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Case Report

An atypical presentation of a multiloculated giant pseudocyst of pancreas

Pradeep Saxena*, Ankit Lalchandani, Tarun Sutrave, Swastik Bhardwaj

Department of Surgery, All India Institute of Medical Sciences, Bhopal, Madhya Pradesh, India

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***Correspondence:**
Dr. Pradeep Saxena,
E-mail: pradeep@bhopalsurgery.com

ABSTRACT

Giant pseudocysts of the pancreas are rare and difficult to manage. Pseudocysts are usually treated by cystogastrostomy but dependent drainage for giant pseudocysts may require alternative methods like cystojejunostomy. We report here a rare case of a multiloculated giant pseudocyst of pancreas which presented atypically with protrusion through the lesser omentum. The pseudocyst protruding through the lesser omentum filled the whole upper abdomen up to umbilical region and displaced the stomach inferiorly. The stomach which is usually displaced anteriorly by pseudocysts was unusually displaced and splayed on the inferior aspect of the pseudocyst. The anterior wall of the fundus and body of the stomach was adherent to the inferior aspect of the pseudocyst. The pseudocyst was managed by draining into the stomach in a different way by performing a cystogastrostomy to the anterior wall of the stomach. Giant pseudocysts are difficult to manage, and good imaging studies are helpful in selecting surgical options for dependent drainage. Cystogastrostomy on the anterior wall of the stomach is a feasible option to drain pseudocysts which are predominantly overlying and adherent to the anterior wall of the stomach.

Keywords: Giant pseudocyst, Pseudocyst of pancreas, Cystogastrostomy

INTRODUCTION

Pancreatic pseudocysts are peripancreatic amylase rich, localized fluid collections which have a non-epithelialized wall of fibrous and granulation tissue. Prevalence of pseudocyst is 6-18% in acute pancreatitis and 20-40% in chronic pancreatitis. It may be multiple in 10-15% and vary in size from 2-30 cm. Pseudocysts measuring >10 cm in diameter are termed giant pseudocyst and are rare. Large size pseudocysts which are symptomatic require intervention in the form of endoscopic or surgical drainage.[1-3]

Pseudocyst collections usually are anterior to the pancreas and displace the stomach anteriorly. Thus, pseudocysts are conventionally drained through the posterior wall of the stomach by an endoscopic, open surgical and laparoscopic methods. We report here an atypical presentation of rare case of a multiloculated giant pseudocyst which bulged through the lesser omentum, occupied the whole upper abdomen, and displaced the stomach inferiorly. The literature for management of giant pseudocyst was also reviewed. We did not find a similar case reported in literature.

CASE REPORT

A 34 years male, known case of chronic pancreatitis with a history of recurrent upper abdominal pains presented to us with complaints of epigastric pain, decreased appetite, and upper abdominal distension for about six weeks. The pain was dull and diffuse, associated with multiple episodes of non-bilious vomiting. There was a weight loss of around 5 kg over the preceding three months. He had no history of fever, jaundice, hematemesis, or urinary complaints. The patient was a chronic alcoholic with a daily intake of 120 ml for the last 2 years. He was also hospitalized three months earlier for acute pancreatitis.

Abdominal examination revealed a firm cystic mass over the epigastrium and umbilical region with mild tenderness and no guarding.

Investigations were-The patient was anemic with hemoglobin 8 gm% and leucocyte count was slightly raised (12000/mm^3). Liver function test, renal function test, coagulation profile, serum amylase, and lipase were within normal limits. The chest X-ray did not show any pleural effusion. Abdominal X-ray showed the compressed stomach displaced inferiorly (Figure 1).

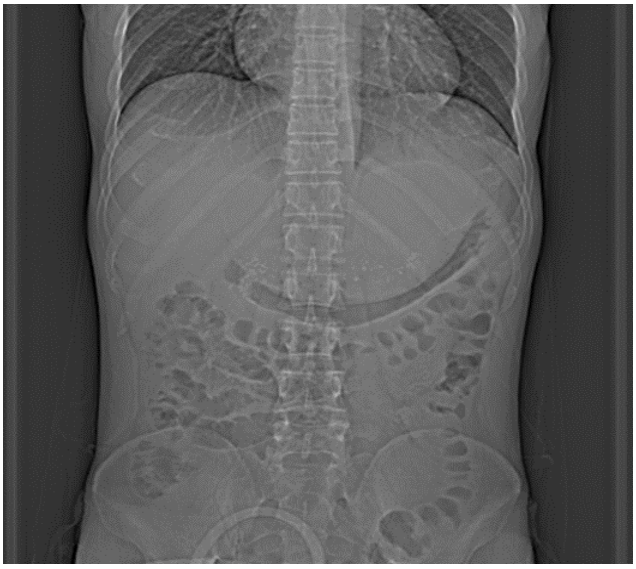

Figure 1: Plain X-ray abdomen of the compressed stomach and transverse colon displaced inferiorly.

