

Original Research Paper

## Acute Necrotising Pancreatitis: Clinical evaluation, Management and outcome in admitted patients at GSL Medical College, Rajahmundry

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### **ABSTRACT:**

**Background:** Acute Necrotizing pancreatitis (ANP) is the most lethal disease with poor prognosis, infected necrosis with a mortality rate of 30-39%, which is the major cause of death. The most widely used modality of treatment for infected necrosis has been open surgical necrosectomy, but it with high morbidity (34-95%) and mortality (11-39%). **Objective:** To study the clinical presentation, management and outcome amongst admitted patients of Acute Necrotising Pancreatitis. **Methodology:** The present hospital-based Prospective study was carried out at Department of General Surgery, GSL Medical College & Hospital, Rajahmundry involving 50 patients of acute necrotizing pancreatitis during the period of October 1ST, 2018, to September 30th, 2019. **Results:** Majority of acute necrotizing pancreatitis patients were belonging to the 31-40 years age group (46%). Majority of the patients had pain in abdomen i.e. 96%. Ethanol (alcohol) was the most common etiology of acute necrotizing pancreatitis (50%), majority of the cases in our study had a CTSI score of 10 (54%). 33 cases (66%) were managed conservatively. **Conclusion:** Our study demonstrates that the most common presentation of acute necrotizing pancreatitis is pain abdomen, with male predominance in the 30th decade of life. Ethanol (alcohol) was the most common etiology of acute necrotizing pancreatitis (50%). Conservative treatment of ANP with sterile necrosis is safe and effective.

**Key words:** acute necrotizing pancreatitis, clinical profile, treatment, management

### **INTRODUCTION:**

Acute necrotizing pancreatitis is the most severe form of acute pancreatitis. It is defined as necrosis of the pancreatic parenchyma with or without necrosis of the peripancreatic tissue. Acute pancreatitis is responsible for almost 3 lakh admissions in the United States each year. Necrotizing pancreatitis occurs as the most common complication in 30% of patients with acute pancreatitis [1]. It is associated with high morbidity rates ranging from 34% to 95% and mortality ranging from 2% to 39% [2]. Acute Necrotizing pancreatitis (ANP) is the most lethal disease with poor prognosis, infected necrosis with a mortality rate of 30-39%, which is the major cause of death. Sterile necrosis can be treated conservatively. Intervention is required for infected pancreatic necrosis and patients with symptomatic sterile necrosis (gastric or duodenal outlet or biliary obstruction) [3]. The most widely used modality of treatment for infected necrosis has been open surgical necrosectomy, but it with high morbidity

(34-95%) and mortality (11-39%). In the last two decades, ANP. the treatment has significantly evolved from open surgery towards minimally invasive techniques (percutaneous catheter drainage, per-oral endoscopic, laparoscopy, and rigid retroperitoneal videoscapy) [3]. The three most common causes of AP are gallstone/biliary related, alcohol related, and idiopathic. These three causes account for the majority of cases of AP [4,5,6,7,8]. Biliary pathology was estimated to be 28%-38% of the cases while alcohol accounted for 19%-41% of the cases [7,8,9].

### **Objective:**

To study the clinical presentation, management and outcome amongst admitted patients of Acute Necrotising Pancreatitis.

### **MATERIAL AND METHODS:**

Study setting: Department of General Surgery, GSL Medical College & Hospital, Rajahmundry.

**Study population:** All inpatients admitted in G S L Medical College & General Hospital with the

diagnosis of pancreatitis and those of which, with the clinical/biochemical and imaging evidence of acute necrotizing pancreatitis was included in this study.

**Study design:** A Hospital-based Prospective study.

**Sample size:** All inpatients who presented with clinical/biochemical and imaging evidence of acute necrotizing pancreatitis from October 1st, 2018 to SEPTEMBER 30TH, 2019, and those satisfying the inclusion/exclusion criteria.

**Study period:** October 1ST, 2018, to September 30th, 2019.

**Inclusion criteria:** All inpatients admitting to G S L Medical College & General Hospital with the clinical/biochemical and imaging evidence of acute necrotizing pancreatitis during the study period.

**Exclusion criteria:**

1. Patients have drug-induced pancreatitis.
2. Pancreatitis complicating pregnancy.
3. Patients with a history of previous abdominal surgery.
4. Patients who refused to give consent for the study.

**Method of data collection:**

All patients who presented with clinical/biochemical and imaging evidence of acute necrotizing pancreatitis satisfying the above criteria were included in the study after taking informed consent. A detailed history and necessary investigations were undertaken. Relevant history, including symptoms and signs at presentation, past history, examination findings noted. CECT abdomen was done 24 /48 hours of admission to diagnose the severity of pancreatitis as per the CT severity index. Aspiration cytology/gram staining was done from Lesser sac collection /necrosis. Sterile necrosis was managed conservatively if not responded to, repeat CT scan, and the patient was sent to surgery. Infected necrosis was subjected to surgical intervention. The radiological, biochemical, pathological data was viewed prospectively. The study subjects were followed after one month and six months after discharge. The patients were investigated for serum amylase and USG abdomen/C.E.C.T. abdomen during the follow-up period.

