Case report

Pancreas head carcinoma with total fat replacement of the dorsal exocrine pancreas

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Abstract: We report a case of pancreas head carcinoma associated with fat replacement of the body and tail. A 68-year-old man presented with obstructive jaundice and was admitted to our hospital. Ultrasonography and computed tomography showed pancreas head tumor with a neighboring cystic lesion and fatty replacement of parenchyma of the pancreas body and tail. By endoscopic retrograde pancreatography, abruption of the main pancreatic duct and the presence of an accessory duct were detected. After percutaneous transhepatic biliary drainage, pancreatoduodenectomy was successfully performed. At laparotomy, the pancreas head was easily dissected from the replaced fatty tissue of the body and tail without continuity of the ductal system or parenchyma. Microscopic examination revealed the existence of an infiltrating ductal adenocarcinoma and a neighboring, cyst in the pancreas head. The dorsal exocrine pancreas was completely replaced by the fat tissues, in which viable Langerhans’ islets were scattered. The patient’s postoperative course was uneventful, and exogenous insulin administration was unnecessary for the maintenance of normal blood sugar level. Acquired fat replacement of the body and tail of the pancreas is an uncommon disorder, mimicking congenital agenesis of the dorsal pancreas. Though the mechanism is controversial, obstruction of the main pancreatic duct by a cystic lesion or carcinoma in the pancreas head is a possible cause of fatty degeneration of the pancreatic parenchyma.

Key words: pancreatic carcinoma, fat replacement, agenesis of pancreatic body and tail, dorsal pancreas, pancreatoduodenectomy

Introduction

Owing to the increasing use of diagnostic modalities, partial fat replacement or lipomatosis of the pancreas is occasionally being encountered in association with pancreatic diseases. However, total involvement of the pancreas body and tail by fat replacement is an uncommon clinical entity. Its mechanism has not been clarified completely and the distinction between an acquired change and congenital agenesis is very difficult. We report a rare case of pancreatic head carcinoma with fat replacement of the dorsal exocrine pancreas. In this patient, the existence of Langerhans’ islets was proven histologically in the resected fat tissue adjacent to the end of the pancreas head.

Case report

A 68-year-old man was admitted to our hospital with asymptomatic jaundice. Laboratory data showed obstructive liver damage (total bilirubin, 23.4 mg/dl; direct bilirubin, 16.2 mg/dl; aspartate aminotransferase [AST], 140 IU/l; alanine aminotransferase [ALT], 260 IU/l; alkaline phosphatase [ALP], 2343 IU/l; and gamma glutamyl transpeptidase [γ-GTP], 1345 IU/l), with an elevation of tumor markers (carcinoembryonic antigen [CEA], 11.6 ng/ml; carbohydrate antigen 19-9 [CA19-9], 4810 U/ml). Blood sugar level was normal, ranging from 90 mg/dl to 100 mg/dl. Abdominal ultrasonography (US), endoscopic ultrasonography (EUS), and computed tomography (CT) revealed dilatation of the biliary ductal system and a pancreas head tumor (40 mm in diameter), with a cystic lesion (Fig. 1). Parenchyma of the pancreatic body and tail was not detected by these modalities. Endoscopic retrograde pancreatography (ERP) showed an abruption of the main pancreatic duct 3 cm from the main papilla, and communication with an accessory pancreatic duct (Santorini’s duct; Fig. 2).
There was no communication between the pancreatic duct and the cystic lesion in the pancreas head. Percutaneous transhepatic biliary drainage was carried out, and showed irregular obstruction of the intrapancreatic bile duct (Fig. 3). Abdominal angiographic findings suggested encasement of the gastroduodenal artery and portal compression by the tumor, as well as a lack of vascular feeders to the pancreas body and tail (Fig. 4). Adenocarcinoma cells were detected by a brushing cytology examination through the bile duct. The preoperative diagnosis was pancreas head cancer and incomplete-type agenesis of the dorsal pancreas, with an accessory duct.

At laparotomy, pancreatic parenchyma of the body and tail was not identified by inspection, palpation, or ultrasonography. The distal pancreas was replaced by fat tissue, which was easily dissected from the pancreas head. No ductal and vascular structures were found between the left end of the pancreas head and the replaced fat tissue. The tumor existed in the upper part of the pancreas head and had partially invaded the portal vein. There were no metastases in the regional lymph nodes or the liver. Pancreatoduodenectomy in combination with partial resection of the portal vein and lymph node dissection was successfully performed. Reconstruction included hepatico-jejunostomy and gastrojejunostomy, without the necessity for a pancreatic anastomosis.

Fig. 1a,b. Abdominal computed tomography (CT) shows absence of the pancreas body and tail associated with an irregular tumor (a) and cystic lesions (b) in the remnant pancreas head

Fig. 2. Endoscopic retrograde pancreatography (ERP) demonstrates the presence of an accessory duct and the absence of the main pancreatic duct in the dorsal pancreas

Fig. 3. Cholangiography (ERP plus percutaneous transhepatic biliary drainage) shows irregular obstruction of the bile duct in the pancreas head