

# Pancreatic Pseudocysts in Turkey: Both Diagnostic and Management Problems

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TÜRKİYE'DE PANKREAS  
PSODOKİSTLERİ: TEŞHİS ve  
TEDA VİDE PROBLEMLER

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Geliş Tarihi : 1 Temmuz 1987

## SUMMARY

*Pseudocysts of the pancreas still continue to pose a dilemma to the surgeon when attempting to establish early diagnosis and a rational means of management. Although there has been some great advances in the availability of somewhat sophisticated diagnostic modalities and better operative understanding, morbidity and mortality still remains to be the same as it was twenty years ago.*

*During a five years period eleven patients with pancreatic pseudocysts have been diagnosed and thus managed at the Ankara University Hospital. Although current imaging techniques are not widespread in Turkey, heightened awareness of the condition and a thorough follow up of risked patients can add to their proper management.*

*Internal drainage remains the desired method of surgery, but not all pseudocysts are amenable to this approach. Thus the operative procedure is tailored to the patient's particular clinical situation. Significant number of patients have shown spontaneous resolution of the pancreatic pseudocysts, but a large number also demonstrates deadly complications. Use of IV hyperalimentation or total enteral nutrition with elemental diet, have enabled a better postoperative course in the most of our patients.*

**Key Words:** Pancreatic pseudocysts surgical therapy, internal drainage  
T J Research Med Sci V.6, N.4, 1988, 299-302

Considerable difficulties still exist both in the diagnosis and the management of pancreatic pseudocysts (PP), and their complications. A further problem arises from the lack of current imaging techniques at the greater part of medical institutions in Turkey (1, 7, 9, 12).

Türkiye Klinikleri Tıp Bilimleri ARAŞTIRMA Dergisi C.6, S.4, 1988  
Turkish Journal of RESEARCH In Medical Sciences V.6, N.4, 1988

## ÖZET

*Pankreas pödokistleri erken teşhis ve tedavileri açısından cerrahlara problem yaratmaya devam etmektedir. Gelişmiş tanı yöntemlerinin daha yaygın kullanılması ve daha iyi cerrahi içkiline rağmen bu hastalığın mor'taütesi 2t yd öncesi'den pek farkı değildir.*

*Son 5 yılda Ankara üniversitesi Tıp Fakültesi Genel Cerrahi Kliniğinde pankreas psodokisti tanısı ile II hasta ameliyat edilmiştir. Ülkemizde gelişmiş tanı yöntemlerinin daha yaygın kullanılması ve hastalığın her zaman akılda tutulması risk altındaki hastaların daha yakın takibi uygun tedavi için de ilk adımı oluşturacaktır.*

*Internal drenaj yöntemi günümüzde en uygun cerrahi tedavi şekli olarak kabul edilse de her hastada uygulanamamaktadır. Böylece cerrahi tedavinin seçimi her hastanın içimle bulunduğu klinik duruma göre değişecektir. Pankreas psödokistlerinin belli bir kısmı spontan rezolüsyon göstermektedir. Ancak önemli bir kısım hastada da öldürücü komplikasyonlar gelişebilmektedir. İV. hiperalimentasyon veya ele menlerdiyetlerle total enteral beslenmeyle hastalarda daha iyi birpostoperatif seyir sağlanabilmektedir.*

**Anahtar Kelimeler:** Pankreas jimitiki>tk'ri, lerrali te davi. intemal drenaj.

T Kİ Tıp BU Aras Dergisi C.6, S.4, 1988, 299-302

In addition to the adult population, acute pancreatitis and thus its complication the PP is recognized with increasing frequency in children, as a result of such entities as trauma, biliary tract diseases, viral illnesses, steroid and L-asparaginase therapy for other pathology (2, 9,11).

**Table - I**

Etiology in Pancreatic Pseudocysts

Etiology	No. of Patients
Chronic alcoholism	4
Blunt abdominal trauma	2
Biliary tract disease	4
Unknown	1

When pancreatic pseudocysts are recognized due to their clinical findings, their primary surgical management and the treatment of their postoperative course is challenging. Although results of both medical and surgical treatments are usually fair, prolonged morbidity in most of the patients is experienced.

#### CLINICAL MATERIAL AND FINDINGS

During five years period (April 1982-April 1987), eleven patients with pancreatic pseudocysts were diagnosed and managed at the Ankara University Hospital. While the mean age of the patients was 38 years with a range of 9 to 60 years, there was a seven to four ratio, when males compared with females.

The PP in two patients was the result of blunt abdominal trauma, while four cases resulted from chronic alcoholism. A further four had biliary tract disease, and only in one the etiology could not be clearly established (Table-I).