**Statistical analysis plan:**

Data was collected and entered in MS excel sheet. It was then analysed using SPSS 22.0 version. Qualitative variables were expressed as percentages and quantitative variables were expressed as mean and standard deviation.

**RESULTS:**

Majority of acute necrotizing pancreatitis patients were belonging to the 31-40 years age group (46%). with

only (5%) above 50 years of age. The age range was  $37.92 \pm 9.9$  years. The minimum age was 16 years, and the maximum age was 60 years (Table 1) Majority of the patients had pain in abdomen i.e. 96% followed by vomiting in 52% and fever in 34% as presenting symptom (Table 2) In our present study of 50 cases, 25 cases were due to ethanol (alcohol), i.e., 50%, the most common etiology of acute necrotizing pancreatitis, followed by gallstones in 11 cases, i.e., 22%, and idiopathic in 10 cases, i.e., 20%. followed by hypercalcemia (2%), trauma (1%) and hyperlipidaemia (1%) (Table 3)

Majority of the cases in our study had a CTSI score of 10 (54%) in 27 cases and followed by score-8(22%) in 11 cases. (Table 4) Extent of necrosis revealed that out of 50 cases, 23 cases (43%) had the extent of necrosis <30%, 30-50% in 24% of cases and >50% in 30% cases (Table 5) Out of 50 patients, 32 cases (64%) had sterile necrosis (non- infective). Eighteen cases (36%) had infective necrosis. Out of which, the most common organism isolated was Staphylococcus Aureus (18%), followed by Candida albicans (8%) and Enterococcus (4%) (Table 6) In our present study, out of 50 patients, 33 cases (66%) were managed conservatively in the initial management. Eleven cases (22%) underwent laparoscopic necrosectomy. Six cases (12%) underwent percutaneous pigtail drainage (Table 7) In our study, 24 cases (48%) who were initially managed conservatively continued with the same treatment in the subsequent management. Five cases that were initially handled conservatively underwent Laparoscopic necrosectomy. 4 cases who underwent percutaneous pigtail drainage initially underwent laparoscopic necrosectomy. One case, which was initially managed conservatively, underwent percutaneous pigtail drainage. One case which was initially managed conservatively underwent open necrosectomy. One case, which was initially managed with laparoscopic necrosectomy, had a recurrence and underwent open necrosectomy distal pancreatectomy + splenectomy. 4 cases who were being managed conservatively died due to various complications. The mortality rate of this study is 8%. (Table 8)

**DISCUSSION:**

In present study, majority of acute necrotizing pancreatitis patients were belonging to the 31-40 years age group (46%). with only (5%) above 50 years of age. The age range was  $37.92 \pm 9.9$  years. The minimum age was 16 years, and the maximum age was 60 years (Table 1) Similar type of results also noted in other studies conducted in India and at international

level, in 2018 study by Jadhav SC et al [10] on 95 patients indicated 40% of patients from age group of 31 to 40 years, Chand P et al [11] in 2017 (n=30) had 40% of patients in age group of 26 to 40 years, study by Suthar K et al [12] in 2018 on 250 patients had 31 to 40 years most common age group. In similar study by Krishnan K et al [13] in 2015 on 110 patients had 21 to 40 years as most common age group in 52%. In study by Chauhan Y et al [14] on 50 patients showed 44% of patients were in age group of 41 to 60 years. In study by Kateb AY et al [15] 2016 had 54% of patients in age group of 21 to 40 years. In our study, majority of the patients had pain in abdomen i.e. 96% followed by vomiting in 52% and fever in 34% as presenting symptom (Table 2) Jadhav SC et al [10] reported pain in abdomen in 100% cases, nausea and vomiting in 83% and fever in 40% cases. Chand P et al [11] reported pain in abdomen in 100% cases, nausea and vomiting in 83% and fever in 40% cases. Chauhan Y et al [14] reported pain in abdomen in 100% cases, nausea and vomiting in 42% and fever in 38% cases. Kateb AY et al [15] reported pain in abdomen in 94% cases, nausea and vomiting in 88% and fever in 12% cases. In our present study of 50 cases, 25 cases were due to ethanol (alcohol), i.e., 50%, the most common etiology of acute necrotizing pancreatitis, followed by gallstones in 11 cases, i.e., 22%, and idiopathic in 10 cases, i.e., 20%. followed by hypercalcemia (2%), trauma (1%) and hyperlipidaemia (1%) (Table 3) Alcohol was the most frequent cause of Acute Pancreatitis seen in 25 (50%) patients, 11 (22%) patients had GB/CBD calculi, 2 (4%) patients had hypercalcemia, and 20% were idiopathic. Similar results found in a study by Lankish et al [16]. Jadhav SC et al [10] reported most common cause of AP noted as gall stones in 41 patients (41%) followed by alcohol consumption in 38%. Similar results noted in studies by Bhimwal RK et al [17] 2017 (n=50) in which gall stones contribute 50% of patients and alcohol consumption 37.5% as cause for AP along with these two causative factors trauma and hypertriglyceridemia contribute 2.5% and in this study 8% and 2% respectively. Extent of necrosis revealed that out of 50 cases, 23 cases (43%) had the extent of necrosis <30%, 30-50% in 24% of cases and >50% in 30% cases (Table 5) Similarly, in a study by Buchler MW et al [18] 80% of infected cases' extent of necrosis was >50%, and in 56% of sterile cases, the extent of necrosis was <30%. Several authors consider extended necrosis (i.e., necrosis of .50% of the pancreas) to be a risk factor for infection. [19,20,21,22] In a study by

