

Original research article**A study on various modes of management of pseudocyst of pancreas at a Tertiary care hospital****¹Dr. Vinaykumar Teradal, ²Dr. Basavaraj Yenagi, ³Dr. Saiyad Jameer Bhasha T, ⁴Dr. Bharath Bidinahal**^{1,2,3}Assistant Professor, Department of General Surgery, GIMS, Gadag, Karnataka, India⁴Associate Professor, Department of General Surgery, GIMS, Gadag, Karnataka, India**Corresponding Author:**

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Abstract

Pancreatic pseudocysts show a wide variety of clinical presentations ranging from completely asymptomatic lesions to multiple pseudocysts with pancreatic and bile duct obstruction. This study has included both sex and patients above 15 years of age. Patients with diagnosis of pancreatitis were monitored, during the course of their illness, if they developed features suggestive of pancreatic pseudocyst which is confirmed using USG abdomen or patients who are incidentally found as having pseudocyst pancreas are included in this study. In our study most of the cases were treated conservatively, that is about 68.42%, but the success rate was 78.57%. Two patients were treated with percutaneous aspiration with 50% success rate and success rate of definitive procedures like cysto-gastrostomy & cysto- jejunostomy in our study was 100%.

Keywords: Management, Pseudocyst of Pancreas, Cysto-Gastrostomy & Cysto- Jejunostomy.

Introduction

A chronic collection of pancreatic fluid surrounded by a non-epithelialized wall of granulation tissue and fibrosis 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].

The occurrence of a pseudocyst parallels that of pancreatitis and the etiology of pseudocysts resembles the causes of pancreatitis closely.

Alcohol-related pancreatitis appears to be the major cause, accounts for 59-78% of all pseudocyst.

Pseudocysts in children are known complications of acute pancreatitis and pancreatic trauma.

Pancreatic pseudocysts most commonly arise in patients with alcoholic chronic pancreatitis (from 70% to 78%). The second most common cause is idiopathic chronic pancreatitis (from 6% to 16%), followed by biliary pancreatitis (from 6% to 8%) ^[2].

Abdominal pain is the most common symptom in patients with a pseudocyst. Pseudocysts that follow an episode of acute pancreatitis are often characterized by the persistence or recurrence of upper abdominal pain weeks after the initial attack. A pseudocyst may also be the source of increased or refractory pain in a patient known to have chronic pancreatitis. The symptoms of early satiety, nausea, and vomiting may be secondary to the mass effect of the pseudocyst that causes gastroduodenal obstruction ^[3,4].

Pancreatic pseudocysts show a wide variety of clinical presentations ranging from completely asymptomatic lesions to multiple pseudocysts with pancreatic and bile duct obstruction.

The management of pseudocysts also depends on the aetiology. Cystic pancreatic lesions, arising after an episode of acute pancreatitis, may resolve without treatment over a period of 4-6 weeks, whereas in chronic pancreatitis spontaneous pseudocyst resolution occurs rarely as maturation of the cyst wall is already complete ^[5].

The probability of spontaneous resolution ranges widely from 8-85%. It depends on the aetiology, location and size of the cyst.

A pseudocyst is unlikely to resolve spontaneously if: a) it persists for >6 weeks, b) chronic pancreatitis is evident, c) pancreatic duct anomaly, d) the pseudocyst is surrounded by a thick wall ^[6].

Methodology**Inclusion criteria**

1. Patients diagnosed as pseudopancreatic cyst with the help of diagnostic procedures like USG abdomen or contrast enhanced CT abdomen.
2. Admitted patients of both sexes and age above 15 years.

Exclusion criteria

1. All the true cysts of Pancreas.
2. Neoplastic cystic swellings of Pancreas.
3. Hydatid Cysts of Pancreas.
4. Congenital Cysts of Pancreas.

This study has included both sex and patients above 15 years of age. Patients with diagnosis of pancreatitis were monitored. If during the course of their illness, if they developed features suggestive of pancreatic pseudocyst which is confirmed using USG abdomen or patients who are incidentally found as having pseudocyst pancreas are included in this study. Those patients only with chronic pancreatitis, peripancreatic fluid collection without evidence of encapsulation on USG, Hydatid cyst of pancreas, true cyst of Pancreas, Neoplastic or congenital cystic lesions of Pancreas were excluded from the study.

The diagnosis of pseudopancreatic cyst was made in all patients by USG though in addition CT scan performed on most of the patients where diagnosis was uncertain or to define the extent and to diagnose any complications. Serum values of Amylase and Lipase were measured.

Demographic data was collected including the age and sex of the patient, etiology of pseudopancreatic cyst formation, signs and symptoms at the time of presentation, associated pancreatic condition at the time of presentation, simple/multiple cysts, different modalities of diagnosis, and treatment. Every patient with a pseudocyst had serial USG studied to monitor the evaluation of the cystic collection.

All patients with acute pseudocyst were managed conservatively by keeping nil per oral, IV fluids, analgesics and antibiotics(sos) as long as they had pain abdomen, vomiting or ileus. One patient’s pain was managed using epidural anesthesia. They were then followed up if the cyst did not regress, follow up continued till the cyst wall matured. All mature cysts were treated surgically.

