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Case Report

Giant pancreatic cyst with extension to spleen managed by laparoscopy

José Fernando Montiel Castañeda[1]*, Raúl Manuel Cota García[1], Antonio Valencia Vega[2], Darinel Osorio Gómez[3], Roman Esteban Hernández González[4], Brayant López García[5], Gabriela Díaz Salas[6], Miguel Ángel Adame Anzo[7], María José Cabrera Chávez[8], Jahat Uziel Lindoro Salgueiro[9]

[1]Department of General Surgery, Hospital General Ensenada, Secretaria de Salud, Mexico
[2]Department of General Surgery, Hospital Regional de alta especialidad ISSSTE Veracruz, Mexico
[3]Department of General Surgery, Universidad de Montemorelos, Mexico
[4]Department of General Surgery, Hospital General de Zona 1 IMSS Tlaxcala, Mexico
[5]Department of General Surgery, ISSSTE HRAEBI Tultitlán, Mexico
[6]Department of General Surgery, Universidad Autónoma de Aguascalientes, Mexico
[7]Department of General Surgery, Universidad Autónoma de Guadalajara, Mexico
[8]Department of General Surgery, Centro Universitario Siglo XXI, Mexico
[9]Department of General Surgery, Universidad Westhill, CDMX, Mexico

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***Correspondence:**
Dr. José Fernando Montiel Castañeda,
E-mail: josefer@gmail.com

ABSTRACT

To review the etiology, clinical presentation, diagnostic evaluation, management, and prognosis of giant pancreatic cysts. Giant pancreatic cysts, defined as cysts exceeding 5 cm in diameter, include a diverse group of lesions such as pseudocysts, serous cystadenomas, mucinous cystic neoplasms (MCNs), and intraductal papillary mucinous neoplasms (IPMNs). Their clinical significance stems from potential complications and the necessity to differentiate benign from malignant cysts. A comprehensive review of the literature was conducted, focusing on the pathophysiology, symptomatology, diagnostic modalities, treatment options, and outcomes associated with giant pancreatic cysts. The etiology of giant pancreatic cysts varies from benign conditions like pseudocysts and serous cystadenomas to potentially malignant or malignant neoplasms such as MCNs and IPMNs. Clinical presentation ranges from asymptomatic cases to severe abdominal symptoms and complications. Diagnostic evaluation includes imaging modalities like ultrasound, CT, MRI/MRCP, and endoscopic ultrasound (EUS) with fine-needle aspiration (FNA) for cytology and biochemical analysis. Management strategies depend on the type and characteristics of the cyst, with options including observation, endoscopic drainage, surgical resection, and percutaneous drainage. The prognosis varies, with benign cysts generally having a favorable outcome, while cysts with malignant potential require timely surgical intervention to improve survival rates. Giant pancreatic cysts pose a diagnostic and therapeutic challenge due to their varied etiologies and potential complications. Accurate diagnosis through advanced imaging and fluid analysis is crucial. Management should be tailored based on the cyst type, symptoms, and malignancy risk, involving a multidisciplinary approach to optimize patient outcomes. Further advancements in diagnostic and therapeutic techniques are anticipated to enhance the management of these complex lesions.

Keywords: Giant pancreatic cysts, Serous cystadenomas, Mucinous cystic neoplasms

INTRODUCTION

Giant pancreatic cysts are large fluid-filled sacs within or on the pancreas, often exceeding five cm in diameter. These cysts can arise from a variety of etiologies, including pseudocysts, serous cystadenomas, MCNs, as well as intra IPMNs. They are of clinical significance due to their potential to cause symptoms, complications, and the need for differential diagnosis to the rule out malignancy.[1,2]

Etiology and pathophysiology

Pancreatic pseudocysts: Often a sequela of acute or chronic pancreatitis, these cysts result from the accumulation of pancreatic juices encased by a fibrous or granulation tissue wall. They lack an epithelial lining, distinguishing them from true cysts.[3]