Buchler MW et al [18] they observed in follow-up that persistent pancreatic fistula (n=3), recurrent pancreatitis (n=1), pancreatic pseudocyst (n=1), pancreatic abscess (n=1), and chronic pain (n=1). The patient with the abscess was successfully treated by a percutaneous drainage procedure. Two of the patients readmitted because of a fistula were managed conservatively; one patient was treated surgically. The pancreatic pseudocyst was surgically drained with a cysto- jejunostomy. All the patients recovered and were discharged home.

### **CONCLUSION:**

Our study demonstrates that the most common presentation of acute necrotizing pancreatitis is pain abdomen, with male predominance in the 30th decade of life. Conservative treatment of ANP with sterile necrosis is safe and effective. The management of infected necrosis is continuously evolving from the early open necrosectomy to delayed intervention. And now, minimally invasive techniques are becoming the first-line management. ANP needs a multimodal stepwise approach like conservative, pigtail drainage, necrosectomy, and additional surgery like the cysto-gastro/jejunostomy. Laparoscopic pancreatic necrosectomy is a favourable and safe approach with all the benefits of minimally invasive surgery. There were no postoperative complications related to the procedure itself; instead, it gives better exposure of the lesser sac, left paracolic gutter, and head of the pancreas overcoming the retroperitoneal approach's main limitation in not debriding the necrotic tissue completely. So laparoscopic pancreatic necrosectomy is a safe approach in patients with ANP.

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### Tables and figures

**Table 1: Distribution according to age group (n-50)**

Age	Frequency	Percentage
21-30	10	20.0
31-40	23	46.0
41-50	12	24.0
51-60	5	10.0
Gender		
Female	8	16.0
Male	42	84.0

**Table 2: Distribution according to symptoms**

	Frequency	Percentage
Pain in abdomen	48	96.0
Vomiting	26	52.0
Fever	17	34.0

**Table 3: Distribution according to etiology**

ETIOLOGY	Frequency	Percentage
Ethanol	25	50.0
Gallstones	11	22.0
Hypercalcemia	2	4.0
Hyperlipidemia	1	2.0
Idiopathic	10	20.0
Trauma	1	2.0
Total	50	100.0

**Table 4: Distribution according to CT severity index**

CT SEVERITY INDEX (CTSI)	Frequency	Percentage
4	1	2.0
5	1	2.0
6	3	6.0
7	4	8.0
8	11	22.0
9	3	6.0
10	27	54.0
Total	50	100.0

**Table 5: Distribution according to extent of necrosis**

EXTENT OF NECROSIS	Frequency	Percentage
<30%	23	46.0
30%-50%	12	24.0
>50%	15	30.0
Total	50	100.0

**Table 6: Distribution according to bacteriological findings**

Infective	Frequency	Percentage
C. albicans	4	8.0
E. Coli.	1	2.0
Enterococcus	2	4.0
Klebsiella	1	2.0
S. Aureus	9	18.0
Streptococcus	1	2.0
Sterile	32	64.0
Total	50	100.0

**Table 7: Distribution according to management strategies**

Initial treatment	Frequency	Percentage
Conservative management	33	66.0
Laparoscopic necrosectomy	11	22.0
Percutaneous pigtail drainage	6	12.0
Total	50	100.0

**Table 8: Distribution according to outcome**

FOLLOW-UP OBSERVATIONS	Frequency	Percentage
Death	4	8.0
Pancreatic abscess	2	4.0
Pseudoaneurysm	1	2.0
Pseudocyst	5	10.0
Recovered	26	52.0
Recurrent pancreatitis	7	14.0
Splenic vein thrombosis	1	2.0
Walled off necrosis	4	8.0
Total	50	100.0