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Case report

A vanishing pseudocyst in the remnant pancreas after pylorus-preserving pancreatoduodenectomy

Masayuki Kojima[1], Koji Yamaguchi[2], Kazuo Chijiiwa[2], and Masao Tanaka[2]

[1] Department of Surgery, Hamanomachi Hospital, 3-5-27 Maizuru, Chuo-ku, Fukuoka 810-8539, Japan
[2] Department of Surgery and Oncology, Graduate School of Medical Sciences, Kyushu University, Fukuoka, Japan

We report a 74-year-old Japanese woman with a spontaneously vanishing pseudocyst in the remnant pancreas after pylorus-preserving pancreatoduodenectomy for intraductal papillary-mucinous adenoma of the pancreas. A cystic lesion appeared in the remnant pancreas 6 months after the operation and had disappeared 3 months later. When a cystic lesion is encountered in the remnant pancreas after pancreatectomy for mucin-hypersecreting tumor of the pancreas, pseudocyst, as well as recurrence, should be considered in the differential diagnosis. Additional resection would likely cause considerable morbidity, with loss of endocrine and exocrine functions.

Key words: intraductal papillary-mucinous tumor of the pancreas, pseudocyst, remnant pancreas

Introduction

In adults, 70% of cystic lesions of the pancreas are pseudocysts, while only 10%–15% are neoplastic cysts.[1] However, pseudocysts are sometimes difficult to differentiate from cystic neoplasms, despite the recent progress in diagnostic imaging modalities, especially when the cystic lesion appears in the remnant pancreas after an operation for a mucin-hypersecreting tumor. The discrimination of benign and neoplastic cysts is difficult, in part because mucosal extension of atypical epithelium is common. If the cystic lesion is a pseudocyst, conservative or nonsurgical approaches may be warranted, because reoperation involves great risks. We report a patient who had an operation for a mucin-hypersecreting tumor in whom follow-up radiographic imagings showed the appearance and subsequent disappearance of a cystic lesion in the remnant pancreas.

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Reprint requests to: M. Kojima

Case report

A 74-year-old Japanese woman was admitted to a nearby hospital for the evaluation of upper abdominal pain. Ultrasonography (US) and computed tomography (CT) disclosed a cystic lesion in the head of pancreas. She had no history of alcohol abuse, pancreatitis, or abdominal trauma. On admission, no abdominal mass was palpable. Serum amylase level was slightly elevated (172 U/l). Carcinoembryonic antigen (CEA; 0.4 ng/ml) and carbohydrate antigen 19-9 (CA19-9; 13.5 U/l) levels were normal. Endoscopic ultrasonography demonstrated a multilocular cystic lesion, 2 cm in diameter. CT revealed no solid components in the cystic lesion (Fig. 1). Magnetic resonance cholangiopancreatography (MRCP) confirmed that the mass measured 3 cm, and the main pancreatic duct was not dilated (Fig. 2). Endoscopic retrograde cholangiopancreatography (ERCP) revealed a communication of the cystic lesion with the main pancreatic duct (Fig. 3). The papilla of Vater was enlarged, and the orifice was widened because of profuse mucin excretion. Pylorus-preserving pancreatoduodenectomy (PpPD) was performed, with the tentative diagnosis of mucin-hypersecreting tumor of the pancreas. Postoperative histopathological examination revealed that the cystic tumor was an intraductal papillary-mucinous adenoma with moderate dysplasia. The surgical margins were free of neoplastic epithelium. At the time the patient was discharged, CT and MRCP showed no abnormal findings in and around the remnant pancreas. The patient was discharged on postoperative day 57.

Follow-up CT of the abdomen 6 months after the operation detected a unilocular cystic lesion, 1 cm in

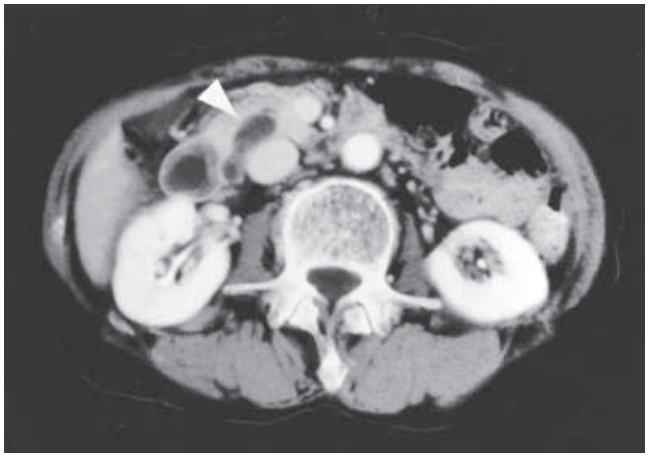

Fig. 1. Computed tomography (CT) scan showing a cystic lesion, without a solid component, in the head of the pancreas (*arrowhead*)