The time interval between a bout of pancreatitis and diagnosis of the PP ranged from two months to two-years.

In the majority of cases, the most frequent symptom was usually an epigastric pain, while clinical onset was insidious in two, appearing with a large abdominal mass. Nausea and vomiting occurred in seven and only one had fever, in which that cyst was infected. Three patients were jaundiced at the time of their admittance to the hospital (Table-II).

Laboratory findings often demonstrated an elevated serum amylase (90%), leukocytosis (45%), and occasionally hyperbilirubinemia (36%). Persistent hyperamylasemia was consistent with the pseudocysts of the pancreas.

Pleural effusion was present in four patients out of seven, who had direct chest x-rays. Upper gastrointestinal series done in nine patients showed, compression at the gastric antrum and duodenum in five (55%). One patient had calcifications seen within the duodenal loop.

While none of the patients received ERCP, four had CT scanning with four positive results. Four patients had gastroduodenoscopy in order to eliminate

**Table - II**

Symptoms and Signs in Pancreatic Pseudocysts

Symptoms and signs	Incidence
Epigastric pain	9
Nausea and vomiting	7
Abdominal mass	7
Jaundice	3
Fever	1

**Table - III**

Indications for Surgery in PP

Surgical Indications	No. of Patients
Duodenal obstruction and weight loss	7
Jaundice	2
Infection of the PP	1
Cholelithiasis	1

**Table - IV**

Surgical Methods, Complications and Hospital Stays

Surgical Method	No. of Patients	Complications	Days at Hosp.
External drainage	4	Supuration (1) Fistula (2)	37
Cystogastrostomy	3	GI bleeding (1) Septic shock (1) - died	9
Cystojejunostomy	3	-	9
Cystectomy	1	-	10

the suspected peptic ulcer disease or its complications, and only in one that was proved.

Ultrasound examinations proved to be true in ten patients out of eleven (90%). One PP was mistaken as an intestinal loop due to little experience at that time.

#### TREATMENT

Selection of appropriate management is determined usually by the location, size and duration of pseudocyst. Indication for surgical intervention was mainly due to an unresolving abdominal mass and epigastric pain, loss of weight usually with some obstructive gastrointestinal and biliary symptoms.

An emergency surgical intervention had to be carried out in a patient, in whom a pseudocyst was being expectantly observed. The signs of bacterial sepsis called for a prompt surgical procedure. Only in one patient was a pseudocyst incidentally recognised while being operated for choledocholithiasis. The indications for surgery are listed in Table-III.

Complications of PP include hemorrhage, rupture, infection, upper GI bleeding, obstruction, jaundice etc. Ten out of eleven of the patients had to be surgically treated, due to one or more of these complications.

While 9 patients had only single large PP of 5-15 cms in diameter, two had multiple cysts of 2-5 cms in diameter. These were mainly located at the head and body of the pancreas.

The surgical procedures involved, complications and hospital stays is presented in Table-IV.

Reasons for external drainage were supuration in one, and unmaturing cyst wall in three. Cystogastrostomy done in one patient with infected cyst caused bacterial sepsis in the second postoperative day, with a fatal outcome. Cystojejunostomy was carried out in three and cystectomy in one also with uneventful postoperative course. Three cholecystectomies, one truncal vagotomy and gastrojejunostomy, one splenectomy was carried out as an adjunct operation in dealing with these cases.

## DISCUSSION

The history of the surgical management of pancreatic pseudocysts dates back over to the late eighteenth centuries, and internal drainage is known to be first performed as early as 1915. Nevertheless, controversy still exists concerning the necessity for operation and whether operation should be early or delayed (4, 5, 6, 8).

Although true cysts are those lined with epithelium, that may result of obstruction to the duct system with continued secretory activity, proximal to the obstruction or may be produced by a multiloculated tumor such as cystadenoma. Pseudocysts of the pancreas have a fibrous or granulation tissue lining, and result from traumatic or spontaneous pancreatic hemorrhage and necrosis. They are filled with fluid containing pancreatic secretion, blood, inflammatory exudate and necrotic tissue. The cyst fluid often contains enzymes in high concentration; and if the cyst communicates with a major duct, external drainage will be followed by a prolonged discharge of pancreatic juice. While the nonepithelial lined pseudocysts usually arise in the lesser sac, most develop after acute pancreatitis with fewer being diagnosed in chronic pancreatitis (1, 7).

PP may occur intra or extraperitoneally, intra or extrapancreatically. Because they may drain spontaneously and thus decompress via the pancreatic duct the latter as in all of the cases mentioned are common.

