



STUDY OF CLINICAL PROFILE AND TREATMENT OUTCOME IN PANCREATIC PSEUDOCYST IN TERTIARY CARE HOSPITAL

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ABSTRACT

BACKGROUND: Pancreatic pseudocyst, the most common cystic lesion of the pancreas, by definition is a localized collection of fluid rich in amylase within or adjacent to the pancreas in the lesser curvature enclosed by nonepithelialized wall occurring as a result of acute or chronic pancreatitis, pancreatic trauma, pancreatic duct obstruction. Pancreatic pseudocysts are a recognized complication of 16% to 50% cases of acute pancreatitis and 20-40% cases of chronic pancreatitis¹. Recent data suggest that selected pancreatic pseudocysts may be treated expectantly with a lower morbidity rate and intervention is unnecessary in selected patients with asymptomatic pseudocysts.

Until 20 years ago the most common treatment was open surgery with internal drainage, though not without significant associated morbidity and mortality. Nowadays several minimally invasive techniques are available, including percutaneous drainage endoscopic internal and laparoscopic operations.

AIM: The aim of present study is to study the clinical profile and different modes of treatments for the pancreatic pseudocysts.

MATERIALS & METHODS: A Prospective study was done between Dec 2006 to Dec 2008 in the Dept. of Gastroenterology, Osmania General Hospital. Patients included in the study were proven to have pseudocysts by imaging investigations like ultrasound and CT scan abdomen as defined by Atlanta classification. All patients were followed for 6 months. Demographic data, etiology, length of hospital stay, laboratory parameters, investigations, recurrences, complications, were noted.

RESULTS: In present study most common age group affected was 30-40 yrs with mean age 31.2 year. Male to female ratio was 5:1. Alcoholic pancreatitis was the most common cause of pancreatic pseudocysts (50%) followed by others /idiopathic causes (35%) followed by gallstone disease (10%).

Most patients presented with abdominal pain (87%) followed by mass (43.4%), early satiety and weight loss (39.1%) fever (30.4%) vomiting (13%). The most common location of pseudocyst was lesser sac (60%) followed by body and tail (20%) and head (17%). Out of this 10 patients achieved spontaneous remission successfully and the remaining 5 patients subsequently underwent other treatments. This constituted 66% patients remitted spontaneously.

In the present study 8 patients underwent percutaneous drainage out of these 5 were following acute pancreatitis (Degidios type 1) and 3 patients had pseudocysts following acute on chronic pancreatitis (Degidios type 2). PCD was successful in all cases constituting 100% success rate with mean duration of drainage in type 1 pseudocysts being 8 days and in type 2 pseudocysts being 10.3 days.

In the present study 2 patients underwent endoscopic transmural drainage with 100% success rate. In the present study most commonly employed surgical procedure was internal drainage in 3 of out of 5 cases (60%) one patient (20%) open drainage and one patient underwent pseudocyst excision. Among the 3 cases of internal drainage 2 patients underwent cystogastrostomy, 1 patient underwent cystoduodenostomy.

CONCLUSIONS Alcoholic pancreatitis was the most common cause of pancreatic pseudocysts (50%) followed by others /idiopathic causes (35%) followed by gallstone disease (10%).

Small asymptomatic pseudocysts < 6 cm, were can be followed expectantly for spontaneous remission. In selective group of patients percutaneous catheter drainage of pseudocyst is more effective eg; pseudocysts following acute pancreatitis and acute on chronic pancreatitis without ductal stricture and communication. Success rate in this group is >90%. Endoscopic transmural drainage is safe and effective procedure in patients with visible bulge in to stomach and duodenum. Surgery is first choice in patients with complicated pseudocysts and when other interventions failed to achieve remission.

KEYWORDS : Acute Pancreatitis, Chronic Pancreatitis, Pseudocyst of Pancreas, Percutaneous Drainage (PCD), Cystogastrostomy, Cystojejunostomy.