Abdominal ultrasonography (USG) showed an anechoic collection in the upper abdomen and peripancreatic region with few echogenic contents and no internal vascularity. Contrast enhanced computed tomography (CECT) of the abdomen showed a 10.9×15×14 cm well defined, hypodense collection inferior to liver in whole upper abdomen and peripancreatic region. The giant multiloculated pseudocyst occupied the whole upper abdomen up to the anterior abdominal wall. The stomach was displaced and splayed on its inferior aspect. The pancreatic parenchyma was heterogenous with diffuse atrophic changes and multiple foci of calcification. Pancreatic duct measured 3 mm in the head region. Liver, gall bladder, and spleen appeared normal and there was minimal fluid in the pelvic cavity (Figure 2).

Keeping in view the exceptionally large size of the cystic fluid collection on imaging, serous or mucinous cystic neoplasm of the pancreas was kept as a differential diagnosis. However, as this patient was a known alcoholic, he had an antecedent history of hospitalization for acute pancreatitis with raised serum amylase/lipase levels three months back, and the CT scan characteristics of chronic pancreatitis substantiated the diagnosis of pseudocyst of the pancreas.

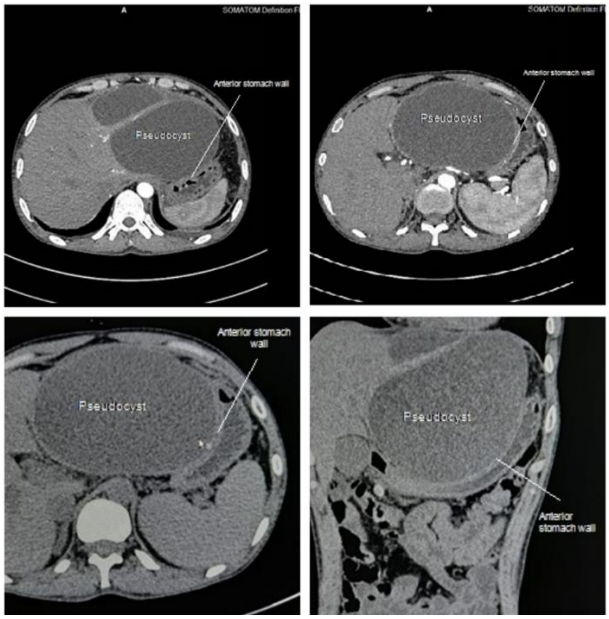

Figure 2: CECT abdomen: Multiloculated giant pseudocyst of the pancreas displaced the stomach posteriorly and inferolaterally (Unlike the usual anterior displacement of the stomach due to pseudocysts.)

Treatment and outcomes: The preoperative evaluation and optimization was done, and the patient was planned for open surgical drainage by cystogastrostomy. The abdomen was entered via an upper midline incision. A large firm cystic lesion occupying the epigastrium, right hypochondrium, and left hypochondrium was identified. The giant pseudocyst was occupying the whole upper abdomen and abutting and displacing the stomach inferiorly and laterally. The inferior aspect of the giant pseudocyst was adherent to most of the anterior wall of stomach. The giant pseudocyst had caused levorotation of the stomach with the lesser curve of the stomach going deep and the anterior wall of the stomach formed adhesion to the wall of the pseudocyst. The greater curve of the stomach with greater omentum, antrum & pyloric part of the stomach were visible anteriorly on the opening the abdomen. The fundus and body of the stomach were not visible and most of the volume of pseudocyst fluid was anterior to the stomach. By opening the greater omentum between the stomach and the transverse colon, we identified the posterior wall of stomach. We thus planned for dependent drainage of the pseudocyst into the anterior wall of the stomach by reversing the steps in the conventional method. The posterior wall of the stomach was opened through a transverse incision. The anterior wall of the stomach overlying and splayed across the pseudocyst was confirmed by needle aspiration through the anterior wall of the stomach and blackish turbid fluid was aspirated. An incision was made in the anterior wall of the stomach and an adherent cyst wall and a 5 cm wide cystogastrostomy was created on the anterior stomach wall (Figure 3 and Figure 4).