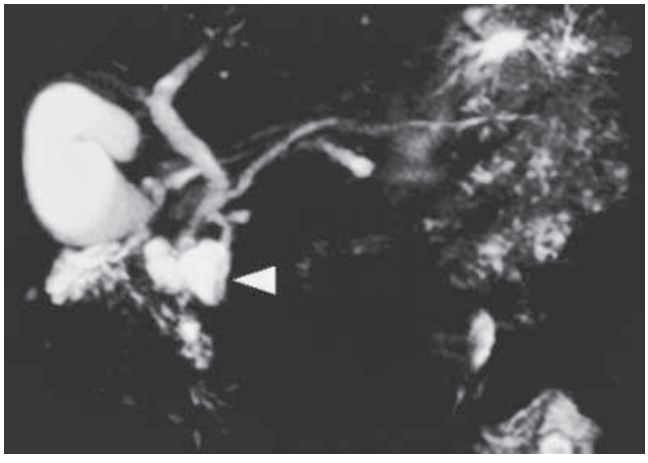

Fig. 2. Magnetic resonance cholangiopancreatography (MRCP) demonstrating a cystic lesion, 3 cm in diameter, in the head of pancreas (*arrowhead*). The main pancreatic duct is not dilated

diameter, in the remnant pancreas adjacent to the pancreatojejunostomy (Fig. 4a). MRCP confirmed the CT findings (Fig. 4b). It was clear by the radiographic studies that the cystic lesion existed in the remnant pancreas. We elected to only follow these findings, because the cyst was only 1 cm in size and there were no solid components, although recurrence of the intraductal papillary-mucinous tumor could not be completely ruled out.

Follow-up CT and MRCP 3 months later showed disappearance of the cystic lesion in the remnant pancreas (Fig. 5). The remnant pancreas demonstrated atrophy of the parenchyma and dilatation of the main pancreatic duct.

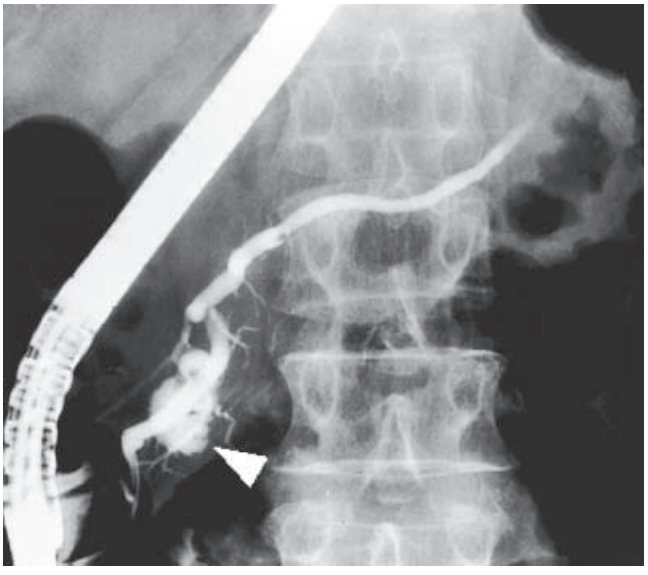

Fig. 3. Endoscopic retrograde cholangiopancreatography (ERCP) showing a communication of the cystic lesion with the main pancreatic duct (*arrowhead*)