INTRODUCTION

Pancreatic pseudocyst, the most common cystic lesion of the pancreas, by definition is a localized collection of fluid rich in amylase within or adjacent to the pancreas in the lesser curvature enclosed by nonepithelialized wall occurring as a result of acute or chronic pancreatitis, pancreatic trauma, pancreatic duct obstruction²

Pseudocysts are most commonly located adjacent to the pancreas in the lesser sac but have been reported to extend into the neck, mediastinum, ^{3,4} pelvis, and scrotum⁵

Single or multiple fluid collections giving the appearance of cysts on pancreatic imaging within or in the anatomic neighborhood of the pancreas are often seen during or after an episode of acute pancreatitis. The frequency with which cystic lesions are seen today with computed tomography (CT) scans performed in the evaluation of patients with pancreatitis or abdominal pain is many times that noted in pre-CT scan

era, when only cysts big enough to cause morphologic abnormalities in adjacent viscera were detected by barium. Now pancreatic pseudocysts are a recognized complication of 16% to 50% cases of acute pancreatitis and 20-40% cases of chronic pancreatitis¹.

Advance in technology have considerably increased the therapeutic options. Recent data suggest that selected pancreatic pseudocysts may be treated expectantly with a lower morbidity rate and intervention is unnecessary in selected patients with asymptomatic pseudocysts. Until 20 years ago the most common treatment was open surgery with internal drainage, though not without significant associated morbidity and mortality. Now a days several minimally invasive techniques are available, including percutaneous drainage endoscopic internal and laparoscopic operations.

The aim of present study is to study the clinical profile and different modes of treatments for the pancreatic pseudocysts.

MATERIALS AND METHODS:

A Prospective study was done between Dec 2014 TO Dec 2016 in the Dept of Gastroenterology and General Medicine, Government General Hospital, Kurnool.

Patients included in the study were proven to have pseudocysts by imaging investigations like ultrasound and CT scan abdomen as defined by Atlanta classification All patients were followed for 6 months.

Demographic data, etiology, length of hospital stay, laboratory parameters, investigations, recurrences, complications, were noted. Analysis was carried out from this data.

The etiology was considered to be of biliary origin when gall stones were found on radiological examination/ERCP and no history of alcohol abuse was present or other disease that might affect the liver and pancreas was absent.

Alcohol was registered as the etiologic factor when there was a history of alcohol abuse. In the absence of gallstones or alcohol abuse the etiology was considered to be other cause or unknown cause. Acute and chronic pancreatitis were defined according to the atlanta classification, by means of investigations eg; chronic pancreatitis presented with typical calcifications on radiological examinations and characteristic pancreatic ductal changes on CT/ERCP.

The treatments that were employed to the patients were conservative treatment, percutaneous drainage, endoscopic drainage in to the stomach and surgery.

A. Conservative treatment:

Inclusion criteria;

1. Patients with single uncomplicated pseudocyst size <6 cm

Exclusion criteria;

1. pseudocysts of large size >6cm, multiple pseudocysts, complicated pseudocysts eg; abscess, aneurysm, infection
- Patients included were followed conservatively for 6 months.

B. Percutaneous drainage:

Inclusion criteria:

1. patients with acute pseudocyst (following acute pancreatitis and acute on chronic pancreatitis) having symptoms or complications
2. pseudocysts with close approximation to skin surface
3. patients with infected pseudocyst and poor general condition not permitting surgery.

Exclusion criteria:

1. Pancreatic ascites
2. Suspected pseudo aneurysm, . Suspectious of cystic neoplasm
3. Presence of thick debris/ necrotic material in uncomplicated cyst
4. No antecedent acute episode of pancreatitis in patients with chronic pancreatitis
5. Patients with multiple pseudocysts requiring drainage of more than 1 cyst, Pseudocyst located in inaccessible area

C. Endoscopic drainage;

Inclusion criteria:

1. Pseudocysts with mature cyst wall
2. Pseudocysts with clear adhesion of cyst wall to stomach or duodenum preferably distance less than 1 cm or appearing as visible bulge

Exclusion criteria: patients with pseudo aneurysm and varices

RESULTS

Total 30 cases were included in the study. Of these 25 were males and 5 were females. Mean age 32 years (range 15 - 50 years)

Most common symptom was pain abdomen (87%) followed by lump abdomen(43%), Vomiting (13%), Early satiety/anorexia (39%), high grade fever(30%) in Patients with infected pseudocyst.

