

A Observational Study of Clinical Features and Management of Pseudocyst of Pancreas

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Abstract: *Background and Objectives:* Pseudo pancreatic cyst is a common complication of pancreatitis. Accurate diagnosis and timely management is important. This study is to know the various etiological factors, relative frequency of occurrence of pseudo pancreatic cyst in relation to age and sex, establish accurate diagnosis by various investigations and to study various modes of management like conservative, percutaneous drainage and surgery. The different modes of treatment and their efficacy will be dealt in detail. This is necessary to know the better treatment of choice. It is a prospective study of 30 adult patients admitted in SMIMER Medical College, Surat, Gujarat, India from July 2010 to September 2018. All the Patients underwent definitive treatment. Data related to the objectives of the study was collected.

1. Introduction

A collection of pancreatic fluid surrounded by a non-epithelialized wall of granulation tissue and fibrosis over a period more than 6 weeks is referred to as a *pseudocyst*. Pseudocysts occur in up to 10% of patients with acute pancreatitis, and in 20% to 38% of patients with chronic pancreatitis, and thus, they comprise the most common complication of chronic pancreatitis⁽¹⁻³⁾. The identification and treatment of pseudocysts requires definition of the various forms of pancreatic fluid collections that occur.

Extravasation of pancreatic juice surrounding pancreas less than 6 weeks is known as peri-pancreatic fluid collection (PPFC).

Acute pseudocysts may resolve spontaneously in up to 50% of cases, over a course of 6 weeks or longer.⁽⁴⁾

Pseudocysts >6 cm resolve less frequently than smaller ones but may regress over a period of weeks to months. Pseudocysts are multiple in 17% of patients⁽³⁾ or may be multilobulated. They may occur intrapancreatically or extend beyond the region of the pancreas into other cavities or compartments.

Pseudocysts may become secondarily infected, in which case they become abscesses. They can compress or obstruct adjacent organs or structures, leading to superior mesenteric portal vein thrombosis or splenic vein thrombosis.⁽⁵⁾

They can erode into visceral arteries and cause intracystic hemorrhage or pseudoaneurysms. They also can perforate and cause peritonitis or intraperitoneal bleeding.⁽⁶⁾

Pseudocysts usually cause symptoms of pain, fullness, or early satiety. Asymptomatic pseudocysts can be managed expectantly and may resolve spontaneously or persist without complication.⁽²⁾

Symptomatic or enlarging pseudocysts require treatment, and any presumed pseudocyst without a documented antecedent episode of acute pancreatitis requires investigation to determine the etiology of the lesion.⁽⁴⁾

Although pseudocysts comprise roughly two thirds of all pancreatic cystic lesions, they resemble cystadenomas and cystadenocarcinoma radiographically. An incidentally discovered cystic lesion should be examined by EUS and aspirated to determine whether it is a true neoplasm or a pseudocyst. The timing and method of treatment requires careful consideration.

Pitfalls in the management of pseudocysts result from the incorrect (presumptive) diagnosis of a cystic neoplasm masquerading as a pseudocyst, a failure to appreciate the solid or debris-filled contents of a pseudocyst that appears to be fluid-filled on CT scan, and a failure to document true adherence with adjacent portion of the stomach before attempting trans gastric internal drainage.

