

Surgical Treatment of Pancreatic Cysts: Review of 21 Cases

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ABSTRACT

Twenty one patients with the pancreatic cyst on whom operation was given in our department from 1965 to 1984 were divided into those with the inflammatory cyst (16 cases) and with the neoplastic cyst (5 cases), and the surgical results were examined. The surgical formulas of the inflammatory cyst were further divided into 9 cases of internal drainage of the cyst into the gastrointestinal tract, 1 case of external drainage, and 6 cases of cyst excision together with the resection of the pancreas, and the results were rather satisfactory. On the other hand, the cases of the neoplastic cyst were divided into 2 cases of cystadenocarcinoma, 1 case of cystadenoma and 2 cases of mucinous adenocarcinoma. The contents in the cyst were all mucinous. It is considered that, when the contents of the pancreatic cyst are mucinous, its malignant potential is high. Since examination during operation is often insufficient, we have been trying to recommend resection so far as possible.

The accuracy of the confirmative diagnosis of the pancreatic cyst has been elevated recently due to the progress of ultrasonography, computed tomography and other methods of graphic diagnosis, and even in an asymptomatic patient, a minute cyst can become to be detected, so that its therapeutic principles and the surgical indication have been changing. Furthermore, since the qualitative diagnosis of the cyst is much difficult, there remains the problem of the difficulty of deciding the therapeutic principles preoperatively. Concerning the classification of the cyst, Howard and Jordan's Classification⁷⁾ dividing it into the pseudocyst and the true cyst, taking its etiology into consideration, has been widely in use. In the present study, the authors divided 21 patients with the pancreatic cyst on whom operation was given in our department from 1965 to 1984, into the inflammatory cyst (16 cases) and the neoplastic cyst (5 cases), and

the surgical results were examined.

INFLAMMATORY CYST

The table shows the outline of 16 cases of the inflammatory cyst, and they were subdivided by etiology into 2 cases of traumatic cyst, 10 cases of pancreatitic cyst, 1 case of the secondary cyst due to pancreatic cancer, and 3 cases of unknown etiology.

Surgical formulas consisted of 7 cases of cystojejunostomy, 1 case of cystogastrostomy, 1 case of cystoduodenostomy, 1 case of external drainage, 5 cases of distal pancreatectomy, and 1 case of pancreaticoduodenectomy.

There was no death due to operation, but 3 patients who withstood operation died: one of them due to pancreatic cancer died in 3 months, and the other two died in 18 months and 9 years, respectively, of other diseases. The prognosis of other patients has been satisfactory.

NEOPLASTIC CYST

Case 1 A 36-year woman. At the pancreatic tail, a cyst in the size of a child head (with mucinous contents) was discovered. The splenic artery and vein were coiled up into the wall of the cyst, so that distal pancreatectomy and splenectomy, including the cyst, were performed. It was histopathologically cystadenocarcinoma, which relapsed in 8 months and the patient died.

Case 2 A 31-year man. At the pancreatic head, a cyst (with mucinous contents) in the size of a fist was discovered. Since quick pathological diagnosis conducted during operation did not find malignant changes, cystojejunostomy was performed. However, postoperative examination detected cystadenocarcinoma on a part of the cystic wall, pancreaticoduodenectomy was given. Although the patient died in 7 years 7 months of the other disease (meningitis), pathological dissection did not find relapse at the site and metastasis.

Case 3 A 66-year woman. At the pancreatic head, a cyst in the size of an egg (with mucinous contents) was found. Since quick pathological diagnosis during operation suspected malignancy, pancreaticoduodenectomy was performed. Examination with the resected specimen did not show malignancy, and it was diagnosed to be cystadenoma. Now that 2 years 4 months have passed, she is still alive and healthy.

Case 4 A 63-year man. At the pancreatic head, a cyst (with mucinous contents) in the size of a fist existed, which was oppressing the second portion of the duodenum, and a part was constituting a fistula to the duodenum. It was histopathologically mucinous adenocarcinoma. Since it was progressive cancer, and passage impairment to the duodenum was anticipated, gastrectomy and gastrojejunostomy were performed. The patient died in 10 months after operation.

Case 5 A 55-year woman. At the pancreatic body, a tumor in the size of a fist was noted, and a part was multicystic. Since it was a progressive cancer, the operation ended in exploratory laparotomy, and the patient died in 9 months after operation. It was histopathologically mucinous adenocarcinoma.

