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PSEUDOCYST OF PANCREAS AND ITS MANAGEMENT IN A TERTIARY HOSPITAL: AN EXPERIENCE

Dr. Hussain Ahmed*[1], Dr. Chintu Patowary[2] and Dr. Ajit Baheti[3]

[1]Associate Professor, Department of Surgery, Gauhati Medical College and Hospital, Guwahati.
[2]Senior Resident, Department of Surgery, Gauhati Medical College and Hospital, Guwahati.
[3]Post Graduate Trainee, Department of Surgery, Gauhati Medical College and Hospital, Guwahati.

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***Corresponding Author**
Dr. Hussain Ahmed
Associate Professor,
Department of Surgery,
Gauhati Medical College and
Hospital, Guwahati.

ABSTRACT

Introduction: A pancreatic pseudocyst is a circumscribed collection of fluid rich in pancreatic enzymes, blood and necrotic tissue enclosed in a wall of fibrous or granulation tissue, typically located in the lesser sac of the abdomen. **Aims and objectives**: To evaluate the incidence and study the types, etiology and clinical features of pseudocyst of pancreas and to study various modalities of management of pseudocyst available in our setup including conservative management. **Materials and methods:** The study was conducted in the Department of Surgery, Gauhati Medical College during the period June 2018 to May 2019.
STUDY TYPE: Prospective non randomised study
STUDY PERIOD: 1st June 2018 to 30th May 2019.
SOURCE OF DATA: Patients admitted with clinical and radiological diagnosis of pancreatic pseudocyst, under the Department of Surgery, Gauhati Medical College and Hospital during the study period.
SAMPLE SIZE: A total of 50 patients were included in the study.
7.1 SELECTION CRITERIA
Inclusion criteria: Diagnosed cases of Pseudocyst of Pancreas on clinical and radiological investigations. Patient giving valid informed consent; Pancreatic fluid collection that occurs in the development of acute pancreatitis after 4 weeks from its debut. **Exclusion criteria**: Patients less than 17 years of age, diagnosed with pseudocyst of pancreas; Patients diagnosed as cystic neoplasms of pancreas; Pancreatic Fluid in the first 4 weeks from the onset of acute pancreatitis. Diffuse Pancreatic collections without USG or CT images. Pancreatic collections containing predominantly solid material. **Results and Observations:** This study comprises of 50 patients with pseudocyst of pancreas. Out of the 50 patients, 10 patients had chronic pancreatitis and 40 patients developed pseudocyst following an acute pancreatitis episode. The patients included in this series range from 18 to 75 year, 35 years was the median age and 35.12 years was mean age. Out of 50 patients there were 40(80%) male, 10(20%) female patients indicating that the disease is more common in male and male to female ratio is 4:1. Alcohol was the commonest risk factor which was present in 70% of the patient followed by biliary tract disease 12% and idiopathic in 12% of the patient. Abdominal pain is the commonest symptom patient presented with, mostly in the epigastric region (88%). Abdominal distension was there in 44% of patients. Nausea and vomiting was complained by 46% patients associated with epigastric pain and /or abdominal distension. Tenderness in epigastric region was present in all 50 patients. In 18 out of the 50 patients, there was a palpable abdominal mass present in the epigastric region. Ascites was present in 1 patient out of 50 patients. 3 out of 50 patients developed infection of the pseudocyst while 3 out of 50 patients presented with gastric outlet obstruction, out of which 1 patient also had CBD obstruction. Serum amylase was raised in 62% of the patients of pseudocyst of pancreas. Ultrasound was done in all patients (100%) for diagnosis of pancreatic pseudocyst. It was able to detect all cases of pseudocyst. CECT W/A-scan was done in 33 patients where the extent and complication of the cyst was not properly delineated on ultrasound. MRCP was done in 3 patients for delineating out a ductal anatomy before surgery. Conservative treatment was done in 32/50 patients (64%). 3 patients represented with recurrent pain, obstructive features and weight loss after 4 months of conservative treatment. All of them under went cysto-enteric drainage. The remaining patients were followed-up for 6 months. Pseudocyst disappeared in 22 cases (68.75%), and it decreased in size in 5 cases (15.625%), while 2 were lost in follow up. USG guided percutaneous catheter drainage was done in 13 patients. It proved successful in the long term in 10 patients, but 3 patients developed recurrence and infective features, for which they underwent early surgical cystogastrostomy. Cystogastrostomy was done in 11 patients, 5 patients for recurrence of symptoms and 6 patients due to complication as mentioned above. No postoperative complication and no cyst recurrence were detected on follow up. **Conclusion:** Pancreatic pseudocyst usually resolves spontaneously but may also be associated with various complications. Pseudocyst is the main late complication (4-6 weeks) of acute pancreatitis. Excessive alcohol consumption in men and, biliary etiology in female are the main factors incriminated in pancreatic pseudocyst. Most important complications are compression of the biliary or gastrointestinal tract & infection. These complications require immediate therapeutic intervention. Pancreatic pseudocysts which are uncomplicated, regardless of their size, benefit from conservative medical treatment until their spontaneous resolution. The results also suggest that many patients with pancreatic pseudocysts can be managed conservatively. Interventional treatment is indicated in symptomatic patients and those unresponsive to conservative treatment. Guided percutaneous catheter drainage is indicated in case of pancreatic tail pseudocysts, with immature wall or infection, and patients with poor performance status. Surgery is reserved for internal drainage of complicated pseudocysts.