Serous cystadenomas: Benign cystic tumors characterized by a microcystic appearance and a thin, clear fluid content. These are usually non-malignant and more common in older women.[3]

MCNs: Typically found in middle-aged women, MCNs have a potential for malignancy. They contain thick, mucinous fluid and have an ovarian-like stroma.[4]

Intra-IPMNs: These cysts involve the pancreatic ducts and can be either benign or malignant. They produce mucin and have a characteristic connection to the pancreatic ductal system.[5]

Clinical presentation

Patients with giant pancreatic cysts can be asymptomatic or present with a range of symptoms, depending on the cyst's size, location, and etiology.[6] Common symptoms include: Abdominal pain or discomfort, nausea and vomiting, early satiety or weight loss, jaundice, if the cyst obstructs the bile duct and pancreatitis in cases of pseudocysts

Diagnosis

The diagnosis of giant pancreatic cysts involves a combination of imaging studies and, when necessary, fluid analysis.[7]

Imaging studies

Ultrasound: Often the first imaging modality used; it can detect the cyst and guide further imaging.

CT scan: Provides detailed information about the cyst's size, location, and potential complications.

MRI/MRCP: Offers excellent soft tissue contrast and detailed visualization of the pancreatic ducts.

EUS: Allows for FNA for cytological and biochemical analysis.

Fluid analysis

Cytology: To detect malignant cells.

Biochemical markers: Amylase levels (high in pseudocysts) and tumor markers like CEA (high in mucinous cysts).

Management

The management of giant pancreatic cysts depends on their type, size, symptoms, and potential for malignancy:[8]

Observation: Asymptomatic, benign cysts, especially serous cystadenomas, may be monitored with regular imaging.

Endoscopic drainage: Indicated for symptomatic pseudocysts and some other types of cysts. Techniques include EUS-guided cystogastrostomy or cystoduodenostomy.

Surgical resection: Recommended for symptomatic cysts, those with malignant potential (e.g., mucinous cysts, IPMNs), or if malignancy cannot be ruled out. Procedures may range from cyst excision to partial pancreatectomy.

Percutaneous drainage: An option for infected pseudocysts or those unsuitable for endoscopic drainage.

Prognosis

The prognosis of patients with giant pancreatic cysts varies:[8]

Pseudocysts: Generally favorable with appropriate management; however, recurrence is possible.

Serous cystadenomas: Excellent prognosis as they are typically benign.

MCNs and IPMNs: Prognosis depends on the presence of malignancy. Early detection and resection of malignant or premalignant cysts improve outcomes.

CASE REPORT

Identification

GV, male, 48 years old (born on December 22, 1975), Hermosillo, Sonora. divorced, catholic, systems engineer.

Family history

Mother deceased at 73 years old (multiple myeloma), father deceased at 72 years old (acute myocardial

infarction and Parkinson's disease). Sister, 53 years old, no illnesses. Two daughters (15 and 11 years old), no illnesses.

Personal non-pathological history

All basic services, vaccinated, no substance abuse, social alcohol consumption.

Personal pathological history

Denies chronic diseases, previous surgeries, transfusions, and medication allergies.

