

Original Research Article

CLINICAL PROFILE, AETIOLOGICAL SPECTRUM, AND OUTCOME OF ACUTE PANCREATITIS

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ABSTRACT

Background: Acute pancreatitis is a common cause of acute abdominal pain encountered in emergency departments, with a clinical spectrum ranging from a self-limiting illness to a severe, life-threatening disease. Regional data on its aetiological profile and outcomes remain limited in South Indian tertiary care settings.

Materials and Methods: This cross-sectional observational study enrolled 50 patients admitted with acute pancreatitis to the Department of General Medicine, Government General Hospital, Vijayawada, from March 2021 to March 2022. Diagnosis, aetiological work-up, and severity stratification (mild versus severe, based on organ dysfunction and local complications) followed standard clinical, biochemical, and radiological criteria. Clinical features, laboratory and imaging findings, complications, length of stay, and outcome were recorded and analysed descriptively.

Results: The mean age at presentation was 35.6 ± 8.8 years, with a marked male predominance (92%). Alcohol use was the leading aetiology (88%), followed by biliary disease (8%). Abdominal pain (100%) and nausea/vomiting (92%) were the most frequent symptoms. Serum lipase was elevated more often (96%) than serum amylase (90%), while abdominal ultrasonography was diagnostic in 68% of patients. Most patients (88%) had mild disease; 12% met criteria for severe disease. Pseudocyst (12%) and pancreatic necrosis (8%) were the most common complications. Overall mortality was 6%, occurring exclusively among patients with severe disease.

Conclusion: Acute pancreatitis in this cohort was predominantly alcohol-related, affected young men aged 31–40 years, and followed a mild, self-limiting course in most patients. Early clinical and biochemical assessment, supplemented selectively by imaging, supported conservative management in most cases, with intervention required in a small minority.

Keywords: Acute pancreatitis; alcohol; aetiology; severity; outcome; India

INTRODUCTION

Acute pancreatitis is an inflammatory disorder of the pancreas that frequently presents as a surgical or medical emergency, and its incidence continues to rise globally. The clinical course is highly variable: most patients recover fully within days with supportive treatment, whereas an estimated 10–30% progress to severe disease marked by pancreatic and peripancreatic necrosis, systemic organ dysfunction, and appreciable mortality.

The aetiological spectrum of acute pancreatitis varies substantially by region. Gallstones and alcohol together account for the majority of cases worldwide, with alcohol predominating in several Indian series, in contrast to Western cohorts where biliary disease is more common. A smaller proportion of cases remain idiopathic despite thorough evaluation, and rarer causes include hypertriglyceridaemia, drug exposure, autoimmune disease, and post-ERCP injury.

Diagnosis rests on a combination of characteristic abdominal pain, elevation of serum amylase or lipase to at least three times the upper limit of normal, and,

where required, confirmatory imaging. Serum lipase is generally regarded as more sensitive and remains elevated for longer than amylase, while abdominal ultrasonography is useful chiefly for identifying a biliary aetiology and is often limited by overlying bowel gas. Contrast-enhanced computed tomography is reserved for diagnostic uncertainty, suspected necrosis, or failure to improve. Severity is conventionally classified as mild or severe according to the presence and duration of organ failure and local complications such as necrosis, abscess, or pseudocyst, and this classification guides the intensity of monitoring and treatment.

Despite the burden of this disease in Indian clinical practice, prospectively characterised regional data remain relatively sparse. This study describes the demographic profile, clinical presentation, aetiology, diagnostic yield of routine investigations, severity distribution, complications, and outcome of acute pancreatitis in patients presenting to Government General Hospital, Vijayawada, Andhra Pradesh, India, and compares these findings with previously published series.

MATERIALS AND METHODS

Study design and setting: This was a hospital-based, cross-sectional observational study conducted in the Department of General Medicine, Siddhartha Medical College and Government General Hospital, Vijayawada, Andhra Pradesh, India. Consecutive patients admitted with a diagnosis of acute pancreatitis were enrolled and followed prospectively for the duration of their hospital stay. The study was carried out from March 2021 to March 2022.

Study population: Fifty patients meeting the diagnostic criteria for acute pancreatitis during the study period constituted the study cohort. Inclusion criteria were: (i) a clinical diagnosis of acute pancreatitis established by standard clinical, biochemical, and/or radiological criteria, in patients admitted to the medical wards; and (ii) age greater than 12 years. Patients with chronic pancreatitis or acute exacerbation of chronic pancreatitis, and those younger than 12 years, were excluded.

Data collection and clinical work-up: A structured clinical history was obtained, and a clinical examination was performed for every patient at admission, followed by a standardised sequence of evaluation: (i) confirmation of the diagnosis of pancreatitis and exclusion of other causes of acute

abdominal pain; (ii) identification of a biliary aetiology and exclusion of other causes; (iii) assessment of disease severity; and (iv) surveillance for complications. Routine investigations included a complete haemogram, blood urea, serum calcium, and serum amylase, supplemented by serum lipase, random blood sugar, aspartate aminotransferase, and haematocrit where clinically indicated. Abdominal ultrasonography was performed in all patients to support the diagnosis, evaluate the biliary tract, and screen for local complications. Contrast-enhanced computed tomography of the abdomen was reserved for patients with diagnostic uncertainty, a non-confirmatory ultrasound, or failure to improve clinically beyond 72 hours.