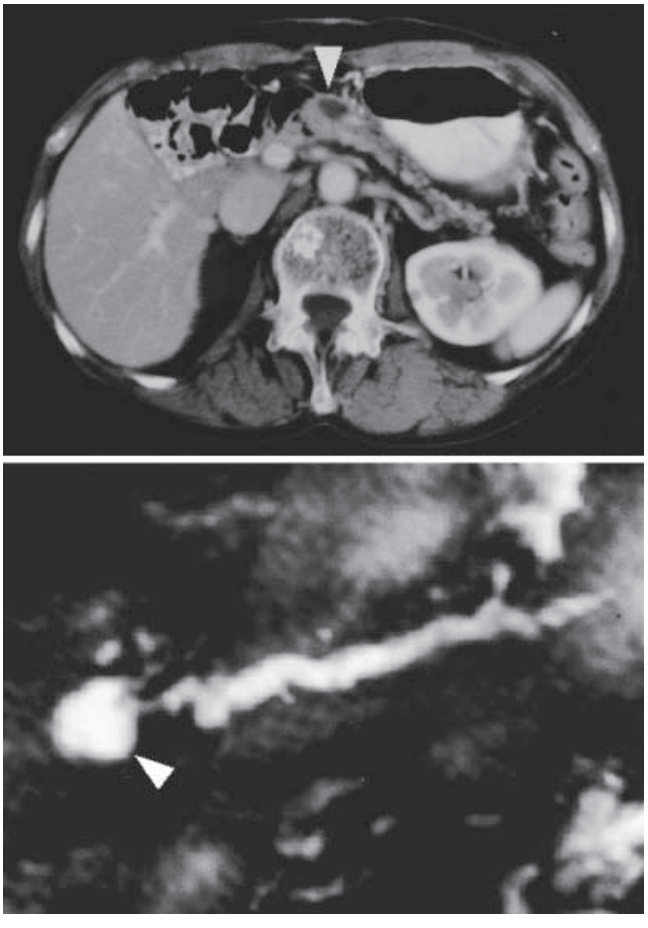

Fig. 4a,b. A cystic lesion, 1 cm in diameter (*arrowheads*), appearing in the distal portion of the remnant pancreas 6 months after the operation. **a** CT and **b** MRCP

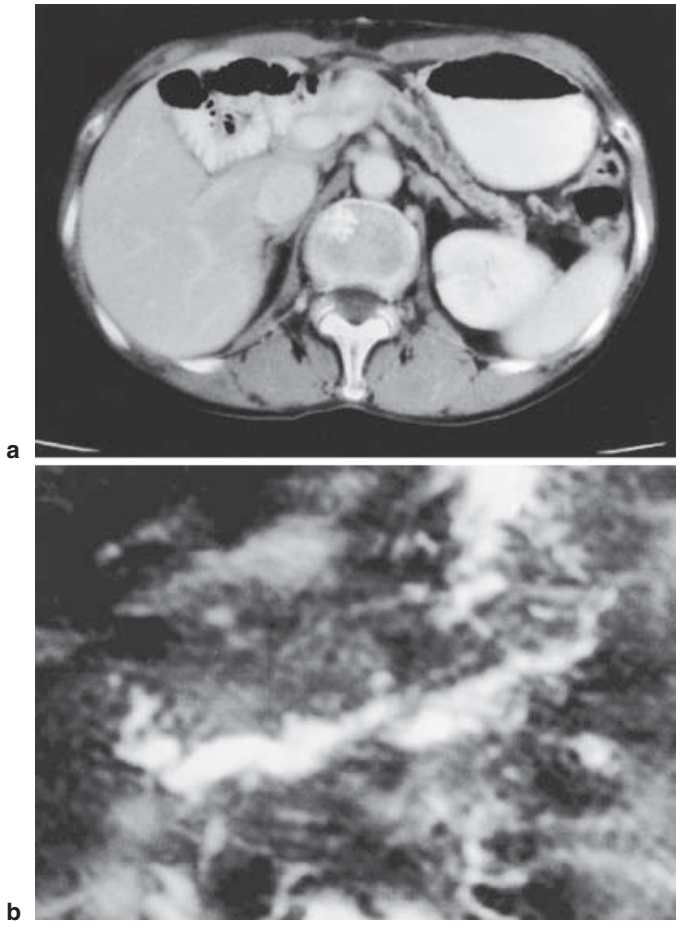

Fig. 5. **a** CT and **b** MRCP, done 3 months after the examinations shown in Fig. 4a,b, showing disappearance of the cystic lesion

Follow-up CT and MRCP 15 months after the operation also revealed no evidence of a cystic lesion in the remnant pancreas. The cystic lesion that had appeared 6 months after the operation was thus diagnosed as a pseudocyst in the remnant pancreas, although there had been no episodes of acute pancreatitis or abdominal pain. The patient is now well, 18 months after the operation.

Discussion

Pancreatic pseudocysts occur as a complication in 16%–50% of patients with acute pancreatitis and in 20%–40% of patients with chronic pancreatitis.[2,3] Pseudocysts may also be related to abdominal trauma or surgery, such as pancreatic resection. After pancreatic surgery, pseudocysts or fluid collections around the pancreas are frequently seen on follow-up CT. However, pseudocyst formation in the remnant pancreas in asymptomatic patients is rare. The present patient demonstrated development of a pseudocyst in the remnant pancreas 6 months after pancreatic head resection; the pseudocyst had disappeared 3 months later. This may be the first report that demonstrates the appearance and subsequent disappearance of a pseudocyst in the remnant pancreas after PpPD for an intraductal papillary-mucinous tumor.

