

CASE REPORT

Pitfalls of MRCP in the Diagnosis of Pancreaticobiliary Maljunction

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ABSTRACT

Context Magnetic resonance cholangiopancreatography (MRCP) is useful for examining the pancreatic duct system in patients with acute pancreatitis instead of using endoscopic retrograde cholangiopancreatography (ERCP), as ERCP-induced pancreatitis represents a serious problem. However, we present here a case of idiopathic acute pancreatitis in which MRCP suggested pancreaticobiliary maljunction, but ERCP indicated normal pancreaticobiliary union.

Case report A 22-year-old male was urgently admitted complaining of upper abdominal and back pain. He had no history of alcohol or drug intake. Serum amylase levels were elevated to 880 U/mL (reference value: less than 158 U/mL). Abdominal ultrasound demonstrated only a slight swelling of the pancreas, but no abnormal findings for the bile duct or gallbladder. Symptoms and hyperamylasemia improved with supportive therapy. Coronal heavily T2-weighted single-shot rapid acquisition with relaxation enhancement MRCP indicated a markedly long common channel, and pancreaticobiliary maljunction without biliary dilatation was diagnosed. Under the diagnosis of idiopathic acute pancreatitis associated with pancreaticobiliary maljunction without biliary dilatation, prophylactic laparoscopic cholecystectomy was planned. However, ERCP demonstrated a narrow main pancreatic duct and a normal common bile duct without the formation of a common channel. In a

supine position, after withdrawal of the scope, the narrow main pancreatic duct at the head of the pancreas overlapped the lower common bile duct, giving the appearance of a long common channel as indicated by MRCP.

Conclusions In MRCP of cases with a narrow main pancreatic duct, there is a possibility for false-positive indications of pancreaticobiliary maljunction. MRCP with secretin stimulation or ERCP should be performed in such cases.

INTRODUCTION

Magnetic resonance cholangiopancreatography (MRCP) is a noninvasive imaging modality which is able to accurately depict both pancreatic and bile ducts. MRCP is useful for examining the pancreatic duct system in patients with acute pancreatitis instead of using endoscopic retrograde cholangiopancreatography (ERCP), as ERCP-induced pancreatitis represents a serious problem. Pancreaticobiliary maljunction represents one factor contributing to idiopathic acute pancreatitis [1, 2], and can be diagnosed using MRCP [3, 4]. However, we encountered a case of idiopathic acute pancreatitis in which MRCP suggested pancreaticobiliary maljunction, but ERCP indicated normal pancreaticobiliary union.

CASE REPORT

A 22-year-old male university student was urgently admitted complaining of upper abdominal and back pain. He had no history

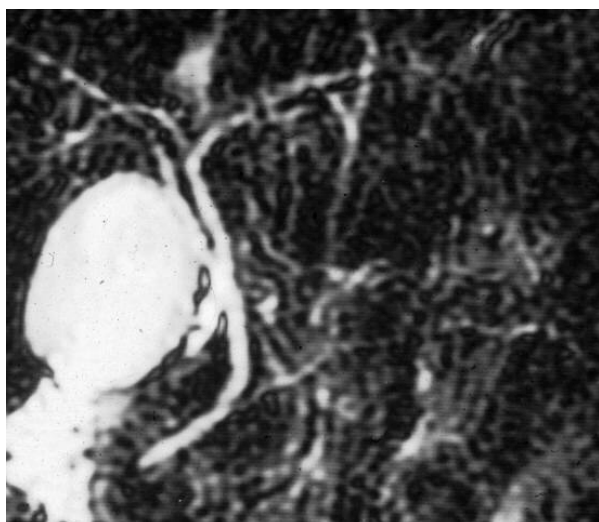


Figure 1. MRCP showing a long common channel. Pancreaticobiliary maljunction without biliary dilatation was diagnosed.

