Operations for Pancreatic Pseudocyst

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Indications

Mature (chronic) pseudocysts >5 cm seen by ultrasonography or computed tomography (CT).
Differentiate chronic pseudocysts from acute collections of fluid associated with acute pancreatitis (which generally resolve without surgery) and from cystic neoplasms.

Preoperative Preparation

Visualize the cyst by sonogram or CT scan with contrast.
Rule out the presence of gallstones or bile duct obstruction by sonography, oral cholecystography, or endoscopic retrograde cholangiopancreatography (ERCP).
Consider angiography of the splenic artery and pancreas for all chronic pseudocysts prior to surgery (CT with contrast may be given equivalent information).
Administer perioperative antibiotics.
Insert a nasogastric tube preoperatively.

Pitfalls and Danger Points

Anastomotic leak
Postoperative hemorrhage
Mistaken diagnosis (cystadenocarcinoma)
Overlooking an associated pseudoaneurysm
Recurrence

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Operative Strategy

Avoiding Anastomotic Leakage

Cystogastrostomy or cystoduodenostomy is appropriate only if the cyst is firmly attached to the wall of the stomach or duodenum. The anastomosis is simply completed through the area of attachment. If the cyst is not adherent, perform a Roux-en-Y cystojejunostomy because leakage from this anastomosis is far less dangerous to the patient than is leakage from the stomach or duodenum.

The wall of the pseudocyst must be thick enough for a safe anastomosis, particularly if a cystojejunostomy is performed. If there is doubt about the adequacy of the cyst wall, perform an external drainage operation.

Avoiding Diagnostic Errors

Always palpate the cyst for pulsation before any manipulation. A pulsatile cyst may contain a free rupture of a splenic artery pseudoaneurysm. Aspirate the cyst before opening it to confirm pancreatic juice without blood. Biopsy the cyst wall to rule out cystadenocarcinoma.

Pseudoaneurysm

When arteriography has demonstrated a leaking pseudoaneurysm of the splenic artery in a large pseudocyst, ask the angiographer to perform preoperative occlusion of the splenic artery. Sometimes the area of inflammation extends close to the origin of the splenic artery, making proximal control in the operating room, under emergency conditions, quite difficult. It is preferable to resect a cyst containing a pseudoaneurysm to prevent postoperative rupture and hemorrhage, rather than drain it.

†Deceased

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Jaundiced Patient

Although jaundice in the presence of a pseudocyst may well be the result of extrinsic pressure by the cyst against the distal common bile duct, it is also important to rule out the presence of calculi or periductal pancreatic fibrosis as the cause of bile duct obstruction. Preoperative ERCP is helpful, but performing operative cholangiography after the cyst has been drained determines whether further surgery of the bile duct is necessary. If the jaundice is due to chronic fibrosis in the head of the pancreas, endoscopic stenting or a bypass operation is required. It may be necessary to perform a side-to-side choledochojejunostomy to the defunctionalized limb of the Roux-en-Y distal to the cystojejunostomy.