Data related to conservative management & its results, surgical procedures & results, duration of hospital stay, complications if any, progress of the pseudocyst follow up were carefully recorded.

Results

Table 1: Investigations (biochemical)

Investigation	Raised (%)	Normal (%)
Serum amylase	65.78	34.21
Serum lipase	78.12	21.87

Serum Lipase values were raised in 78.12% of Pseudocyst Pancreas patients, and Serum Amylase was raised in 65.78% of patients.

Table 2: Radiological investigations

Investigation		Diagnosed	Couldn’t diagnose	Not done
USG	No. Of patients	36	2	0
	Percentage	94.7	5.26	
CT	No. Of patients	29	0	9
	Percentage	100	0	

Ultrasound was the basic investigation done in all patients (100%) and CT abdomen was done in 76.31% of patients. Sensitivity of CT to diagnose Pseudocyst pancreas with associated pancreatic condition was 100% while USG could diagnose in only 94.7% of patients.

Table 3: Management

Management	Cases		Mean cyst size	Mean hospital stay
	No.	%		
Conservative	28	73.68	9.66 CM	11 Days
Operative	10	26.31	14.21 CM	30 Days

In our study Out of 38 patients, 28 patients were managed conservatively, 10 patients were treated operative management. Mean Pseudocyst size in conservatively managed cases was 9.66cm & 14.21 cm in operatively managed cases. Mean hospital stay was 11 days in conserved patients and 30 days in operated patients.

In our study 5 cases got re-admitted once and 1 case re-admitted twice.

Table 4: Treatment (First Time)

Management	No.	%		No. of patients	%
Conservative	28	73.68	Success	22	78.57
			Failure	6	21.42
Per cutaneous aspiration	2	5.26	Success	1	50
			Failure	1	50
External drainage	1	2.63	Success	0	0
			Failure	1	100
Cystogastrostomy	5	13.15	Success	5	100
			Failure	0	0
Cystoje-junostomy	2	5.26	Success	2	100
			Failure	0	0
Pancreatic resection			-	-	-

In our study most of the cases were treated conservatively, that is about 68.42%, but the success rate was 78.57%. Two patients were treated with percutaneous aspiration with 50% success rate and success rate of definitive procedures like cysto-gastrostomy & cysto-jejunosotomy in our study was 100%.

Table 5: Treatment in re-admitted patients

Management in readmitted case		No. of patients	%
Conservative	Success	4	80
	Failure	1	20
External drainage	Success	1	100
	Failure	0	0
Cystogastrostomy	Success	1	100
	Failure	0	0

In our study 5 cases got re-admitted once and 1 case re-admitted twice. 4 cases who were previously managed conservatively were again treated conservatively, and other cases were managed successfully with definitive procedures with 100% success rate.

Discussion

Biochemical investigations

Serum amylase is most commonly done biochemical investigation in our study, easily available and sensitive, elevated in pseudocyst of pancreas. Which is compared with different studies.

	Andrew <i>et al.</i> [7]	Our study
Elevated amylase	42.85	65.78

Radiological investigations

USG abdomen is most commonly performed radiological investigation in our study, useful in follow up scans also. But CT Abdomen is more sensitive and specific compared to USG. This is compared with different studies.

Investigation	Steven T. <i>et al.</i> [8]	Our study
USG	75-90	94.7
CT	90-100	100

Conservative treatment

Most of the patients (73.68%) are managed conservatively in our study with good success rate. This is compared with different studies.

	Marcus M. Lerch <i>et al.</i> [9]	Dr. peter [10]	Steven T. <i>et al.</i> [8]	Our study
Conservative (Regressed)	50	57	8-85	78.57

Internal drainage

Internal drainage procedures like Cysto-gastrostomy, Cysto-jejunosotomy are most commonly done definitive procedure in our study with 100% success rate. Which is compared with different studies.

	Steven T. <i>et al.</i> [8]	Our study
Internal drainage	100	100

In our study most of the patients were followed up for a period of 3-6 months. There are two deaths in our study, one patient was operated outside suspecting perforative peritonitis, abdomen was closed

because of negative laparotomy, later patient developed fecal fistula when she was admitted in our hospital, later died because of DIC. One more patient who was severely ill because of infected pseudocyst pancreas, who died because of septicemic shock.

5 patients were re-admitted once and 1 patient readmitted twice. They are treated accordingly.

Conclusion

- Conservative treatment is useful in uncomplicated acute pseudocysts till they regress or mature when surgery became necessary.
- 73.68% of patients were managed conservatively. All Re-admitted patients were again treated conservatively as pseudocyst size were regressing.
- 26.31% of patients were treated by operative management.
- 5.26% of patients were managed by percutaneous aspiration with 50% success rate, recurrent case was managed by CystoGastrostomy.
- 1 patient (2.63%) was managed with external drainage, which got failed, infected recurrent pseudocyst was again treated with external drainage.
- The results of Cysto-Gastrostomy and Cysto-Jejunostomy were excellent. The choice of procedure was based mainly on the location of the pseudocyst, and also on contents, general condition and previous intervention. One patient who was treated outside with Cysto-Gastrostomy, had come with recurrence. Who was managed with Cysto-Jejunostomy.

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