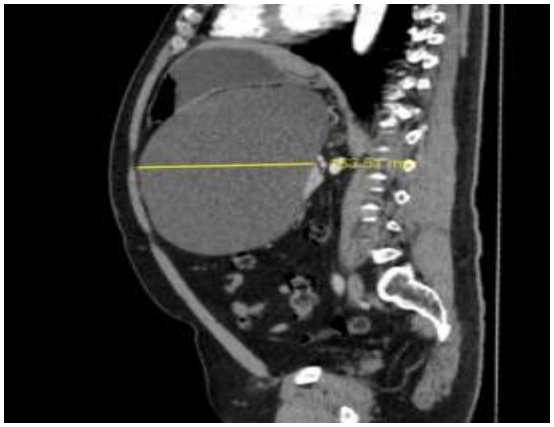

Figure 1: Sagittal cut, giant pancreatic cyst with extension to the spleen

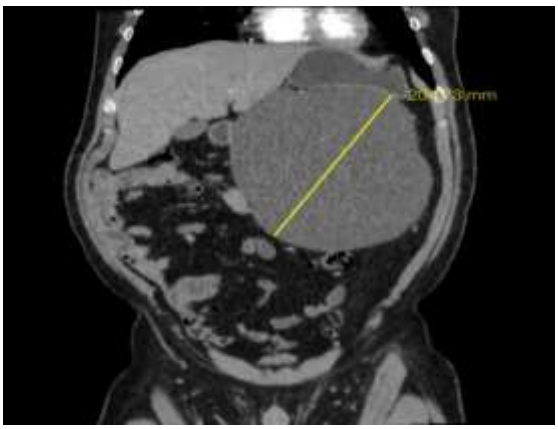

Figure 2: Coronal cut, giant pancreatic cyst with extension to the spleen.

Current treatments

Ursodeoxycholic acid 500 mg, 1 tab every 24 hours, metformin 500 mg, 1 tab every 24 hours and vitamin D 4000 IU, 1 tab every 24 hours.

Onset and symptoms: Started 8 months ago with abdominal distension and umbilical hernia without obstruction or strangulation. An abdominal ultrasound was performed, detecting a pancreatic cyst.

An abdominopelvic tomography was performed, followed by a distal pancreatectomy and laparoscopic splenectomy 4 months ago.

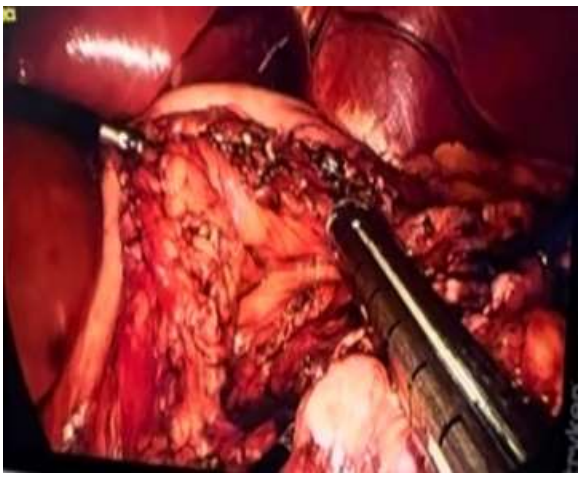

Figure 3: Laparoscopic distal pancreatectomy.

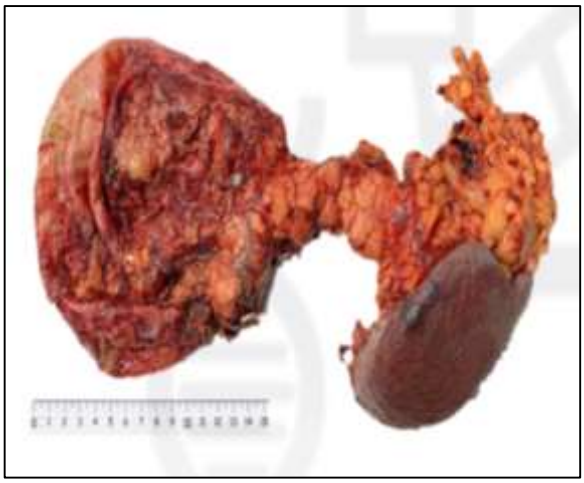

Figure 4: Surgical piece, tail of the pancreas and spleen.

