Mucinous cystic neoplasms of the pancreas are uncommon and known to occur mainly in middle-aged women. We present a case of pancreatic mucinous cystadeno-carcinoma in an 11-year-old girl who had a past history of blunt abdominal trauma. The tumor was initially mistaken for a traumatic pseudocyst. US and CT revealed a multiloculated cystic mass in the pancreatic tail. The mass showed good transmission on ultrasonography (US) and had an attenuation value of 10 HU on CT. Metastatic lesions in the liver were also shown on follow-up study.

Index words: Pancreas, CT
Pancreas, neoplasms
Neoplasms, in infants and children

Mucinous cystic neoplasms of the pancreas are uncommon and known to occur mainly in middle-aged women (1). The pediatric case has been rarely described in the literature (2). In this report we present an 11-year-old girl with a pancreatic cystadenocarcinoma mimicking a traumatic pseudocyst.

Case Report

An 11-year-old girl was referred from outside hospital, where she underwent Roux-en-Y cystojejunostomy under the impression of traumatic pancreatic pseudocyst following blunt abdominal trauma four months previously. At that time, she showed nausea and vomiting with mildly elevated serum amylase level (106 U/L). Preoperative outside CT scan showed a unilocular cystic mass measuring about 7 cm in diameter in the pancreatic tail (Fig. 1). Pathologic specimen was not obtained at the operation. The mass was increased in size on the postoperative CT scan three months after operation that was performed due to recurrent nausea and vomiting.

At our hospital, US and CT scan were rechecked. There was a multiloculated cystic mass in the pancreatic tail and the attenuation value of the cyst was 10 HU (Fig. 2A). The mass had slightly thick and irregular wall and septae without mural nodule or solid portion. Two small low attenuating lesions were seen in the liver (Fig. 2B), which were not shown on either preoperative and postoperative outside CT scans.

At laparotomy, there was a cystic mass in the pancreatic tail, adherent to the splenic hilum, root of transverse mesocolon, and the posterior gastric wall. The mass infiltrated to the previous cystojejunostomy site. Distal pancreatectomy with jejunal resection and liver biopsy were performed. The gross pathologic examination revealed a multilocular cyst (Fig. 2C). The cysts were lined by a tall, mucin-producing columnar epithelium and filled with mucinous material on the microscopic examination. Some foci of epithelial atypia were identified. Mucinous cystadenocarcinoma with liver metastasis was diagnosed.

Discussion

Cystic neoplasms of the pancreas are uncommon tu-
mors, accounting for 1-13% of pancreatic cystic lesions and 1-3% of pancreatic tumors (3). Neoplastic pancreatic cysts are classified into microcystic (serous) adenomas and mucinous cystic neoplasms, which are subdivided into mucinous (macrocystic) cystadenomas and mucinous cystadenocarcinomas. Whereas microcystic adenomas are benign, mucinous cystic neoplasms are potentially malignant or already malignant at the time of initial presentation (4,5).

Pediatric case of pancreatic mucinous cystic neoplasm has been very rarely reported. Grosfeld et al. (2) reported two cases of mucinous cystadenomas in 4- and 10-month-old children. However, they did not describe the CT findings of the tumors. In our knowledge, the case of mucinous cystadenocarcinoma in children has not been reported. Pancreatic mucinous cystic neoplasms are often quite large. They are uni- or multilocular masses formed by cysts larger than 2 cm in size. Papillary projections within the cysts are not uncommon and a fibrous capsule is constantly present (1,2,5). Metastases have occurred at the time of diagnosis in 25% of mucinous cystadenocarcinomas (4).

Fig. 1. Preoperative post-contrast CT scan reveals about 7-cm sized, a large unilocular cyst having smooth wall in the pancreatic tail. The cyst showed markedly decrease in size after Roux-en-Y cystjejunostomy on follow-up US (not shown).

Fig. 2. A. Follow-up CT scan performed 4 months after operation. Post-contrast CT scan shows a multiloculated cystic mass with rather thick and irregular wall or septae in the pancreatic tail. The mass has an attenuation value of 10 HU. B. Two small low attenuating metastatic lesions (arrowheads) are seen in the liver. C. Gross specimen including transverse mesocolon. A multilocular cyst (arrows) in the pancreatic tail, which is adherent to the root of transverse mesocolon (arrowheads).
Imaging findings of mucinous cystic neoplasms are related to the pathologic features, which show uni- or multilocular cystic masses. On US, mucinous cystic tumors show good transmission and posterior acoustic enhancement. The most important findings are the internal septae and the nodular or papillary excrescences, which are better demonstrated on US than CT (5). Pre-contrast CT demonstrates a well-encapsulated mass with attenuation values of near water density. Post-contrast CT shows enhancing wall, internal septae, and mural nodules. Differentiation of mucinous cystadenoma from cystadenocarcinoma is very difficult unless evidence of extrapancreatic spread or metastasis is present (2,5).

Mucinous cystic neoplasm may mimic pancreatic pseudocyst, especially when the cystic mass is complicated by hemorrhage (2,3,5). The most common pancreatic cysts are pseudocysts, either traumatic or infectious origin (2). Usually the differential diagnosis can be made on the basis of previous history and laboratory findings. Patients with pancreatic pseudocyst usually have a history of pancreatitis, cholelithiasis or abdominal trauma in almost all cases and elevated serum amylase level in 75% of patients (6). However, as in our case, 17% of patients with mucinous cystic neoplasms also have a clinical history of pancreatitis or trauma (5), in which case the differentiation of cystic neoplasm from pancreatic pseudocyst becomes more difficult. Pancreatic pseudocyst is usually unilocular and presence of septations within the cyst suggests associated complications such as hemorrhage or infection. Thick wall may be present in both complicated pseudocyst and mucinous cystic neoplasm. Multilocular appearance with presence of multiple septae as in our patients should raise a possibility of cystic neoplasm (7). Increasing size of the cyst despite of internal drainage procedure and evidence of metastasis as in our patient are the key to the diagnosis.

Other neoplastic pancreatic cysts which could occur in children include microcystic adenoma, necrotic solid tumors, and solid and papillary epithelial neoplasm (SPEN) with cystic appearance. In microcystic adenoma, the tumor frequently appears solid without visible cysts although some of the cysts can be larger than 2 cm in diameter. Calcification is more common and a central scar is identified only in microcystic adenomas (2).

In conclusion, a possibility of cystic neoplasm should be considered when pancreatic cyst shows multilocular appearance with multiple septae or increasing size on follow-up imaging studies in spite of the presence of previous history of trauma in children.

References