If infection is suspected, the pseudocyst should be aspirated (not drained) by CT- or US-guided FNA, and the contents examined for organisms by Gram's stain and culture.⁽⁶⁾ If infection is present, and the contents resemble pus, external drainage is employed, using either surgical or percutaneous techniques. If the pseudocyst has failed to resolve with conservative therapy, and symptoms persist, internal drainage is usually preferred to external drainage, to avoid the complication of a pancreaticocutaneous fistula. Pseudocysts communicate with the pancreatic ductal system in up to 80% of cases⁽⁷⁾, so external drainage creates a pathway for pancreatic duct leakage to and through the catheter exit site. Internal drainage may be performed with either percutaneous catheter-based methods (transgastric puncture and stent placement to create a cystogastrostomy), endoscopic methods (transgastric or transduodenal puncture and multiple stent placements, with or without a nasocystic irrigation catheter), or surgical methods (a true cystoenterostomy, biopsy of cyst wall, and evacuation of all debris and contents). Surgical options include a cystogastrostomy, a Roux-en-Y cystojejunostomy, or a cystoduodenostomy. Cystojejunostomy is the most versatile method, and it can be applied to pseudocysts that penetrate into the transverse mesocolon, the paracolic gutters, or the lesser sac. Cystogastrostomy can be performed endoscopically⁽⁸⁾, laparoscopically⁽⁹⁾, or by a combined laparoscopic-endoscopic method.⁽¹⁰⁾

Because pseudocysts often communicate with the pancreatic ductal system, two newer approaches to pseudocyst management are based on main duct drainage,

rather than pseudocyst drainage per se. Transpapillary stents inserted at the time of ERCP may be directed into a pseudocyst through the ductal communication itself, or can be left across the area of suspected duct leakage to facilitate decompression and cyst drainage, analogous to the use of common bile duct stents in the setting of a cystic duct leak.⁽⁷⁾ In a surgical series of patients with chronic pancreatitis, ductal dilatation, and a coexisting pseudocyst, Nealon and Walser showed that duct drainage alone, without a separate cystoenteric anastomosis, was as successful as a combined drainage procedure.⁽¹¹⁾ Furthermore, the "duct drainage only" group enjoyed a shorter hospital stay and fewer complications than the group who underwent a separate cystoenterostomy. These observations suggest that transductal drainage may be a safe and effective approach to the management of pseudocystic disease.

The complications of endoscopic or radiologic drainage of pseudocysts often require surgical intervention. Bleeding from the cystoenterostomy, and inoculation of a pseudocyst with failure of resolution and persistence of infection, may require surgical treatment. Bleeding risks may be lessened by the routine use of EUS in the selection of the site for transluminal stent placement.⁽¹²⁾ Percutaneous and endoscopic treatment of pseudocysts requires large-bore catheters, multiple stents, and an aggressive approach to management for success to be achieved.

Failure of nonsurgical therapy, with subsequent salvage procedures to remove infected debris and establish complete drainage, is associated with increased risks for complications and death.⁽¹³⁾ The most experienced therapeutic endoscopists report a complication rate of 17% to 19% for the treatment of sterile pseudocysts, and deaths as a result of endoscopic therapy have occurred.⁽¹⁴⁾ Therefore, the use of endoscopic methods to treat sterile or infected pancreatic necrosis has a higher complication rate and is limited to specialized centers.

Resection of a pseudocyst is sometimes indicated for cysts located in the pancreatic tail, or when a midpancreatic duct disruption has resulted in a distally located pseudocyst. Distal pancreatectomy for removal of a pseudocyst, with or without splenectomy, can be a challenging procedure in the setting of prior pancreatitis. An internal drainage procedure of the communicating duct or of the pseudocyst itself should be considered when distal resection is being contemplated.

2. Methodology

It is a prospective study of 30 adult patients admitted in SMIMER Medical College, Surat, Gujarat, India from July

2010 to September 2018. All the patients underwent definitive treatment. Data related to the objectives of the study was collected. After admission, data for study was collected by history, clinical findings, relevant diagnostic investigations performed over patient.

Inclusion criteria

- Patients diagnosed with pseudo cyst of pancreas, using ultrasound abdomen/ contrast enhanced computerized tomography scan abdomen.
- Patient giving valid informed consent.

Exclusion criteria

Patients diagnosed as cystic neoplasms of pancreas.

- All the true cyst of pancreas
- Hydatid cyst of pancreas.
- Congenital cysts of pancreas.

All patients with pseudocyst were managed conservatively by symptomatic treatment and followed. Percutaneous drainage was done under radiological guidance.