Out of 30 patients 14 patients were due to acute pancreatitis and the rest were due to chronic pancreatitis. In most patients alcohol was the etiological factor

Table 1. Etiology of pseudocyst

Cause	Acute pancreatitis	Chronic pancreatitis	Total
Alcohol	4	11	15(50%)
Gall stones	3	0	3(10%)
Trauma	1	0	1(3%)
Others	6	5	11(37%)

Out Of the 30 patients 15 patients were followed conservatively for spontaneous remission. 8 patients underwent percutaneous drainage, 5 patients were drained by surgery and in 2 patients endoscopic drainage done

Table 2. Treatment modalities(n=30)

Spontaneous remission	15(50%)
Percutaneous drainage	8(26.67%)
Endoscopic drainage	2(6.67%)
Surgery	5(16.67%)

Mean size of pseudocyst in patients followed for spontaneous remission was 3.8 cm and patients who underwent drainage procedure was 11 cm

All patients are followed for 6 months. Patients planned for intervention if there is no relief of abdominal pain or development of complications.

Percutaneous drainage group

Mean duration of drainage was short in patients with acute uncomplicated pseudocyst 8 days compared to the patient with chronic pseudocyst 10.3 days. The mean duration was longer in patient with infected pseudocysts 26.1 days

Surgery & endoscopic drainage

2 patients underwent endoscopic transmural drainage successfully with mean duration of drainage 15 days comparable to surgical drainage.

Table 3

Type of surgery	Mean duration of hospital stay in days
Internal drainage(n=3)	13.36
External drainage(n=1)	19.6
Pseudocyst excision(n=1)	15
Endoscopic drainage(n=2)	15

Complications of different treatment regimens

In patients who underwent PCD and surgery infection was controlled by antibiotics. Slippage of catheter was experienced by one patient who underwent PCD and he did not require reinsertion of catheter. One patient developed pancreatic fistula managed with conservative measures for 10 days along with octreotide. One patient developed bleeding during endoscopic drainage which was controlled by injection therapy. None had developed perforation and there is no mortality.

Followup and recurrence

During followup only two patients presented with recurrence. These patients were under percutaneous drainage group.

Table 4

Etiology	Number of pts	Mean follow up	Recurrence
Acute pancreatitis	14	6-3 months	0
Chronic pancreatitis	16	6 months	2(PCD group)
Total	30	6-15 months	2

DISCUSSION

Pancreatic pseudocyst is the most common lesion of the pancreas, by definition it is a localised collection of fluid rich in amylase within or adjacent to pancreas enclosed by no epithelial wall, occurring as a result of acute or chronic pancreatitis, pancreatic trauma or pancreatic duct obstruction. Pseudocyst of pancreas account for about 75-80% of cystic lesions pancreas. Pseudocyst of pancreas can be single or multiple. Most cysts (90%) are single. Multiple pseudocysts are seen more often in acute alcoholic pancreatitis than in all age groups combined (47%vs 19%). This might be explained by the fact that alcohol is more likely to cause widespread, diffuse injuries to the pancreatic duct at different sites simultaneously and this may result in the increased incidence of multiple pseudocysts¹⁴.

The size varies from 2 to 30 cm with estimated volumes reported between 50 and 6000 mL. Small pseudocysts are often located within the pancreas, with nearly one third located in the head and two thirds in the body and tail. They are often located outside the pancreas in the lesser sac, where they may extend to adjacent viscera. Extension into transverse mesocolon may occur because of the anatomic relationship of transverse colon to the pancreas. The cysts may also extend to the anterior or posterior pararenal space, mediastinum, and retroperitoneum. Posterior pseudocysts, although rare, may extend inferiorly into the pelvic region and groin, and pseudocysts extending to the scrotum have been encountered¹.

In present study most common age group affected was 30-40 yrs with mean age 31.2 years. According to w.y.yin et al⁷ mean age was 38.2 yrs (15-79 yrs). According to wolf gang et al mean age was 43.7 yrs this was attributed to most cases in this study were due to chronic pancreatitis.

In present study males constituted 83% and females 17%. Male to female ratio was 5:1. According to w.yin et al male to female ratio was 7:4. According to Steven et al male to female ratio was 2:3. The less incidence of females in south India was explained by lower incidence of alcoholism in females due to cultural constraints.

Alcoholic pancreatitis was the most common cause of pancreatic pseudocysts (50%) followed by others /idiopathic causes (35%) followed by gallstone disease (10%).According to w.y.yin et al⁷ alcohol was the most common cause pseudocyst (45.5%) followed by idiopathic (18%), trauma (13.6%) and gall stone pancreatitis(9%). According to wolf gang et al 76% were due to alcoholic pancreatitis, 16% were idiopathic and 8% due to gallstones. On comparison no significant difference is seen between the present study and other studies regarding etiological contribution of alcoholic pancreatitis to pseudocyst.

