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Dr. Abhishek Vats
M.S., General- Surgery, S.G.T. Medical College Hospital and Research Center, Chandu Budhera, Gurugram, Haryana, India

Dr. Karan Vats
General- Surgery, Deen Dayal Upadhyay Hospital, Delhi, India

Corresponding Author:
Dr. Abhishek Vats
M.S., General- Surgery, S.G.T. Medical College Hospital and Research Center, Chandu Budhera, Gurugram, Haryana, India

Study of clinical parameters and comparison of conservative management, percutaneous drainage and surgical management in pseudocyst of pancreas

Dr. Abhishek Vats and Dr. Karan Vats

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Abstract
Introduction: Pseudopancreatic cyst is a common complication of pancreatitis. This study is to know the various etiologies, relative frequency of pseudo pancreatic cyst in relation to age and sex and establish accurate diagnosis by various investigations and to study various modes of management like conservative, percutaneous drainage and surgery.
Methods: 30 patients were selected, who were diagnosed as pseudopancreatic cyst admitted in Prathima institute of medical sciences hospital during Dec. 2013 to Sept. 2015.
Results: Majority of patients belonged to the age group 31-50 years, which constituted 14(46.6%) patients in the study. M: F is 4:1. Most common etiological factor was alcohol; most common mode of presentation was pain abdomen and tenderness. Incidence of palpable mass was in 80% of the patients studied, but with the usage of USG and CT-Scan pseudocyst was detected in all the patients. Conservative treatment was useful in uncomplicated, acute pseudocyst till they regress or mature when surgery became necessary. The results of internal drainage were excellent, which was done in 53.3% of the patient in our study. The postoperative complication includes pain abdomen and wound infection seen in 9 patients of the study.

Keywords: clinical parameters, conservative management, percutaneous drainage, pancreas

Introduction

Pancreas is the most unforgiving organ in the human body, Hidden by its retroperitoneal location, the pancreas has, in the past been a somewhat mysterious organ. Pseudocyst of the pancreas was originally described by morgagni in 1761 [1]. Its successful surgical management was reported in 1882 by Bozeman, who excised a 10kg pseudocyst from the 41years old wife of a prominent Texan physician. The first drainage procedure was undertaken by gussenbauer in 1883, who marsupialized a pseudocyst to provide external drainage. In 1991 A.D. Egidio and M. Schein studied 83 patients of Pseudocysts. They classified pseudocyst according to the clinical and radiographic criteria [2]. Group I: Acute, post necrotic pseudocyst with normal pancreatic duct anatomy. Percutaneous drainage was curative in all those patients. Group II: Included post necrotic Pseudocysts with duct disease but not structured and duct-pseudocyst communication was present. Percutaneous drainage was possible but prolonged. Surgical internal drainage was successful in these patients. Group III: Patients had chronic retention pseudocyst. The duct was grossly diseased and structured and pseudocyst communication was present Operative procedure addressing the specific duct pathology was ideal in this group. Although surgical drainage remains the principal method of treating pseudocyst, percutaneous drainage of uncomplicated pseudocyst are now carried out under USG or CT guidance. Vincet *et al*. concluded that pseudocyst remains a common complication of pancreatitis and infected Pseudocysts are the major cause of postoperative morbidity. CT and USG is the mainstay of diagnosis, surgical therapy is safe but continue to be associated with significant rate of morbidity and recurrence [3]. Infact, Jonathan *et al.* in their study of pseudocyst of pancreas comprising 71 cases, performed internal drainage in 73% of the patients thereby coming to the conclusion that the treatment of choice is internal drainage via either Cystogastrostomy or cystojejunostomy [4]. In another study, where they performed percutaneous drainage of 101 cases of Pseudocyst out of which 51 were infected and 50 non infected, it was found that percutaneous drainage is an effective front line treatment for Pseudocysts [5]. However, in a study of 92 cases of pseudocyst where percutaneous

catheter drainage was compared with internal drainage in the management of pancreatic pseudocyst, neither percutaneous drainage nor internal drainage was found to be definitive and with either technique subsequent correction of the underlying pancreatic pathology may be necessary [6]. Since serious complications generally occur in cysts which are larger, these patients should be followed and the cyst reevaluated at 3-6 months with USG abdomen, the onset of symptoms, growth in size of the cyst, or development of a complication demanding intervention [7]. Nealon *et al*. pancreatic ductal anatomy provides a clear correlation with the failure and success of pseudocyst managed by percutaneous drainage as well as predicting the total length of drainage [8], which Although favorable results may be obtained with both percutaneous and endoscopic management of pancreatic pseudocyst, not all patients have pseudocyst that are amenable to this technique, furthermore, patients in whom this less invasive technique fail may require operative intervention for definitive treatment of their pseudocyst [9].