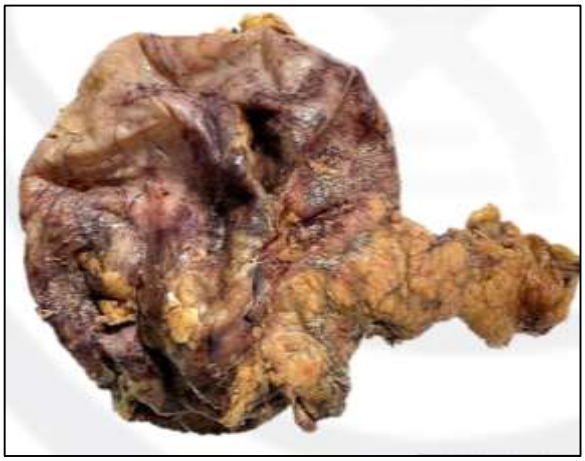

Figure 5: Simple mucinous cyst.

Diagnosis

Total pancreatectomy product consistent with simple mucinous cyst

Tumor dimensions: 16×14, location: proximal portion (head and body), mild chronic inflammation with xanthogranulomatous reaction, two lymph nodes with nodular lymphoid hyperplasia and negative for dysplasia or malignancy.

Spleen with usual histological characteristics

Postoperative: No complications, hospital discharge on the fifth day, follow-up with endocrinology, and post-splenectomy vaccination. Currently asymptomatic.

Figure 6: Spleen with usual histological characteristics.

DISCUSSION

Giant pancreatic cysts present a diagnostic and therapeutic challenge due to their varied etiologies and potential for serious complications. Understanding the underlying cause is critical for appropriate management.[7]

Pancreatic pseudocysts, arising from pancreatitis, are the most common type. They result from the disruption of pancreatic ducts leading to the accumulation of pancreatic enzymes and fluid encapsulated by a fibrous wall. These cysts can cause symptoms due to mass effect or complications like infection, hemorrhage, or rupture.[7]

Serous cystadenomas are typically benign and have a characteristic appearance on imaging, often described as having a "honeycomb" or microcystic structure. The benign nature of these cysts usually leads to conservative management unless they cause significant symptoms or diagnostic uncertainty remains.[3]

MCNs and intra-IPMNs are of particular concern due to their malignant potential. MCNs often occur in women and are characterized by the presence of mucin and ovarian-type stroma. IPMNs involve the main pancreatic duct or its branches and produce mucin, which can lead to ductal obstruction and recurrent pancreatitis. The risk of malignancy in these cysts necessitates a more aggressive approach, often involving surgical resection.[4]

Clinical presentation

The clinical presentation of giant pancreatic cysts can vary widely, from asymptomatic cases discovered incidentally to severe abdominal pain and complications. The size and location of the cyst play a significant role in the presentation. For instance, cysts causing bile duct obstruction can lead to jaundice, while those pressing on the stomach may cause early satiety and weight loss. Infected or hemorrhagic cysts can present with signs of systemic infection or acute abdomen, respectively.[6]

Diagnosis

The diagnostic workup for giant pancreatic cysts typically begins with imaging studies. Ultrasound is a useful initial modality but often requires further characterization with CT or MRI/MRCP. These advanced imaging techniques provide detailed information on the cyst's structure, relationship with adjacent organs, and internal characteristics like septations or solid components suggestive of malignancy.[7]

EUS with FNA is a critical tool for the differential diagnosis. EUS allows for direct visualization of the cyst wall and internal contents, and FNA enables cytological analysis and measurement of biochemical markers such as CEA and amylase. High CEA levels are indicative of mucinous cysts, while high amylase levels suggest pseudocysts.[7]

CONCLUSION

Giant pancreatic cysts encompass a spectrum of benign and potentially malignant conditions. Accurate diagnosis through imaging and fluid analysis is critical in determining the appropriate management strategy. While many cysts can be managed conservatively, those with symptoms, complications, or malignant potential often require intervention. Multidisciplinary care involving gastroenterologists, radiologists, and surgeons is essential for optimal patient outcomes.

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