Most patients presented with abdominal pain (87%) followed by mass (43.4%), early satiety and weight loss (39.1%) fever (30.4%) vomiting (13%).According to w.y.yin et al abdominal pain was the most common presentation (95.5%) followed by mass per abdomen (81%) and fever(60%).The present study concurs well with other studies in that the most common complaint was abdominal pain followed by mass.

The most common location of pseudocyst was lesser sac (60%) followed by body and tail (20%) and head (17%). Travero et al showed that pseudocyst commonly located in lesser sac (50%) followed by body and tail (30%) concurring with the present study.

In the present study 15 patients with pseudocysts of less than 6 cm were considered for spontaneous remission. These patients were followed clinically and radiologically (u/s abdomen) for reduction of size and development of new complications. Out of this 10 patients achieved spontaneous remission successfully and the remaining 5 patients subsequently underwent other treatments. This constituted 66% patients remitted spontaneously.

Beebe et al⁸ documented 90 % resolution in cysts less than 4 cm compared to 20% cysts greater than 6 cm. in the retrospective study yoe et al from john Hopkins out of 75 patients with pseudocysts 39

were operated for persistent abdominal pain, pseudocyst enlargement or pseudocyst complication and 36 had conservative treatment regardless of size. All 36 patients were asymptomatic had mature cysts followed with CT scan for a mean period of 1 yr. The size of pseudocysts was only criteria that was significantly different (mean 7.4 cm for surgical group versus 5.8 cm for spontaneous remission). Size of the pseudocyst correlated with necessity of surgical treatment. 67% of pseudocysts were 6 cm and greater required surgical drainage as opposed to 40% of those less than 6 cm. In the present study duration of follow up was 6 months. 10 out of 15 patients achieved complete remission at the end of 6 months, comprising 67%.

In the present study 8 patients underwent percutaneous drainage out of these 5 were following acute pancreatitis (Degidios type 1) and 3 patients had pseudocysts following acute on chronic pancreatitis (Degidios type 2). PCD was successful in all cases constituting 100% success rate with mean duration of drainage in type 1 pseudocysts being 8 days and in type 2 pseudocysts being 10.3 days these results are comparable to recent subgroup of studies on PCD in patients with favorable pancreatic duct anatomy and etiology such as acute pancreatitis. In recent study by Al-Bingzang⁹ et al PCD was successful in 92% cases in type 1 pseudocyst with mean duration of 11 days but success rate in type 2 pseudocyst was very low 44%. Low success rate in this study could be due to communication with pancreatic duct which is common in this group of patients.;

In the present study 2 patients underwent endoscopic transmural drainage with 100% success rate. One patient was complicated by bleeding which was controlled by adrenaline injection. Cremmer et al¹⁰ successfully decompressed the 32 pseudocysts out of the 33 by cystogastrostomy and cystoduodenostomy with no mortality. Howell et al¹¹ (100/108) patients included transpapillary drainage (37) cystogastrostomy(33) and cystoduodenostomy(25) patients without mortality. Our study even though concurring with previous studies is limited by small no of patients to make any firm conclusion.

In the present study most commonly employed surgical procedure was internal drainage in 3 of out of 5 cases (60%) one patient(20%) open drainage and one patient underwent pseudocyst excision. Among the 3 cases of internal drainage 2 patients underwent cystogastrostomy 1 patient underwent cystoduodenostomy. In related study of 22 patients by W.Y.Y in et al⁷ internal drainage was carried out in 12 patients (55%) and external drainage in 9 patients (40.9%) patients and distal pancreatectomy in one (4.5%). The method of internal drainage chosen was cystogastrostomy (60%) and cystojejunostomy in remaining patients (40%).

CONCLUSIONS

1. Alcoholic pancreatitis was the most common cause of pancreatic pseudocysts (50%) followed by others /idiopathic causes (35%) followed by gallstone disease (10%)
2. Small asymptomatic pseudocysts < 6 cm, were can be followed expectantly for spontaneous remission.
3. In selective group of patients percutaneous catheter drainage of pseudocyst is more effective eg; pseudocysts following acute pancreatitis and acute on chronic pancreatitis without ductal stricture and communication. Success rate in this group is >90%.
4. Endoscopic transmural drainage is safe and effective procedure in patients with visible bulge in to stomach and duodenum.
5. Surgery is first choice in patients with complicated pseudocysts and when other interventions failed to achieve remission.

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