KEYWORDS: Pancreatitis, pseudocyst, MRCP, conservative, specificity, retroperitoneum, intraoperative, acute, complications, extravasation, intraductal.

INTRODUCTION

Pancreas is the mysterious and the most unforgiving organ of human body which is located in the retroperitonium. Eristratos (310-250BC) mentioned pancreas for the first time in his writings and Rufus of Ephesus (circa 100 ad) gave its name as pancreas. The name pancreas (Greek pan, all; kreas, flesh or meat) was used because the organ contains neither cartilage nor bone. A pancreatic pseudocyst is a circumscribed collection of fluid rich in pancreatic enzymes, blood and necrotic tissue enclosed in a wall of fibrous or granulation tissue, typically located in the lesser sac of the abdomen. The prefix pseudo (in Greek pseudo means ―false) distinguishes them from true cyst, which is lined by epithelium; while pseudocyst is lined by granulation tissue.

Pancreatic pseudocyst is usually complication of acute and chronic pancreatitis. Pancreatic pseudocyst accounts for approximately 75% of all pancreatic masses. Nowadays pancreatic diseases and their pathology are much better understand due to the rapid development of non-invasive imaging techniques.

Pancreatic pseudocyst is caused by pancreatic ductal disruption that occurs most typically during an episode of severe acute pancreatitis. While, in chronic pancreatitis there is pancreatic parenchymal fibrosis, irregularity leads to elevated intraductal pressure leading to disruption of an obstructed duct.

A pancreatic duct leak with extravasation of pancreatic juice results in a peripancreatic fluid collection. Over a period of 3 to 4 weeks, the peripancreatic fluid collection is sealed by an inflammatory reaction that leads to development of a wall of acute granulation tissue without much fibrosis. This is referred to as an acute pseudocyst. Acute pseudocysts may resolve spontaneously in up to 50% of cases, over a course of 6 weeks or longer. Chronic pseudocyst a collection of pancreatic fluid surrounded by a wall of normal granulation and fibrous tissue, usually persisting for >6 wk. Pseudocysts can be intrapancreatic but are more commonly extrapancreatic and occupy the lesser peritoneal sac.

With the advancement of knowledge of this condition and people becoming aware, the management has also undergone great changes with both conservative and surgical procedures. As the follow-up is short it will be difficult to arrive at a valid conclusion, but the results obtained will definitely be valuable in the long run.

AIM

1. To evaluate the incidence and study the types, etiology and clinical features of pseudocyst of pancreas.
2. To study various modalities of management of pseudocyst available in our setup including conservative management.

MATERIAL AND METHODS

The study was conducted in the Department of Surgery, Gauhati Medical College during the period June 2018 to May 2019.

STUDY TYPE: Prospective non randomised study

STUDY PERIOD: 1st June 2018 to 30th May 2019.

SOURCE OF DATA: Patients admitted with clinical and radiological diagnosis of pancreatic pseudocyst, under the Department of Surgery, Gauhati Medical College and Hospital during the study period.

SAMPLE SIZE: A total of 50 patients were included in the study.

7.1 SELECTION CRITERIA

- **Inclusion criteria**:

Diagnosed cases of Pseudocyst of Pancreas on clinical and radiological investigations.
Patient giving valid informed consent;
Pancreatic fluid collection that occurs in the development of acute pancreatitis after 4 weeks from its debut.

- **Exclusion criteria**:

Patients less than 17 years of age, diagnosed with pseudocyst of pancreas;
Patients diagnosed as cystic neoplasms of pancreas;
Pancreatic Fluid in the first 4 weeks from the onset of acute pancreatitis.
Diffuse Pancreatic collections without USG or CT images.
Pancreatic collections containing predominantly solid material.

RESULTS AND OBSERVATIONS

This study comprises of 50 patients with pseudocyst of pancreas. Out of the 50 patients, 10 patients had chronic pancreatitis and 40 patients developed pseudocyst following an acute pancreatitis episode.

Age incidence: The patients included in this series range from 18 to 75 year, 35 years was the median age and 35.12 years was mean age. Pseudocyst of Pancreas is most common in the age group of 26-45 (70%) as per earlier studies.