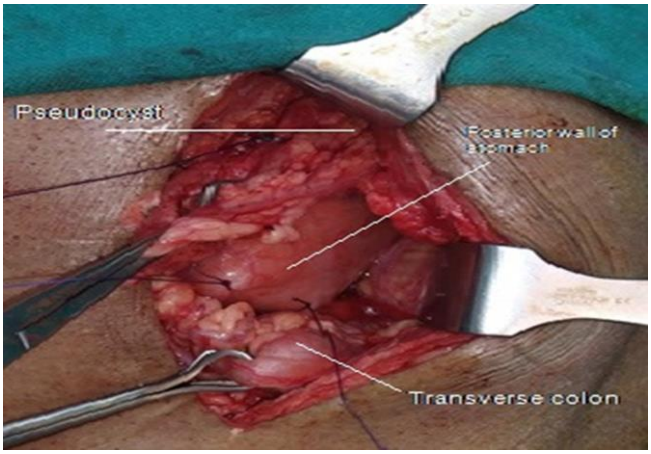

Figure 3: Giant pseudocyst: greater omentum window created to expose the posterior wall of stomach.

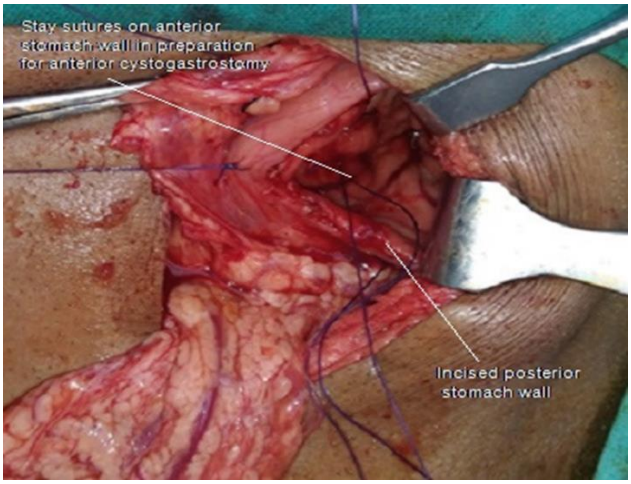

Figure 4: Posterior wall of the stomach incised and retracted. Stay sutures were taken in the common anterior stomach wall and pseudocyst wall in preparation for cystogastrostomy.

The pseudocyst fluid was sent for biochemical analysis, amylase, cytology, and culture. Fluid amylase was raised (>20000 IU/L). Microscopic examination of the fluid showed predominantly polymorphs (92%) and there were no epithelial cells, atypical or malignant cells. The cyst wall was sent for histopathology which showed mucosa lined with gastric glands, lymphoid follicles in the submucosa, fibro collagenous stroma and focal inflammatory infiltrates. There was no evidence of cystic neoplasm or malignancy in the sections examined.

The patient had an uneventful postoperative period and was discharged on postoperative day 10. On follow-up at six months, he was doing well, had a normal appetite, and had gained about 4 kg.

DISCUSSION

Pseudocysts usually appear several weeks after the onset of pancreatitis, due to activation and extravasation of pancreatic enzymes and disruption of the pancreatic duct. Thus, pseudocysts may be communicating with the pancreatic duct in about 50-65% of cases. Clinically, they need to be distinguished from acute fluid collection, organized pancreatic necrosis, pancreatic abscesses, and cystic neoplasms of the pancreas. Acute fluid collections are due to the inflammatory response of acute pancreatitis. They lack a well-defined wall, are irregular in shape, and usually resolve in about 65% of cases. In children, pseudocyst occurs more commonly subsequent to trauma, and in elderly patients' cystic neoplasms should always be kept in mind.

Pseudocysts usually present with persistent abdominal pain, upper abdominal fullness, anorexia, and vomiting after pancreatitis. Physical examination findings may show distension of the upper abdomen, a palpable mass, or tenderness. Fever and icterus may suggest infection or common bile duct (CBD) compression. There may be a pleural effusion or free fluid in the abdomen.

