PANCREATIC TAIL CYSTS

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The aim of the study was to determine the optimal surgical strategy in patients with pancreatic tail cysts infiltrating the spleen, stomach, left diaphragmatic dome, or transverse colon mesentery.

Material and methods. From 1997 through 2004, 184 patients with pancreatic pseudocysts were evaluated and treated in our Department. In 63 of those cases (34.2%), the lesion was located in the tail of the pancreas, and was classified as type II or III according to D’Egidio and Schein.

Results. Combined pancreatic tail and splenic resection was performed in 32 subjects (51%), 13 (20%) underwent external drainage / marsupialisation, 11 (18%) had a Roux-en-Y pancreaticocystojejunostomy, and one patient underwent a Duval operation. Endoscopic drainage to the stomach (pancreaticocystogastrostomy) was used in one subject; another five patients who had previously undergone external drainage / marsupialisation and developed a recurrent cyst within four months after the primary procedure were selected for pancreaticocystojejunostomy. Thus, internal drainage was performed in a total of 18 patients (28%).

Conclusions. Based on our experience, we prefer pancreatic tail resection (with splenectomy) in those patients who present to the hospital with involvement of the neighbouring organs.

Key words: pancreatic cysts, pancreaticocystojejunostomy, marsupialisation, external drainage, internal drainage, splenectomy

In 1882, Carl Gussenbauer (1) performed a pioneering pancreatic surgery. He carried out external drainage of a pancreatic cyst and this treatment remained the gold standard of care until 1950. Present-day imaging techniques (ultrasound, computed tomography, and nuclear magnetic resonance) allow for accurate diagnosis of pancreatic cysts; however, their surgical treatment poses several problems. The Atlanta Classification (2) differentiates between pancreatic cysts and chronic pancreatic pseudocysts; the latter has been defined as pancreatic juice encasement by a fibrous or granulomatous wall resulting from chronic pancreatitis with or without a preceding episode of acute pancreatic disease. Pseudocysts represent 80% of all pancreatic cysts; the remaining 10 to 15% are neoplastic cysts (3). Pancreatic cysts may arise in any part of the organ. Depending on the location, the disease presents as pain (4), vomiting, or left-sided portal hypertension with oesophageal or fundal varices (5). Treatment consists of cyst and partial pancreatic resection or various forms of drainage including the following options: a/ internal pancreatic drainage at laparotomy (6), laparoscopy (7) or endoscopy, and b/ ultrasound- or CT-guided (8) external pancreatic drainage. Internal endoscopic drainage is regarded as the treatment of choice (3); however, considerable expertise is required to perform the procedure.

Cysts in the tail of the pancreas may be removed using distal pancreatic resection with splenectomy (9). Recently, several reports were published on laparoscopic resection of the tail of the pancreas (10).

The pancreatic tail is located in the region of the splenic hilus, with the right diaphragmatic dome situated posteriorly, greater gastric curvature anteriorly, and transverse colon mesentery inferiorly. This location leads to well-defined anatomical boundaries for the for-
Pancreatic tail cysts

MATERIAL AND METHODS

From 1997 through 2004, 184 patients with pancreatic pseudocysts were evaluated and treated in our Department. In 63 of the cases (34.2%), the lesion was located in the tail of the pancreas (fig. 1), and was classified as type II or III according to the standards of D'Egidio and Schein.

Patients' main complaints were middle and left epigastric pain, nausea, and vomiting. Conservative treatment was first attempted in all patients. Preoperative diagnosis included ultrasound, Doppler ultrasound of portal inflow, computed tomography, ERCP, and, in selected cases, angiography. Imaging exams allowed the determination of the size, location, and severity of infiltration into neighbouring organs. Angiography helped to establish the relationship between the cyst and portal system, and the possible existence of vessel anomalies such as pseudoaneurysms. The patients were randomly selected for drainage or pancreatic tail resection with the exception of those who had previously undergone drainage and were subsequently found to have a recurrent cyst. The postoperative course, as well as early and long-term complications, was evaluated. All patients were operated on via a medial incision (approach). The gastrocolonic ligament was then transected, and the pancreas reached; infiltration into the neighbouring organs was assessed. All patients had apparent chronic inflammatory lesions with functional and structural pathology.

RESULTS

Among the 63 patients with pancreatic tail cysts infiltrating into neighbouring organs, 51 were men (81%), and 12 were women (19%), aged 35 to 65 years (mean age 45 years).

Combined pancreatic tail and splenic resection was performed in 32 subjects (51%), 13 (20%) underwent external drainage / marsupialisation, 11 (18%) had a Roux-en-Y pancreaticcystojejunostomy, and one patient underwent a Duval operation. Endoscopic drainage to the stomach (pancreatocystogastrostomy) was used in one subject; another five patients who had previously undergone external drainage / marsupialisation, and developed a recurrent cyst within four months after the primary procedure were selected for pancreaticcystojejunostomy. Thus, internal drainage was performed in a total of 18 patients (28%).
Patients’ data are summarized in tab. 1 and fig. 2.