Sex ratio: Out of 50 patients there were 40(80%) male, 10(20%) female patients indicating that the disease is more common in male and male to female ratio is 4:1.

Risk factor: Alcohol was the commonest risk factor which was present in 70% of the patient followed by biliary tract disease 12% and idiopathic in 12% of the patient.

All the 6 patients of pseudocyst developed following biliary tract disease were female patient.

Symptoms: Abdominal pain is the commonest symptom patient presented with,mostly in the epigastric region (88%). Abdominal distension was there in 44% of

patients. Nausea and vomiting was complained by 46% patients associated with epigastric pain and /or abdominal distension. Fever was present in 10% patients.

Signs: Tenderness in epigastric region was present in all 50 patients.In 18 out of the 50 patients, there was a palpable abdominal mass present in the epigastric region. Ascites was present in 1 patient out of 50 patients.

Complications: 3 out of 50 patients developed infection of the pseudocyst while 3 out of 50 patients presented with gastric outlet obstruction, out of which 1 patient also had CBD obstruction.

Investigations: Serum amylase was raised in 62% of the patients of pseudocyst of pancreas. Ultrasound was done in all patients (100%) for diagnosis of pancreatic pseudocyst. It was able to detect all cases of pseudocyst. CECT W/A-scan was done in 33 patients where the extent and complication of the cyst was not properly delineated on ultrasound. MRCP was done in 3 patients for delineating out a ductal anatomy before surgery.

Treatment: Conservative treatment was done in 32/50 patients (64%). 3 patients represented with recurrent pain, obstructive features and weight loss after 4 months of conservative treatment. All of them under went cysto-enteric drainage. The remaining patients were followed-up for 6 months. Pseudocyst disappeared in 22 cases (68.75%), and it decreased in size in 5 cases (15.625%), while 2 were lost in follow up. USG guided percutaneous catheter drainage was done in 13 patients. It proved successful in the long term in 10 patients, but 3 patients developed recurrence and infective features, for which they underwent early surgical cystogastrostomy. Cystogastrostomy was done in 11 patients, 5 patients for recurrence of symptoms and 6 patients due to complication as mentioned above. No postoperative complication and no cyst recurrence were detected on follow up.

Duration of hospital stay: Out of the 50 cases, 32 cases who were hospitalized for acute attack were treated conservatively. They were discharged when their symptoms subsided and it took about 7-8 days on average. Most of the patients were discharged by 2 weeks following operation. Pig tail was removed generally after 6-8 days of intervention once the USG showed that the pseudocyst had resolved and patient became asymptomatic with minimal drain output.

Follow up: Patient treated conservatively were regularly followed-up for 6 months. Two patients could not be followed up as they did not turn up as advised. The remaining cases were regularly checked up in surgery out- patient department at intervals of 2-3 weeks. They were advised to avoid precipitating factors like alcohol. Patients were also advised to undergo cholecystectomy for biliary disease. During follow up most of the patients underwent USG whole abdomen.

SUMMARY

Out of the 50 patients, 10 cases of pseudocyst were arising from chronic pancreatitis and 40 cases of pseudocyst were arising from an episode of acute pancreatitis. Pancreatic pseudocyst is common in the age group of 26-45 (70%) with the median age of 35 years. There were 40 male and 10 female patients with male female ratio of 4:1. Alcohol was the most common etiological factor for formation of pancreatic pseudocyst (70%). While alcohol was the main factor in male, in females biliary tract disease was the most common etiological factor (60%).

The commonest symptom patients presented with abdominal pain particularly in epigastric region (88%). Abdominal distension was present in 44% of cases. Other symptom like vomiting in 46% of cases, while fever and jaundice was also present in 5 and 1 case respectively. The commonest sign was abdominal tenderness seen in 100% of cases with a palpable mass in 36% of cases.

Complications were seen in only 12% of cases. Infection was present in 3 (6%) of case which was initially managed by percutaneous catheter drainage. Later they underwent cystogastric anastomosis. While 3(6%) cases presented with gastric outlet obstruction which were managed by early surgical drainage. The main diagnostic methods to evaluate pseudocyst were ultrasonography and history of acute pancreatitis. CECT-scan was done where the extent and complication of the cyst could not be made out by Ultrasonography W/A. It was done in 66% of cases. MRCP was done in 3 cases which went for surgery.

Conservative treatment was done in 32/50 patients (64%). Spontaneous resolution, including disappearance and reduction in size, was achieved in 57.5% of the total cases. Percutaneous catheter drainage was used in 13 patients. It proved successful in the long term in 10 patients, but 3 patients developed symptomatic recurrence and infection. These patients went on to have surgical cyst enteric drainage after 2 months. The indications for intervention were persistent pain, gastric outlet obstruction, and jaundice. Early surgical drainage was employed in 3 patients for intractable pain and gastric outlet obstruction and one with common bile duct obstruction as well.