Methodology

Data was collected from patients who came to prathima institute of medical sciences, karimnagar, nagnoor for treatment. 30 cases of pseudopancreatic cysts were studied during the period of December 2013 to September 2015. Patients of both sex and all age groups diagnosed as pseudopancreatic cyst with help of diagnostic procedure like USG abdomen, Barium meal, if required CT scan Abdomen were included in the study. Patients with true cyst of pancreas, neoplastic cystic swelling of pancreas, Hydatid cyst of pancreas and Congenital cysts of pancreas were excluded from the study. The study included both adults and pediatric age group patients. Barium meal was done in some patients to know the compression effect on adjacent organs mainly stomach. Demographic data was collected including the age and sex of the patient, as well as etiology of pancreatitis. Every patient with a pseudocyst had serial USG studies to monitor the evaluation of the cystic collection. 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.

Results

Pseudopancreatic cyst was commonly seen in age group 31 – 50 years (46.66%) with mean of 40 years, probably due to alcohol use which is common in this age group (Table 1). There were 24(80%) male patients, 6(20%) female patients indicating that the disease is more common in male with a ratio of male to female is 4:1 (Table 2). The commonest symptom noted was upper abdominal pain which was present in all patients (100%), followed by nausea/vomiting which was present in 80% of the patients and abdominal distension (mass) present in 80% of the patients. The commonest sign was upper abdominal tenderness which was present in all the patients (100%), followed by mass per abdomen which was present in 80% of the patients (Table-3, Table-4). The commonest risk factor was alcohol which was present in 63.3% of the patients, followed by idiopathic in 20%, blunt trauma was present in 13.3% and Biliary disease in one patient (3.33%) (Table-5). Infection was the complication found in 13.3%% of patients followed by ascites, obstruction and rupture, 3.33% in each groups and there was no case of hemorrhage (Table-6). Ultrasound was the basic investigation done in all patients (100%). Barium meal was done in 26.6% of the patients with complaints suggestive of adjacent organ compression mainly stomach. CT-scan was done in 16.66% of patient where the extent and complication of the cyst could not be made out by ultrasound. Serum amylase was done in 20% of the patients of acute pancreatitis the results were positive in all these patients and ascitic amylase was done in 1(3.33%) of the patient and result was positive (Table 7).

*One cases: both distal pancreatectomy and cystojejunostomy. The commonest treatment was cystogastrostomy in 46.66% of the patients followed by conservative management in 20% of patients, external catheter drainage was done in 16.66% of the patients and percutaneous aspiration in 6.66% of the patients, distal pancreatectomy in 6.66% and cystojejunostomy was done in 6.66% of patients. 3.33% of the patients required both distal pancreatectomy and cystojejunostomy. (Table 8). Immediate postoperative pain was present in 16.66% of patients and wound infection in 13.3% (table-9).

Table 1: Age Distribution

Age in years	No. of patients	Percentage
≤ 10	3	10
11 – 30	9	30
31 – 50	14	46.66
51	4	13.33

Table 2: Sex Incidence

Sex	No. of patients	Percentage
Male	24	80
Female	6	20

Table 3: Symptoms

Symptoms and signs	No. of patients	Percentage
Abdominal Pain	30	100.0
Nausea/vomiting	24	80.0
Abdominal distension	24	80.0
Anorexia	7	23.3
Fever	4	13.3
Weight loss	4	13.3
Jaundice	1	3.3

Table 4: Signs

Signs	No. of cases	percentage
Mass abdomen	24	80
Ascites	1	3.3
Ileus/intestinal obstruction	1	3.3
Abdominal tenderness	30	100

