

Pancreatitis in Children: Experience at a Tertiary Care Centre

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ABSTRACT

Introduction: The data concerning pancreatitis in children is not very voluminous. The present study highlights the demographic profile, clinical presentations, etiologies and laboratory findings in pediatric pancreatitis at a teaching hospital in Bareilly.

Material and Method: We retrospectively reviewed 19 cases of pancreatitis in children admitted from July 2011 to July 2015 at our institution.

Results: Total of 19 patients were diagnosed to have pancreatitis. Systemic infection was most common cause of pancreatitis 3/19 (15.78 %) followed by trauma and drugs. Acute abdomen was most common presentation. Serum amylase and lipases was raised in 17/19 (89.4%) and 11/15 (73.3%) patients respectively. USG abdomen and CTscan abdomen have good diagnostic sensitivity and specificity.

Conclusion: Pancreatitis in children is not so uncommon. Etiology could be established in only 58% of children. Systemic complications and pseudocyst are common complications. Patients presenting with acute abdomen should be screened for pancreatitis as well.

Keywords: Pancreatitis, trauma and drugs, Systemic complications and pseudocyst

INTRODUCTION

Though there is a wealth of literature around pancreatitis in adults, but there is a paucity of data regarding pancreatitis in children. From our country mainly case reports and few original articles of pancreatic diseases are available.¹⁻⁵ For adults, alcoholism and cholelithiasis are the most common causes of acute pancreatitis. In western data acute pancreatitis in children occurred mostly due to infections, trauma, pancreaticobiliary tree anomalies, drug abuse, or systemic diseases.⁶ The present study endeavors to highlight the demographic profile, clinical presentations, etiologies and laboratory findings in pediatric pancreatitis at a teaching hospital in Bareilly. We retrospectively reviewed 19 cases of pancreatitis in children occurring from July 2011 to July 2015 at our institution. Special emphasis was laid on highlighting the underlying causes, presenting features, clinical complications, and outcomes of these patients.

MATERIAL AND METHODS

Retrospective data was collected from medical records for all children admitted to department of Pediatrics who were

diagnosed having pancreatitis between the years 2011-2015. Consent was not obtained as it was a retrospective study and ethical clearance was obtained from the institute ethics committee.

The diagnosis of acute pancreatitis is typically based on results of physical examinations, laboratory testing, and imaging studies. Criteria for the diagnosis of pancreatitis in this study were: Children who presented with abdominal pain with or without fever, features suggestive of acute abdomen and laboratory confirmation with one or more of the following: raised serum amylase >200 U/L, elevated serum lipase level (> 165U/L) in the absence of other possible contributing factors or evidence of pancreatic inflammation from ultrasonography (USG) or computed tomographic (CT) imaging.

In this study, USG evidence of pancreatic inflammation included blurred outline, enlargement and heterogenous echogenicity of the pancreas. The typical features of pancreatitis found on CT scan included diffuse enlargement of pancreas, hemorrhagic necrosis and pseudocyst.^{7,8}

Patients were managed conservatively. Those patients who required surgical intervention were not included in study. Conservative management included bowel rest, nasogastric decompression, and intravenous fluid administration. Morbidity included pseudocyst formation or relapse. Relapse was defined when the symptoms recurred after discharge and the diagnostic criteria were fulfilled again.

STATISTICAL ANALYSIS

Descriptive statistics were computed for baseline demographic, clinical and laboratory features and frequency tables were generated.

RESULTS

During the study period 19 cases of pancreatitis were admitted.

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ted and included in study. Demographic clinical profiles and investigation of these cases have been shown in table 1.

A higher incidence was observed in males 12/19 (63.15%) as compared to females. Patients between ages of 3-16 yrs were mainly affected, median age being 9.94 yrs.

Most common presenting complaint was abdominal pain present in all patients followed by nausea and vomiting 18/19 (94.7%). Vague abdominal distension and lump was found in 6/19 (31.5%). Laboratory evidence of pancreatitis in the form of raised serum amylase was found in 17/19 (89.4%), where as raised serum lipase was found in 11/15 (73.3%). USG evidence of pancreatitis was found in 12/19 (63.15%) patients. CT scan was done in 2 patients, both of them had finding suggestive of pancreatitis.

All patients met the criteria of pancreatitis. Common etiology of patients with pancreatitis is given in Table 2. Out of 19 patients 3 (15.78%) had associated systemic infection. One patient had mump, one patient had septicemia with basal pneumonitis with mild ascites on ultrasonography and one patient had associated septicemia with peritonitis and acute respiratory distress which later on expired during treatment course. Blunt abdominal trauma was found in 2/19 (10.5%) patients. None of patients with trauma required surgical intervention. Two patients had history of drug intake (one patient was taking prednisolone and other one taking sodium valproate for seizure disorder). Two out of nineteen patients had associated cholecystitis/cholelithiasis and pancreatic lithiasis. Tuberculosis was incidentally diagnosed in 2/19 patients which however did not appear to have any direct correlation.

All patients were managed conservatively, 18/19 patients improved by conservative management. One patient developed pancreatic abscess which required percutaneous drainage and later on improved with medical management. One patient developed pseudocyst. One patient expired within 48 hrs of admission; he had severe sepsis with ARDS with peritonitis (Table 3).