We have adopted a more conservative approach and our experience shows that conservative treatment can be successful in a selected group of patient. The size or duration of the pancreatic pseudocysts are not the prime indicators for surgical intervention, but the symptoms of persisting pain, weight loss, jaundice or obstruction necessitates surgical intervention.

DISCUSSION

In present study of 50 patients there were 40(80%) male patients, 10(20%) female patients. Pseudocyst of pancreas is more common in male with a male to female ratio of 4:1. The lower male to female ratio in some other studies reflects a higher incidence in females, and this may be explained by the lower consumption of alcohol by females in the geographical area covered by the study.

Risk factor Incidence: The commonest risk factor was alcohol which is present in 70% of the patient followed by biliary tract disease 12% and idiopathic in 12% of the patient.

Clinical features: The commonest symptom patients presented with were abdominal pain(88%) and mass per abdomen(36). Comparison of clinical features with different studies is shown in a table given below. Complications: In the present study of 50 patient of pseudocyst, 3 patient develop infection of the pseudocyst while 3 patients presented with gastric outlet obstruction i.e. only 12% of patients develop complication. Investigation: In present study, ultrasonography was the main diagnostic methods to evaluate pseudocyst. CECT-scan was done in 66% of cases where the extent and complication of the cyst was not able to make out. MRCP was done in 3 cases which went for surgery. In one case there was jaundice on presentation and the patient went for early surgical intervention. The other cases were first treated by percutaneous catheter drainage which show recurrence and intractable pain which underwent surgery after 2 months of presentation.

Treatment: Conservative treatment was done in 32 out of 50 patients (64%) in present study. Spontaneous resolution, including disappearance and a size decrement, was achieved in 58% of the total cases. 3 patients represented with recurrent pain and weight loss after 4 months of conservative treatment. All of them were treated by surgical cystoenteric drainage. 13 patients were under went percutaneous drainage of which 3 develop complication. All of them were treated with broad spectrum antibiotics and nil per orally for 5 days. Surgical drainage was done in 8 cases, in which complications or severe symptoms occurred and was not able to resolved. The wait-and-see policy for more than 4 to 6 weeks may be feasible unless the pseudocysts are associated with symptoms or complications.

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 addition, 2 prospective studies reported impressive rates of spontaneous resolution with conservative management with close follow-up for more than 6 weeks from the detection of pseudocyst.

The only predictor of spontaneous resolution in our study appeared to be a single lesion.

Interventional radiological procedures, in addition to a morbidity of 10–30% and a mortality of 2–6%, are associated with a recurrence rate of 6–22%.

Percutaneous catheter drainage was used in 13 patients. It proved successful long term in 10 patients, but 3 patients developed symptomatic recurrence and infection. These patients underwent surgical cystoenteric drainage after 2 months.

Guided percutaneous catheter drainage was done in cases of pseudocyst present in tail of pancreas, with immature wall or infection, and patients with poor performance status.

Early surgical drainage was employed in 3 patients for intractable pain and gastric outlet obstruction and one with CBD obstruction as well. There were no cyst recurrences on follow-up.

Despite huge advances in the field of radiology and the current knowledge of the natural history of the pancreatic pseudocyst, it is difficult to predict complications in individual patients. The conservative treatment can be successful in a selected group of patients. The size or duration of the pancreatic pseudocysts is not the prime indicators for surgical intervention, but the symptoms of persisting pain, weight loss, jaundice or obstruction necessitates surgical intervention.

CONCLUSION

Pancreatic pseudocyst usually resolves spontaneously but may also be associated with various complications. Pseudocyst is the main late complication (4-6 weeks) of acute pancreatitis. Excessive alcohol consumption in men and, biliary etiology in female are the main factors incriminated in pancreatic pseudocyst. Positive diagnosis is suggested by the clinical picture but abdominal ultrasound and computed tomography are necessary for a correct pathological classification of Pseudocyst, with implications in the choice of therapeutic procedure. Most important complications are compression of the biliary or gastrointestinal tract & infection. These complications require immediate therapeutic intervention. Pancreatic pseudocysts which are uncomplicated, regardless of their size, benefit from conservative medical treatment until their spontaneous resolution. The results also suggest that many patients with pancreatic pseudocysts can be managed conservatively if presenting symptoms can be controlled Interventional treatment is indicated in symptomatic patients and those unresponsive to conservative treatment. The choice of drainage procedure depends on the pathological characteristics of pseudocyst and the therapeutic methods available. Guided percutaneous catheter drainage is indicated in case of pancreatic tail pseudocysts, with immature wall or infection, and patients with poor performance status.

Surgery is reserved for internal drainage of complicated pseudocysts. The introduction of a protocol for diagnosis and treatment contribute to the optimal choice of treatment option with a positive impact on perioperative morbidity and mortality.

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