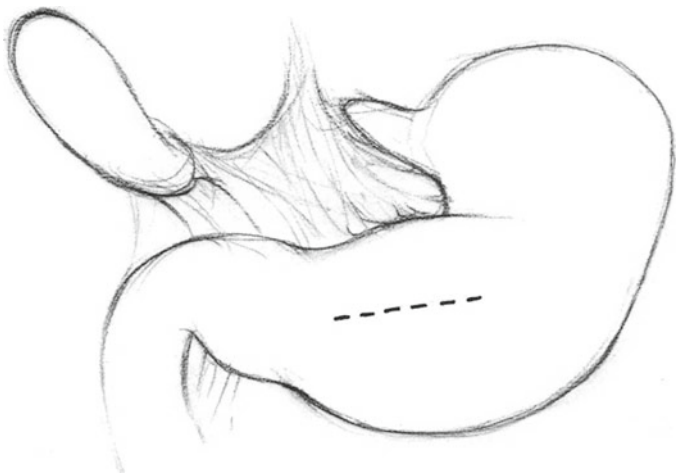

Fig. 93.1

Documentation Basics

- Cystogastrostomy or cystoduodenostomy or cystojejunostomy?
- Findings

Operative Technique

External Drainage

Make a long midline incision. Explore the abdomen and identify the pseudocyst. After making an incision in the greater omentum to expose the anterior wall of the cyst, insert a needle into the cyst to rule out the presence of fresh blood, then incise the cyst wall, and evacuate all of the cyst contents. Take a sample for bacteriologic analysis. If the cyst wall is too thin for anastomosis, insert a soft Silastic catheter and bring it out through an adequate stab wound in the left upper quadrant.

If the cyst wall is thick enough to permit suturing but the contents of the cyst appear to consist of pus and to resemble a large abscess, prepare a Gram stain. Sometimes what appears to be pus is only grumous detritus. If the Gram stain does not show a large number of bacteria, it is still possible to perform an internal drainage operation. Close the abdominal incision in the usual fashion after lavaging the abdominal cavity with a dilute antibiotic solution.

Cystogastrostomy

Make a midline incision from the xiphoid to the umbilicus. Explore the abdomen. If the gallbladder contains stones, perform cholecystectomy and cholangiography. Explore the lesser sac by exposing the posterior wall of the stomach from its lesser curvature aspect. If the cyst is densely adherent to the posterior wall of the stomach, cystogastrostomy is the operation of choice. If the retrogastric mass is pulsatile, consider seriously whether the mass represents an aortic aneurysm or a contained rupture of a splenic artery pseudoaneurysm. Expose the aorta at the hiatus of the diaphragm, and prepare a suitable large vascular clamp for emergency occlusion of this vessel should it be necessary. If the surgeon has had no previous experience with this maneuver, he or she should request the presence of a vascular surgeon. A preoperative CT scan should accurately identify the nature of the mass.

Make a 6- to 8-cm incision in the anterior wall of the stomach (Fig. 93.1) opposite the most prominent portion of the retrogastric cyst. Obtain hemostasis with electrocautery or ligatures. Then insert an 18-gauge needle through the back wall of the stomach into the cyst and aspirate. If no blood is obtained, make an incision about 3–6 cm in length through the posterior wall of the stomach and carry it through the anterior wall of the cyst. Excise an adequate ellipse of tissue from the anterior wall of the cyst for frozen-section histopathology to rule out the presence of a cystadenoma or cystadenocarcinoma (Fig. 93.2).

Approximate the cut edges of the stomach and cyst by means of continuous or interrupted 3-0 PG sutures (Fig. 93.3). Close the defect in the anterior wall of the stomach by applying four or five Allis clamps and then perform a stapled closure using the 90 mm stapler. If the gastric wall is not thickened, use 3.5 mm staples. Lightly electrocoagulate the everted gastric mucosa. Suture-ligate any arterial bleeders with 4-0 PG.

Roux-en-Y Cystojejunostomy

Make a long midline incision and explore the abdomen. Check the gallbladder for stones. Expose the anterior wall of the cyst by dividing the omentum overlying it. Prepare a segment of jejunum at a point about 15 cm beyond the ligament