One patient after discharge came with recurrence of symptoms and CT scan was done, suggestive of pancreatic lithiasis and cholelithiasis.

Further metabolic and genetic work up could not be done and CT scan was also done in only 2 patients due to financial constraints.

DISCUSSION

The demographic profile of pancreatitis in children in our study was similar to that reported by Das *et al* 2004. There was a higher incidence in males 63.15% (12/19) compared to females. Most of children were of older age group, with mean age being 9.94 yrs in range (3-16 yrs). This corroborates with other studies in which mean age was 7.4 -10.2.¹⁰⁻¹²

Epigastric abdominal pain was universally present in our study. Similar finding have been reported in other studies as well.⁹⁻¹² Nausea, vomiting, guarding and rigidity were found

	(n)	%	
Sex (males)	12	63.15	
Mean age at onset (3years -16years)	9.94		
Median duration of illness	16 days	(01day-60 days)	
Abdominal Pain	19	100%	
Nausea/vomiting	18	94.7%	
Distension /Lump	6	31.5	
Fever	14	73.6	
Hepatomegaly	10	52.6	
Failure to thrive	8	42.1	
Ascites	2	10.5	
S. Amylase	N	n	%
<200 (IU)	19	2	10.5
200-800 (IU)	19	15	78.9
>800 (IU)	19	2	10.5
S. Lipase (>165)			
<165	15	4	26.67
>165	15	11	73.3
CRP +ve	19	5	26.3
Positive USG Finding	19	12	63.1
CT abdomen positive	2	2	100

Table-1: Demographic profile, clinical and laboratory parameters of Pancreatic Disease

	n (N = 19)	%
Systemic infection	3	15.78
Drugs	2	10.5
Trauma	2	10.5
Cholecystitis and Cholelithiasis / Pancreatic lithiasis	2	10.5
TB	2	10.5
Unknown	8	42.1

Table-2: Etiology of Pancreatitis in children

Pulmonary	19	2	10.5
Ascites	19	2	10.5
Peritonitis	19	2	10.5
Pseudocyst	19	1	5.2
Pancreatic abscess	19	1	5.2
Mortality	19	1	5.2
Recurrence	19	1	5.2

Table-3: Complications

in 94.7% patients and fever in 73.6 %.

Weizman and Durie¹³ considered serum amylase to be the most important diagnostic aid in determining pancreatic injuries. Although serum amylase can be normal in pancreatitis¹⁴, extreme is associated with serious complications of pancreatitis or other illnesses.¹⁵ In Our study 17/19 (89.4%) patients had elevated serum amylase (>200 IU/L). Extreme elevation of serum amylase (>800IU/L) was found to be associated with pancreatic abscess and hemorrhagic ascites. Raised serum lipase was found in 11/15 (73.3%). This was comparable to findings from other studies, with sensitivity and specificity ranging from 86.5% to 100%.^{16,17}

Abdominal USG has been shown to have 80% accuracy in the evaluation of pancreatitis, usually showing decreased echogenicity of the pancreas.¹⁸ It is a noninvasive imaging modality that allows not only for diagnosis of the disease but also for following its course and for detecting complications.¹⁴ USG abdomen was performed in all cases, being relatively inexpensive and noninvasive and we had 12/19(63.15%) patients who had findings suggestive of pancreatitis. As to contrast-enhanced CT, Clavien and Hauser (1998) reported a sensitivity and specificity of 92% and 100%, respectively.¹⁸ In our study we were able to perform CT scan in only 2/19 cases and both had findings suggestive of pancreatitis, though USG findings were normal in these patients.

Spectrum of presentation of pancreatic diseases in children differs from that in adults. Alcohol and gallstones account for more than 60% of cases of acute pancreatitis in adults^{5,6}, but they are rarely a causative agent in children. Etiological profile of children with pancreatic disorder in our study was different from that van *et al*¹⁹ and children hospital, Boston.²⁰ They have reported tumor, trauma, congenital malformations and necrotic disorders as etiology of pancreatic disorder. At our institute we have not been able to investigate extensively which might have reduced patients with unknown etiology. The most common complication of childhood pancreatitis pseudocyst formation (10–25%).¹³ Where as in our case systemic complications (acute respiratory distress, ascites and peritonitis) were most common followed by pseudocyst formation (5.2%) and pancreatic abscess (5.2%).

There is no disease-specific treatment for pancreatitis.¹⁰ Supportive therapy remains the basis of management. All patients were managed conservatively and 18/19 improved on supportive treatment.

Mortality rate in our study was 5.2% (1/19) compared to 3.6% reported by Das *et al*. Variable rates have been reported ranging from 0-26 % by previous studies.^{1-4,10,11}

CONCLUSION

Pancreatitis in children is not so uncommon. Etiology could be established in 58% of children. Patients presenting with acute abdomen should be screened for pancreatitis as well. Early suspicion, diagnosis and proper management are keys to reduce potential complications and mortality.

LIMITATIONS

Because of financial constraints and unavailability of metabolic workup incidence of patients with idiopathic pancreatitis may have been reduced.

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