All patients who had undergone combined pancreatic tail and splenic resection had one to three drains placed in the left subphrenic region, which were maintained for four to six days. Two patients who had undergone external drainage and developed a postoperative external pancreatic fistula received conservative treatment. After combined pancreatic tail and spleen resection, four subjects experienced a left subphrenic fluid collection, which was surgically drained. Another three patients developed left diaphragmatic infiltration with abundant bleeding that was controlled within two days using sterile gauze pads. Early and late complications are presented in tab. 2.

**Table 1**

<table>
<thead>
<tr>
<th>Type of surgery</th>
<th>No of patients</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combined pancreatic tail and splenic resection</td>
<td>32</td>
<td>51</td>
</tr>
<tr>
<td>External drainage/marsupialisation</td>
<td>13</td>
<td>20</td>
</tr>
<tr>
<td>Internal drainage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>– Roux-en-Y</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>– Duval</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>– endoscopic pancreatocystogastrostomy</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Recurrent cyst</td>
<td>5</td>
<td>8</td>
</tr>
</tbody>
</table>

**Table 2**

<table>
<thead>
<tr>
<th>Combined pancreatic tail and splenic resection</th>
<th>External drainage</th>
<th>Internal drainage</th>
</tr>
</thead>
<tbody>
<tr>
<td>left subphrenic fluid collection, four cases – 4 (6,3%)</td>
<td>external pancreatic fistula, two cases 2 (3,2%)</td>
<td>0</td>
</tr>
</tbody>
</table>

**Early complications:**
- diabetes: 6 (9,5%)
- vomiting: 0
- gastritis: 1 (1,6%)

**Late complications:**
- diabetes: 2 (3,2%)
- vomiting: 3 (4,7%)
- gastritis: 2 (3,4%)

**DISCUSSION**

Numerous reviews of the literature emphasize the benefits of one type of surgical management of pancreatic cysts against the risks of another surgical method (11). Falconi (12), who is a strong proponent of anastomotic surgery, reports on 392 cases of pancreatocystojejunostomy with better results compared to resective surgery. La Guardia et al. (13) argues that no perfect surgical management is available for chronic pancreatitis. Allen et al. (14), on the other hand, describes complete treatment in 69% of patients who received conservative therapy.

Pancreatic tail cysts frequently cause the surgeon to perform a combined en-bloc tail and splenic resection, as advocated by Singh et Kullar (15). Gastric wall involvement may create the need for wedge or even total resection of the stomach. Inflammatory infiltrates into the diaphragm or transverse colon mesentery can result in intraoperative bleeding. Complications do occur and should be expected.
Pancreatic tail cysts take longer than open surgery (mean duration of laparoscopic procedure is 249 ± 70 minutes) and due to the difficult dissection of peripancreatic infiltrations, it is often necessary to convert to classic surgery (16).

CONCLUSIONS

Pancreatic fistula is among the early complications that occur in surgical patients; conservative treatment is a typical management option.

Based on our experience, we prefer pancreatic tail resection (with splenectomy) in those patients who present with involvement of the neighbouring organs. This decreases the number of secondary complications resulting from inflammatory infiltration into peripancreatic regions as well as the incidence of cyst recurrence following external drainage / marsupialisation. Laparoscopic surgery seems to be of limited therapeutic utility.

REFERENCES


COMMENTARY

The radical excision of the cyst with part of the pancreas and spleen leads towards complete recovery. However, only 20-30% of patients qualify for such management.

The Authors of the study presented a large clinical material considering 184 patients subjected to operation, due to pancreatic pseudocysts, during the period between 1997 and 2004. Sixty-three of the patients were diagnosed with cysts localized in the tail of the pancreas.

I fully agree with the Authors of the study that currently, there is no single effective surgical procedure in case of pancreatic tail cysts. Many publications underlined the benefits of one given method demonstrating the imperfe-
tions of other methods. In the Department where I have the pleasure of working, when pancreatic resection procedures are possible, the resections we perform are often supplemented by splenectomy.

I would like to congratulate the Authors on the obtained surgical treatment results, which do not differ from those in leading world centers. Considering the 63 operated patients, 51% were subjected to pancreatic tail resections with good clinical effect and few postoperative complications. Frequently, the technically difficult surgical procedure: "en block" excision of the pancreatic tail, cyst and spleen, which is additionally hindered by the inflammatory process spreading to the diaphragm and mesocolon, demonstrates that surgical procedures of the pancreas should be undertaken in reference centers that are experienced in the above-mentioned field of surgery.

REFERENCES


Prof. dr hab. Wojciech Kielan
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