Treatment of pseudocyst of the pancreas remains controversial. Bradley et al.[4] reported that the possibility of spontaneous resolution of a pseudocyst decreased when the cyst showed no change in size for 6 weeks after development, while, in contrast, the incidence of complications, such as hemorrhage, infection, and rupture, markedly increased in pseudocysts that had persisted for more then 6 weeks. Consequently, they recommend operative therapy for pseudocysts that persist for more than 6 weeks. On the other hand, Vitas and Sarr[5] recommended conservative management of the pseudocysts, for the following reasons. First, 57% of the pseudocysts resolve more than 6 weeks after the presumed time of formation. Second, there is no relationship between pseudocyst size and the probability of complications or resolution. Third, all methods of surgical or interventional treatment have potential morbidity and mortality. Therefore, they proposed a nonoperative, noninterventional, and expectant approach in patients with minimal symptoms and no risk factors, such as ongoing alcohol abuse, predisposing to repeated episodes of acute pancreatitis. In our department, we basically observe small pseudocysts of the pancreas that have little risk of complications, regardless of whether they are primary or postoperative secondary cases. If the pseudocyst bleeds, becomes infected, or ruptures, then immediate surgical or nonsurgical intervention is appropriate. Our present patient had no history of abdominal pain, and the size of the pseudocyst was small. These facts justified conservative management.

Mucosal extension of atypical epithelium has been reported to be common in mucin-hypersecreting tumors of the pancreas. In our patient, the cystic lesion first appeared in the remnant pancreas 6 months after PpPD for an intraductal papillary-mucinous adenoma. Because we had previously experienced a case of ductal carcinoma in the remnant pancreas after PpPD for a mucinous cystadenoma of the pancreas,[6] we suspected recurrence of the intraductal papillary-mucinous adenoma in the present patient, although the surgical margins had been free of neoplastic epithelium at the pancreatectomy. However, the detected cystic lesion 6 months after the operation was only 1 cm in diameter, and CT and MRCP showed no solid components in it. It is often difficult to differentiate between "true cyst" and "pseudocyst" without histologic examinations. However, this small cystic lesion had appeared 6 months after the pancreatectomy, and the lesion had not been

detected either before or during that operation. Follow-up imagings 9 months after the operation revealed disappearance of the cystic lesion. Therefore, the cystic lesion was presumed to be a pseudocyst, although the patient had no symptoms of pancreatitis.

In our patient, the cystic lesion existed near the pancreatojejunostomy and communicated with the main pancreatic duct. We considered that transient stenosis, a complication of postoperative inflammation and edema around the pancreatojejunostomy, would have caused the pancreatic juice to stagnate, leading to the formation of the pseudocyst. With time, the inflammation was alleviated, and the pseudocyst resolved without any special treatments.

We have reported here a case of spontaneously vanishing pseudocyst of the remnant pancreas after PpPD for intraductal papillary-mucinous adenoma of the pancreas. When a cystic lesion is encountered in the remnant pancreas, pseudocyst, as well as recurrence, should be considered in the differential diagnosis before reoperation is considered.

References

1. Warshaw AL, Compton CC, Lewandrowski K, Cardenosa G, Mueller PR. Cystic tumors of the pancreas. Ann Surg 1990;212: 432–45.
2. O'Malley VP, Cannon JP, Postier RG. Pancreatic pseudocysts: cause, therapy, and results. Am J Surg 1985;150:680–2.
3. Barthet M, Bugallo M, Moreia LS, Bastid C, Sastre B, Sahel J. Management of cysts and pseudocysts complicating chronic pancreatitis; a retrospective study of 143 patients. Gastroenterol Clin Biol 1993;17:270–6.
4. Bradley EL, Clements JL, Gonzales AC. The natural history of pancreatic pseudocysts: a unified concept of management. Am J Surg 1979;137:135–41.
5. Vitas GJ, Sarr MG. Selected management of pancreatic pseudocysts: operative versus expectant management. Surgery 1992;111: 123–30.
6. Niiyama H, Yamaguchi K, Shimizu S, Yokohata K, Chijiiwa K, Yonemasu H, et al. Pancreatic remnant carcinoma after pancreatectomy for mucinous cystadenoma: report of a case. Eur J Gastroenterol Hepatol 1998;10:703–7.