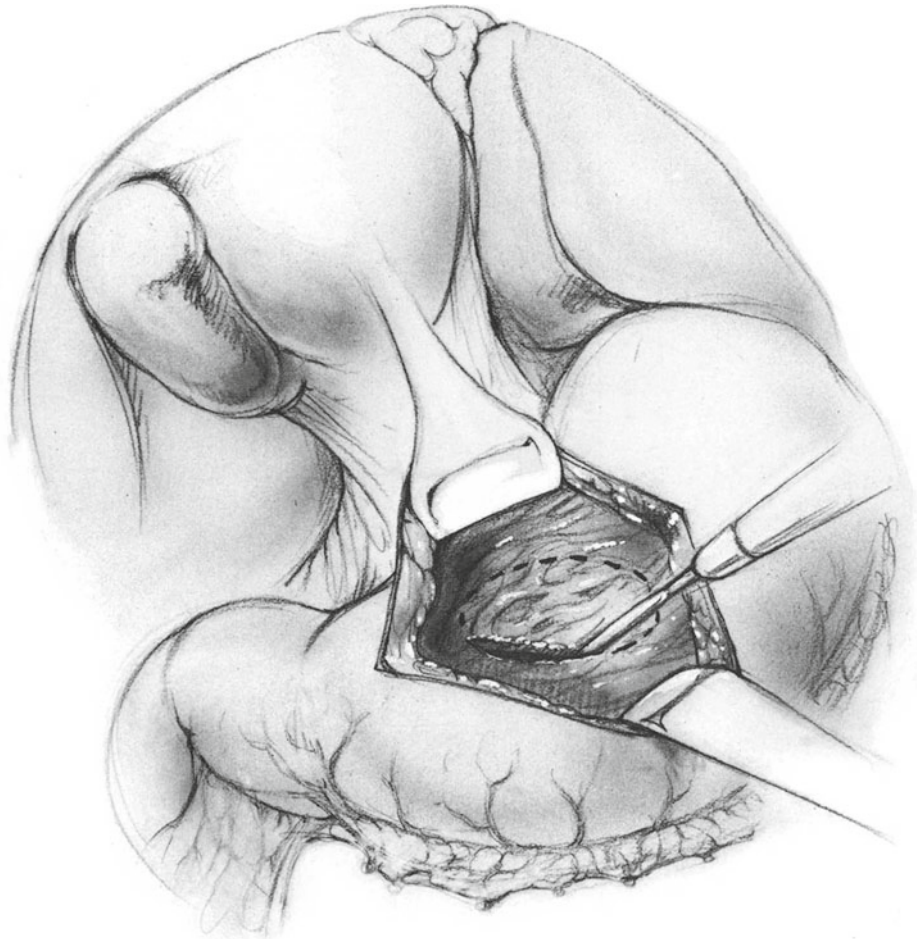

Fig. 93.2

of Treitz. Divide the jejunal mesentery as illustrated in Fig. 93.4. Then divide the jejunum between two Allen clamps. Liberate enough of the mesentery of the distal jejunal segment to permit the jejunum to reach the cyst without tension.

Make a small window in an avascular portion of the transverse mesocolon, and delivery the distal jejunal segment into the supramesocolic space. Excise a window of anterior cyst wall about 3–4 cm in diameter. Send it for frozen-section histopathologic examination. Perform a one-layer anastomosis between the open end of jejunum and the window in the anterior wall. Insert interrupted 3-0 or 4-0 PG Lembert sutures. Then use 4-0 PG sutures to attach the mesocolon to the jejunum at the point where it passes through the mesocolon.

Anastomose the divided proximal end of the jejunum to the antimesenteric border of the descending limb of the jejunum at a point 60 cm beyond the cystojejunal anastomosis. Align the open proximal end of jejunum so its opening points in a cephalad direction. Make a 1.5 cm incision in the antimesenteric border of the descending jejunum using electrocautery (see Fig. 84.7), and complete the Roux-en-Y