Our patient was 34 years male, a known alcoholic, and he had an antecedent history of acute pancreatitis with prior hospitalization a few months back. His clinical presentation, subsequent lab work-up, USG and CECT of abdomen was typical of a pseudocyst following acute pancreatitis in a background of chronic pancreatitis.

Complications occur in about 15-20% of pseudocysts. Common complications seen are: 1) Bleeding due to erosion of blood vessels (Splenic artery, hepatic artery, or gastroduodenal artery), 2) Infection, 3) Pressure effects: Gastric obstruction causing vomiting; CBD, obstruction causing jaundice and 4) Rupture: Free rupture into the peritoneal cavity may cause pancreatic ascites; rupture into an enteric organ may resolve the pseudocyst.

Our patient presented with loss of about 5 kg weight and had recurrent nonbilious vomiting due to the pressure effect of the large pseudocyst compressing the stomach, thus drainage of the pseudocyst was necessary.

Abdominal USG and CECT are helpful to confirm the diagnosis, access size, wall thickness, relationship of the cyst to adjacent structures, and for surgical planning. CT Scan also detects pancreatic stones, biliary or enteric complications, splenic artery aneurysm, or rupture of a pseudocyst. In our patient, the CECT showed the atypical inferior and lateral displacement of stomach which was unlike the usual anterior displacement of stomach consequent to pseudocyst fluid collections. Multiple pancreatic calculi were seen on the CECT abdomen, but the ducts were not dilated. CT images showed the anterior wall of the body of the stomach was in direct apposition with the inferior pseudocyst wall. CT images were useful in planning surgery and making intraoperative decisions.

Magnetic resonance imaging (MRI) abdomen can better delineate soft tissues and is useful in detecting solid

components of the cyst as well as differentiating between cyst, pancreatic necrosis, and tumors. Organized necrosis is devitalized pancreatic tissue and may appear cyst-like on CT scan. However, MRI will show it as solid and thus can be differentiated from a cyst. With magnetic resonance cholangiopancreatography (MRCP), the CBD and pancreatic ductal anatomy can be demonstrated. Endoscopic retrograde cholangiopancreatography (ERCP) may be required for finding the pancreatic ductal anatomy and establishing communication between the pancreatic duct and pseudocyst. ERCP may be useful in planning drainage. A study by Neil et al reported that a change in management occurred 35% of the times after ERCP. Endoscopic ultrasonography is important in planning therapy, particularly if endoscopic drainage is contemplated. Endosonography is used to determine the thickness of the adjacent gastric wall. It can also identify portal venous collaterals which may be present with subclinical portal hypertension associated with chronic pancreatitis.

Most pseudocysts resolve spontaneously over a few weeks, but drainage is indicated for persistent pseudocysts (>6 weeks), large size pseudocyst (>6 cm), and symptomatic pseudocysts to prevent complications. Pseudocysts may be managed conservatively until they become symptomatic irrespective of their size and duration. Indications for intervention are symptomatic pseudocysts causing gastric outlet obstruction, biliary obstruction, bleeding, or rupture. Pseudocyst drainage is usually accomplished by: 1) Percutaneous catheter drainage-procedure of choice for infected pseudocysts and patients with toxemia where internal drainage is contraindicated. Although it is a good temporizing measure, it has a 54% failure rate and a 63% recurrence rate, 2) Endoscopic drainage via ERCP with pancreatic duct stenting for communicating pseudocyst. The success rate is about 80%, complication rate is 13%, and the recurrence rate is 10-14%, 3) Transmural endoscopic draining via stents in the posterior wall of the stomach. For endoscopic drainage, the pseudocyst must be fluid filled and adherent to the posterior wall of the stomach. The limitations of endoscopic pseudocyst drainage are the high recurrence rate (as a narrow opening is created), the need for multiple interventions, inability to take wall biopsy, and the possibility of catastrophic bleeding.[4-10] And 4) Surgical drainage (Open or laparoscopic)-Complex pseudocysts that are thick walled, filled with necrotic pancreatic debris needing debridement along with pseudocyst drainage should be approached surgically. Drainage of the pseudocyst into the posterior stomach wall with cystogastrostomy is a commonly performed operation. A cystduodenostomy is performed for pseudocysts on the head of the pancreas which are adherent to the duodenum. A Roux cystojejunostomy is an option when the pseudocyst is not adherent to the posterior wall of the stomach. It can also be used to drain a giant pseudocyst. In most series, the success rate is 85-90%, with a complication rate 24-35%, recurrence rate of 5-10%, and mortality rate of 3-9%.