Endoscopic drainage and surgical drainage (cysto gastrostomy and roux-en-y cystojejunostomy) were done in selected cases. After discharge patients were followed up for a period of 6 months. Details were then charted in the study proforma and the data was analyzed with respect to various aims and objectives of the study.

This study has included both adults and pediatric age group patients. Patients with diagnosis of pancreatitis were monitored. During the course of their illness, if they developed features suggesting of pancreatic pseudocyst, USG of abdomen was done and if it confirmed the presence of pseudocyst these patients were included in our study. Those patients only with or chronic pancreatic or peripancreatic fluid collection without evidence of encapsulation on USG were excluded from the study. All patients with acute pseudocyst were managed conservatively by withholding oral intake, giving IV fluids, analgesics and antibiotics as long as they had pain abdomen, vomiting or ileus. They were then followed up if the cyst did not regress. Follow up continued till the wall of the cyst matured. All mature cysts were treated surgically. Data like duration of hospital stay, conservative management and its results and surgical procedure done and their results, complications if any, progress of the pseudocyst on follow up were carefully recorded.





3. Results

1) Age

In our study of 30 patients, the age of patients was from 11 years to 65 years. Pseudo pancreatic cyst was common in age group 31 – 50 (60%) with mean of 40 years. This was probably due to alcohol use which was common in this age group.

Age in Years	No. of Patients	Percentage
11-30	10	33
31-50	18	60
>=51	02	6.6

2) Sex

In our study of 30 patients, there were 24(80%) male patients and 6(20%) female patients indicating that the disease is more common in males with ratio of male to female is 4.33:1. This again was due to a higher alcohol intake in males.

Sex	No. of patients	Percentage
Male	24	80
Female	06	20

3) Etiology

The commonest etiology associated with pseudocyst was alcohol, which was seen in 70% of patients followed by biliary tract disease seen in 16.66% of patients.

Etiology	No. of Patients	Percentage
Alcohol	21	70
Biliary Tract Disease	05	16.66
Hyperlipidemia	02	6.66
Idiopathic	01	3.33

4) Symptoms

The commonest symptom was upper abdominal pain which was present in 28 patients (93.33%), followed by abdominal distension which was present in 86.66 % of the patients and nausea/vomiting present in 76.66% of the patients.

Symptoms	No. of Patients	Percentage
Abdominal Distension	26	86.66
Abdominal Pain	28	93.33
Nausea/ Vomiting	23	76.66
Fever	10	33.33
Anorexia	10	33.33
Jaundice	03	10
Weight Loss	02	6.66

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5) Signs

The commonest sign was upper abdominal tenderness which was present in all the patients (100%), followed by mass per abdomen which was present in 75% of the patients.

Signs	No. Of Cases	Percentage
Lump In Abdomen	22	73.33
Tenderness	26	86.66
Ascites	02	6.66
Ileus	01	3.33

6) Serological investigation:

Elevated amylase was seen in 60% of patients, and lipase in 70% of patients. Elevated drain amylase/lipase was seen in all 16/18 patients who underwent either endoscopic or open surgery.

Investigations	Elevated In No. Of Patients	Percentage
Serum Amylase	18/30	60
Serum Lipase	21/30	70
Drain Amylase/Lipase	16/18 Operated Cases	88.88

7) Co morbidities

60% of the patients have co-morbid conditions which contributes to longer hospital stay. 40% of patients in this study had hypertension.

Co-morbid conditions	Number of patients	Percentage
Present	18	60
Absent	12	40
Liver Disease	04	13.33
HTN	12	40
DM	10	33.33
IHD	01	3.33

8) Complications

Infections were seen in 13.33 % of the patients followed by gastric outlet obstruction was seen in 6.66% of patients followed by ascites seen in 6.66% of patients. There was no rupture or haemorrhage seen in this study.