of alcohol or drug intake. Serum amylase levels were elevated to 880 U/mL (reference value: less than 158 U/mL). Abdominal ultrasound demonstrated only slight swelling of the pancreas, but no abnormal findings for the bile duct or gallbladder. Symptoms and hyperamylasemia improved with supportive therapy including intravenous fluids for 3 days after admission. On the fourth day, the patient underwent MRCP, and was discharged the next day to attend class. Coronal heavily T2-weighted single-shot rapid acquisition with relaxation enhancement MRCP indicated a markedly long common channel and pancreaticobiliary maljunction without biliary dilatation was diagnosed (Figure 1). As the patient was busy with school, a prophylactic laparoscopic cholecystectomy for frequently associated gallbladder carcinoma was planned during vacation. However, to determine whether a protein plug that sometimes induces acute pancreatitis in pancreaticobiliary maljunction was present, the patient underwent precautionary ERCP. ERCP demonstrated a narrow main pancreatic duct and a normal common bile duct without the formation of a common channel (Figure 2). In a supine position, after withdrawal of the scope, the narrow main pancreatic duct at the head of the pancreas overlapped the lower common bile duct, giving the appearance of a long common channel as indicated by MRCP.

Diagnosis of pancreaticobiliary maljunction was not confirmed by ERCP, and the patient did not undergo surgery. He is still well 1 year later.

DISCUSSION

Pancreaticobiliary maljunction represents one factor contributing to idiopathic acute pancreatitis [1, 2]. Protein plugs were detected in 14 of 22 cases (64%) with acute pancreatitis associated with pancreaticobiliary maljunction [5]. MRCP is able to noninvasively depict the pancreatic and bile ducts, and pancreaticobiliary maljunction can be diagnosed using MRCP [3, 4]. In patients with pancreaticobiliary maljunction, reflux of pancreatic juice into the bile duct occurs, because the action of the sphincter muscle does not affect the union. This results in the frequent occurrence of biliary carcinoma [6]. As gallbladder carcinoma is associated with 35-44% of cases of pancreaticobiliary maljunction without biliary dilatation, prophylactic cholecystectomy is recommended once pancreaticobiliary maljunction is diagnosed [7, 8]. To diagnose pancreaticobiliary maljunction before a malignancy develop in the biliary tree, MRCP plays an important role in the screening of pancreaticobiliary maljunction.

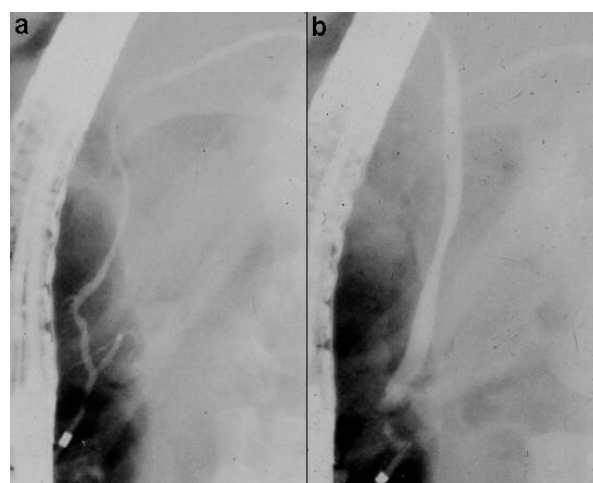


Figure 2. A retrograde pancreatogram (a) and a cholangiogram (b) were obtained separately. A narrow main pancreatic duct and a normal common bile duct are demonstrated without the formation of a common channel.

In an ERCP study of 36 cases of idiopathic acute pancreatitis, anatomic abnormalities of the pancreatic or biliary system including pancreas divisum and pancreaticobiliary maljunction were demonstrated in 13 cases. Furthermore, we identified 3 cases displaying a narrow main pancreatic duct, although the clinical significance of a narrow pancreatic duct is unknown [9]. MRCP was also performed in 8 of these 36 cases of idiopathic acute pancreatitis, and the results of MRCP were almost the same as those of ERCP in 7 cases except the patient who presented with a narrow main pancreatic duct.

Recently, the effectiveness of dynamic MRCP with secretin stimulation has been reported [10, 11]. Secretin stimulates the exocrine pancreas to secrete fluid and bicarbonate, and this fluid results in a transient increase in the main pancreatic duct diameter. Although secretin is not available in Japan now, MRCP with secretin stimulation will be surely effective for this particular case.

In MRCP of cases with a narrow main pancreatic duct, there is a possibility for false-positive indications of pancreaticobiliary maljunction. MRCP with secretin stimulation or ERCP should be performed in such cases.

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