ L, a serum total bilirubin level of 7.8 mg/dL, an alkaline phosphatase level of 689 U/L, a gamma glutamyl transpeptidase level of 1,199 U/L, an aspartate aminotransferase level of 224 U/L, an alanine aminotransferase level of 266 U/L, an amylase level of 167 U/L, a lipase level of 220 U/L, a IgG subgroup4 level of 27.9 mg/dL, a serum CA

19-9 levels of < 1.0 U/mL, and carcinoembryonic antigen level of 1.2 ng/mL. Fluorescent antinuclear antibody test was negative.

Abdominal CT scans showed diffuse dilatation of the intrahepatic duct with CBD obstruction. MRI also revealed distal CBD obstruction with proximal bile duct dilatation, accompanying pancreatic duct dilatation. ERCP demonstrated an abrupt narrowing of the distal CBD and proximal bile duct dilatation (Fig. 1). Multiple endobiliary biopsies and biliary stenting with plastic stent were performed during the ERCP. The histologic examination showed chronic inflammation with fibrosis, periductal glandular proliferation, and was negative for IgG4 staining (Fig. 2). The second ERCP was performed to repeat a biopsy, and the pathologic result was again a benign lesion negative for IgG4 staining. Finally, a third ERCP was performed to make sure that the lesion was truly benign. Histologic examination of the specimen showed only a dysplastic change and a slight positive for P53 staining. In addition, the specimen obtained by endoscopic biopsy and brush cytology at the other hospital that he visited for a second opinion about the biliary stricture showed chronic in-



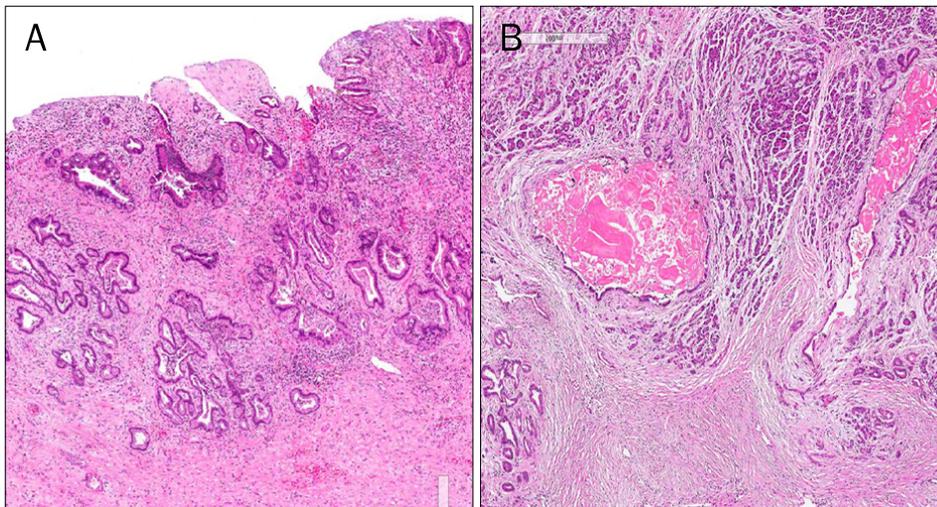
**Fig. 1.** CT scan images and fluoroscopic findings. (A) An axial CT image shows a prominent enlarged pancreatic duct and mild peripancreatic infiltration around pancreatic head and uncinated process. Iso-attenuating distal bile duct cancer cannot be ruled out as the peripancreatic duct is not delineated clearly. (B-D) In addition to a CT image suspicious for malignancy, axial and coronal MRI show a distal common bile duct (CBD) obstruction and proximal bile duct dilatation with mild peripancreatic infiltration with pancreatic duct dilatation. (E) A cholangiogram obtained by ERCP. Abrupt narrowing distal CBD and dilatation of proximal bile duct are seen in this image.



**Fig. 2.** Histologic findings of distal common bile duct (H&E, ×100). Chronic inflammation with fibrosis and periductal glandular proliferation is seen in the tissue.



**Fig. 3.** Gross examination of the surgically resected specimen. A sclerosing solid mass in distal common bile duct was 3×2 cm in size and spaced 1.5 cm apart from Ampulla of Vater.



**Fig. 4.** Histologic findings in common bile duct tissue removed at surgery (H&E). (A) Diffuse adenomyomatous hyperplasia of the distal bile duct and periductal fibrosis is seen (×200). (B) Chronic active pancreatitis with fibrosis, intraductal eosinophilic amorphous protein plugging, and fat necrosis of the pancreas head are also noted (×400).

flammation of bile duct and ampulla of Vater with infiltration of inflammatory cells and granulation tissue formation.

The patient decided to undergo surgery, fearing the slight possibility of malignancy and need of repetitive procedures for biliary drainage, although the physicians strongly recommended carefully watching the course of the biliary stricture over time due to the strong likelihood of benign disease.

Consequently, we planned a pylorus preserving pancreaticoduodenectomy with his consent. In the intraoperative field, a 3×2 cm sized sclerosing solid mass was seen at 1.5 cm above ampulla of Vater in the distal CBD, which was thought to be a malignant tumor (Fig. 3). Histologic examination of the surgically resected specimen showed diffuse adenomyomatous hyperplasia of the distal bile duct and periductal fibrosis.