Severity classification and management: Patients were classified as having mild acute pancreatitis when the illness was associated with no more than transient organ dysfunction (resolving within 48 hours), no local complications, and uneventful recovery. Severe acute pancreatitis was defined by organ failure persisting beyond 48 hours and/or local complications such as necrosis, abscess, or pseudocyst. Management prioritised early fluid resuscitation, analgesia, and nutritional support, with nasogastric decompression for significant vomiting or ileus, early enteral feeding, and parenteral nutrition when enteral feeds were not tolerated after five days. Prophylactic antibiotics were used selectively in severe disease or in patients developing complications. Clinical symptoms and signs, laboratory and imaging findings, complications, interventions, duration of hospital stay, and outcome were recorded for every patient.

Statistical analysis: Data were tabulated and analysed descriptively. Categorical variables are presented as frequencies and percentages, and continuous variables as mean $\pm$ standard deviation. No inferential statistical testing was performed, consistent with the descriptive design of the study.

RESULTS

Fifty patients admitted with acute pancreatitis were evaluated during the study period. Forty-six patients (92%) were male and four (8%) were female. The mean age at presentation was 35.6 ± 8.8 years, with the youngest patient aged 17 years and the eldest 60 years. The largest age group was 31–40 years, accounting for 60% of the cohort [Table 1].

Table 1: Age and sex distribution (N = 50)

Age group (years)	Male, n (%)*	Female, n (%)*	Total, n	Total, %
13–20	1 (2.2)	0 (0.0)	1	2.0
21–30	8 (17.4)	1 (2.0)	9	18.0
31–40	28 (60.9)	2 (5.0)	30	60.0
41–50	5 (10.9)	1 (2.0)	6	12.0
51–60	4 (8.7)	0 (0.0)	4	8.0
Total	46 (100)	4 (100)	50	100.0

*Percentages within each sex column are calculated against the respective column total (males, n = 46; females, n = 4).

Abdominal pain was present in all 50 patients (100%), typically epigastric with radiation to the back. Nausea or vomiting accompanied the pain in

92% of patients. Abdominal distension, fever, and jaundice were less frequent [Table 2].

Table 2: Presenting symptoms (N = 50)

Symptom	Number of patients	Percentage
Abdominal pain	50	100
Nausea/vomiting	46	92
Abdominal distension	14	28
Fever	11	22
Jaundice	4	8

Epigastric tenderness was found in every patient. A palpable abdominal mass, corresponding to a

pseudocyst, was noted in 12% of patients, and 10% presented in shock [Table 3].

Table 3: Clinical signs (N = 50)

Sign	Number of patients	Percentage
Epigastric tenderness	50	100
Palpable abdominal mass	6	12
Shock	5	10
Haematemesis	3	6
Ascites	2	4

Alcohol use was by far the leading aetiology, identified in 88% of patients, followed by biliary disease in 8%. Idiopathic pancreatitis and other rare

causes (drug-induced and autoimmune) each accounted for a small residual proportion [Table 4].

Table 4: Aetiological factors (N = 50)

Aetiology	Number of patients	Percentage
Alcohol	44	88
Biliary	4	8
Idiopathic	1	2
Others (drug-induced/autoimmune)	1	2

Among biochemical parameters, serum lipase was elevated above three times the upper reference limit in 96% of patients and serum amylase in 90%, with

lipase elevated more often in this cohort. Hypocalcaemia was noted in 28% of patients and hyperglycaemia in 24% [Table 5].

Table 5: Laboratory investigations (N = 50)

Investigation	Patients with abnormal value, n	Percentage
Random blood sugar > 180 mg/dl	12	24
Blood urea nitrogen > 45 mg/dl	8	16
Serum amylase > 240 U/L	45	90
Serum lipase > 150 U/L	48	96
Total leukocyte count > 15,000/mm ³	7	14
Serum AST > 200 U/L	6	12
Haematocrit > 44%	12	24
Serum calcium < 8 mg/dl	14	28

Abdominal ultrasonography was diagnostic for pancreatitis and/or its biliary aetiology in 68% of patients; the remaining examinations were non-

diagnostic, largely due to overlying bowel gas, and were further evaluated with contrast-enhanced computed tomography when clinically indicated.

Table 6: Diagnostic yield of abdominal ultrasonography (N = 50)

USG finding	Number of patients	Percentage
Diagnostic	34	68
Non-diagnostic	16	32

Applying standard severity criteria, 88% of patients had mild disease and 12% had severe disease [Table 7].