DISCUSSION

The indications of operation for the pancreat-

ic cyst are when patients have hemorrhage, infection, rupture and passage impairment through the digestive tract, and when the disappearance of the cyst is not noted by conservative therapy. In actual practice, however, we are often faced to be puzzled how long conservative therapy should be and which formula of operation should be adopted, so that our therapeutic principles have to be altered according to each individual case. As for the period of conservative therapy, the etiology of the cyst must be considered, and authors make it a rule to be 4 to 6 weeks, as has been reported so far^{1,3,9}. In the meantime, closer conditions of the cyst have been studied with ultrasonography or computed tomography. In recent years, a therapeutic percutaneous aspiration of pancreatic pseudocysts guide by ultrasound has been established. Accordingly, the indication of operation are narrowing.

Surgical formulas are roughly classified into resection and drainage. It is desirable to resect any kind of cyst, but when the cyst is an inflammatory pseudocyst and adhesion to the surrounding tissue is severe, we should not separate it apart by force, but drainage must be our choice. The authors gave resection for 6 patients, and the prognosis was satisfactory in all of them (Table). The drainage is divided into external drainage and internal drainage. Since external drainage possesses a problematic point of leaving a fistula when there is a communication with the pancreatic duct, strict selection of the cases is indicated. The prognosis of a patient to whom external drainage was given by the authors has been satisfactory. The digestive tract to be anastomosed with internal drainage is the stomach, duodenum and jejunum, and in principle a part of the proximal tract to the cyst is used. The authors preferred so far to perform cystojejunostomy with Roux-en-Y's method, and the results were, as shown in the table, satisfactory. The cyst after cystojejunostomy is considered to disappear soon⁹. The only defect of cystojejunostomy with Roux-en-Y's method is that a defunctioning loop remains after the disappearance of the cyst.

As has been explained so far, the authors treated 2 cases of cystadenocarcinoma, 1 case of cystadenoma, and 2 cases of mucinous adenocarcinoma, that is, 5 cases of neoplastic

Table Inflammatory pancreatic cysts

Case	Age	Sex	Etiology	Site	Size	Operation	Prognosis
1	57	M	Pancreatitis	Head	3 × 3cm	Pancreaticoduodenectomy	2 yr. alive
2	14	F	Traumatic	Tail	10 × 10cm	Distal pancreatectomy	17 yr. alive
3	51	F	Unknown	Body, tail	12 × 15cm	Distal pancreatectomy	13 yr. alive
4	47	M	Pancreatitis	Body	4 × 3cm	Distal pancreatectomy	4 yr. alive
5	37	M	Pancreatitis	Body	Hens' egg	Distal pancreatectomy	3 yr. alive
6	65	M	Unknown	Tail	4 × 5cm	Distal pancreatectomy	2 yr. alive
7	40	F	Traumatic	Body	Child's head	Cystojejunostomy	18 mo. died
8	23	F	Unknown	Body	Fist	Cystojejunostomy	9 yr. died
9	57	F	Pancreatitis	Head	Fist	Cystojejunostomy	10 yr. alive
10	46	M	Pancreatitis	Head	Hens' egg	Cystojejunostomy	7 yr. alive
11	59	F	Pancreatitis	Body	Fist	Cystojejunostomy	6 yr. alive
12	44	M	Pancreatitis	Head	Fist	External drainage	5 yr. alive
13	49	M	Pancreatitis	Head	4-5cm	Cystojejunostomy	5 yr. alive
14	61	M	Pancreatic cancer	Body	Hens' egg	Cystogastrostomy	3 mo. died
15	37	M	Pancreatitis	Head, body	Child's head	Cystojejunostomy	2 yr. alive
16	58	M	Pancreatitis	Head, body	Hens' egg	Cystoduodenostomy	5 mo. alive

cyst, and the contents were all mucinous. Among these cases, cystadenoma is benign. According to Compagno et al⁴⁾, however, the cyst of the mucinous type has a high malignant potential. Differential diagnosis of cystadenoma and cystadenocarcinoma by close histopathological examination with resected specimens found it not so easy, and quick diagnosis during operation often makes mistakes. According to Cubilla⁵⁾, the prognosis of cystadenocarcinoma and mucinous adenocarcinoma is better than that of other pancreatic carcinomas. In view of the fact that in recent years, the safety of the operation on the pancreas has been elevated, we would recommend to resect the cyst in which the contents are mucinous, among all kinds of pancreatic cyst.

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