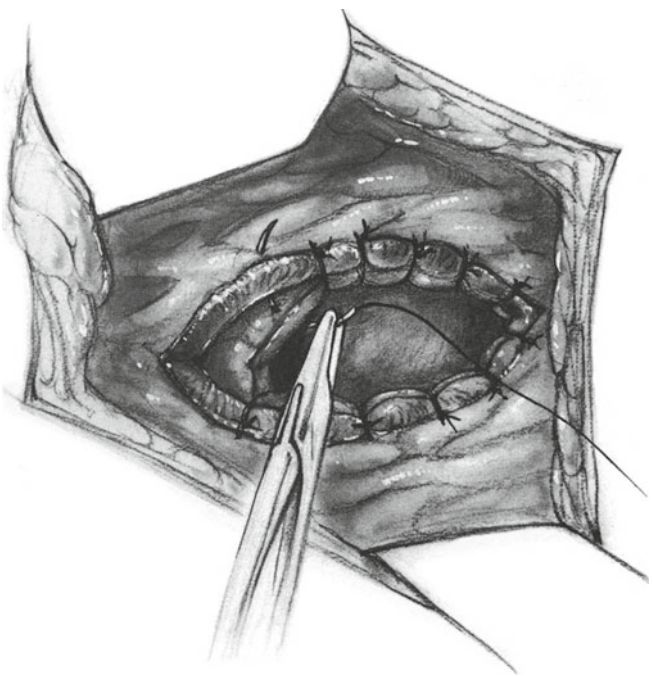

Fig. 93.3

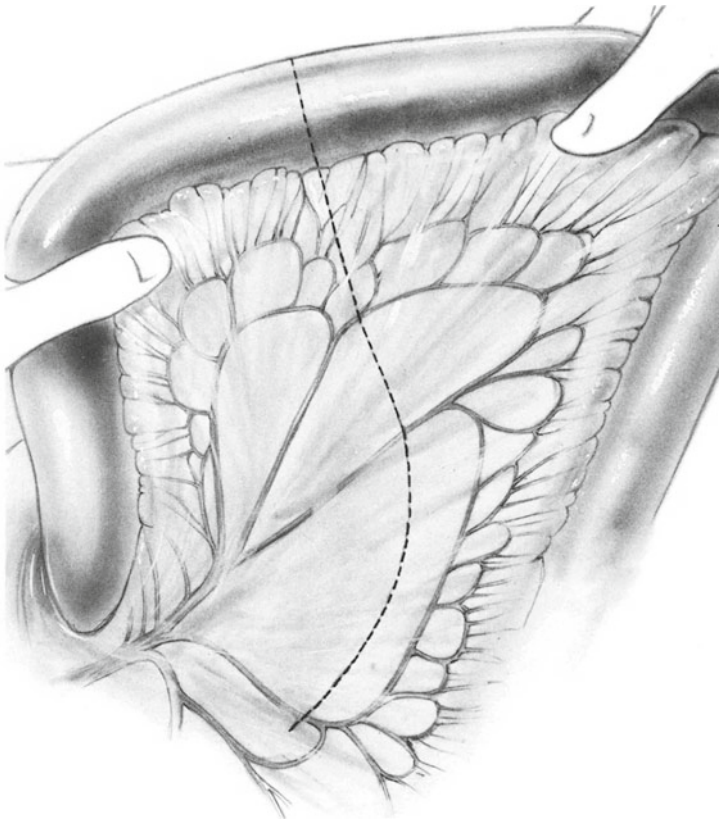

Fig. 93.4

reconstruction by performing a jejunojejunostomy in the usual manner (see Figs. 84.7, 84.8, 84.9, 84.10, 84.11, and 84.12).

Use 4-0 PG sutures to close the defect in the jejunal mesentery. The completed cystojejunostomy is illustrated in Fig. 93.5.

If the cyst wall is of adequate quality, no drains need be used. Close the incision in the usual fashion.

Pancreatic Resection

The techniques of pancreatic resection are described in Chaps. 89, 90, 91, and 92.

Postoperative Care

Apply nasogastric suction for 1–3 days.

Perioperative antibiotics are indicated. If the culture report of the cyst contents comes back positive, administer the appropriate antibiotics for 7 days. In cases of external drainage, administer antibiotics depending on the culture reports.

Consider the use of closed suction drainage. Leave the drain in place until the amount of fluid obtained is minimal and a radiographic study with aqueous contrast material shows that the cyst has contracted to the size of the drain. It may be helpful to instill a dilute antibiotic solution into the drain at intervals if the cyst is infected.