Chronic active pancreatitis with fibrosis, intraductal eosinophilic amorphous protein plugging, and fat necrosis of the pancreas head were also noted (Fig. 4). After the surgery, he was discharged without complications, and care continued in our outpatient clinic.

## DISCUSSION

Adenomyomatous hyperplasia of the extrahepatic bile duct is defined as a non-neoplastic, tumor-like localized lesion characterized by mucosal thickening, similar to adenomyomatous hyperplasia of the gallbladder, that consists of glandular hyperplasia without cellular atypia and with a proliferation of smooth muscle fibers in a fibrous stroma.<sup>6</sup>

Since adenomyomatous hyperplasia of the extrahepatic bile duct are extremely rare, few cases are reported. Most of the cases were diagnosed after surgical resection because diagnosis based on variable imaging modalities and endoscopic biopsy was difficult.<sup>2</sup> There are no long-term tracking data or studies with large samples of the relationship between biliary malignancies and adenomyomatous hyperplasia of extrahepatic bile duct, but the prognosis of adenomyomatous hyperplasia of the extrahepatic bile duct is expected to be similar to that of adenomyomatous hyperplasia of gallbladder because of the histological similarity.<sup>7</sup> At this time, adenomyomatous hyperplasia is not considered to be pre-cancerous nor does the condition increase the probability of cancer.<sup>8</sup> There is no conclusive evidence that the presence of adenomyomatosis increases the risk of gallbladder cancer.<sup>7,9</sup> When the lesion has been definitively diagnosed as adenomyomatous hyperplasia, endoscopic procedures such as drainage with plastic catheter or local resection should be performed. However, if it is difficult to distinguish it from the malignancy preoperatively, a radical surgical procedure may be performed as a treatment alternative, although that carries the potential for complications.<sup>2</sup>

This case showed that the imaging evaluations for jaundice in a middle-aged male patient suggested a malignant CBD obstruction without any mass, while histopathologic reports of repeated endobiliary biopsies and aspiration showed no evidence of malignancy. The patient decided to undergo the surgery despite strong recommendations to observe the progression of biliary stricture as there was a high probability of a benign lesion. We treated the patient with a pylorus-preserving pancreaticoduodenectomy, and the histopathologic examination of surgical resected specimen reported an adenomyomatous hyperplasia of CBD.

When biliary stricture is found from imaging studies for a patient who complained of jaundice, a surgical resection is a diagnostic and treatment option. However, surgery could not be justified in the distal extrahepatic biliary stricture without mass due to the possibility of surgical complications. Approximately 15-24% patients who undergo surgery for suspected biliary malignancy have benign lesions.<sup>10</sup> Since adenomyomatous hyperplasia is histologically characterized by epithelial and smooth muscle proliferation, it is not usually considered a premalignant lesion.<sup>11</sup> As a result, we did an unnecessary operation in this case even after careful consid-

eration of clinical evidence. The treatment best suited to this case would be close observation with procedures for internal biliary drainage.

A major problem of management of biliary stricture is the low sensitivity of current diagnostic tools. ERCP is commonly performed to rule out malignancy in suspicious strictures, and tissue acquisition via brush cytology and intraductal biopsy allows the cytological or histological confirmation of the disease. The sensitivity of brush cytology and intraductal biopsy in diagnosing malignant biliary strictures were 45% and 48.1% respectively, and both techniques are almost 100% specific. A combination of both modalities modestly increased the sensitivity to 59.4%.<sup>12</sup> To overcome these limitations, the repeated tests showed that the cumulative diagnostic rate increased with multiple cytology tests via endoscopic nasobiliary drainage, and about 95% sensitivity was achieved with six repeated exams.<sup>13,14</sup> The possibility of malignancy with no evidence of malignancy from repetitive endoscopic biopsy was lower than 10%.<sup>15</sup> This is why we did not recommend surgery to the patient in this case.

Novel technical and experimental attempts are under way to improve diagnostic validity.<sup>16</sup> These could increase accuracy with different diagnostic tools; cholangioscopy, endoscopic and intraductal ultrasound, confocal laser endomicroscopy, bile and urine proteomic analyses. Cholangioscopy allows a direct visualization and targeted biopsies with sensitivity of 60.1%,<sup>17</sup> and the sensitivity of intraductal ultrasound is about 88%.<sup>18,19</sup> However, distal bile duct evaluation is limited. Endoscopic ultrasound with fine needle aspiration can be performed for distal extrahepatic bile duct strictures, as the reported sensitivity and negative likelihood ratio for diagnosis of malignancy were 66% and 0.34, respectively.<sup>20</sup>

In conclusion, when we treat younger patients for bile duct stricture with no evidence of histologic malignancy despite multiple biopsies, we should consider the possibility of benign disease such as adenomyomatous hyperplasia to avoid unnecessary radical surgery. More effective evidence from further studies could increase the diagnostic rate with novel modalities for avoiding invasive treatment in the near future.

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