Table 7: Severity of acute pancreatitis (N = 50)

Severity	Number of patients	Percentage
Mild	44	88
Severe	6	12

In the full cohort, pseudocyst formation was the most frequent complication (12%), followed by pancreatic necrosis (8%), gastrointestinal bleeding (6%), and organ failure (6%). All complications were managed conservatively with the exception of one patient with

bilateral pleural effusion, who required bilateral intercostal drainage; the patient with superior mesenteric vein thrombosis was discharged against medical advice [Table 8].

Table 8: Complications (N = 50)

Complication	Number of patients	Percentage
Pseudocyst	6	12
Pancreatic necrosis	4	8
Gastrointestinal bleeding	3	6
Organ failure	3	6
Ascites	2	4
Pleural effusion	1	2
Superior mesenteric vein thrombosis	1	2

The mean duration of hospital stay was 5.2 days for patients with mild disease and 16.7 days for those with severe disease. Three patients (6%) died during the study period: one from gastrointestinal bleeding and two from multiorgan failure. All three had severe disease at presentation.

DISCUSSION

Acute pancreatitis remains a frequently encountered cause of acute abdominal pain in medical emergency practice, and accurate clinical, biochemical, and radiological assessment continues to underpin timely diagnosis and severity stratification. The present cohort adds regional data from a South Indian tertiary care centre to the existing literature and is broadly consistent with previously reported series, with some notable differences discussed below.

Age and sex distribution: The mean age at presentation in this cohort, 35.6 years, was comparable to the series reported by Kashid et al.,^[1] and considerably lower than the mean ages reported in cohorts from Western centres, such as those of Pupelis et al. and Büchler et al., where the mean age at presentation was in the fifth decade.^[2,3] This difference is most plausibly explained by the predominance of alcohol as the aetiological agent in the present study, since alcohol-related pancreatitis characteristically affects a younger population than biliary pancreatitis.

A pronounced male predominance was observed, with men comprising 92% of the cohort, exceeding the proportions reported by Kashid et al. (70.9%), Choudhuri et al. (66.6%), Pupelis et al. (73.7%), and Büchler et al. (61%).^[1,2,3,4] This is again consistent with alcohol as the dominant aetiology, which disproportionately affects men in this population.

Aetiology: Alcohol was identified as the aetiological factor in 88% of patients, a proportion that exceeds most comparator series, including that of Sand et al. from Finland, where alcohol accounted for 70% of cases, and is considerably higher than the biliary-predominant pattern reported from several Western centres.^[5] This finding is consistent with alcohol being the principal cause of acute pancreatitis in

Indian clinical practice, in contrast to the biliary predominance more typical of Western cohorts.

Clinical features and biochemical diagnosis: Abdominal pain was universal, and nausea or vomiting was reported by most patients. These symptoms were more frequent in this cohort than those reported by Kashid et al., who documented abdominal pain in 92.7% and vomiting in 60% of patients.^[1] Serum lipase was elevated in a higher proportion of patients (96%) than serum amylase (90%) in this study, a pattern in keeping with the wider literature; Thomson et al. similarly reported high sensitivity for lipase-based testing, while Kashid et al. reported a considerably lower amylase sensitivity of 54.7%.^[6]

Imaging: Abdominal ultrasonography was diagnostic in 68% of patients, comparable to the 66.7% reported by Kashid et al. and somewhat lower than the 86% reported by Ammori et al., a difference that may reflect differences in interference from bowel gas and in operator experience across centres.^[17]

Severity and complications: The proportion of patients with mild disease in this cohort (88%) was higher than in other published series.^[1,2,4] As this centre frequently receives patients after initial stabilisation elsewhere, referral bias towards less severe presentations is a plausible explanation. Consistent with this, rates of organ failure (6%) and pancreatic necrosis (8%) in this cohort were lower than in comparator series, whereas the frequency of gastrointestinal bleeding (6%) was broadly similar.^[1,2,4]

Duration of stay and mortality: The mean hospital stay of 5.2 days for mild disease and 16.7 days for severe disease was comparable to previously reported figures.^[12] Overall mortality in this cohort was 6%, in line with the mortality rates of 5.4–6.5% reported by Kashid et al. and Choudhuri et al., and the 4.4% reported by Büchler et al.,^[1,2,4] All deaths in this series occurred among patients with severe disease, underscoring the prognostic importance of early severity stratification.

Limitations: This study was conducted at a single tertiary care centre with a modest sample size and a descriptive design, without a comparison group or long-term follow-up after discharge. The pronounced

referral bias towards previously stabilised patients may limit generalisability to unselected populations presenting directly to primary care. Larger, multicentre prospective studies would help validate these findings across broader Indian populations.

CONCLUSION

In this South Indian tertiary care cohort, acute pancreatitis predominantly affected men aged 31–40 years and was overwhelmingly attributable to alcohol use. The disease followed a mild, self-limiting course in most patients and was diagnosed through clinical assessment supported by biochemical testing — with serum lipase outperforming amylase — and selective imaging. Conservative management sufficed for most patients; one patient required intercostal drainage for bilateral pleural effusion. Early recognition of severe disease can guide monitoring and treatment.

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