Table 5: Risk Factors

Risk factors	No. of cases	percentage
Alcohol	19	63.33
Blunt trauma	4	13.3
Biliary disease	1	3.33
Idiopathic	6	20.0

Table 6: Complications

Complications	No. of cases	percentage
Infection	4	13.3
Ascites	1	3.33
Obstruction	1	3.33
Rupture	1	3.33
Hemorrhage	-	-

Table 7: Investigations

Investigation findings	No. of cases	Percentage
Increased serum amylase	6	20
Increased ascitic amylase	1	3.33
Barium meal (+ve)	8	26.6
USG (+ve)	30	100
CT scan (+ve)	5	16.66

Table 8: Treatment

Treatment	No. of cases	percentage
Conservative	6	20.0
Percutaneous aspiration	2	6.66
Distal pancreatectomy*	2	6.66
External catheter drainage	5	16.66
Cystogastrostomy	14	46.66
Cystojejunostomy *	2	6.66

Table 9: Immediate Postoperative Complications

Complications	No. of cases	Percentage
Wound infection	4	13.3
Pain	5	16.66

Discussion

30 cases of pseudopancreatic cyst were studied. Out of which 4 were of pediatric age group and 26 adult groups. 24 patients were male and 6 patients were female. The incidence of pseudopancreatic cyst predominated in males; this is due to the fact that alcohol consumption is common in males compared to females. In our study the common age group was 31-50 years (46.66%) cases, the commonest symptom patient presented with was pain abdomen and mass per abdomen. The commonest risk factor was alcohol. The commonest complication was infection followed by ascites. Treatment commonly employed, were internal drainage in 53.3%. Conservative management was done in 20% of the patients and percutaneous aspiration in 6.66% of patients. Immediate postoperative complication in our series includes, pain abdomen present in 16.6% of the patients and wound infection in 13.3% of the patients. In our study most of the patients were followed up to periods varying from 3-6 months. There were no complications except recurrence in 2 patients, who refused admission. 3 of the patients were lost to follow up. our findings were consistent with the Tuula kiviluoto *et al.* and V. Ustoff *et al*. comparative analysis of the same has been shown in the table below (Table 10- 13).

Table 10: Clinical Features

Clinical feature	Tuula kiviluoto *et al.*	V. Ustoff *et al.*	Present study
Pain abdomen	67.67%	100%	100%
Mass per abdomen	32.35%	70%	80%

Table 11: Complications

Complications	V. Ustoff *et al.*	Present study
Infection	8.03%	13.33%
Ascitis	1.7%	3.33%

Table 12: Treatment

Treatment	Tuula kiviluoto *et al.*	V. Ustoff *et al.*	Present study
Internal drainage	18%	3%	53.3%
External drainage	38%	40%	16.6%
Pancreatic resection	3%	50%	6.66%

Table 13: Postoperative Complications

	Tuula kiviluoto *et al.*	V. Ustoff *et al.*	Present study
Pain abdomen	29%	10%	16.6%
Wound infection	2%	4%	13.3%

Conclusions

Maximum incidence is in the age group of 31-50 years. Abdomen pain and tenderness are the most common presenting signs and symptoms in 100%. Incidence of mass palpable was in 80% but with usage of USG and CT-Scan pseudocyst was detected in all the patients. Uncommon presentations were jaundice, ascites and fever. Fever was present in 4 patients, in infected pseudocyst. The most common etiological factor was alcohol, which was present in 63.6%. This is followed by idiopathic group which constitutes 20%, blunt trauma constitutes 13.3% followed by biliary disease causing 3.33%. USG was the best investigating method for the diagnosis of pseudocyst. Barium meal and CT-scan was required in selected cases. Infection was a common complication present in 13.3% of patients. Acute Pseudocysts were treated conservatively, infected cysts and ruptured cyst required external drainage. Percutaneous aspiration resulted in recurrence in our cases. Anastomoses of the cyst to the nearby bowels, either cystogastrostomy or cystojejunostomy was done in the majority of cases with good results. Most common post-operative complications are wound infection and pain abdomen. Total duration of hospital stay ranges from 10 to 15 days. Follow up done for 3 to 6 months, 3 cases lost follow of. Recurrence seen in two cases, who refused admission.

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