PP associated with acute or chronic pancreatitis cause pain, nausea and vomiting and a slowly developing abdominal mass which may reach large sizes. Obstructive jaundice, ileus or diabetes mellitus and supuration may often complicate the picture. Caniano and coworkers, have reported pseudocyst formation within pancreas due to L-asparaginase treatment for lymphocytic leukemia (2). We have not encountered with such a case.

While the incidence of pseudocysts of the pancreas has been known to range between 1-5% of all patients with either acute or chronic pancreatitis, regardless of the cause, men are affected about three times more frequently than women (12).

Recent evidence supports the theory that spontaneous resolution may occur within the first six weeks of presentation, in a selected number of patients (1, 9, 11, 12).

The clinical diagnosis will be suggested by the x-ray studies, including intravenous pyelogram, barium enema and upper gastrointestinal series. These studies will help to localize the mass in the retroperitoneal or pancreatic region and will help to exclude other pathological entities. Pancreatic radioisotope scanning, selective arteriography, ultrasonography, computed tomography, nuclear magnetic imaging, fine needle aspiration cytology, have been very helpful in coming to final decision in PP, but they all have their pro's and con's. Final diagnosis usually depends upon abdominal exploration as in Turkey, mainly due to unavailability of newly developed diagnostic modalities (7, 8, 10).

Routine ultrasonography done after a severe bout of acute pancreatitis demonstrates pseudocysts in 50-90% of patients with an equal number spontaneously resolving.

Complications include arterial, venous or splenic hemorrhage, biliary obstruction, pancreatic ascites, pleural or bronchial fistula, duodenal or portal obstruction, intraperitoneal rupture or transenteric perforation, and supuration (2, 4, 8, 11).

Why complications of PP are infrequent remains unknown. Should they occur they can develop at any time. A six weeks delay in surgery is thought to enable the pseudocyst wall maturation, making it safer to suture. The poorer risk candidates are usually treated by external drainage, though controlled studies comparing different modalities of surgery are very vague and individual preferences and local factors by the most dictate the type of the surgical procedure at the time of operation. As the most serious

complication, splenic artery hemorrhage should be visualized by selective arteriography.

Internal drainage, particularly by cystogastrostomy or cystojejunostomy affords the least morbidity and mortality on the whole but in our series it seems that our only mortality is in this group. We have come to the understanding that, whatever the mode of treatment a lot depends on the individual status of the patient and diagnostic and surgical ability of the surgeon. More important than the decision to use external or internal drainage is the need for early diagnosis and close preoperative clinical observation to prevent progression to fatal complications.

Prolonged persistence of fistula with excessive loss of fluid and electrolytes and severe skin breakdown are the main objections to external drainage or marsupialisation (5, 12).

Internal drainage procedures, especially cystogastrostomy has the advantage of being simpler to perform and more readily accomplished technical procedure when compared to other forms of internal drainage procedures (5). Unfortunately our only mortality and postoperative gastrointestinal bleeding belongs to this group.

The theoretical disadvantage of cystogastrostomy that it allows free access of hydrochloric acid and food particles into the pseudocyst cavity, may have played an important role in this mishap. Some have reported this complication as low as 3 and as high as 50% (9, 10, 11). When cystogastrostomy or cystojejunostomy is employed, the use of tube gastrostomy for gastric drainage and keeping the patient without oral intake for approximately ten days is advised by some (5, 6). This prevents acid and food particles from entering the pseudocyst and places the pancreas at rest. During this time interval the patient may be maintained on IV hyperalimentation or total enteral elemental diet feeding as is recently being popularized.

Warshaw and co-workers have reported recurrence rates 3% following cystogastrostomy, 5% following cystojejunostomy and 8% after cystoduodenostomy (11). We have not had a recurrence in any of our ten alive patients some of which have been followed up for five years.

Although operative management is a more reliable method of treatment there have been reports on the success of non-operative management as well (1, 3).

The relatively low recurrence rate with pancreatic pseudocyst cases has made operative therapy a thoroughly acceptable mode of management. Lower recurrence rates should be observed in patients re-

lated trauma, due to the absence of underlying pancreatic disease and ductal obstruction.

Since clinical diagnosis may often prove difficult in the early period, a heightened awareness of the condition is required. We have come to the conclusion that, there needs to be adequate experience both in the clinical aspects, and of the newly developed diagnostic modalities, especially the more freely usage of ultrasonography, ERCP, CT, and nuclear magnetic imaging. In the future we hope to see an increasing number of pancreatic pseudocysts, many of which will be asymptomatic, detected by diagnostic imaging techniques.

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