Complications	No. of Patients	Percentage
Infection	04	13.33
Obstruction	02	6.66
Acites	02	6.66
Haemorrhage	0	-
Rupture	0	-

9) Management

12 patients were managed conservatively, followed by open cystogastrostomy in 20% patients underwent endoscopic cystogastrostomy. Open cysto jejunostomy was done on 3 patients and laproscopiccystogastrostomy in 40% of the patients.

Type of Management	No of Patients	Percentage
Conservative	12	40
Laparoscopic Cystogastrostomy	12	40
Open Cystogastrostomy	06	20

10) Post-operative complication:

Most common post-operative complication was wound infection seen in 13.33% of patients followed by recollection in 3 patients. All the patients were managed conservatively with antibiotics.

Post Op Complication	No. Of Patients	Percentage
Infection	04	13.33
Recollection	03	10
Bleeding	01	3.33

4. Discussion

In most of the series, Bodker et al^(1,15), Bodil Anderson, 2010, pseudocysts were seen in 4th and 5 th decades most commnly, and the mean age was around 40-47 yrs. In our present series, majority of patients belonged to the age group of 31-50 yrs and the mean age was 40 yrs.

As compared to other studies Bodil Anderson, 2010, Varadarajulu et al., 2013⁽¹⁶⁾, marked male predominance was seen in our study, in the ratio of 4:1 (male:female) and may be attributed to the fact that alcoholism is less common in females in India.

Per Walt et al 70% of patients had history of consumption of alcohol thus making it an important etiology for pseudocyst of pancreas.⁽¹⁷⁾

Thus, pseudocyst of pancreas is more common in middle age groups , which is probably due to increased consumption of alcohol in this age group.

From the above data, pseudocyst is higher in males than females, owing to the increased consumption of alcohol. In our study, 70% of patients had history of consumption of alcohol, while 16.66% were diagnosed with biliary tract disease. In our study 93.33% patients presented with abdominal pain, followed by abdominal distension in 86.66% of patients.

Thus it is clear that pain in abdomen is the commonest symptoms which brings the patient to hospital. In a series at John Hopkins and Mayo Clinic, infection of the pseudocyst was reported in 4% and 1% respectively⁽¹⁸⁾. In our study infection of the pseudocyst was seen in 13% cases.⁽²⁰⁾

Most common complication in our study was infection seen in 13.33% of patients followed by ascites and infection seen in 6.66% of patients respectively.

Thus a pseudocyst can present with a varied range of complications mainly based on its size location and duration.

Several studies have indicated that the size of the cyst and the length of time the cyst has been present are poor predictors of potential for pseudocyst resolution or complications, but in general, larger cysts are more likely to become symptomatic or cause complications⁽¹⁷⁾

Conservative treatment is useful in uncomplicated, acute pseudocysts till they regress or mature when surgery became necessary.

Recent studies have suggested long-term conservative management with close follow-up rather than an early operation or drainage because of the potential risk of complications . In our study, spontaneous resolution, including disappearance and a size decrement, was achieved in 40% of the total cases

The results of laproscopic and open cystogastrostomy was excellent. The choice of procedure was decided upon the location of the pseudocyst, its contents, general condition of the patient and surgeons skill.

5. Conclusion

From our study we cocluded that Pseudocysts are more common in males than females.

Most of the patients belonged to the age group of 31-50 years followed by those aged between 11-30 years.

The commonest etiology associated with pseudocyst was alcohol, followed by biliary tract disease. Pain abdomen followed by mass abdomen was the most common clinical feature.

Complications associated with pseudocyst were Infections, Gastric outlet obstruction and ascites. Elevated amylase was seen in 60% and lipase in 70% of patients.

Elevated drain amylase/lipase was seen in patients who underwent either endoscopic or open surgery. Ultrasound was the basic radiological investigation done in all patients followed by CECT abdomen in where USG was not useful in diagnosis. It can be concluded that initially a conservative approach must be followed.

Wound infections, recollection and bleeding are respectively the most important complications noted post intervention.

6. Acknowledgements

Authors would like to thank all the participants of this study and the people who were helping hand in completing this study.

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