Laparoscopic drainage of the pseudocyst has the advantage of faster recovery. The more frequently performed anterior approach for pseudocyst drainage is performed by incising the anterior stomach wall, localizing the pseudocyst by USG and aspiration, and then cystogastrostomy is done through a small incision in the posterior wall using a stapling device. Laparoscopic intraluminal cystogastrostomy by placing ports in the anterior stomach wall has also been described. It has the advantage of limited gastrotomies, but the limitation is the difficulty in suturing the anastomosis and the risk of bleeding. Oida et al described the safety and feasibility of laparoscopic cystogastrostomy in seven patients using the posterior approach by entering the lesser sac. It avoids opening the anterior wall of the stomach and enables the direct visualization of the posterior gastric wall. Pseudocyst wall and posterior wall of the stomach are incised and a cystogastrostomy is created with a stapling device.[11,12]

Barragan et al in their study on 8 patients with comparison of laparoscopic anterior and posterior approaches (4 in each group) for cystogastrostomy concluded that the posterior approach is safer, provides more precise visualization of the pseudocyst, and avoids opening the anterior stomach wall.[13]

Irrespective of the anterior, intragastric, or posterior approach, the drainage of pseudocysts into the stomach has been done conventionally through the posterior wall of the stomach which overlies and is adherent to the pseudocyst wall. In our case, the major fluid collection of the multiloculated giant pseudocyst protruded through the lesser omentum probably due to a localized rupture through lesser omentum. The multiloculated giant pseudocyst filled the upper abdomen up to the umbilical region and had a distinct wall on imaging studies. The stomach was displaced and splayed on the inferior aspect of the pseudocyst with adhesions between pseudocyst and anterior stomach wall causing its levorotation. Only the greater curvature of the stomach, antrum, and pylorus were visible on the opening the abdomen. Thus, cystogastrostomy through the anterior stomach wall provided a good dependent drainage.

Failure rate for drainage procedures is about 10% and the cyst may recur in about 15%. Bleeding is the most dreaded complication and may require angiography with embolization or emergency surgery with ligation of the bleeding vessels. Octreotide may be useful in the management of ruptured pseudocyst with pancreatic ascites.

Cyst fluid analysis is helpful for differentiating pseudocyst from cystic neoplasms. Cystic fluid amylase is high in pseudocyst, serous cystadenoma, and mucinous neoplasms. A low cyst fluid amylase <250 IU/L has a sensitivity of 98% in excluding pseudocyst. Carcinoembryonic antigen (CEA) is low in pseudocysts and elevated (>400 ng/ml) in Cystadenocarcinomas.

Elevated cyst fluid CEA has an accuracy of 65% for differentiating mucinous neoplasms (mucinous cystadenoma and intraductal papillary mucinous neoplasia) from non-mucinous neoplasms.[14] However, cyst fluid CEA is not useful in differentiating between benign and malignant pancreatic cysts. Cyst fluid viscosity is low in pseudocysts and elevated in mucinous cystadenomas. Cystic fluid cytology may be helpful in diagnosing malignancy. In our patient, cyst fluid cytology did not show any malignant cells. Cystic fluid amylase was raised significantly in our patient (>20000 IU/L), thus confirming the diagnosis of pseudocyst.

Histopathology of the cyst wall can show inflammatory cells and capillary rich fibro-collagenous tissue and evidence of malignancy. Histopathology findings of the cyst wall in our case showed fibro collagenous stroma and focal inflammatory infiltrates consistent with pseudocyst. The pseudocyst wall should always be sent for histopathology to rule out cystic tumors.

CONCLUSION

Giant pancreatic pseudocysts are rare and associated with higher complications and recurrence rates. Treatment options include open or laparoscopic surgical drainage, endoscopic drainage, and external drainage. Our experience with such a case shows that giant pseudocysts lying superiorly may present with protrusion through lesser omentum following localized rupture of pseudocyst in upper abdomen. Pseudocyst drainage into the anterior wall of the stomach is also a safe and feasible option in such cases.

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