Complications

Acute pancreatitis

Persistent fistula following external drainage

Abscess

Postoperative bleeding into gastrointestinal tract (rare if pseudoaneurysms have been identified and appropriately managed)

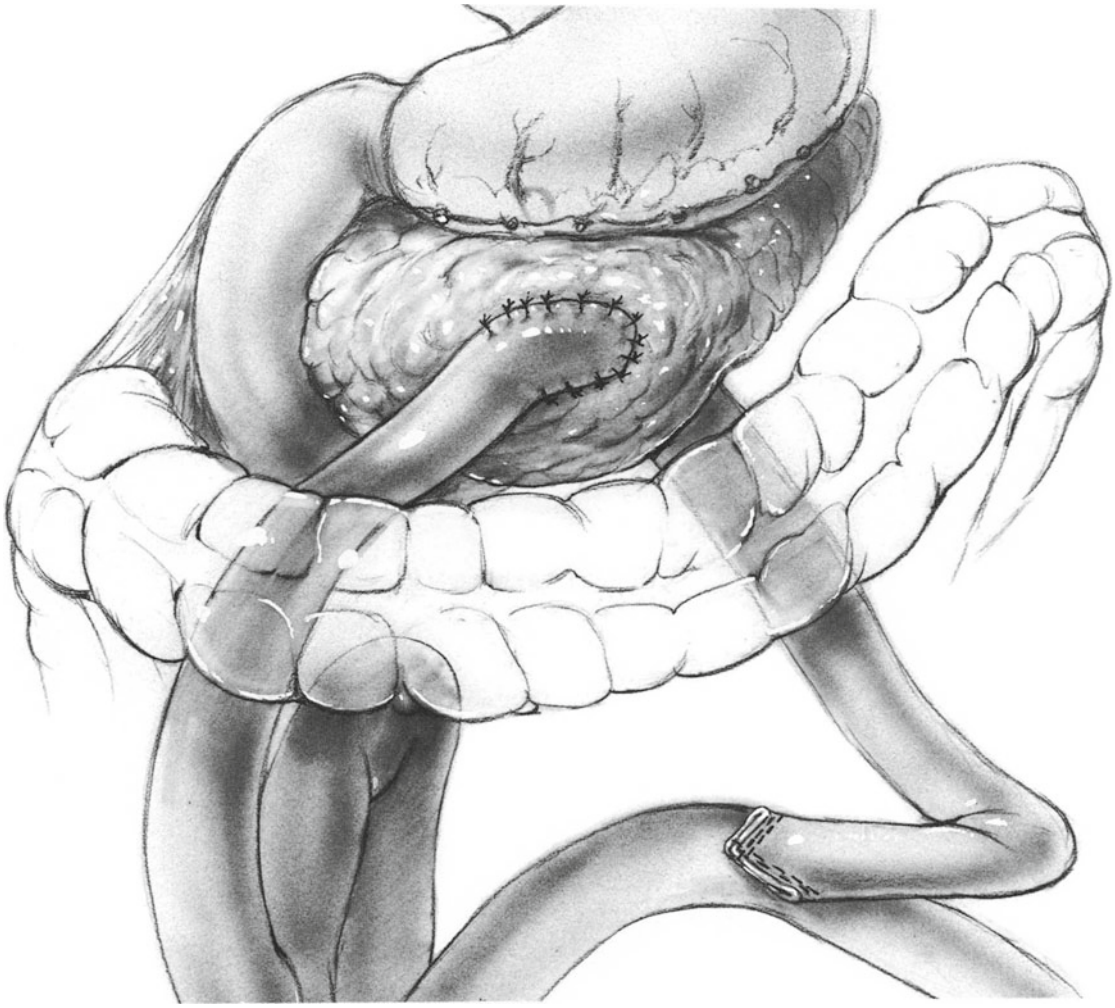

Fig. 93.5

Further Reading

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